

THE ARAB WORKSHOP OF KNOWLEDGE

AMERICAN UNIVERSITY OF BEIRUT

faculty of engineering and architecture-dept. of architecture

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EPsn
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INTRODUCTION

Objectives

Beirut; a city that used to hold the identity of a " city of knowledge and culture" , is considered to be a container of a society that is trying to coop with the complexity of the technological and media geared age; however, such a statement shall remain on its theoretical level if the so-called city of knowledge lacks the facilities that would promote her to regain its tittle.

My project, is a workshop of knowledge that extends beyond the traditional understanding of a cultural center. Applied to the dissemination of knowledge, that any " Post Modernistic " society is witnessing, the project represents one of the major stages in the evolution of repositories of knowledge, that tries to expand as to reach the maximum number of public, negating the old format of private libraries in enclosed monasteries. I would define my project as a " Mediatheque " , i.e. an agency for centralizing the up to date coverage of the basic data of all the sectors of knowledge in specific fields, for the purpose of study, of research or of practical utilization in social and professional life, on the other hand it will take upon itself to diffuse knowledge, to educate people catering at the same time for the cultural and educational needs of the public, and providing the most suitable environment and advanced technology for professionals. The center tends to group facilities that would enhance and reinforce its objectives through the intersection of the various departments, such a synthesis would make it possible to perceive the overall cultural dimension via the intermediary of several disciplines with this fusion being enhanced by the presence of research center, permanent and temporary exhibitions, art gallery, audiovisual facilities, auditorium, seminar rooms and bookstore.

The center shall act at any point as a dynamic workshop ever in motion and operation, offering, at one hand, an interactive dialogue among the various departments, setting a new contract between the center and its visitors at another, which will certainly call upon each person who enters the institution to be more aware of the environment that he is taking advantage of.

INTRODUCTION

Scope.

Having gone through a series of investigations and researches upon similar examples, the program of my project has been set down accordingly. The choice of similar examples, was based on:

- Scope of the projects.
- Similitude of functions.

These similar examples where the basis upon which major decisions have been taken, be it on the programmatic level or overall performances of the project, taking into account the points upon which those projects and mine would converge or diverge.

For practical usage, the projects have been dissected into their essential functions and have been categorized under compatible classes, namely:

- A -Entrance Hall / Information desk.
- B -Exhibition: -temporary.
 - permanent.
 - art gallery.
- C -Audio Visual display.
- D -Auditorium.
- E -Library : -stacks.
 - reading area.
 - technical services.
 - documentation dept.
- F -Offices.
- G -Lobbies.
- H -Seminars.
- I -Coffee shop / Restaurant.
- J -Circulation.
- K -Services.

INTRODUCTION

The Arab Workshop of Knowledge is classified under the cultural-educational (futuristic) category, where it tends to be subdivided into two main primary functions:

- Research / Administrative.
- Public, Display, Performances.

Keeping in mind the multi disciplinary aspect of the project, services, will constitute an evident chunk of the overall performance of the center. The project will comprise a total built up area of, approximately, 12000 m . The research center proper, with the basic functions of documentation, administration and technical services, builds up to the bulk of the area reaching 25% from the total. The exhibitions, Art Gallery, Audio Visual display spaces, Seminars and performances, will articulate 47% from the total. The rest, 28%, being distributed among Entrance Hall, open spaces food facilities, circulation, storages and services. In addition to sleeping accommodations for researchers.

A parking for 350 cars is to be provided with an approximate area of 8750m .

INTRODUCTION

Definition of the project

Having defined the scope and the objectives of the project going through the functional and administrative relations of its various departments shall be of intrinsic value as it establishes a clearer idea and deeper understanding of the overall performance and functioning of the center.

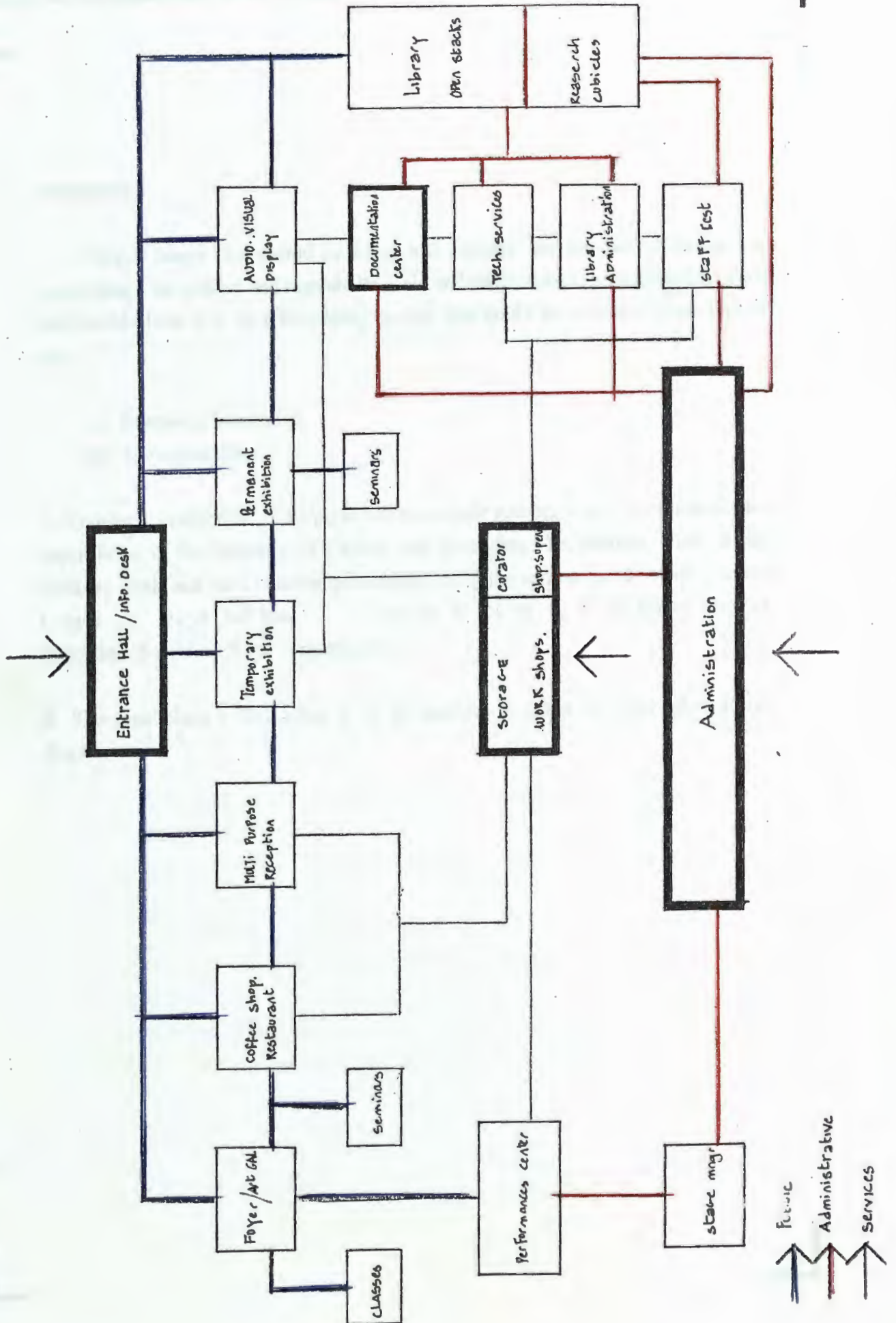
The Arab Workshop of Knowledge is to be run by a board of trustees, headed by a chairman, whose members are from various Arab countries. This board is responsible for setting the program of the center. Once the decision has been taken to conduct a research on a certain subject, the center, through its documentation department, shall make use of his own, or hire external researchers to do the work, making use of the center's facilities : library / research center and documentation department, that is a data bank where all Audio-Visual information is stored.

The end product , in its turn, is to be transmitted to the public, through the various departments of the center : Exhibitions, Information section and seminar rooms , and the whole project shall be running and functioning according to a specific theme, acting as a workshop ever in motion, via the interrelationship of the various sections. The visitor is to place himself on a "conveyor bed" that shall expose him to the various sections, making use of the center to its full potentials, acquiring knowledge and widening his scope, taking benefit of an adequate environment, appropriatly set to enhance the overall efficiency of the educational process.

Information is to be transmitted through the various mediums : permanent and temporary exhibitions : (audio-visual display, videotheque, logitheque, audiotheque, micro films), printed matters, lectures and seminars.

The project is to perform as one entity, in the service of public and researchers, acting as a fusion point of the educational interest of the masses. The center accommodates for additional facilities that would enhance its role as a "cultural mall" in the service of the overall performance of the project : Multi purpose / Reception, Food Facilities and Researchers accomadations; however, the functional relationships of the overall performance of the project is best portrayed in the following diagram.

Functional Relationships Diagram



INTRODUCTION

Limitations.

Major issues that should be taken into account, are the salient factors that would shape the project and regulate its scale and performance, giving it a dimension that would allow it to be a theoretical project that could be realized. These factors are :

A- Economic constraints.

B- Site regulations.

A: Economic constraints : This project is non profit making, it is to be run under the supervision of the Ministry of Culture and Education. Its primary client is the Ministry itself and the Lebanese government, with the support of the Arab Council League (جامعة الدول العربية) and the U. N. E. S. C. O United Nations Education Social Cultural Organization .

B: Site regulations : This issue is to be tackled in detail in "Site Information" chapter.

INTRODUCTION

Social Goals.

Learning is a sharing process and it is perfectly effective when the audience receives directly what the source intended it to receive, the center is a fusion point for both parties to enhance their understanding; the public will adapt to a new medium for education, and the professionals would have an environment and a place where they could further learn and enhance their skills at communicating their intent .

The project is a focal point of exchange of information, for the general public and for professionals and researches .

Its primary aim is to propagate the Arab culture, to educate public and to trigger awareness of their environment and context.

Its goals are to cover all aspects of the Arab cultural - educational life, to bring together actors directors and audience, and to interest as wide a public as possible, through an audio-visual / multidisciplinary commitment of functions that bears witness, teachers and disseminate knowledge, because former traditional disciplines have not always enjoyed a didactic and pedagogic communication effort that has been granted for them.

This center will bring together the regional community as a whole closer together through knowledge.

To sum up the Arab workshop of knowledge is a multiform of functions that shall act as follows:

- As a focal point for all cultural activities concerning the Arab world.
- An important tool for updating public interest .
- An efficient multiform interactive facility where the visitor approaches culture and education at his own pace following his own interest.

INTRODUCTION

B - Architectural goals

Due to the complexity of its scope and program, the project posits a duality that lies on two different criteria :

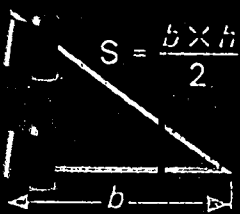
- Architecture as an image
- Architecture as a utilitarian space

My objectives would be to deal with this duality, keeping in mind the cultural image that Beirut acquired vs. the efficient planning that this complex ought to present.

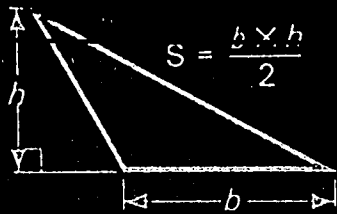
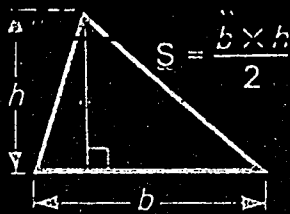
The project is to take into account the architectural context of the site. Being edged by a governmental historic complex (the Unesco) the project will posit a necessity for communication though shall occur . Keeping in mind the general physical condition of the area, that shall be studied in detail in the site information chapter.

POLYGONES IRRÉGULIERS

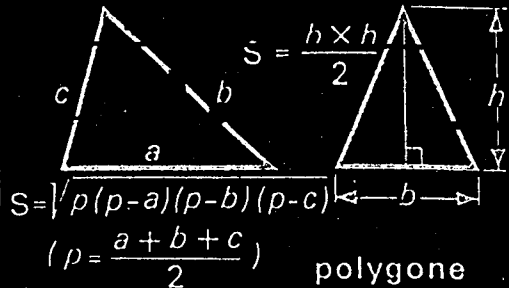
angle rectangle



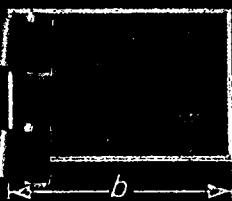
triangles quelconques



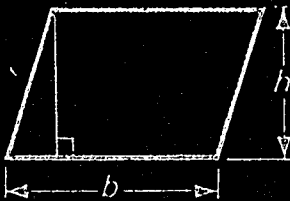
triangle isocèle



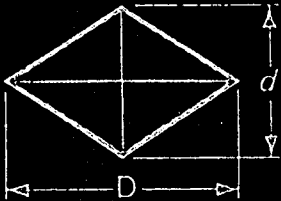
rectangle



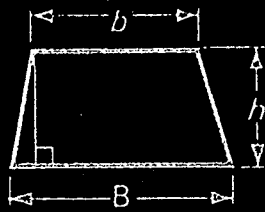
parallélogramme



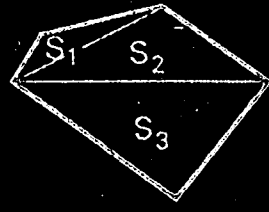
losange



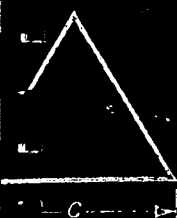
trapèze



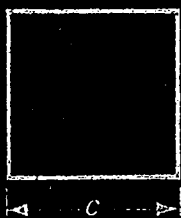
polygone quelconque



triangle équilatéral

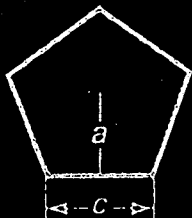


carré

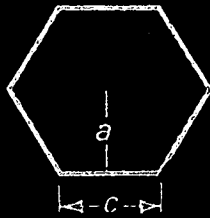


POLYGONES RÉGULIERS

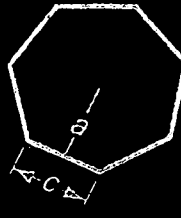
pentagone



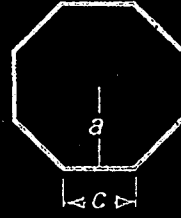
hexagone



heptagone



octogone



$S = \frac{p}{2} \times a$ (p, périmètre; a, apothème)

angle équilatéral

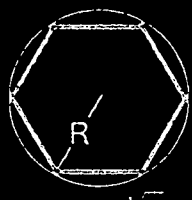


carré

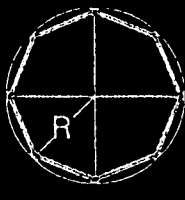


POLYGONES INSCRITS

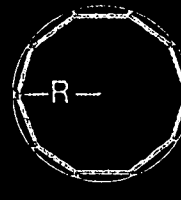
hexagone



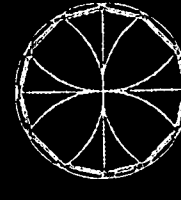
octogone



décagone



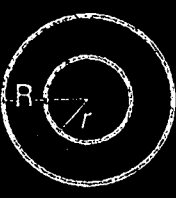
dodécagone



cercle



couronne



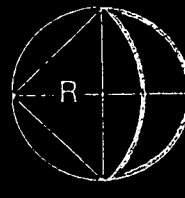
secteur



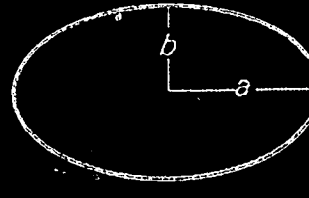
segment



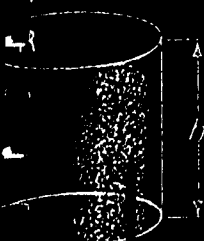
croissant



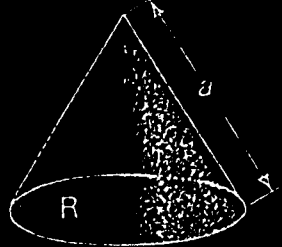
ellipse



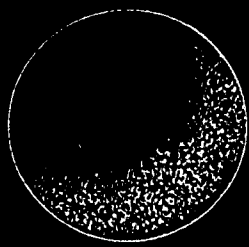
lindre



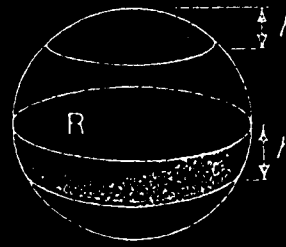
cône



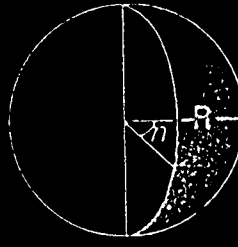
sphère



calotte sphérique



fuseau



zone sphérique

$S = 2\pi R h$

$S = \frac{\pi R^2 n}{90}$

PROGRAM AND AREAS

Program	Net Area (m ²)	Gross Area (m ²)	Percentage from total
_ ENTRANCE HALL / INFO. DESK	250	250	2 %
_ EXHIBITION		1970	16.4 %
- temporary / foyer	300		
- permanant	700		
- art gallery (unesco)	600		
- storage	250		
- work room	100		
- curator office	12		
- info / clerk	8		
_ AUDIO VISUAL DISPLAY		1340	11.2 %
- head of dept.	12		
- assistant / technical services	50		
- 20 VCR	200		
- sceneography gallery	300		
- logitheque 15 terminals	200		
- 20 audiotheque terminals	200		
- 20 slids projector	350		
- open projection room	200		
_ PERFORMANCE CENTER (auditoriums)		2140	17.8 %
- large auditorium (700 seats)	875		
- stage	250		
- stage pit	50		
- workshop (paint - woodwork)	100		
- storage	80		
- 2 single dressing rooms (2*16)	32		
- 2 communal dressing rooms (2*8)	16		
- showers	9		
- green room	25		
- instruments storage	25		
- props storage	20		
- main storage	40		

PROGRAM AND AREAS

Program	Net Area (m ²)	Gross Area (m ²)	Percentage from total
- control room	25		
- super intendant of shops	9		
- stage manager	12		
- assistant	9		
- secretary / waiting	15		
- small auditorium (300 seats)	375		
- stage	120		
- projection room	12		
- cloak room	20		
- public toilets	20		
<u>LIBRARY</u> (printed matter)		985	17 %
- open stacks (50 000 v)	375		
- seating (85 pers.)	220		
- current periodicals and newspaper (500 v)	150		
- ref. and local history (2000 v)	50		
- bound periodicals (500 v)	50		
- maps and atlases (2000 v)	55		
- catalogue (4 cabinets of 60 trays)	12		
- catalogue (computers)	50		
- control / circulation desk	5		
- photocopy space (5 mach.)	25		
- toilets	12		
<u>TECHNICAL SERVICES</u>		200	(included with library)
<u>AQUISITION DEPT.</u>			
- aquisition librarian office	9		
- typing area	12		
- clerical offices	12		

PROGRAM AND AREAS

Program	Net Area (m ²)	Gross Area (m ²)	Percentage from total
<u>CATALOGUING DEPT.</u>			
- head cataloguer	9		
- typing area	9		
- clerical off. / staff cataloguers	18		
- work room	18		
- storage (of materials to be catalogued)	9		
<u>PROCESSING DEPT.</u>			
- head of dept.	9		
- typing area / workroom	12		
- clerks	12		
<u>BINDING and REPAIR / SERIALS DEPT.</u>			
- head of dept.	9		
- work room	25		
- delivery_ unpacking	25		
- storage	15		
<u>DOCUMENTATION DEPT.</u>		855	(included in library)
- head of dept.	12		
- 2 assistant (2*9)	18		
- head of archives	12		
- assistant / archives	9		
- secretary / waiting	12		
- super intendant of shops / ass.	12		
- tech. services / clerks / storage	45		
- 25 computers for tapping	50		
- 50 computers for research	85		
- 20 minitels	50		
- microfilms display (40 terminals)	70		
- 10 slides projectors	40		
- 15 VCR terminals	60		

PROGRAM AND AREAS

Program	Net Area (m ²)	Gross Area (m ²)	Percentage from total
- head of data storage	12		
- data storage / clerks	18		
- rare books	65		
- control / security	7		
- A/V reproduction dept.	12		
- supply of equipments / storage	25		
- 25 indiv. research cubicles : 5*25	125		
- 2 spaces for 12 researches : 2*30	60		
- 4 spaces for 5 researches: 5*15	75		
<u>ADMINISTRATION OFFICES</u>		1382	11.5 %
- chairman's office	33		
- secretary / waiting	24		
- conference room	33		
- 2 assistant chairmen	36		
- public relations	12		
- secretary waiting	18		
- financial manager	12		
- supply	12		
- chef du personel	12		
- clerks space	33		
- comm. dept. / fax. telex. xerox.	33		
- kitchen	3		
- toilets	12		
- Library Administration			
- head librarian office	12		
- secretary / waiting	18		
- 2 assistant librarians	18		
- public relations	9		
- purchase / supply	9		
- conference room	24		
- clerical office	18		
- kitchen	3		
- toilets	6		

PROGRAM AND AREAS

Program	Net Area (m ²)	Gross Area (m ²)	Percentage from total
- Representative Offices			
27# - secretary / waiting	6		
- info. section	4		
- manager	12		
- assistant manager	7.5		
- kitchen	2.5		
- toilets	2		
_ LOBBIES		540	4.5 %
- multi purpose hall	400		
- storage	40		
- toilets	12		
- 6 Sleeping Accomodations			
- suit	9		
- kitchen	3		
- toilets	3		
- SEMINARS		400	3.3 %
- 4 seminar rooms 25 p. each	200		
- 4 class rooms 25 p. each	200		
_ COFFEE SHOP / RESTAURANT		482	4 %
- sitting area	300		
- kitchen	50		
- storage	30		
- toilets	12		
- book store	65		
- retail	25		
_ CIRCULATION	1050	1050	8.8 %
_ SERVICES		410	3.4 %
- arrival and dispatch area	50		
- disposal expties	30		



INTRODUCTION

Similar examples are:

1-House of Books, Images and Sound:Mario Botta. Villebraun, France.

2-Mediatheque of Nimes:Sir Norman Foster. Nime, France.

3-Ishara Library and Science Center:Arata Isosaki. Otto, Japan.

4-The "Institut du Monde Arabe". Jean Nouvel. Paris, France.

5-Centre George Pompidou : Piano, Rogers. Paris, France.

6-The US. Holocaust museum. : Ingo Freed , Washington D.C , U.S.A.

Another project that has been taken into account (not as far as area tabulation is concerned, due to lack of information), is :

7-La Cite des Sciences et de l'Industrie ; Adrien Fainsilber. Paris-La Villette, France.

INTRODUCTION

The scope of those projects has been identified through a detailed reading of the projects' program and has been derived accordingly; taking into consideration the location, the general performance and the nature of the functions.

The similar examples had to be of similar nature to the Workshop of Knowledge i.e. urban scale, mediageared cultural / information centers serving the general public and catering for administrative / documentation offices that, in addition to management, would contribute in upgrading the cultural status of the project.

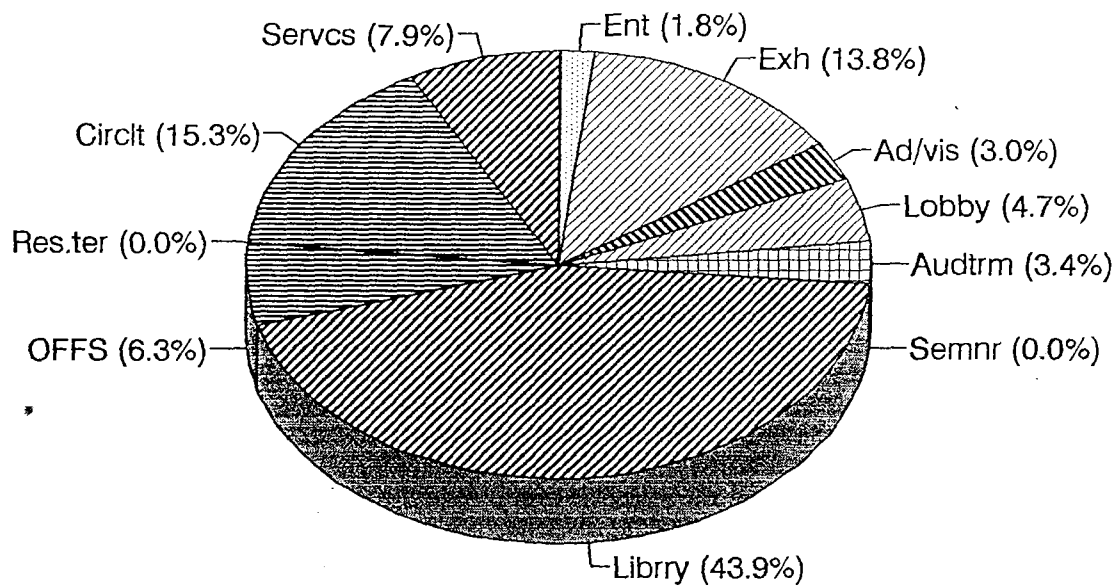
The area of each major space of those projects has been surveyed and calculated as a unit of percentage from the total percentage of the area (as it will be shown in the percentage of area distribution in the following pie charts).

It will be beneficial to mention that few of these projects lack certain functions that the Arab Workshop of Knowledge cater for and for that reason the percentage of those functions via the total area has been denoted as zero.

INTRODUCTION

HBIS PROJECT - % OF AREA DISTRIBUTION

(FROM TOTAL)



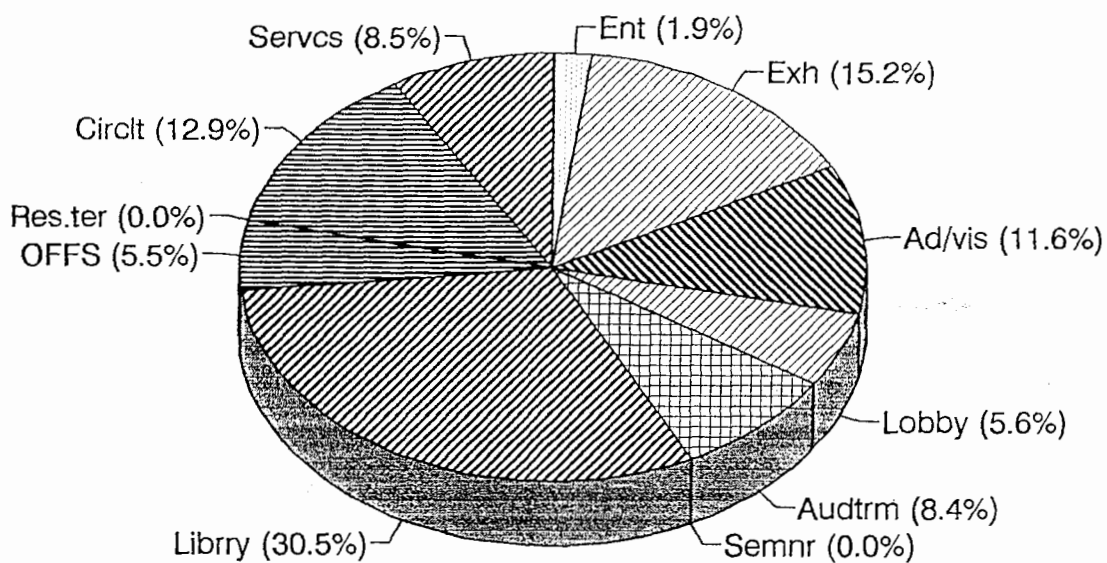
TOTAL AREA: 4569 M2

-House of Books, Images and Sound: Mario Botta. Villebraun, France.

INTRODUCTION

AICHTC PROJECT - % AREA DISTRIBUTION

(FROM TOTAL)



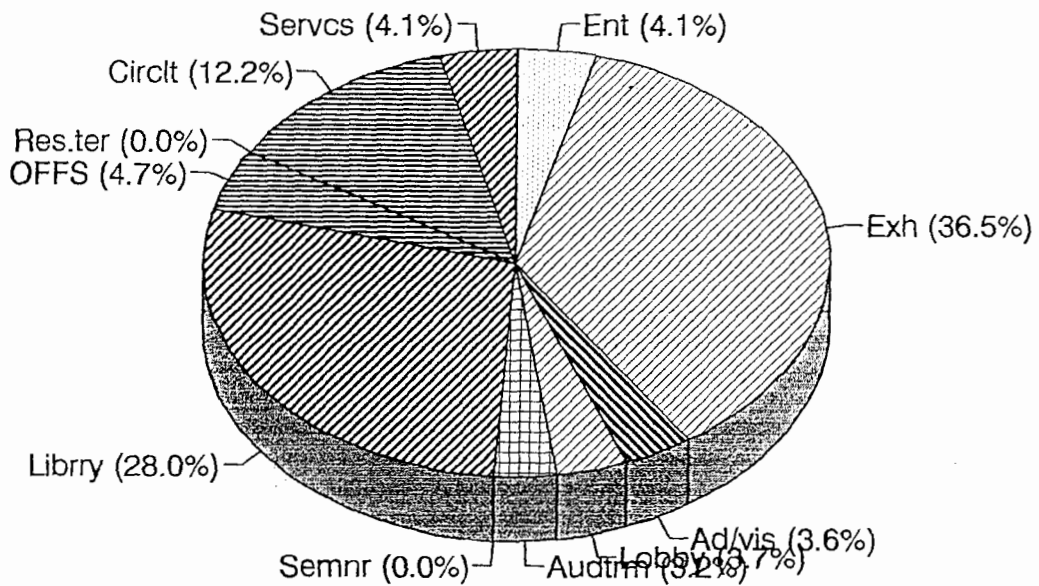
TOTAL AREA: 8943 M2

-Mediatheque of Nimes: Sir Norman Foster. Nime, France.

INTRODUCTION

ILSC PROJECT - % AREA DISTRIBUTION

(FROM TOTAL)

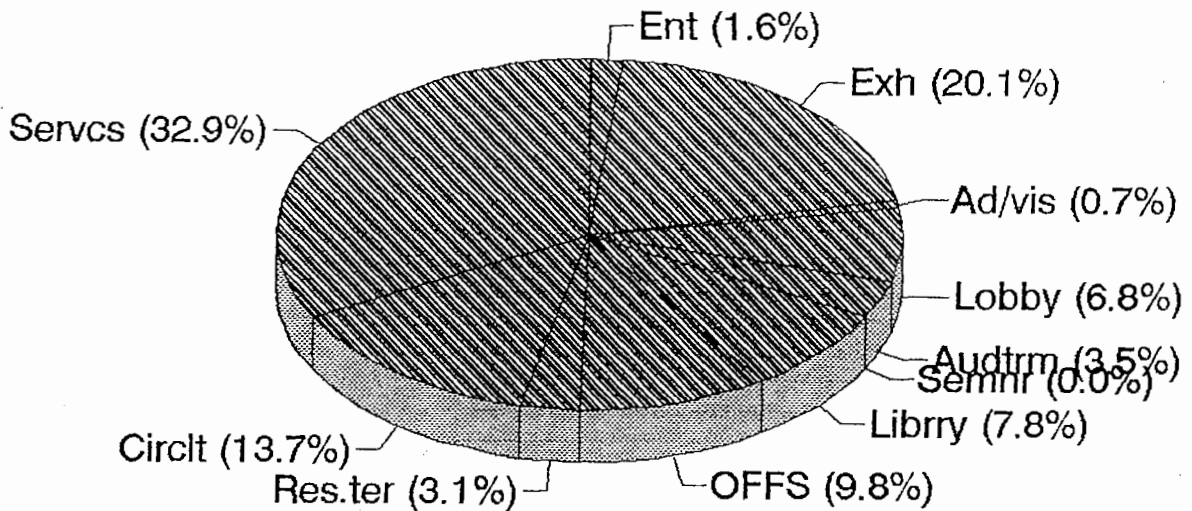


TOTAL AREA: 4925 M2

-Ishara Library and Science Center: Arata Isosaki. Otto, Japan.

INTRODUCTION

IMA PROJECT - % OF AREA DISTRIBUTION
(FROM TOTAL)



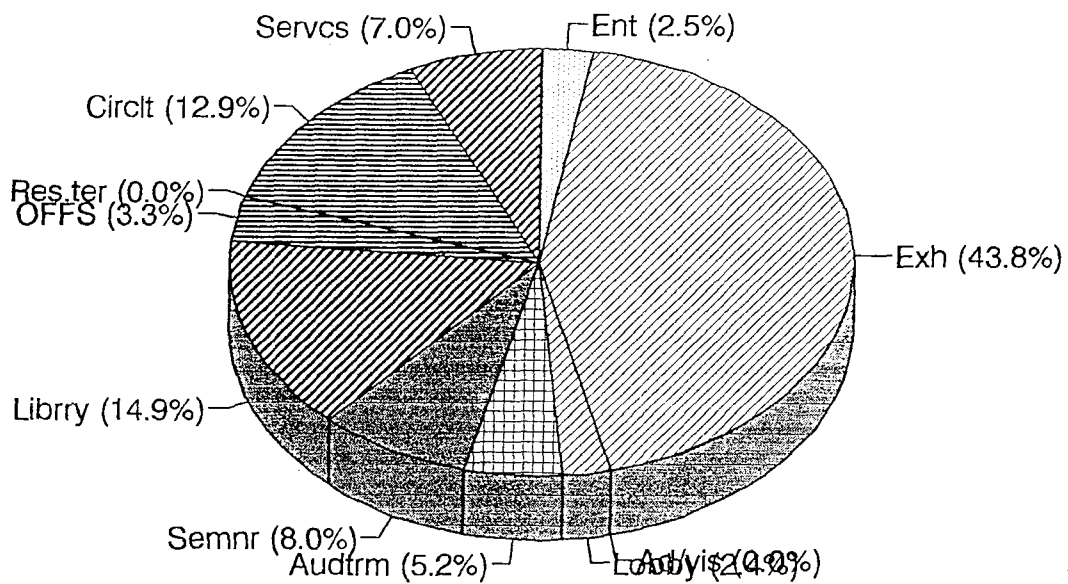
TOTAL AREA: 21900 M2

-The "Institut du Monde Arabe". Jean Nouvel. Paris, France.

INTRODUCTION

USHM PROJECT - % AREA DISTRIBUTION

(FROM TOTAL)



TOTAL AREA: 13758 M2

The US. Holocaust museum. : Ingo Freed , Washington D.C , U.S.A.

SPACE STANDARDS

Exhibition.

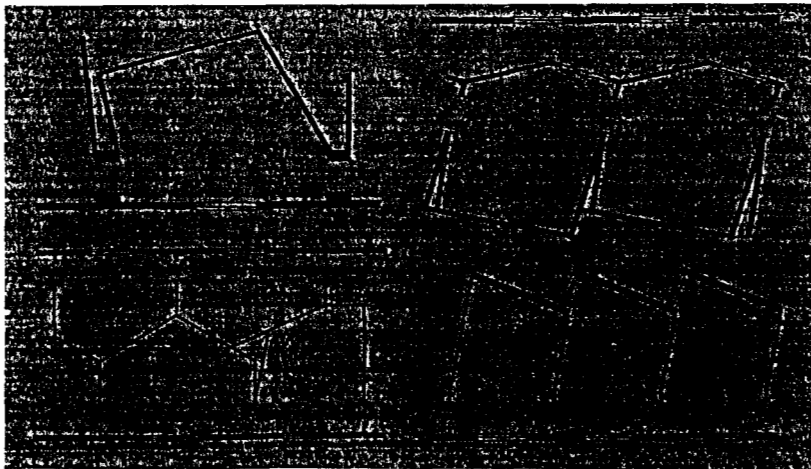
Exhibition space is subdivided into three main categories, in addition to services,

- Temporary.
- Permanent.
- Art Gallery.

The Temporary exhibition is to function as a foyer for both auditoriums, it is intended to acquaint, along with the Temporary Exhibition and the Art Gallery, the general public with the most updated and historical valuable artifacts of the Arab world. They to act as educational resource for the general public. The exhibitions are carried out in consultation with the other departments, via a curator's office, supporting the primary task of the center : disseminate knowledge and educate the masses.

An information / security desk is present in each of the exhibition spaces to serve, simultaneously, as a reception-information area, in addition to control. The exhibition spaces are to act as links, for the general public, between the various sections of the project.

Permanent exhibition space (700m) will require stable permanent fixtures and will display a collection of historical, archeological artifacts, pertaining to the Arab culture. In the other hand, the diversity of the nature of the displays in temporary exhibition(300m) and Art gallery(600m), will dictate a flexible arrangement of the spaces.



SPACE STANDARDS

Lighting.

Lighting is an important aspect of exhibition space. Daylight can be used in a variety of ways to produce the right atmosphere. This, if need arises, will be supported by artificial lighting.

Daylight can be admitted either from the ceiling or from the sides. Each method has its own advantages and disadvantages.

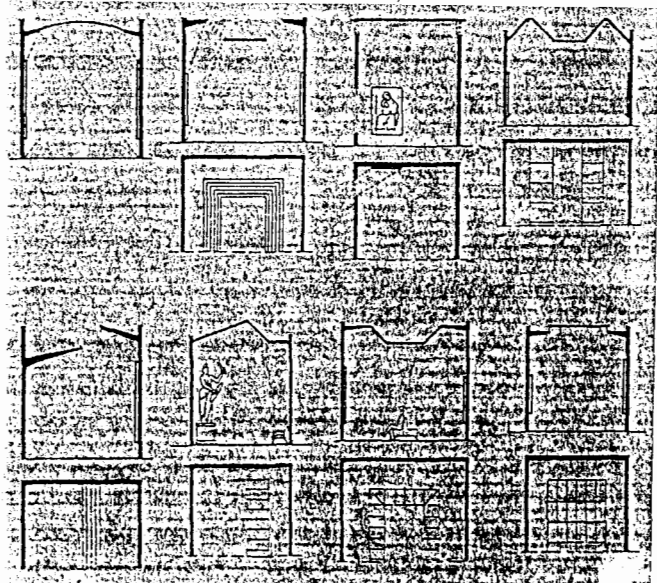
1-Lighting from the ceiling.

advantages:

- The supply of light will be free from any obstructions that might cause shadows or refractions and thus alter the quality of light.
- The possibility of regulating the amount of light falling on the exhibits.
- The saving of wall space which means more space for exhibits.
- The possible flexibility in the interior division of the space.
- Security measures are increased once there are no openings to the outside.

disadvantages:

- The usual problems associated with skylights (liability to become dirty, risk of panes being broken, danger of water leakage, admission of sun rays,.....).
- The excess of radiating light.
- The monotony of lighting.



SPACE STANDARDS

2. Lighting from the side

Openings in the wall might be placed either at a level that permits people to see through or at a higher level. Windows placed at a low level have a main disadvantage in that the wall in which they are placed is useless for exhibits and the one opposite is also affected by the light reflections that will impede proper visibility. But the quality of light in the other areas of the room will be pleasant and appropriate for the exhibits.

An advantage of low placed windows is that some of them can be transparent, allowing a view to the outside. This might be one way of providing the visitor with a moment of rest for his eyes.

As for high placed windows, they provide light similar to that from the skylights and leave all walls free for exhibits.

Another possibility is to use light that is concentrated on the walls and on individual exhibits rather than use uniform lighting. This will dictate the use of artificial lighting which is more controllable. There is also the possibility of lighting glass cases from the back through frosted glass.

Whichever system is used, it should be applied in a manner that will allow its adaptability to different types of exhibits.

3. Internal division

Here flexibility is also a prime factor. Therefore, the tendency is to use lightweight partitions that can be moved about easily and not confine one permanent scheme, especially since the exhibits are not permanent.

SPACE STANDARDS

Audio Visual Display.

Similar to exhibition spaces, the Audio Visual display section is intended to act, via the Documentation department, as an opportunity to initiate the "non specialized" public into the disciplinary of the Audio Visual media. Its primary aim is to educate the visitor by offering him a wider range of facilities, facilities, that would communicate with the public, allowing information to be easily diffused.

The visitor will make use of Audio Visual equipments, namely: VCRs , computers , audiotheque terminals and slide projectors, in addition to a Sceneography gallery and an open projection room. The theme of the Audio Visual information section will revolve around subjects upon which researches are done. They are to be supplied by the Documentation section, through the technical services.

The Architecture of the Audio Visual section should give a leeway for the flexibility of the layout of the equipments, where some part of them might be stored for an ephemeral period of time; however, and on the general level the physical qualities of the space cannot be detached from the essential requirements of Audio Visual media: darkness.

The overall layout of the space is to be defined through temporary, movable partitions, that, in their turn, would define smaller "cubicles" housing the various terminals.

The Sceneography gallery and the open projection room would require a definite, fixed design allocation of 300 and 350m² respectively.

SPACE STANDARDS

Theater (performances center)

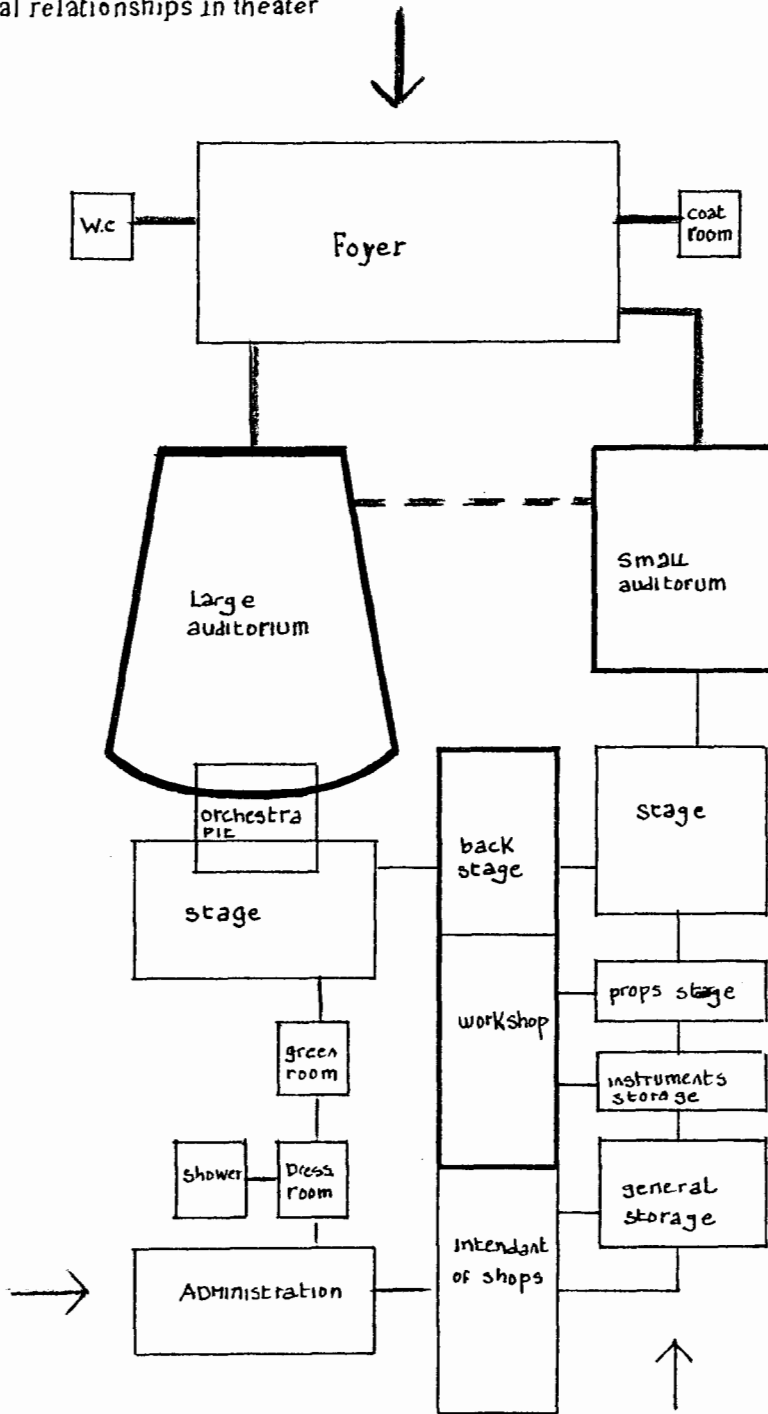
The theater is an essential section of the workshop of knowledge, where performances and/or lectures might be held. The performance center is a combination of two auditoriums :

- Large auditorium for performances . 700 persons.
- Small auditorium for lecture and projections . 300 persons.

The main theater will be fitted and designed according to the latest architectural and technological advancements, while trying to achieve maximum confrontation / interaction of performers and audience. This space will be best fitted for live performances (Ballet, plays, concerts, chamber music and dramatic presentation). On the other hand, the small auditorium will cater for screenings, lectures and conventions.

The setting of the two auditoriums and their services (back stage, workshop and dressing rooms) will be flexible enough as to allow both of them to open on each others and share the same stage in case of large performances (1000 persons), aspiring to the Arena shape theaters, making use of movable stage platforms and movable tiers of seats.

Functional relationships in theater



- Public
- - - Staff
- Services

SPACE STANDARDS

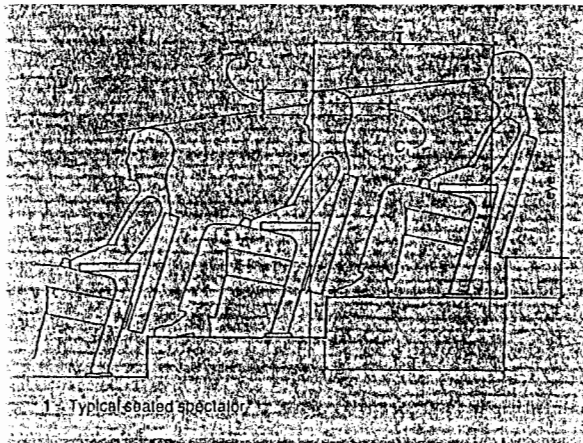
Sight lines.

A good visual access to the acting area is eminent, meaning that all members and individuals in the audience should be able to see the stage over the heads of the people in front of them. The rake of the auditoria floor is as follows:

The lowest and nearest point that the whole audience should be able to see is first established, then the eye level of a person seated in the front is plotted ($h=1120\text{mm}$). A sight projected back from P over the head of the person in the first row will cross the vertical line at the eye level of a person in the second row. The height allowed above eye level to clear the head is normally 100 mm.

Staggering seating can improve views of the stage, but the viewing sections should be re-checked in the end. When we stagger the seats:

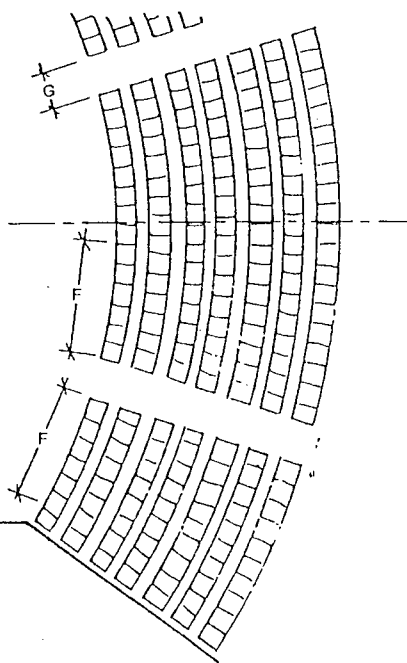
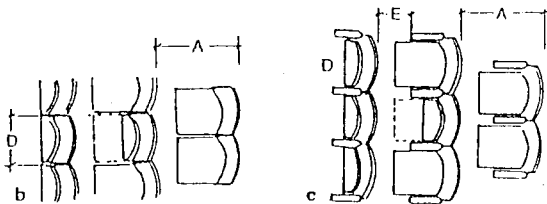
- Eye height is 1.12m
- Tread of the seating tier (row spacing) $T = 80 - 1.15 \text{ m}$
- Head clearance $C = 0.065\text{m}$
- $C' = 0.13\text{m}$ over the head



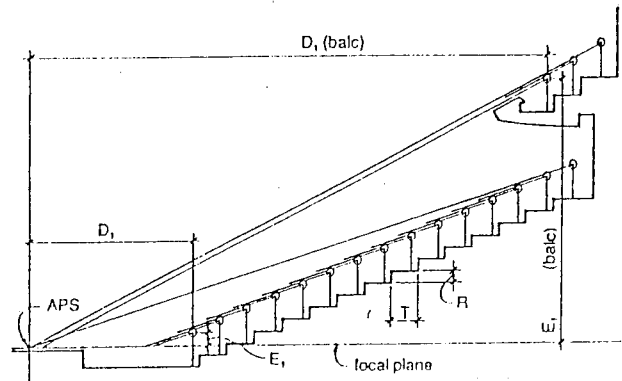
SPACE STANDARDS

Seating accommodations and sight lines.

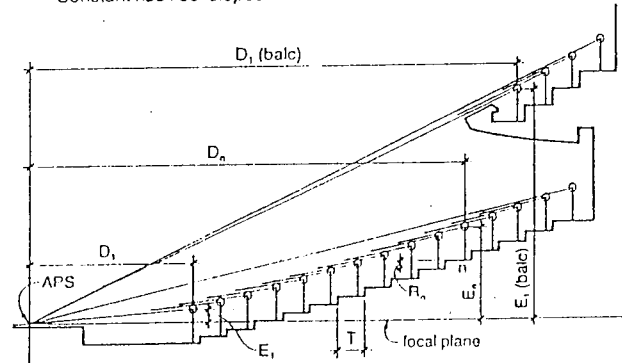
a	min seatway (measured between perpendiculars) E	max distance of seat from gangway (500 seats) F	max number of 500 wide seats/row	
			gangway both sides	gangway 1 side
	300	3000	14	7
	330	3500	16	8
	360	4000	18	9
	390	4500	20	10
	420	5000	22	11



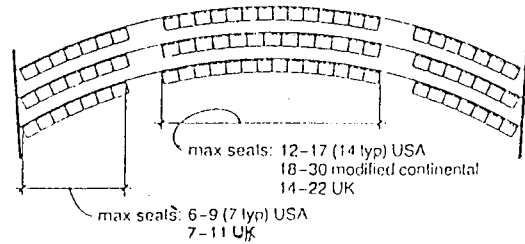
a distance of seats from gangways b plan of seating without arms c seating with backs & arms d part of auditorium



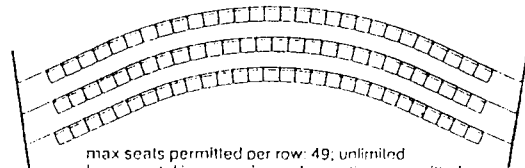
Constant rise floor slopes



Iscidomal floor slopes



Multiple aisle seating



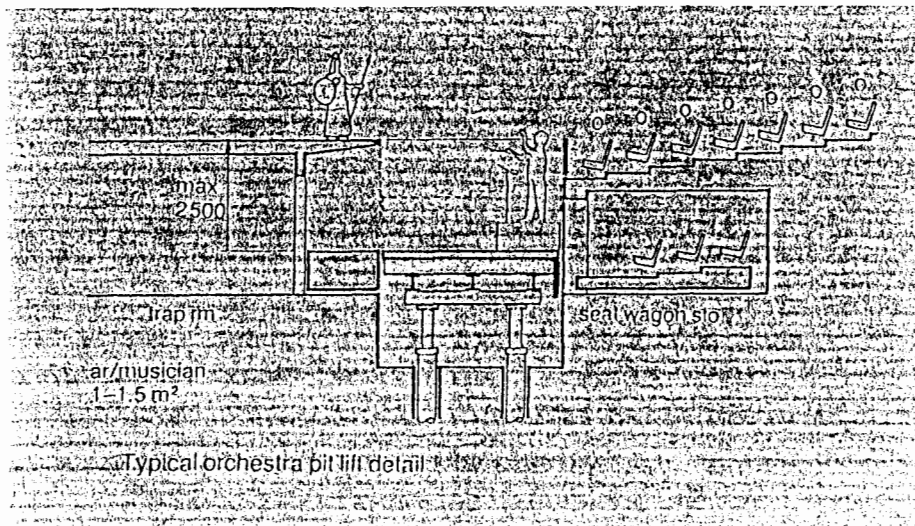
'Continental' seating

SPACE STANDARDS

Orchestra Pit.

The orchestra is usually accommodated in a pit, part of which is below the front of the stage. The floor of the pit is usually 2-3m below stage, preferably adjustable (20 sq.m. for a 14 person orchestra).

The stage is sometimes fitted with areas capable of being raised or lowered to give flexibility for stage set so some form of basement is needed below the acting area. The stage can be completely demountable with the facility to remove individual sections of the stage if required.

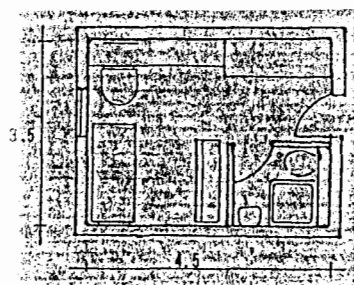
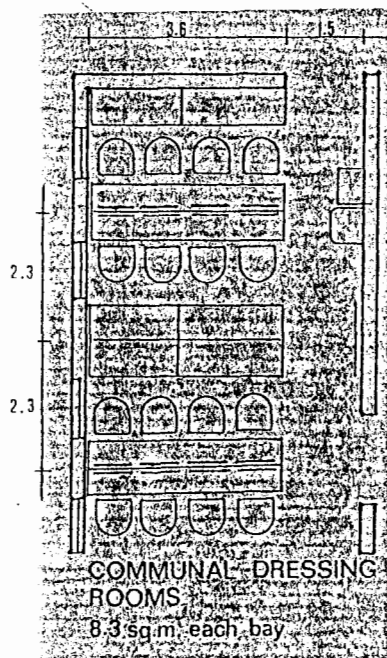


SPACE STANDARDS

Dressing Rooms

The dressing rooms layout should allow for performers to put their dresses on, store their personal clothes and items and for easy access to the toilets.

The ratio of actors to toilets and showers is six to one, with single dressing rooms being approximately 16 sq. m. and communal dressing rooms 8 sq. m. each bay.



SINGLE DRESSING ROOMS

SPACE STANDARDS

Stage Lighting & Sound Equipment

In principle it should be possible for any part of the stage to be lit from several different angles. The main location of lighting is from overhead within stage and auditorium ceiling, from slots at the sides of the auditorium and stage, and less frequently, from footlights. The overhead lighting will be supported on bars to project down to the performance area at approximately 45 degrees with boom support from the sides lighting positions.

The control of the performance would be at the sides of the stage while that of sound and lighting is from a control room at the back of the auditorium. Provision for camera tracking space during the filming of a performance should be considered.

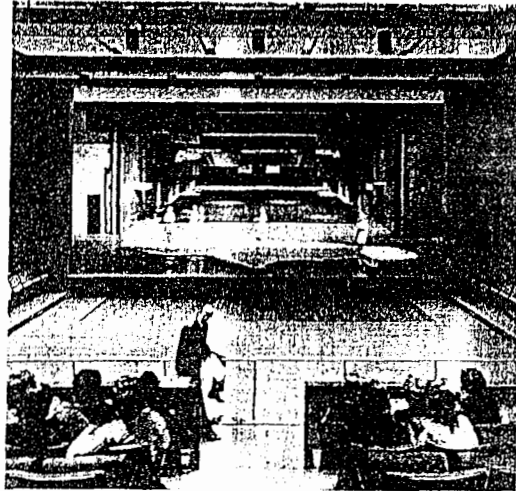
SPACE STANDARDS

Examples of auditoriums that could develop into larger seating accommodations.

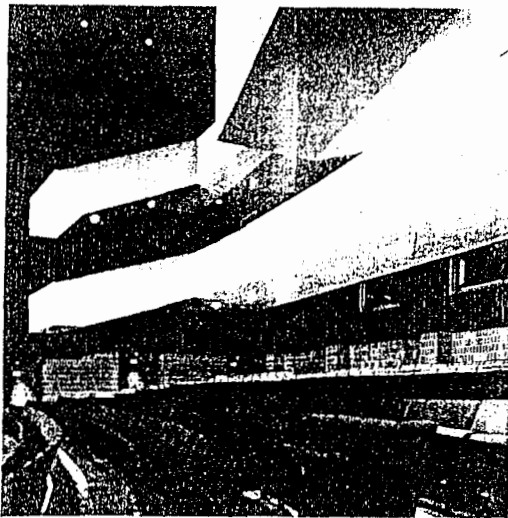
43. Benedicta Arts Center (1964) PERFORMING ARTS CENTER
 College of Saint Benedict, St Joseph, Missouri

Architects: Hammel, Green & Abrahamson
Consultants: Bolt, Beranek & Newman

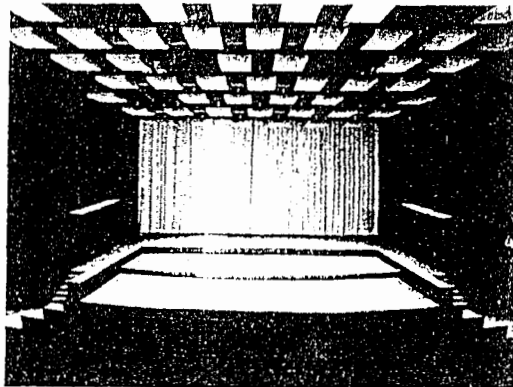
The Benedicta Arts Center was built for a small women's college. The main auditorium (capacity 1,000) and the theatre (capacity 350) make use of the same stage house. The stage house may be shut off from the auditorium by a soundproof door. The performance area in the auditorium is divided into two elevator orchestra platforms and a fixed forestage. Two hundred additional seats can be arranged on the elevator platforms when only the forestage and stage house are used. In the theatre, the front third of the seats is mounted on movable platforms permitting the use of a thrust stage as well as the proscenium stage. Adjustable ceiling panels and draperies in both halls permit acoustical "tuning." Classrooms, studios, offices, and a library for the art, music, and drama departments are included in the building.



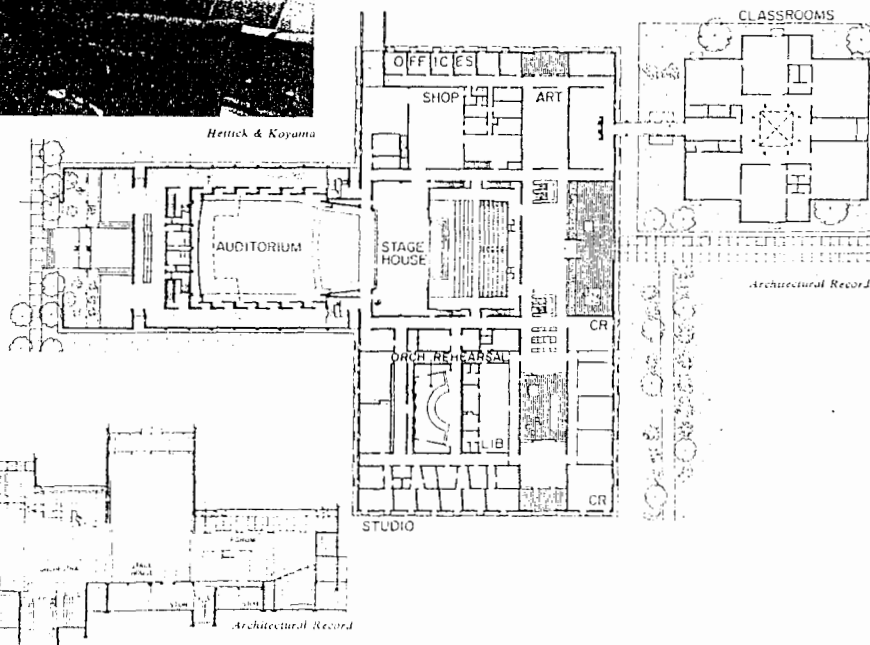
Minneapolis Sunday Tribune



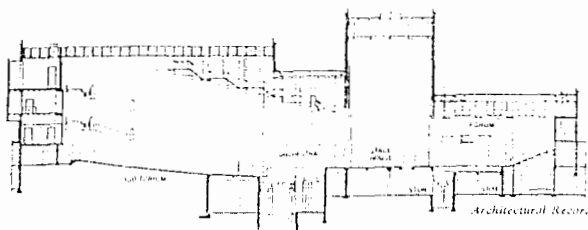
Hettick & Koyama



Hettick & Koyama



Architectural Record



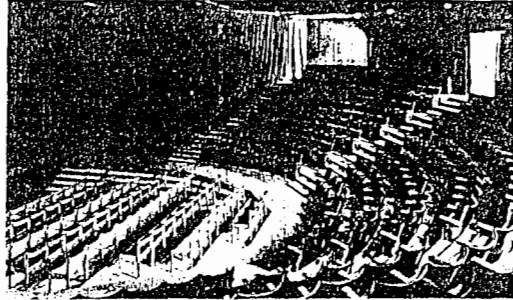
Architectural Record

SPACE STANDARDS

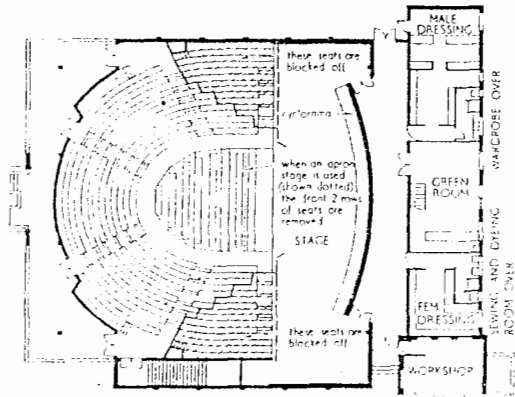
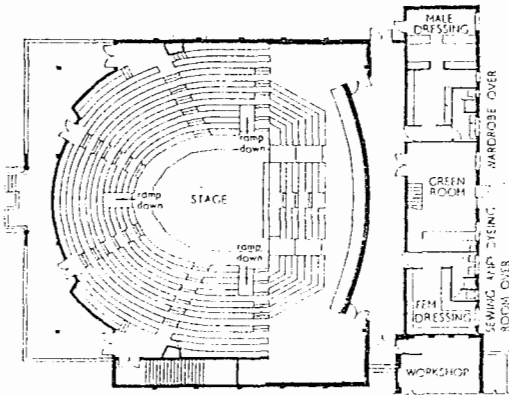
37. Questors Theatre (1964) VARIABLE THEATRE Ealing, London, England

Architects: *W. S. Hattrell & Partners (Norman Branson, partner in charge)*

The Questors Theatre (capacity 330-478) is a non-mechanized variable theatre. It may be used as an arena, thrust or proscenium stage theatre. An amateur organization, with limited funds and the membership to provide free labor, chose the non-mechanized form as the most economical and flexible.



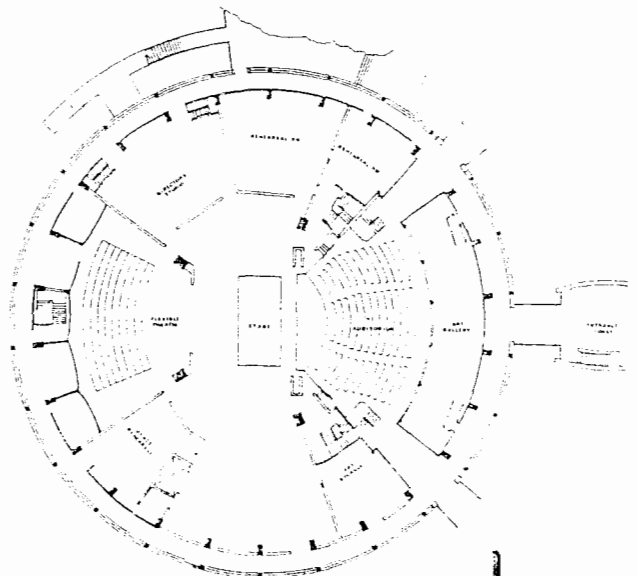
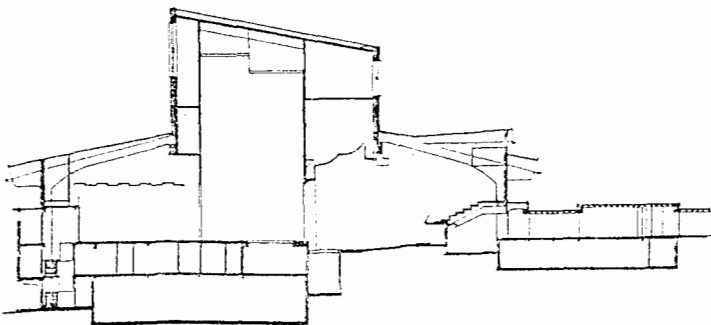
Colin Wetwood



40. Spingold Theatre (1965) VARIABLE THEATRE AND PROSCENIUM STAGE Brandeis University, Waltham, Massachusetts

Architects: *Harrison & Abramovitz*

The Spingold Theatre is a multi-purpose university theatre building consisting of several auditoriums of varying size and character arranged about a central stage house. The stage house and its surrounding building are circular in plan. The three main spaces are: (1) a theatre (capacity 750) designed for flexibility of productions to range from a proscenium stage to a thrust stage; (2) a variable theatre (capacity 150) with a flat floor and removable seats which can be arranged for theatre-in-the-round, proscenium stage, or thrust stage, or removed entirely for television studio productions; (3) a director's studio (capacity 150) with a small separate stage for intimate productions and special study. The theatre spaces are supported by necessary rehearsal and backstage facilities, classrooms, offices, and an exhibition area.

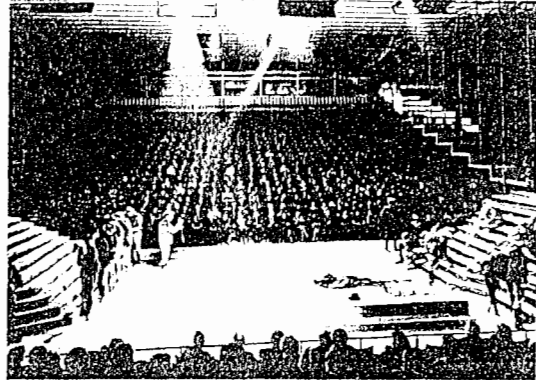


SPACE STANDARDS

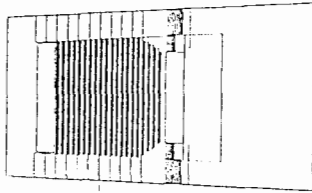
35. Nationaltheater (1957) PROSCENIUM STAGE and VARIABLE THEATRE
Mannheim, Germany

Architect: Gerhard Weber
Associate Architect for Design: H. Hämer, A. Wellmann
Consultant: A. Eisenberg

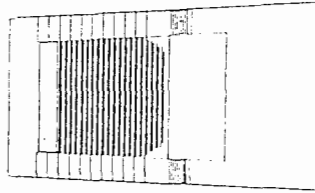
The Nationaltheater consists of two theatres, back-to-back. The large theatre (capacity 1,200), with a proscenium stage and used primarily as an opera house, has most of its seats on the main floor arranged in continental style. Instead of a balcony there are loges at the sides and rear of the auditorium. The small theatre (capacity 606 to 871) is a variable auditorium with a steeply raked seating area. It can be used as a proscenium, arena or end stage theatre. Stepped side stages above the side aisles may be closed off with portable screens.



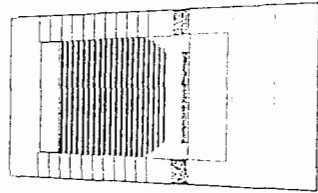
Robert Häusser



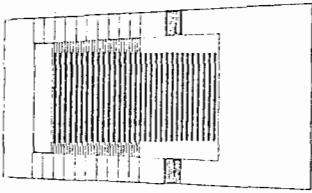
PROSCENIUM STAGE WITH ORCHESTRA



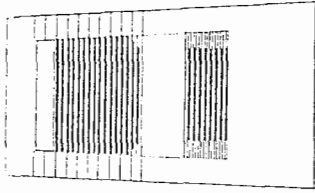
PROSCENIUM STAGE WITH EXTENDED FORESTAGE



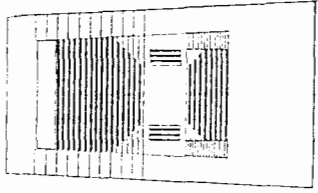
OPEN END STAGE WITH STEPS DOWN TO PARQUET



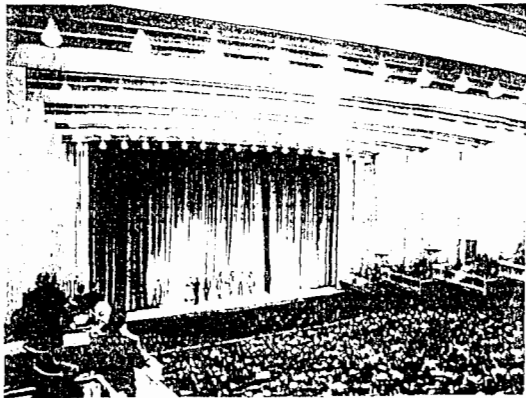
LECTURE ROOM CONCERT HALL



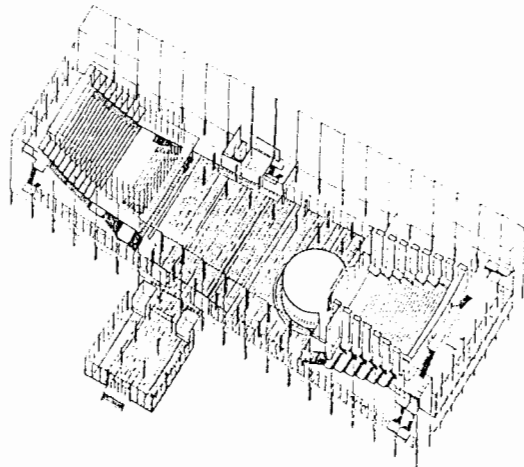
TWO SIDED ARENA STAGE



FOUR SIDED ARENA STAGE



Robert Häusser



SPACE STANDARDS

Distribution of Books in the Library.

The books are to be displayed in open stacks, accessible for public as to facilitate the process of picking the books and making it faster, allowing the relation between reader-books more casual, with no intermediate link. The number of books is the starting point for defining the library scope and area , in addition to the services needed (technical services) . The total number of books is to be 50 000 volumes . this figure has been reached after a comparison with similar projects. The books will be distributed in the different departments as follows :

Department	No. of volumes.
-Reference and local history	2 000v
-Current periodicals and news papers	500v
-Bound periodicals	500v
-Open stacks	50 000v
-Maps and Atlases	2 000v
-Rare books	4 000v

SPACE STANDARDS

Seating accommodations.

Each type of space in the library itself requires different types of seating as well as different arrangements of these. For example, the reference departments requires more serious study seats than does the periodicals department, where people would prefer to look at current magazines and newspapers while being seated in informal, lounge type chairs.

Each type has its own advantages and disadvantages and the provision of each depends on the conditions desired for in the library. The main types of seating accommodations are :

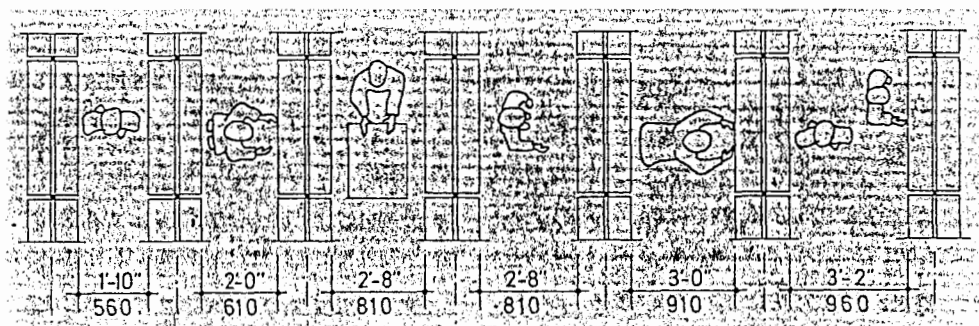
- A- Individual seats : 3.15m / reader
- B- Lounge chairs : 2.2m / reader.
- C- Chairs at long tables with no dividers : 1.6m reader
- D- Chairs at long tables with dividers : 2.2m / reader.

SPACE STANDARDS

Open Access Stacks

Open stack shelving takes up more space than that in closed stacks because space between units is more spacious for readers to browse, choose their own books and for others to pass by. Yet it is a very common and convenient form of shelving since it invites more people, especially in a public library, where relying on catalogue cards to choose books might not be a very appealing process for the general public.

Aisle width: The minimum distance between stacks in open access areas is 90 cm. This will go up to 122.5 cm if heavy use is expected.



Shelf height: The height of the top shelf must not exceed the comfortable reach of a relatively short reader.



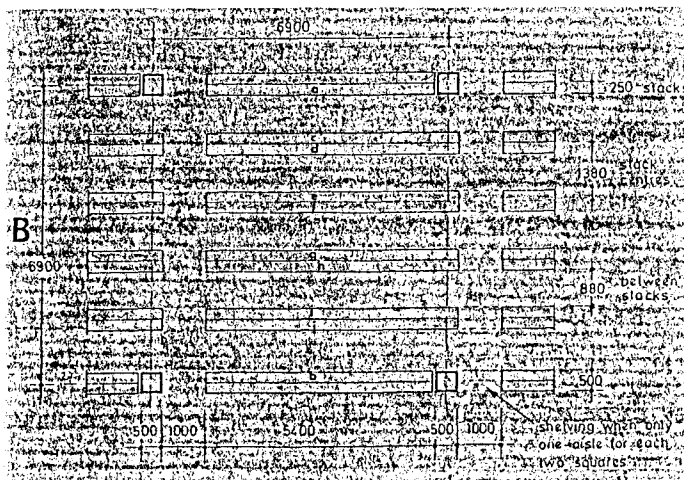
SPACE STANDARDS

Shelf widths: The units used in open stacks have the same standard width as those in closed stacks. (fig. 1)

Shelf heights: Shelves against walls are again 2.3m high. In heavily used browsing areas where seating is placed between stacks, center stacks can only be 5 shelves high (about 1.35 m).

Shelf depths: Again various depths are needed to accommodate the larger volumes of books. A compromise between book sizes can be achieved by using double-sided case, 46 cm wide, with 20 cm shelves and having a 6 cm gap in the middle of the stack. Thus books up to 25 cm deep can be shelved conveniently since the books opposite will mostly be narrower. This method will reduce the number of books requiring special shelving.

Cross aisles: The heavy use and traffic in open access areas make it preferable to have one cross aisle for each grid square although this will mean a loss in the overall stack capacity.



SPACE STANDARDS

Lighting

Lighting in a library serves several purposes: one is functional, to allow reading to take place in comfortable conditions and the other serves an aesthetic or psychological function, to contribute to the internal impression and appearance of the building. The choice between natural and artificial light depends on the conditions and desired effect of the space to be lit.

Natural light can help much in producing an inviting and aesthetically appealing atmosphere, but it has several disadvantages. Some of which are:

- It imposes restrictions upon the flexible and economic use of space.
- Protection has to be provided against the transmitted heat and glare since large expanses of glass not only offer light but serve as a major source of thermal transmittance as well.
- Variations in the intensity of natural light on different days and climatic conditions produce disturbing effects in reading areas.

Therefore, from a functional viewpoint, it is much better to use only artificial controllable light in library rooms, but this might be counteracted for aesthetic and psychological reasons.

A compromise is to orient glazing, especially in reading rooms, to the north and east, thus minimizing the effect of glare. For a north orientation is the best for a library, with the east ranking as second best.

SPACE STANDARDS

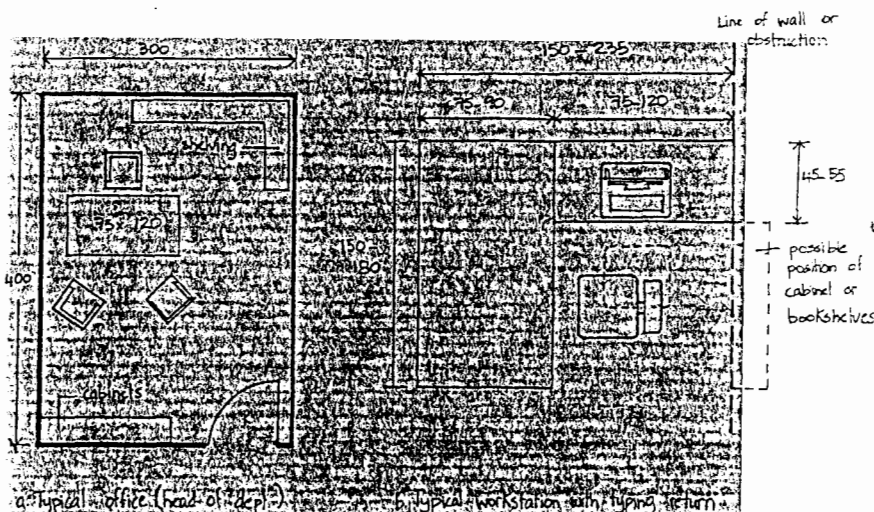
Technical Services Area

In these areas the centralized operations for the whole library are carried out. They include shipping and receiving, order and acquisition, handling gifts and exchanges, descriptive and subject cataloguing, classifications, work with serials and preparation for the shelves for binding.

For medium and large libraries these functions are departmentalized into different sections, but the standards and furniture requirements are similar in all of them. Therefore a typical office and workstation will be defined. These will be used in the different departments in varying numbers according to the need in each.

Since the head of a department will usually receive people in his office enough space has to be provided for these. Shelving space and cabinet storage for materials are also included within the minimum office furniture.

A typical workstation will be provided for both clerical and secretarial stations. It calls for book shelving space for reference material, space for book trolley on the side and usually a typewriter.



SPACE STANDARDS

Storage units: Since these will mainly house books, they consist of the typical bookshelf units used in the stack areas. An adequate storage space for the materials to be handled is supplied in each department. Other storage units will consist of cabinets for files and for stationary equipment.

A. Arrival of materials

Easy access for vans should be provided. The delivery and dispatch area should also include a space for storage of arriving materials. A space for disposal of rubbish and empties has to be included as well.

B. Acquisition department

The department is responsible for the bibliographic checking of material recommended for purchase, preparation of orders, receiving and inspection of delivered material and gifts and exchange work. It should be linked to both, the delivery and dispatch area and the cataloguing department, the latter link being more important than the former. Here a large amount of shelving space is required for the material that is to be worked upon, or that is to be transferred to another department.

C. Serials department

This department is responsible for the receipt of periodicals and journals that arrive daily, checking them off and sending them for display and public use. Handling of periodicals by this department is continued until they are bound. Then they are treated as books and become the responsibility of the other departments of the library. Since a large number of periodicals and newspapers is expected to arrive daily, space for their delivery and unpacking has to be provided.

D. Cataloguing department

The term cataloguing includes classifying and entering the material in the catalogues. The department is also responsible for maintaining bibliographic records. Therefore cataloguers need space not only to work on books but also to keep the large number of bibliographic tools they usually use. The staff catalogue should be easily accessible from all workstations because it will be often used by staff.

SPACE STANDARDS

E. Processing department

In this department materials are treated before they are ready for use by the readers: i.e. cards, labels, pockets are attached to books, tapes, records

When some books are to be jacketed, laminated or strengthened, more heavy equipment is needed and it becomes the specialty of the bindery.

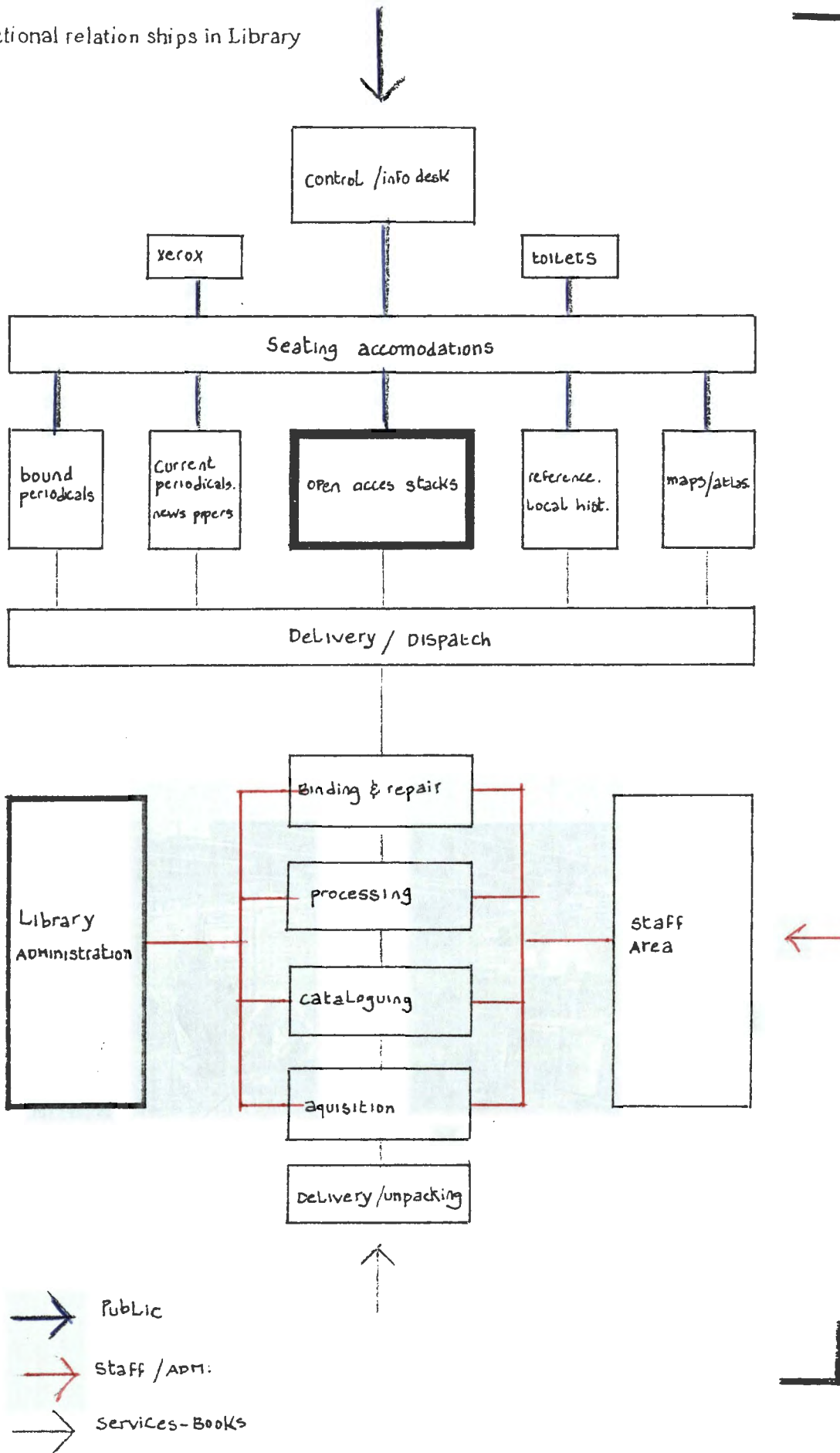
F. Circulation department

This department is directly related to the public since it handles the lending of books to readers (circulation desk), stack supervision and offers enquiry and control points.

H. Bindery

This is the department where the periodicals are sent after a yearly series is complete so that it is made into book form. Also any book requiring to be laminated, strengthened or repaired will be sent to the bindery. Enough space has to be provided for the material to be unpacked and sorted as it arrives from the library and then packed again and sent back after repair.

Functional relationships in Library

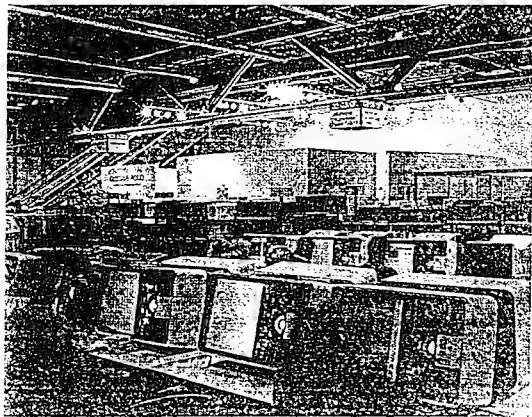
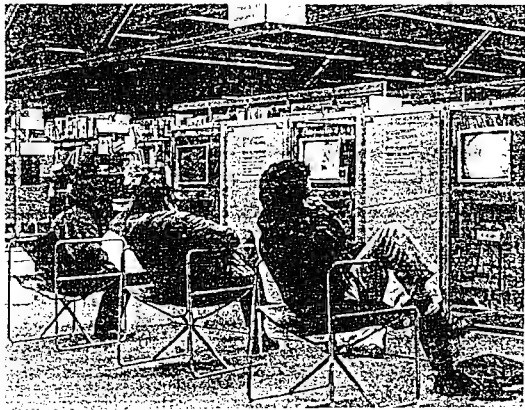


SPACE STANDARDS

Documentation Department

The Documentation department is the "nucleus" of the research section that organizes the process of work. On the other hand, it provides the researchers with the latest technology in the field of Audio Visual equipments to facilitate the research process; in other words, the documentation department lends to itself a dual functional purpose where it offers information (audio-visual equipments), regroup it and dissipate it to the different sections of the center.

The documentation department is open to public for any piece of information, for the sake of his own research, where he can make use of the facilities of the department : computers, minitels, VCRs, microfilms. . . etc.; however, a private section of the department (independent cubicles and group research spaces) is allocated for specialized researchers hired or working for the center. These two spaces shall be tackled independantly.



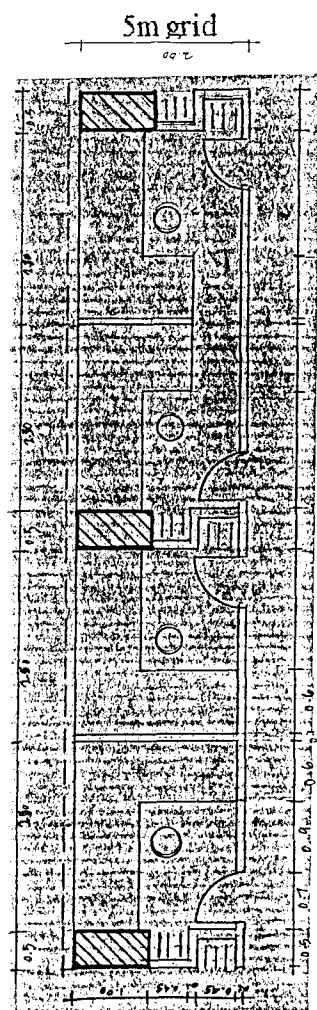
SPACE STANDARDS

Individual Cubicles.

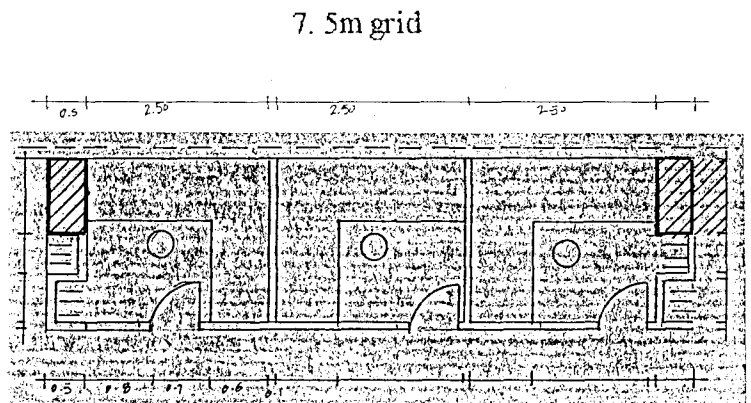
Allocated for the use of one person, this cubicle is a private space providing the researcher with:

- Working desk.
- PC with a printer.
- Book shelves.
- Telephone.

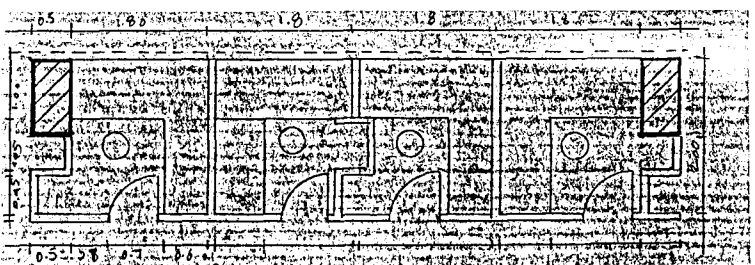
The space is designed according to a repetitive "module" following the grid of the parking (as shown in the diagrams) . Partitioning between cubicles is flexible, allowing for variety of layouts.



total area of one cubicle : 6. 9m



3 cubicles, area of each : 5. 3m.



4 cubicles : area of each : 4m

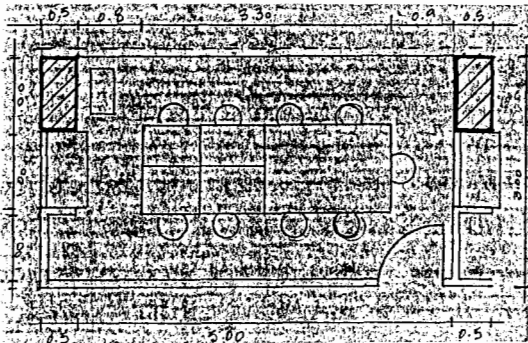
SPACE STANDARDS

Group Research Spaces.

Allocated for the use of various number of researchers, varying from 5-13 researcher / space (due to the flexible partitioning between the cubicles), these private spaces are planned according to a module following the grid of the parking (5m or 7.5m). Each of these research cubicles provide the researchers with :

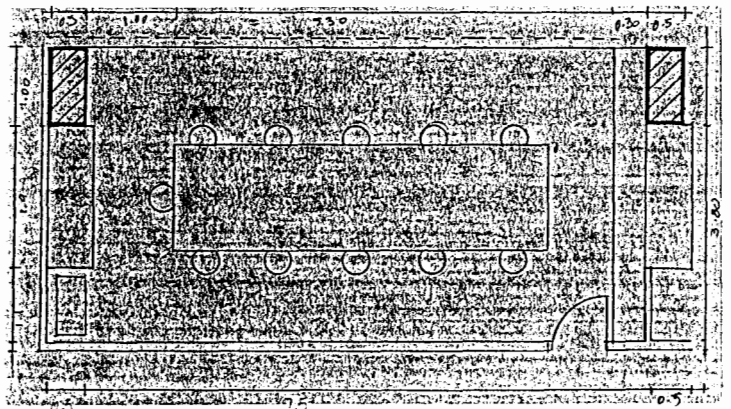
- Working desk.
- 3 PCs with printers.
- 1 Minitel.
- 1 VCR.
- 1 Book shelves.
- 1 Photo copy machine.
- 1 Telephone.

5m grid

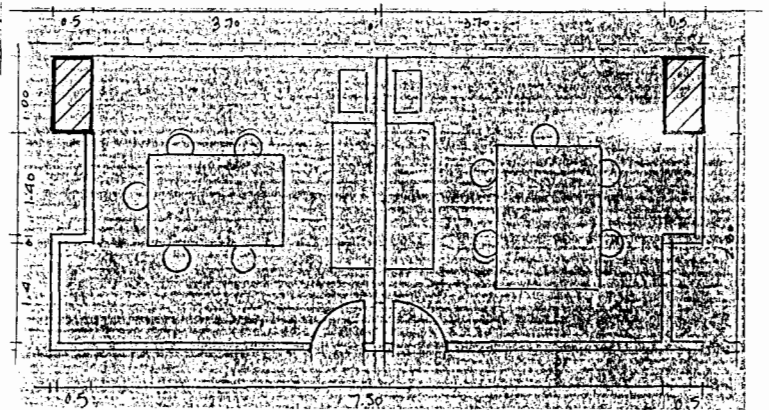


9 researchers. Total area : 17m.

7.5m grid



5 researchers. Total area : 15m.



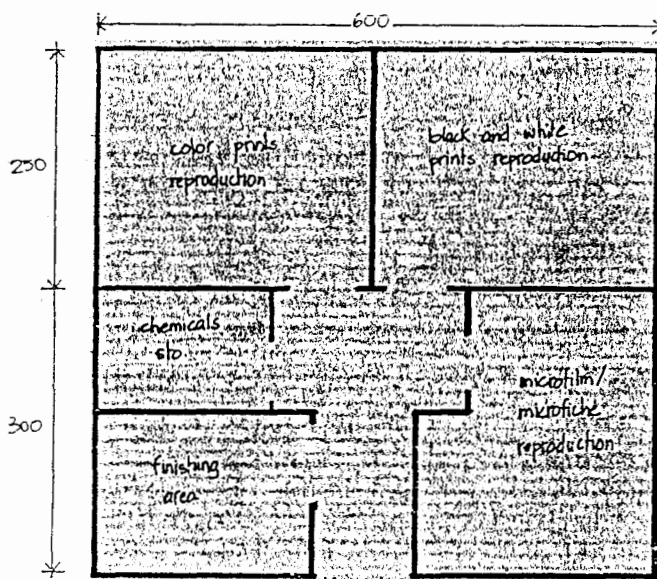
11-13 researchers. Total area : 30m.

SPACE STANDARDS

G. Audio-visual reproduction department

This department is responsible for reproducing all microfilm, microfiche and other audio-visual material, like slides and prints. The prime area of this department is the photographic laboratory where the work takes place.

Photographic lab: Here only the basic requirements for dark room service will be provided since it will cater for the limited requirements of the documentation center.



SPACE STANDARDS

Offices.

Two basic choices determine the private offices sizes other than by standards which allocate area and enclosure to different staff level.

- a) A set range of room sizes 9 - 12 - 18 - 24 - 33 - 36
- b) Complete modular integration.

Acceptable room proportions should not exceed 1/1. 5 .

There are three types of private office, those for the high ranking personnel, those for staff that is close to noisy areas, and conference rooms (confidential discussions) . Private offices accommodate one person, one visitor seating, external space for secretary, and a private toilet. The president's office should have a direct access to a 20 people conference room, with all high ranking executive nearby. Conference : 1. 5 - 2 sq. m. / person.

SPACE STANDARDS

Representatives Offices.

Allocated for "envoyes culturels" of Arab and international nations, these offices cater for:

- Manager.
- Assistant manager.
- Secretary / waiting.
- Information desk.
- Kitchenette.
- Toilette

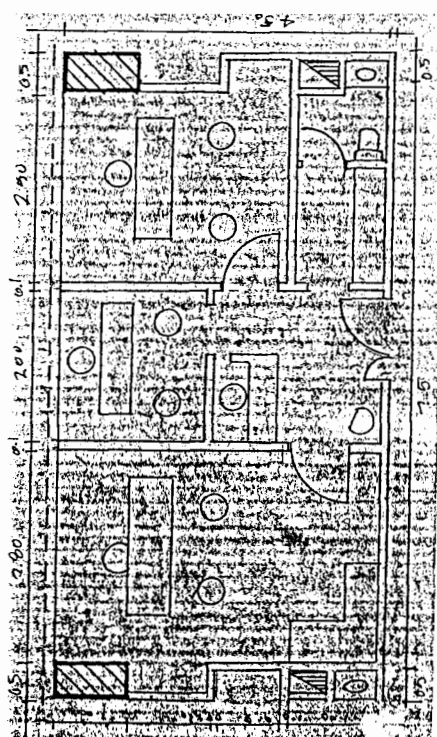
The offices are designed according to a repetitive "Module" following the grid of the parking as shown in the diagrams.

5m grid



total office area : 38. 5m

7. 5m grid



total office area : 35m

SPACE STANDARDS

Semi - Private Offices

This kind of offices is provided basically for two or more persons or for a work team assigned to the same task such as the activity and publicity department or the finance department.

The space can be just an open plan with the subdivision made by the furniture layout. The two departments may be close to each other for ease of work. A kitchenette should be provided for coffee etc. . . .

SPACE STANDARDS

The Conference Rooms

These are exclusively for administration use and their clients or work partners. The convention is to allow 1.7 sq. m. / person including the circulation percentage but the room has to be flexible enough to accommodate for changing layouts and uses : T shaped, U shaped or classroom style. This kind of rooms should also accommodate for projections and screenings, the best method being rear projection system which has many advantages such as its concealment, its allowance of a higher level or intensity of room light, and ease of use .

The rear projection room should be deep enough to allow " throw distance " the distance the light beam must cross between the lens and the screen in order to produce a correct image. The minimum depth of the rear projection room should be three times the height of the required image.

SITE ANALYSIS

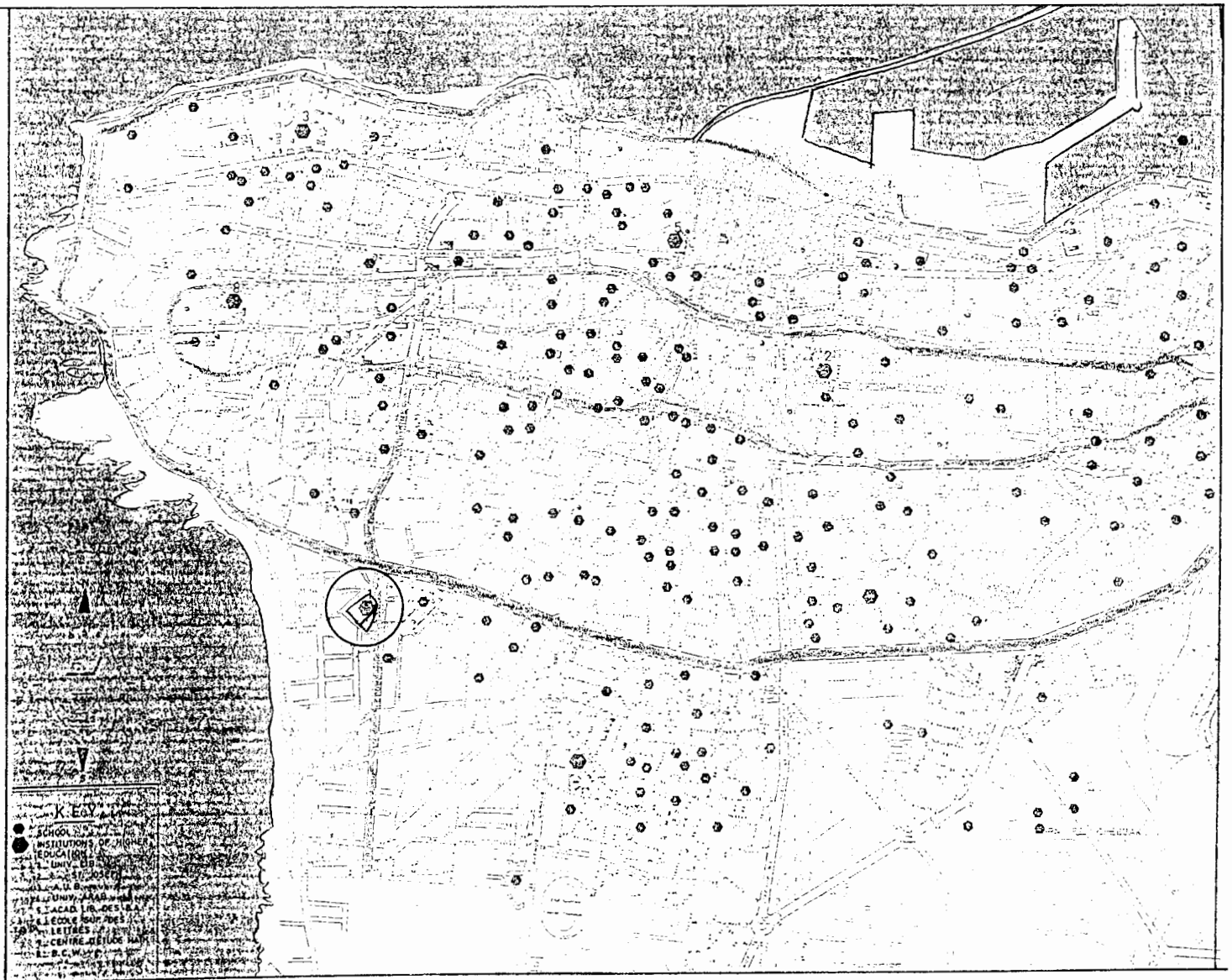


SITE ANALYSIS

Location

The site is at U. N. E. S. C. O. area, at the southern entrance of the capital. It is triangular in shape, edged from the North-West by the U. E. S. C. O. palace and the complex of the Ministry of Culture and Higher Education. To the South-East i.e. the "Sheikh Sabah El Salem Essabah" street and to the South-West, the site is edged by Peter Medawar street.

Location map - scale : 1 / 10 000.



SITE ANALYSIS

Legal Factors.

The site is located in zone number five of Beirut Municipal City Planning Code and hence, follows its regulations. It has a surface exploitation of 40%, plus 20% (corner lot), building up to the sum of 48%. The total area of the site is : 8800m, the Floor Allowable Ratio , F. A. R. , being 2. 5, hence the total allowable built up area is : 22 000m, with a maximum Surface Exploitation of 4 224 m.

-Set Back requirements are : 2m from limit of the street.

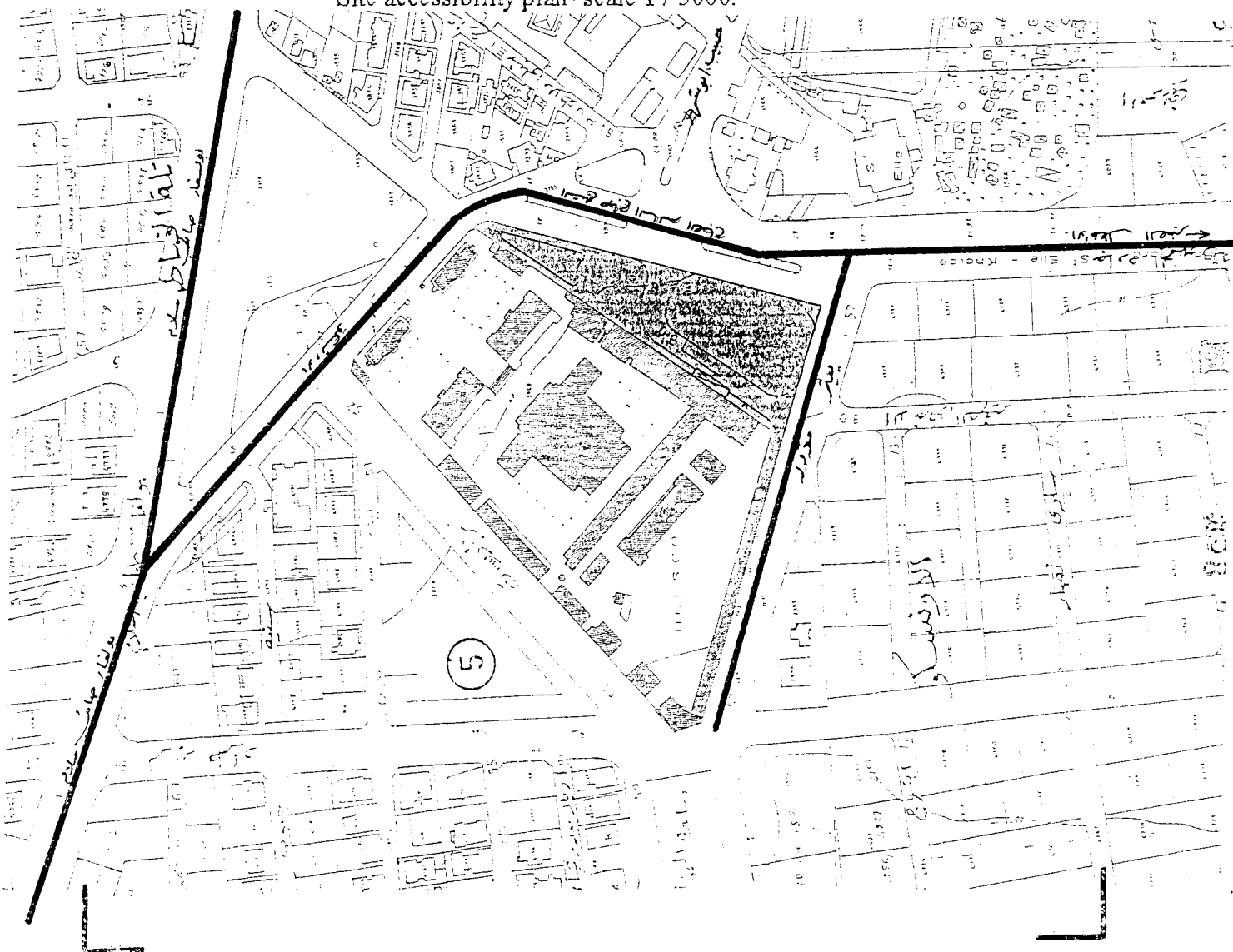
-Maximum height is : 2 . width of the street = 70 m

SITE ANALYSIS

Site Accessibility.

The site is accessible from the southern side through "El Akbtal Assaghir" street connecting with "Cheikh Sabah El Salem Essabah". From "Ramlet El Bayda", the site is accessible via Peter Medawar street; on the other hand, the site is close to "Saeb Salam Boulevard"(200m) and connects to it through Unesco and "Chebli EL Mallat" streets. Coming from the East, the vicinity of "Selim Salam" bridge, "Habib Abi Chahla" street would hit perpendicularly onto the site, as shown in Site Accessibility Plan.

Site accessibility plan- scale 1 / 5000.



SITE ANALYSIS

Site Justification.

The site has been chosen due to various factors that have shaped the decision, where the project, and due to its scope, lends itself an urban scale that, and due to its program, can not detach itself from the urban "public" environment.

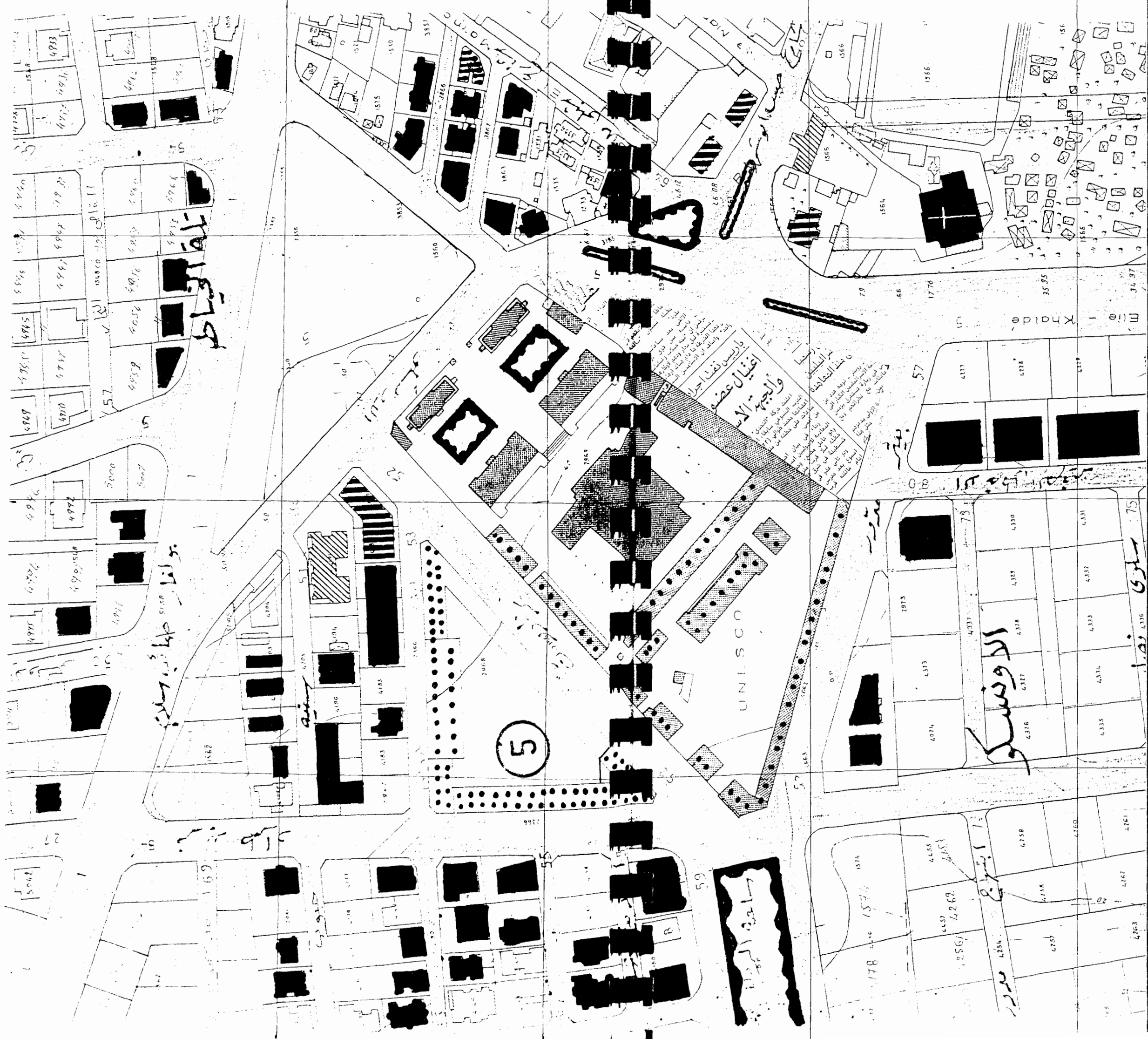
The project tries to set a dialogue with the public and acquaint him with its inner physical circumstances, that can not assume to stop at the pure user-space functional relationship level, but would rather expand on that issue as to set another dialogue between space and context. The site assumes to offer the appropriate amenities that would render the project's setting an inviting environment that tries to offer its maximum output in the service of the masses; in other words, the choice of the site has been geared by an awareness of a functional relationships that ought to be set onto two folds :

-Space-User relationship.

-Space-context relationship.

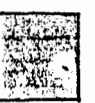






The site, and due to its setting in a non residential "neighborhood", is, and to a certain extent, set away from noise and traffic, offering the internal and external environment of the project, the appropriate conditions that would allow the functions to perform independently from the disturbing external factors. On the other hand, the context, as shown in the land use diagnosis map, assumes the role of an "educational-cultural" context due to the tangential presence of the U. N. E. S. C. O. complex: (United Nations Education Social Cultural Organization) , Ministry of Culture and Higher Education, Lebanese University's Faculty of education, Faculty of Agriculture, and Faculty of Pharmacy, in addition to the presence of the Capuchins' and Mar Elias schools.

Due to these reasons, the site has been chosen accordingly; in addition to its strategic location at the southern entrance of the city and proximity and ease of accessibility to Saeb Salam Boulevard (outer ring) as it will be explained in Site Accessibility section.



LAND USE DIAGNOSIS MAP

SCALE 1 / 2 000

-  PUBLIC
-  RESIDENTIAL
-  MILITARY
-  EDUCATIONAL
-  SERVICES
-  GREEN SPACE
-  SITE

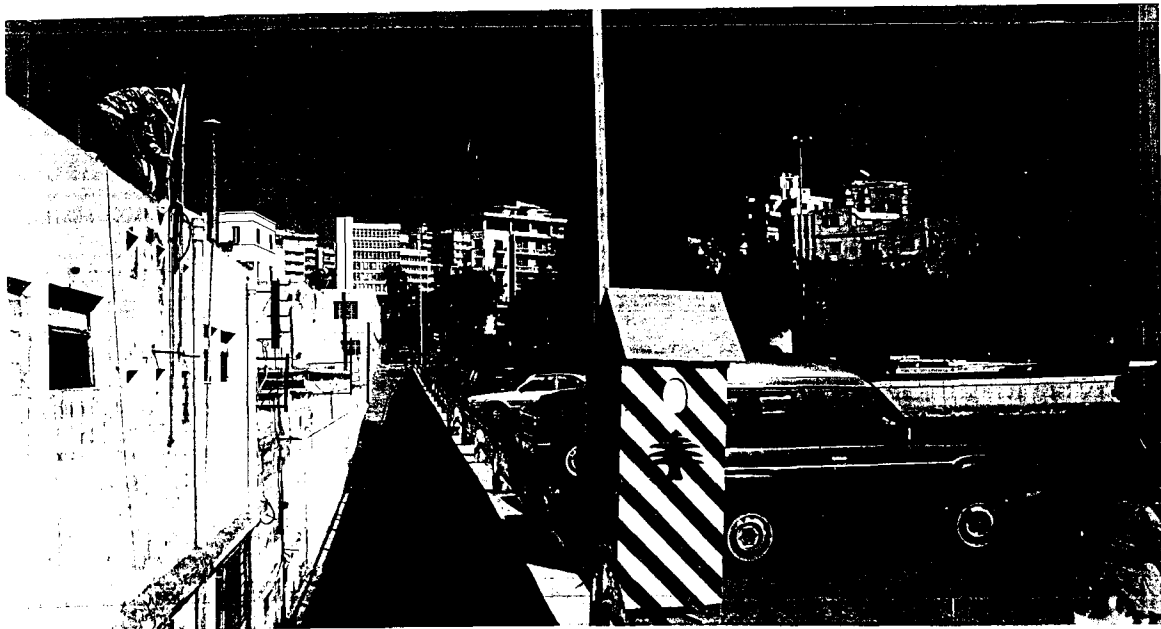
SITE ANALYSIS

Architectural Character and Historical Background.

The area is relatively recent, dating from mid. and late Fifties and it kept on developing, until the present days. The oldest constructions in the area is the U. N. E. S. C. O. complex, that used to be a French military base dating from World War II, transformed later into the Lebanese University. The U. N. E. S. C. O. palace was built in late 50, s. The rest of the buildings being transformed into the Ministry of Culture and Education in the early 70's.



During the latest war, the U. N. E. S. C. O. palace and the rest of the buildings, have witnessed severe destructions; however, the upper buildings, those of the Ministry, have been restored and a new wing was added to the west.



SITE ANALYSIS

Development is more saturated in the upper part of the site (Tellet El Khayat vicinity) than in the lowest part, where it is witnessing a residential block development of high income.

Zoning and streets layout at the lower side is rather geometrical, more responsive to the residential block development that the area is witnessing.

As shown in the Land Use Diagnosis Plan and the photographic survey, the area is non residential and does not fit within the so-called "neighborhood" category, for it offers facilities of an urban, non-commercial scale, namely : Institutional, Religious and Industrial, lending the area a somehow "grandiose scale". On the other hand, the land use of the area, in its actual status, does not cater for pedestrians for the absence of the facilities which would allow them to be grouped (mainly Residential and Commercial). This situation would affect the vehicular circulation pattern, where no conjecture points occur, since there are no captive attractive points on the street level. This would implement a relative fast car movement at the adjacency of the site (Sabah El Salem street) ; however, weaving may happen at the curve of the Unesco street and at the intersection point between "Sabah El Salem" and "Habib Abi Chahla" street (as shown in the diagram).

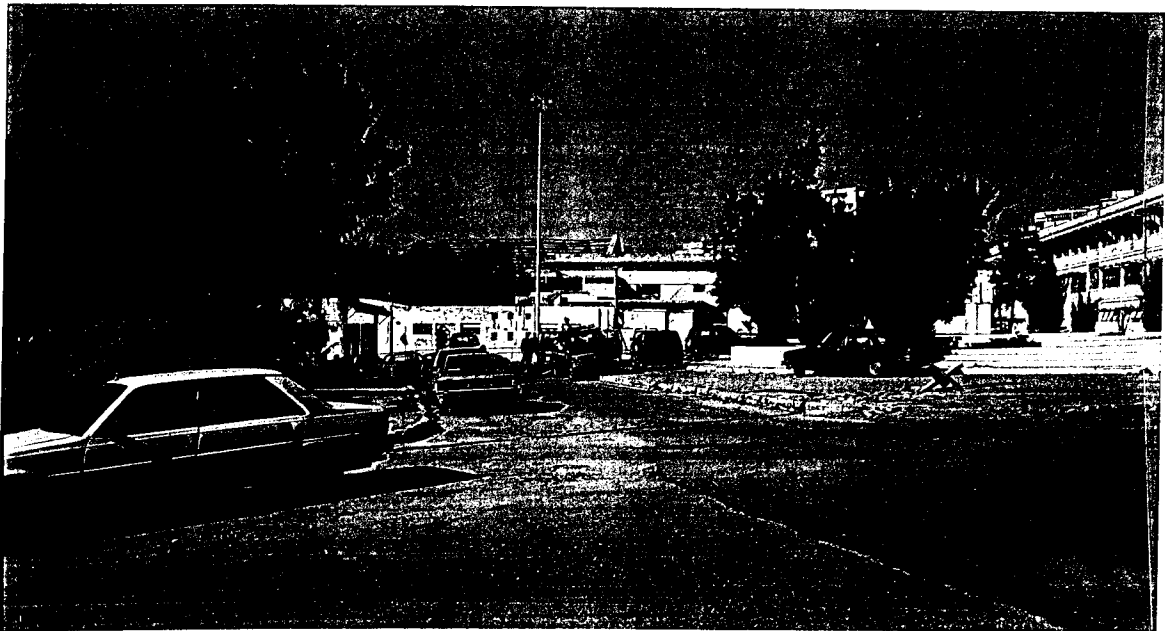
"Sabah El Salem", Unesco and "Habib Abi Chahia" streets are planted with Quinine trees on sides that are also staggered at other points: hence, hiding few buildings behind (as shown in the picture).



SITE ANALYSIS

The southern edge of the site slopes downwards in the direction of "Ramlet El Bayda"; thus, the site is sloopy in both directions :North-East / South-West and South-West / North-East, as shown in the topography plan of the area. On the other hand, "Habib Abi Chahla"street is almost flat, until it intersects with "El Sabah EL Salem", where it stops and hits the site; however, the slope of the site starts to Be mild and the intersection and as it goes upwards.

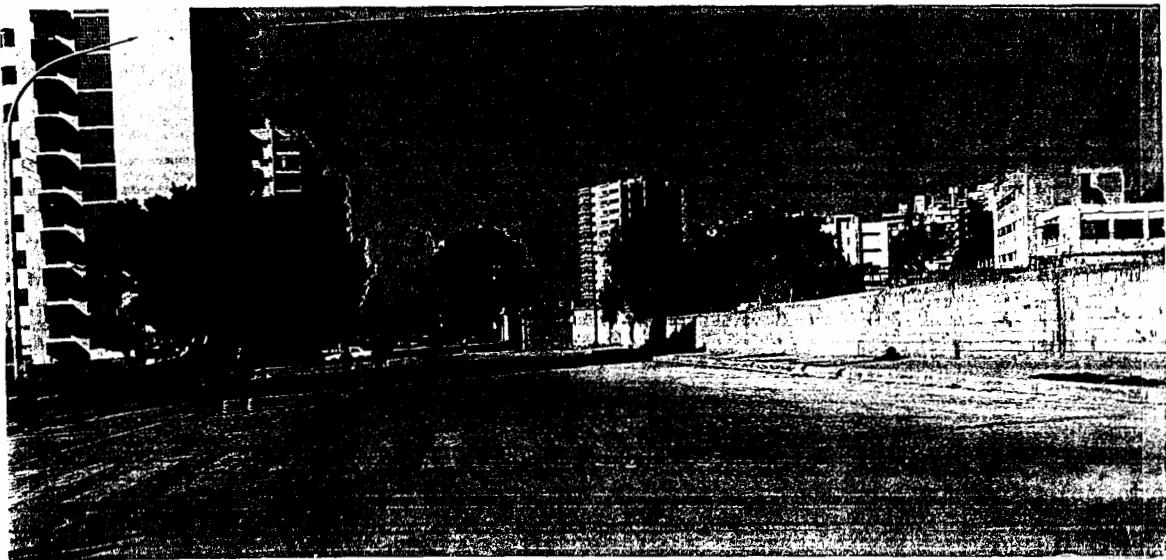
The physical conditions of the site would implement few functional treatments via the public and service access (lowest corner of the site) ; however , approaches to schematics, would be tackled in the last section of this research.



SITE ANALYSIS

Peter Douwaihi, the street edging the southern edge of the site, is a service road serving the residential neighborhood.

The design schematics will take into account all of the above mentioned factors, keeping in mind the primary purposes of the project : serving and addressing the masses.



SITE ANALYSIS

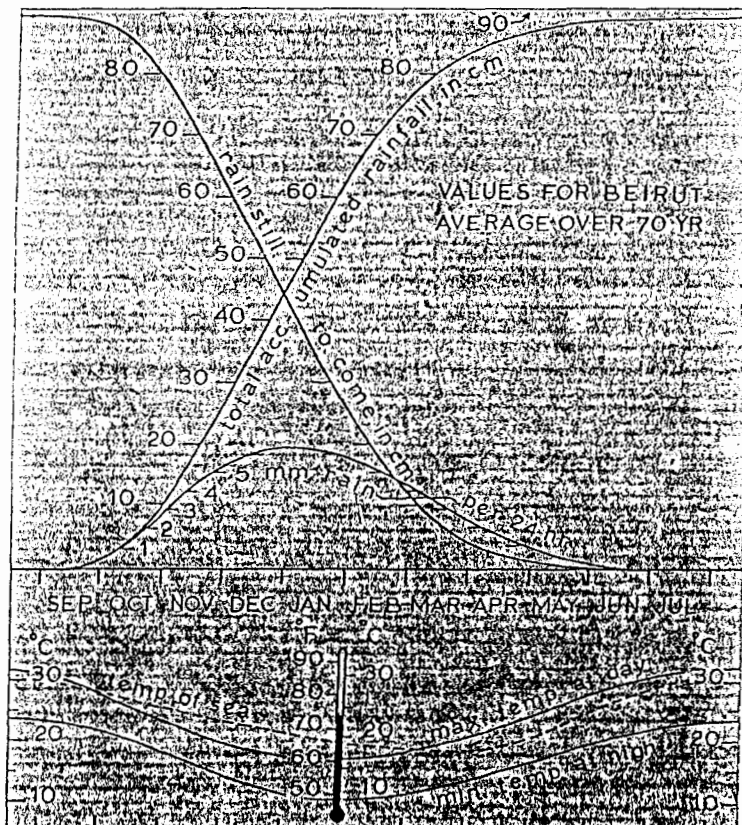
Climate.

The prevailing wind throughout the year is SW to NE, as apparent on the wind rose. It is usually stronger in the afternoons. The temperature in summer is a maximum of 33 c during the day and 22 c at night. Humidity reaches a maximum of 87%. In Winter, minimum temperature is 7c (at night) and the maximum temperature is 11 c (during day time).

The range of human comfort is between 15 and 30 c, with a relative humidity of 50%. It depends on humidity, air movement and direct sunlight.

In Summer, cross ventilation and no direct sunlight are recommended; on the other hand, direct sunlight is favored in Winter as it adds to the temperature.

Beirut weather around the year.



SITE ANALYSIS

From the chart, climatic conditions of the area can be deduced as follows :

-The rainy season extends from January till May, and from October to December with an ultimately very rare possibility of snow falling during winter.

-The temperature in July surpasses the human comfort limits during the day, but never reaches the working limit.

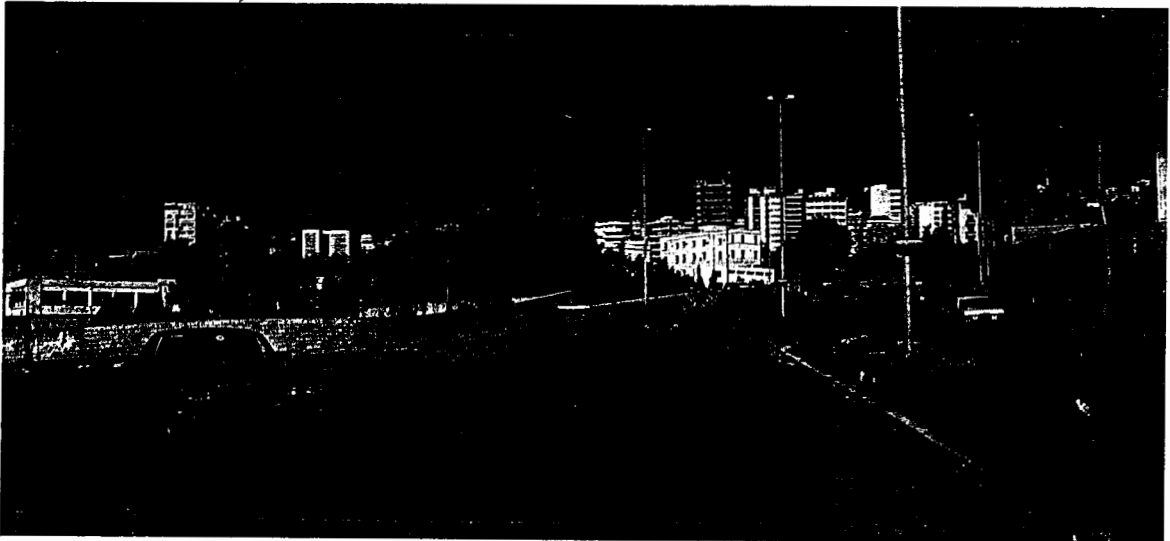
-The temperature in January -February, slightly surpasses the human comfort limits during the night, so heating is not needed intensively, but shading is only necessary in summer.

-The humidity level requires good ventilation; however, natural ventilation is provided due to the South-East/ North-West orientation of the site.

SITE ANALYSIS

Topography.

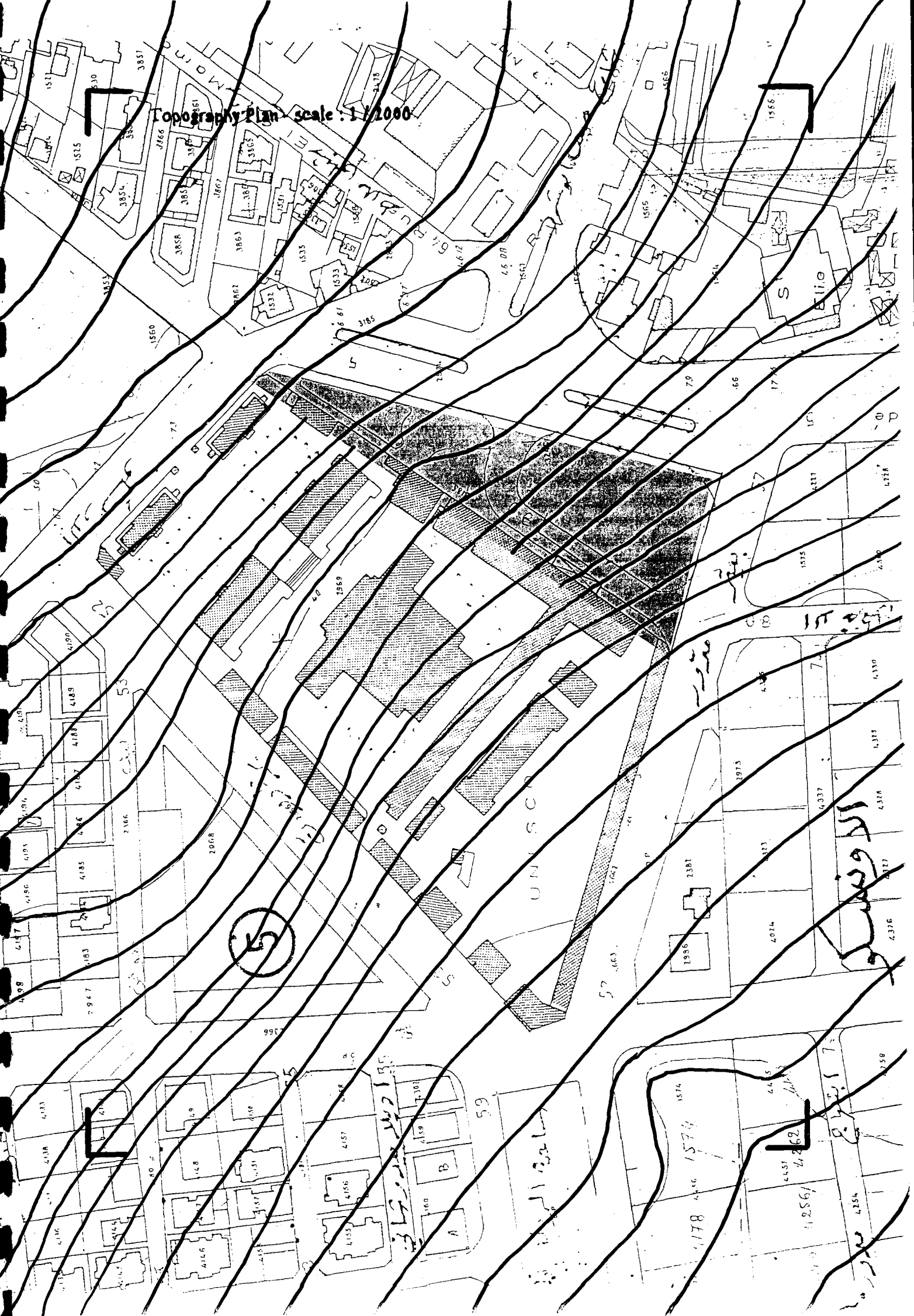
The road coming from "Jamhourieh" Avenue reaching "Sabah El Salem", slopes upwards until it reaches the level of Unesco Street (the upper edge of the site).



then it becomes relatively flat, until it goes up again, hitting "Saeb Salam" Boulevard.



Topography Plan scale: 1/2000

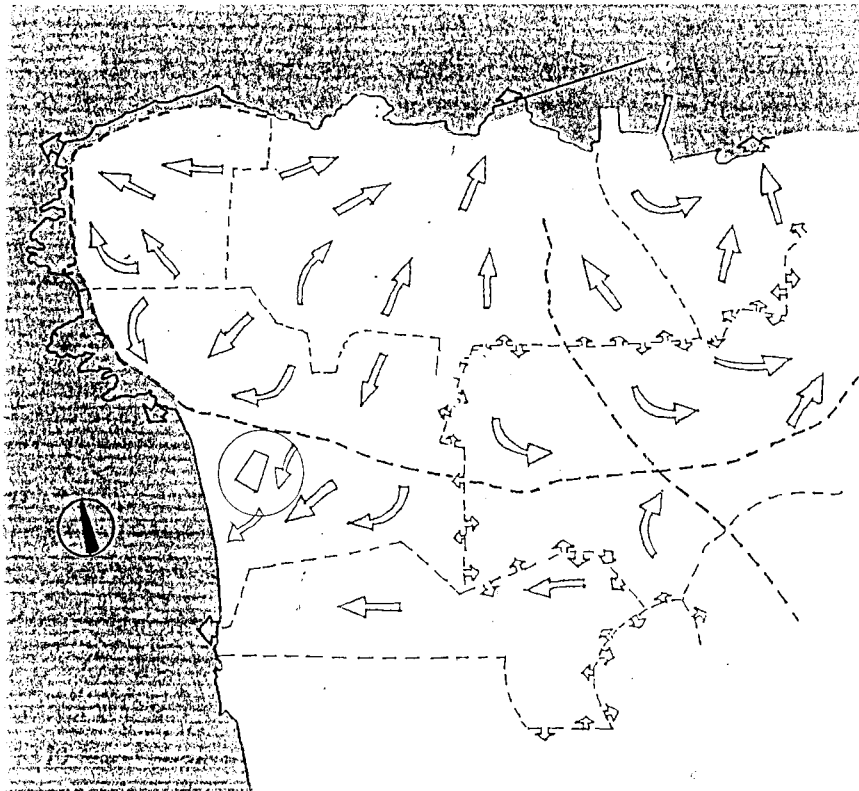


SITE ANALYSIS

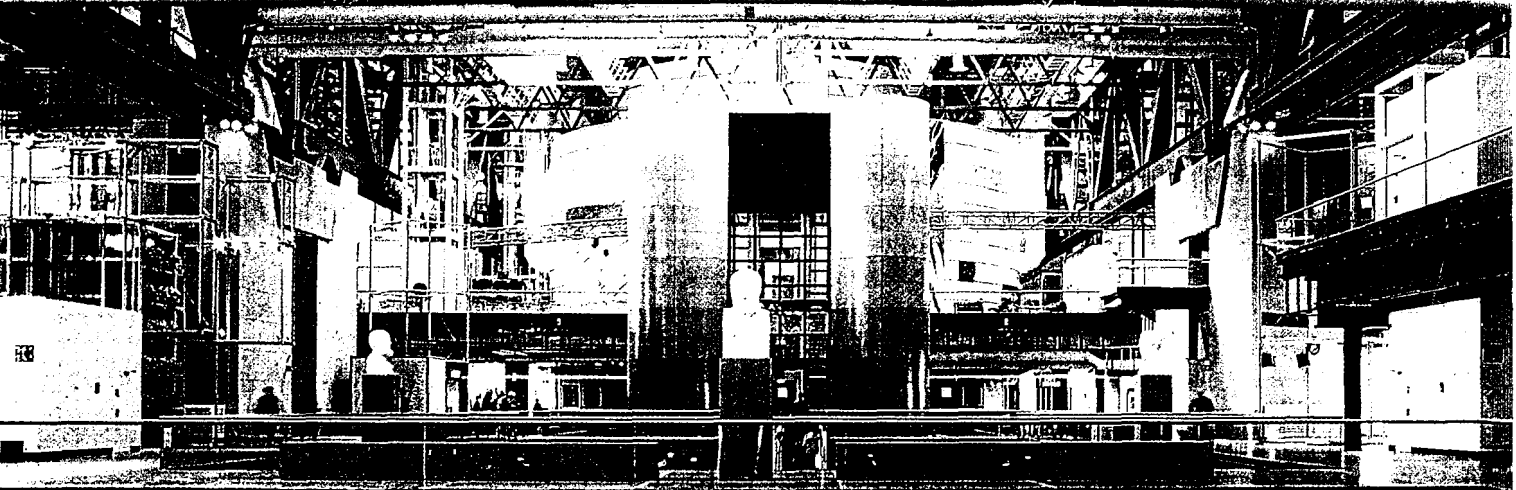
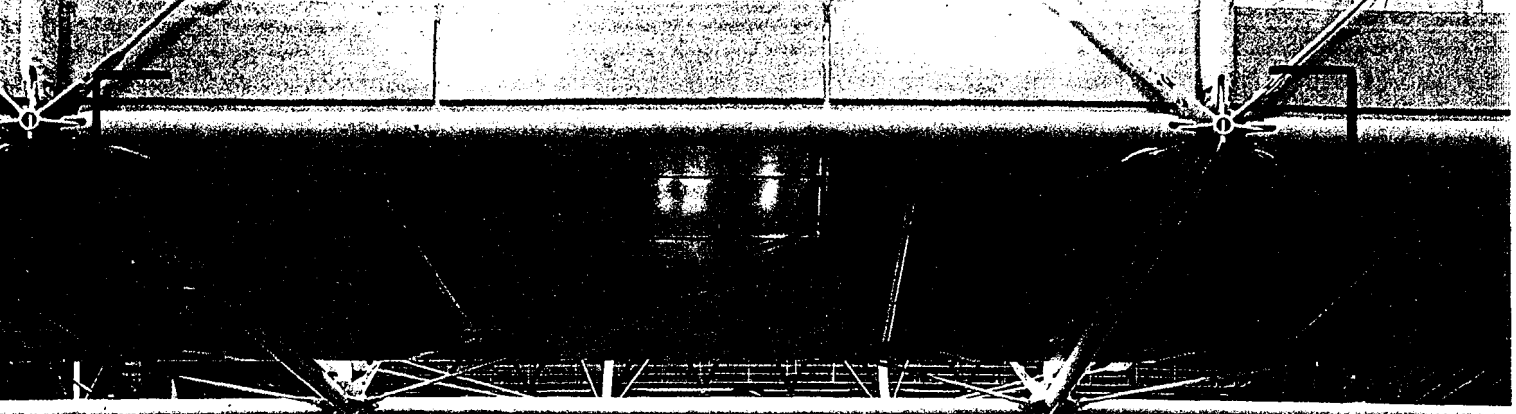
Hydrology.

The site has no drainage problems, as topography helps natural drainage downwards. The adjacent map shows the drainage pattern of Beirut, which goes naturally downwards towards the sea. Other catchment areas are not provided.

The water table is low (deeper than 10m) , allowing the construction of more than three typical basements (3m high) with problems of water pressure or seepage.



ANALYSIS OF SIMILAR EXAMPLES

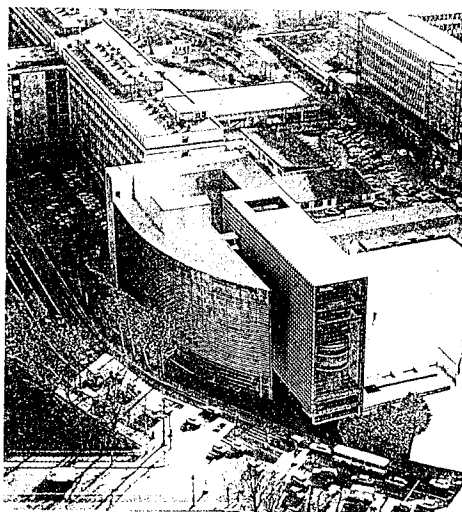


ANALYSIS OF SIMILAR EXAMPLES

Scope.

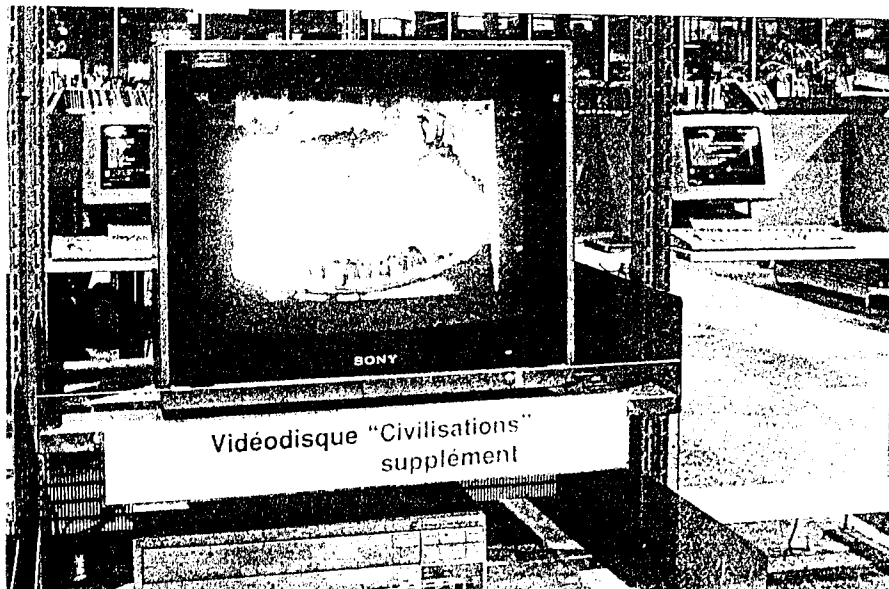
A- IMA

To create a cultural dialogue, communication and cooperation, between France and the Arab world and to assert and expand the Franco-Arab relation through cultural exchanges.



B-Cite des Sciences et de l'Industrie

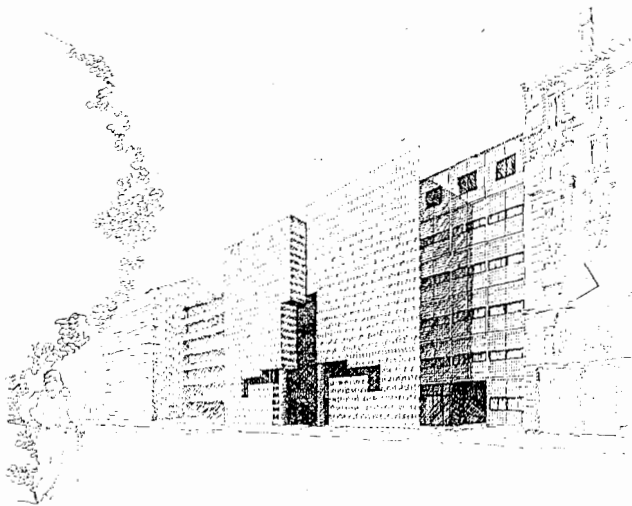
A project that would measure up to the most significant advanced "museums", where latest developments in communication technology would take place.



ANALYSIS OF SIMILAR EXAMPLES

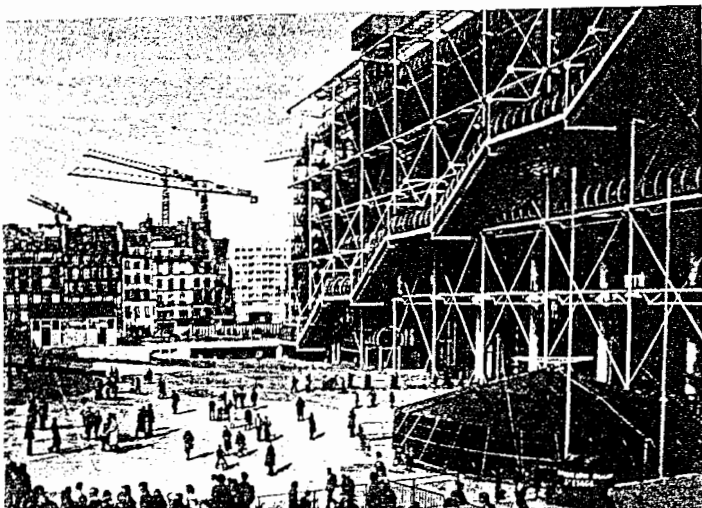
C-House of Books, Images and Sound

Create a cultural institution or rather a multimedia center that shall be a container housing audio-visual facilities for the public use.



D- Centre Georges Pompidou

A cultural center that is to be opened to the widest public possible to encompass, in addition to educational and information facilities, Art galleries, Audio-Visual sections and a National Museum of Modern Art.



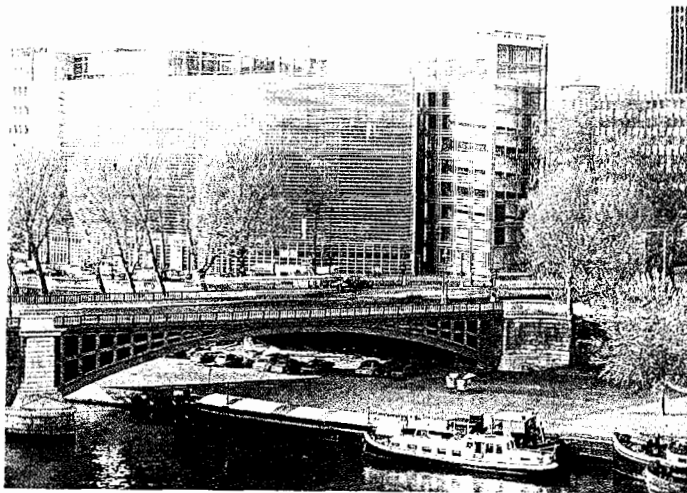
ANALYSIS OF SIMILAR EXAMPLES

Site.

A-IMA

-Boulevard Saint-Germain, Paris, France.

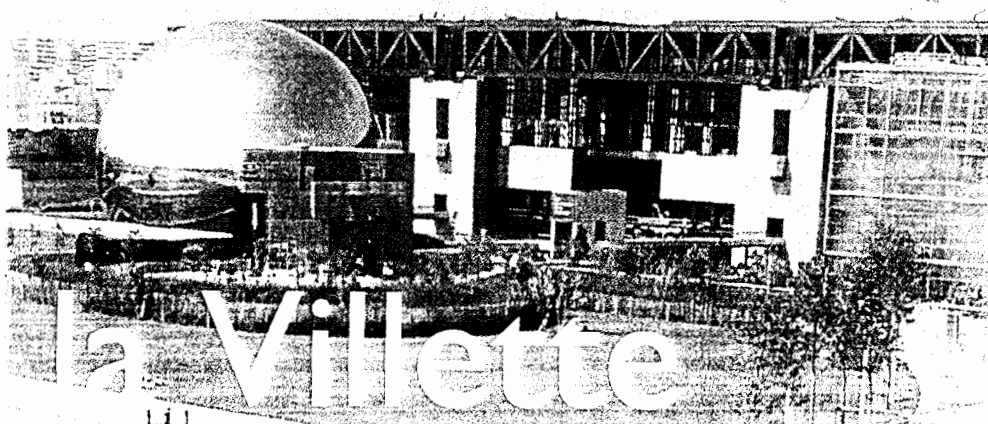
-The site is curved in shape on the border of two contrasting urban textures, one historic, the other modern. It is edged by Blvd. St. Germain from one side and by a 60.60m from the other.



B- Cite des Sciences et de l'Industrie

-Porte de la Villette, Paris, France.

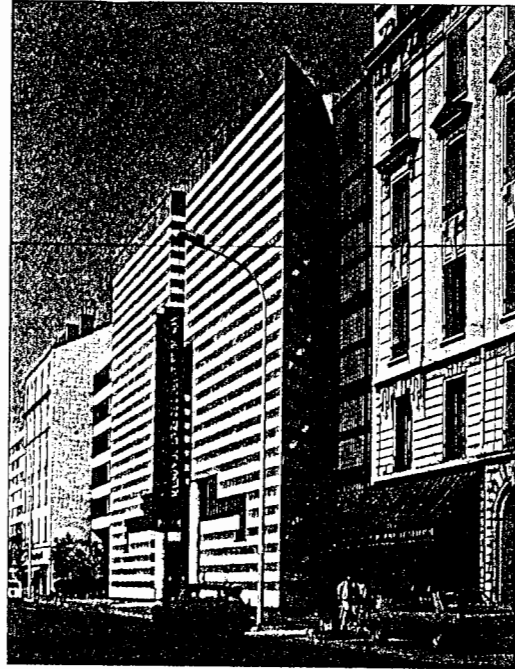
-The Cite is edged by Parc de la Villette from one side and an urban street from the other.



ANALYSIS OF SIMILAR EXAMPLES

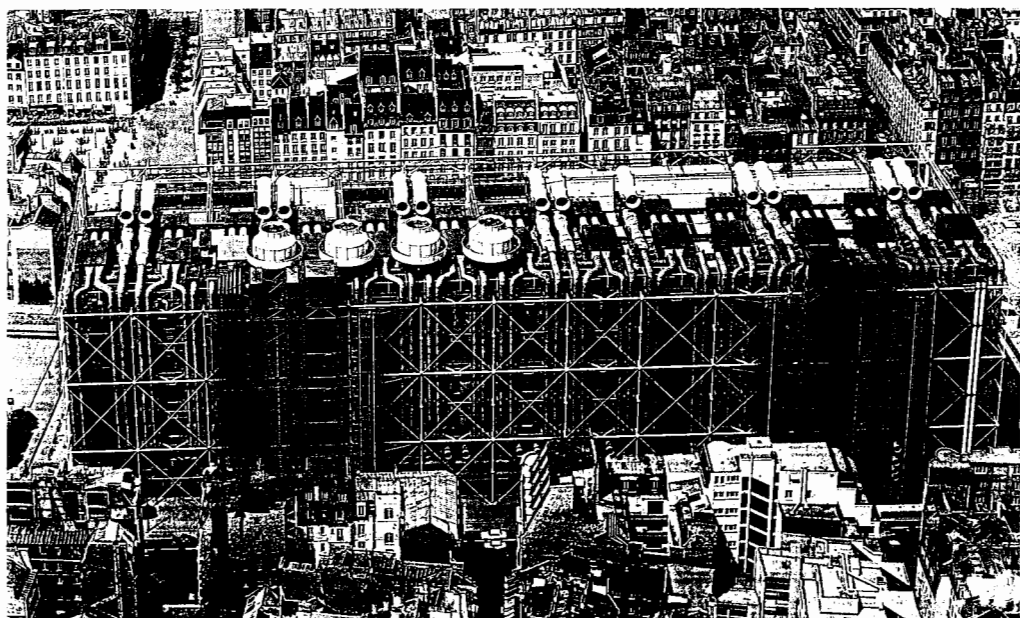
C-House of Books, Images and Sound

- City of Villebraun, Lyon. France.
- The site is a gape between two existing buildings on a public street.



D-Centre Georges Pompidou

- Beaubourg-Meri quarter. Paris France.
- the site is edged from the east by Rue Rambuteau, a public street of the city. On the west, the center faces a huge square acting as meeting place for the public.



ANALYSIS OF SIMILAR EXAMPLES

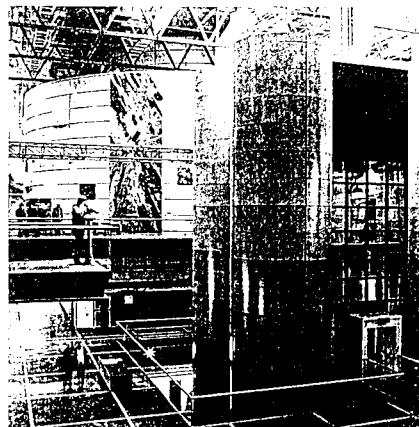
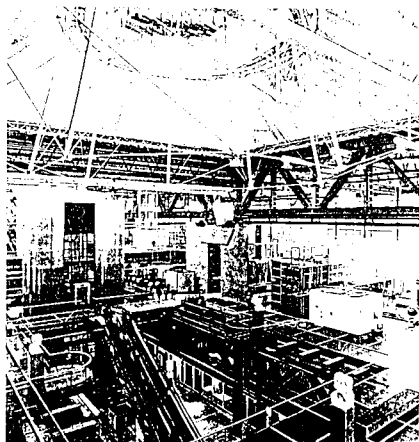
Functional Subdivision and Layout.

A-IMA

A main circulation core is located at the center , with staircases pushed towards the facade , thus creating a pure circulation zone allowing the spaces to be grouped around ; where the visitor would perceive the various spaces from the main reception hall.

B-Cite des Sciences et de l'Industrie

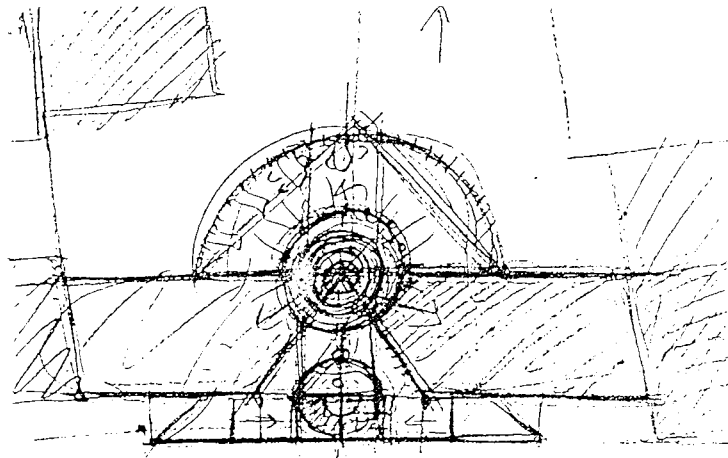
A large entrance hall has been created at the center in order to allow visitors to have an overall view of the activities from the moment they enter the building and to orient themselves easily . This enormous space contains major vertical circulation elements (escalators , elevators , stairs) and successfully avoids the segregation of activities by level through an interactionary multi split level organization.



ANALYSIS OF SIMILAR EXAMPLES

C-House of Books , Images and Sound

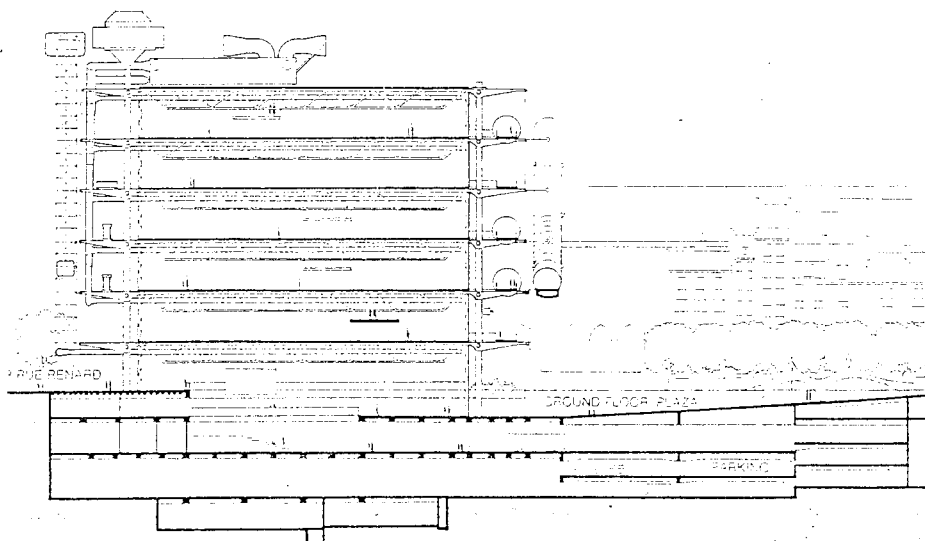
A horizontal subdivision of functions around a cylindrical atrium . The intersection of each space with the atrium would determine the location of the orientation section on each floor . The governing idea is that visitors entering from the urban space would , and with one glimpse , comprehend the whole building ; in fact Botta preferred to answer the city with shapes and forms and to put the required functions into the given floors.



DESIGN STUDY

D-Centre Georges Pompidou

The various functions are staggered horizontally with independent entrances . The spaces are accessible from one side through an external escalator running along the full height of the facade.

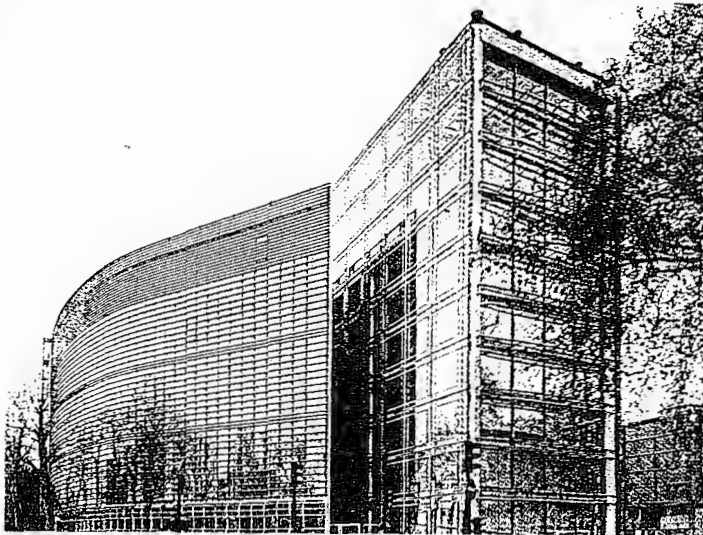


ANALYSIS OF SIMILAR EXAMPLES

Structure

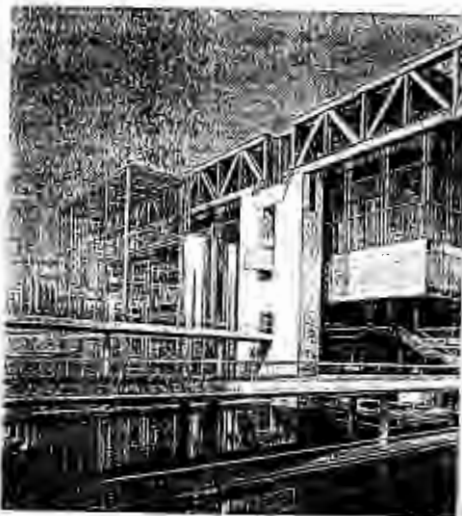
A-IMA

A steel structure that would respond to the "coldness" of the interior spaces. The system of structure is a simple Post-Lintel using circular steel cross section columns of 80 cm diameter holding a three dimensional steel truss spanning 12m on the southern side. At the northern side, circular steel cross section columns of 40 cm diameter, holds an I section, prefabricated steel beams spanning within a range of 4-13 m.



B-Cite des sciences et de l'Industrie

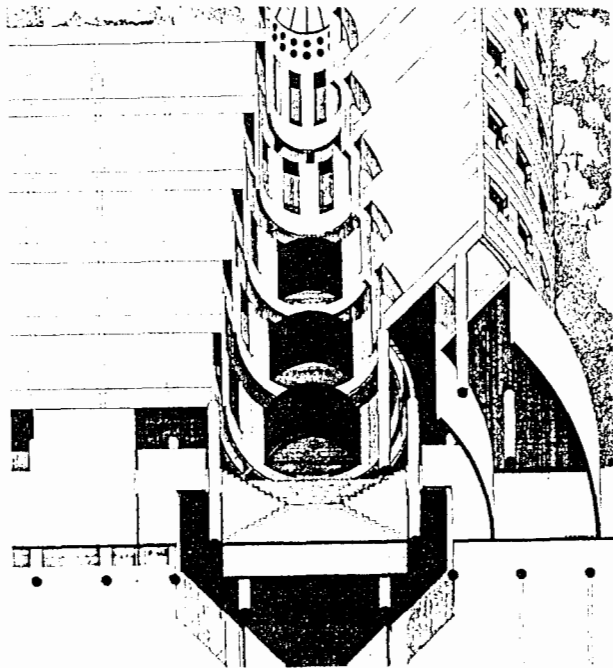
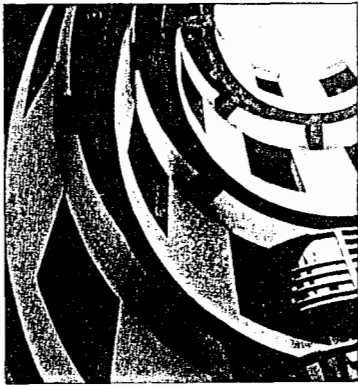
The structure, like the nature of the project, is of huge scale making use of 4 rows with 6 pilasters on each, of 4*12m cross section holding a 5m steel truss spanning 59m; however, the system of structure, and in other terms, follows the logic of Post-Lintel.



ANALYSIS OF SIMILAR EXAMPLES

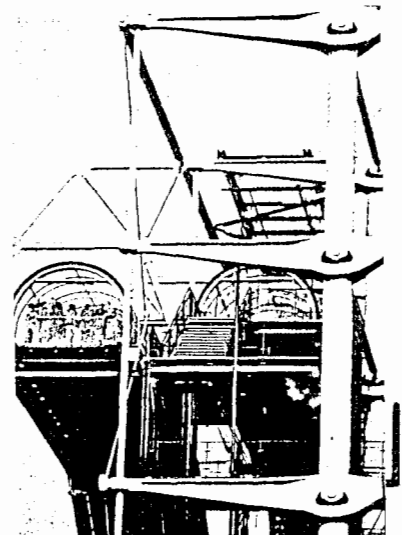
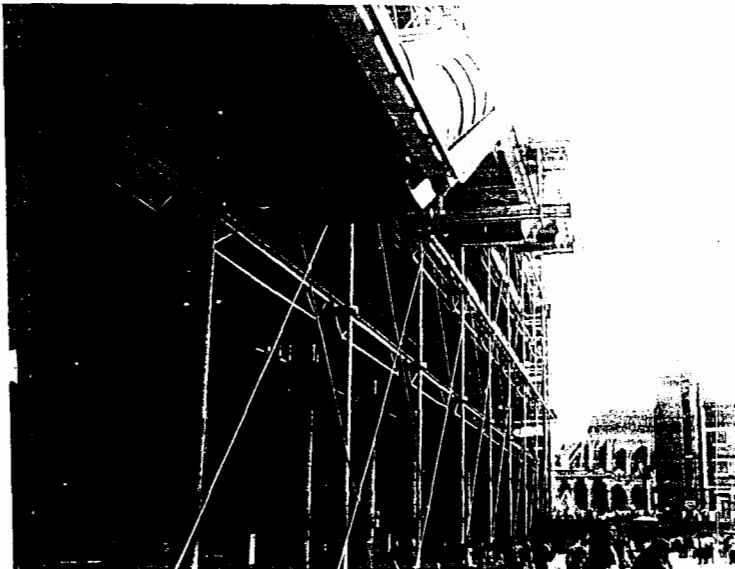
C-House of Books , Images and Sound

The circular light well (atrium) that organizes the building ,rises 5 floors above the reception area ,it narrows in steps from 10m at the base to 4m at the top . Each segment on each floor is a prefabricated element in reinforced concrete .The bottom segment rests on pilasters .The rest of the structure is Post-Lintel with an 8m span.



D-Centre Georges Pompidou

A two dimensional steel truss on the opposite two facades (south and west) act as bearing walls on the edges , allowing for clear flexible interior spaces.The east facade supports a tensile structure holding the service spaces .exposing all the mechanical ducts to the exterior . The west structural facade , holds the main circulation external escalator running along the whole elevation , catering for a gap in between where horizontal circulation is placed.



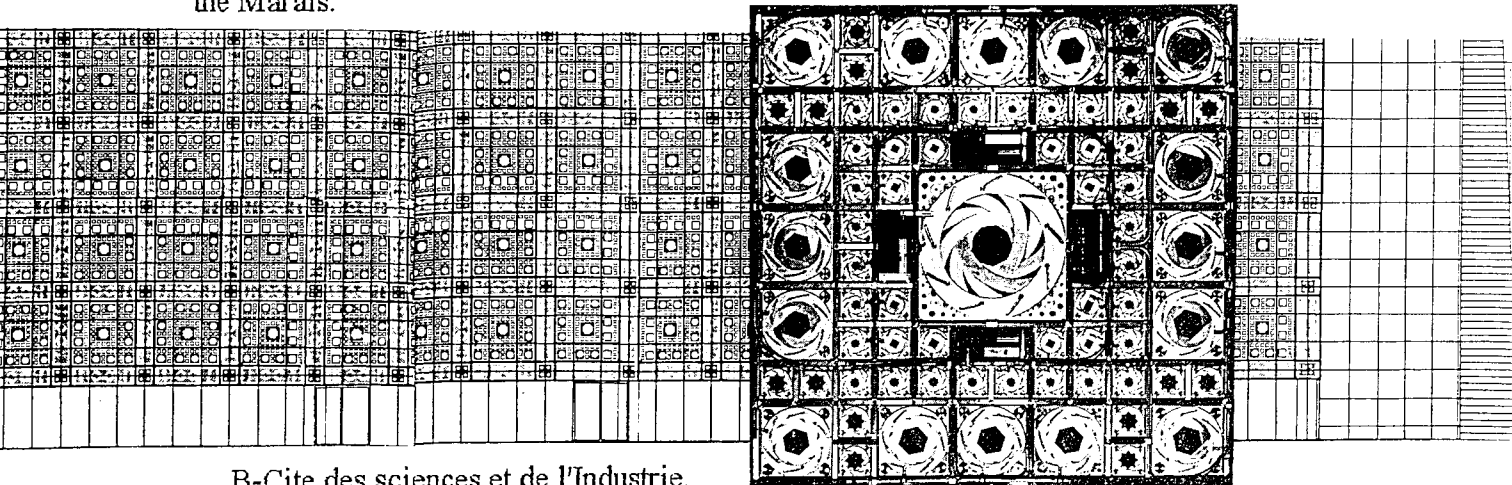
ANALYSIS OF SIMILAR EXAMPLES

Materials and Expression

A-IMA

South Facade : a glazed facade of 242 panels constitutes an adjustable mesh of 27000 diaphragms regulating the passage of light according to the intensity of the sun. The facade is nothing but a repetitive technological geometry that makes use of the advances of the most "noble" motifs of the Arab Architecture , responding to the modern border of the site .

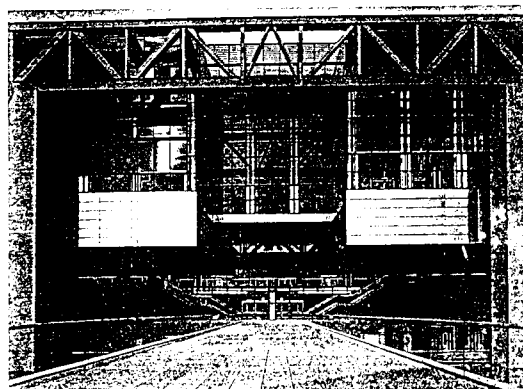
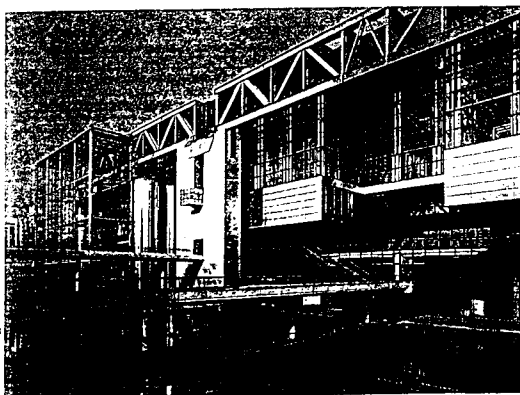
North Facade : An outer skin facade of steel and glass, held by the internal structure . with horizontal steel strips running all along , emphasizing its curvilinear shape ; however , the upper part of the facade uses silk-screened designs to transform the glass and to evoke the reflection of the Parisian of the Ile St. Louis and the Marais.



B-Cite des sciences et de l'Industrie.

North Facade : Faces the city .It is relatively closed with 1m.1m gray marble panels , with a relatively big glazed opening indicating the entrance.

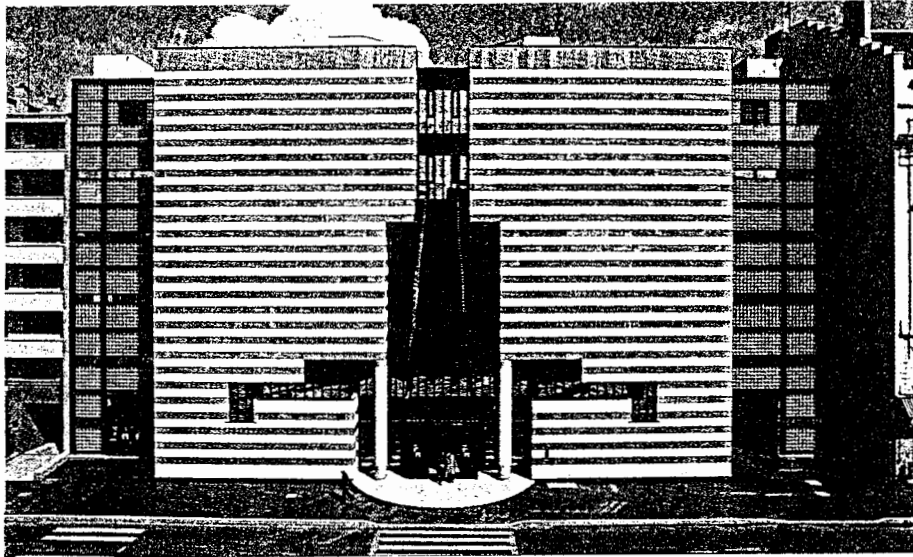
South facade : Composed of three (32m.32m) greenhouse elements which create a transition between the park and the interior of the Museum .The park thus becomes the natural extension of the interior . This "Bio-climatic" facades a high-tech. realization with a structure of stainless-steel tubes held together by modeled elements.



ANALYSIS OF SIMILAR EXAMPLES

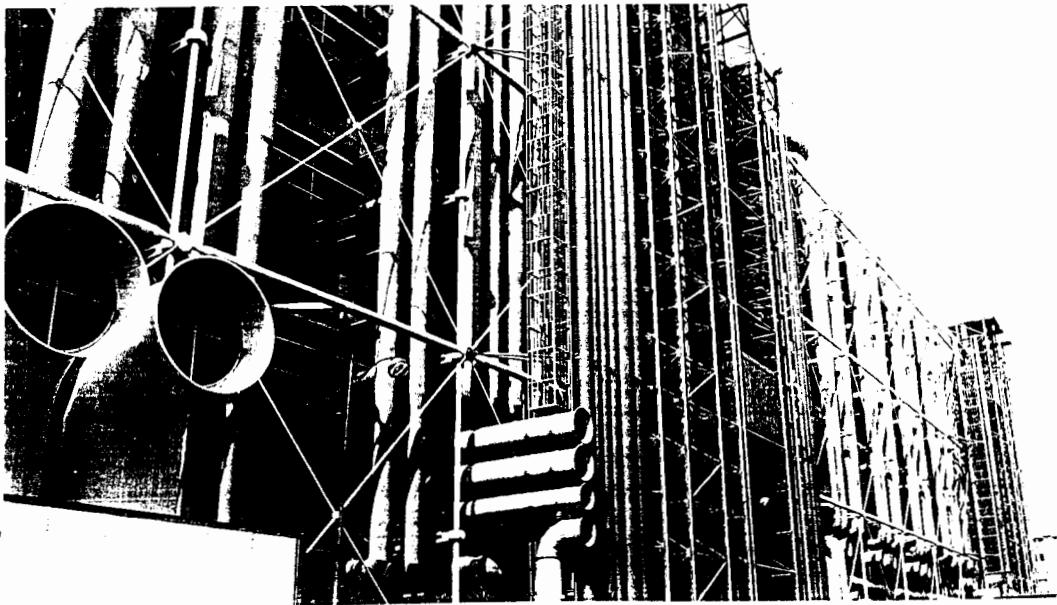
C-House of Books , Images and Sound

A wedge like form ,rendered in strips of limestone.The facade is very planar going in harmony with street alignment , it is cut in half creating an axes of symmetry along which a series of elements : lobby ,reception area ,stair case and atrium are placed , and are exposed to the exterior through translucent glass blocks , making a sharp contrast with the "blanc" side wings.



D-Centre Georges Pompidou

The height of the center is not too much higher than the surrounding buildings ; however , its scale is huge in terms of the size of the parts and its length in relation to the spectator . The setting of the structure is theatrical and is being enhanced by the joyously colorful exposure of the mechanical system ; in other terms , it is a high-tech exertion of steel and glass rendered in joyful colors of red , blue , green , yellow and



ANALYSIS OF SIMILAR EXAMPLES

Conclusion.

Having set the scope and decided upon the site of my project , the next intervention would be a step forward towards the approach of the general layout , the structural system and the expression of the project.

It seems quite clear , that the functions in similar projects would be distributed along , or around a major circulation core , connecting the horizontally or vertically to the various sections . Such an approach would be favored in my design for it gives the visitor a clearer idea of the location of the different functions ; hence,giving the spaces a simpler reading .

The structural system is to be implemented according to the spaces , where spaces needing clear , flexible interiors (theater , exhibition , audio-visual display) would require a "two edge major support system" (bearing walls) for it gives inner flexibility for spanning and a wider choice for partitioning ; however , a simple Post- Lintel system would be appropriate for smaller spaces that would follow certain grid and modules (offices , services).

Due to its technological nature , the project tends to aquier a :high-tech. reading through the emphasis on the use of steel and glass ; however , and due to its context ,the expression of the project might be affected.

