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THESIS OUTLINE

ABSTRACT

This literature is an attempt towards formulating a responsive project to a particular situation.

The RADI initiative is not yet, standardized.

As field hospitals are sometimes erected to respond to particular urgent situations, architectural projects are sometimes, too. Moreover, they should. Architectural design might go far in intervening to situations, especially when the designed subjects become the indispensable tools to operate some responsive orders, not merely architectural, but also economical, social and ethical...

On the pages to come, the aim is mostly in devising responsive architectural formulae, where the related impacts go far beyond the domaine of architecture.

Accordingly, the detailed spatial and functional analysis, were not similar to the case of any standardized project. MOre likely, it was the case of gathering ,on all levels, the elements of an idea, of a concept where the meaning of architecture counts more, and and the passive duplication of standard types, less.

How far this attempt could have gone, in the present material limitations (non cooperative sources). Noone knows.

American University of Beirut. A 592. Final Project Thesis. Fall 90-91

The Rural Areas Development Institute. RADI. Southern Lebanon.

IHAB Kassem. 91'

ADVISOR: PROF KURDAHI Z.

INTRODUCTION

REVIEW OF LITERATURE

It is not exaggerating to say that all conflicts existing in the middle east have found a very fertile soil in Southern Lebanon. Hence this area became a battle field, and an experimental lab. Its geographical location, near the occupied territory, made it favorable area were all conflicts and wars are expressed.

The overall area of Southern Lebanon is 2278 Km^2, which represents 22% of the total Lebanese land (10452 Km^2).

Goegraphical view: the South is divided geographically and agriculturally into 3 parts which are:

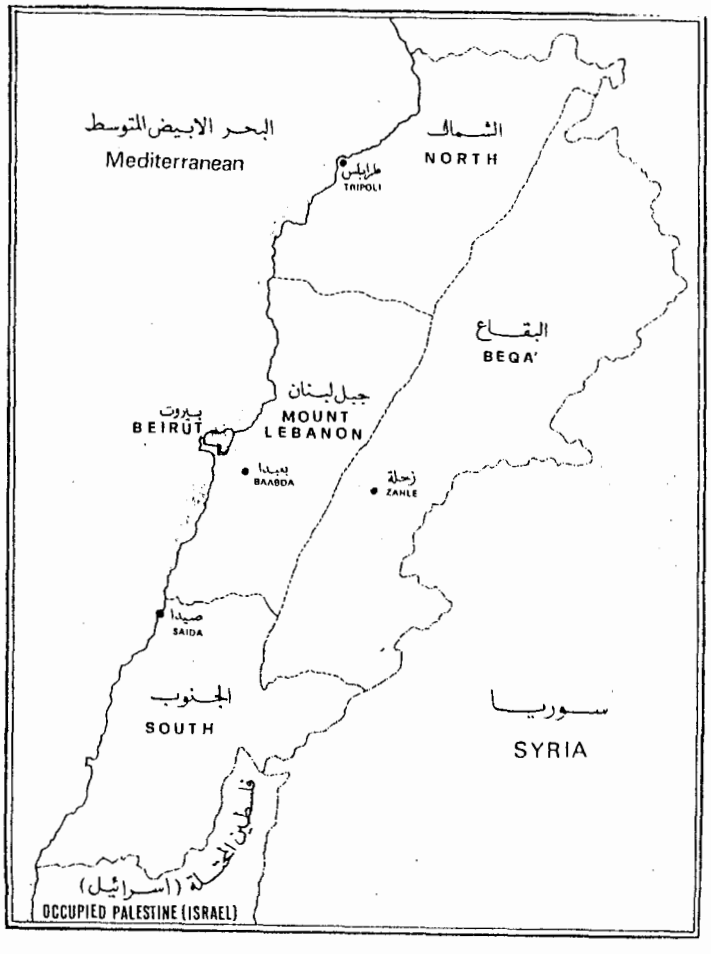
1- The coastal part: it extends from the Oualy river north of Saida till Ras al nakoura, to the south. It is an agricultural land planted by bananas and orange trees. It is 75 Km in length to 2 Km in large.

2-The mountain part: To the east, 800 ms. higher than the sea coast, and accounts for 9% of the total Southern area. It is cultivated by fruit and olive trees.

3-The middle part: In the middle, formed by jabal Amel hill's. Its major agricultural product is Tobacco.

After this brief geographical survey it is important to mention that not all agricultural capacities are being exploited nor the marine fortune, mainly because of Isrealy military interferences in those areas.

Major Southern cities are:
SAIDA, 140000 hab.
TYRE, 53000 hab.
NABATYEH, 48000 hab.
JIZZIN, 15000 hab.
MARJOUYOUN, 21000 hab.



REVIEW OF LITERATURE

BINT JBEIL, 35000 hab.
HASBAYAH, 15000 hab.
KHIAM, 30000 hab.

Agricultural distribution in southern Lebanon is as follow:
-Citrus fruit at the coast, in Saida and Tyre.
-Tobacco in the middle, in Bint jbeil, Nabatieh and Marjouyoun.
-Olive in the middle; Also in Jizzin, Nabatieh, Hasbayah and Marjouyoun.
-Apples, cherries and grapes in the mountains of Jezzin and Hasbayah.

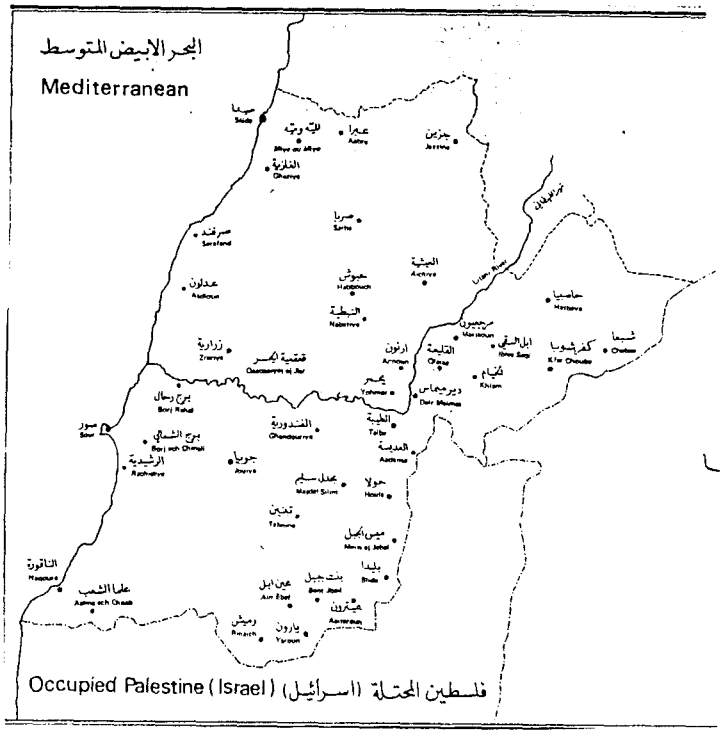
POPULATION DISTRIBUTION

SOUTHERN Lebanon population accounts for 850000 habitats, which is relatively 1/4 of the total Lebanese population; They are distributed on 507 towns and villages; which in turn are divided into 5 mohafazats.

If we have to do a pilot study from the sixties till now, we see that there is a dramatic increase in the population of 3.5 % and it is one of the highest increase in the world.

People in southern Lebanon are facing many economical and social problems, in addition to the over population (375 individuals in one square meter).

Before Israely aggression towards that area, this region was very similar to the rural areas (in fact it is rural, and very primitive). In addition to the damage caused by the constitution of the Israely body, people in the south were obliged to receive new commers, and they were not ready to. The new commers were Lebanese working in Palestine and Palestinian refugies.



REVIEW OF LITERATURE

In a word we can say that southern Lebanon was really underdeveloped. This problem was due to the actual Lebanese socio-economical status, in addition to the govermental negligence to that area because of the political conflict there and the geographical location near to Israel.

SOUTH RESOURCES:
Agriculture is the first source of income in the south. According to a study done by the F.A.O in 1972, the total cultivated land in south Lebanon accounts for 48000 hectars distributed as follow:

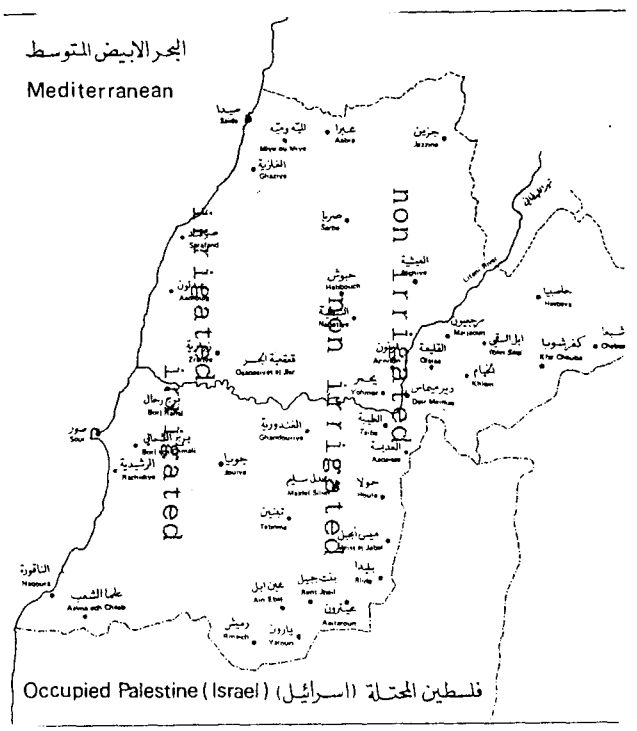
1-82.4% non irrigated.
2-17.6% irrigated.

1-This non irrigated land are distributed as follow:
37.5 % :
12.8 % : Tobacco.
8.8 % : Cereals.
5.8 % : Corn.

2- The irrigated land form the major part of the costal line (78 % of the total cultivated area) and are cultivated by citrus fruit, bananas, and other kinds of fruits.The F.A.O survey showed that those areas are not cultivated well and therefore productivity is much more less than it should be. So those people are not able to exploitate their land to have a maximum benefit and thus they have low productivity, and low socio-economical level.

This agricultural sector declined through out the war period and productivity became negligeble and can not meet the southern population needs. So all factors, especially political, have attributed to the destruction of that economical source .

SOUTH LEBANON



The above map shows the distribution of irrigated and non irrigated lands.

REVIEW OF LITERATURE

In addition to hospitals we may find some health centers but still are very primitive.

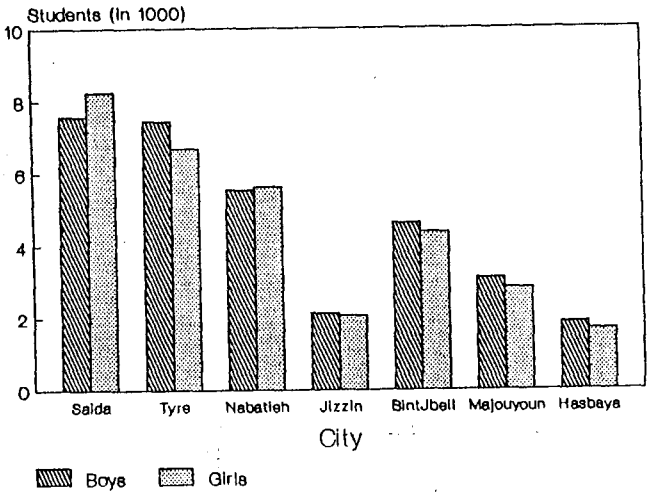
All those problems mentioned above made the life in south Lebanon very difficult, and gave birth to two another serious problems, which will participate in the deterioration of conditions of life. Those two problems are : Emigration and migration

Emigration: In the last three decades it became like a mass emigration. This what happened with most people of southern Lebanon. They emigrate to Seoudia Arabia and the Gulf, to east Africa, American continent and Austrelia. Those emigrants were sending money to their parents who still in Lebanon and therefore helping them overcome some of their socio-economical problems.

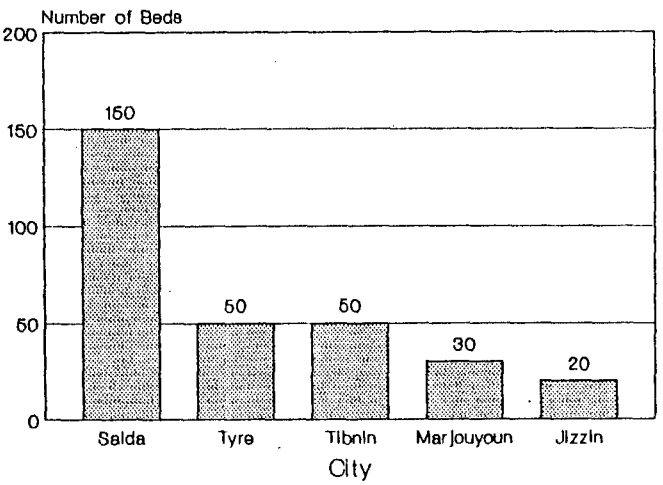
Migration: In fact we do not have specific statistics about the actual number and distribution of those migrants. Scientists did not take into consideration this phenomenon. At the beginning they were not aware of the crisis and they considered it as a normal movement to help in building up of major cities like Beirut, Saida, Tripoly and others. They were aware of the damage that cause this migration to many sectors in the south.

After that brief survey on the problems and the consequences of those problems that the southern population face, we will move to the actual body of the research to clarify this review and to explore new points that precedent researchers have missed or neglected and try to find a solution or remedies to those problems.

STUDENT DISTRIBUTION ACCORDING TO SEX



GOVERNMENTAL HOSPITALS



REVIEW OF LITERATURE

It is important to mention that the government did not take any measure yet to correct the agricultural desfunctionning so this sector became very primitive and neglected with no important rate.

Industry does not play a crucial role in Lebanese economy even before the war. The industrial sector is very weak in south Lebanon. Factories There produce only some kind of light industry, in addition to packaging and raffinary (oil). All those very small factories provide only 10000 place for work.

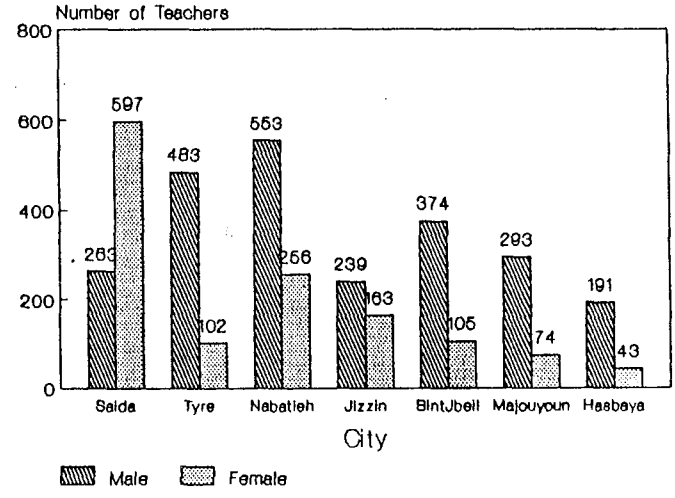
Service Sector accounts only internal trading and before war it was emphasizing on touristic sector which is no more present.

in addition to those problems mentioned above, many problems emerge:
1-Educational level and facilities.
2-Health facilities.

AS far as education is concerned, in the late seventies governmental schools had covered all part of southern area, but those schools are not well equiped and did not give required education. Tables 1,2,3 represent distribution of teachers, schools and students.

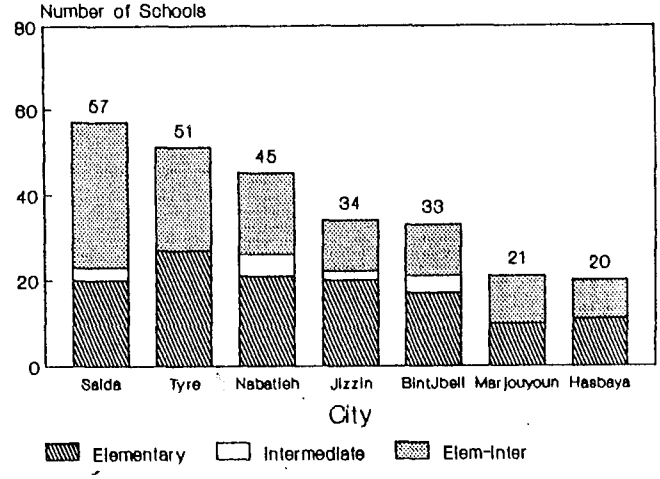
As far as health service is concerned, there is a very big gap between the health service level attained in Beirut and the south. We can go far and say that health services in the south still underdeveloped In spite of the fact that the government try to establish new hospitals and health centers; But those effort still very far to meet the actual needs of the population in that area. Table 4 represent the distribution of hospitals and the number of beds in each.

TEACHERS DISTRIBUTION ACCORDING TO SEX



* Based on the statistics of 1974

GEOGRAPHICAL DISTRIBUTION OF SCHOOLS
Both Sexes

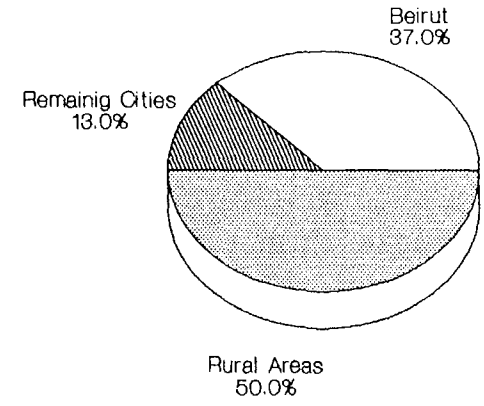


POST-INDUSTRIAL LEBANON AND THE THIRD WORLD COUNTRIES.
A SOCIOECONOMIC FRAMEWORK.

Many third world countries have encouraged rural-urban migration, by investing heavily in industry and services.
Few major cities, housing the entire governmental, comercial and cultural load of the whole nation , started to contrast harshly, with some rural settlements growing unable to cope, in many aspects, with a changing situation. Social and economic inequalities as well as those between cities and country-side, were exacerbated.

Obviously, it is an oversimplification of the issue, through diagnosing standaid syndroms in countries falling under distinct types of pressures, forces, and influences.previous conclusions, however, do state the similar aspect, though each individual country presents particular dimensions of the problem, as much as, of the remedial approaches.

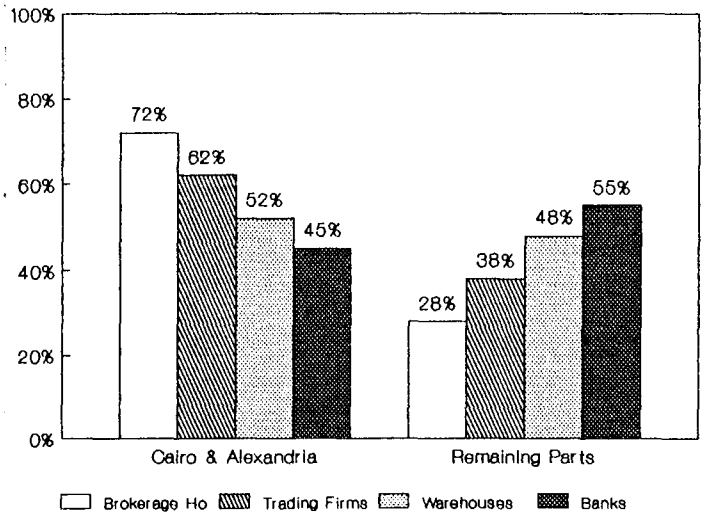
POPULATION DISTRIBUTION CHART



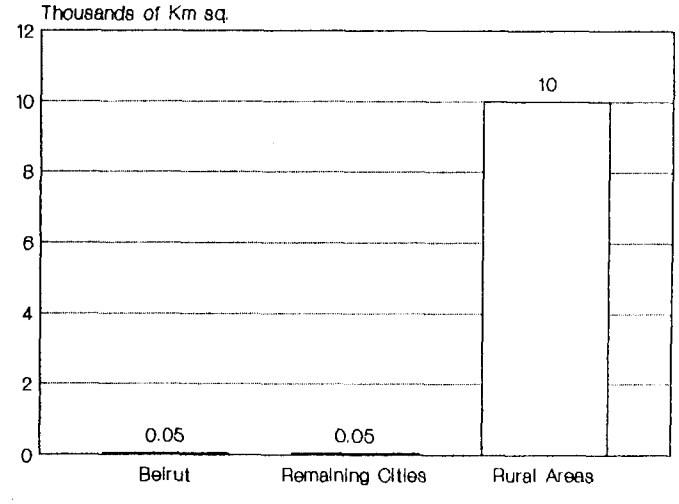
Based on the statistics of 1974

(ABOVE) A CHART showing distribution ratios of the Lebanese community. The large majority concentrating on the smallest extents of area, namely cities. (chart below right)
This characteristic is common to most third world countries (below, left)

INSTITUTIONAL DISTRIBUTION



AREA RATIO CHART

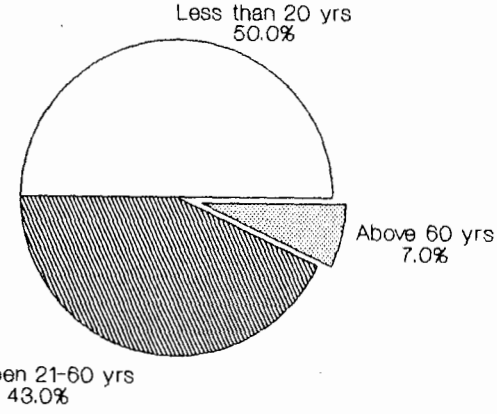


POST-INDUSTRIAL LEBANON AN THE THIRD WORLD COUNTRIES - A SOCIOECONOMIC FRAMEWORK.

Claiming that Lebanon presents a peculiar case in the heart of the third world category, is not a statement made to congratulate this nation, as much as to highlight the peculiar aspect of the related socio-economic, political and cultural symptoms.

Briefly, comparing the Lebanese situation, as far as cultural and economical exchanges are concerned- to other countries in the category, the contrast is obvious.
The fact that the farthest parts of this country could commute to the capital in two hours of car driving, amplified the magnitude of the exchange with the industrial world, especially where this world have interests to manipulate here. This is not a common situation, talking developing countries.

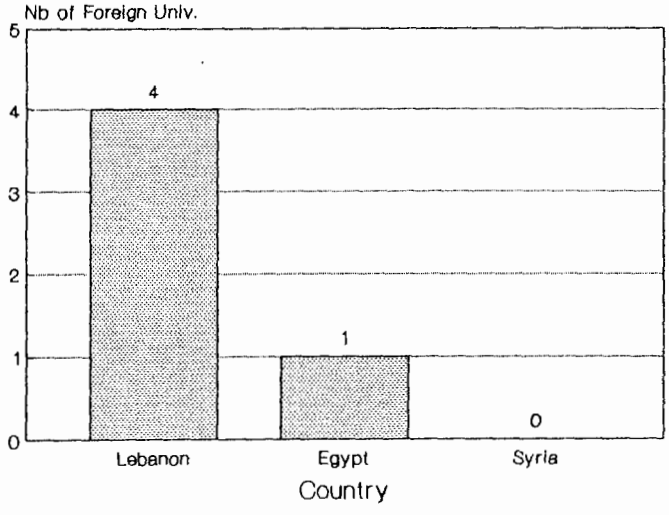
POPULATION AGE DISTRIBUTION



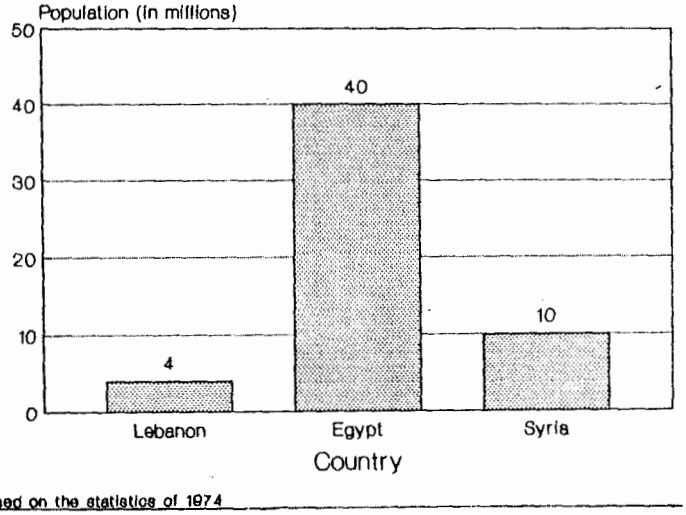
Based on the statistics o 1974

The principal cities in Lebanon are on the coastal plain. In addition to Beirut, these include Tripoly, sidon and Tyre. They handle most of Lebanon commerce and serve as commercial outlets for a wider region that includes Jordan, Syria and Iraq. They are also centers of finance and manufacturing.

FOREIGN UNIVERSITIES DISTRIBUTION



POPULATION SIZE



* Based on the statistics of 1974

Education. Over three fourths of the population is estimated to be literate. Public elementary and secondary schools bring education within the reach of all. Private elementary and secondary schools rival and often excel the public schools. A number of private schools were founded or are still being run by foreign Catholic and protestant missions, or by Muslim pious foundations.

INTRODUCTION

SUMMARY OF PAST SECTION

20TH CENTURY LEBANON: AN INDUSTRIALIZING COUNTRY OF THE 3RD WORLD

INDUSTRIALIZING THIRD WORLD COUNTRIES WERE SUBJECTS TO EXTENSIVE RURAL-URBAN MIGRATIONS AND OVERCENTRALIZATION OF ALL TYPES OF SYMBOLS IN MAJOR CITIES. LEBANON PRESENTED NO EXCEPTION IN THIS CHARACTERISTIC.

DEVELOPING COUNTRIES, INCLUDING LEBANON, RECEIVED SERIOUS NEGATIVE IMPACTS AS TYING THE NATIONAL ECONOMY TO THE INTERNATIONAL SYSTEM, CRISTALLIZED THROUGH A NEW ERA OF TRANSPORTATION AND COMMUNICATIONS.

LEBANON HAD A PARTICULAR STATUS AMONG THE DEVELOPING COUNTRIES. THE NATURE OF THE ADAPTATION, HEREBY, WAS A LITTLE PECULIAR. THEREFORE, THE PROBLEMATIC PHENOMENA OF THIS STATE ARE ALSO PECULIAR. THEY ARE NOT AS BLUNT TO BE SEEN AS THEY ARE ELSEWHERE IN OTHER DEVELOPING AREAS.

A PHOTOGRAPH OF A STREET IN THE SMALL TOWN OF ARABSALEEM IN KLIM AL TIFFAH
CARS & ELECTRICITY PILES

SOUTHERN LEBANON AND THE POST-INDUSTRIAL ERA

On the turning of the twentieth century, southern Lebanon was still the remote home of poor villagers, sheppards and craftsmen. Capital cities of the country, were not temptational destinations of the local inhabitants. Yet the era of immigration, proper, not started, cities were not about to cater for too much migrants. It is, surely, the flourish of international transportation and communications that through establishing in the Lebanese capital a regional node of services, shook severly the prevailing urban-rural statu-quo. Heavy migration started towards the capital. Rural areas were not, at the time negatively impacted. Things could not go worse than they were, on the contrary, the financial support provided by native migrants or immigrants, helped the southern inhabitants to survive and to limit the impacts of industrializing the state. So far, the case was not too complicated to grasp: A poor country side in a developing nation, accordingly, shortage of money, utilities and facilities is not a strange syndrom to understand. However, the curious, complicated and challenging syndroms to analyse, are ones, raised in a stage where Southern Lebanon has considerably deviated from the itienerary of increasingly deteriorating economy.

By the early sixties, Southern Lebanon witnessed obvious flourishing of the local economy, boosted by something like two hundred thousand immigrants and migrants. Coming to exploitation of local ressources, such efforts were, and perhaps still are, absent. As so are the positive impacts on the local economy.

THE SKYLINE OF THE RURAL BECAME STRANGE-LOOKING

AND SO THE VILLAGESCAPE. 6 STOREY BUILDING - A PHOTOGRAPH OF THE SMALL TOWN OF JBAA - IKLIM AL TIFFAH.

ELECTRIC PILES WITH DOCTORS' SIGNS HUNG UPON. INDICATIONS OF A PECULIAR CHARACTER OF RURAL AREAS IF COMPARED WITH THIRD WORLD SITUATIONS.

NEW IMAGES STARTED TO APPEAR, AS RESULT OF NEW PRACTICES. HERE A REPAIR SHOP IN THE VILLAGE OF AIN BESOUAR.

A PHOTOGRAPH OF A STREET SCAPE IN THE TOWN OF ARABSALEEM. STREETSCAPE OR CARSCAPE? THE PECULIAR SITUATION (AS FAR AS SOCIOECONOMICS), OF THIS REGION EXPOSED IT TO PECULIAR SYNDROMS, RARELY FOUND ELSWHERE

Financial improvment done through private initiatives, early as the sixties, naturally, had impacts on the southern rural environment, which, accordingly, started to acquire new dimensions in functions and images.
Financial improvments were also assisted by the enhanced network of roads that, through connecting the country-side to active towns and cities, eliminated the concept of isolated settlements within the state, a concept still existing in most developing countries.

The relatively tiny extent of the lebanese nation, allowed the central government , although not enough efficient, to put its positive impacts all over the country. Of course equality was not their obsession.

It is precisely in this perspective, where community syndroms start to become confusing. A lot more than in the previous perspective of a remote non-privileged country-side.

The wisdom that says "the poorer you are the more you know what you want", could provide an explanation of the going on, situation. The rural community, suddenly invited to acquire brandnew ways of life with totally different parameters from what they have yet, experienced, is perhaps confused, by the complexity of the new game. A game they are not yet, able to master in spite of many attempts which, still, indicate less mastery and more unconsciousness.

SUMMARY OF PAST SECTION

OVERALL SUMMARY

* THIRD WORLD COUNTRIES WERE SUBJECT OF CRUCIAL CHANGE IN THEIR PHYSICAL PATTERNS, SUCH AS, POPULATION REDISTRIBUTION, FUNCTION AND IMAGE ADJUSTMENT AND OTHERS, AIMING TOWARDS RESERVING PLACES INTO THE INTERNATIONAL SYSTEM.

* ADAPTATION PROCESSES IMPACTED THEIR RESPECTIVE COUNTRIES IN PARTICULAR AREAS. LEBANON. THOUGH CATEGORIZED AMONG THIRD WORLD COUNTRIES, PRESENTED PECULIAR SYNDROMS AS COMPARED TO THE CATEGORY.

* THOUGH PECULIAR, THE LEBANESE SYNDROM IS NOT PROPERLY DIAGNOSED THROUGH USING THE THE SAME FRAMEWORKS DEVISED FOR OTHER DEVELOPING COUTRIES. A DIAGNOSIS FRAMEWORK IS PROPOSED, THEN.

THE VILLAGE SCAPE OF JBAA – IKLIM AL TIFFAH - 18 KM SOUTH TO SAIDA

HYPOTHESIS

Hypothesis is a very important key in a research, it is a tentative prediction or a explanation of the relationship between two or more variables, and translate the problem statement into a prediction of an expected outcome. This hypothesis will give a special direction to the research and will be subjected to amperical testing through the collection and analysis of data. Our research hypothesis is :"Peasants will prefer to cooperate with a private sector institutions more than governmental ones to find remedy for their problems".

OBJECTIVES AND GOALS OF THE RESEARCH

As it is known universally, each scientific work such as observations, experiments, and researches have specific objectives to meet. The present work will clarify many points, but the major objective is to test,

-The degree of acceptance of peasants to a private institution, offering exchange services.

-The interest in developing and advancing the daily activities.

-The interest in acquiring new skills in the traditional activities, or brand new vocations, beneficial for the community.

-The preference between selling product of labor against money or against facilities and services.

-The will of the unskilled to acquire new skills in the traditional work and to participate to stand-by-camps.

-To make an overall screening and assessment of the community, regarding the present situation of disequilibrium.

-To determine the ratio of melecia members within the community, to have an idea about the size of the population which is desperate.

-To show that there is an error in fulfilling the hierarchy of needs.

And finally to find a responsive formula.

METHOD OF THE RESEARCH

A-RESEARCH DESIGN:

Research is a key to discovery; systematic and empirical observation should be done in order to have relevant data leading to the desired information. So an urgent need for a special setting or some kind of arrangement to that data emerges; This arrangement is called research design which will give us a framework to the organization and analysis of data.

Usually in every research we should have variables affecting each other, or one having effect on the other. Those variables are of two types: dependent and independent. The independent variables in the previously stated hypothesis are: The market forces and private sector institutions. On the other hand the dependent variable, that we will be dealing with, is political and social impact on peasants. In this research there is a trial to highlight some difficulties that peasant face and to test the willing of those individuals to cooperate with a private sector, proposed as a solution to their suffering. Since there is no control on the independent variable and the concentration will be on finding a solution to an immediate practical problem, so the research will be an applied one. The best design to such kind will be the "EX POST FACTO" and more specifically the retrospective type.

" Ex post facto" is the type of research used when there is no control over the independent variable, and it means from after the fact. Retrospective is when a phenomenon existing in the present is linked to other phenomenon occurring in the past, i,e examination occur after what happened, after variables have occurred. Concerning this subject, there will be examination of the present situation of the peasants, stressing more their lifes.

B-SAMPLE

Population is located in southern Lebanon, more precisely in Nabatieh region. The sample will be 50 males peasants which are mostly involved in agricultural work, age interval would be 20-50 years. We tried to take into consideration the variables that may affect the research, such as marital status, number of children, presence of other members living with the family, age of children, if they are working or not, their socio-economical level. in addition to all those, they should not have any support system, private or governmental agencies, and should have approximately the same educational level (because if they have attained the intermediate classes they have the ability to think in a systematic way in order to find a solution to their problems).

To choose such sample we reffered to the department of personal affairs in the ministry of interior, so we had names with all associated personal informations. The lists of names were reviewed and the files were studied, only those peasants having no children or number is less than 3 children were excluded. These names will be given numbers starting by 1 .Those numbers are distributed randomly so we are not in our choice. Using the T table, which consists of many numbers such 1,14,arranged

METHOD OF THE RESEARCH

randomly, we start by any number, we follow the line horizontally or vertically, each number faced and having one similar digit will be recorded till we have 50 numbers. Individuals having the numbers recorded will take part in the study. This is done to prevent bias in assigning individuals. After that those assigned individuals will be contacted and asked if they would like to participate in the study.

C-LIMITATIONS

Although we will choose 50 peasants, we are not sure that all will participate in the study. Some will not allow themselves to express their feelings, or to admit that essentially the problem exist. Some will not give reliable informations and will be afraid about the confidentiality of the information they will give. On the other hand, a major problem emerges an it is frequent, that those peasants will receive the questionnaire and will neglect it. For all those reasons, we will contact all the subjects that fulfill the requirement of the study, explain that the purpose of the study is to screen their problems and try to find some remedy to those problems. We will emphasis that their security will be provided and that the information they will give will remain confidential and will not harm them nor interfere in the course of their normal life. Finally we will try to give them a very brief and plain idea about the solution, or the design of that solution and try to get from them a signed consent, that they will participate in answering the research questionnaire.

D-INSTRUMENTS

One month later, after we did the procedure explained above, we will send the questionnaires to the desired subjects. Those questionnaires will be submitted hand by hand to each individual separately, and we will give them half an hour to answer them. By limiting the time we are limiting one external variable that may affect our results. The questionnaire consists of items investigating their actual life, their needs, their reactions towards some type of solutions and how much they are following the hierarchy of needs.

E-SCORING

Concerning scoring we divided the questions in a way to prevent bias, and this is by alternating positive and negative questions. Our bias while scoring and interpreting results, and the bias of the peasants. Some people like set responses that is to answer always yes or no. Others like extreme responses according to social desirability. Therefore, we devided the questions in a way that 6 are positive and 7 are negative . Positive questions are those answered by Yes and negative questions are those answered by No, (supposedly , question 1,2,3,5,7,8 and 13 are the negative ones and questions 4,6,9,10,11 and 12 are the positive ones). However, both underline the need for the R.A.D.I. Each question answered negatively will be given 5 points. All negative questions will be added and divided by 7, which is the number of negative items. If the score

METHOD OF THE RESEARCH

is less than 17 (i.e 5×7=35 so average will be 17) Therefore the need for the R.A.D.I. is less .On the other hand, if the score is above 17 a greater need for the R.A.D.I arises. It is good to mention that only those questions answered No and belonging to our list of negative questions are taken into consideration. While those answered No from the list of positive items are neglected.

APPENDIX

A-REQUEST.

In this request we will try to present the questions to the subjects involved, and try to clarify what we want them to do. The questions will investigate many points, concerning their lifes.

We will explain to those subjects that the information they will give, will remain confidential in order to guarantee their participation, and will try to get from them a signed consent that they will participate in answering the questionnaire.

B-QUESTIONNAIRE

All questions will be related to their activities of daily living. Our major concern is to detect what those peasants are doing to earn their living,how they are fulfilling the hierarchy of needs, what they prefer to have as far as help is concern and finally find a solution.

A wide gulf frequently separates the needs of the rural poor as they preceive them and those needs as preceived by the planner and the developers whose intention is to resolve such problems. The latter are often from an urban background where the conditions are very different from those in rural areas, and may even had their training (at home or abroad) in urban situatioons. This gulf between the perceptions of needs is being bridged, sometimes rather precariously, by concepts and actions that depart from the older, conventional method for rural development and these are explored in specific articles. Whether it is through the development of new social institutions i.e AKRSP or economic ones as with the Grameen bank, a key factor is that people themselves are discovering and creating the ways to define their needs, then to set the priorities, and ultimately to obtain the necessary means.

AMERICAN UNIVERSITY OF BEIRUT

Dear citizen.

You were consulted before and accepted after signing a consent form to participate in our research study, concerning your attitude towards the general socio-economical crisis in southern Lebanon. We would appreciate your frank cooperation. In return we promise you that all information you will give will remain confidential, and to be more secure, let the questionnaire be anonymous. Thank you for your cooperation and for helping us.

Answer by Yes or No, or what you find more appropriate, the following questions:

1-Do you have a land?
Yes No

2-Actually are you working in your land?
Yes No

3-Are you refering to some advanced techniques in your work?
Yes NO

4-Do you like to have a help to improve your productivity?
Yes NO

5-Do you have a washing machine?
Yes No

6-Do you have electricity?
Yes No

7-Does your locality have a water supply?
Yes No

8-Do you have a T.V at home?
yes No

9-If you have no land or skill to work, would you participate in a worker´s camp?
Yes No

10-Are you able to manage to sell your product?
Yes NO

11-Are you intrested in a private institution to buy your products?
Yes No

12-If yes, would you accept to exchange products for little money and more facilities?
Yes No

13-Do you prefer the help to improve your productivity, govrnmental or private?

You can use the space below if you have any comments.

اخي المواطن ،

لقد تمت استشارتك من قبل وقبلت بعد توقيعك على قسيمة قبول للاشتراك في البحث المتعلق بموقفك تجاه الازمة الاجتماعية ـ الاقتصادية العامة في جنوب لبنان . ونحن اذ نقدر تجاوبا صريحا من قبلكم . وفي المقابل نعدكم بان المعلومات التي سوف تعطونها ستبقى سرية ، ولمزيدا في الاطمئنان لتكن اجوبتكم غير موقعة . اننا نشكركم على هذا التعاون والمساعدة .

اجب بنعم اولا او بما تجده ملائما على الاسئلة التالية :

١ ـ هل تملك قطعة ارض ؟
٢ ـ هل تعمل حاليا بهذه الارض ؟
٣ ـ هل تستعمل الاساليب الحديثة في هذا العمل ؟
٤ ـ هل ترغب في الحصول على مساعدة لزيادة وتحسين انتاجك ؟
٥ ـ هل تفضل المساعدة حكومية ام الخاصة ؟
٦ ـ هل تملك ماكينة فسيل ؟
٧ ـ هل لديكم كهرباء ؟
٨ ـ هل تملك منطقتكم مصدرا للمياه ؟
٩ ـ هل تملك جهاز تلفزة ؟
١٠ ـ اذا لم تكن تملك ارضا ولم تكن حرفيا فهل ترغب بالاشتراك في مشروع عمل ؟
١١ ـ هل عندك القدرة لتصريف انتاجك ؟
١٢ ـ هل ترغب بان تشترى مؤسسة خاصة انتاجك ؟
١٣ ـ اذا اجبت بنعم ، فهل ترغب بمقايضة انتاجك بقليل من المال وبكثير من الخدمات ؟

ANALYSIS OF THE DATA

After collecting the questionnaire, which is our mean for data collection, we did a pilot study to see what was the general opinion of those peasants, and we find that approximately all of them agreed on the private sector which will help them to overcome their difficulties.

We said in the scoring system that we have two kind of questions, the positive once and the negative. As we said previously, each question answered negatively will be given 5 points. we have 7 negative questions, so the average will be 17, if we have to round this number we will end up with the average 15.

It is important to mention that our sample is 50 peasants and that all those peasants sent back the questionnaire.

You will find below the scientific analysis of that data.

Frequency distribution:

It is a systematic distribution of numerical data (we mean by numerical data here, the score of the questionnaire of each peasant) from the lowest to the highest, together with a count of the number of times each value was obtained.

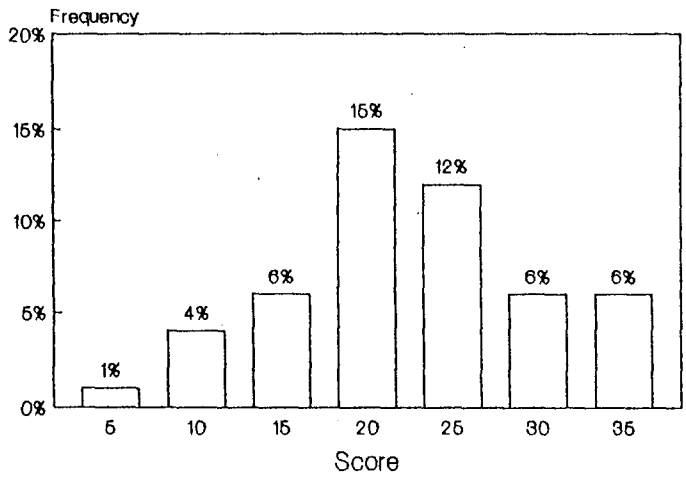
The following questionnaire scores were obtained.

15,20,25,15,20,10,15,25,35,20,20,20,25,
15,10,20,20,25,30,35,35,15,20,20,20,15,
25,25,35,20,20,25,25,10,30,35,30,25,20,
25,10 ,5,20,20,25,30,30,35,25,30.

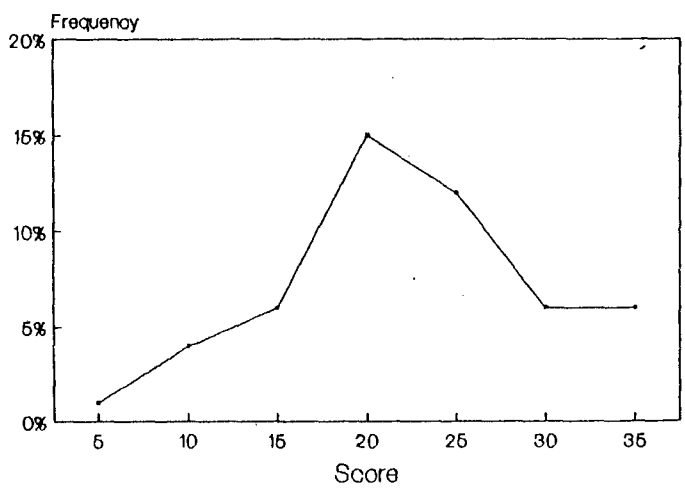
The frequency distribution will be shown in the chart A.

We can notice that a very high number of the scores was above the average which mean that those peasants, apparently agreed with the help proposed.

FREQUENCY DISTRIBUTION OF QUESTIONNAIRE SCORES



FREQUENCY DISTRIBUTION OF QUESTIONNAIRE SCORES (Polygone Diagram)



ANALYSIS OF THE DATA

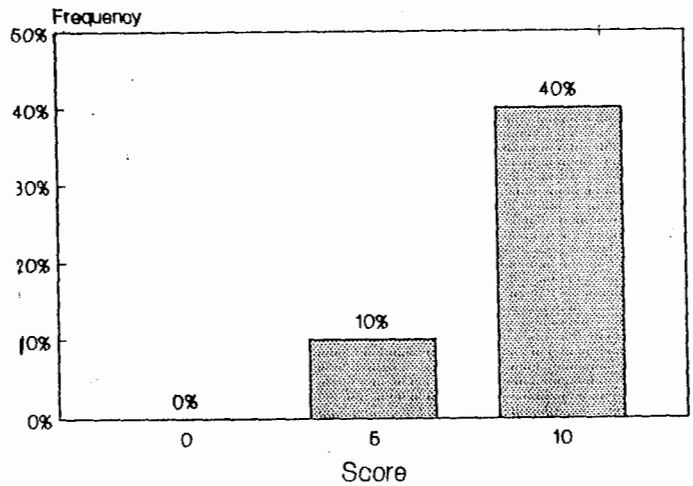
As far as the questions concerned with the hierarchy of needs, we have 4 questions so will have 2 groups, or 2 types of questions: positive and negative. We will take the positive questions and give 5 points for each; average will be 5, if the score is above 5 this will explain that the fulfillment of needs follow a wrong way. Those positive questions are:
1-Do you have a washing machine?
2-Do you have a T.V?

The above average scoring mean that those peasants give importance and big part of their budgets to things which are not essential in life (T.V, cars, washing machines) .

On the other hand the very essential needs of life are not available, such as water supply, sewage disposal system, and electricity. This information was taken from what we called negative questions; scoring was almost zero and rearely 5. From the 50 subjects, as far as positive questions are concerned, we had the following data:
40 subjects scoring 10/10.
10 subjects scoring 5/10.
no one scores 0/10.

This will give us a very clear idea about the disequilibrium in meeting their essential needs.
The following table will show the frequency distribution.

FREQUENCY DISTRIBUTION OF QUESTIONNAIRE SCORES OF HIERARCHY OF NEEDS



CONCLUSION

The over all work is done in order to reach a very reliable information; reliable, because in this research the scientific method, with all its controls, is used in the collection and analysis of data. Upon these information will be based the guideline of a new responsive system.

During this course important observations were done. The major problem that those people face is the lack of planning, in all vital domains. So the researcher showed that those peasants lack services, insurance and have a very great distortion in fulfilling their needs; i.e they were looking for luxury before meeting their basic needs.

As far as services is concerned, those subjects did not have any water suuply, sewage deposit system, electricity, nor any component of modern life in the twenties' century. On the other hand those people feel insecure, especially because of the Israelo-Arab conflict, which found their land fertile to be nourished and to mature. Finally, all those factors contributed, in a way or another to create some kind of chaos concerning fulfillment of needs. Accordingly those peasants were buying T.V sets before having water supply at home, or before having electricity, simply because it was a sign of modernization.

A FIELD SURVEY

Physical environments are quite indicative of the forces that shaped them. Namely cultural and socio-economic considerations. The way a man dresses, tells a lot about his individual personality. The way a SOCIETY does, reveals the collective one...
And society dresses with built environments.
Accordingly, is visual survey is highly promising, not only, for detecting the needs of the community in question, but also for it reveals indicative elements of the related collective personality.

Familiarizing with the community personality, might serve for reinforcing aspects of it, as well as for shaping other ones (aspects).

*A VILLAGE FABRIC IN THE LOCALITY OF AIN BOUSOUAR - 18 KM S.E OF SAIDA INTRICATING RATIONALE OF MANIPULATING THE FABRIC.

STREETSCAPE IN THE LOCALITY OF HABBOUSH - 25 KM S.E. OF SAIDA.

A FIELD SURVEY

Two features do strike a new comer to the south. On one side, some inspiring landscapes, on the other, a complex manipulation of concrete boxes, presenting an intricate collage of architecturally competing elements and stylistic features. A strange mosaic of colors and textures... The only common adjective to all these languages, is confusion... Far from spontaneity, yet far from sophistication, the visual messages are backed by no apparent rationale but that of direct-reflex-attitude towards towards duplicating stereotyped concepts and notions.

HOW CAN RURAL VERNACULAR ARCHITECTURE BE FAR FROM SPONTANEITY?

The rural building mentality, especially in poor countries, is generally characterized by spontaneity due to the fact that building process is completely dependent upon the available, in terms of design level, materials and building technology. and usually the three cited variables are stereotyped for being utterly dictated by the nature of the only available material (in a certain financial range).

This is not the case of southern Lebanon...

THE LANDSCAPE...

THE NATURE...

The large scale commercializing of industrial cement, since the early sixties, as an important market force, realized successful devastation of any alternative building material. For vernacular building purposes, cement is easy to find, with high workability and constructional flexibility.

* Qualities of concrete as material, are **RELATIVE** ONES, TO OTHER ITEMS OF THE MARKET. ONCE SEARCHING **OUTSIDE** (this market), is considered, mentioned qualities of cement might become, also relatively, weaknesses.

AND THE HUMAN INTERVENTION!

A FIELD SURVEY

A GROWING TREND OF COMMERCE ...
-VILLAGE RAW OF SHOPS- (JBAA)

CONCRETE CAN DO BOTH! ...

Two considerations came to assist the market forces towards spreading concrete as a building technology.

The function of the lebanese capital Beirut as a service node on the regional level (especially after the occupation of the Arab Territory including major seaports), returned with economical relief exploited, partly, by the central government to initiate a network of roads tying almost every small locality to some city. Rural-urban arteries allowed marketing entrepreneurs to reach the remote settlements with their hard, grey dusty merchandise. The relatively tiny area of the state, helped spreading this needed item over the whole extent.

1956 earthquake that erased entire villages from the face of the earth, raised the request of a mass construction system, as to house thousands of people, homeless. The central government distributed large quantities of cement on loan basis, and whole brandnew localities emerged onto the ground.

As needless is gowing for historical research to survey this radical change in the imge of the environment, fifty to sixty-years-old people were interviewed. They could recall, "just as if it was yesterday" a completly other scenario of building as they tried to redraw the image of, what they thought, was the villagescape, fabric, image,...

Evolution of vernacular architecture in southern Lebanon, presented an obvious clear cut between pre-concrete period and post-concrete.

Centuries of continuity in heritage and traditions, were interrupted some fifty years earlier, apparently, for good.

A FIELD SURVEY

Concrete is easy to handle...
It is solid and safe, at the same time smooth and malleable, but more important than that, it is available and relatively cheap.

Practicality, flexibility and potential of cconcrete, make this material at equal distance between elegant and horrible, appropriate and casual, between pratical and awkwar.d

The way concrete is used, in the vernacular architecture of Southern Lebanon, presents a, more or less, a conventional value judgement, cristallized through years of NON_PROFESSIONAL manipulation of this industrial material, critical to handle, especially in natural character sites.

In this perspective, aesthetic attempts over this material, are yet stopped at the edge of integration with the design, without being repulsed by the nature of the material, design or both.

The defficiency in grasping the essence of concrete, what goes with it and what defeats it, as dictated by its own nature, made the community master builders unable to preserve its limits, on one hand, and to compromise building variables (form, function, aesthetics,...) without one of these is overdone on the expense of others. Overdone, hereby, does not mean oversolved.

Overdone may probably be, still unsolved.

CONVENTIONAL VALUES GOVERNING ARCHITECTURE
CUBIC SHAPE, CENTERED SQUARE WINDOW, NARROW LONGITUDINAL VERANDA (NOT USED).

THE RESULTING EXPRESSION OF A VILLAGE FABRIC.

A FIELD SURVEY

Failing to meet an equilibrated compromise among building variables within the concrete technology, is yet an edge. achieving harmony between natural landscape and the appearence of cement, is a sharper one.

Concrete is an industrial product. It is a man-manipulated material. Accordingly, the way to use it, the images to be connotated, then, are highly controversial. Modernists believe having achieved miracles out of reinforced cement. these same believed miracles are perceived by other school theoraticians as silly meaningless boxes. It is the word of a man against that of another man, over an issue suggested by a third man. Who is right and who is wrong? Noone is sure.

Man_made or man-manipulated systems, hereby, do contrast with the natural systems, where controversy is not that open. natural materials do dictate particular constructional rules without which, man cannot operate. Right and wrong begin to self-identify, conviction grows, of course with respect to the situation. ten stoty brick buildings are not convincing, and so might be one storeyed buildings in the rural country-side. Both systems would be defeating their presence, intended to fulfill particular requirements, they are ignoring.

Natural materials cannot invade cities, because of their defficiency in fulfilling city development requirements, and also because natural materials, are not adopted by interested entrepreneurs. In parallel with this logic, it is known that industrial material has invaded the country-side. It is also known that many international and national manufacturers and entrepreneurs are interested in dissipating this material, and they have made tremendous efforts to implement it, in the abscence of any other alternative. Knowing all this, TO WHAT EXTENTS, IS IT BELIEVED THAT CONCRETE DO RESPOND TO THE REQUIREMENTS OF THE CONTEXT, SINCE IT COULD BE IMPLEMENTED WITHOUT RELEVANCE TO BEING APPROPRIATE OR NOT?

CONCRETE IS TOO FLEXIBLE TO ACHIEVE RICH OR MODEST HOUSING. IT IS THOUGH HIGHLY CONTROVERSIAL IN ITS OUTCOME.

UNLIKE INDUSTRIAL MATERIALS, IE CONCRETE, NATURAL MATERIALS (STONE, BRICK,...) PROVIDE ALMOST NO CONTROVERSY OF OUTCOME. IT CANNOT BE MANIPULATED OTHERWISE.... HENCE, HIGHEST CONVICTION IS PROVIDED

A FIELD SURVEY

THE FLEXIBILITY OF THE MATERIAL MIGHT ENCOURAGE OR AT LEAST ALLOW THE CASUAL USE OF IT

PERHAPS, MASS DIFFUSION OF MATERIALS WITH HIGH CONSTRAINTS WOULD HELP IN AVOIDING THE GROWTH OF THE PICTURE ABOVE.

The casual use of a delicate system i.e. concrete, is not THE defficiency of the community, but a sign of a more substantial one (defficiency), which is the total dependence upon the available at the market, as if it was the only alternative.

This statement, oversymplifying the diagnosis, suggests, however, three relevant issues to stop at.

FIRST. The community by by their own means, background and culture, are unable to refuse a widely spread system, furthermore, the only known technology. Simply, they do not deal with deep validity analysis. It is quite enough to request, through a building system, minimum conditions of comfort, catering and economy.

SECOND. Professional, supervision, care and help are always abscent. Without these, the peasants and residents of the countryside, will not consider any substantial modification in their shaping of the environment.

THIRD. **The market forces thrust** will continue increasing, as long as local and foreign manufacturers will continue to run business. The number of "city entrepreneurs", permanent marketing agencies diffusing their products, is quite indicative.

FOURTH. The abscence of competition among alternative building technologies, has achieved stereotyping community conventions and practices.

* the former remarks, in fact were stimulated by many daily-life phenomena, in the community in question, however, the scope of this analysis is the building technology stereotyping, and the impacts of that upon the physical environment, as far as responsiveness and image are concerned.

INTRODUCTION

SUMMARY OF PAST SECTION

A FIELD SURVEY _ VISUAL ANALYSIS

PHYSICAL ENVIRONMENT ARE SELF REVEALING IN TERMS OF SOCIETY CHARACTER AND VALUE JUDGEMENT.

PHYSICAL ENVIRONMENTS IN SOUTHERN LEBNON, PRESENT MORE OR LESS, IDENTIFIABLE SYNDROMS.

* EXTENSIVE USE OF DELICATE MATERIALS, WITH NO APPARENT UNDERSTANDING OF THEIR ESSENCE, LIMITATIONS, AESTHETIC LANGUAGE, KNOW-HOW OF DETAILING,...

* MORE RESPONSE TO EXTERNAL FORCES RATHER THAN URGENT NEEDS OF THE COMMUNITY.

* EXAMPLES OF ENVIRONMENTS LACKING SERIOUSLY IN PUBLIC FACILITIES AND UTILITIES, BUT IN THE SAME TIME EQUIPPED WITH GAS STATIONS, TOO MUCH CARS, WASHING MACHINES AND TV's.

* THIS STATE OF DESEQUILIBRIUM AND UNCONCIOUS BEHAVIOR ARE SIGNS OF PRE-MATURITY IN ACQUIRING SYSTEMS, WAYS OF LIFE AND INVENTIONS NOT KNOWING HOW TO USE WITHOUT HARM.

TOO MUCH CARS, CONSEQUENTLY MAINTENANCE BUSINESS ACTIVATING EXTERNAL MARKET WITH LOCAL MONEY, IN THE SAME TIME WHERE SUCH EXTENSIVE USE OF INDUSTRIAL INVENTIONS, IS SERIOUSLY QUESTIONED.

_ SHOULD EVERY INDIVIDUAL COMMUTE DAILY WITH A PRIVATE CAR TO A PARTICULAR CITY WHERE HE MANAGED TO FIND WORK?

_ WHAT IF WORK, BENEFICIAL FOR THE DEVELOPMENT OF THE RURAL, IS PROVIDED WITHIN THE LOCALITY, AND NO MORE NEED IS THERE TO COMMUTE TO ANYWHERE, HOW MUCH SAVING IS DONE BY PERSON? OF COURSE, IT IS A NARROW EXAMPLE, HOWEVER, ON A COLLECTIVE LEVEL, WHENEVER DECISIONS ARE MADE TO RE-ADJUST THE HIERARCHY OF NEEDS, SO THAT INVENTIONS ARE USED AT EXTREME NECESSITY, HENCE, FACILITATING LIFE AND NOT COMPLICATING IT. RESULTS COULD BE FAR MORE SIGNIFICANT.

CAR JUNK IN THE VECENITY OF THE VILLAGE OF JARJOU'- 20 KM N.E. OF SAIDA

AN INDICATION OF THE NATURE OF CONSUMPTION THERE.

A SOCIAL SURVEY

Socially speaking, the rural areas of Lebanon underwent the same forces, as many poor societies of the world, and therefore presented almost the same defficiencies. Of course, with post-industrialism, these defficiencies became more substantial in their meaning, as well as in the means of dealing with them.

Over-sized family due to a consideration of extending the manpower capacity of the Manpower is used either in the private occupations within the family, or in public tasks of labor.

Naturally, such a household is beyond the care and support of its leader. growing sons are to take many early, hence, pre-mature decisions scarcely straightened by wise parently opinions.

Inappropriate orientation, concerning younger generations, provides the continuity of the over-sized family defficiency. and vice versa.

Inappropriate orientation, presents a problem, not only on the household level but also, on the whole community level. Whenever too much people are doing the wrong careers, many others filling more inappropriate functions, not only the society is being inefficient, but the elements also, since they cannot express their full potentials unless in the right position on the appropriate job.

Governmental plans, in this perspective, aiming towards some school or community hospital or whatever, present no potential in achieving the community order. Of course, such a task needs in addition to specialization, professional teams, where each of them is responsible for servicing a particular community, of course within its range of capacity.

NEW PRACTICES HAVE REACHED THE COUNTRY.

WITH NO APPROPRIATE ORIENTATION, YOUNGSTERS END UP LEARNING VOCATIONS ON THE EXPENSE OF MORE BENEFICIAL OTHERS.

THE UNCONSCIOUS ACTIVATION OF AN URBAN MARKET IN THE RURAL, CREATES A CONFUSION IN VOCATIONAL ORIENTATION.

Processes of rural development are often accelerated, with the entrepreneurs from urban bases moving rapidly to provide everything from seeds and fertilizers to money-lending services and consumer goods. These same entrepreneurs use the road paid for by the villagers -and perhaps even build by their own labour- to ply their wares, to offer taxi services, or simply to move in and purchase land previously inaccessible for their own commercial ends. The evidence showed that the market economy, in such instances, can be an essential ingredient but also a dangerous one in the development process if controls are not built in at the outset.

AN ECONOMICAL SURVEY

Industrializing the state crystallized two contrasting concepts. The "city of wonders" versus the rural of poverty". Post-industrialism, for particularly "capable countries", envolves the exploitation of all available potentials, natural ressources, human labor as well as mind. Financial income ,maximized by industry, heavily concentrated in specific complexes, is used (income), for the development of non-industrial areas. This simple description of how industrial states, attempt national redistribution of potentials, as to reach, with time, a compatibility in the standards among the different sub-areas in these particular countries, is established to contrast with the developing countries' model, where "borrowed industry", concentrated in urban vecenities, is not only modest in income-generation, but also empty poor rural environments from their habitation by attracting these cheap workers towards the lines of factories. To prevent tackling these issues, which are beyond the scope of this study, the following is to be noticed:
Lebanon followed the second model while entering post-industrialism.

Cities, mainely Beirut, boomed due to regional considerations. Services prooved to be a high income-generating field. Investing in services is less capital consuming, and highly secure. Hence this sector grew extraordinarily on the expense of potential others.

Rural areas not only remained discarded in terms of development plans, but also, shifted drasticly towards services, though, subtantiating the lack of society image-identity.

A GAS STATION IN THE SMALL LOCALITY OF JARJOU'.
DOES EACH SMALL LOCALITY NEED A GAS STATION!

OR MANY SHOPS FOR CAR SPARE-PARTS AND REPAIR...

IT IS AN OBVIOUS SHIFT TOWARDS SERVICE AND COMMERCE...

INTRODUCTION

AN ECONOMICAL SURVEY

REVIEW:

"ECONOMY OF LEBANON AND THE ARAB COUNTRIES", states the following:
Without any doubt, many factors and situations, internal as well as external, stood behind the economical prosperity of the post-independence period, namely the geographical location and the palestine crisis in 1948...However, this succes in scoring high national income, is not a substantial success, nor a permanent one. The observer might identify through prosperity and high income, basic weaknesses of potential destructive impacts, in the future.
FIRST. Dependence of the service sector upon external demand. The drawbacks of that is in the fact that services are mostly influenced by advertizing and marketing on one side, by the trends and moods of the consumers, on the other... a lot more than agricultural and industrial sectors are. Especially that many states are advancing seriously towards discarding foreign services. One of the examples is the improvment of the Ladikiah port in Syria, as to drop the need for the service of Beirut's seaport. So was done in Jordan with Al-Akaba port.
SECOND. Defficiency in developing the human skills...
The primitive-nature of demand for Lebanese services assisted to underestimating the necessity of enhancing service skills, methods and techniques.
The result of such defficiencies affected the other sectors, besides the service sector. The first indications are the non competitive level of the manufactured products, when coming to the international exporting market, as well as that of the service skills.

Shifting from agriculture an crafts to services, by itself, might not be a defficiency. On the contrary, services provide additional potential income. The drawback of the shift is precisely in harshly discarding basic sources of income, as believed throughout the world and in all cultures. (agriculture & crafts)

Service sector is not always based upon supplying valid needs, but rather upon running trends. Therefore, societies unqualified to set orders of priorities, according to valid hierarchies, and most developing developing societies are, would fall into the market trap i.e. consuming what the market is interested in selling, rather than, what the society needs, more than any other, in the present time.

Groups who could not shift to service business, or chose not to do, face all types of difficulties in their jobs, in the lack of any institutional care, assistance or insurance. and perhaps this is the major factor in the lack of security pushing the rural community in different directions.
Exploitting this group became possible.

Services flourished in the coastal cities of Lebanon. Particular forces that contributed to this movement, are not present in the situation of rural areas and vice-versa. Therefore, the ideal aspect of economy that might be acquired, is to emanate from the forces present in these areas and through their particular relationships with the rest of the state or world.

INTRODUCTION

SUMMARY OF PAST SECTION

AN ECONOMICAL SURVEY

* INDUSTRIAL COUNTRIES, THROUGH HIGH INCOME GENERATING INDUSTRIAL INVESTMENTS, FINANCE SIGNIFICANT DEVELOPMENT PROJECTS AS TO ACHIEVE THEIR MINIMUM STANDARDS OF LIFE. DEVELOPING COUNTRIES, THROUGH WEAK BORROWED INDUSTRIES, EVACUATE THE RURAL AREAS BY ATTRACTING FROM THERE, CHEAP WORKING LABOR...
LEBANON FOLLOWED THE SECOND MODEL.

* THE RURAL AREAS PRESENTED THEN, SYNDROMS OF IMMATURE SHIFTS FROM AGRICULTURE AND CRAFTS TOWARDS SERVICES. SHIFTING, THOUGH IS NOT A DEFFICIENCY BY ITSELF, BECOMES SO, WHENEVER THIS SHIFT IS DRASTICLY SMASHING THE ESSENTIAL RESPONSE OF THE RURAL COMMUNITY TOWARDS EXPLOITING ITS RESSOURCES. IT SHOULD BE CLEAR THAT THE FORCES THAT SHAPED THE ECONOMICAL ASPECT OF CERTAIN LEBANESE CITIES AS BASED UPON SERVICES, ARE NOT THE SAME ONES PRESENT IN THE RURAL AREAS. THEREFORE, RURAL ECONOMICAL SCENARIOS SHOULD BE CONCEIVED AS TO SUIT THEIR CONTEXT AND NOT BE ADOPTED FROM EXPERIENCES ELSEWHERE. ACCORDINGLY, THROUGH PARTICULAR PRIVATE INSTITUTIONS CARRYING OUT PLANNING OPERATIONS ON THE BASIS OF RESPONSIVE GUIDELINES, LESS BENDING TO THE EXTERNAL MARKET THRUST WILL BE ACHIEVED.

REVIEW SUMMARY

* DEPENDENCE OF SERVICE SECTOR UPON EXTERNAL DEMAND MAKES A FLUCTUATING SECTOR.
* THE LEBANESE EXPERIENCE OF SERVICE SECTOR NOT ONLY CAME ON THE EXPENSE OF AGRICULTURAL AND INDUSTRIAL SECTORS, BUT ALSO ON ITS OWN EXPENSE DUE TO THE SERIOUS DEFFICIENCY IN DEVELOPING METHODS AND HUMAN SKILLS RELATED TO THE SERVICE SECTOR.

THE RURAL GROUPS THAT COULD NOT SHIFT TO SERVICE, OR CHOSE NOT TO DO, FACE ALL TYPES OF DIFFICULTIES IN THEIR JOBS DUE TO THE ABSCENCE OF ANY MEANS OF ASSISTANCE OR INSURANCE IN ADDITION TO BEING EXPOSED TO ORGANIZED EXPLOITATION AND RUBBERY.

CEMENT CONSTRUCTED SHOPS ON MOUNTAINS OF STONE....

THE SMALL LOCALITY OF JBAA

18 Km S.E TO SAIDA.

DEFICIENCIES OR MEANS OF SURVIVAL?

It has been said "The poorer you are, the more you know what you want". This simple peasant wisdom has been also interpreted in the Maslow´s hierarchy of needs. Poor areas urban settlements around the world, are firmly characterized with spontaniety, direct true responsiveness and strong identity. The key aspect of such settlments is conciseness. The physical environment might not be outstandingly efficient in terms of certain utilities, however, the overall rational cannot be argued. It could be a tiny brick, stone or even a small piece of bamboo that dictate a whole urban scheme, and then it is not dared to question the system taught by a little piece of material, because it is amazingly there, with no possible other alternative.

Isn´t the idealism of economy? in this? Is it a school in efficiency and survival? Or is it just slums building up?

Many questions might be raised, yet they remain without clear answers. The only sure reality about the architecture of the available, is that it cannot be otherwise. Perhaps this is mastery in design, producing a concept that admits no other alternatives, or variation on it.

Perhaps that surrounding nature can attribute to helpless creatures, the title of "master designers".

Though substance and power of architectural statements are of inverse proportional relationship with availability and variety of material and technology, does this assumption suggest that the more technology, implies the less need for design? It could argued for pages over this issue without reaching any answers. Design, a need was it or not, is an instinctive attitude of man and the variable that should be questioned, then, is the level of comprehension and conviction presented by design rather than if design should be practiced or not. At this stage, it becomes relevant to raise the following: what is the relation, if any, between availability, variety, choice on one side and the level of understanding, conviction, acceptance on the other side?

Theoretically conviction occurs whenever no better alternative is conceived. Providing diversity and variety means broadening the scope of choice criteria, and hence delaying conviction. This is the explanation of why responding to design limitations enhances the conviction of the outcome. Ultra-human limitations, immediately or with time make the conviction and acceptance of design. Aesthetic gestures do not...

Availability of systems that could work in more than one discipline, leads to serious challenges towards reaching convictions.

It could be argued much longer about a reinforced concrete design subject. The manipulation of spaces within, the structural system, the facade expression,... could form numerous optimum combinations, but which to choose and on basis of what criteria, if functionality and stability could be achieved in multiple compromising solutions, it would be a hell of job to detect THE most suitable design. The margin left for the architect is wide. His or her aesthetic or subjective value judgement might not be enough.

Such controversy would not occur over a mud brick house, where smallest detail of space or structure is utterly dictated. In this perspective, right and wrong start to self identify. Human subjective impressions count no more. However conviction is carried out to the endth degree. One can accuse such design as "ugly", yet claiming that without it (the design), he would do fine, is not attempted.

Yet the analysis is being carried through comparing two abstract models. The dictated (restricted material and technology), versus the manipulated (choice of material and technology). The analysis itself is highly abstract. This basically due to specifying no requirements (space accomodation, climatic conditioning....) once basic requirements are imposed, one model will show adequacy on the expense of the other. Every set of requirements is more responded to by a particular mode or prototype.

In this perspective, conviction is the amount of responsiveness to particular sets of requirements.

Hereby, requirements involves not only the pragmatic and functional, but the ethic and emotional as well.

Even prize-winning examples of modern architecture are seldom popularly embraced.

Public apathy is largely due to the fact that the majority of people are distributed by the sterile appearance of modern buildings and are not interested in the intellectual ideas that buildings represent.

Whenever Western civilization has penetrated, impersonal forms intrude upon the traditional profiles of cities, towns and villages. Whereas even as recently as ten years ago the traveler found unexpected delights, he is now faced with stultifying predictability in the architecture. He flies New York to Beirut- or Kabul or Delhi or Hong Kong- and hardly knows that he has changed countries.

In spite of the generally held belief fostered by modern architecture that technological societies share a common cultural denominator, each culture retains strong links to its own past. One way of expressing this connection is through visual traditions, but these have been intentionally excluded from modern cities throughout the world. The spiritual loss is real and people of all cultures sense it.

INTRODUCTION

CONCRETE MANIPULATION

THE VILLAGE OF KAFAR-FILA

IKLIM AL TEFFAH

14 KM S.E TO SAIDA

MANIPULATED MODELS, SUCH AS THE STRUCTURES SHOWN IN THE PHOTOGRAPH, REMAINS HIGHLY CONTROVERSIAL, ESPECIALLY WHEN HANDELED BY NON-PROFESSIONALS.

VERNACULAR ARCHITECTURE IS THE MOST CRITICAL

VISUAL IMPOSITIONS

The proponents of modern international architecture say that its universal form-language is the logical outcome of a rational approach to design with new materials and techniques. The bewildered onlooker is told that these new forms, devoid of heritage, are "functional" or "economical" or "dictated by new materials and techniques", but these are simply rationalizations for style preferences. There is no practical inevitability to modern forms.

Modern architecture intentionally defies its older neighbors rather than standing beside them in peace. It tries to shock upon the new architecture.

After fifty of indoctrination the majority of the public remains indifferent or hostile to the modern aesthetic. The predicted universal acceptance of modern architecture has never come to pass.

Evidence shows that throughout the world modern architectural and planning ideas have failed wherever the architect disregards the social and aesthetic values of the user. Some signs of this condition include:

A growing reaction against modern buildings in traditional contexts that try to be "different" rather than fit in. And a new disposition of non-western cultures, which formerly accepted modern architecture because of a sense of cultural inferiority, to try to recapture their own traditional visual and social values,

The disillusionment with modern architecture came about because architects imposed their values on a public that did not share them.

Established comparison between the "Dictated model" and the "Manipulated model", in the abstract, highlights the definition of these two situations. However beyond this, the aim of this argumentation is establishing correlations between each of these models, on one side, and the forces suggesting it, (the model) on the other side.

It has been stated earlier in this analysis, that a typical situation-model is stressed as the final outcome responding to this particular situation. Hence the originator set of forces is present in this very situation. Whenever this model looses its relation with the forces of its environment, this means that this model is responding to forces from elsewhere. Then, the model becomes an alien fingerprint in his context.

Argumentation, though, aims towards investigating the originator sets of forces backing, nowadays, the practice of each model. Hence, whenever shifts are detected in these sets of forces, so that they have become cancerous sets, in tthe sense of emanating from elswhere the needs and the prospects of the context society.

Based on the preceding, it could be stated through deduction, that "dictated models" are actually the ancestors of the manipulated models. It is only in the post-industrial period, with the invention of of industrial man-manipulated materials and technologies, that rose the issue of truth and responsiveness in architecture. With the industrial and post-industrial era, NEW SETS OF ORIGINATING FORCES EXISTED. FAR FROM BEING LOCAL ONES, THESE SETS STARTED TO BE IMPOSED, AS MEANS OF ACTIVATING INDUSTRIAL NATIONAL AND INTERNATIONAL MARKETING NEEDS.

Few laymen or profetionals see any alternatives to the prevalent sterile, anonymous architecture and the ideology that defends it. The most resigned laymen assumes this architecture s naked forms come from

SURVIVAL SETS OF FORCES AND IMPOSED OR APPLIED SETS OF FORCES

"Sets of forces", is a term to designate the package of objectives and limitations respective to a particular design process.

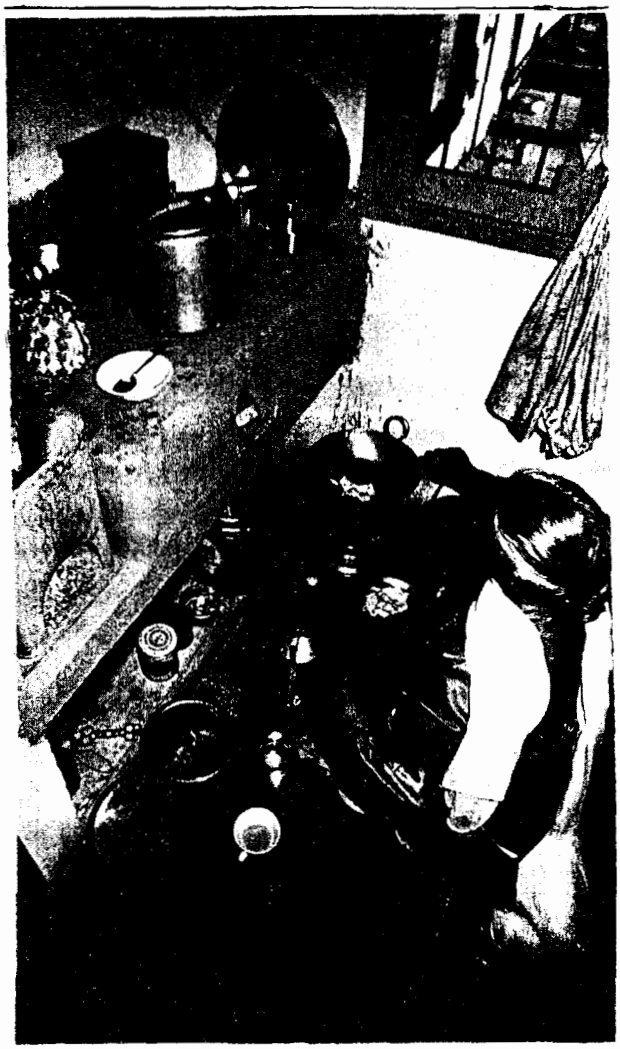
Theoratically, each set of forces is physically interpreted through a design prototype or model.
Accordingly, change in sets of forces whether due to cultural change or to market forces change, means naturally, a deviation in the architectural trends.

High correlation is identified between wealthy countries, cultural change, abstract sets of forces, this is on one side, while on the other side, a high correlation exists among developing cuntries, market forces change, concrete sets of forces.

Wealthy countries are more likely to use technology as means to achieve particular abstract statements. Accordingly, technology serves thought. reinforced cement was the tool for achieving Modern models, it obeyed to the director thought. In many third world countries, thought is is obeying to cement. thought envolves coping with material, more than material envolves achieving ideas.

Obviously, third world countries have to wait for western innovations to occur before starting copying them. The result is usually a missing step or a shattered illusion. the only reality then, is the total dependence upon the producing market.

Briefly, this is a common denominator to most developing countries.



A TYPICAL EXAMPLE OF APPLIED SETS OF FORCES.

A PAKISTANIAN HOUSEWIFE COOKING ON THE FLOOR WHILE HAVING A COUNTER.

THE PROVIDED PROTOTYPE BY THE MARKET DOES NOT RESPOND TO THE NEED OF THIS HOUSEWIFE - SHE IGNORED THE SYSTEM ALTHOUGH ACQUIRING IT.

A number of factors in Chandigarh's planning testify to the architects' misunderstanding of the Indian sense of privacy. In a number of cases where fashionably modern floor-to-ceiling windows were used, they have been papered over by the houses' occupants. The living room, and particularly the bedroom, are private sanctums and the possibility of strangers seeing through a window is extremely disagreeable.

Windows, such as these at right, are sometimes papered over to assure privacy in the house.

Difference between survival sets of forces and imposed sets of forces is highlighted by the difference betweenself sufficient to exporting states and poor to heavily importing states.

Developing countries entering the international system to survive, receive assistance in industry and building technology. they are given one fish a day, but not taught to fish so that they could eat everyday. industrialized material and ready-made technology, seems apparently to be valuable help. the drawback of such assistance is in gradual domestication to the assisting countries benefit.

Accordingly, most developing countries have no other choice for "temporary survival", but surrender to these imposed market limitations. Hence, they are receiving ready-made sets of forces.

In contrast with the third world countries property of receiving applied limitations, wealthy powerfull countries do exerce high control over the sets of forces. high intellectual competence has , since long ago, domesticated technology, as means of achievement. After all, these states are the market. Whatever they exibit has to be bought.

Buying this whatever, is not to be seen as a means of survival, unless they present THE only source of substance, absolutely indispensable for life. Otherwise, it is not different, a behavior, than that of schezophrenics, throwing their delicious healthy food and begging the neighbor's dog for sharing his .

* MANY HOUSES IN THE COUNTRY-SIDE (SOUTHERN REGION) WERE EQUIPED WITH "WESTERN BATHS" (i.e. BATHROOMS OF THE EUROPEAN & AMERICAN TYPE . ABSOLUTELY DISCARDED DUE TO NON-FULFILLING THE LOCAL MENTALITY

SOLUTION IDEA & PROJECT FORMULATION

As early as man thought of solutions, and as long as one will do so, failure in applying properly reached solutions, will remain the limitation not only jeopardizing their success, but also creating further problems instead.

It was said that distance between theory and practice is like that between dream and and reality. This distance is significantly determined by three component variables.

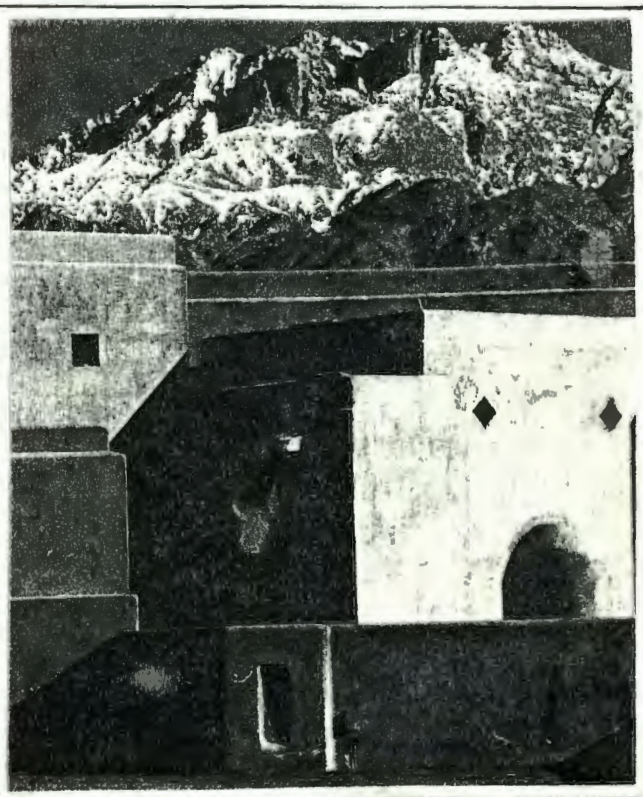
FIRST. The lucidity of the thinking process that produced the theory.
SECOND. The appropriateness of the interpretation process, related to the initial theory.
THIRD. The physical means, namely materials and technology, available to be manipulated along the theoratical guidelines.
Questioning each of these mentioned components means, pushing apart theory from practice.

Intellectual societies, (generally industrial countries) tend often to show an obvious tension among theories, a characteristic of such environments. Through providing continuously and simultaneously, inter-supporting and inter-contradicting interpretations of each single theory, a democratic atmosphere secures the optimum validity of the solutions devised for the well-being of the intellectual society.

In parallel thinking, pragmatic societies, present no tendency, no base, for such coexistence of opposing practices.

Moreover, such environments do not admit the presence of alternative practices, but the conventional ones dictated by pragmatic parameters. (relative availability, relative economy,...)

PRAGMATIC ATTITUDE TOWARDS MATERIAL HANDLING. CASUAL USE, SUPERFICIAL AESTHETIC ATTEMPTS THROUGH APPLIED EXPRESSIONS, STANDARDIZED FORM & FUNCTION



INTELLECTUAL ATTITUDE TOWARDS MATERIAL - COGNITIVE MANIPULATION BASED UPON GRASPING THE NATURE OF THE MATERIAL

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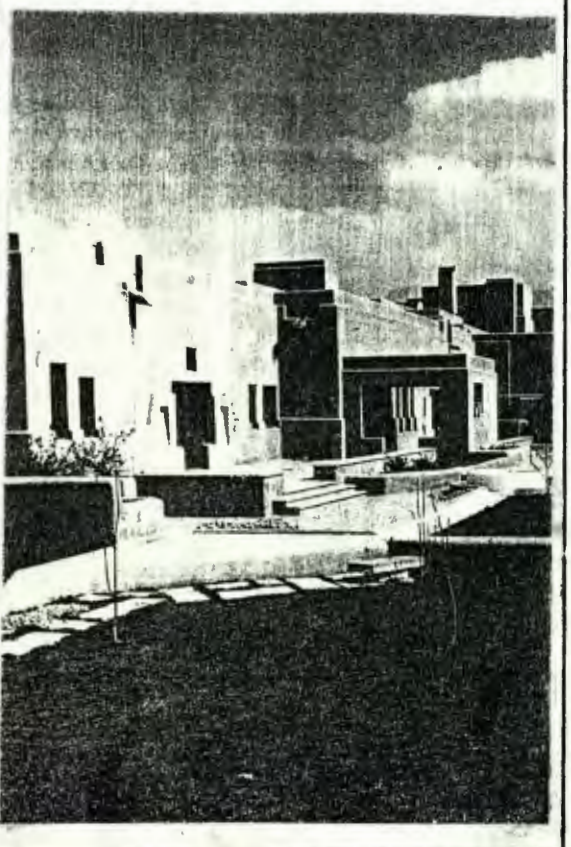


Intellectual and pragmatic societies differ in attitude and capabilities, but share occasionally a common tool that is REINFORCED CEMENT.
This industrial material devised buy an intellectual society, as to respond to a particular situation on a critical level of mastery, has , due to pure-marketing purposes, found its way to a pragmatic society failing to meet with the intellectual society, in this particular issue.

Cement, hereby, is one example amog many others, illustrating pre-maturity in handling a situation that occured before the community has been prepared culturally for the adaptation process.

Adaptation not necessarily, means acceptation. Opposition might be an adaptation cncept. It is the stand that counts.

Al-AFGHANI, a moslem philosopher,stated clearly, "Importing civilized cultures' inventions, would be problematic, unless, with them, is also imported the civilized background that went with along.
Importing cars without learning the ethics and the right manners to use them, for example, creates congestions, accidents an hazards, parking problems,....Gradually the society ends with slavery to such inventions problematic rather than helpfull, and all this in a state of unconscious, non-cognitive behavior.

However, denying these inventions is is pushing life backwards, and this is unacceptable.

SOLUTION IDEA & PROJECT FORMULATION

Rejecting progress is insane...
Misinterpreting progress is destructive.

What is suggested through raising these paradoxes, is preventing them, both...±
Through a delicate itinerary between the two, progress might occur. It is not a merely technological progress, but an ethical one too.
By learning to honor and respect creation around, feel the value of each stiff, grain and stone...The very first lessons are made.
Through taking more precaution and less enthusiasm in copying uses, practices and materials,... other lessons are made.
By honoring progress and moving towards it, truly, through using imported inventions only wherever absolutely indispensable,...More and more lessons are learnt.

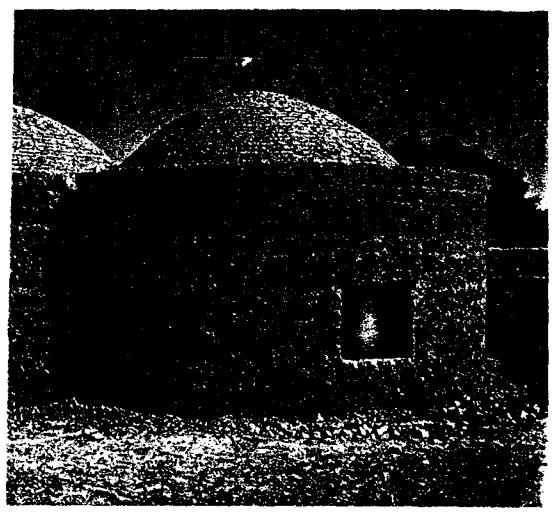
Achieving the stated objectives, of community self-identification and respect cannot be, as long as this community takes the market for granted, their helplessness too.

It needs this party of professionally and economically qualified believers in this utopian image of the rural society.
Only such a party would be able to bring into existence these utopian domaines where one can go, in time, to recorrect the course of history, and inject in it the lacking ethics, logic, respect,.....

This is not more of a dream than it is of reality. The attempt cannot be discarded.

Mentioned domaines, a kind of monasteries, civic ones, where activities of collective well being, are designed and undertaken.

The analogy with a monastery, is in the sense of being a defined type of environment; income generating; devoted; and run by a team. The details of activities are another story, that will be told, later in the course of this literature.



As a first impression, it might seem exagerated to go through this whole course of analysis, diverging to many issues, especially in a research concerning an architectural design.
However, initiating a particular type of project needs justification, although the case of the RADI project is the opposite. This long course of analysis and interpretation, is only a gathering of many elements present in the Lebanese situation in general, and in the rural areas in particular. Accordingly, the approach to deal with this situation requires particular means and tools. Far beyond a packaging plant and some worker housing , the RADI initiative involves a prototype project, duplicated continuously, wherever valid, as the basic tool of realizing a particular form of human environment, directed in a state of awareness (or perhaps subconciousness) towards the welfare of the whole, on the basis of collective spirit and behavior.

Therefore, the RADI, as far as physical project, is not innovative in terms of the individual functions and activities. The believed innovation is in the manipulation of these activities so to achieve a productive environment supporting completely or partly its community. The environment being run by a group of professionals towards achieving particular goals, is then a form of human organization, based upon the collective effort and the leadership of the professional with the participation and agreement of the layman. Yet, this is no communism, socialism or idealism, assuming that the scenario of the initiative could be respected.

So far, this is sociology business, might be commented.
This is true to a certain limit. The relevance of it is in the role of architectural design in achieving settings for each individual group, sharing the same concepts and norms. Accordingly, architectural design is a basic tool in serving abstract concepts of human welfare.

The case of the RADI program is an example of indispensable tool, used to achieve "a form of human settlement". The prevailing situation after analyzing outcome symptoms of it, necessitates a response on a collective level to realize a particular social change, as the only means to deal with this situation. This form of settlement, built on the concept of awareness in dealing with external and internal market forces, as an aspect of respecting the local in terms of man and land, would be shaped and impacted by such a doctrine. Moreover the architecture of this settlement, based on respecting the validity (including emotional validity), of the material and process, will be initiating a typology of fuction and image. Of course, the RADI complex, in terms of physical presence, will be different from any other physical project, not adopting the same concepts, and abiding by the same doctrine.

It is precisely in the experimentation of how particular systems of values can generate architecture, and how far architecture can serve abstract concepts. THe that this project seems promising. Furthermore, it is the experimentation of how awareness and thought might generate responsive architectures with the same tools, means and cost limitation of producing oppressing or non-livable environments.

SOLUTION IDEA & PROJECT FORMULATION

Rural
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A RESPONSIVE FORMULA - DEFINITION

The Rural Areas Development Institute is a designed intervention in a particular area in order to deal with a specific symptomatic situation.

In this perspective, the project is defined as Live-field-lab, catering for experimental activities aiming towards further planning guidelines, concerning the region in question.

The respective physical interpretation a domaine catering for three sectors.
SECTOR A. PRODUCING i.e. Income-generating activity.
SECTOR B. PROFESSIONAL i.e. research and planning activities.
SECTOR C EDUCATIONAL/RECREATIONAL

The producing sector supports financially the two remaining sectors, in order to achieve an income-generating project.
Moreover, the fact of having a considerable human bulk,permanently around the domaine, adds to it another dimension. It is not a factory, it is not an office corporation. The R.A.D.I. is an environment. Furthermore, the project is a self-generating environment, since it is designed to orient, assist and expand itself, in the light and by the guidelines of its performance.

Profits generated by the producing sector are financing the research program. Hence, the rural community, indirectly, financing the professional efforts towards suprervizing and leading the available potentials. The potentials, then, are enhanced and would promise more income and the cycle continues. Of course, this is not easy done as easy said. It is a time consumming process, however the expected impacts, make this attempt a temptation.

The income-generating sector envolves investments in agricultural advising, assistance and product processing. Simultaneously, this sector is serving for experimeting production practices, as well as marketing alternatives.

The professional sector envolves extensive research operations aiming towards diagnosing the particular defficiencies of the community, and accordingly towards putting planned strategies, orienting the available potentials according to changing situations.
Attached to this department, is a specialized training team as to implement given direction towards boosting particular vocations and practices, or perhaps towards founding designed ones, estimated as strategic vocations. Such services are on the project, as well as remote training delegations visiting regularly the surroundings.

SOLUTION IDEA & PROJECT FORMULATION

Rural++++++++++++++++++++++++++++++++++
Areas++++++++++++++++++++++++++++++++++
Development++++++++++++++++++++++++++++
Institute++++++++++++++++++++++++++++++

A RESPONSIVE FORMULA - DEFINITION

Educational programs go permanently in parallel with the remaining activities. the professional sector provides appropriate feedback, as to provide orientation in particular fields where a lack is being detected. Of course this is not the only task of this department, general cultural feedback (movies, lectures, debates,...) are included. Rcreational activities form a continuation of the educational program. Some sports facilities and particular leisure spaces are provided. (social interaction places)

This brief notion about the basic functions of the R.A.D.I. complex as a whole, and those of the individual sub-sectors, will be elaborated on, through describing the general scenario of the project as a type, and those of the individual contributing departments.

Who will launch the R.A.D.I.?

Obviously, not the central government... The project is an attempt towards providing basic feeling of order and security, for a certain community having become of sceptic ideas about a non-caring state government. Perhaps, these people have the right to.

A possible official move, if it would occur, certainely, it will not take the dimensions of the RADI, due to many considerations, needless to be mentioned.

A fast look at public sector services in the third world, is quite explicative.

Initiatives like the RADI would not exist if depending upon the public sector to finance it, or even upon a normal private sector. Much more than that, it needs ambitious, enthusiastic, professionally and ethicly oriented, on the expense of quick enormus profits. private sector

Similar projects, take three to four years before starting to make considerable profits. Before that self sufficiency is not bad, an achievement.

Once launched, the RADI activates exchange operations with the community on the basis of taking from one what one is able to give, and giving one what, he or she, needs but is unaware of it.

SOLUTION IDEA & PROJECT FORMULATION

INDIVIDUAL EXCHANGE CHART

	PRESENTS	RECEIVES
Category A No skill No ownership	Readiness & Commitment to the institution	Taining Food & shelter (if needed)
Category B Small to medium Ownership	Material product Professional- Cooperation	Technical advising Technical assistance Material facility (Fertilizers, machinery)
Category C Normal skills or vocations	Readiness & Professional Cooperation	Job contrat Social insurance Professional orientation
Category D Large ownership or capital	Material product Non-cultivated land -investment Financial capital	Profits out of invested land. Technical advising & Assistance.

Readiness and commitment, mentioned in categories A & C, is to represent the availability of potential in the benefit of the institution, which in return, provides the right orientation and means.
The institution benefits from the availability of efforts in terms of implementing smoothly, plans and strategies requiring collective acceptance and cooperation. In return, subjects do earn profits.

Professional cooperation, mentioned in category C, involves the will of professionals, (craftsmen, farmers, masons,...) to acquire directions in their jobs, that are designed by the program for the collective welfare.
N-B- During the process of training and orienting, subjects are to abide by the complex.

SOLUTION IDEA
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PROJECT FORMULATION

INSTITUTION FINANCIAL EXCHANGE _ GAINS & EXPENSES.

PRESENTS	RECEIVES
Training (vocational)	Income of building items (for local use local and low cost material)
Education (general)	Income of light industry (for local use, clothes, shoes.....)
Mechanical facilities (Agricultural)	Income of packaging plant
Technical facilities (Agricultural)	Income of labor , management through contracts for groups of workers.
Low cost material (for local market use)	Income of large capitals participation.
Low cost manufacture (for local market use)	
Social insurance (for participants)	
Shelter catering (for subjects needed on complex)	
Work opportunity	

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INTER_DEPARTMENTAL EXCHANGE

Departments or sections profit-generating.	Departments or sections, financed by other ones
The labour management department.	The vocational training department.
The light industry department, including the packaging plant, light manufacture (furniture, clothes, shoes, ...)	The building materials department. (due to providing these materials at appealing prices).
The large-ownership-investment department.	The research and planning department. Professionals are hired to devise plans and strategies for the particular context.
	The physical plant department, catering for machinery provision and maintenance.

Through relating both categories of producing and consuming departments, to be noticed that the functions being sponsored by the producing sector of the project, are basically aiming to cover in the possible range, the lack of planning, orientation and financial exchange, this lack, being the basic defficiency of the community. Hereby, the RADI is a catalyst intervention aiming towards destinating the peasant community profits towards covering their direct needs, in a conscious behavior, rather than covering the needs of others, like city entrepreneurs.

SOLUTION IDEA & PROJECT FORMULATION

Architects are people who help in realizing ideas of well being, as a part of the services they offer or sell. Therefore, Architects should, from time to time carry out maintenance of the mental frameworks governing their designs as well as those governing the community designs. Mental frameworks are, hereby, the tools of executing abstract ideas, into physical environments, in a changing situation.

Architectural design prototypes generated by the near context, as well as, by the market forces, do expire whenever significant changes occur in the context, culturally, or in the market forces, economically.

Architects are involved in this process of adjusting the mental frameworks to produce more responsive design prototypes, due to their direct field experience, and close interaction with lay-people. The prototype adjustment issue becomes of more relevance in the case of a laissez-faire situation. The related community, generally passive, end up with "sacred design prototypes and value judgement. Sacred but unfortunately inappropriate, sometimes...

It escapes the awareness of the lay-man to detect change in the criteria that dictated particular practices, and continues adopting them, although becoming rootless, validity wise.

The professional intervention in such communities is a catalist one, in terms of remanipulating the existing potentials, for more efficient adaptation and response to a changing situation.

In a restricted scope, intervention includes injecting new potential parameters in the existing ones. However, in no perspective is conceived bulldozing the rationale of the community.

On the contrary, intervention is conditioned by the acceptance and furthermore the cooperation and help of the society in question. Otherwise, intervention is interference and provocation. "THERE IS NO CHANGE WITHOUT SOCIAL CHANGE", and social change requires either of, aware or unaware participation, but in all cases COMPLETE PARTICIPATION".

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SIGNIFICANCE

OF THE PROJECT

Though the concept of architecture is immidiately associated with the physical presence of matter, hence defining space, shape, image,... as meanings perceived by the human senses, architecture, however do present another level of meaning through the order it injects in the context, socially, economically, functionally, aestheticly and even ethicly.

In this perspective, architecture aiming towards injecting a particular order in the society, would be far beyond another architecture affecting its context only casually. Not affecting the living environment at all, is not a possible alternative.

Injected orders, usually are those of the value judgement adopted by the society, and rarely opposing ones. This is due to the simple fact of fearing innovation. However, particular cases of innovative order-proposals are not so for the only sake of innovation, but also for the sake of adjusting what is judged as a "disordered order", contributed to, by many forces, usually external. This is based on the concept of hierarchy in needs where a society, by its own means, progress towards earning its ways of life in the order of favorizing the very necessary before the necessary. Such an instinctive approach to progress is generally secured, unless superior forces (usually external to the society), come to bather its order.

Ideally thinking, along these guidelines, a society threatened in its own order, remains on alert, untill an appropriate order, capable of facing the situation, is reached. This is , of course, ideally.

Rural+++++++++++++++++++++++++++++++++++++
Areas+++++++++++++++++++++++++++++++++++++
Development+++++++++++++++++++++++++++++++
Institute+++++++++++++++++++++++++++++++++

SIGNIFICANCE
OF THE PROJECT

Ideally, however, is not the way things go, perhaps due to the human limitations in doing the right assessments and related decisions, on one hand, and also to the nature of the human drives where pure good will rarely able to triumph, as diminished by many other considerations of material life.

Idealism, is difficult to achieve... However, enhancing the ways and means of response to very common and lasting symptoms is yet, a down to earth, goal. unconciousness, unawareness passiveness are too much to be allowed, for the mere reason that Idealism cannot be achieved...A lot is that can be done, yet in the range of the down to earth, and much before the ideal.

So far done, research and plans, show major concerns about the seriousness of the public sector in implementing them, due to the lack otwo component conditions, namely, interest and financial means.
Although desperately blocked by these, (governmental and financial support), and for years, planners still conceive respectively conditioned solutions.
This blocked door, apparently for a long time to come, suggests capital modifications in the lines of thinking, so that plans become conditioned by other variables than these unactive ones.

Public sector planning, however, not promising, in showing interest or readiness towards any development plans concerning Southern Lebanon, is limited, in case it would do, by the Bureautic-Background. This background is not only limited by the complete conformity to the national social order, but also, by the abscence of communication with the rural communities which makes planning for these on the basis of "take it or leave it". The community in question is hence, alienated.

State intervention, if it would happen, is limited to the execution of physical projects of infrastructure and rarely ones of public facilities, (hospitals, schools,...), and such development strategy is totally irresponsive, especially that the central government is unable to carry such development in the minimum rate to produce a felt change in the situation. In this perspective, a continuous intervention based upon close observation process dictating direct-response plans, then, seriously implemented and supervised, would be far beyond the limitations and ambitions. of the public sector.

In parallel with the deterioration of the central state economy and accordingly development budget, and due to the liberal nature of the Lebanese economy, a dynamic private sector proved itself, seriously, starting with the early eighties. The diversity and size of particular private investments, give a clear notion about the efficiency and enthusiasm of this sector, in the local market.

SOLUTION IDEA & PROJECT FORMULATION

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SIGNIFICANCE

OF THE PROJECT

The actually prevailing trend of building "palaces", in the native villages, by native rich migrants, is an indication of the willing to put traces in their home villages and towns, as witnesses of their succes abroad. Rarely are registered phenomena of "for good migration". It is rather the case of going overseas to work, enrich and then come back to achieve something in the native locality. This fact assists to optimistic prospects of development projects in Southern Lebanon. **IMPORTANT HEREBY, TO DIFFERENTIATE** AMONG "development projects" and these are of two types. externally responsive (international market forces) and locally responsive (responding to actual NECESSARY needs.

The growing number of food manufacturies and animal farms, spreading significantly in the Bekaa region, Mount-Lebanon and the south, are indicative of the recent, but growing, awareness of the substance of exploitation locally neglected sectors, namely, agriculture and food processing.

It is precisely, this state of readiness on the private sector, that makes valid, the prospects of establishing particularly meaningful local institutions such as the RADI.

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PROJECT FORMULATION

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SIGNIFICANCE OF THE PROJECT

Private sector's readiness is boosted by the availability of numerous researchers, academicians and unemployed fresh graduates, a considerable amount of those, belonging natively to this particular region (Southern Lebanon).

Needless here, to discuss the readiness of the Southern community itself, to absorp and activate the initiative, especially with the abscenceof any significant care assistance or insurance from which they might benefit. On the contrary, abusive factors such as political parties blackmail and exploitation, marketing entrepreneurs thrusting monopoly,...

This is briefly the atmosphere that substantiated the prospects about the RADI.

The RADI as initiative, do present two sets of meanings. One of these is conveyed by the mere presence of the project, the other through the order injected in the context, by this particular institution. Examples of the first set of meaning might be in the physical presence of the RADI, by touching the fine line between aware-respose environments and unconcious manipulation ones. Examples of the other set of meaning will be through the services and exchange system of the RADI, bringing to the community sences the fine line between care and helplessness, casual and aware behavior.

INTRODUCTION

THE RADI...
A BUILDING TYPOLOGY!

Building typology has been always associated with regional, socioeconomical and political considerations. Moreover, building typology is seen as the direct response to these. Therefore any change in the Politico-Socio-Economic structure, do affect the building types not only as far as function is concerned, but aestheticly as well. Aesthetics hereby present a collective set of conventions in the society memory.
Different types of societies react accordingly, to PSO's. The "receptive societies, poor in professional and intellectual activity tend more to bend to these PSO's, in the form of market forces. In contrast with the receptive model, industrial countries, privileged in professional and intellectual life, present the "diffuser model". This to say that the building typology is not directly dictated by PSO's but rather by the aware response to them.
Soon as the validity of a particular activity is been confirmed, a respective building type is then designed to cater for the activity in question.

Lebanon, as a concept, dictated significantly by international and regional contributor factors, presents enough potential for an introverted diffuser model, simultaneously with being a typical receptor model.

The closely related rural to urban have put the Lebanese country-side situation in conflict. Between the proper rural and the proper urban, the south have reached nowhere. Failing to meet with the requirements of a proper urban life, yet having gone too far from the roots, the Lebanese country-side lost solid ground in terms of identity and character.
Obviously, the community in question is unable to detect the defficiency, on the contrary, they will go on building it up

It is this group of professionals and intellectuals, having designed the RADI program, who are looking for a building type compatible with the requirements of their intended activities. It is a lot like the case of a group of physicians who decided to direct a collective health care program, and accordingly devised the hospital building type.

The RADI building type is physically, a normal complex, catering for activities, perhaps very ordinary ones such as producing, learning, interacting, profiting,... However these activities carried along particular sub-scenarios as parts of the overall scenario of the project, under professional supervision towards specific plans implementation, give to this complex its identity of typology.
The RADI is an example of an emergency field program, to which a physical interpretation is made. It is a response based on the awareness of a particular situation and hence addressed specificly to it. Hereby, it is anticipated to show more response and efficiency than the standardized procedures. The simplistic theme of the RADI's intervention in Southern Lebanon is."The rural society cannot follow the urban progress, if it should. Therefore, the society hereby is to follow other directions of progress.

INTRODUCTION

THE RADI...
A BUILDING TYPOLOGY!

To be able to do so, the community needs a complete program. Furthermore, the necessary professionals require a responsive setting to substantiate their intervention and implement their plans. A building type was conceived, then...

SOLUTION IDEA
&
PROJECT FORMULATION

RADI...
AN ARCHITECTURAL ORDER

intervention however, is estimated to mature within the physical boundaries of the institution.

Merely by the shear of its physical presence, the RADI complex proposes and exhibits different notions compared to the society common ones. The difference hereby, is in the level of aware intervention in the set of forces suggesting particular ways of manipulation, as far as architecture is concerned. There will be proposed notions of form, use, aesthetics, expression, particular catering,...
Experiencing these notions will not be merely visual, it envolves also physical and emotional dimensions.

Concept of space involves more than this standard cubic enclosure, tied casually to larger or smaller similar ones.

Form may not be this flat parallelipipede, pierced by squares...

These and many other examples do not present aesthetic objections. They only indicate the presence of strong rationale of standard notions that need to be questioned in the light of a new situation.

SOLUTION IDEA & PROJECT FORMULATION

RADI...
AN ARCHITECTURAL ORDER

In this perspective, the RADI program is active on two different levels, each at a particular pace.

FIRST. The abstract level, through exposing the rural community to a new architectural experience. This is done through the course of building and later expanding the RADI complex in addition to the direct training and assistance offered by this particular program. Of course, this experience will not be a significant one since it reaches a limited section of the community. The physical change aimed through this training means, will not show before this experience matures, and this is too long to come.

In contrast with the direct training approach going at a slow pace, the RADI implements another strategy, simultaneously, but leading to faster response and clearer signs of change, hence to stronger persuation on the side of the community.

Along with this strategy, the RADI program provides devised building systems/materials at the complex, with temptational technical and financial assistance.

These materials/systems designed on the basis of a narrow margin of allowance, might be mass-diffused with limited drawbacks of misuse, due to their dictator characteristics, of course not on the expense of any comfort or ease.

If this is the long-termed intervention of the RADI, estimated to take place on any spot of the region, the short termed

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RADI...
AN ARCHITECTURAL ORDER

The RADI program aims towards initiating practically, the Rationale based on awareness rather than that, based on the direct duplication of the existing. It is the case of providing guidance to achieve change through a lived experience, rather than implementing this change. Architecture experience is only one of these...

A field survey, earlier in this report, highlighted the situation of the physical environments in southern Lebanon. Namely, stereotyped thought, instinctive duplication, casual handling, handicapped understanding,...were indications of significant defficiencies in the architectural practices.

The RADI program Helps the community adjusting their architectural practices, by acquiring particular abstract means (experience), as well as physical means. (materials and technology).

The very first lesson hereby, is the physical presence of the RADI complex. Through its gradual growth with own hands of the community but along new experiences and guidelines, the society might smoothly acquire a different look at their practices in this particular field.

Adjusting practices, however, needs many lessons. It is the process of achieving many sub-adjustments, namely in the common notions of function, form, expression, aesthetic value, essence of each material,... and others. Doing so, seems pretending to transform every lay-man into a normal architect... and this cannot be done...

What can be done is narrowing the margin of allowance, concerning the famous notions. Hence, defficiency in handling a particular system, is then stopped by the limitation of the system itself.

Flexible systems at the reach of the community in question, namely concrete, has allowed the execution of designs far beyond the ethic limitations of this material but unfortunately, within the range of its physical limitations. it would have been a different story in the case of a stone masonry system, where the material itself refuse any violation of its natural and ethical system of manipulation.

Rural
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SIGNIFICANCE OF THE PROJECT

ECONOMICALLY

A main headline of the RADI economical intervention, is "more efficiency to the local potential and hence, more absorptive markets".

FIRST. INTENSIFYING THE OUTCOME OF THE LOCAL POTENTIALS.

Local potential hereby, envolves both the human and the material. It was discussed earlier in this report, how service societies (open ones), are exposed to adopting procedures, from which benefits the external market on the expense of the society necessary needs. In this perspective, intruder procedures, adopted by the society, gradually embrace it within rigid scenarios forming the evident continuity of these imported procedures. In southern Lebanon, are many examples of villages lacking severely basic infrastructure elements, but rich in gas stations, automobile repair shops, T.V. sets and washing machines, though no electricity...

These examples illustrate how international market thrusts have succeeded in selling these people, items from which they cannot benefit. If they could, however, it will an insignificant benefit, because more crucial needs are being dissatisfied.

Possessing a car, dictates evidently, buying spare parts for it and carrying its professional maintenance, hence activating intruder trades and services, without questioning if the benefit of possessing a car, is superior or equal to the related drawbacks.

Apparently, some inventions, subject of heavy marketing, are hence perceived as life necessities and therefore aimed at, instinctively. Of course, modern inventions do facilitate life and provide luxury. However, such luxury comes as a cotinuation of many prerequisites, in a logical sequence. this is how things go in the industrial countries that produced these inventions to continue the sequence of THEIR luxury prerequisites. Electric appliances, for example, were not introduced to marketing, before setting a stable condition of electric supply means and ressources. Washing machines were not suggested before water supply means were secured,... These are simplistic examples illustrating the logical progress of need-satisfaction, in capable societies. Rural communities in developing countries, unable to follow this progress regularly (due to financial defficiency), but falling under the influence of marketing thrusts, strive towards acquiring physical symbols of progress, unconsciously, in no apparent hierarchy of satisfying needs. This is, of course, the case of particular developing countries enjoying optimum wealth conditions due to the nature of their economy. Lebanon is an indicative example of such societies, especially, in the case of the rural areas.

Rural
Areas
Development
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SIGNIFICANCE OF THE PROJECT ECONOMICALLY

Raising, hereby the issue of a "better use" concerning the man and material potentials does not involve quantity, but rather quality.

THE MAN POTENTIALS. Market thrust, not only forces material items into the local consumption, but force specific vocations, aiming towards spreading the need for this market. Diffusing cement , for example into a particular environment, dictates the flourish of vocations like masonry, plastering and tiling,... By devising a substitute defensive system, new related vocations would replace these.

New vocations are not initiated for the mere purpose of ruining some master masons or plumbers... The aim is rather resisting to the market entrepreneurs, selling non appropriate items and hence creating vocations, then, directly related to external market fluctuations, Devising responsive systems and related activities is not the task of individuals but rather that of powerful professional institutions.

In this perspective, the RADI research and planning program after accomplishing market surveys, and local context surveys, recommands the suitable types of vocations for each situation, and accordingly specifies numbers. Hence, orientation is being properly done.

Hereby, the RADI is not attempting to change the world towards suiting its the original concept, but rather built its concept on the basic rule of dealing differently with the urban case than the rural case.

City systems and rationale cannot suit the country-side situation, because the forces that shaped the urban context were not the same that shaped the rural one.

Based upon this simple truth, the RADI struggles towards establishing systems of survival conceived exclusively for the rural areas, on the basis of contextual response, on all levels.

Contextual response involves the full exploitation of man and material potentials in manipulating the new systems.

Rural
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SIGNIFICANCE OF THE PROJECT ECONOMICALLY

The relevance of raising the abscence of hierarchy in need-satisfying, in the developing rural areas, is to highlight the fact that these societies are drawn into "progress scenarios", designed initially for more capable societies situation. Naturally, developing rural societies are unable to follow these scenarios although their devoted attempts to do so. During the course of trying to immitate other situations' related response, the rural community is heavily envolved in trades, activities and attitudes, present in the situations it (the community) is attempting to simulate in its local environment This involvement, is established between the actual need of the society and the thrusting market forces trying to diffuse its product.

Since market forces do not hesitate to diffuse non-economical, useless items, for the mere fact of marketing, importing societies, hence should show extreme care, in selecting from this market what suits the society essential needs, rather than consuming whatever offered. In this perspective, minimizing on import requires the ultimate exploitation of any available ressource or means, capable of fulfilling a particular need as much as an imported item might be able to.

Moreover, since blind consumption of imported inventions, systems and goods, might embrace the community within a rigid scenario of progress, where acquiring a particular item requires that of another item presenting the evident continuity of it, and since the society in question is unable to follow this scenario, hence, devising local systems fulfilling the community needs, should be experimented and attempted to the utmost limits, even if these systems are on a different level and of another nature than what is being imported although initially designed to suit other situations than that of the society.

SOLUTION IDEA & PROJECT FORMULATION

Rural++++++++++++++++++++++++++++++++
Areas++++++++++++++++++++++++++++++++
Development++++++++++++++++++++++++++
Institute++++++++++++++++++++++++++++

ECONOMICAL SIGNIFICANCE OF THE PROJECT

Through devising new vocations suiting exclusively the rural areas, ecomnomical reform is being done at the bottom of the economical hierarchy, by exploiting potentials where the market failed to absorp. The new system of vocations is defining a local market, different, from the urban market, supported by external parameters rather than local ones.
Extruding the rural market from the urban one, is beneficial for minimizing the impact of socio-economic inequalities between city and countryside.

THE MATERIAL POTENTIALS. Market thrust forcing particular materials and products into the rural society, has tied its economy to the urban economy, in spite of the obvious financial superiority of this latter, as far as individual capitals are concerned. By providing alternative materials, exclusively produced and used in the rural region, a different local market is being identified. In this perspective, economical restauration is being done at the bottom of the hierarchy without waiting for the bureaucracy to execute economical reform, which might happen tomorrow.

The RADI intervention involves devising building technologies base in the available ressources, although mediocre, they will seem.

Separating the rural economy from the urban one, does not deny this latter. On the contrary, this strategy considers fully the market forces and try to adapt to them. The adaptation is neither a complete acceptance nor a complete refusal, however, both reactions are inappropriate.
The RADI economical strategy is based upon denying the full dependence upon the external market in providing the full load of consumption. Simultaneously, selling service to this market in its own language and not the RADI language, is an important source of financial support not to be ignored. GIVE THE MARKET WHAT THE MARKET NEEDS, TAKE FROM IT WHAT YOU NEED RATHER THAN WHAT IT NEEDS TO SELL YOU. This is a brief of the RADI economical policy in separating the rural economy from the urban one, without eliminating the possibility of the rural market feeding the urban one what this one needs, but in the same time, the rural market is consuming locally completely different items and systems from what it sells.

In this perspective, agricultural products are diffused in the urban market in a different rationale than that of the rural diffusion. This opportunity given to the rural community to reach the consumer with competitive products, without entrepreneurs, is an aspect of dealing with the urban market on its terms. refusing usefulness, being sold there, is an aspect of respecting the terms of the local market.
This is a one way selective process. Rural consumer is urged to learn to select since he could be trapped, while the urban consumer wont, especially if dealing with the rural community.

SOLUTION IDEA & PROJECT FORMULATION

Rural Areas Development Institute

SIGNIFICANCE OF THE PROJECT ECONOMICALLY

Accordingly, the intervention of the RADI is through devising responsive systems of progress, in terms of satisfying a logical hierarchy of needs. this process takes into consideration the ultimate exploitation of any available potentials, capable of presenting any systems. In this perspective, the society lead towards using its full-potentials, will also increase the efficiency of its activities, by avoiding any intruder activities securing benefits for the external market.

This is, perhaps, a way for a society to respond to a new situation exposing it (the society) to be a blind consummer, of particular a stronger market products, implemented in despite of their uselessness with respect to the customers' needs.

Any developing society, by its only means, is not able to apply this latter framework, unless on a narrow individual level. To boost this framework of conscious and responsive behavior, till the community level, professional intervention is absolutely indispensable.

Along with the basic hypothesis, stating that, devising local defensive-responsive systems, necessitates full use of the available man and material potentials, the RADI conceived indicative objectives.

SOLUTION IDEA & PROJECT FORMULATION

So far stated goals in extruding the rural economy from the urban economy, establishing exclusive systems of survival and related practices, full exploitation of human and material potentials, one sided selective approach,... These goals are aimed towards, through a clear set of economical objectives.

Investigating any potential building system, executed with locally abundant materials.

Training and preparing skills requested in the urban market and simultaneously others for exclusively local consumption.

Investigating centralization of work and facilities in particular foci, in order to cut off rural urban commutation and related complications.

Investigating potential power ressources (organic ressources), as to cut of dependence upon defficient urban power-systems governing and dictating imposed directions of progress.

Investigating agricultural potential investments as far as marketing alternatives.

Organizing unemployed labor into a working army. work contrats are drawn through the institution, as the manager of this worker army.

SIGNIFICANCE OF THE PROJECT _ SOCIALLY

The internal order of the RADI, AS far as exchange systems and institutional discipline, subjects the related community to a different experience in designing their relationship with the RADI or with each other, on the basis of mutually beneficial cooperative activities. The most important social experience to gain, remains in the participation of the RADI community to the administration of the institute, as well as to planning operations concerning the institutional strategies. Participation secured through a representative committee, elected yearly, to coordinate with the professional sector, is a most necessary motivation given to the RADI community. Participation leads towards feeling a particular belonging, identity and consequently , obligation and responsibility, as in return for the security and self-estime contributed to, by the institution.
Psychological needs such as security, insurance and care, are mostly lacking in the case of the Southern community.
Governmental indifference since ever, regional agressions, political exploitation and blackmail,... have minimized the confidence of the local residents, in their state, their future and even in themselves. This is obviously indicated by the frightening figures illustrating migrants and immigrants.

Not all the impacts of social alterations are long-termed. Others might be, fast, fruitful, in terms of dropping traditional syndroms, namely, family overload, lack of

Rural++++++++++++++++++++++++++++++++++
Areas++++++++++++++++++++++++++++++++++
Development++++++++++++++++++++++++++++++
Institute++++++++++++++++++++++++++++++++
SIGNIFICANCE OF THE PROJECT _ SOCIALLY

orientation, unemployment, "fist instead of tongue",...

The collective aspect of the activities, namely recreational ones, assists to more socialization of participant groups. Socialization, hereby, is not conceived as a means of recreation and entertainment, but rather a means of controlled interaction towards shaping behavior and mental frameworks of the community in question. It is beleived that every human soul is gifted particular potentials which might not be discovered through a life-time, if not given the stimulating settings...
]

The RADI is the setting for stimulation, experimentation and discovery.

Rural+++++++++++++++++++++++++++++++++++++
Areas+++++++++++++++++++++++++++++++++++++
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Institute+++++++++++++++++++++++++++++++++
SIGNIFICANCE OF THE PROJECT _ SOCIALLY++++

I.E. THE SOCIAL ORDER, inected.

The R.A.D.I. intervention is designed to diffuse a particular order in the prevailing one. i.e. the context. What is meant by order of the society, is the set of value judgement criteria, socially, economically and ethicly.

The **SOCIAL** Intervention of the RADI is mainly through the significant integration of local inhabitants into team-work, professionally, designed, guided and supervised activities. Since "no change is possible without social change", the RADI long-term social goal is to secure change, change smoothly lived and experienced; rather than harshly implemented.

The case, hereby, is a "Bottom-up" model, interpreted by SANYAL."The notion of "development from below" meant that many of the inequalities could be rectified through new initiatives generated at the bottom of the social hierarchy, rather than as previously done by the bureaucracy."The assumption was", says Sanyal, "that these activities would generate profit, savings and investment at the bottom, thereby, eliminating the need for income to trickle down the social and spatial hierarchy."

The Bottom-up model, not only presents a decent retreat for the state out of over-load development initiatives, but also secures better prospects, concerning rural communities acceptance and participation.

SOLUTION IDEA & PROJECT FORMULATION

THE RADI
A CORE PROGRAM

The RADI complex, by its end phase, caters for the following uses.

REFINING AND PACKAGING PLANT. for arranging, cleaning and packaging agricultural raw products on one hand, for light processing production (dairy products) on the other hand. This section depends mainly on handly work, rather than sophisticated mechanization. Raw products might be cultivated on complex ownership or elsewhere, but brought on complex for processing.

STORAGES. For both raw products waiting to be processed, or processed items waiting to be transported to the consuning market.

CAMPING. A common residence facility offered to the plant workers and others. as a transient accomodation.

RESEARCH & PLANNING DEPT. Housing the activities of the research and planning teams working towards conclusions and plans concerning the specific community.

ADMINISTRATION. The stage for project management opertations. i.e. new participants initiation, guests' reception, departmental meetings between research and planning teams on one side and the community representatives on the other hand.

RESIDENCES. Accomodation for the professionals not commuting to the vecenity. Modular housing units, attached or separate according to state of users.

RESTAURANT & TV AREA. For meals-assemblies and socializing by the TV. afterwards.

SELF_SERVICE LAUNDRY. Washing activities are done specificly here for more than a reason, energy economizing, space economizing, socialization,...

VOCATIONAL TRAINING DEPT. assembly of workshops where training activities are carried. Training subjects are either addressed to the urban market with normal skills (concrete masonry, taxi driving, sales delivery, retailing,...) or to the local market with very specfic practices (farming, rubble laying, vernacular prototypes execution,...)

RURAL MARKETPLACE. A series of shops designed to store and provide local building materials and accessories (shales, rubble, steel joints, asbestos sheets, refined bamboo, prefab concrete sections and joints,...) in addition to some light-manufacture activities (clothes, shoes, furniture, ...). Items exhibited in this particular marketplace are designed for the use of the local inhabitants catering for their needs and within their financial range.

MAIN STORE. Supplying neede items that cannot be manufactured on complex (chemicals, manual tools, basic instruments,...) The main store is attached to the rural marketplace.

URBAN MARKETPLACE. A retail space addressed to the urban residents commuting to the complex for their

fresh vegetable and fruits supply. This marketplace is also addressed to wholesale activities for some city entrepreneurs.

PHYSICAL PLANT. Housing and controlling the energy supply system, as well as the machinery used in agricultural works, rented regularly to farmers by the institution. Of course, mehanical maintenance is assured in this plant.

PARKING FACILITIES. For transportation trucks, commuting staff, city customers.

EXPERIMENTATION PARCELS. Parcels used for testing agricultural phenomena and response within the course of experimentation done by the research team. On another hand, these parcels provide the local consumption of the complex as far as agricultural products are concerned.

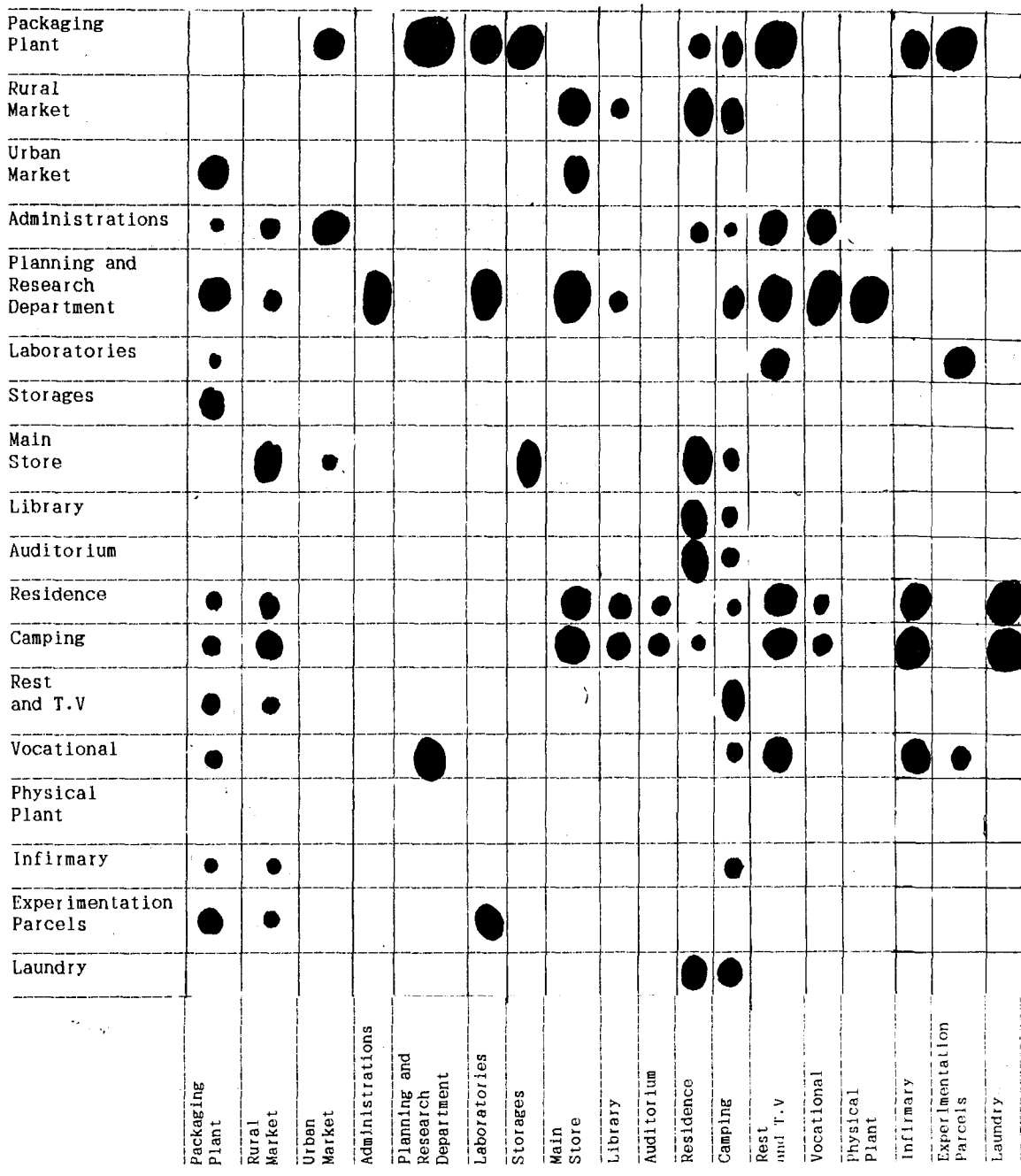
MULTI_PURPOSE OPEN COURT(S). Catering for limited sport activities.

LIBRARY. To be used mainly by the bulk of residents on complex.

AUDITORIUM. A multipurpose hall for the local use on occasions. (lectures, music celebrations, plays, talks,...)

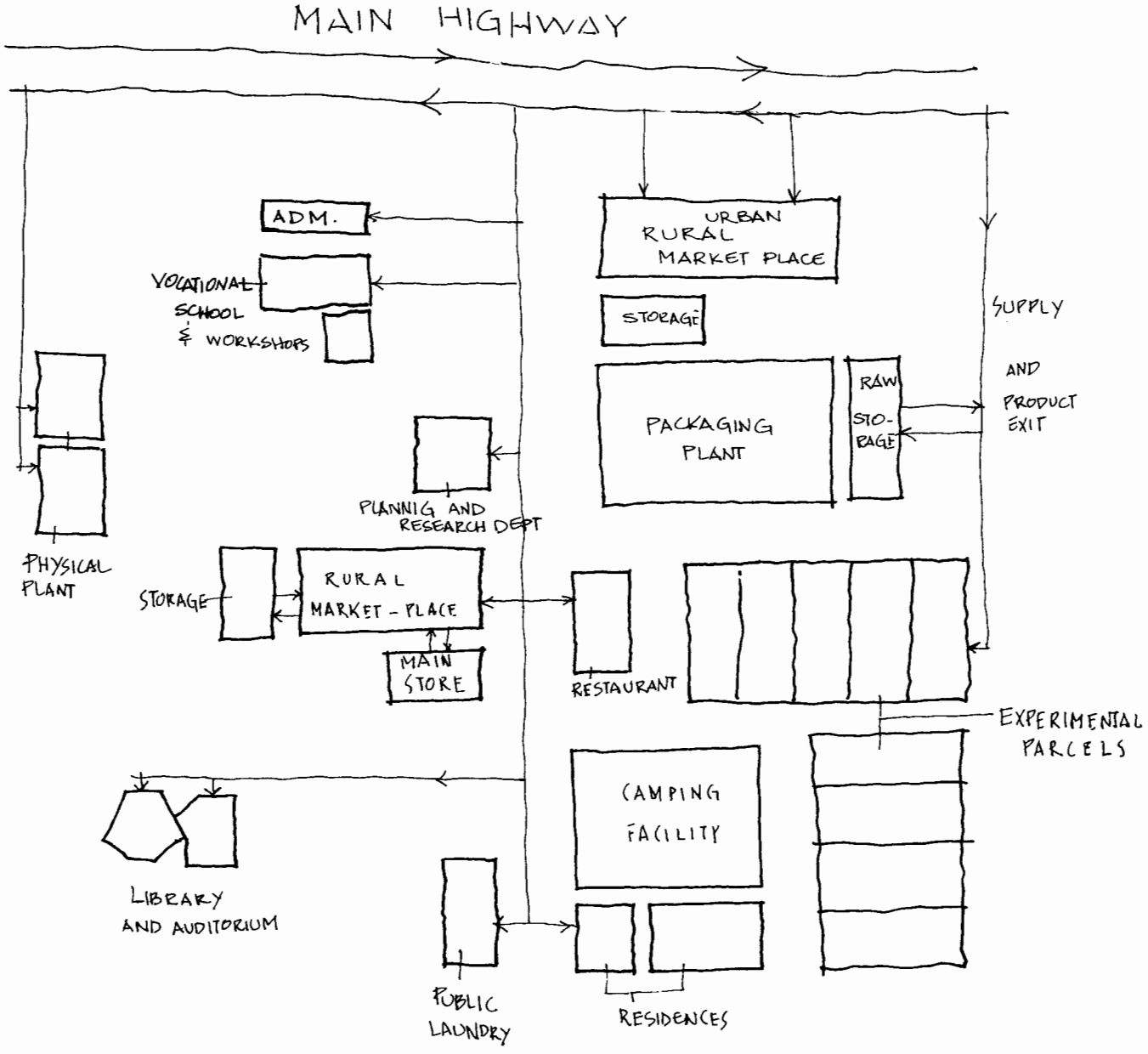
INFIRMARY. Limited to emergencies of work. On the other hand serving the near locale on the basis of regular examinations on complex.

MATRIX CHART



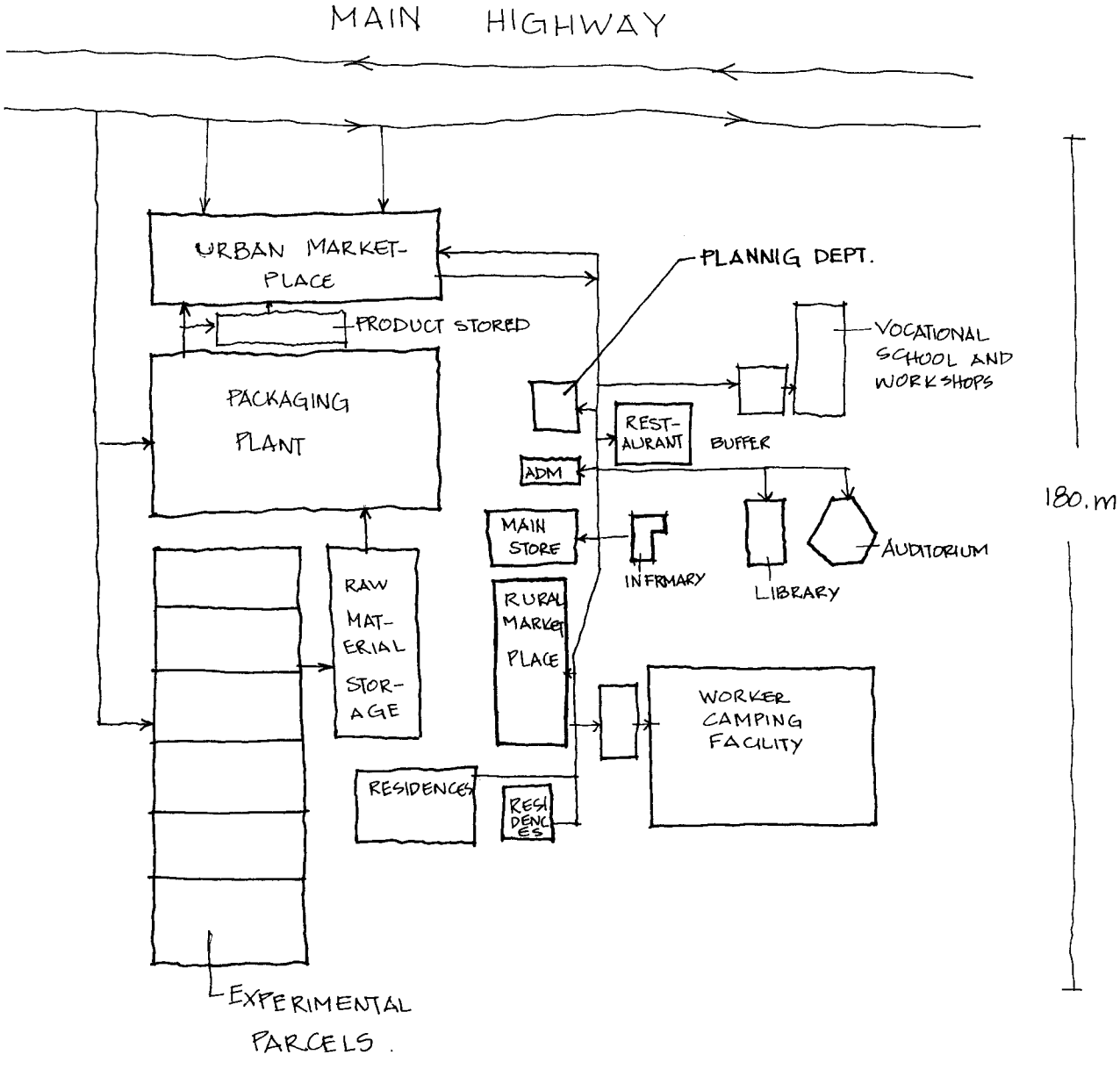
SPACE ANALYSIS & RELATIONSHIPS

POSSIBLE LAY OUT

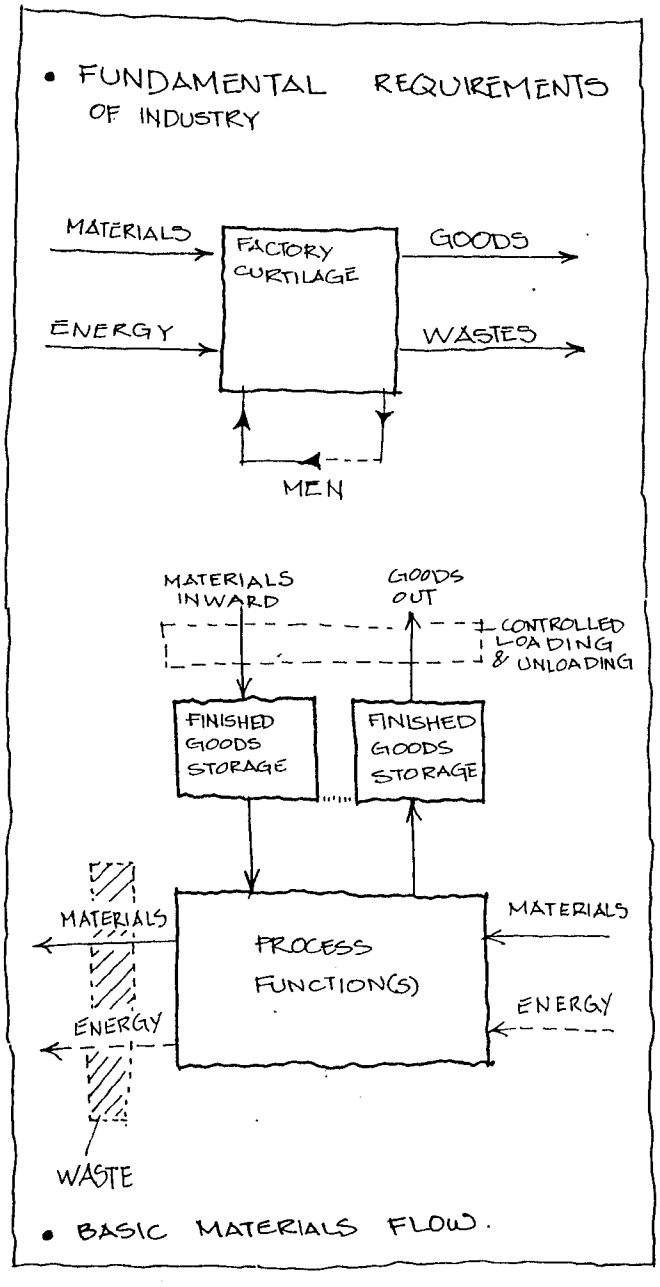


SPACE ANALYSIS & RELATIONSHIPS

THE RADI COMPLEX

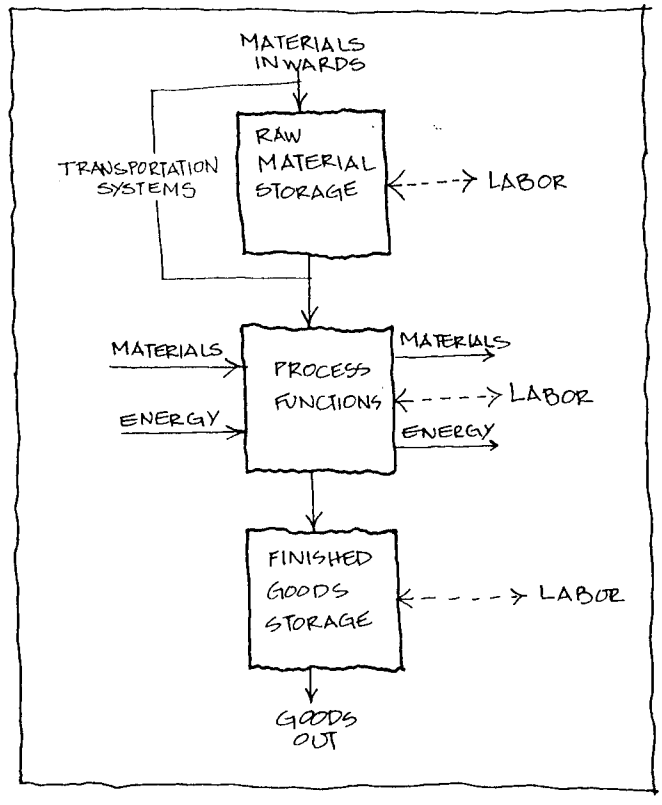


PACKAGING PLANT



A factory comprises a defined set of spaces in which materials, energy and men are brought together for the purpose of producing a given set of end product.

It is important to realize that the three introduced elements, are each necessary; even in a fully automated workshop, for example, people are implied elements, even if only for supervion or maintenance. Further it should be realized that waste is an implied by-product of any such process.



REVIEW OF DEFINITIONS

FACTORY

A factory comprises a defined set of spaces in which materials, energy and men brought together for the purpose of producing a given set of end product.

A factory is involved in light industry, whenever it applies processes that require only general facilities not necessarily permanently fixed, in contrast with the medium and heavy industry.

FACTORIES AND MATERIAL FLOW.

Certain methods of production and transportation provide batch movements, others continuous flow. (e.g delivery by vehicle compered with delivery by conveyor belt). It is thus always necessary to provide holding stores at the start and finish at various points during the process, within the curtilage of the factory.

Since the transport of the raw materials and finished goods to and from the site is frequently by the same system, loading and unloading may be considered in some cases the same basic function. This has advantages in control and supervision, and amends the basic analysis diagram as given in the following paragraphs.

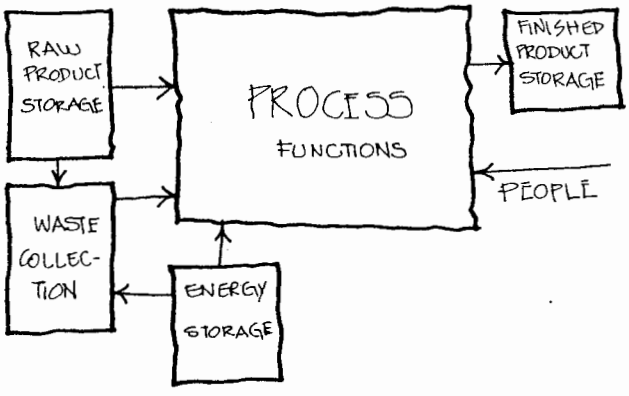
PROCESS FLOW.

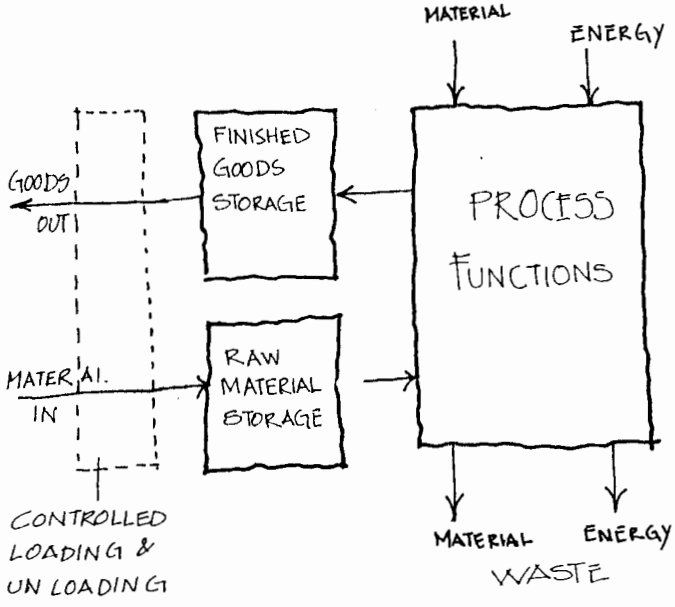
Process flows may be broken down into operations and work elements. These may be automatic machine tools linked to each other by conveyors, or they could be work stations for manual or man-controlled operations on the embrionic product. At each such operation the introduction of the three requirements, material energy and man power, will be necessary in principle. It should be noted that the work throughput at each operation may be either flow or batch. Frequently the production flow may be branched and parallel flows may exist simultaneously, either by reason of say, assembly and manufacture of components of the product carried out in the same factory or by the need to deal with by-products. In the first case, correlation of flow rates and the design of holding storages for work in progress is critical.

BY-PRODUCTS

In all processes there are by-products, even if they are all known as "Waste". Where they are valuable or saleable, the holding storage and subsequent processing (forming a subsidiary process) or transportation becomes part of the basic design problem. Where they form a nuisance or a local or public health hazard, the existence of this factor should be determined at the earliest possible state.

PACKAGING PLANT
SPACE DESCRIPTION
&
RELATIONSHIPS





Raw material, energy and waste storages are essential functions in a plant, beside the processing area itself.

Waste storage is preferably connected to the energy and raw product storages, in addition to the processing functions

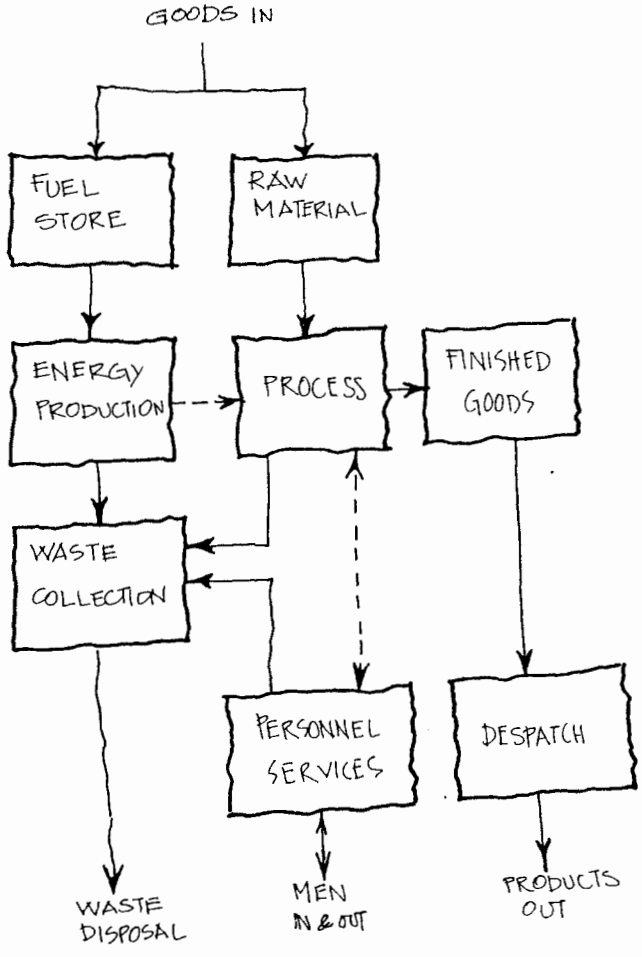
Process areas are generally laid out to cater for flexibility, rectangular shapes are preferable. Along the longest axis, are opposed the raw and finished product storages.

Loading and unloading activities are hence separate.

In other arrangements, loading and unloading are combined for better control. Anyway, workers generally access to the plant from non active areas.

Combined loading/unloading design does not give priority to a central waste storage.

PACKAGING PLANT
SPACE DESCRIPTION
&
RELATIONSHIPS



Apart from the normal building services (the requirements for which follow from the manpower requirements) the provision of energy is the second primary need. It will be closely related to the process and technology available and in many primary and secondary industries will represent a major part of the capital investment needed. The scale, sitting and servicing of these important subsidiaries must be considered at the outset.

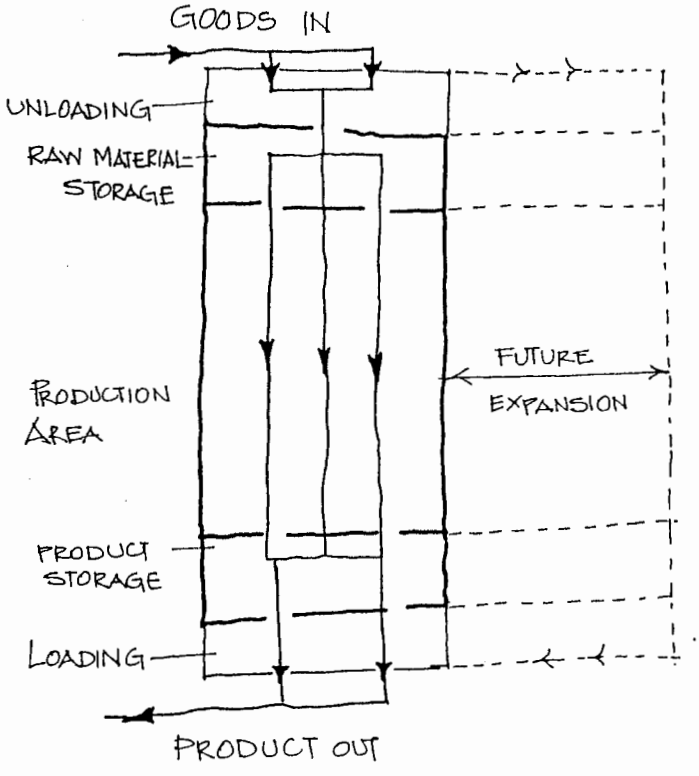
Combined Energy Centers are often considered, being economic in maintenance, but this notion should be balanced against the capital costs of extended services mains, the security and integrity of the whole (or a critical part of the) factory, and the likely costs in the even of central breakdown. Clearly the best theoretical site for the energy source is at the centroid of the points of consumption, weighted by their individual consumption rates. Considerations of access, maintenance and safety may well modify this. Where energy is provided by boiler plant and the like the problem of fuel storage and supply should be first established.

Architecturally, the physical envelope of the plant should cater for the future shift in terms in the sources of energy. The plant is intially designed as a medium size mechanized plant, although in the embrionic stage it will be closer to a primitive manual manufacture.
Accordingly, accomodations for energy storage are not only anticipated but also executed early as this stage, due to reasons of economy.
Facilities related to the plant such as personel accomodations, are planned for expansion at their own ratio in parallel with the expansion of the plant capacity.

In these instances, it could be more economical to achieve the particular facilities at their end scale, early as the embrionic stage of the plant, due to their insignificant requirements of expansion.

In the embrionic stage, the packaging plant is operated by 50 workers.

PACKAGING PLANT
SPACE DESCRIPTION
&
RELATIONSHIPS

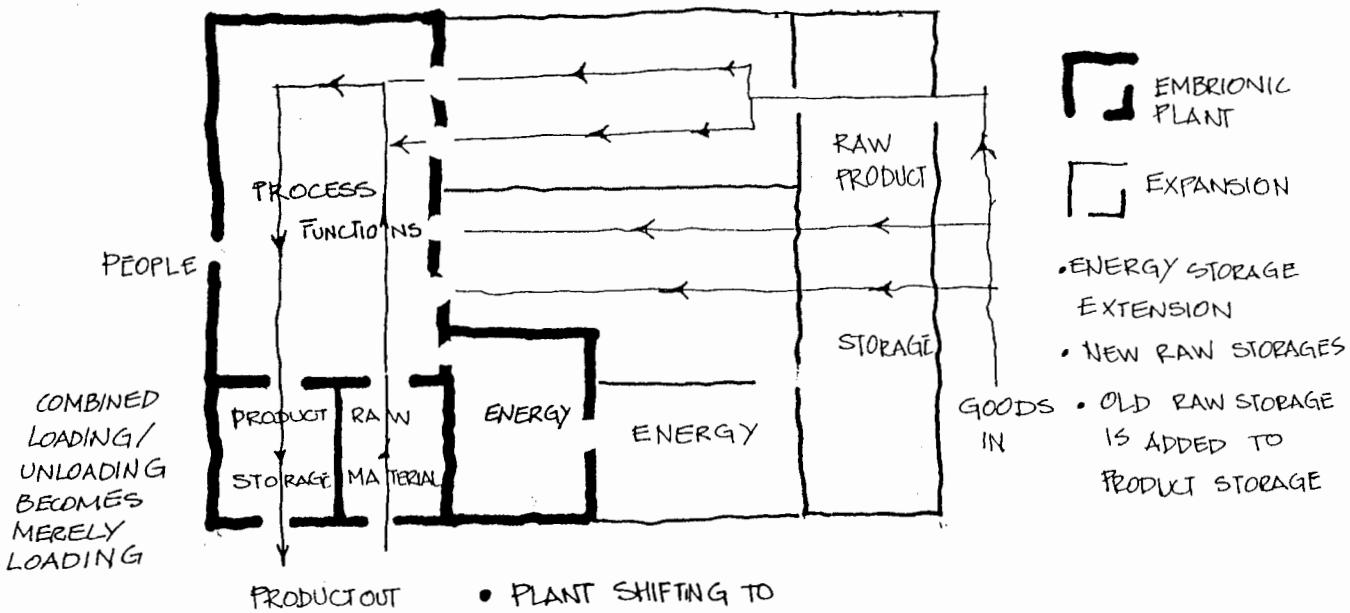


The RADI plant is planned to grow and hence shift the type and level of produced goods. From the single item sorting/cleaning activity to the transformative processing and canning of products, a significant enhancement of space and equipment is estimated to happen.

The expansion of the plant might involve additions similar in scale or even larger than the existing.

Different types of expansion are planned, according to need and convenience.

Expansion is done by following the direction of the existing flow, with preservation of raw material and product flows in the existing locations and directions. In such type of expansion, production increase in terms of quantity, is aimed at.



• PLANT SHIFTING TO MULTI-COMPONENT PRODUCTION - LONGER LINES OF FLOW.

Factories offer no peculiar problems in these respects except that there is greater than usual likelihood of large openings left open for long periods contributing to airborne heat loss. There is often the problem of comparatively large enclosed volumes to be heated for the benefit of a comparatively small human population. If this is so, local air or direct radiant heating appropriately and carefully designed can assist; alternatively, if the process allows, subdivision of the workspaces can usefully localise the heating requirement.

The second implication is the reuse of otherwise waste process heat. This brings problems of economics but with some large scale process and heavy plant the installation of heat transfer plant for tempered ventilation or water services could well be worthwhile.

Daylighting and outlook

A few processes, e.g. panel-beating and colour matching are more successfully executed under natural light. Most processes however can be carried out under properly designed artifical illumination. The areal extent of most factories, other than the smaller workshops, means that if daylighting is required it must be provided by means of roof-lights. This can be an added safety factor in the event of power failure, but daylight intensity is an uncontrollable phenomenon.

The introduction of roof-lights reduces the average thermal insulation value of (probably) the largest portion of the external envelope and introduces heating and maintenance problems. In most cases it is better to omit roof-lights where possible.

There seems to be no general opinion on the advantages, psychological or otherwise, of windows in production areas. It probably depends upon the outlook!

Works entrances

Security aspects are dealt with below under Ancillary Accommodation and Functions.

There has been an increasing tendency in the clean industries to design works entrances (as well as recreational accommodation) in a more comfortable and imposing mode than the 'traditional' fair-faced cream-painted brickwork.

This has been done in the interests of industrial psychology, to invest employees with a sense of well-being when at work and identity with the factory. Reports have indicated some success with this approach, increased pride, accuracy and efficiency.

Use of colour

The selection of colour schemes for factories is essentially no different from that for other buildings types. The following attributes perhaps have greater prominance and should be considered more carefully:

- The general psychological effect on the environment and the well-being of staff working in the building;
- The effect on the standards of illumination, especially where safety may be affected, and moving machinery or vehicles occur;
- The use of colour codes for information, e.g. designating services, danger zones, etc, and the need to prevent confusion between codes and the background.
- The visibility and legibility of warning notices.

ANCILLARY ACCOMMODATION AND FUNCTIONS

Importance of ancillary functions

The production area (or areas) form the core of the accommodation; the hub of the plan. It functions by courtesy of the auxiliary, ancillary parts, which in turn must be designed for optimum efficiency of the factory considered as a whole.

The accommodation for these ancillary parts is considered where they are particular to industrial works. In many instances they may be simple, or may be designed on general principles without the application of knowledge of the process. Where such general principles are dealt with elsewhere in these volumes, references should be made to the relevant section. But the brief for the ancillary accommodation flows *ipso facto* from the design of the process.

A checklist of ancillary functions is given on page 259.

Office accommodation

The design of offices usually offers no special problems once the type and extent have been decided. There are two basic types of offices: those needed for the supervision and administration of the process which are usually locally placed; and those dealing with the development, handling and sales of the products, staff administration and welfare, etc, which can be remote.

It is often convenient to place office accommodation at first floor level, releasing the ground floor level for functions more directly related to the process and which require a lesser headroom. This arrangement may sometimes be used to allow office personnel circulation at high level thus segregating flows, and allowing better visual supervision (see *Figure 11.12*).

(See also Section 25 'Office Buildings and Banks').

Staff lavatory accommodation

The extent of this is controlled by the Factories Act, 1961, and the OSRPA, 1963. However, in certain industries, e.g. food, printing, and metal finishing, there are further regulations providing for facilities additional to these minima. There may also be process needs for cleanliness which require additional facilities.

Generally it is better to have the accommodation dispersed rather than centralised, reducing loss of manhours and crowded conditions etc, for example at change of shifts. In dirty industries there may be need of special cleansing agents (removal of grease, printing inks, etc). The layout should be considered in the light of personnel circulation, the degree of control of staff required, and the possibilities of contamination by staff movement.

Portable lavatory blocks have been used to permit ready relocation and with reported success. It is considered that the requirement for an intervening ventilated lobby may be dropped from regulations.

Changing and dressing rooms

Where staff get very dirty during the process work in risky conditions, or there are social reasons, protective clothing may be required, such as overalls, headgear, boots, or other items. Lockers and changing accommodation will then be required, which must be planned in relation to staff movements, especially those at ends of shifts, meal breaks, etc.

It is generally convenient to plan changing accommodation *en suite* with the lavatories (see *Figure 11.25*). Where shift working is the rule, the number of lockers will be related to the total numbers of staff employed while the changing and lavatory spaces will be related to the maximum number of shift. Sometimes shifts overlap – twilight shifts employing female labour sometimes give rise to this – which must be taken into account. Where catering staff are employed they must have separate accommodation.

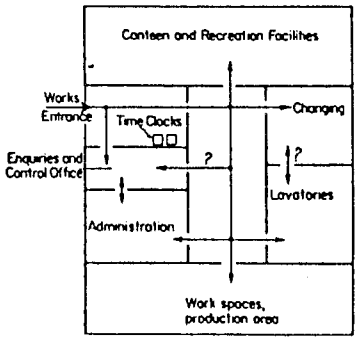


Figure 11.25 *Works entrance. Staff movement*

If protective clothing is provided, some must be centrally stored for periodic (say, weekly) issue and reception of soiled clothes. With the latter, the following questions should be decided. Is the clothing to be laundered on or off the premises, or destroyed? What staff to deal with this will be required and what accommodation will they need?

Smoking and restrooms

Is smoking permitted in process areas? If not (because of explosion or contamination risks) the provision should be made for designated smoking areas, with fire safety precautions for anti-contamination precautions as appropriate. In large process areas it is sometimes convenient to provide such smoking and rest rooms distributed locally.

Where processes demanding high concentration or worker fatigue are carried on, the opportunity to relax at intervals is needed and this may be provided by rest spaces; these may be general recreational staff areas such as mess rooms (see *Figure 11.26*). Factories employing women should provide at least one restroom for them, including a couch. This may be part of a medical suite where appropriate.

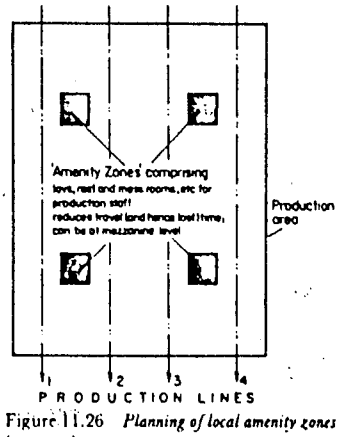


Figure 11.26 *Planning of local amenity zones in large production areas*

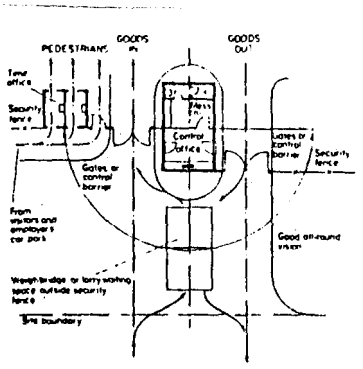


Figure 11.31 *Primary control: typical gatehouse*

require independent facilities for clothing, refreshments and communications. A small messroom is attached to the gatehouse.

The arrangement should be so that gatehouse staff, sheltered from the elements, have good vision for their supervisory tasks. The gatehouse must be conveniently arranged for dealing with enquiries by visitors and new arrivals, and an enquiry office or window with a convenient lorry-sized layby is required. If the whole works is to be secured, the gatehouse is the last part to be locked.

Recreational facilities

These are usually provided for works staff, and can be very varied in range, type and sophistication. Clearly an on-cost of the factory economics they should be designed with two main factors in mind – circulation and security; maintenance and running costs.

It is important to distinguish between those facilities intended primarily for use within the working day or shift, and those which are for use out of hours. The first type must be within the factory site curtilage, but those in the second category may be remote, e.g. sports grounds.

Where people other than staff are expected to use the facilities, then special care in establishing the circulation to and from them will be needed, taking into account the security question.

Process services accommodation

Certain processes in production may require services normally considered 'specialist'. Insofar that they will require special plant for their production or transduction (which in turn will require housing and maintenance), their basic space requirements should be determined at outline stage. For detailed specifications specialist advice should be sought (see *Table 11.1* for Checklist of Services).

Working conditions

Process requirements Processes where the products are exposed to the air may require particular conditions of cleanliness (food, paint-spraying), humidity (yarn-spinning), or ambient temperature. Such needs should be determined at an early stage and space provision allowed for the necessary services, equipment, distribution, etc.

Process wastes and effluents Discharge of wastes is dealt within the sub-sections on Planning and Legislation. Waste products may have a risky effect on the local working environment, which must not be overlooked. Under the Factories Act, 1961, a number of processes and substances incur special regulations affecting the conditions or the installation of plant, or the provision of additional facilities for worker welfare.

In principle, the safety and efficiency of the plant is improved, the welfare of workers best secured and the subsequent handling of the waste simplified, if the waste can be collected at the point at which it is produced. Many machine tools – for example, those producing swarf or dust – have built-in collection facilities, or connections.

Control of special environmental conditions is made easier by separation of distinct areas or rooms. This technique however should be carefully employed, considering the economy and technology of the process at the floor-diagram stage. Services requirements consequent should be considered as part of the total production needs.

Normal conditions Where there is no special process requirement, workrooms must be heated and ventilated to normal working conditions. Where there are large workshops or process areas and staff density is low, or concentrated in one area, there may be problems of uneconomic running costs, by reason of the large volume of the spaces. Local radiant or direct air heating may be the answer, depending on the working conditions.

Laboratory requirements

Quality control Where the control is to ensure the exactness of the process, the laboratory should be sited close to the process area so that samples and measurements may be readily taken and rapidly assessed. Rectification measures can then be taken immediately.

Where quality control is post-manufacture, the laboratory may be sited more remotely. Its size and siting will depend upon the process and extent of sampling require, the nature and size of samles to be tested, and the nature of the test equipment. Section 29 'Research Laboratories' should be consulted.

Development laboratories For small scale products a development laboratory is likely to be similar to a normal bench laboratory. Otherwise it may be known as a 'pilot workshop'. This could be integrated into the process, or located nearby, for convenience of testing, information feedback and use of common stores.

Design requirements are likely to be more akin to factor production area than a bench laboratory and should be analysed and designed accordingly.

Nuisance

An important aspect to be noted in connection with potential nuisance is where other buildings, especially dwellings, are nearby. The main types of nuisance are: noise; shift-working; dust and fumes emission; smells.

Any effect which may disturb established neighbours in their work or private lives may constitute nuisance under the Public Health Acts – welding flash at night has been such a ground. Where possible it is better and cheaper to avoid the problems by initial good planning (for example, placing the offending department in a remote area), rather than

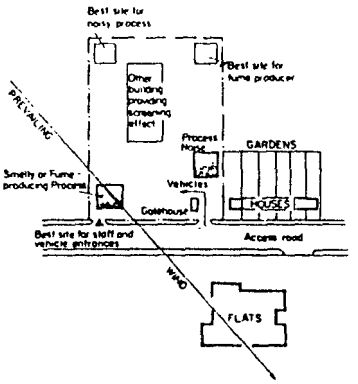


Figure 11.32 *Siting – nuisance aspects*

build-in additional plant or material. Where distance cannot be provided other planning solutions, e.g. screening, can help (*Figure 11.32*). For legal aspects, see section on Legislation.

Topography

In general, factories require a level floor to provide flexibility of internal transportation, especially where this is mainly or largely by means of vehicles. By corollary, the most economical site is the most level. Where sloping sites are to be considered, the gradient may be turned to advantage where a multi-level process can be useful or acceptable, where gravity-feed systems can be used, or where the process may be divided into smaller, independent production areas with transportation between them.

With growing pressure on land space, and the single-storey factory becoming less economical in national terms, a steep site could permit the future expansion of a multi-storey factory (*Figure 11.33*).

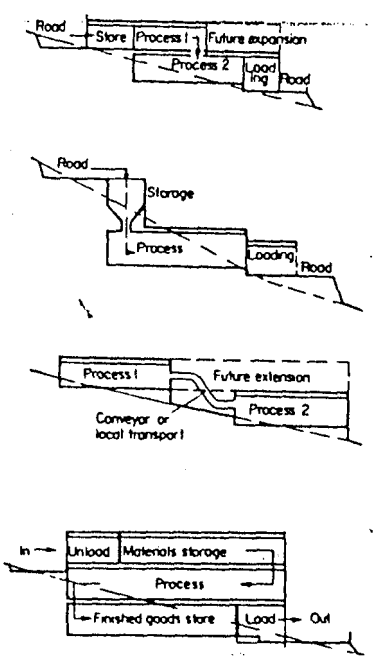


Figure 11.33 *Use of steep sites*

Nuisance

The general problem of nuisance and the means of reducing the risk by planning and site arrangement is dealt with in the sub-section on Siting.

Noise and vibration

Prevention

Noise and vibration comes within the heading of nuisance. This is a highly emotive, subjective matter and one where increasing attention is being paid.

It is nearly always much simpler and cheaper to avoid the problem or reduce its effects by careful planning in the first instance than to introduce protective measures into the fabric at a late or post-design stage. These techniques include remote siting, careful arrangements of doors and windows and other openings, and screening, all matters to be considered in relation to the general site arrangement, and the neighbours on all boundaries.

Note that noise and vibration can be a statutory nuisance under the Public Health Acts.

Environmental noise

There is also the aspect of the internal, working environment which can also be a risk to health at high levels of noise and contributory to loss of working efficiency of personnel. A substantially continuous sound level of 90 dB (A) is the normal limit of environmental sound permitted, although some authorities suggest that a lower level is necessary to prevent hearing loss to workers.

After remote siting, the chief protection against airborne noise is the intervention of massive structure, but any continuous structure will reduce the transmission. To obtain the necessary continuity of an enclosing structure is frequently impossible but, carefully designed partial screening with sound-absorbent linings can assist.

Vibration

Where machinery causing high amplitude vibration is to be installed, isolated bases, anti-vibration mountings, or flexible services connections may be all that is necessary.

Care should be exercised to ensure that the vibrations cannot be transmitted to other parts of the structure or services pipes, which can then propagate the nuisance elsewhere. Solution of the correct frequency/mass/clamping ratios is important and expert advice may be necessary.

Effluents and wastes

Principles

All materials which enter the site, that do not leave it in the form of finished goods, must either accumulate as waste or leave it as effluent. Packaging materials are a typical example.

The accumulation of waste can impair the efficiency of the process, and in time become a hazard, either within the factory or outside. Where it is possible to design for their better handling at the planning stage, the factory is likely to be the more efficient and economic.

Types

Wastes may be classified by their physical phase and by the hazard that they potentially represent. Where they contain constituents worth recovery, the cost of handling plant will pay for itself (See *Tables 11.8 and 11.9*).

The conversion of energy in the process itself produces waste (usually heat) and is an economic problem which can influence the design of the buildings.

Legislation

There is much legislation concerned with potentially hazardous wastes, and it is likely to grow. Where wastes contribute to an internal environmental hazard they will be controlled under the Factories Act, 1961, and the H & SE should be consulted.

Where wastes may constitute a nuisance to neighbours or the public at large they come under the Alkalis Act (for gaseous discharges), the Water Resources Act, 1963 and Water Act, 1973 (discharges to natural water courses) and the Public Health Acts (solids and generally). There are also legal controls for discharges to tidal and sea waters.

Control systems

The design of waste control, handling and treatment systems can be quite complex (see *Figure 11.23*) and close collaboration with the production engineers and the public authorities is desirable at an early stage. Specialist advice may well be necessary.

It is essential to know the production source of each waste and its constituents. In principle, the greater the separation of wastes *before* treatment, the easier the treatment and control of the discharge. Materials can become wastes by reason of spillage, and where the spillage may be large and the material hazardous, the possibility of such an accident should not be ignored.

The various activities taking place on the RADI complex, necessitate the permanent presence of a particular bulk of people, there. Furthermore this presence is mostly needed for achieving the basic premise of the RADI program, and that is
PARTICIPATION

Accordingly, a common housing facility is needed to cater for the subjects unable to commute to their residence places, and in the same time, indispensable for the functioning of the project.
Since most services on complex are of a communal aspect (like eating, bathing, cloth washing, TV watching,...), the camping facility, therefore, is simply equipped, since used mostly for resting purposes.

Camping is broken down into male section and a female one. The first, catering for 300 subject, the other, for 100.
Priority in this accomodation is given to workers trained and hired by the institution to accomplish specific tasks whenever assigned to.
This is hinting the RADI WORKING PROGRAM, consisting of preparing unemployed skills and putting these in a state of readiness. Jobs, then, are commissioned on collective basis.

The camping facility should cater for expansion as the every function of the institution.

Research laboratories 29

CUSDIN BURDEN & HOWITT

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The purpose of this section is to provide guidance to architects engaged in the design of research laboratories by stating essential principles and objectives. Special emphasis has been laid upon briefing procedures and the approach to the design concept, while more detailed sub-sections provide a means of checking that all aspects of laboratory design have been adequately considered.

It is not intended to duplicate comprehensive planning and dimensional data already published and this section should therefore be regarded as partly introductory and partly complementary to such material. Details of these publications are included in the Bibliography.

This section applies to conventional research laboratories, i.e. chemistry, biochemistry, biology, physics, including radiochemical and bio-hazardous laboratories, which are to a large extent interchangeable. Laboratories for more specialised research are not dealt with, although much of the advice about planning principles and the recommended briefing procedures will apply equally to these.

BRIEFING

Effective briefing is of paramount importance. Although the responsibility for this lies with the client, the architect has much to contribute at this stage by ensuring that a clearly understood method for exchanging and recording information exists. It is equally important for the client to adopt an efficient discipline for decision taking.

Architects and clients are strongly recommended to adopt either the following or similar procedures to achieve maximum working efficiency during the design stage and a satisfactory end product:

1. The setting up (by the client) of a Planning Group or Committee which will be responsible for decision taking and matters of policy. The Committee will present the initial brief to the architect and will be responsible for approving the final scheme.
2. The appointment of a Working Party which will be answerable to the Building Committee and be responsible for developing the brief in detail. An important function of the Working Party will be to act as a filter for the other users' accommodation and technical requirements to ensure that these are reasonable and not excessive.
3. User-client representation can most effectively be achieved by appointing one scientist and one technician to act as spokesmen for the other users, and as the channel of communication for the architect in matters of detail.
4. The earliest agreement by the Working Party to the basic disciplines which will be applied as standards throughout the project and which will fundamentally influence the planning and structure of the building, i.e.:

(a) A planning grid arising from the arrangement, spacing and width of benches.
(b) The method of services distribution.
(c) The composition and frequency of the bench or work 'place'.
(d) The frequency and location of fume cupboards.
(e) The degree of flexibility required.
(f) The basic environmental requirements, i.e. air-conditioning, etc.

5. Use should be made by the Working Party of the Room Data Sheet principle whereby the detailed requirements and content of each room are specifically recorded by the users and ultimately drawn by the architect for approval (see under 'Room Data Sheets' below).
6. The production by the professional team of a Design Concept document which will state the planning principles, the basic disciplines referred to above and include brief specifications for the services installations and the structure.
7. The adoption of a programme of work at the earliest possible stage. This should be prepared by the architect and include time scales for items of Client responsibility. The programme should follow the sequence and procedure set out in the RIBA Plan of Work.
8. Client approval on completion of the Scheme Design Stage should be reached on the basis of clearly agreed documentation. This should include:

(a) The sketch plans.
(b) A design concept (see 6 above).
(c) Completed Room Data Sheets (see under 'Room Data Sheets').

Room Data Sheets

Room Data Sheets provide a means of checking that the planning and spatial requirments as well as the detailed content of each room are properly taken into account. Although Room Data Sheets are widely used by architects, one of the most comprehensive versions has been developed by the Medical Research Council. *Figure 29.1* shows this in full in order to clarify their function in detail.

The normal procedure is for the Client to submit completed sheets for each room as part of the brief. These are updated as necessary during the Scheme Design Stage in consultation with the architect and, when agreed, translated into drawing form to include wall elevations as well as a plan. If the drawn sections of the Room Data Sheets are prepared in sufficient detail, they also serve a valuable co-ordinating role during the construction stage.

The design of the mechanical and electrical services forms an essential part of the general laboratory design and the services consultants will therefore play almost as early a role as the architect. Likewise costs will influence the approach to design and the quantity surveyor's advice will be required at an equally early stage. Consequently, when the architect is referred to in this section, the professional team is often implied.

SITING

The main factors in the siting of laboratories are seen to be a balance between Technics and Humanities. The various factors which have to be considered under these headings are as follows.

Technics	*Humanities*
Support and communication with other departments	Staff access
Supplies access	Outlook
Main services	Catering
Disposal access	Pollution, Waste, Noise
Air handling	
Sun defence	
Future expansion	

PLANNING

The planning and form of the building is dictated by the laboratory requirements to a greater extent than is often realised. The services content may well be over 50% of the built cost and their correct distribution and functioning is fundamental to laboratory work. The scientific disciplines involved set the relationship of rooms and these must be established with the users; they vary with each discipline. A detailed understanding of the pattern of use particularly with regard to special techniques and equipment is necessary and this, once again, emphasises the essential importance of adequate briefing.

Where research laboratories are to be financed by the University Grants Committee the space standards included in the UGC 'Notes on Procedure' must be followed and will form the basis for cost allowances. For further details, see Bibliography.

Major factors which have a direct influence on form and planning are given in the following paragraphs.

Plan form

A fundamental decision is whether the buildings are to be of shallow width, in which every room can receive natural light and

ventilation, or deep plan, in which only the outer rooms have natural light and ventilation. The selection depends on the functions involved in relation to the funds and site space available. If it is established that artificial ventilation is a user requirement then a deep plan becomes suitable, using the centre core for rooms where daylight is unimportant or not required.

Heat gains within the building, from a quantity of connected apparatus, the use of noxious substances and needs for a constant environment, set the pattern for ventilation as much as for the comfort of the occupants. The degree varies with the discipline and the costs, from full air-conditioning downwards, but the decision affects the planning of the rooms. Daylighting standards are often of little consequence, as artificial lighting tends to be used permanently during working hours, with venetian blinds set to reduce glare from outside, whether bright or dull. It follows that the role of daylighting and normal ventilation is most appreciated where the work is not direct laboratory work, such as in writing spaces and ancillary rooms, where a contrast in environment should be sought.

Module

Laboratories are particularly suited to modular planning; the problem is to obtain compatibility of the bench module (see *Figure 29.2*) with the building module, which is frequently 3000 to 3600. A 3000 module can be made to fit both benches and building in most circumstances, but where the benches are larger or where the lengths of benches are greater, a 3300 module becomes more applicable. An important criterion is the ability to pass another working place without risk of collision; there is a hazard to safety if spaces are too close.

Architects are strongly advised, however, to acquaint themselves with the latest studies carried out into modular and general laboratory planning and to visit research establishments to explore the Architect/User approach to these questions. Scientists generally welcome the opportunity for such discussions with architects and to point out, often all too frankly, inherent weaknesses which may exist in completed projects.

Although the standard works of reference listed in the Bibliography give guidance to planning principles, thinking has advanced considerably since much of this material was produced in the early 60's. Amongst significant developments are:

1. The adoption of square, as opposed to rectangular, laboratory modules which allow far greater flexibility in terms of bench arrangement and permit the introduction of island bench units and free-standing equipment. Where this module has been used, (typically 7200 × 7200 structural with services ducts at 3600 intervals) the gain in flexibility is regarded as more advantageous than the slightly greater bench run provided by the rectangular module.
2. The application of laboratory benching as a series of 'loose-fit' table tops in standard unit lengths. In such cases the services and power outlets will be provided in an independent services spine. Such a system allows considerable variations to be made to the layout of the benching with minimum inconvenience. Bench framing can also be manufactured to permit height adjustment to be made to the working tops.
3. The arrangement of heavy equipment, fume cupboards, wash-up facilities, etc., in a common central area. This system has been successfully adopted at the Department of Zoology, Edinburgh University, where the central area also provides through circulation. The central area, however, undoubtedly raised problems in connection with means of escape and fire protection and calls for early consultation with the Fire Authorities.

The work place

The planning of individual laboratories normally starts from a determination of the work place which can be taken as a unit length of benching, provided with piped and electrical services and drainge. Arranged in modules or bays, as described above, the resulting group of work places forms a work unit. This will require back-up facilities such as fume cupboards, sinks, etc.

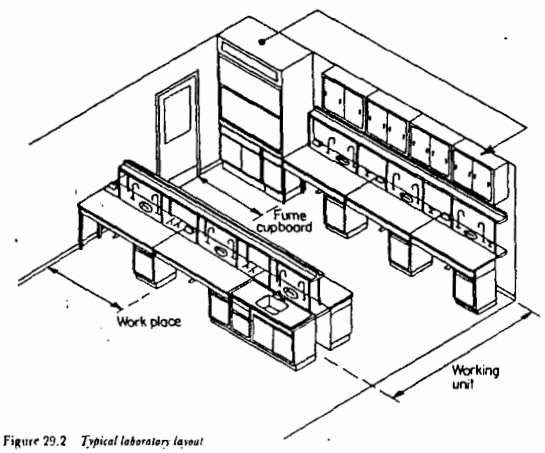


Figure 29.2 *Typical laboratory layout*

Bench tops in research laboratories are ideally removable in unit sections (see above), normally corresponding to the work place, to permit the introduction of floor standing equipment. *Figure 29.2* illustrates these features. For detailed information about storage and shelving and other standard laboratory content, see page 468.

Office related space for research

Paper work plays as important a role as bench work in research, calling for a very close association between the work place and office space. There are various planning solutions:

1. Desk height bench spaces, either adjacent to the work place or near to the windows, where they can be designed to provide a change of working environment, possibly separated by a glazed screen.
2. Offices adjacent to laboratories: Each office is directly related to one laboratory (see *Figure 29.3*).

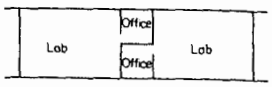


Figure 29.3 *Office space related to laboratory*

3. Offices on opposite side of a corridor, either for shallow or deep plan buildings. The offices need not be directly related to particular laboratories (see *Figure 29.4*).

Services distribution

The arrangement of services can either be off a series of vertical ducts, serving individual, or pairs of laboratories at each level; or horizontal ducts, serving a group of laboratories on each floor. The second method is generally cheaper initially, but does not have the same adaptability, and involves many floor penetrations.

Service runs require careful detailing in order to avoid flooding caused by leakage which is one of the major hazards in laboratories. The practice of sealing floors and servicing horizontally from vertical ducts is increasing on this account.

Horizontal services distribution suspended from floor slabs gives a strong bias to a flat slab structure, particularly if services are exposed. If beams are used as a structural economy, it is desirable that all services including ventilation ductwork, fume cupboard extract ducts and electrical trunking should run below beams, and their general co-ordination should be an important factor in the determining the floor height.

Adaptability

The pace of change is accelerating, and laboratory requirements and techniques will almost certainly be varied long before the economic life of the building is over. The concept of adaptability must be taken into account in planning, even to the extent of resisting a highly specialised brief from a dedicated research worker, which may become obsolete before the building is even occupied. Adaptability is achieved in various ways:

1. *Structural.* A standardised grid of holes through the structure for services, vertical and horizontal, allows for extensions to be made to services.

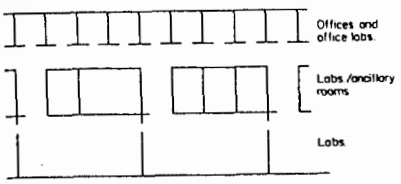


Figure 29.4 *Typical arrangement of offices and laboratories*

2. *Servicing*. Each piped service where possible should have a stopped off T-connection point for possible future runs of services. Ideally, there should be complete access to concealed services for both maintenance and future alterations and additions. To permit installation of new pipework in economic lengths, ceilings should be at least partially demountable and vertical ducts should have full height access.
3. *Extendibility*. Each department should have an 'open end' so that individual extensions can be made, without affecting other departments. Where the site permits, each block should also be extendible.
4. *A range of room sizes*. Experiments are done with groups of various sizes requiring differing room sizes. These may, of course, be classified as 'activities', all taking place in a large open plan laboratory. However, compartmentation to contain any outbreak of fire and reduce smoke damage should be considered. The upper limit of the volume and area permitted by legislation should be checked with the Local Authority.
5. *Standardised laboratories*. Comparative analysis of a number of specialised research activities shows that provided the services are available and there is space for equipment, the activity can be fitted within a standardised layout. There are obvious benefits in adaptability, particularly in the long term, in comparison with a series of individually laid out rooms and therefore standardised planning is greatly to be encouraged.
6. *Areas of anticipated change*. Demountable cross wall partitioning can be restricted to pre-determined zones where change is most likely to be required. Services should be kept off these partitions as far as possible to allow for alterations.

A judgement of the suitability of a laboratory will frequently be 'How convenient is it to install a new piece of equipment?' The provision allowed in the plan under the above headings will ensure that a reasonable answer can be given. It should be stressed that it is the ability to adapt that is important rather than the initial provision of expensive services connections and demountability to meet contingencies that may never arise.

SPACE REQUIREMENTS

Most laboratory buildings, whatever their primary research use, may be expected to contain rooms and spaces in four main categories.

A. Standard laboratories for the normal primary research work.
B. Ancillary specialised rooms as direct research adjuncts usually requiring to be in close proximity to category A rooms.
C. Work support and other rooms in close proximity to category A and B rooms.
D. Work support and other rooms not necessarily requiring close proximity to category A, B and C rooms.

Typical rooms in these four categories are described or listed below, attention being drawn to special environmental conditions and services likely to be required. These are followed by notes applicable to certain more specialised types of research where, although their general content can be divided into the categories A, B, C and D above, special conditions attach to the building as a whole.

A. Standard laboratories

These rooms may contain one or a multiple series of similar work units (*Figure 29.2*). The layout, services and fixed equipment for individual units in a multiple series room will not differ significantly from those in a separate room for one working unit only. Standardisation of the work place and the work unit is in fact always desirable and is certainly in the long term interests of the building. There may be more than one user to a work unit. Attention is again drawn to the need to provide related office space for research (see *Figures 29.3 and 29.4*) for suggested planning solutions.

Bench layouts

There are many possible combinations and arrangements of benches and only the Client can determine what is most suitable for his needs in this type of room. However the present tendency is for free floor space requirements to increase either for floor-mounted experiments or for floor-mounted instruments or a combination of both. The manufacture and use of instruments and equipment mounted on wheels which can be brought into the room and connected to the appropriate service is generally increasing.

Where most of the research work is carried out on benches present practice in most types of research is for 40% of the total bench space to be used for working and 60% for instruments. For most purposes a clear bench width of 600 mm is adequate, though physics work may need more. For flexibility of use it is preferable that all benches in this type of room should be independent of the services racks or spines. The Client should confirm the working heights of all benching.

Circulation spaces, Doors

The practical minimum clear space between benches is about 1500 mm. Other internal room circulation space should allow for the passage and manoeuvring of equipment and trolleys, door swings, and standing at fume cupboards and wash-up sinks. The clear opening of single doors should generally be about 950 mm minimum.

In large multiple unit rooms opening off a main corridor, doors at each end are recommended for convenience and escape in emergency. One of these doors should have a minimum total clear opening of 1350 mm to allow for the passage of equipment. However, clear door openings and gangways between benches should be confirmed by the Client. The latter are crucial to the establishment of the size of these rooms and may have an important bearing on the structural grid of the building as a whole.

Generally, agreement with the Client on the design of the standardised rooms should have high priority in planning the building.

Services

In discussing the question of services it is assumed that the general environmental conditions, e.g. full air conditioning, or mechanical ventilation without cooling, or none at all in rooms without fume cupboards, have been determined and only services actually necessary to the research work are described below.

Each work space should be provided with one or more standard sets of service outlets, depending on the total length of the benching, and these should be preferably mounted on an independent service rack or spine, which should be designed to permit the easy maintenance of pipework, access to stopcocks, valves and liquid waste receivers or traps, and also allow for future alterations and additions.

For most research purposes a limited range of services to benches is adequate, the selection usually being made from 13 A power, cold water, town gas, laboratory vacuum and laboratory compressed air. This range would also apply generally to fume cupboards and laminar flow cabinets. Hot water is not normally required except to wash-up sinks and hand basins. With the increasing use of electrically operated or electronic instruments it is important that sufficient power sockets are provided for them without having to resort to adaptors. Other typical services may include a telephone, slave clock and clock with sweep second hand. Where long-term work may be otherwise effectively lost, it may be necessary for apparatus and instruments to be connected to power outlets on stand-by electrical supply to permit continuity in the event of main power failure. It is desirable in a work unit where this precaution applies for all or some of the lighting also to be on standy-by supply.

Fixed equipment and facilities

The following are commonly installed:

1. Fume cupboards or laminar flow cabinets.
2. Wash-up sinks and drainers – these are not always required in single work unit rooms. In multiple-unit rooms they are often shared. For example a three-unit room would probably need only one, but a four-unit room is likely to need two. The services required are generally a hot and cold mixer tap, a separate cold water tap, and possibly also separate deionised water.
3. Small sinks let into bench tops and provided with cold water.
4. Most biological research rooms will need a separate hand basin with an elbow operated hot and cold mixer tap.
5. Chalkboard or writing board.
6. Pin-up board.
7. Coathooks, if cloakrooms are not reasonably nearby.

Residence facilities are to cater for the professionals, researchers, analysts and administrators necessary for the functioning of the project, but unable to commute to it, on daily basis.

Residences are broken down into single and married accomodations. Single residences are mainly for male users.

Single residences follow the camping system in terms of services. It is merely in the case of couple facilities that private services are tolerated.

Medium frontage houses

Most of the problems set out for narrow frontage houses can be solved by increasing the frontage of the house to between 5.5 m and 7.3 m. It is usually more difficult to achieve high densities with medium frontage plans because they take up more road and footpath frontage.

With plans of this type it is possible to arrange two living rooms side by side, away from the front door, ensuring greater privacy for the living area. It is still difficult, however, to provide a through living room to give a versatile orientation.

It is also possible for two-storey medium frontage terraced houses to have an attached or integral garage. This type of plan probably offers the best compromise between a convenient internal plan and an economical site layout.

Wide frontage houses (*see Figure 20.7*

With wide frontage terrace houses over 7.3 m costs are increased. Circulation areas tend to be high but privacy, through access, space for the car, natural lighting to all spaces and versatile orientation are all relatively easy to provide. With these plans, arrangements can be made for all the habitable rooms to face away from the access side of the house ensuring greater privacy and protection from noise where this is a particular problem. This can only be done, however, at the expense of orientation.

It is also possible, with wide frontage house plans, to arrange for access lobbies at front and back and access to the garden through the main living spaces can be completely avoided. It is desirable to provide integral or attached garages. Good relationship between all internal rooms can be achieved with this type of plan. It is also possible to provide a plan with some flexibility to enable, for example, a double bedroom to be sub-divided into two single bedrooms, or vice versa.

Patio houses (*see Figure 20.8*)

Apart from the traditional terrace layout of house, it is often possible to design accommodation around a patio to give greater privacy; houses can also be jointed in various ways to suit differing conditions of access, level and orientation. Patio houses are, however, more expensive than terrace houses because of their greater wall/floor area ratio.

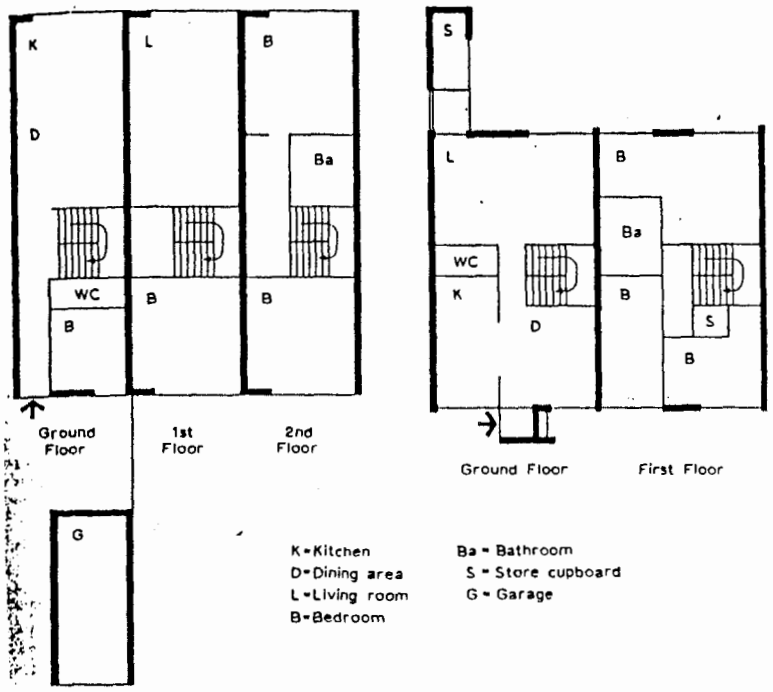


Figure 20.5 *Narrow frontage house plans*

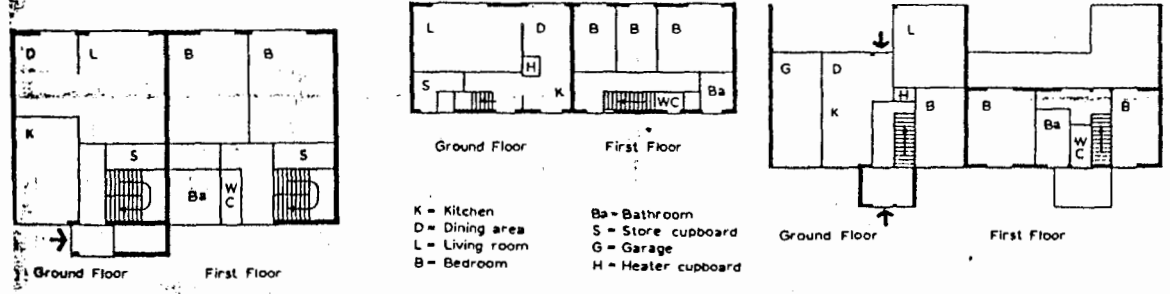


Figure 20.7 *Wide frontage house plans*

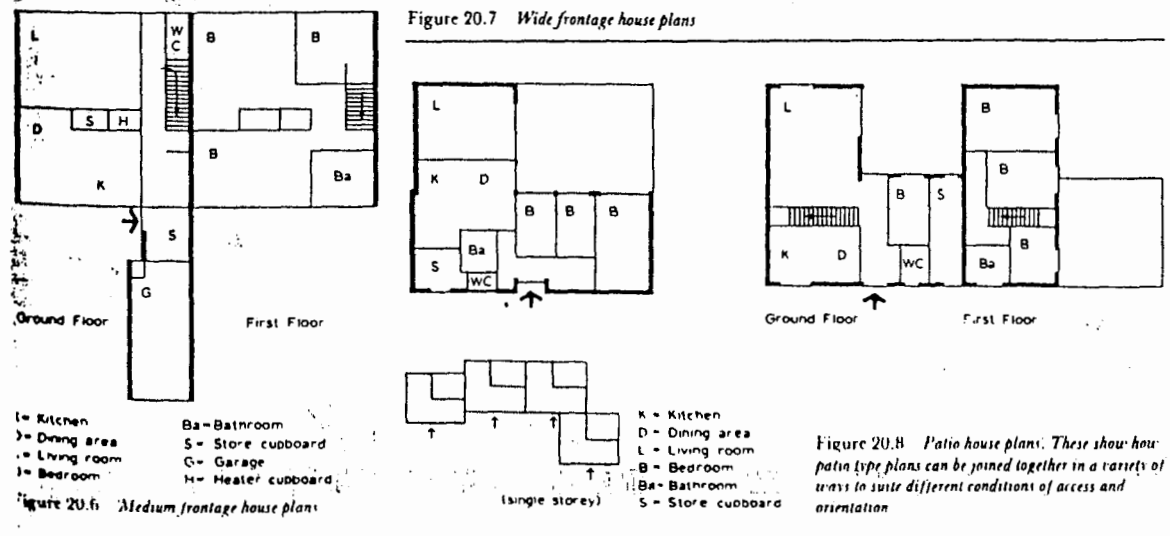


Figure 20.6 *Medium frontage house plans*

Figure 20.8 *Patio house plans. These show how patio type plans can be joined together in a variety of ways to suit different conditions of access and orientation*

Among the RADI premises is the use of any potential material ressources, in terms of replacing partly or completely, more expensive ones.
Accordingly, accomodations for fermentation tanks, devices for rain water collection, organicly activated heating systems,...are basically, tools used by the physical plant, in addition to the normal sources of energy, namely, fuel and electricity.

The physical plant of the complex, is planned for gradual growth according the overall expansion of the complex that it is serving.

Flexibility of the physical space and envelope, is required in order to cater for possible future shifts to alternative energy systems. This is donewithin the respect of the permanent installations.

SPACE REQUIREMENTS

SPACE IDENTIFICATION	AREA
Packaging & Refining plant	1500 m^2
Storages Raw material Energy & product	300 m^2
Camping Facility	1400 m^2
Research & Planning dept.	400 m^2
Administration	250 m
Residence Facility	600 m^2
Public Laundry	200 m^2
Vocational Training dept.	800 m^2
Country Market place	6000 ^{2}
Main store	300 m^2
Urban Market place.	800-1000 m^2
Physical plant	400 m^2

SITE DOCUMENTATION

The prevailing political situation in Southern Lebanon, meaning the divided population between occupied and free area, is an important consideration in selecting a site, for a particular project such as the R.A.D.I.

The initiative, requiring participation and therefore a non-biast image, is to be addressed equally to the maximum part of the community. Accordingly, a site in the vecenity of the occupied strip, responds to the requirement.

On another hand, the institution has to stay at equal distances from the various groups of the free region. Therefore, emblematic towns were excluded. More likely, a site falling withtin a yet, deserted region, but on its way to grow, was the aim. Hence, the institution will be a parameter in its development, in addition to the objective and disinterested image it would acquire.

The chosen site, is in a relatively deserted area, on the mid-way between Nabatieh and Kafartebnit locality. This specific location of the site, responds most to the objectives of the project due to the following considerations:

The site is approximately equidistant from the major settlements in the Southern region. Namely, tyre, Marjayoun, Saida . A relatively efficient network of roads tying these settlements, intersects obviously with the location of the project. This easy accessibility is a major requirement of the projects', especially in the next phases of its growth.

The site is edged by a major highway tying Lebanon to Syria through the Bekaa valley. This same highway, ties the site to the major port cities of the South, Namely Sidon and Tyre.

The site is about half an hour of car driving, starting from Sidon.

الجمهورية اللبنانية

وزارة الأشغال العامة والنقل
المديرية العامة للتنظيم المدني
دائرة تصاميم التنظيم المدني

التصميم التوجيهي العام "لمنطقة"

النبطية

وفقاً لقرار المجلس الأعلى للتنظيم المدني محضر رقم ٤٧ تاريخ ١٩٦٧/١٠/٣

نظم
رئيس دائرة تصاميم التنظيم المدني
المهندس جوزف سماحة

وظف
المدير العام للتنظيم المدني
شربل النقار

نظر
وزير الأشغال العامة والنقل

وافق
رئيس مجلس الوزراء

صدق
رئيس الجمهورية

صدق بالمرسوم رقم ٩٣٠٩ تاريخ ١٩٦٨/٧/٢

: شروط مختلفة

١ ـ يسمح بإضافة بناء علوي على الابنية الموجودة او المرخص بها قبل صدور هذا النظام شرط التقيد بعدد الطوابق المفروض في النظام وبعامل الاستثمار الاقصى.

٢ ـ يحسب عدد الطوابق ابتداء من سطح الطابق السفلي (Sous Sol) او من اعلى الاعمدة في الابنية القائمة على اعمدة (Pilotis) شرط ان لا يعلو سطح الطابق السفلي ولا يزيد ارتفاع الاعمدة عن متر ونصف المتر عن مستوى الارض الطبيعية في الاراضي المنبسطة وعن اربعة امتار من اوطى نقطة من ارض العقار بمحاذاة احدى واجهات البناء في الاراضي المنحدرة.

ثانيا. في الافراز والضم والفرز

١ ـ ان الاجازة بالافراز او بالضم والفرز تخضع لشروط خاصة تتعلق بتنفيذ بنيات تحتية معينة ... اي ان فسحات، طرق ... تقسيم القطع وشكلها، تقديم خريطة تحتية للابنية ضمن القطع ... الخ

٢ ـ يسمح بتخفيض الطول والعمق بنسبة لا تزيد عما هو محدد في النظام للقطع الناتجة عن الافراز بنسبة عشرة بالمائة (١٠٪) شرط ان يقابلها زيادة في مساحة القطعة بنفس النسبة.

٣ ـ تخضع معاملة ضم او فرز تحقيقا للاحكام التالية:

أ ـ ان سعة الطرقات الملحوظة في مشروع فرز او ضم وفرز يجب ان لا تقل عن عشرة امتار كما انه يحفظ عند الاقتضاء وفي حال عدم امكانية تمديد الطرقة بإضافة مساحة اضافية في اطراف هذه الطرقات لتسهيل دوران السيارات.

ب ـ اذا كانت الطريق غير قابلة للامتداد ومخصصة لقطع غير قابلة للتجزئة عندئذ تخفض سعة الطريق الى ثمانية امتار اذا كان عدد القطع اربع وما دون.

ج ـ يتوجب على كل مشروع فرز او ضم وفرز تفوق مساحته عشرة آلاف متر مربع ان لا تقل المساحة الاجمالية للطرقات والحدائق والملاعب الخاصة بالمشروع عن ... بالمئة من المساحة الاجمالية.

د ـ عندما يتناول مشروع الفرز ارضا عليها ابنية قائمة يجب ان يخصص لهذه الابنية في مشروع الفرز المساحات المناسبة مع عامل الاستثمار الاقصى ومع معدل الاستثمار السطحي المذكورين في هذا النظام شرط ان لا تقل هذه المساحات عن المساحة الدنيا المفروضة لقطع الافراز.

(٢)

ثالثا: معدل الاستثمار السطحي وعامل الاستثمار

ان معدل الاستثمار السطحي هو نسبة مساحة المسقط الافقي للبناء الى مساحة العقار، اما عامل الاستثمار الاقصى، فهو نسبة مساحة البناء عن كامل طوابقه الى مساحة العقار.

يحسب معدل وعامل الاستثمار باعتبار مساحة العقار قبل التخطيط وبعد الطرق وجود حقوق ارتفاق لمصلحة العقار على العقارات المجاورة ولا تدخل في الحساب مساحة البلكونات وخزانات المياه وغرف المصاعد القائمة فوق سطح الطابق الاخير والانشاءات تحت سطح الارض غير انه تؤخذ حقوق الارتفاقات بعين الاعتبار في حساب معدل وعامل الاستثمار.

لا تدخل في حساب المساحة والخطوط لتحديد اقسام البناء المعدة للزخرفة والتشويه وغير المعدة للاستعمالات (كالبرجولا والتكليسة)

لا تستفيد العقارات الواقعة على شارعين من اية زيادة لمعدل الاستثمار السطحي ولعامل الاستثمار الاقصى.

رابعا:

تخضع المناطق غير المبنية على خريطة تقسيم المناطق مقياس ١/٢٠٠٠ والتابعة لخارج منطقة التخطيط لنظام منطقة الاستثمار الثانية.

ار

ملاحظات

يسمح فيما بالاضافه الى بيوت السكن بانشاء واستثمار
المحلات التجارية ودور السينما ومحطات توزيع المحروقات
السائلة وتشييد وتشحيم السيارات من الفئة
الاولى فقط

يمنع انشاء المؤسسات الصناعية المصنفه من الفئتين الاولى
والثانيه باستثناء محطات توزيع المحروقات السائله وتشييد
وتشحيم السيارات من الفئة الاولى .

تمنع انشاء المؤسسات المصنفه من جميع الفئات
يستثنى بناء المستشفى والمدارس الرسمية من
تحديد العلو وعدد الطوابق ويسمح بالمحلات بأربعة
طوابق وبعلو ١٦ متراً كحد اقصى .

نظام

البناء والفرز والضم والفرز والاستثمـ

المنطقة	الإفراز: المساحة الدنيا م٢	الإفراز: الواجهة الدنيا م ط	الإفراز: العمق الأدنى م ط	القطع الموجودة والصالحة للبناء: المساحة الدنيا بعد التخطيط م٢	القطع الموجودة والصالحة للبناء: الواجهة الدنيا بعد التخطيط م ط	القطع الموجودة والصالحة للبناء: العمق الأدنى بعد التخطيط م ط	التراجع: عن حدود الطرق والتخطيط م ط	التراجع: التراجع الجانبي م ط	التراجع: التراجع الخلفي م ط	معدل الاستثمار السطحي الأقصى ٪	معدل الاستثمار العام الأقصى	عدد الطوابق يدون زيادة طابق فوق سطح الطابق الأخير باستثناء تكية التصريف	العلو الأقصى للبناء من أدنى نقطة من الأرض الطبيعية عند واجهة البناء
سكن قديمة A	٢٥٠	١٢	١٢	١٠٠	٨	٨	وفقاً لمرسوم التراجع وللمراح المبين على خريطة شبكة الطرق مع حد أدنى مترين عن حدود الطرق غير المخططة	لاشئ	لاشئ	٧٠	١,٤٠	٢	٩
ـبارية B	٤٠٠	١٦	١٦	٢٠٠	١٢	١٢		//	//	٥٠	٢,٠٠	٤	١٦
ـارة وسكن C	٦٠٠	٢٠	٢٠	٣٠٠	١٤	١٤		٣	٣	٣٥	١,٠٥	٣	١٣,٥٠
ـسكنية D	٨٠٠	٢٢	٢٢	٤٠٠	١٦	١٦		٣	٣	٣٠	٠,٩٠	٣	١٣,٥
ـسداد اولى E	١٠٠٠	٢٥	٢٥	٥٠٠	١٨	١٨		٤,٥٠	٤,٥٠	٢٥	٠,٥٠	٢	٩
ـسداد ثانية F	١٢٠٠	٢٥	٢٥	٦٠٠	٢٠	٢٠		٤,٥٠	٤,٥٠	١٥	٠,٣٠	٢	٩
ـناعة G	٦٠٠	٢٠	٢٠	٣٠٠	١٤	١٤		لاشئ	لاشئ	٦٠	٠,٩٠	-	-

قوانين

قانون رقم ٧٥/٣٦

انشاء محافظة النبطية في لبنان الجنوبي

اقر مجلس النواب

وينشر رئيس الجمهورية القانون الآتي نصه :

مادة وحيدة ـ تنشأ في جنوب لبنان محافظة ثانية باسم محافظة النبطية مركزها النبطية وتتألف من اقضية :

النبطية وبنت جبيل ـ ومرجعيون وحاصبيا

تطبق تفاصيل احكام هذا القانون بمراسيم تتخذ في مجلس الوزراء .

يعمل بهذا القانون فور نشره .

بعبدا في ٢٣ ايلول سنة ١٩٧٥

الامضاء : سليمان فرنجيه

صدر عن رئيس الجمهورية
رئيس مجلس الوزراء
الامضاء : رشيد كرامي

وزير الداخلية
الامضاء : كميل شمعون

مرسوم رقم ٢٥٣

تحديد تفاصيل تطبيق احكام القانون رقم ٧٥/٣٦ تاريخ ١٩٧٥/٩/٢٣ المتعلق بانشاء محافظة النبطية

ان رئيس الجمهورية

بناء على الدستور

بناء على القانون رقم ٧٥/٣٦ تاريخ ١٩٧٥/٩/٢٣ (انشاء محافظة النبطية في لبنان الجنوبي) ،

يرسم ما ياتي :

المادة الاولى ـ عدل الجدول رقم (١) الملحق بالمرسوم الاشتراعي رقم ١١٦ تاريخ ١٩٥٩/٦/١٢ المتعلق بالتنظيم الاداري على النحو التالي :

ـ محافظة النبطية ، مركزها النبطية وتتألف من الاقضية التالية :

قضاء النبطية ـ مركزه النبطية

قضاء بنت جبيل ـ مركزه بنت جبيل

قضاء مرجعيون ـ مركزه مرجعيون

قضاء حاصبيا ـ مركزه حاصبيا

المادة الثانية ـ تمثل في النبطية وقضيتها الوزارات في الجدول رقم (٢) وتعديلاته الملحق بالمرسوم الاشتراعي رقم ١١٦ تاريخ ١٩٥٩/٦/١٢

المادة الثالثة ـ على وزراء المعنية في المادة الثانية اعلاه ا اجهزتها في محافظة النبطية وتب خلال مهلة سنة من تاريخ نش المرسوم .

المادة الرابعة ـ اضيف الى الـ من المادة الاولى من مشروع القانو موضع التنفيذ بموجب المرسوم رق تاريخ ١٩٦٤/٣/١٣ « والنبطية

المادة الخامسة ـ ينشر هذ ويبلغ حيث تدعو الحاجة ويعمل نشره .

بعبدا في ٢٤ شباط سنة

الامضاء : امين الج

صدر عن رئيس الجمهورية
رئيس مجلس الوزراء
الامضاء : شفيق الوزان

وزير الداخلية
الامضاء : شفيق ال

HYDROLOGY:

i. watertable
ii. drainage

i. watertable: The zone of the projects is characterized by a low water table reaching 60 m below ground level. This eliminates constraints on basement exploitation and foundation excavation.

ii. Drainage: refer to the map for explanation.

TOPOGRAPHY:

The difference in level between the highest and the lowest point within the sites is about 10m. This, allow basement exploitation for parking and general services

ECOLOGY

Dominant plant life:

The area is mildely planted, especially when we get closer to the slopes. The main road, the Sabbah Boulevard is bordered by high "Kina" trees emphasizing the sense of axiality towards the governmental square. As such, landscaping is necessary in this square as a continuation of the street-scape.

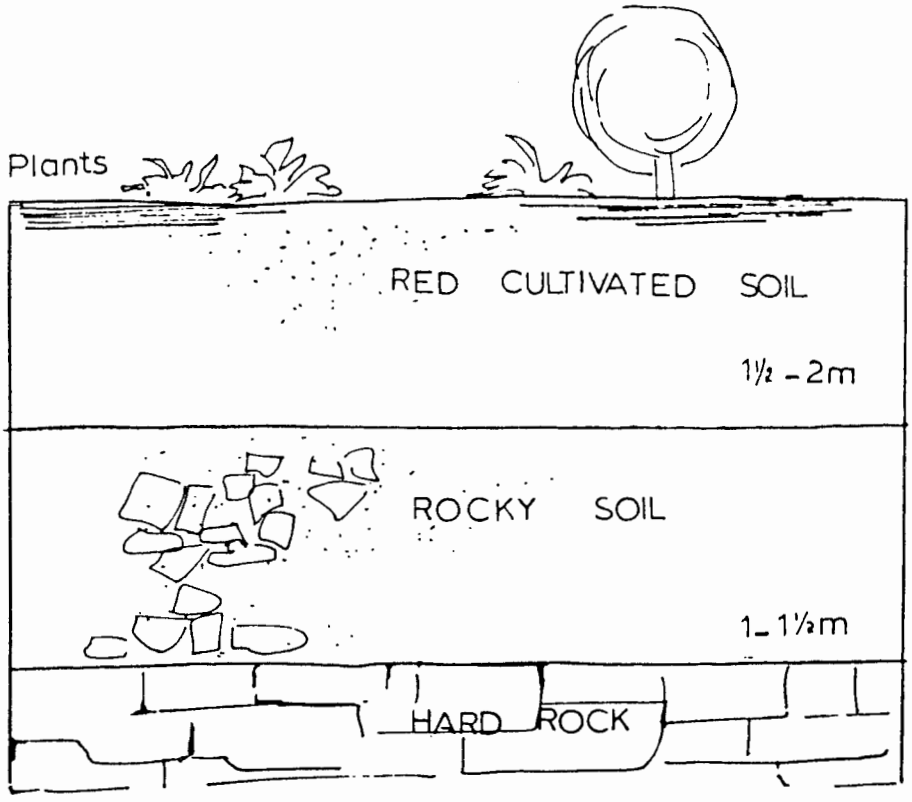
Noise:

The projects are within a conjested commercial area. Therefore, noise is a source of pollution.

INFRASTRUCTURE:

Utilities: Such as water supply and distribution, electricity, sanitary, storm water, sewarage and telephone services are taken care by the municipal services found at close proximity to the sites.

Traffic pattersn: are illustrated on a following map.



A. GEOLOGY AND SOIL:

The earth stratas are composed of the following:

- Top red cultivated soil varying between y_2 to 2 m deep. This layer is fertile because it receives maximum sunlight, ventilation and water.
- Rocky Soil.
- Hard rock of bearing capacity between 12 and 15 kg/m^2. For safety purposes a load of 20 kg/m^2 is adopted.

1. possibility of vegetation.
2. The need to excavate 1.5m of hard rock for basement exploitation.
3. excavation of 1/2 m of the hard rockbed for good cohesion with the foundation.

F. CLIMATE:

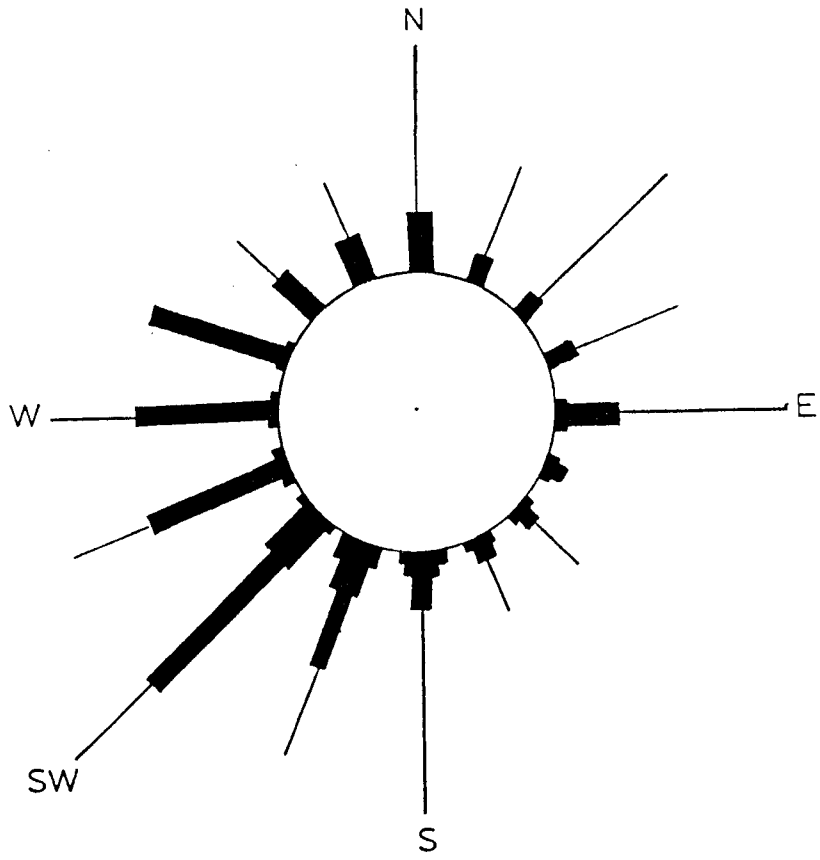
- The town of Nabatyieh is between 400 m above sea level to the West and 450 m to the East.
- Precipitation: the yearly average precipitation varies between 600 to 700 mms.
- Temperature: the temperature average is 37°C in summer while the maximum difference between day and night is 12°C in winter.

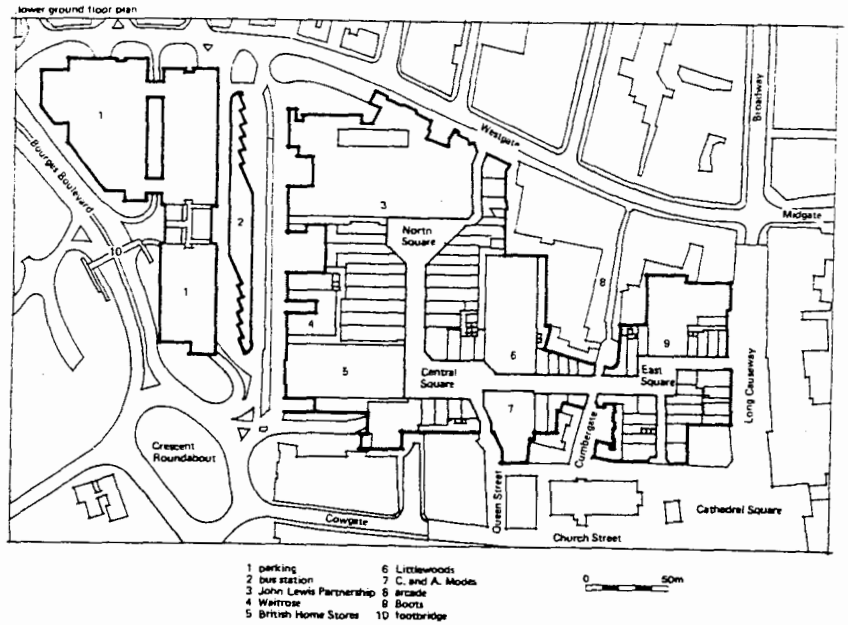
Heating is necessary while air-conditioning is optional.

- Relative humidity: varies between 45% - 75%.

Ventilation of spaces is necessary due to the high humidity level in summer

- Wind cycle: The prevailing wind is South-West, West-West-South, West-West-North however, we have occasional North and East winds in winter





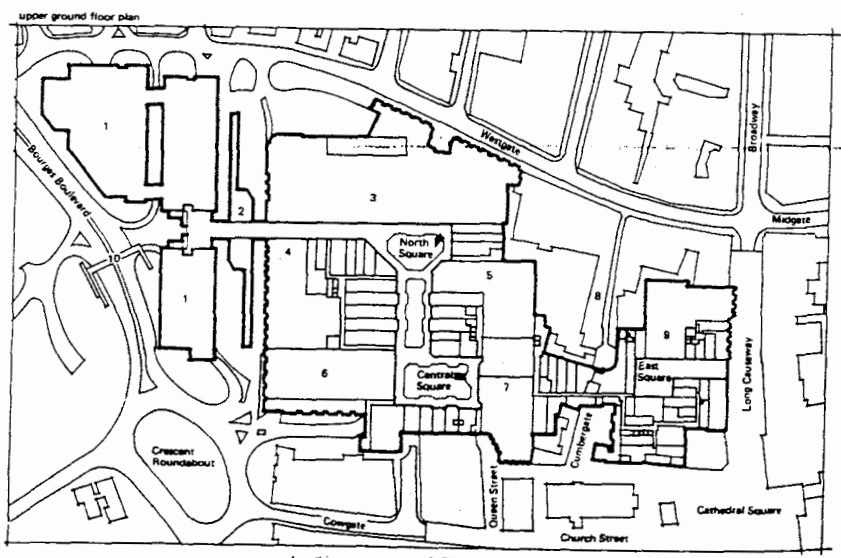


Figure 10.1 *Queensgate Centre, Peterborough (Designed by Peterborough Development Corporation) (above) Lower ground floor plan (below) Upper ground floor plan*

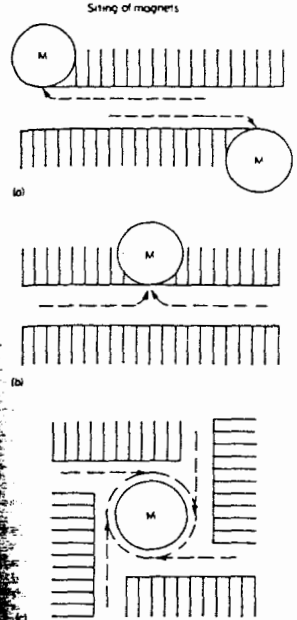


Figure 10.2(a) *Siting of magnets (a) 2 magnets at opposite ends. Good pedestrian flow between magnets (b) Single magnet centrally placed. Good pedestrian flow (c) Central magnet in pedestrian mall. Good pedestrian flow in all directions between specialist shops and magnet.*

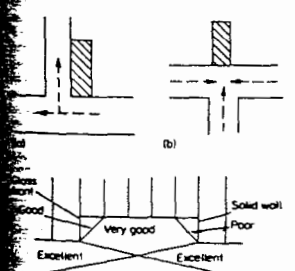


Figure 10.2(b) *Siting for impact (a) Maximum shop frontage with external display but reduced wall space (b) Good impact siting (c) Example of the effect of siting*

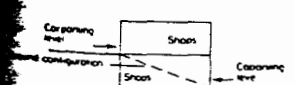


Figure 10.3 *Entry at two levels of shops*

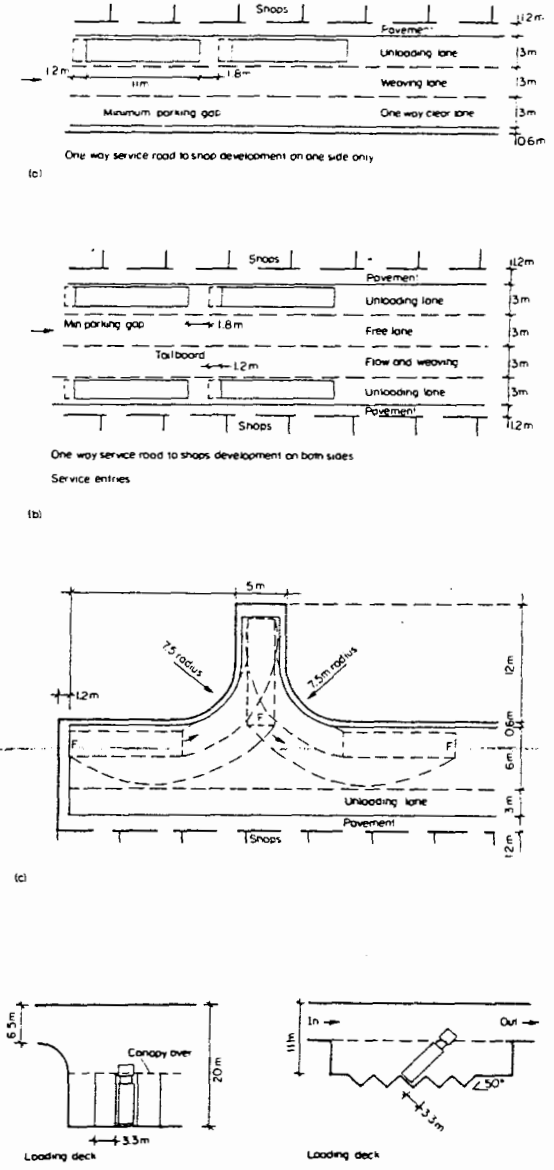


Figure 10.4 *Service entries (a) One-way service road to shops development on one side only (b) One-way service roads to shops development on one side only (d) Access to loading bays (from 'Standards for Service Areas in Shopping Centres' published by Multiple Shops Federation).*

car parking should not be shared with commuters' long-term parking. For Supermarkets and Hypermarkets standards are stipulated by developers (see sub-section on 'Planning'.. They will be calculated to meet the normal weekly peak shopping demand per 100 m² of gross retail area. It will vary with location. As an example of large unit car parking, one supermarket chain requires 1500 minimum car park spaces for a maximum of 6000 m², serving a catchment area of 100 000 'drive-in'.

The maximum distance between shoppers' cars (or bus stop) and principal shops should be 201 m and should be within the inner distribution road system. Access to car parks must be easy, without congestion or delay. As an example, given one hour shopping time per customer, 1000 cars may enter and leave a car park serving a 9300 m² hypermarket every hour.

Car parking serving supermarkets and hypermarkets must allow for easy trolley access from check-out points to car boot. (Trolleys will normally be collected, returned to check-out points by shop staff.) Multi-storey car parks should discharge onto as many shop levels as possible, if serving shops on different levels. Lifts must be adequate to take trolleys, and collection bays will be needed on each deck.

Shop units on upper levels need special consideration. Where contours allow entry should be offered at ground level to each shop or mall. Positioning of vertical access is crucial to successful trading on upper levels, which should be clearly evident to lower floor shoppers. Wheeled traffic, (trolleys, pushchairs, wheelchairs) must be catered for – so lifts and/or ramps are needed, but also escalators for major movement between floors. These should be prominently sited. The oil hydraulic lift has stimulated introduction of the transparent lift in a glass cage as an attractive feature in department stores and shopping centres. (See also Part 1, Section 2 *Internal Circulation*).

3. Servicing

Efficient servicing is a prime factor in goods handling. It may be from ground level, basement or roof. Service vehicle access must be separated from customer vehicles, (see also un 'Accommodation' and Section 38).

(i) *Deliveries*. These may be either: controlled delivery, from retailers own warehouses or manufacturer; random delivery from numerous suppliers, or a mixture of both.
(ii) *Dispatch*. This may vary from returnable empties or unused stock by small unit to full customer delivery services from department stores.
(iii) *Refuse disposal*. Collection may be by local council or commercial firm – probably from paladins or skips. Large units or shopping centres will deposit from centralised points into skips for transfer to container lorries. Waste may be untreated or compacted. Large skips may require 18 ft headroom for transfer to lorries. (See also Part 1, Section 3 *Internal Circulation*)

4. Siting of out-of-town centres and hypermarkets

The catchment area may be 25 minutes driving time for the outer zone and 10 to 15 minutes for the inner zone. The road patterns must be right, with sufficient major roads to allow the population to do the journey in this time.

Roads in the immediate vicinity must be adequate to allow easy access to the site. This must be clearly visible with good signposting and free-flow two-way entry and exits for cars.

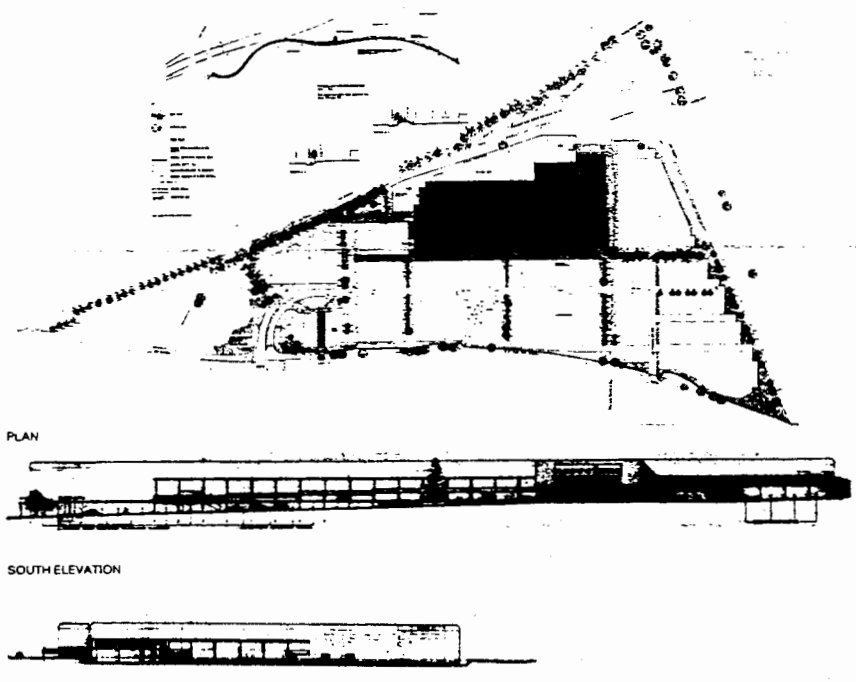


Figure 10.5 *Site plan. Carrefour Patchway, Bristol: Greenfield development of 1500 m², total site area 33 acres. Car parking for 1700 cars. Sales Hall 9000 m². Restaurant for 300. 16 pump petrol station and tyre bay. (Designed by Trad for Hypermarket Holdings Limited.*

PLANNING – LAYOUT AND ARRANGEMENT

Lay-out related to methods or selling

Selling methods control shop and department layout and fittings, and are basic to the internal shop design. The methods can be classified as follows: personal service, self-selection and self service.

1. Personal service Customers are served by an assistant, sometimes from behind a counter. At completion of sale the assistant takes the cash to cash point and may give a receipt and pack goods. This method suits high value or technical goods, such as jewellery or cameras and exclusive salons or small specialist boutiques, as well as some types of food shop (delicatessen, cooked meats, etc).

2. Self-selection Customer may handle and select goods and take them to cash point for payment or wrapping. There is some staff assistance available. This system is general in variety stores and many departments in department stores, as well as specialist shops.

3. Self-Service Customer walks round store, filling a basket or trolley and takes goods to check-out point for payment and wrapping. 'In' and 'Out' entrances being separated. This is the principle of supermarket and hypermarket trading and is basically suited to convenience goods.

In personal service shops and customer is influenced by the advice and sales technique of the assistant and, although display is necessary, all available merchandise need not be on display. In self-selection and self-service shops sales talk is replaced by display technique. In self-selection shops customers must be able to identify and handle the available merchandise (and can often try on clothing in fitting rooms) so merchandise must be grouped and laid out for this purpose, flexibility being of maximum importance.

In self-service shops (and, also in self-selection) the internal shop layout and arrangement of entrances and exits must encourage customers to follow a continuous a route as possible from entrance to exit, exposed to the maximum amount of display. This must be achieved without monotony or congestion and with an impression of spaciousness, which will depend on design and disposition of circulation aisles and of sectional planning.

Merchandise can be classified as 'demand', 'semi-demand' and 'impulse' goods, which are placed at eye-catching level. 'Demand' goods need not be so conveniently or so obviously sited.

Layout of self service and self selection areas must provide for general surveillance, from offices, check-out points, service desks, preparation areas, etc.

The amount of shelf or display space to be allotted to various products is of key importance. The relation of floor area, shelf display area, commodity location and turnover is delicately balanced and part of the trader's expertise. Standards cannot therefore be laid down and maximum flexibility in design of interior fittings and layout is needed.

Storage

The amount and disposition of storage for support stock is a key factor in shop layout. It will be related to 'Stock Turn' or the length of time an article can profitably remain in the shop before being sold, as well as to weekly turnover, delivery frequencies and methods of stock control.

The present trend is to bring as much stock as possible direct to the selling area and present it on display. This is known as 'forward' stock. Supporting or 'reserve' stock is held in stockrooms, ready to replenish sales areas as required. See typical layouts shown in *Figures 10.10, 10.11 and 10.12* later in this section.

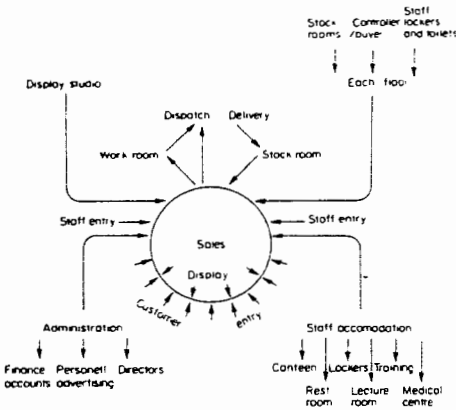


Figure 10.6 *Disposition of elements and analysis of circulation in department store*

PLANNING OF SHOP TYPES – DEPARTMENT STORES

A department store usually requires a space of 20 000 m² gross, or over, though there are also 'Junior' department stores. This is the most complex shop type which provides full service throughout full range of specialist merchandise and services and is, of necessity, multi-storey.

Main planning considerations are:

(i) Disposition of areas required for departments and ancillary accommodation (see *Figure 10.6*).
(ii) Number of storeys and structural grid dimensions.
(iii) Vertical and horizontal circulation and means of escape requirements.
(iv) Siting of customer entrances and service access.

Building Regulations require the division of a multi-storey shop into compartments of maximum size 2000 m² or 7000 m² which may be doubled if sprinklers are provided. This division may be horizontal or vertical. Basement areas also require smoke extraction provisions. (See sub-section on Legislation.)

Disposition of departments

Ancillary accommodation

Unit selling time will affect placing of departments. Quick sales of small items will be on ground floor near entrances to attract customers into the shop, with 'demand' goods on upper floors. A typical layout of floors might be as follows:

Ground floor. Quick sales or small items, e.g. cosmetics, hosiery, scarves, haberdashery, handkerchiefs, stationery and books, handbags, gloves, silverware, jewellery and watches, cameras, chemist.
Basement. Glass, china, electrical and household goods, "Do-It-Yourself' items.
First Floor. Clothing – men's, women's and children's.
Upper Floor(s). Radio, television, furniture, floor covering and textiles, exhibition area, restaurant, hairdressing.
Top Floor. Staff, administration and finance.

Each floor demands maximum uninterrupted sales area to allow flexibility of department planning, which may be subject to frequent rearrangement. Irregular shapes may not necessarily be a disadvantage, as they may suit 'shop within a shop' solutions. (For planning of individual departments see appropriate specialists sections.) Ancillary accommodation is complex and must be related to service access and to appropriate departments.

Subsidiary accommodation will be needed on each floor in order to service individual departments but main elements of servicing stockrooms and staff accommodation should be at the rear or on upper floors or basement (see sub-section Accommodation). For plant rooms see under heading 'Large space users' and sub-section 'Accommodation'.

Customer lavatories should not be readily accessible from street. They may be dispersed, say, on alternate floors, or planned central, adjoining Restaurant, but preferably entered through departments and not off stairs.

Internal circulation

Vertical and horizontal circulation is a crucial planning factor and concerns both customers and goods.

Customer circulation is fundamentally affected by Means of Escape Regulations. The numbers, siting and dimensions of escape staircases will be governed by Means of Escape Regulations and are related to travel distance, 'occupancy load' and minimum

number of exits, which must discharge direct into the street. Maximum uninterrupted counter lengths on escape routes is also limited (see sub-section Legislation).

Vertical circulation, in addition to escape routes, may be by a combination of the following:

1. *Accommodation staircase(s)* within sales areas, i.e. staircase not forming part of escape route.
2. *Lifts* (essential to accommodate the elderly, infirm, handicapped, pushchairs and trollies. See Part 1, Section *Internal Circulation* (page 28).
3. *Escalators*. These are essential for large department stores. If within compartment they need not be enclosed (see sub-section Legislation).

For further information see sub-section Data and Part 1, Section 2 *Internal Circulation* (page 36).

Horizontal circulation will be through aisles within the departments towards vertical circulation points. Escalator and lift positions should be well within the shop, so placed as to draw customers through as many points of sale as possible and to make ascent as inviting as possible.

Siting of customer access and service

Entrances

A Main Carriage entrance strategically placed in relation to external traffic should be supplemented by walking entrances at convenient intervals related to street pattern and car parks. Entrances separated by display windows with as continuous a flow of display as possible (see under Shop Fronts in sub-section Data).

Circulation of goods must be considered as between point of entry (service delivery), through receiving room, sometimes via stockrooms, to selling position. Goods may then pass back via packing, to dispatch (point of exit) or be taken out by customer. Refuse and waste also has to be handled from departments back to dispatch, via waste disposal area.

Staff entrances must be separate and provide for signing in and checking out, with convenient access to staff locker rooms and lavatories (see sub-section 'Accommodation'). Staff and administrative accommodation can be remote from departments as long as there is adequate connection to departments (see sub-section 'Accommodation').

Grid

The structural grid should be between 6 and 9 m, bearing in mind relative beam depths. Floor to floor height should be a minimum of 4 m with a maximum of 5 m, dependent on servicing, ducting, etc (see also 'Large space users' below).

PLANNING OF SHOP TYPES – LARGE SPACE USERS

The difference between the Variety Store, Supermarket, Hypermarket and Discount Store is getting increasingly blurred as they expand in size and variety of merchandising. Much planning information is common to all these types, i.e. ancillary accommodation, goods handling, preparation areas, staff accommodation, type of sales equipment, layout.

For planning of individual departments and shop types, see under Specialist Shop Types, later in this section. The following information applies generally to shops having say 1200 m² or over, of sales area.

(i) Allocation of space Proportion of ancillary accommodation may vary between:

60% sales	40% ancillary
48% sales	52% ancillary

Some ancillary accommodation may be on upper floors or basement. (See sub-section on Accommodation.)

(ii) Goods handling Unloading should be within site curtilage onto loading platform with a minimum of 2 bays (though more may be required in individual cases). (See sub-sections on Siting and Accommodation.)

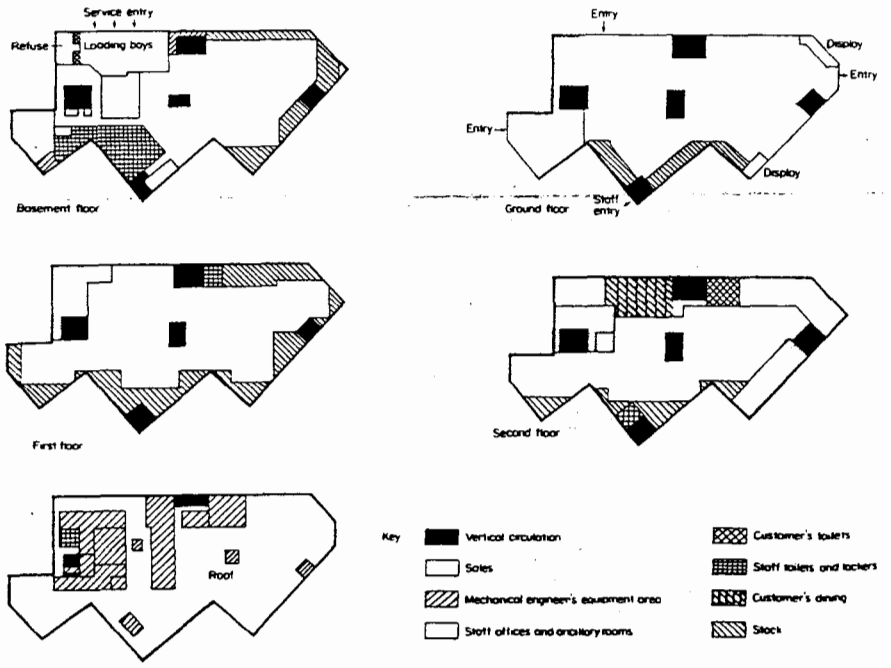


Figure 10.7 *Circulation plan of department store relating essential ancillary areas to sales area (Designed by T. P. Bennett & Son for Selfridges (Oxford) Ltd)*

(iii) Number of staff This is related to selling methods, takings and size of sales area. As an example, 3000 m² sales area might require up to 200 staff (see sub-sections Department Store and Accommodation).

(iv) Customer toilets These are not usually provided except where cafe or restaurant facilities require them (see sub-section on Legislation).

(v) Car parking The amount of car parking is critical: 1 car parking space to 11 m² of net sales area should be the aim with 183 m of store. (See sub-section 'Siting').

(vi) It is not satisfactory to use the standard shop structural grid for the large space user. 7.315 m to 9.150 m grid on the frontage is satisfactory. 9.150 m in depth is preferable. Heights floor to floor should also not have to be aligned with the standard shop – 3.660 m clear height is preferred, with depth of between 0.3–1.2 m between ceiling level and structural slab, to accommodate services dependent on service requirements.

(vii) Compartmentation Building Regulations require the division of all multi-storey shops into compartments of 2000 m² or 4000 m² if sprinklered. (See sub-section 'Legislation'.)

(viii) Plant A large uninterrupted area is needed for plant rooms – up to 10% of sales area, if air conditioning is included – in which case it may best be sited at roof level, though the basement may be an alternative. (See sub-section 'Accommodation'.)

Individual shop types amongst large space users

A variety store should have 1200 m²–15 000 m² of sales area, larger stores in excess of 20 000 m². This description covers the large multiple chain store, such as Marks & Spencer, Littlewoods, British Home Stores, Woolworths, etc. Other multiples, previously providing more specialised merchandise, are moving into this category. Traditionally the chain store sold non-food convenience goods, but in recent years they have expanded to cover food, clothing and other consumer durables using self-service and self-selection methods. Food sections may be fully self-service with check-out points (see sub-section on Supermarkets).

A catchment area of approximately 80 000 to 100 000 population is needed to support the larger units.

Main planning requirements are:

(i) One-level trading is preferred; but larger units may need two-level trading for adequate area.
(ii) A rectangular shape is preferable, as each floor will be laid out as one sales area of open space. Irregular shaped units can give interest, where 'shop within a shop' areas are intended. Selling will normally be by self-selection, with conveniently spaced service desks incorporating cash registeres and wrapping counters.
(iii) Vertical circulation of customers will be by escalators and staircases, also acting as escape stairs. These are preferably sited on the perimeter to allow maximum flexibility of layout and uninterrupted space for counter planning. Perimeter walls should whenever possible follow the same lines from floor to floor throughout sales areas to facilitate planning of Escape Routes. (See sub-section on Building Legislation).

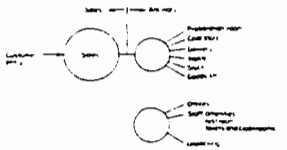


Figure 10.8 *Disposition of elements and analysis of circulation in supermarket*

(iv) Ancillary accommodation will depend on size of store and merchandising (see under Department Store and Supermarket and sub-section on Accommodation).
(v) Entrances should discharge in direction of counters and main aisles (see sub-sections on Accommodation and Data Shop Fronts).
(vi) Staff employed may be 200–300 and staff entrances, adequate staff rooms, lavatories, lockers and cloakroom must be provided, at rear or on upper floors (see under Department Store and sub-section on Accommodation).
(vii) A customer cafe or restaurant may be required.

A Supermarket should have 1000–2500 m² of sales area and a Superstore 2500 m² of sales area. Sales areas are preferably planned on one floor (if two floors, see earlier comment on Variety Stores).

Commodities sold in food shops can be classified under general headings as follows (*Figure 10.8*):

Grocery foods (dry goods)
Meat and poultry
Fish
Greengrocery
Dairy and provisions
Bakery
Frozen foods
Non-foods

Planning considerations are dealt with in the following paragraphs and typical examples are shown in *Figures 10.10, 10.11 and 10.12.*

Sales areas

The method of selling will be self service, with layout, entrance and exit all governed by arrangement of check-out points, the design and layout of which are a key to successful supermarket trading (see sub-sections on Accommodation and Data). Minimum frontage should be, say, 18 m. Ideally a sales area of 2000 m² would prefer a frontage of 58–60 m. Narrower frontages demand double-banked check-out points which are less satisfactory.

Food items are sited together, separately from non-food items which are increasingly being stocked by supermarkets; perhaps on a different floor in a two-floor arrangement.

Customer service for delicatessen and provisions will adjoin the preparation area, and an off-licence will need special security measures (see sub-section on Security).

Chilled and deep freeze cabinets for counter-selling will be grouped in permanent positions (see sub-sections on Accommodation and Data).

Space must be provided for trolleys and baskets at entrances and exist; as these must be used by customers for security reasons (see sub-section on Data). Pram parks may be needed.

Ancillary accommodation

The proportions of perishable to non-perishable goods (average 55% non-perishable to 45% perishable) will affect layout of storage and preparation areas. Cold stores are needed for fish, meat, provisions and poultry.

Refrigeration plant for cold stores may also serve chilled and refrigerated cabinets, or these may have plant integral in the cabinets (see under Department Store and sub-section Data).

Perishables, e.g. meat, cheese, and bacon will be prepared on the premises in preparation areas, preferably immediately behind the sales areas, but related to delivery positions, cold stores, etc (see sub-section Accommodation).

Hypermarkets sell similar merchandise to the Superstore and Variety Store, but with greater coverage of non-food goods and consumer durables (see previous comments on Supermarkets).

The Hypermarket type needs a minimum of 4644 m² gross sales area to make it viable. Success depends on a high volume of sales, permitting low cost bulk buying and minimum distribution costs and quick turnover of goods, resulting in discount selling at highly competitive prices.

Because of the wide-reaching effect on the environment and on existing trading centres

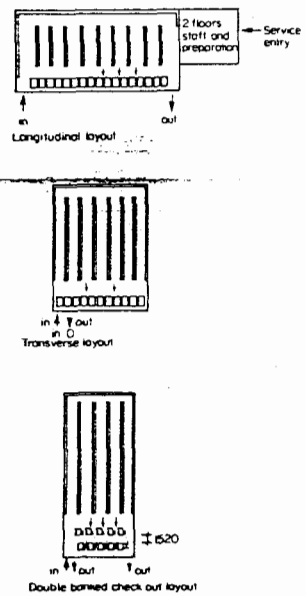
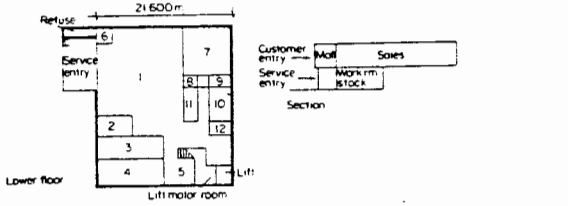


Figure 10.9 *Three methods of layouts for check-out points. Layouts are determined by size and shape of site. Generally, double-banked check-outs are used for very narrow frontages to allow for faster customer through-put. A bar runs centrally between check-outs to assist lane to determine direction of thoroughfare*



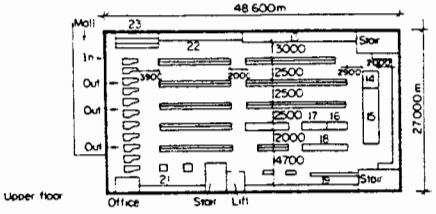


Figure 10.10 *Typical layout of supermarket*

1. Grocery store room. 2. Frozen foods store. 3. Service provisions store. 4. Meat preparation. 5. Fruit/vegetable preparation. 6. Security cage. 7. Toilet-cloakrooms. 8. Manager's office. 9. Kitchen. 10. Staff room. 11. Wine store. 12. General office. 13. Cooked meats/dairy. 14. Frozen meat. 15. Poultry. 16. Fish. 17. Home freezer. 18. Ice cream. 19. Serviced provisions. 20. Fruit/vegetables. 21. Self service wine/spirits. 22. Promotions. 23. Trolleys

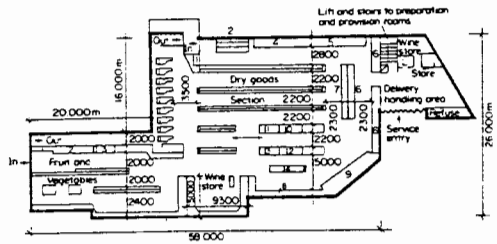


Figure 10.11 *Supermarket layout. Use of space on irregular site.*

1. Basket stackers. 2. Trolleys. 3. Cigarette kiosk. 4. Diary. 5. Cooked meat. 6. Fresh meat. 7. Poultry. 8. Bakery. 9. Delicatessen. 10. Home freezer packs. 11. Ice cream. 12. Frozen foods. 13. Fish. 14. Sugar and eggs

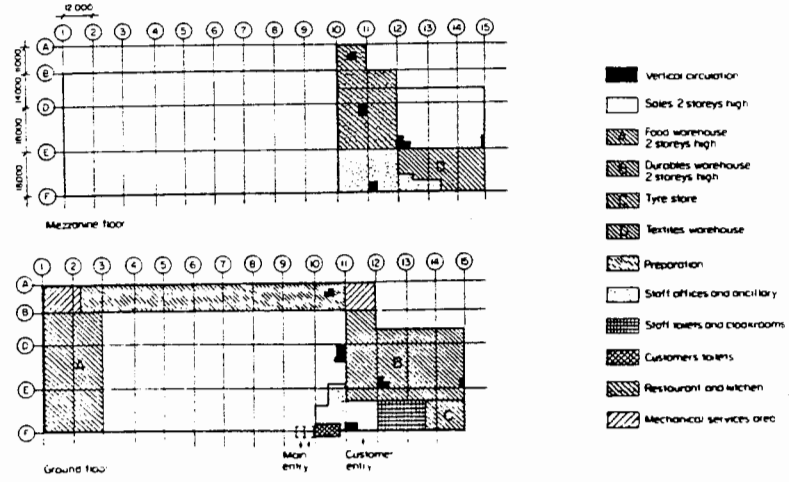


Figure 10.12 *Circulation plan of Hypermarket. Relating essential ancillary areas to sales area. (Designed by Triad for Carrefours at Eastleigh.*

all Town Planning Applications for shops of 4644 m² or over must be referred to the Department of the Environment, who will either call in the application to be dealt with by the Department, or pass it back to the Local Authority for decision.

Under the Building Regulations, a single-storey building, if without galleries and far enough from the boundary, needs no fire resistance and is not restricted in size by compartmentation, though it must comply with means of Escape requirements. Any two-storey part comes under the fire resistance and compartmentation provisions of the Building Regulations (see sub-section on Legislation). Air conditioning will be an essential requirement.

Planning considerations which distinguish this type from the Superstore are chiefly those of scale, i.e. car parking and external services, goods handling, and extent of administration, which approximate to that of a department store.

External planning

Customer entry and exits will be directly related to car parks. There may be no shop front display or shop windows, though a canopy is desirable at access points. Good visibility from feeder roads is essential. Filling stations and tyre bay must be accessible to customers, but not to passing motorists.

The car park area must be softened by landscaping and the service areas must be screened. (For car parking and service access see sub-section on Siting and *Figure 10.5*). The latter shows a landscaped car park for 1700 cars serving the Hypermarket at Carrefour, Patchway, Bristol. This shows a typical desirable arrangement where adequate space is available.

Internal planning

The sales areas will be devided into:

Fresh food (perishables)
Dry food (non-perishables)
Clothes
Household goods (see under Supermarket and Department Store).
Customer restaurant (see Section 19).

The selling method will be self-service, with check-out points related to entrances, exits, the customer circulation system being similar to that for the supermarket (see under Supermarket). The arrangement of selling spaces must indicate different areas without physical barriers by colour, signing, etc.).

Ancillary accommodation

Areas for the sale of food have already been specified under Supermarkets but areas will be increased proportionately (*Figure 10.12*). Storage areas will be arranged on warehouse lines (see Section 38, 'Warehouses').

The method of restocking shelves in the Sales Area may be by forklift truck, carried out at night, with a 24-hour occupation of the building (see sub-section Accommodation).

Staff accommodation and administration offices can be on upper floor or at rear. There may be up to say 300 staff occupying the building at one time.

PLANNING – SPECIALIST SHOPS

Shell of standard unit

Maximum ground floor sales area is required and a single sales floor is preferable if of adequate area. A basement sales area is preferable to 1st floor, with easier access for customers, and less obstruction of floor area by the staircase. The staircase position is vital and must entice up or down, and not appear as a deterrent.

The design and position of the stairs will be controlled by Means of Escape regulations. The Building Regulations Means of Escape provisions exclude shops with sales area less than 280 m² or not more than three floors (one of which may be a basement storey). These shops are defined in Code of Practice Chapter IV as 'small shops' and are dealt with separately as regards Means of Escape. They are covered by the Shops, Offices and Railway Premises Act – though a Fire Certificate is not needed for shops employing less than 20 people or 10 people above the ground floor (see sub-section on Legislation).

Standard unit dimensions (*Figure 10.13*) are:

Width on frontage: between 5.3 m and 6 m.
Depth, front to back, ground floor: 18 m to 30 m
Floor to floor height: 3 m, dependent on services. Unnecessary floor to floor heights deter customers and are tiring for staff.

The area of upper floors needs to be related to the ground floor depth to give adequate area for stock and staff rooms, related to the sales potential and catchment area.

Minimum staff accommodation of one toilet for each sex is usually provided with space at rear or on upper floor for staff room and food preparation facilities.

The amount of stock room area required varies with the type of retailer and some 'standard unit' tenants may prefer a reduced first floor area if the ground floor area is adequate.

There is a demand from small specialised trades needing narrow frontages and minimum storage and some should be provided in each speculation development (4 m frontage by 12 m depth).

Internal planning of specialist shops and 'small shops'

It is not practicable to lay down planning requirements for every type of specialist shop. Not only will this depend on shopkeepers' retailing policy, but there are a vast number of possible permutations of selling within this category.

Staff accommodation is in all cases related to number of staff required. Staff accommodation is controlled by the Shops, Offices and Railway Premises Act, which stipulates toilet accommodation, etc. Clothes lockers and means for drying clothes must be provided. Wash basins must be provided in preparation areas of food shops (see sub-section on Legislation).

A small Manager's office is usually required with safe or strong room, sometimes supplemented by clerk's or cashier's office. Stock areas will be needed to retailer's requirements and other ancillary accommodation must be ascertained in each case. (For typical layouts within main categories, see sub-section on Accommodation).

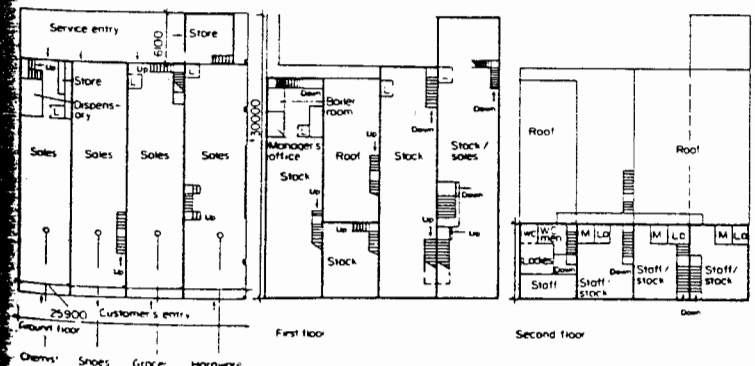


Figure 10.13 *Circulation layout showing adaptation of standard units for specialist shops. (Designed by Nadine Beddington for Bedworth Consortium.)*

Some general rules on specialist planning requirements are given below (see sub-sections Accommodation and Data). These are also applicable to appropriate departments within Department Stores, Supermarkets and Hypermarkets (see *Figure 10.14*).

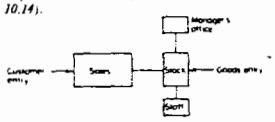


Figure 10.14 *Disposition of elements and analysis of circulation in specialists shops*

Food shops

These may comprise the following types:

Fishmonger
Butcher
Provisions
Fruit and Vegetables
Baker

In all these the shop front will be glazed (see also sub-sections Legislation, Accommodation and Data).

Sales in personal service shops will be mainly over counter, which may contain refrigerated display, and equipment. There may be a central pay desk, or cash till or cash register on or behind counter. Window display varies with each trade (see sub-section on Data). Fruit and vegetables are displayed within shop (or outside) in bins, groceries on shelves, fish on slabs, fresh meat on racks and hung on rails in addition to refrigerated cabinets.

Ancillary accommodation may comprise:

(i) *Cold Rooms*, connected to delivery bay by lift or conveyor if necessary, directly accessible to preparation areas.
(ii) *Preparation Areas*, are best sited adjacent to sales area; in some cases visible to customer.
(iii) *Cooking Area or Cook Room*, where required.

Women's and men's fashion shops

Shop windows need to be flexible to take promotional and seasonal displays. The size and design will depend on type of trading. Design of windows and 'Shop Front' will identify the character of a specialist fashion shop and may be the main challenge to the designer, together with the design and finishes of the interior.

Clothes are displayed on free standing or wall racks in *self-selection* shops, arranged with adequate circulation space; in *personal service* shops they will be in glass-fronted counters and hanging cabinets, with specially arranged displays in windows and at promotion points.

Counters for *personal service* may have cash till or register or there may be centralised service desks with cash till/register and wrapping counters, as for self-selection. Fitting rooms must be provided. In all fashion shops and ideal is to provide a flexible plan with moveable equipment, the correct atmosphere being generated by the design elements (for illustrations see sub-sections on Accommodation and Data).

Shoe shops

Shop windows may either be designed to show full range or for small individual display (see comments on Fashion Shops above).

Due to range of merchandise related to sizes, correct planning of stock areas is the essential key to successful trading. Fast efficient service in personal service shops depends upon allocation of area between 'forward' stock, i.e. immediately available to sales staff, and number of customers who can be served at one time. The situation of stock areas controls the time taken to serve a customer. The extent of stock areas depends on trading policy and delivery periods and 'stock turn' and the amount of 'stock holding' must be determined at start of project.

In self-service shoe shops gondola fittings and wall shelving take the place of chairs; all 'lines' being on display, divided into sizes but with back-up stock to refill as necessary (see sub-sections Accommodation and Data).

Jewellery shops

The articles on display are small and valuable and need special security precautions, e.g. window grilles, burglar alarm systems, safes and special display techniques.

Sales are usually personal service from behind glass-fronted display counters.

Women's hairdressing

The shop front should identify the image and type of service. The interior will have three basic service positions:

(i) Dressing table for cutting, styling, setting and blow drying.
(ii) Shampoo basin (these will control the number of positions for (i) and (iii);
(iii) Drier.

Also some cubicles for privacy for special treatments, colouring, etc. There must be a reception or waiting area for appointments and cash desk and cloakroom for customers' coats. There may also be:

Treatment clinic.
Beauty room.
Display points.

Ancillary accommodation may consist of:

Dispensary.
Customer lavatory.
Storage for customer record cards.
Cash office.
Staff accommodation.
Small galley kitchen for serving customers snacks.
Adequate provision for hot and cold water services to basins.

ACCOMMODATION AND SPACE REQUIREMENTS

Department Stores, Variety Stores, Supermarkets and Hypermarkets

The throughput of customers in a big store is very fast and results in intensive use of the building, particularly at peak trading times. Thus, selection of materials, space standards, etc., and accommodation must be considered with this in mind for all large stores.

The maximum number of customers in a store at any one time cannot be accurately estimated, though a useful guide is given in the Code of Practice, Chapter IV, Part 2 (1968), as follows:

1. For shops trading in the common type of consumer goods (food, hardware, clothes, cosmetics, fabrics, etc), 1.9 m^2 of gross sales floor area per person.

2. For specialised shops in more expensive or exclusive trades (bespoke tailoring, furs, furniture, jewellery, carpets, etc.) 7 m^2 of gross sales floor area per person.

On the basis, taking an average visit of one hour, and an occupancy load of, say, 2000, the daily throughput might be 16 000.

Department Store

The main elements of accommodation are as follows.

(a) Sales areas

Areas allotted to departments can only be determined by trading policy of store in relation to total Sales area available, so flexibility is essential. (For classification of departments see previous sub-section on Planning.) For accommodation in individual departments see Specialist Shops, Supermarkets, Variety Store, Restaurants and kitchens.

(b) Exhibition area

An exhibition area incorporating a stage, is needed for promotions and fashion shows, etc.

(c) Stock Rooms. (For food see under Supermarkets below)

Main stock rooms may be laid out with racking and/or cages and work benches, served by gangway. (See Section 38 Warehouses). First Reserve Stock on Sales Floor will be in similar racking. 'Controlled delivery' goods from own warehouse may go straight onto Sales Floor. These are often computer-controlled.

(d) Workrooms

Workrooms for the following services may need to be provided:

(i) Fashion. For alterations may adjoin fashion departments.
(ii) Furniture repairs and upholstery; curtain and carpeting workroom.
(iii) Curtain cutting.
(iv) Curtain making up.
(v) Carpentry.
(vi) Carpet workroom.
(vii) Radio, television and electrical appliances.

Items (ii) to (vi) should be adjoining or near service lifts.

(e) Display studio

A display studio may be needed for preparation and construction of window displays, backdrops, models, ticketing, showcards, etc. It should be accessible to shop windows and to the main sales areas.

Equipment needed:
Drawing tables
Designers' benches
Carpenter's bench
Shelves
Storage (min. 9 m to 6 m)

(f) Staff Accommodation

Staff entry — Space for clocking-in cards, racks for shopping bags and parcels, porter's desk (with fire checkpoint officer) display of staff regulations, stations and duties.

Cloakroom and lavatory accommodation — Lavatories to minimum standard of Shops, Offices and Railway Premises Act (see Legislation). Lavatory with supply of drinking water must be readily accessible to staff and not unduly centralised.
Separate lavatories required for senior staff and general staff.
Clothes locker room may be centralised on main staff floor with provision for drying clothes (see Legislation).
Handbag lockers, or small personal lockers, should be provided for all staff within their department.

Staff accommodation may also include the following. These are all related in size to staff number which may vary from, say, 500 to 5000 for major stores.

Staff canteen
Senior staff restaurants
Rest room
Medical centre: first aid; doctor, dentist
Staff lecture room
Staff training rooms.

(g) Administration

Offices will include:

(i) Executive Offices (Director and Management)
(ii) Finance. Hire purchase and credit accounts (accessible to customers, with private office). Sales accounts, bought ledger office (buyers orders and payments) wages and cashier, staff wages, expenses and petty cash, statistics, audits, accounts, strong room.
(iii) Advertising.
(iv) Personnel (accessible to applicants).

Serving the above are: computer; correspondence control; stationery store; communications (telephone exchange).

A buyer's or floor controller's office is needed on each floor. The minimum requirement would be an office with desk, telephone and visitor's chair; outer waiting reception area with shelves to take buyers samples and table, chairs, etc.

(h) Goods handling and delivery area (within site curtilage)

These may include:

Loading bays and platform (see sub-section on Siting).
Drivers' lavatory.
Goods lifts.
Food hoist.
Book hoist.
Conveyor.
Waste disposal (say 3.6 × 3.6 m including baler or compactor).
Transport superintendent's office.
Service staircase.
Receiving room, for unpacking, checking and ticketing of random delivery goods.
Garage for servicing, and repainting delivery vans and company cars.

(For information on staircases, lifts and hoists, see Part 1, Section 2 *Internal Circulation*).

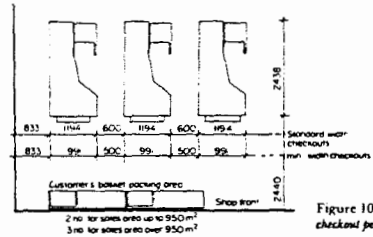


Figure 10.15 *Critical dimensions between checkout points*

(i) Plant rooms

All or part of the store may be air conditioned and in cases of a food hall, refrigerator plant will be needed. Plant rooms must accommodate:

Electrical switchgear with stand-by generators.
Refrigeration and air conditioning plant.
Space for water heating installation (see under Supermarkets).

Variety Store

Sales areas will be fitted out flexibly to comprise some counter sales with assistant service for:

Pharmaceutical.
Specialist cosmetics.
Men's and women's knitwear, etc.
Self-selection will be from standardised fittings i.e.
Wall shelving.
Island or 'gondola' fittings.

All the above are served by gangway minimum 2 m width and with service desks containing cash registers (see sub-section on Data).

For food sales, staff accommodation, administration, goods handling and storage, see under Supermarkets and Superstores below.

Supermarkets, Superstores and Hypermarkets

The number of checkout points is a crucial planning factor and is related to turnover and sales area. As a rule of thumb guide, a median figure might be one checkout point per 100 m^2 sales area, decreasing for the smaller and increasing for the larger store, but the exact number will depend on trading policy. The introduction of the scanner till also reduces the number of checkout points, or increased throughput. (There is now even a scanner till with its own built in micro-computer obviating the need for a central computer room.)

Turnover, measured per square metre, also varies in accordance with trading policy and can only be established with the retailer for each project.

Allocation of sales area may be, say, 45% perishable, sold from refrigerated or chilled display cabinets (see sub-section on Data) to 55% non-perishables (dry goods) sold from 'gondola' fittings and high wall shelving – laid out in aisles with gangways, minimum 2.2 m (or 2.3–2.4 m for larger stores.

Preparation areas and cold stores are needed for:

Fresh meat (butcher).
Cooked meat.
Dairy and provisions.
Fish.
Fruit and vegetables (see under Specialist Shops later in this section).

Stock rooms. For information on these see sub-sections on Planning and Data.

Goods handling. This has been covered under Department stores.

Waste disposal. Storage capacities can be based as follows:

300 m^2 gross area, average capacity required is 35 m^3 per week
160 m^2 gross area, average capacity required is 2.3 m^3 per week

Types of refuse are as follows:

1. Wet and semi-wet (for greengrocers, fishmongers, butchers).
2. Dry; non-crushable (e.g. crates, containers, metal, glass and plastic).
3. Dry; crushable (e.g. cartons, wrappings, etc.).

Refuse listed in 1 and 2 should be kept separate for disposal; refuse covered in 3 can be compacted and baled.

There are three appropriate types of refuse disposal:

1. Bins or paladins or skips (see Part 1, Section 3 *External circulation*).
2. Incineration.
3. Compaction machines (into skips).

Collection may be made by the local council or a refuse contractor (for foodstuffs, paper waste, etc).

Staff accommodation will be related directly to estimated staff population and to trading policy. Lavatory accommodation must comply with the Shops, Offices and Railway Premises Act (see under Legislation). Also needed are:

Locker rooms with clothes drying facilities.
Rest room for both sexes.
Canteen and kitchen or food preparation facilities.
First-aid room.

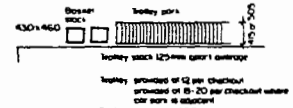


Figure 10.16 *Space requirements for trolleys and baskets*

Administration varies buth should include:

Cash office
Manager's office.
Clerk's office.
Safe or strong room.

Offices may be of minimum size (see S.O. and R.P. Act on Legislation).

The plant room will depend on whether the store is air-conditioned and whether a central refrigeration plant serves refrigerated cabinets. The area may be up to 10% of sales area (see also under Department Store and sub-section on Planning).

Hypermarket

See sub-section 'Planning of Shop Types – large space users'

ACCOMMODATION

Specialist and non-specialist food shops

Main categories of food shops and their produce are:

Greengrocer. Fresh vegetables, fruit, flowers, frozen vegetables.
Fishmonger. Fresh and frozen fish, cured fish, shellfish, poultry and game.
Butcher. Fresh and frozen meat, meat product, poultry and gam, fats.
Grocer. Bacon, eggs, cheese, fat, packaged, frozen and tinned foods, cereals, biscuits, beverages, dried fruits and preserves, sauces, spices, dry goods, soaps, detergents, cleaning materials, pet foods, paper products, chemist's sundries, toilet and hygiene requisites.
Dairy. Milk, cream, eggs, butter, cheeses.
Baker. Bread, cakes, biscuits, flour, pies.
Confectioner. Chocolates, sweets, cigarettes, tobacco, newspapers.

Most of the above are now combined into compound shops, comprising several trades.

Traditional and self-service food shops will need:

Safe (with daily banking).
Lavatory basins adjoining food preparation (see Food Hygiene Act in sub-section on Legislation).
Scales in view of customer (see Weights and Measures Act in sub-section on Legislation).
Preparation area, immediately behind sales area.
Food shops, needing lower temperatures, require a Staff Room with localised heating (see S.O. & R.P. Act in sub-section on Legislation).
Staff accommodation in accordance with Shops, Offices and Railway Premises Act (see sub-section on Legislation).

Some basic requirements for certain trades are given below though these are changing rapidly with new techniques, equipment and packaging. Typical layouts (shown in *Figures 10.17 and 10.18*) are given as a guide.

GREENGROCER

Arrangement of sales area
Open front being replaced by windows (see 'Legislation' – (Food Hygiene Act in sub-section on Legislation).
Open bins for root vegetables and fruit.
Slab or mesh shelves for green vegetables.
Cash desk with cash till or register. Scales and wrapping counter (in customer view).
Frozen food display in cabinets (see sub-section on Data).

Preparation
Preparation table.
Sink
Shelving.
Cold store or refrigerated cabinets.
Lavatory basin.

FISHMONGER

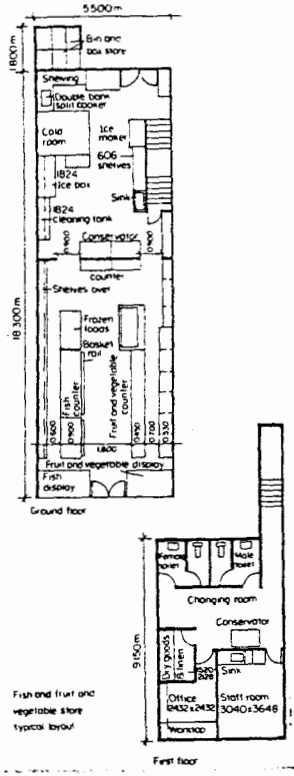
Arrangement of sales area
Closed shop front with refrigerated display on marble slab behind glass (see Food Hygiene Act in sub-section on Legislation).
Water connection for spraying slab.
Service counter.
Refrigerated and chilled cabinets.

Preparation
Cold rooms.
Cleaning tank, with preparation counter.
Ice box.
Ice maker.
Preparation table.
Sink and lavatory basin.
Cooking room or cooking shelf.

BUTCHER

Arrangement of sales area
Refrigerated display in window (or racks and counter) with meat rails over.
Service counter with cutting blocks.
Service counter with glass riser for provisions as separate unit to avoid cross contamination (see Food Hygiene Act in sub-section on Legislation) slicing machine.
Pay desk and cash register.

Preparation
Cold Stores.
Cutting room.
Boning table.
Meat blocks.
Sink and lavatory basin.



Fish and fruit and vegetable store typical layout

Figure 10.17 *Typical layout of fish and fruit and vegetable store*

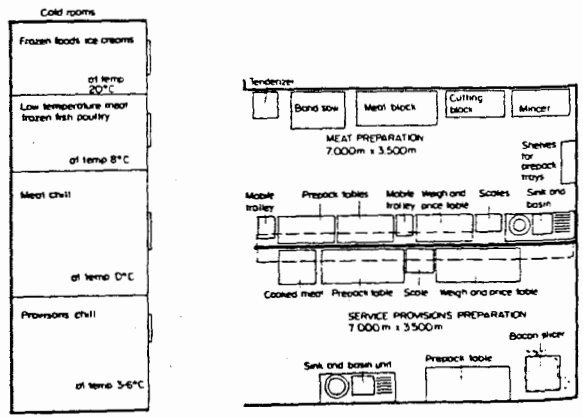


Figure 10.18 *Typical layout for meat and service provisions; preparation rooms. Cold room storage related to temperature: higher temperature : smaller area; lower temperature : bigger area*

Non-food shops

There is an immense variety of specialist non-food shops and a list is given below:

Antiques
Art gallery and Craft Shop (Commercial)
Bank
Betting shop
Bookseller
Building Society
Cameras and photographic equipment
Chemist
D.I.Y.
Dry cleaner; Laundrette
Electrical goods
Estate Agents
Florist, garden shop
Funeral director
Furniture, home and office and soft furnishing
Gas and electricity showrooms
Haberdasher
Hairdresser – womens, mens
Hardware, ironmongery, decorating
Hearing aid centre
Household goods
Jeweller
Leather and fancy goods
Mail order showroom
Menswear
Miscellaneous repairers
Moped, cycle and motor accessories
Motor trade
Needlework goods
Newsagent
Off-licence
Optician
Perfumery and cosmetics
Pet shop
Philatelist/Numismatist
Post Office
Radio, music, records, hi-fi, video
Shoe repairs
Shoe shop
Sports equipment, toys and games
Stationer, printer
Sweets, tobacco
Travel Agent
Womens and childrens wear
Wool shop

Department Stores will cover most of the above.

It is not possible to identify all these in detail. With a general appreciation of retail needs, information can be gathered from 'on the spot' observation and research, from Trade Associations and from the client's brief, but some key types illustrated in *Figures 10.19 and 10.20* and some notes given of special requirements for certain trades (see also sub-section on Data).

Some retail projects such as garden centres, discount furniture and DIY stores which need large gross areas are increasingly trading as edge of town or greenfield units, usually single level, and have similar requirements to other large space users.

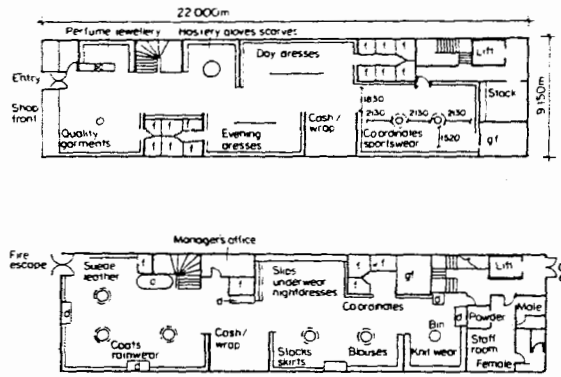


Figure 10.19 *Typical layout for women's fashion store*

f. Fitting room, min size 1200 × 900 (with staff assistance 1200 × 1200);
g.f. Group fitting room;
d. display

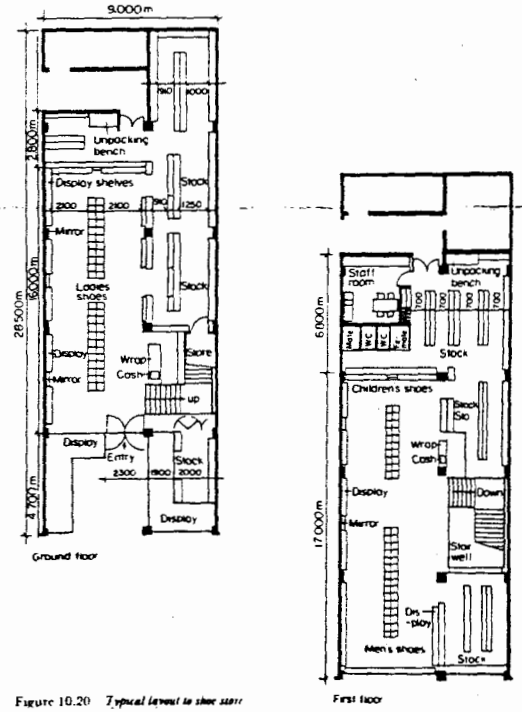


Figure 10.20 *Typical layout to shoe store*

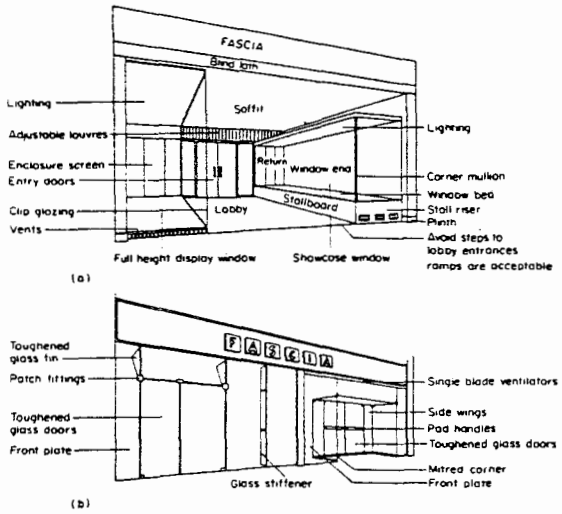


Figure 10.21 *Shop fronts (a) Perspective showing components of typical shop front (b) All-glass construction to shop front*

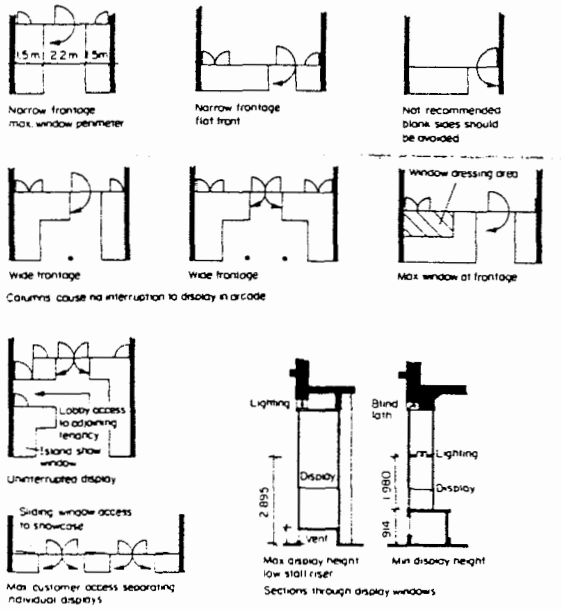


Figure 10.22 *Types of shop front*
Maximum perimeter displays is suitable for fashions; shoes; and furniture
Shallow window display is suitable for jewellery; books, stationery and music

DATA

Shop fronts

(Figures 10.21 and 10.22)

Shop fronts are needed for most shops except:

(i) Where giving on to enclosed mall;
(ii) One-stop unit such as hypermarket.

The function of a shop front is to attract attention, identify the shop, provide for display for merchandise (if this is a requirement) and entice customer into shop. Considerations which will govern the design are:

(i) Number and position of entrances, to be related to frontage, internal planning, and external siting (see also sub-section Means of Escape);
(ii) Relation of shop front floor area to total floor area;
(iii) Character and density of display.

Supermarkets and variety stores may have only flat glazed fronts with batteries of entrance doors, through which to see shop interior, with no display, or open backed windows with minimal display.

Specialist shops rely on their shop fronts to display their merchandise to the greatest possible number of potential customers. Shop windows may have either glazing to full height or independent show case windows (see *Figure 10.21*). They may be glazed to the floor, or have window beds and stall risers. (Glazing should be ventilated at the base to avoid steaming up.)

Windows

Windows may be open to the shop or be enclosed, with solid or glazed window backs, in which case, access is required for window dressing, and must be quick and easy if goods are to be sold from window. Dimensions will vary, being related to type of merchandise and trading policy.

Furniture may need 2.8–3.1 m depth with maximum height (and adequate space for handling). Jewellery may need only, say 300 mm depth and small individual glazed openings. Provision must be made in soffites for window lighting.

Entrance doors and fascia

(Figure 10.23)

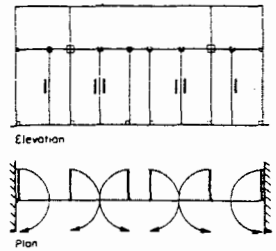
Entrance doors may be either hinged, folding, sliding/folding, revolving and automatic, or fold-away to leave unobstructed opening with or without warm air curtain.

The fascia takes the shop sign and masks the structure and blind box. The shop sign, illuminated or not, is the identification of the shop.

If a canopy is not provided then a blind is usually required to protect the merchandise from solar gain (and sometimes the window shopper from the rain), unless the shop faces north.

General

Figures 10.24 to 10.27 show diagrammatically dimensions required for display units, trolleys, gangways, etc.



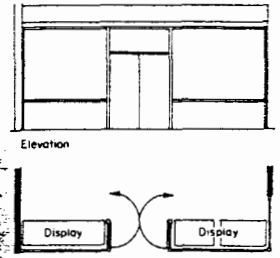


Figure 10.23 *Types of entrance*

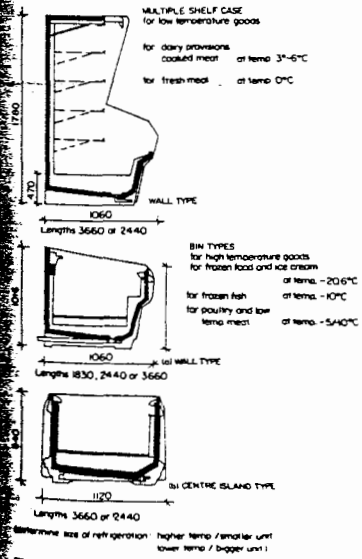


Figure 10.24 *Refrigerated display units*

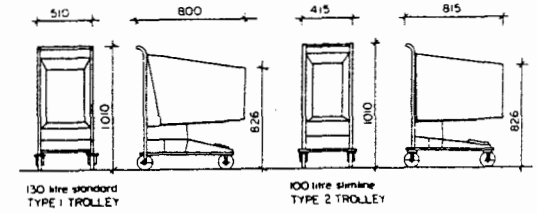
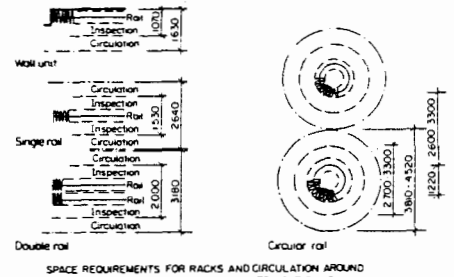
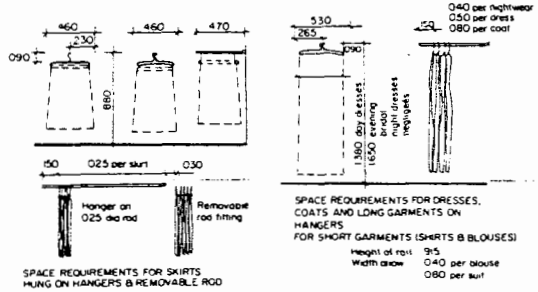


Figure 10.25 *Types of trolley*
1. 130 litre standard
2. 100 litre mini-size used in high density stores with narrow checkouts



SPACE REQUIREMENTS FOR RACKS AND CIRCULATION AROUND GARMENTS HUNG FROM CIRCULAR AND STRAIGHT RAILS



SPACE REQUIREMENTS FOR SKIRTS HUNG ON HANGERS & REMOVABLE ROD

SPACE REQUIREMENTS FOR DRESSES, COATS AND LONG GARMENTS ON HANGERS
FOR SHORT GARMENTS (SHIRTS & BLOUSES)
Height of rail 915
Width allow 040 per blouse
080 per suit

Figure 10.26 *Space requirements in women's fashion store*

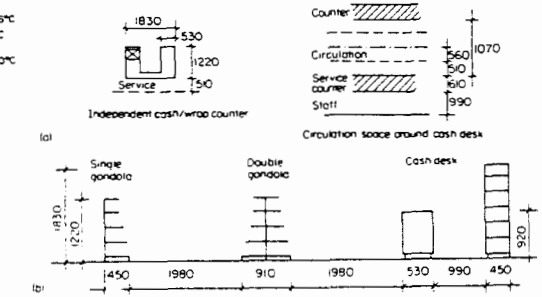


Figure 10.27 *Cash desk (a) Counter layouts (b) Gangway clearances*