BASIC DESIGN STUDY REPORT
ON
THE CONSTRUCTION PROJECT
FOR
AN EDUCATIONAL AND CULTURAL CENTER
IN
THE ARAB REPUBLIC OF EGYPT

FEBRUARY, 1984

JAPAN INTERNATIONAL COOPERATION AGENCY

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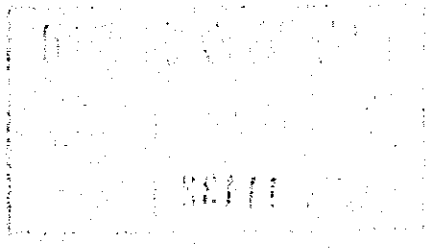

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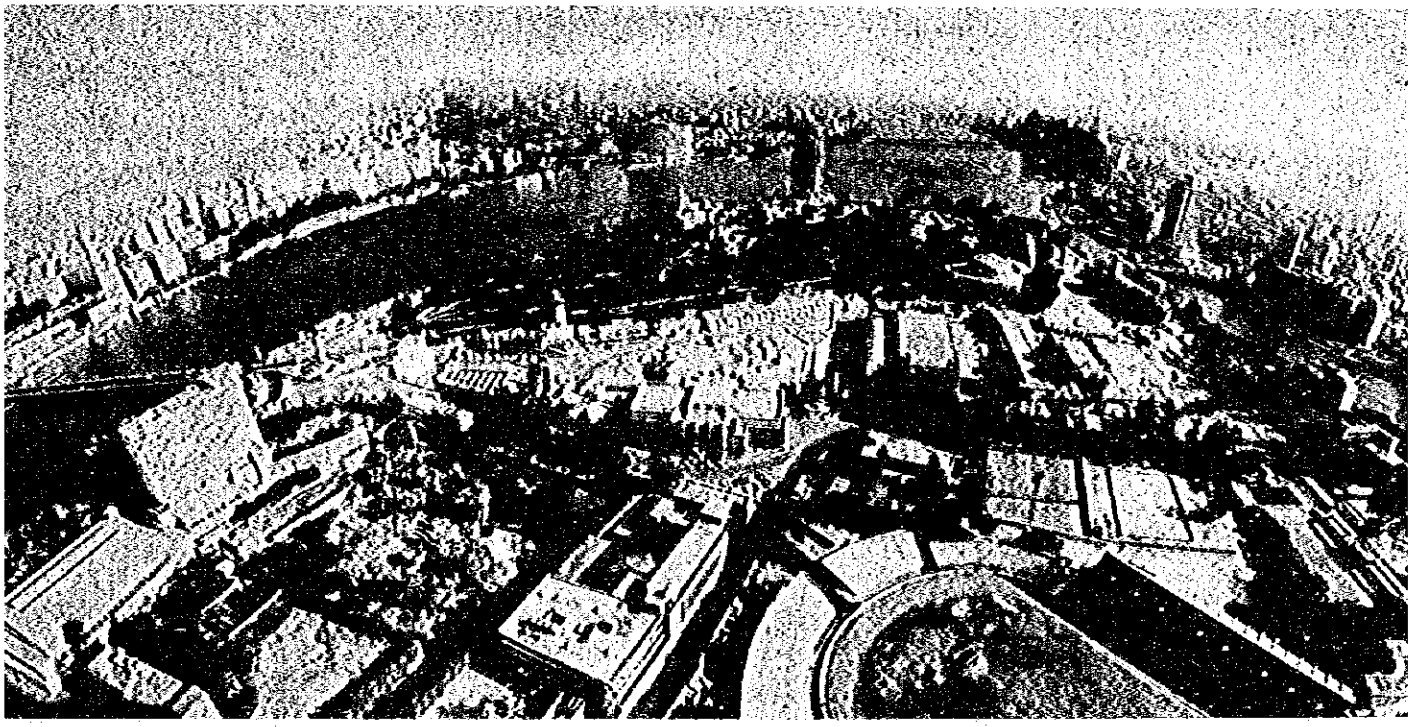


PREFACE

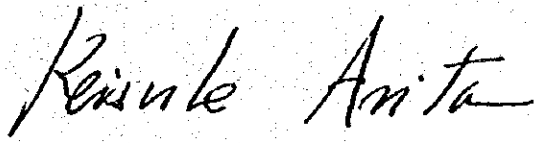
In accordance with a joint statement issued on the occasion of the visit of President Hosni Mubarak of the Arab Republic of Egypt to Japan in April 1983, the Government of Japan decided to conduct a Basic Design Study on the Construction Project for the Educational and Cultural Center and entrusted the study to the Japan International Cooperation Agency (JICA). The J I C A sent to Egypt a study team headed by Mr. Takaharu Kazama, Executive Director, JICA, both in August and in October, 1983.

The team had discussions with the officials concerned of the Government of the Arab Republic of Egypt and conducted a field survey in the Zamalek area, Cairo. After the team returned to Japan, further studies were made and the present report was prepared.

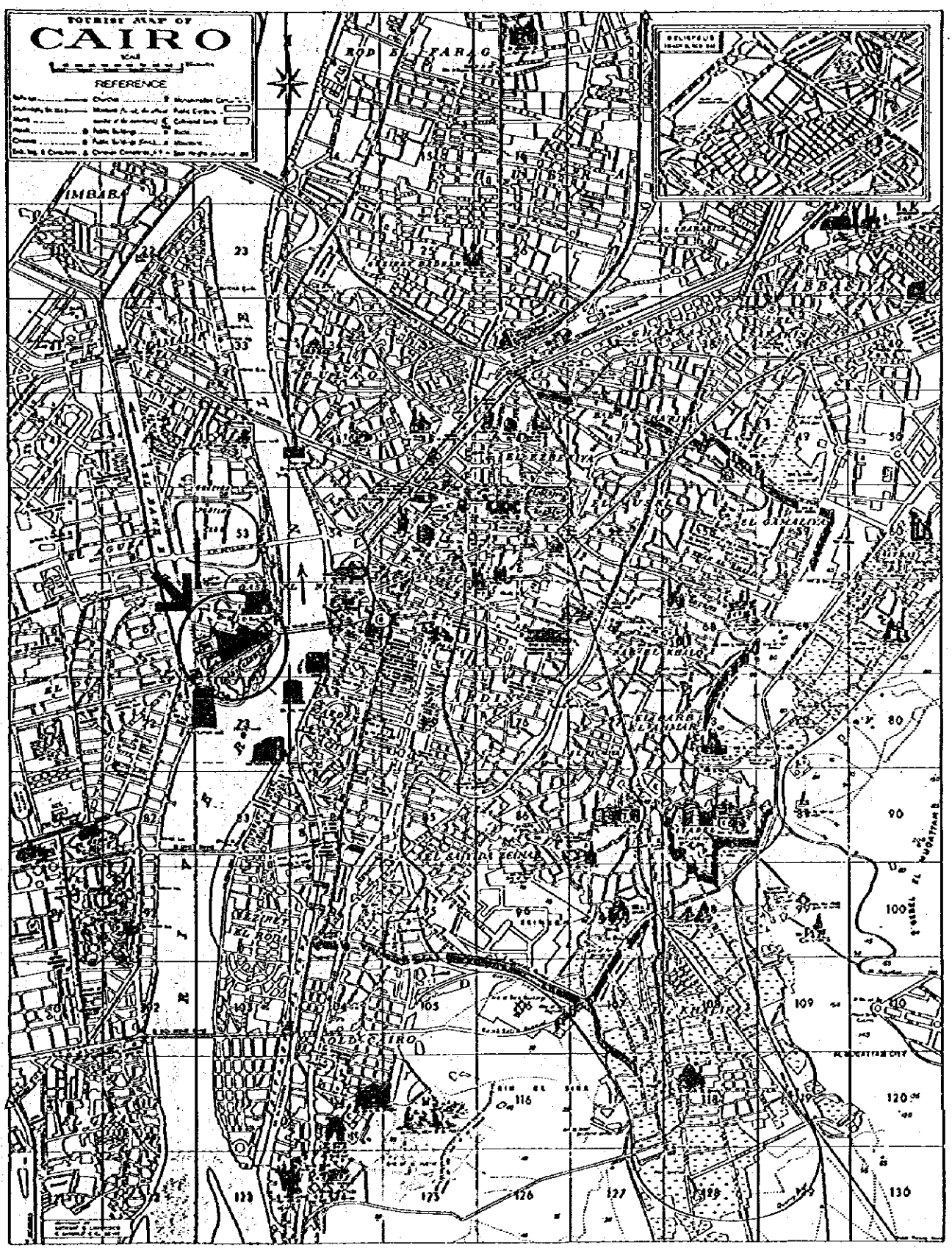
I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Arab Republic of Egypt for their close cooperation extended to the team.

February, 1984



Keisuke Arita
President
Japan International Cooperation Agency


TOURIST MAP OF
CAIRO
REFERENCE
IMBABA
OLD CAIRO

C O N T E N T S

SUMMARY

One policy to which the Government of the Arab Republic of Egypt gives high priority is that of improving the level of education and culture amongst the young, who will carry the future on their shoulders. Following in the footsteps of the previous Five-year National Development Plan, the new plan of the same name, which was launched last year, places great stress on the amelioration of formal education in Egypt. At the same time, the Government is also striving to give further stimulus to social education and cultural activities of various kinds.

Although facilities essential for the achievement of such aims -- museums, theaters, halls, culture centers, libraries, and so on -- already exist in Cairo, they have all deteriorated to a marked degree, and are inadequate in terms of both scale and content. With the rapid urbanization of Egyptian society, the improvement and expansion of these facilities has become a pressing necessity.

In particular, there is a singular lack of suitable halls for musical performances such as concerts, ballet and opera. Consequently, there is a great demand for the construction of a full-fledged multi-purpose hall. One special reason for this is historical: The first performance of the opera Aida took place in the Cairo Opera House, which was burnt down in 1971, and for years officials of the Egyptian Government have been longing to rebuild it.

This situation has resulted in the Egyptian Government's plan to erect an educational and cultural center in the Zamalek area of the island of Ghezira in Cairo.

On the occasion of the visit of President Mubarak of the Arab Republic of Egypt to Japan in April 1983, the Government of Japan decided to cooperate in the execution of such a project. A joint statement was issued to this effect. In accordance with this joint statement, the Japan International Cooperation Agency, or JICA, despatched a study team

headed by Takaharu Kazama, Executive Director of JICA, to Egypt in order to conduct the basic design study for the project in two phases (Phase I in August 1983 and Phase II in October 1983), during which they examined the requirements in detail.

As a result of discussions between the Basic Design Study Team and the officials concerned of the Government of Egypt and Japan, the following aims were established for the Center:

(1) In its capacity as a central facility for artistic activities, particularly in the musical field, to contribute to the cultural and spiritual growth of the common people, and to raise the general level of performance in the arts through the organization of training and practice at all stages in these fields; and, moreover, to introduce the folk arts of Egypt to visitors from other countries.

(2) To supplement and perfect school-based technical training, cultivation of esthetic sentiments and extracurricular activities in the musical, graphic and other arts, and to promote lifetime education for all, from childhood to maturity.

(3) To bring about progress in academic, economic, social and community activities by making available its facilities for the purpose of holding conferences and gatherings of various kinds.

(4) Through publicity, exhibitions, and so on, to educate and instruct the people of Egypt in cultural and social matters, and to encourage and promote international exchange with as many countries as possible.

In order that the above objectives may be fulfilled, the following specific activities are planned for the Center, in view of its multiple functions as a facility for culture, artistic, social and general education, and community activities:

(1) Performances of art and entertainment, in particular in the musical field, such as concerts, and ballet and opera performances;

(2) Preservation and perpetuation of traditional arts;

(3) Exhibitions and light entertainment;

(4) Supplementation of school education; and activities related to social education and lifetime education;

(5) Training of artists of various types; and

(6) Community activities.

The Center is planned on the following scale:

It will comprise eight (8) main sections with a total architectural area of 12,900 square meters and a total construction area of 22,000 sq.m.:

(1) Main Hall (multi-purpose hall with a seating capacity of 1,300)

(2) Small Hall (parquet-type hall with movable seating for 300 -- 500)

(3) Performance Support Facilities (artists' rooms, dressing rooms, storerooms, etc.)

(4) Educational Facilities (classrooms, offices, etc.)

(5) Exhibition Facilities (theater, museum, library, etc.)

(6) Training Facilities (training rooms)

(7) Support Facilities (machine rooms, restaurant, administration offices, etc.)

(8) Outdoor and Covered Facilities (Inner Plaza, Entrance Plaza, parking spaces, etc.)

On the basis of the policy of the Japanese Government, the wishes of the Government of the Arab Republic of Egypt were complied with to the greatest extent possible when the composition and grade of the

facilities were decided upon during the team's study of the project. It was finally determined that the standard of the facilities would be higher than that of any currently existing cultural or educational facility in Egypt from the viewpoints of functional design and architectural technology.

However, the standard of electrical and mechanical systems and of the stage equipment was selected so as to avoid, as far as possible, making undue demands of current maintenance capabilities in Egypt.

It is estimated that the construction of the Center will take 39 months.

The project will be under the control of the Higher Council for Culture, which is composed of a number of government ministers and presided over by the Egyptian State Minister for Culture. It will be implemented by a committee headed by the First Under-secretary of State.

The running of the Center will require a staff complement of about 120 people, and is expected to cost about 270,000 LE annually excluding the planning and management costs.

According to the budget estimate, if full use is made of the facilities, the Center will be able to run on its own, but if it is underused or if the management does not proceed according to plan, considerable sums of government money are likely to be required to subsidize it. Moreover, if grand opera were to be performed, especially by a foreign opera company, or if the headquarters of an operatic, orchestral or similar body were to be set up within the Center, a vast subsidy would become necessary.

The success or failure of the Educational and Cultural Center project rests ultimately upon its management after the facilities are complete. It is to be hoped not only that efforts will be made to attract the public so as to ensure that all facilities are used to capacity, but also, that the convenience of no one section or class of society is given priority over that of any other, but that the Center will open its doors and make its benefits available to as wide a cross-section of the nation as possible, so that it finally finds a place in the hearts of the people of Egypt.

CHAPTER 1: INTRODUCTION

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On the occasion of the visit of President Mubarak of Egypt to Japan in April 1983, the Government of Japan decided to cooperate in the execution of a project for the Construction of the Educational and Cultural Center (hereinafter called "the Center") in Cairo.

A joint statement was issued to this effect. In accordance with this joint statement, the Government of Japan has carried out a basic design study for such a project through the Japan International Cooperation Agency (JICA), which is an official agency for implementing the technical cooperation of the Government of Japan, in order to examine the requirements and to prepare a basic design of the Center.

The study was implemented in two phases: Phase I and Phase II, and the outline of the studies are as follows:

1-1 BASIC DESIGN STUDY (PHASE I)

The Government of Japan dispatched a Basic Design Study Team (Phase I), headed by Mr. Takaharu Kazama, Executive Director of JICA, from August 19 to September 2, 1983 for the purpose of establishing working relationships and having overall project objectives.

The study team conducted various investigations including the following:

(1) Clarification of the requirements of the Egyptian Government and purpose of the project

(2) Examination of the administration, operation and maintenance systems of the Center

(3) Study on the social, educational and cultural systems and activities

(4) Examination of similar existing facilities

(5) Examination of the site and soil conditions

(6) Examination of the service facilities on the site, e.g., electricity, telephone lines, city water, sewage, gas, etc.

(7) Review of the existing buildings and the future development plans for the site, including the construction of a National Museum of Egyptian Civilization (hereinafter called "NMEC"); review of the traffic conditions of the site surroundings, etc.

(8) Study of building construction activities, building materials and equipment

The findings and results of the discussions held between the study team and the Egyptian Government authorities concerned were summarized and signed by the representatives of both parties in the form of the Minutes of Discussions on August 27, 1983.

The members' list of the study team, the daily record of the study and the copies of the Minutes are given in Appendix I.

1-2 BASIC DESIGN STUDY (PHASE II)

After working out the Conceptual Design based on the results of the Basic Design Study (Phase I), and having compiled a Conceptual Design Report, the Government of Japan conducted Phase II of the Basic Design Study in Egypt from October 15 to November 3, 1983.

The Study Team (Phase II), headed by Mr. Takaharu Kazama, Executive Director of JICA, presented the Conceptual Design to the Egyptian Government authorities concerned, giving explanations where necessary, and the following matters were discussed:

(1) Objectives and activities of the Center,

(2) Size, general constitution, floor plans of the Center facilities and site planning,

(3) Scope of works,

(4) Operational policies and organizations,

(5) Project implementation schedule,

(6) Technical issues that are required for Basic Design development.

The results of the discussions and findings of the on-site survey were summarized and signed by the representatives of both parties in the Minutes of Discussions on October 25, 1983. The members of the study team, the daily record of the study and the copies of the Minutes are shown on Appendix II.

1-3 SUBMISSION OF BASIC DESIGN REPORT (Draft) WITH ELUCIDATION

After preparing the Basic Design Study Report (Draft) based on the results of the study, the Government of Japan sent a team headed by Mr. Yutaka Hosono, Deputy Director of the Grant Aid Division of JICA, to Egypt for 11 days in December 1983.

The team presented the said Draft to His Excellency Radwan, State Minister for Culture, and to the Committee, giving further elucidation where necessary.

His Excellency made the following comments on the Draft, and requested the team to revise it accordingly:

(1) The proposed layout of the building, perpendicular to Tahrir Street at the south side of the site, is not desirable because a building so built would block views from within the site.

Therefore, the building's axis should be swung 45 to the east so that the facade of the building will face the East Gate. At the same time, a square should be created in front of the building which should serve as a pivotal area for the Center and the Museum of Modern Arts. This will dispense with the proposed entrance deck. Should this result in a shortage of parking space, this problem can be resolved by incorporating a deck structure in the area subject to future expansion of Tahrir Street, thereby creating parking areas beneath.

(2) The appearance of the building is unacceptable because it is too bulky and striking to blend with Egyptian culture or to conform with the people's taste.

(3) The building must harmonize with the surrounding buildings as well as conforming with Egyptian culture and the taste of the Egyptian people. Egyptian culture is synonymous with the Islamic tradition.

(4) The height of the building should be kept as low as possible (though it is inevitable that the area where the stage is located will have to be relatively high for functional reasons). The large framework over the entrance is not necessary.

(5) Special stairways and so forth for the exclusive use of V.I.P.'s shall be installed in the main hall to provide a

clearly separate routing for V.I.P.'s from that for ordinary users.

(6) Except for the points mentioned above, the Egyptian party agrees to the contents of the said Draft.

The Committee presented, for the team's reference, a revised site plan, elevation and section that take into account the above comments and requirements of His Excellency. The Committee also added the following requirement.

(7) A part of the lower roof of the building shall be devoted to a viewing terrace where tea and food can be served.

After further discussions on these comments and requirements with His Excellency and the Committee, the study team agreed to revise the Basic Design (Draft) by incorporating most of the Egyptian requirements.

The Egyptian Government directed two (2) letters to the Japanese Government, covering the following:

(1) The Egyptian Government shall complete the demolition and removal works of the existing structures by the time of the conclusion of the Exchange of Notes (E/N).

(2) The Egyptian Government shall enter into a contract with the architectural firm that has conducted the basic design study, for architectural and engineering services in the detailed design and supervision of the Center.

The results of the discussions were summarized and signed by the representatives of both parties in the Minutes of Discussions on December 25, 1983. The names of members of the study team, the daily record of the study and copies of the Minutes and letters are shown in Appendix III.

CHAPTER 2: BACKGROUND OF THE PROJECT

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The investment in education in the Arab Republic of Egypt, which accounts for some 5% of GDP, is relatively high in Arab countries. In the Five-Year National Development Plan (1978-1982), emphasis was placed on the improvement of the state educational system, with aid extended by IBRD, etc. Efforts have been made mainly in the area of manpower development, especially in order to produce teachers and qualified technicians.

The new Five-Year National Development Plan was launched last year so as to strengthen social education and cultural activities following the aim of the former Plan. The Government of the Arab Republic of Egypt gives special attention to the up-grading of the educational and welfare standards for the young.

However, the facilities for this purpose are still unsatisfactory. In Egypt, an annual 2-3% population growth has been recorded for the past 40 years and the Government has been forced to construct more school facilities for the increasing numbers of children of school age.

Consequently, there is clearly a need for improvement of cultural facilities that allow ordinary school education to be supplemented with music, painting and other cultural activities, serving people of all ages. Particularly in Cairo, centralization of the population continues at the rate of about 4% a year, and although there are some museums, theaters, halls, cultural centers and libraries in this area, they are old and insufficient to meet the increased demand.

This situation led the Government of the Arab Republic of Egypt to plan the construction of an Educational and Cultural Center with the cooperation of the Government of Japan. The Center is expected to be the central facility in Egypt contributing to improvement of social education and cultural activities among the young and old alike.

CHAPTER 3: SITE CONDITIONS

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3-1 SITE DESCRIPTION AND SURROUNDINGS

The southern part of the island of Ghezira provides an ideal site for the project in terms of environment and transportation.

The project site lies on the north side of Tahrir Street, which is a main highway running east to west across Ghezira. The site occupies the eastern half of the exhibition ground, the western half of which is the project site of the NMEC. Both project sites are under the charge of the Higher Council for Culture.

The site for the Educational and Cultural Center is roughly triangular, extending about 350m east-west and 230m north-south, and has a total land area of approximately 45,000m^2. It is generally flat, with the southern part about 4.5m below the level of Tahrir Street to the south, and about the same level as the street at the north. Thus, the approach from the existing east gate to the site forms a fairly steep slope.

In the presence of the Egyptian Government authorities concerned, the study team confirmed the boundary line between the site of this project and the adjacent site for the NMEC with the help of a survey map. In accordance with a request from the Egyptian side, the Center's facilities will be located at least 15m away from this boundary line.

After discussion with the Egyptian side, it was decided that 4 structures out of the existing facilities - the east gate, the Exhibition Hall, the Museum of Modern Arts and the mosque - are to remain as they are, while the rest are to be demolished and removed by the Egyptian side before the start of the construction of the Center as shown on Fig. 3-1-1.

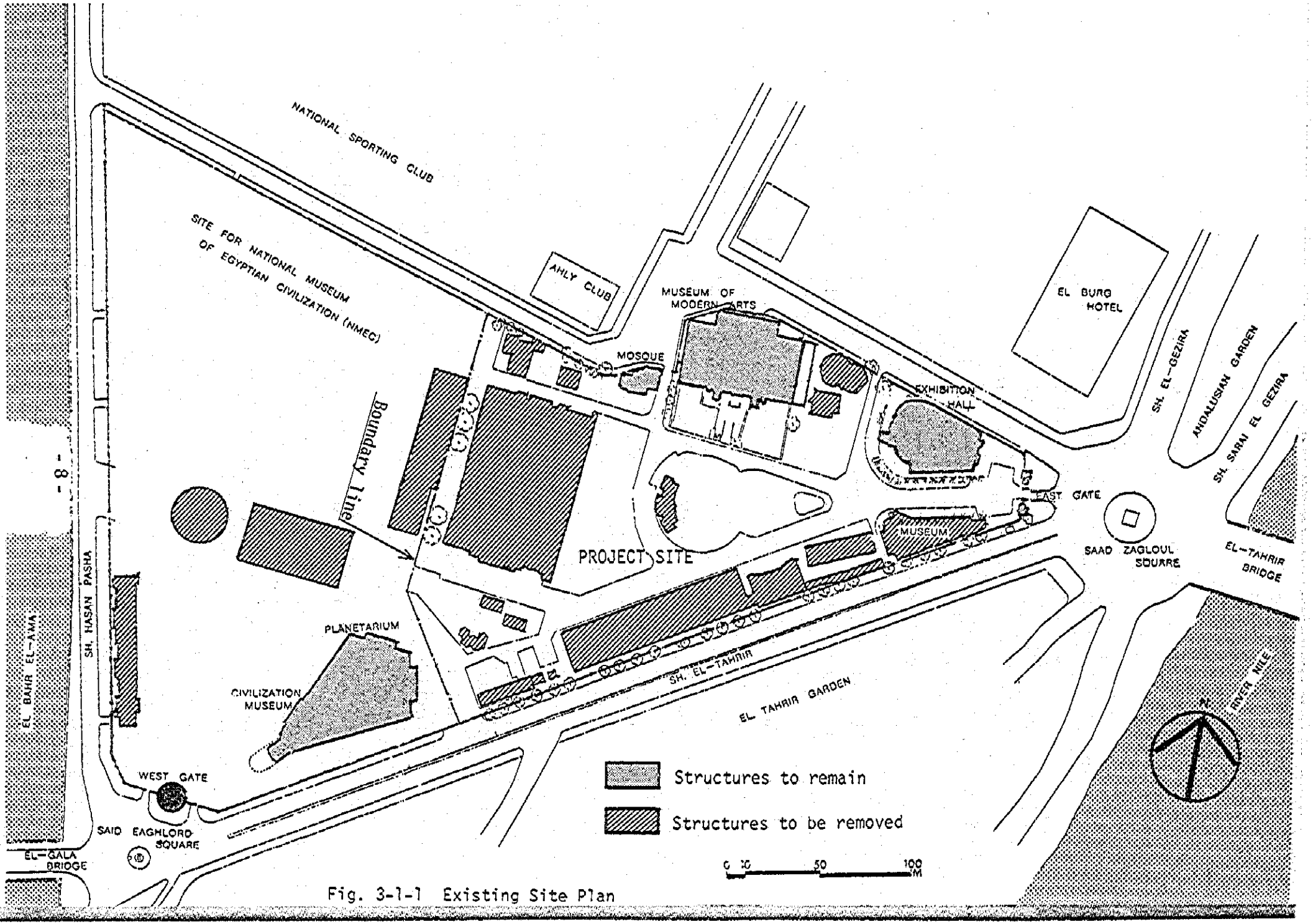

Fig. 3-1-1 Existing Site Plan

3-2 NOISE CONDITIONS AROUND THE SITE

Noise levels around the Project Site are shown in Fig. 3-2-1. There is high traffic noise (70 - 85dB) along Tahrir Street, but that along the road between the site and the National Sporting Club is less: 50 - 70dB.

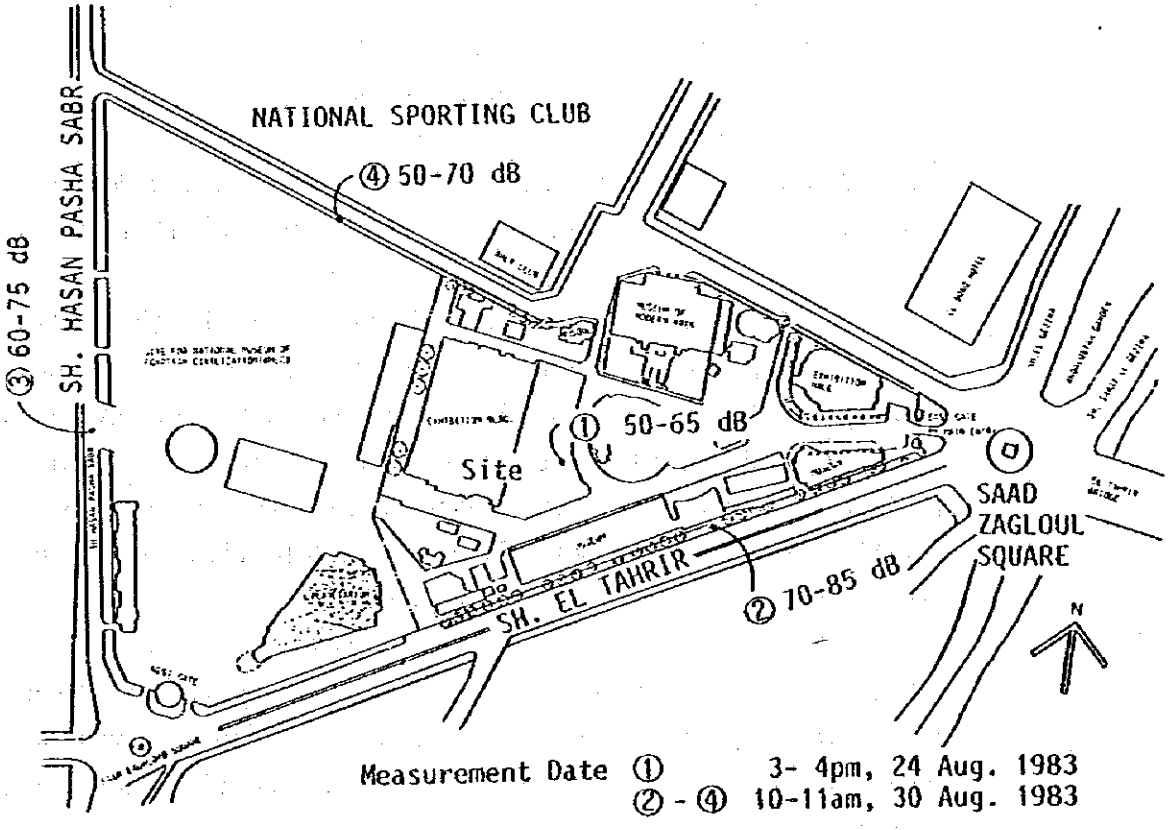

Fig. 3-2-1 Noise levels around the Site

3-3 INFRASTRUCTURE

3-3-1 Electrical Power

There are three high-tension transformer stations in the existing exhibition grounds. One of them is housed in the existing exhibition building on the project site, and is equipped with one 1000 KVA and one 500 KVA transformers.

(1) Primary voltage: 11 KV, Three-phase, three-wire 50HZ

(2) Secondary voltage: Single-phase 220V
Three-phase 380V

Other 2 transformer stations are equipped with two 500 KVA and one 500 KVA transformer and are linked by loop cables.

The stability of the power supply around the site is comparatively good. Power interruption occurs once every few months, but it does not continue for long. The layout of power cables in and around the site is shown on Fig. 3-3-1. They are laid under Tahrir Street, Hasan Pasha street and the Site itself. There are about 20 power distribution panels on the site, but they are not currently in use.

The existing high-tension transformer stations, power cables and distribution panels are to be demolished and removed by the Egyptian side before start of the construction work of the Center.

3-3-2 Telephone

There is a 500-pair telephone trunk line under Hasan Pasha Street.

New telephone lines for the Center will be easy to obtain from this trunk line.

The Telephone Authority in the Central Telephone Station, IMBABA, is planning to install a new underground trunk line on the opposite side of Hasan Pasha Street to the existing trunk line.

The existing telephone trunk line is shown on Fig. 3-3-1.

3-3-3 Television and Radio

There are two channels of color television broadcasting in Cairo, one VHF and one UHF. The TV broadcasting system is SECAM.

Radio broadcasts are managed by the Egyptian Broadcasting Authority and TV broadcasts by the Egyptian Television Organization.

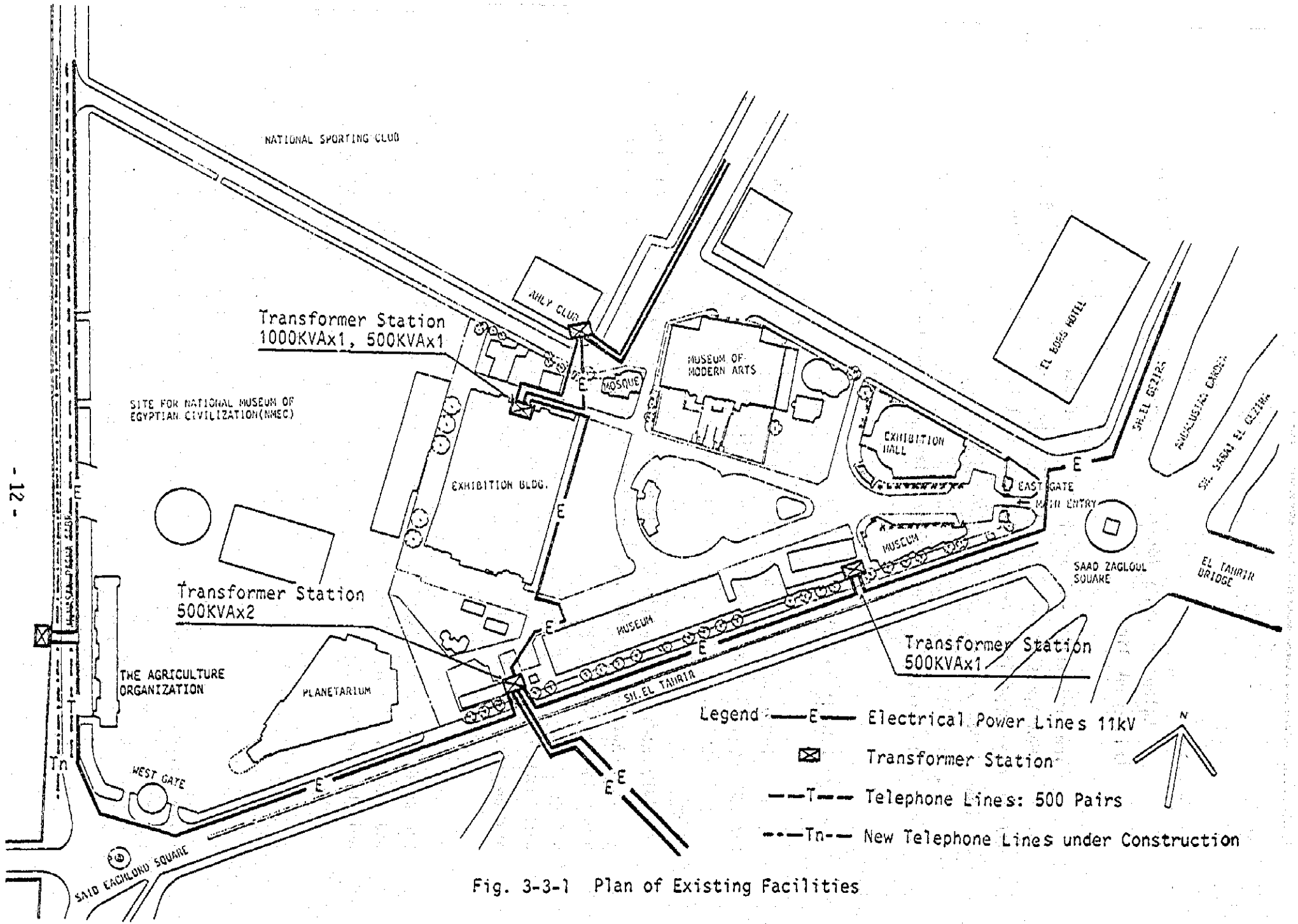

Fig. 3-3-1 Plan of Existing Facilities

3-3-4 Water Supply

Three kinds of water supply pipes are installed around the project site, specifically, those for potable water, those for fire-fighting water and those for agricultural water, although the last type is not now in use.

The main pipe for potable water is laid underground between the Project Site and the National Sporting Club, an incoming pipe of 150mm (6 inches) passing the mosque in the northern part of the site. And another 150mm potable water pipe lies near the Agriculture Organization.

Detailed piping network within the site will be planned after further investigations. However, the tentative view of the authorities at Cairo International Fair is that, since the pipes within the site are now more or less dilapidated, having been installed twenty years ago; and also, because of the various kinds of materials connected together to make up the network, it is desirable to renovate the entire piping system for this project, starting with the installation of the main pipe.

An overall adjustment is necessary for the renovation of the piping system for this project, including both the pipes for the newly-planned Center and those for the existing Museum of Modern Arts and the Planetarium.

The incoming pipe for the Center will be a branch taken from the one installed near the mosque.

There is a main underground pipe under Hasan Pasha Street for fire-fighting water, and two incoming pipes of 100mm (4 inches) connected at two points, as illustrated in Fig. 3-3-2.

A loop pipe is used for the project site, as shown in Fig. 3-3-2.

Participating organizations

(1) Greater Cairo Water Supply Authority, GUMHURIYA

(2) Cairo International Fair

Table 3-3-1 indicates the quality of city water, and the standard in Egypt for potable water.

Table 3-3-1 Quality of Potable Water

Unit: ppm

	Analysis Value	Standard Value
1. Physical		
Color	less than 5	
Turbidity	less than 5	less than 5
Taste		acceptable
Smell		nil
2. Chemical		
Pb	-	less than 0.1
As	-	less than 0.05
Cr^{6}	-	less than 0.05
CN	-	less than 0.01
F	0.5	less than 0.8
N	nil	less than 45 (NO_3)
Total Dissolved Solids	180	less than 1500
Fe	0.1	less than 1.0
Mn	0.1	less than 0.5
Cu	-	less than 1.5
Zn	-	less than 15
Mg	13.2	less than 150
Ca	26	less than 200
$CaCO_3$	120	less than 500
SO_4	10	less than 400
Cl	18	less than 600
Phenol	-	less than 0.002
PH	7.4	6.5-9.2
Anionic Detergent	-	
Cd	-	
Hg	-	0.001
3. Biological		
Caliform Group	M.P.N. 0	M.P.N. less than 10/100 ml
Bacterial Count	-	0

3-3-5 Drainage

The existing drainage system joins together the storm water line and the soil water line, and the underground pipes within the site are installed as shown in Fig. 3-3-2.

The drainage system consists of a drainage pump station installed within the block near the El Burg Hotel, and a main gravity drainage pipe which is connected by a 200mm (8-inch) pipe to this pump station. The piping network under the roads is currently being installed with the support of the United States.

Participating Organizations:

(1) Cairo Sewage Authority

(2) Cairo International Fair

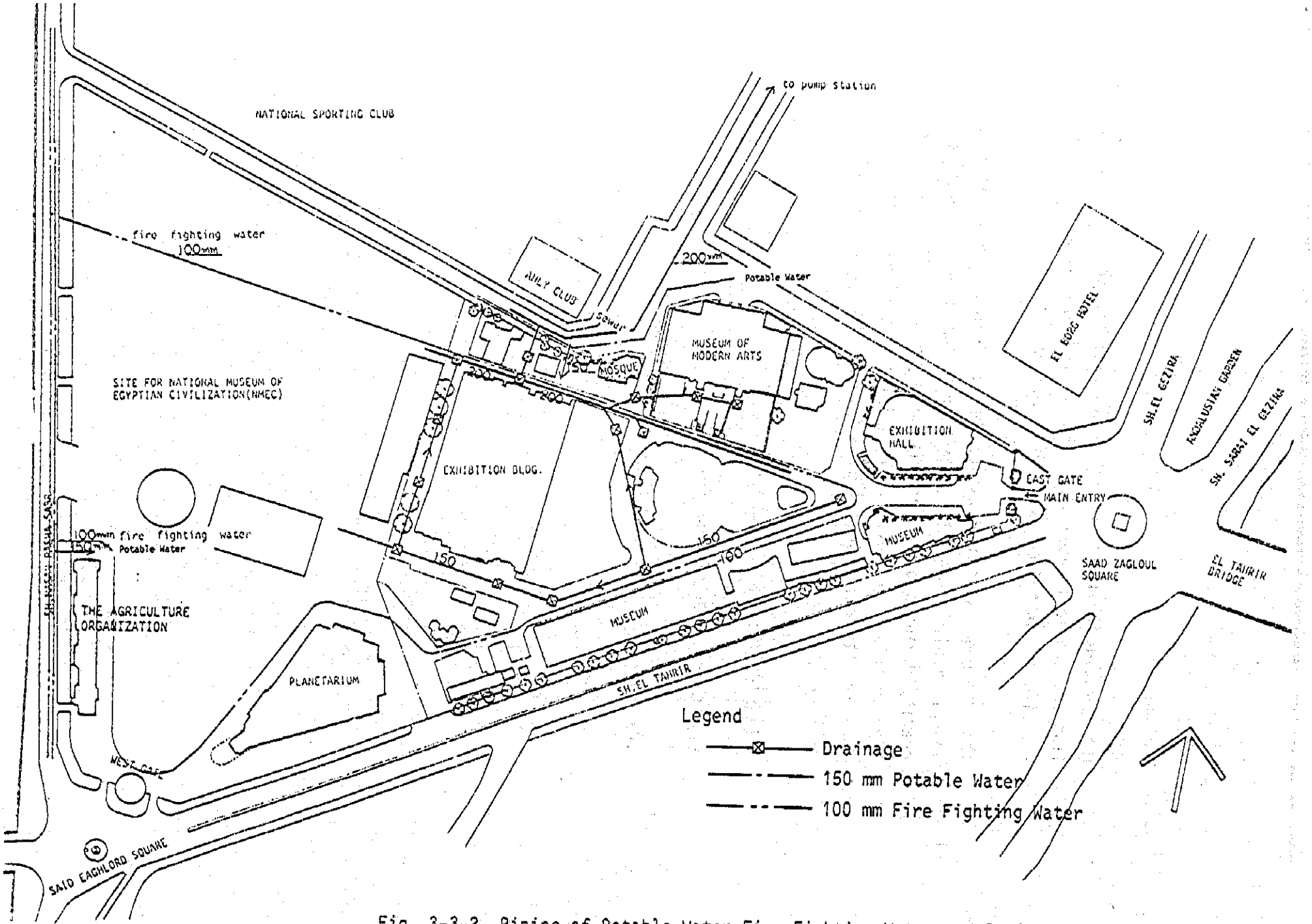

Fig. 3-3-2 Piping of Potable Water,Fire Fighting Water and Drainage on the Site

3-3-6 Fuel

In the absence of a system for supplying fuel inside the site, it is necessary to provide butane gas in cylinders and to use a piping system for distributing the gas to the locations within the Center facility where it is needed.

CHAPTER 4: EDUCATIONAL AND CULTURAL CENTER

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4-1 OBJECTIVES OF THE CENTER

The Center's primary objectives are as follows:

(1) The Center will provide a central facility for the performing arts with a view to contributing to the cultivation of artistic sentiments of both the youth and the adult population of Egypt, upgrading the nation's cultural standards by contributing to the training and development of artists as well as by introducing Egypt's artistic activities to visitors from abroad.

(2) The Center will offer practical training in manual arts, opportunities for the cultivation of esthetic sentiments, and various extramural activities. Further, it will work to promote lifetime education for Egyptian people from all walks of life.

(3) The Center will support academic, economic and social activities by making its facilities available for various meetings and conferences. The same type of support will be given to community activities.

(4) The Center will promote mass education of the Egyptian people in such areas as cultural and social education through public relations and various exhibitions. The promotion of cultural exchange with foreign countries will be another of the Center's concerns.

4-2 POLICIES OF THE CENTER

The Center's primary policies are prescribed as follows:

(1) The Center will not only act the central facility for activities of the nation's performing arts under the supervision of the Higher Council for Culture (presided over and represented by the State Minister for Culture), who is in charge of the nation's various cultural enterprises, but will also strive to assume an even larger role as the central such facility for the Arab world.

(2) The Center is classified together with other theaters, museums and institutions supervised by the Higher Council for Culture; however, the Center will support and complement their activities and presentations by offering cooperation and assistance.

(3) The Center, along with the Museum of Modern Arts and the Exhibition Hall, and the Planetarium and the NMEC now planned on an adjacent site will form not only the largest educational and cultural center in the city of Cairo, but also provide a major community center for it. (The NMEC is also supervised by the Higher Council for Culture. Though the Museum is not part of the same organizational structure as the one to which the Center belongs, close cooperation between the two in various activities is expected.)

(4) In view of the Grant Aid policy of the Japanese Government, the Hall shall be built on an efficient plan that will enable as many people as possible to use it for a wide variety of purposes.

In accordance with (4) above, as well as with the other primary policies of the Center, the Hall shall have the following characteristics:

1) The Hall shall be a multiple-purpose facility for a variety of activities including not only performances but also conferences, meetings, lectures, motion picture shows, etc.

2) In a similar way to a hall for rental, the Hall shall be one that can be made available for use by many people, rather than one that is used only by a handful of particular organizations.

The facility plan of the Hall is to be based on the following requirements:

1) Because of the multiple purpose of the hall, its plan will meet, to the largest possible extent, the various and peculiar requirements for size, form, facilities, equipment, etc., arising from the different activities that it will serve. It should be kept in mind, however, that the Hall will naturally not be able to provide a perfect facility and environment where the requirements of those activities conflict with each other.

2) This is particularly true for opera. Although it is one of the activities to be conducted at the Hall, special large-scale stages and other production facilities that are used solely for operatic performances should be excluded from the current facility plan.

3) In principle, the scenery and properties, etc., necessary for performances at the Hall shall be fabricated and kept elsewhere, unless they are small.

4) The Center shall not function as a headquarters for any orchestra or theatrical troupe, etc., nor will it have any special facilities for them.

4-3 ACTIVITIES OF THE CENTER

To meet the primary objectives of the Center described above, the Center will perform the following types of activities:

(1) Cultural
(2) Educational
(3) Social and community-related
(4) Supporting (for the support of (1), (2) and (3) above).

These four types of activities will be the Center's major activities.

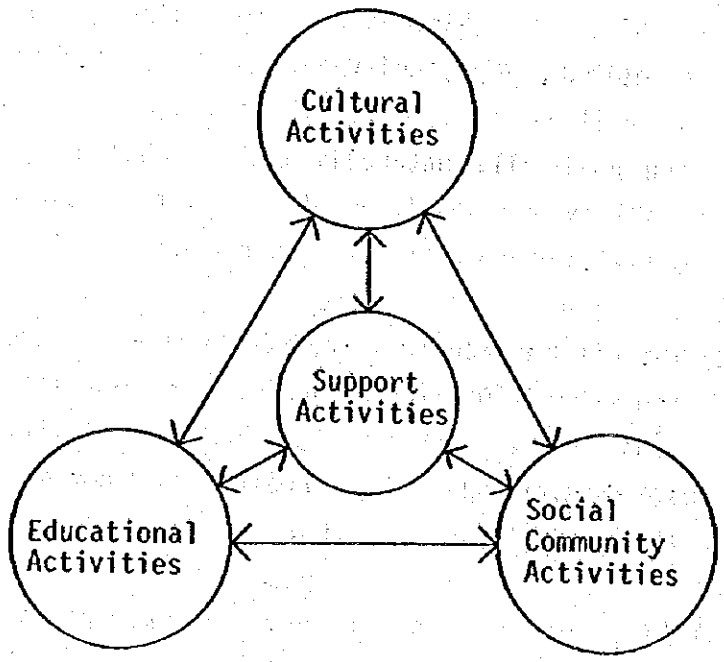


Fig. 4-3-1 Major Activities of the Center

Although each of these four types of activities differs in specific ways from the others, it is not considered appropriate to isolate these four individual categories from each other, and thus limit the Center's work, since each activity is related to various aspects of the Center's objectives. The inclusion of a wide range of activities in the Center's curriculum, on the contrary, is expected to result in interactions between those activities, and will thus effectively enable the Center's various objectives to be met.

The specific activities now planned for the Center are as follows:

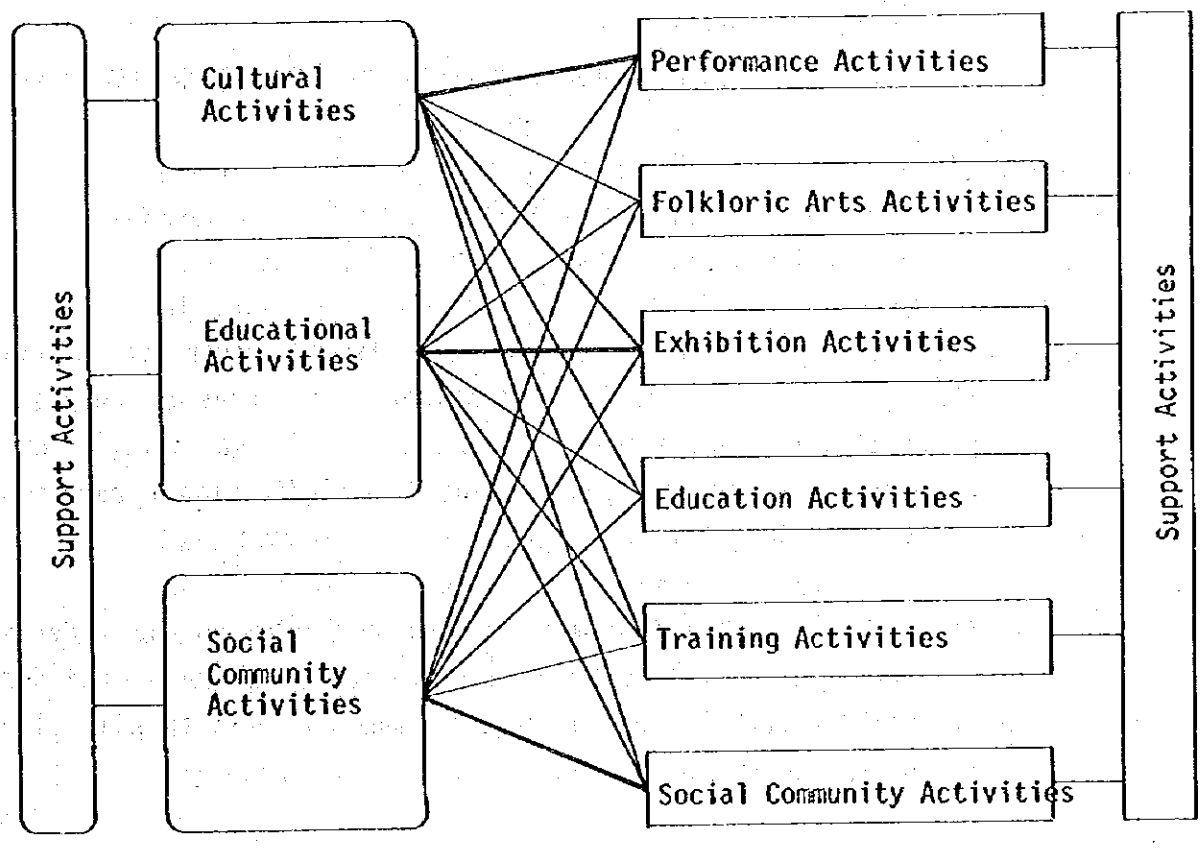


Fig. 4-3-2 Relationship of Activities

4-3-1 Performance Activities

The following activities are among the core activities of the Center:

(1) Theater:
Tragedy, drama, comedy, etc.

(2) Music:
Opera (grand, normal, chamber), concerts (symphony, chamber, choir, Arab classical music, religious hymn, etc.), ballet, light musical (folk opera, operetta, musical comedy, musical drama), etc.

(3) Folkloric Arts:
Folk dancing, Arab music, musical variety, puppetry, etc.

(4) Cinema:
Motion picture dramas, shorts, documentaries, news, educational films, etc.

The major part of the activities listed under items (1) through (3) above will be commercial performances by Egyptian professional orchestras, troupes and artists; but noncommercial performances presented for educational purposes and for charity will also represent an important part.

Amateur artists ranging from school children to the elderly will be encouraged to participate in the above-mentioned activities. Foreign orchestras, troupes and artists will also be invited to present performances.

These activities assume a presentation system in which an indefinite number of users, such as individuals and art organizations, will present single performances or a series running for a very short period, instead of, for example, a

repertory system and stageone system in which a house orchestra or troupe performs periodically.

As for Cinema, both commercial and non-commercial films will be shown. They will be presented either by the Center itself or by other organizations or groups, depending on the purpose of the showing. The holding of film festivals will also be planned for the Center.

All of these activities will be aimed at many visitors from abroad, as well as at the widest possible range of people from school age up, not only from the Greater Cairo area but from all of Egypt.

4-3-2 Folkloric Arts Activities (Succession and Preservation)

Preservation and promotion of folkloric arts are extremely important activities for a national cultural center in any country. Given more opportunities for their activities (such as those listed under Item (3) of 4-3-1 above), artists and troupes are likely to contribute not only to the upgrading of the folkloric arts but to also help in their preservation and promotion.

Furthermore, participation of the general public in these activities in addition to performances by professionals, forums, lectures and bulletins, will greatly help folkloric arts to take deep root in Egyptian society. These activities are also expected to play an important role in introducing the nation's traditional arts to foreign countries.

4-3-3 Exhibition Activities

Though secondary to the Center's other activities, exhibition activities will be an important and effective portion of the

cultural and educational Activities to be performed by the Center. They will have a catalytic effect as long as the themes and materials of exhibitions are closely related to those of other activities -- for example, performances and educational work, -- or of events held at the Center.

There will be two types of exhibition activities: permanent and temporary. However, owing to the nature of the Center, permanent exhibitions will be kept on a small scale and major emphasis will be placed on temporary exhibitions.

(1) Permanent Exhibitions:

1) Various historical materials in relation to performing arts, e.g. scores, instruments, costumes, photographs, etc.

2) Fine arts, plastic arts, etc.

(2) Temporary Exhibitions:

1) Exhibitions related to the performances currently taking place. Exhibits will be of the types indicated under (1)-1) above.

2) Exhibitions related to, and held concurrently with, gatherings, conferences, seminars and various other events. The types and categories of the exhibits may have a very extensive range, depending on the purpose of the exhibitions.

3) Educational exhibitions. The exhibition and display of works by pupils of primary, intermediate and secondary schools, and by students of universities or colleges of art, crafts or other

studies. In addition, this category will include exhibitions of art and handicraft works by youths and adults.

4) Thematic exhibitions, events and fairs: these will be held independently of performances, gatherings, etc., and have particular themes in such fields as natural science, communications, transportation, electronics, public hygiene. In some cases, exhibitions may be held in combination with events like book fairs, and spot sales could be planned together with them.

While indoor exhibitions will be the main form of permanent exhibitions, temporary exhibitions will be held either indoors or outdoors, or both, depending on the nature and purpose of the exhibitions.

These activities will be planned not just by the Center but also by various schools, organizations and groups. In any case, close cooperation with these outside organizations will be instrumental in carrying out these activities.

4-3-4 Education Activities

Along with artistic performances, education will be the Center's major field of activity.

While it is true that educational effects will result also from performance and other activities, the Center's education activities are intended to achieve objectives in three categories:

(1) The promotion of lifetime education for people of all ages

(2) The complementing of formal education, particularly for school children

(3) The social education of school children, youths and adults.

All these activities are expected to produce synergetic effects when carried out together with the other cultural activities of the Center:

(1) Continuing Education

Among both youths and adults in Cairo, the interest in and the need for classes in foreign languages, music and art have grown, and this trend is expected to become even more manifest as the standards of living, education and culture become higher.

These needs are now partly met through the services of the American University in Cairo and of several foreign cultural centers; but they are not of a magnitude that can meet the growing social needs, since they involve a considerable amount of tuition and also, to a large extent, because they are conducted in foreign languages. Of these institutions, the Center for Adult and Continuing Education at the American University in Cairo carries out the most substantial activities. Though it has earned itself the best reputation in this field, it aims primarily at the training of executives and businessmen of higher echelon.

Accordingly, the proposed Center will open the door for continuing education in which youths and adults can participate casually. Such a program will include various educational and cultural courses that will not compete with business-oriented courses conducted in foreign languages at the institutions already mentioned.

The following activities are now planned for this part of the Center's activities:

1) Permanent Activities

a) Various educational courses
   i) Music classes (European and Arabic music)
   ii) Art classes
   iii) Calligraphy classes (in Arabic)
   iv) Handicraft classes
   v) Horticultural and flower arrangement classes
   vi) Other cultural classes in various fields (to be held periodically)

b) Publicity work and guidance

Initially each of these classes will be planned and organized in such a way as to meet wide-ranging needs. The subject and frequency of classes and their programs will then be gradually narrowed down to those with higher priority.

Training for businessmen and other vocational trainings can be incorporated among these cultural/educational classes in the future.

2) Temporary Activities

a) Exhibitions and lectures of various kinds
b) Film shows and concerts

(2) Supplement to schooling

As a result of a rapid increase in the number of students, shortages of educational facilities and

materials, as well as of teachers, have become manifest. The following are some of the specific problems:

1) Very little practical education is given in music, crafts, etc.;

2) There are insufficient educational opportunities in the culture of esthetic sentiments;

3) Sufficient off-campus educational activities are lacking.

Although these insufficiencies ought to be filled within the educational system itself, the Center is expected to play a supporting role in the improvement of this situation by opening the door for Continuing Education Activities to school children and students.

Further, in combination with a wide range of its Cultural Activities, the Center will contribute to the cultivation of esthetic sentiments and the promotion of cultural activities not only among school children and youths but also among teachers.

The following specific activities are planned in order to meet this goal:

1) Practical lessons (music, art, crafts, calligraphy, etc.)

2) Exhibitions and presentations of art works and studies

3) Lectures and exhibitions

4) Contests in various fields (music, art, speech, etc.)

5) Seminars (for students and teachers, etc.)

6) Presentations in educational films, dramas, etc.

(3) Social Education

This part of the Center's activities is intended to provide a location for various activities of social education sponsored by the Government, e.g. education in public hygiene, and ethical and moral education. By the very nature of this education, programs will be planned and sponsored mainly by experts in these fields.

Activities in this area will include the following, and will take advantage of the Center's publicity function, halls, classrooms and exhibition facilities:

1) Public lectures
2) Lecture meetings and exhibitions
3) Film shows and dramas

These activities could be included in the activities supplementary to formal education and the Center's Continuing Education program.

For example, programs like those below could be planned for public hygiene education:

1) Family planning
2) Child and maternal hygiene
3) Environmental hygiene
4) Nutrition
5) Blood donation
6) Inoculation

4-3-5 Training Activities

Unlike specialized educational institutions such as the Academy of Arts, the Center will provide practical training for performing artists, using its various facilities for performances and educational activities under this category.

4-3-6 Social Community Activities

For the Center's wide-ranging cultural and educational activities to be effective, they must be managed and carried out in close cooperation with the local communities. To meet various needs arising from these communities, the Center will make available its facilities, perhaps on a rental basis, to serve for autonomous activities by citizens and for activities by various governmental organizations and private enterprises.

The following specific activities may be planned:

(1) Conferences and gatherings of various kinds (for government agencies, academic organizations, private enterprises and groups, etc.)

(2) Parties and ceremonies of various kinds (including wedding ceremonies, etc.)

There are several advantages to such a system. For example, since the Center's various facilities will be available to the general public, the usage rate of the Center as a whole will be raised and proper management of these activities is expected to provide an important source of revenue for the Center.

4-3-7 Support Activities

For effective execution of the Center's various activities, the following support activities are essential:

(1) Administration

Activities related to the Center's general management and operation are as follows:

1) Directorship and staff recruiting

2) Financial planning and accounting

3) Programming of performances, exhibitions, educational and social community activities, etc.

4) Co-ordination of professional, technical and maintenance staff

5) Co-ordination of external committees, etc.

(2) Public Relations and Marketing

1) Public relations for the Center's activities: poster and ticket preparation, T.V., radio and newspaper arrangements

2) Campaign, propaganda and entertainment planning

3) Marketing analysis and strategy

4) International communications

5) Information service for performing arts, etc.

(3) Visitor Services

1) Cafeteria, restaurant, kitchen, refreshment services

2) Public telephones

3) Sales shops, ticket operations

4) Tourist information

5) Reception, V.I.P. welcoming

6) Toilets, cloakroom services

7) Parking and bus-unloading control

8) First aid

(4) Performance Support

1) Production, carrying in and storage of scenery, properties, etc.

2) Dressing, makeup, costumes, etc.

3) Rehearsals

4) Operation and maintenance of stage lighting and sound systems, stage machinery and equipment

(5) Maintenance

1) Operations of facilities and equipment: electricity, lighting, ventilation, air-conditioning, telephone, water supply and sewage systems, etc.

2) Maintenance and repair of facilities and equipment: cleaning, maintenance and repairs of buildings, facilities and furniture, gardening, etc.

(6) Security

All activities involved in theft prevention, fire prevention and fighting, granting photography permits, maintaining day guard and night watch systems, access control to performers' and private areas, to exhibitions and to cloakrooms, V.I.P. security, etc.

4-4 COMPOSITION OF THE CENTER

4-4-1 Basic Concept of Facility Composition

It is most important in planning to select the proper size and nature of each space and facility in the Center by taking into account both the operational and functional aspects of the facilities so that as many activities as possible may be accommodated.

This is important especially for a multi-purpose facility like the proposed Center because, if the ideal size of space were provided for each activity to be conducted, the total area of the Center would have to be extremely large.

4-4-2 Composition of Facilities

The facilities of the Center will consist of the following eight major components:

(1) Main Hall: including stages, foyers, hall offices, cloakroom, etc.

(2) Small Hall: including stage, foyer, cloakroom, etc.

(3) Performance Support Facilities: including scenery and property shop and storage, atelier dressing rooms, makeup room, hairdressing room, medical staff room, rehearsal room, cafeteria, etc.

(4) Education Facilities: including classrooms, classroom office, etc.

(5) Exhibition Facilities: including theatre museum, music library, library, etc.

(6) Training Facilities: Training rooms, etc.

(7) Support Facilities: including offices (administration, public relations, etc.) security office, machine rooms, restaurant, etc.

(8) Outdoor Facilities: including outdoor theater, covered galleries, plaza, etc.

In accordance with the policies set out in Section 4-2, the Performance Support Facilities mentioned under item (3) above are intended for to a limited number of necessary facilities: for administrative work regarding planning, management, and supervision; for activities related to the regular operation and maintenance of the facilities of the Center; and for performances of such a scale and nature that they do not require special facilities. Therefore, the Performance Support Facilities will not cover the following items:

(1) Production and storage of large-scale scenery

(2) Production and storage of scenery, properties, etc., for other facilities

(3) Facilities necessary for accommodation and services for the performing artists and staff of large-scale performances (e.g. grand operas) which are not presented at frequent intervals

(4) Permanent rehearsal facilities for opera and ballet companies, orchestras and troupes, etc.

(5) Permanent facilities for housing the headquarters, members and staff of opera and ballet companies, orchestras and troupes

(6) Permanent facilities for management staff and technical personnel working for large-scale presentations

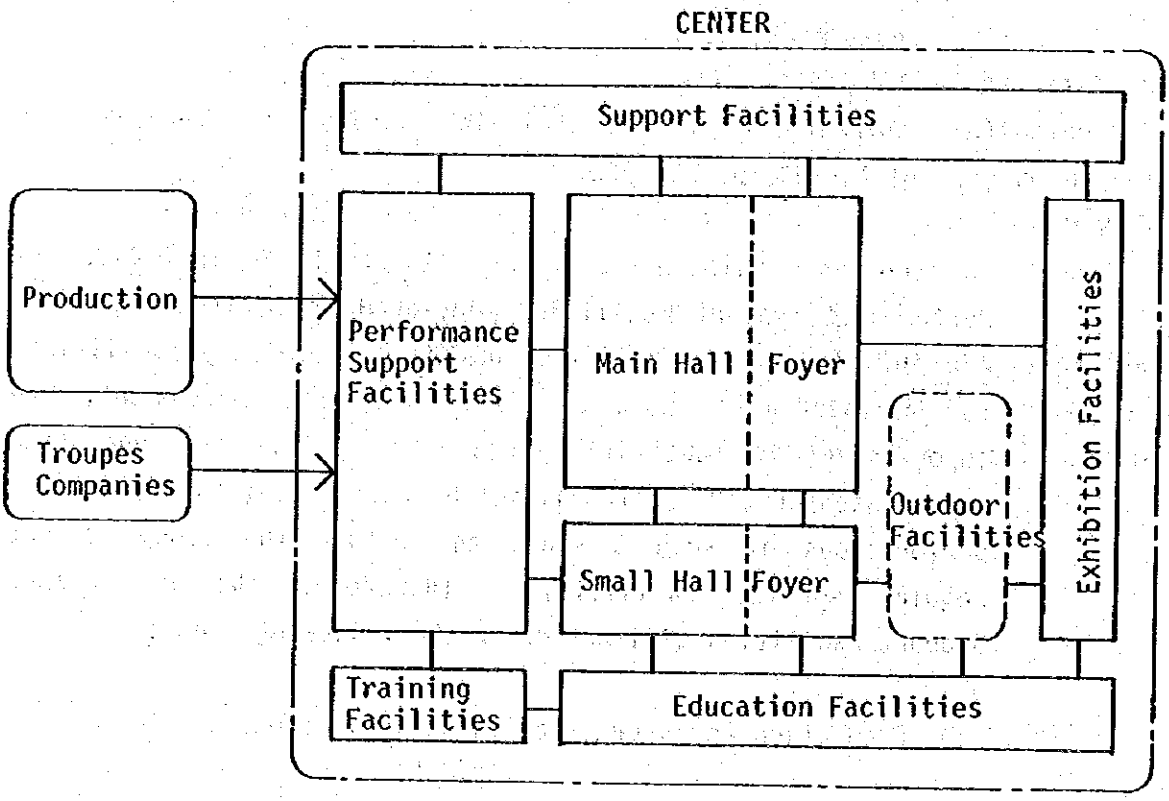


Fig. 4-4-1 Center Diagram

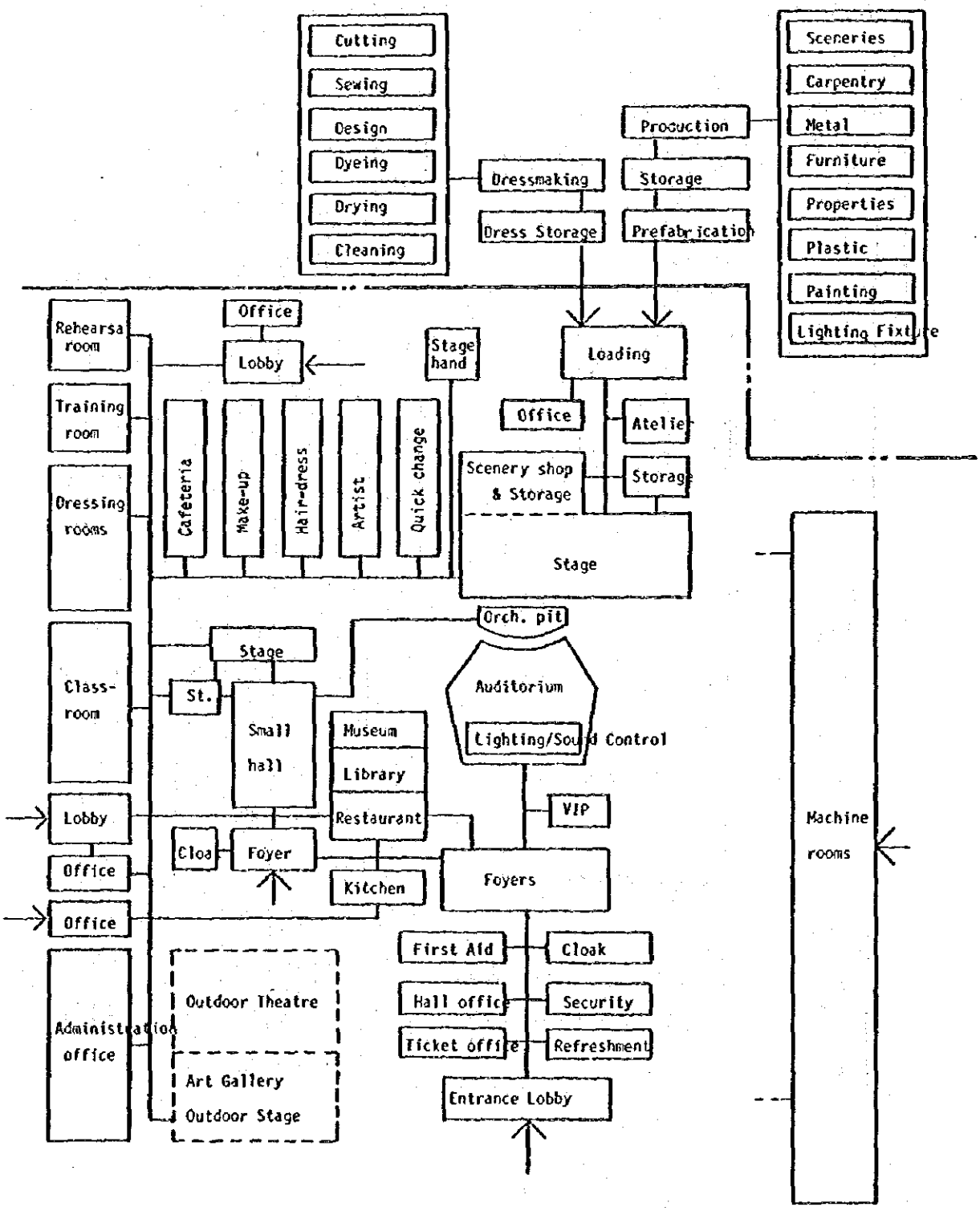
The relationships between each of these components and the various activities are given in Table 4-4-1.

Table 4-4-1 Relationship between Activities and Facilities

Activities \ Facilities & Spaces		Main Hall (incl. Foyer)	Small Hall (incl. Foyer)	Performance Support Facilities	Education Facilities (Classrooms, etc.)	Exhibition Facilities	Training Facilities	Support Facilities	Covered Outdoor Facilities
Performances	Operas	●	△	●	△	△	△	○	△
	Concerts, Ballet, Operettas, etc.	●	○	●		△		○	●
	Chamber Music, Recitals, etc.	○	●	●		△		○	△
	Folkloric Arts	△	●	●	△	△	△	○	●
	Cinema	●	●			△		○	
Folkloric Arts		△	●	△	○	○		○	△
Exhibition		○	●	△	○	●		○	●
Education	Classes(Music,Painting, etc.)		△		●	○	△	○	△
	Exhibitions, Contests, etc.	●	●	△	○	○		○	○
	Open Lectures, etc.	○	●	△	●	△		○	
	Lectures, Seminars, etc.	●	●	△	●	△		○	△
	Educational Films, Dramas	●	●		○			○	
Training		○	○	△	△		●	○	△
Social Community	Meetings, Conferences, etc.	●	●	△	●			○	○
	Parties, Ceremonies, etc.	○	●	△	○	△		○	△
Support		○	○	○	○	○		●	○

Legend: ● Mainly used
○ Subsidiarily used
△ Used exceptionally

4-4-3 Interrelationship Diagram



CHAPTER 5: BASIC DESIGN OF THE CENTER FACILITIES

CHAPTER 5: BASIC DESIGN OF THE CENTER FACILITIES

5-1 DESIGN PRINCIPLES

5-1-1 Basic Design Policies

The Basic Design of the Center facilities will be prepared in accordance with the following aims and guidelines:

(1) To make the Center attractive, easy to use and maintain, and safe.

(2) To harmonize the Center with the existing buildings on the Site, respecting Egyptian culture and aesthetics.

(3) To take fully into account local conditions including climate, geological characteristics and other environmental factors.

(4) To give full consideration to the superior location of the project site, as well as to interrelationship with the existing buildings and facilities and to future development plans of the site.

(5) To allow visits by handicapped persons to the facilities.

(6) To take into account local construction practices, methods and skills.

(7) To employ appropriate equipment and materials, taking into consideration their availability and possible future replacement.

(8) To choose systems, equipment and materials that will allow simple operation, energy saving and ease of maintenance.

5-1-2 Grade of Facilities

(1) An appropriate rating of the Center shall be made on the basis of a comprehensive examination of various aspects. This examination will cover the following: the position to be assumed by the Center in Egypt, the importance attached to it, the function and role played by it, the site's environment and conditions, the level of construction technology available in Egypt, and the operation, maintenance and management organizations and their capabilities.

(2) On this basis, the facilities of the Center shall be planned so that each will surpass the general level of the existing educational and cultural facilities, as well as the general levels of construction technology in Egypt.

The electrical and mechanical systems of the buildings, the stage machinery and equipment, etc. shall be selected on the basis of realistic and practical considerations so as to be compatible with the current maintenance capabilities in Egypt.

5-1-3 Codes, Regulations and Specifications

(1) The design will comply in principle with the relevant Egyptian codes and regulations to the utmost extent. However, when these are non-existent, the regulations and standards in Japan or internationally established regulations and practices shall be applied instead.

(2) The Codes, Regulations and Specifications to be applied are as follows:

1) Architectural Design and Works:

a) A.R.E. Building and Housing Laws
b) A.R.E. Building Code, Municipal Laws
c) A.R.E. New Laws for the Basics of Design and Execution of Building works
d) Egyptian Standard Specifications (ESS)
e) Japanese Industrial Standard (JIS)

2) Structural Design and Works:

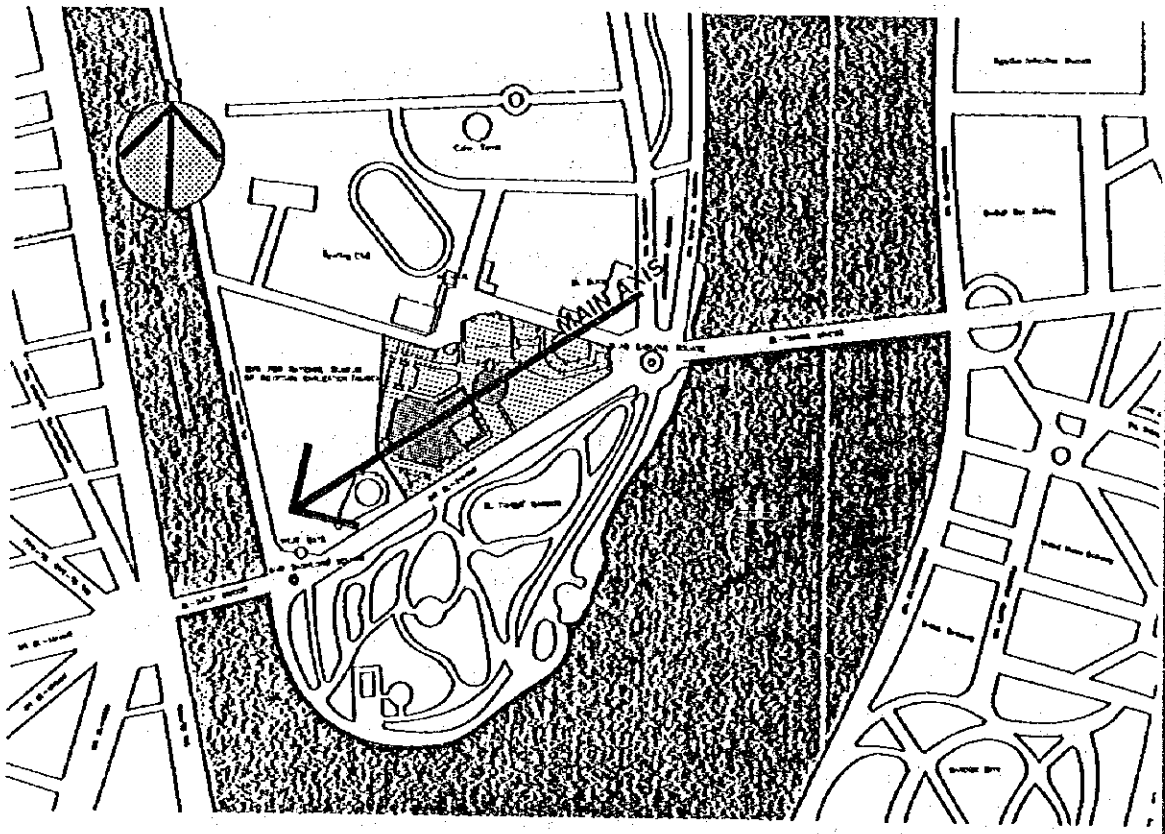
a) Piles: A.R.E. Code of Practice (Pile)
b) Concrete: A.R.E. Code of Practice (Reinforced Concrete), American Concrete Institute (ACI) ACI-318
c) Steel: A.R.E. Code of Practice (steel work), DIN-1050
d) Egyptian Standard Specifications (ESS)

3) Electrical and Mechanical Design and Works:

a) A.R.E. Building Code (Service)
b) Japanese Industrial Standard (JIS)
c) Japanese Electrotechnical Committee's Standards (JES)
d) Standards for the Japan Electrical Manufacturer's Association (JEM)
e) Japanese Elevator Association Standard (JEAS)
f) Japanese Heating, Airconditioning and Sanitary Standard (HASS)

5-2 SITING CONCEPT

5-2-1 Siting



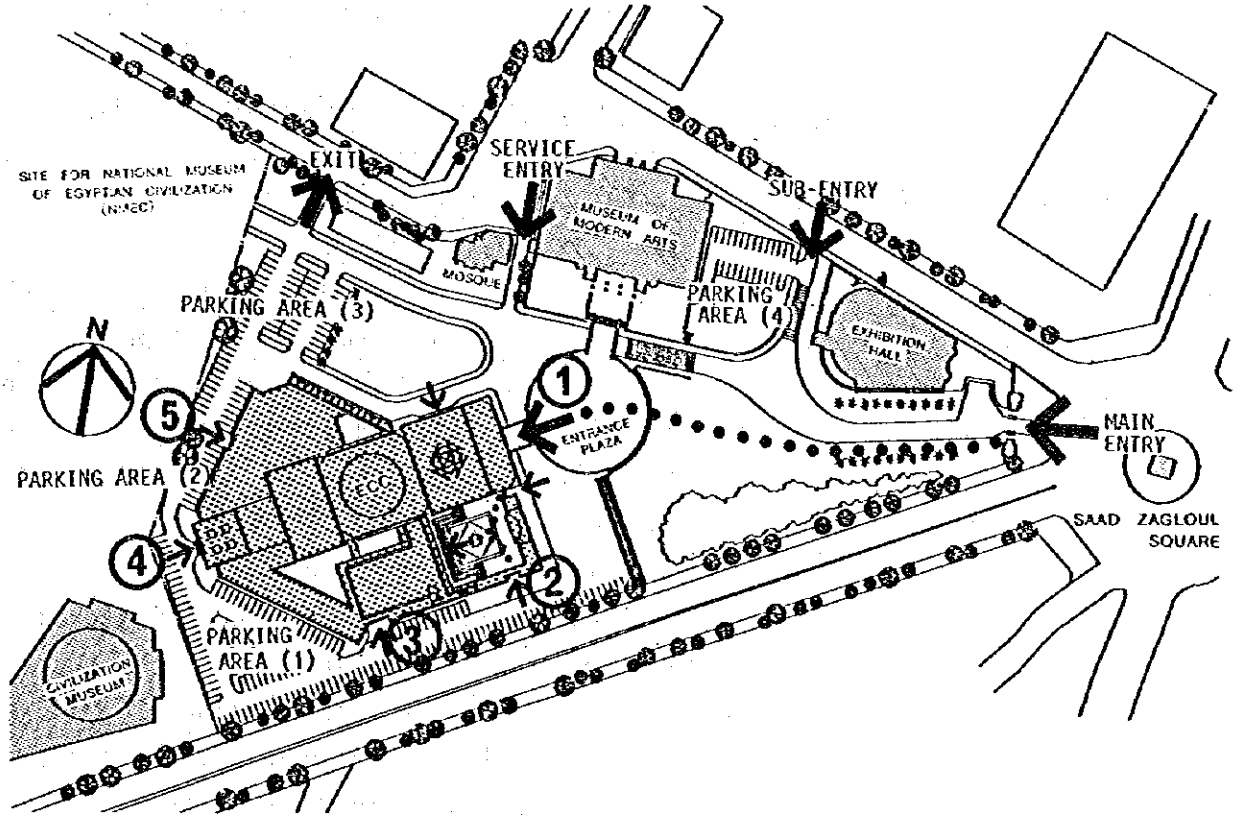
(1) The outline configuration of the building is planned to take into account the triangular shape of the site.

(2) The building will be located at the western end of the site, so as to leave sufficient space in front of the existing facilities that are to remain on the site.

(3) The main axis of the building is parallel to Tahrir Street which crosses Ghezira near its southern tip.

(4) The main line of approach will run along the main axis from the east gate to the main entrance of the building and extend to the center of the main foyer of the hall.

5-2-2 Access Planning



(1) Access to the site

1) The stately East Gate standing at the eastern end of the site and facing Saad Zagloul Square seems to be the best choice for the entrance to the approach. Because this square happens to be the key point for traffic for the site, the east gate will allow only one-way traffic entering the site, and the exit is planned to lead into the road on the north side so as to minimize the possibility of traffic jams. Other entrances are also planned for the north side, as shown in 5-2-2. An approach from Tahrir Street was decided against for the following reasons:

a) There is a difference of 4.5m between the level of the road and that of the site

b) The road is likely to be widened in the future.

c) A large amount of traffic is expected.

(2) Access to the Building

1) The main entrance of the building (①) will be located at the western end of the approach. The site is situated on a lower level than the road, so the main entrance will be located on the first-floor level, with an entrance plaza to this floor starting mid-way along the approach.

Visitors will have a distant view of the stately building from the East Gate, from where they will be able to identify the location of the main entrance, and walk down a gentle slope leading to the entrance plaza. They can also enjoy floor decorations while being guided toward the main entrance of the main hall on the first-floor level.

The design is also intended to have the psychological effect of gradually arousing the visitors' interest in the building they are approaching. A doorway is also provided on the ground floor below the entrance plaza to enable visitors to drive up to the building.

2) An entrance to the small hall (②) will be located facing the inner plaza where people can enter from three directions; one through the covered gallery from the north side, others from the east and south sides of the building.

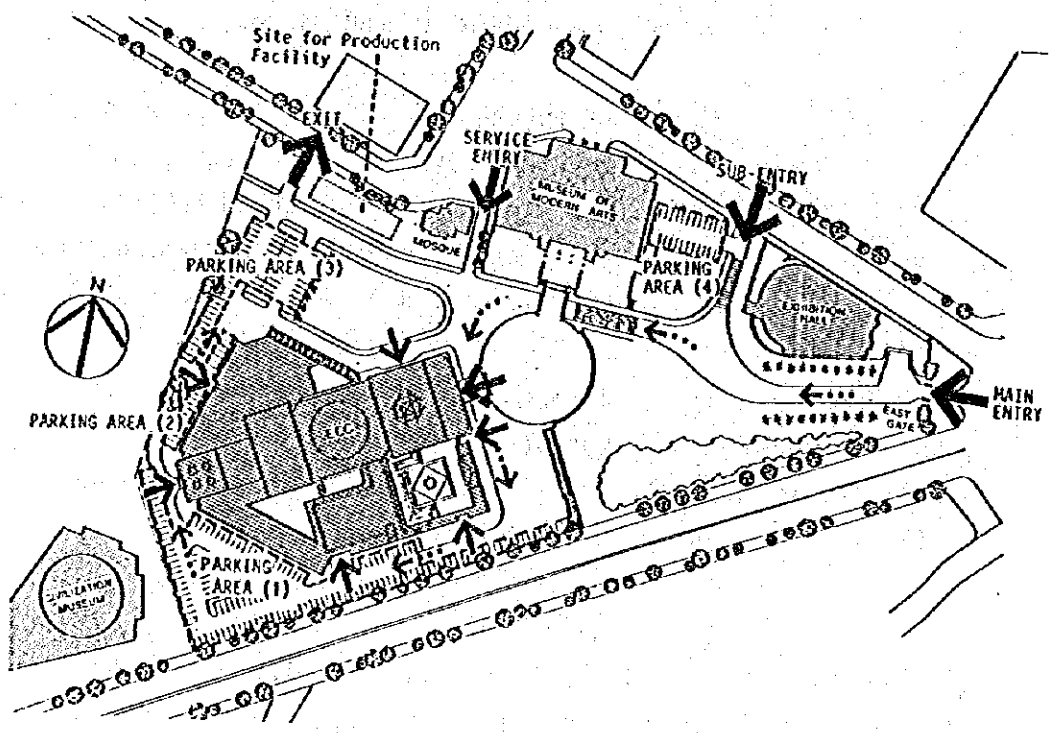
Visitors may enjoy exhibitions, concerts and dramas held in the plaza.

3) An entrance (③) to the education facilities and administration offices, etc., will be provided on the south side of the building. This entrance will also lead to the small hall, exhibition facilities and performance support facilities.

4) An entrance (④) to the stage and performance support facilities such as artists' rooms, dressing rooms, etc., will be provided on the west side of the building.

5) An entrance (⑤) will be provided on the west side of the building for bringing in stage machinery, etc., and service materials to electrical and mechanical rooms.

5-2-3 Outdoor Facilities Planning



(1) Site Planning

The project site will be newly rearranged as proposed on the site plan, whose outline is as follows:

1) The ground level of the eastern area of the site around the existing east gate will be raised by 2 meters, so that it corresponds to the level of the entrance to the existing Exhibition Hall.

2) The entrance plaza will be constructed connecting the raised ground around the east gate to the main entrance on the first floor of the Center. It will be located at the intersection of the main axes of the Center and the Museum of Modern Arts.

3) The levels of the ground and the roads will remain principally as they are except in the eastern area of the site, so that access to the existing facilities will be ensured.

The existing road running east to west in the site will be a trunk road from which new circulation roads will branch around the garden, the parking lots and the building, so that vehicles will have direct access to the Center's facilities from any part of the site.

4) An inclined linear garden will be provided along the boundary of Tahrir Street instead of the existing retaining wall. The existing concrete fence along Tahrir Street should be replaced by a metal fence so that people passing along the road can more easily and enjoy the view of the Center.

5) All outdoor works will be undertaken by the Egyptian side except for the entrance plaza.

(2) Parking Spaces

1) 4 parking areas (1 - 4) for 256 cars in total have been planned on the site as follows:

a)	Parking Area 1:	150 cars
b)	Parking Area 2:	20 cars (for service use)
c)	Parking Area 3:	60 cars
d)	Parking Area 4:	26 cars
	Total:	256 cars

Parking Area 2 for service use will be constructed by the Japanese side and the others by the Egyptian side.

2) In case of a shortage of parking space at peak times, a parking area for 600 cars to be prepared on the site of the NMEC is expected to relieve the load.

(3) Production Facilities

The northern part of the site will be left for the future construction of production facilities by the Egyptian side.

5-3 ARCHITECTURAL DESIGN

5-3-1 Outline of Building

(1)	Location:	Tahrir St., Ghezira, Cairo, A.R.E.
(2)	Site Area:	45,000 m^2
(3)	Building Area:	7,250 m^2
(4)	Total Floor Area:	12,900 m^2
(5)	Floors:	5 floors
(6)	Structure:	Reinforced concrete, steel (roof structure of Main Hall)
(7)	Height:	Roof height GL+32 m
(8)	Parking:	256 cars 20 lots for service use 236 lots for visitors (to be constructed by the Egyptian side)
(9)	Elevator:	1, for kitchen use

5-3-2 Floor Area Schedule

(1)	Ground Floor	6,100 m^2
(2)	1st Floor	4,220 m^2
(3)	2nd Floor	1,170 m^2
(4)	3rd Floor	870 m^2
(5)	4th Floor	540 m^2
Total Floor Area		12,900 m^2
(6)	Covered Outdoor Facilities (Covered Galleries, Outdoor Stage, etc.)	700 m^2
(7)	Others (Plaza, Covered Corridor, Entrance Plaza, Inner plaza, Pits, Air-chambers, etc.)	8,600 m^2
Gross Area of Facilities		22,200 m^2

5-3-3 Component Planning

(1) The Center's facilities will consist of eight components, as illustrated below.

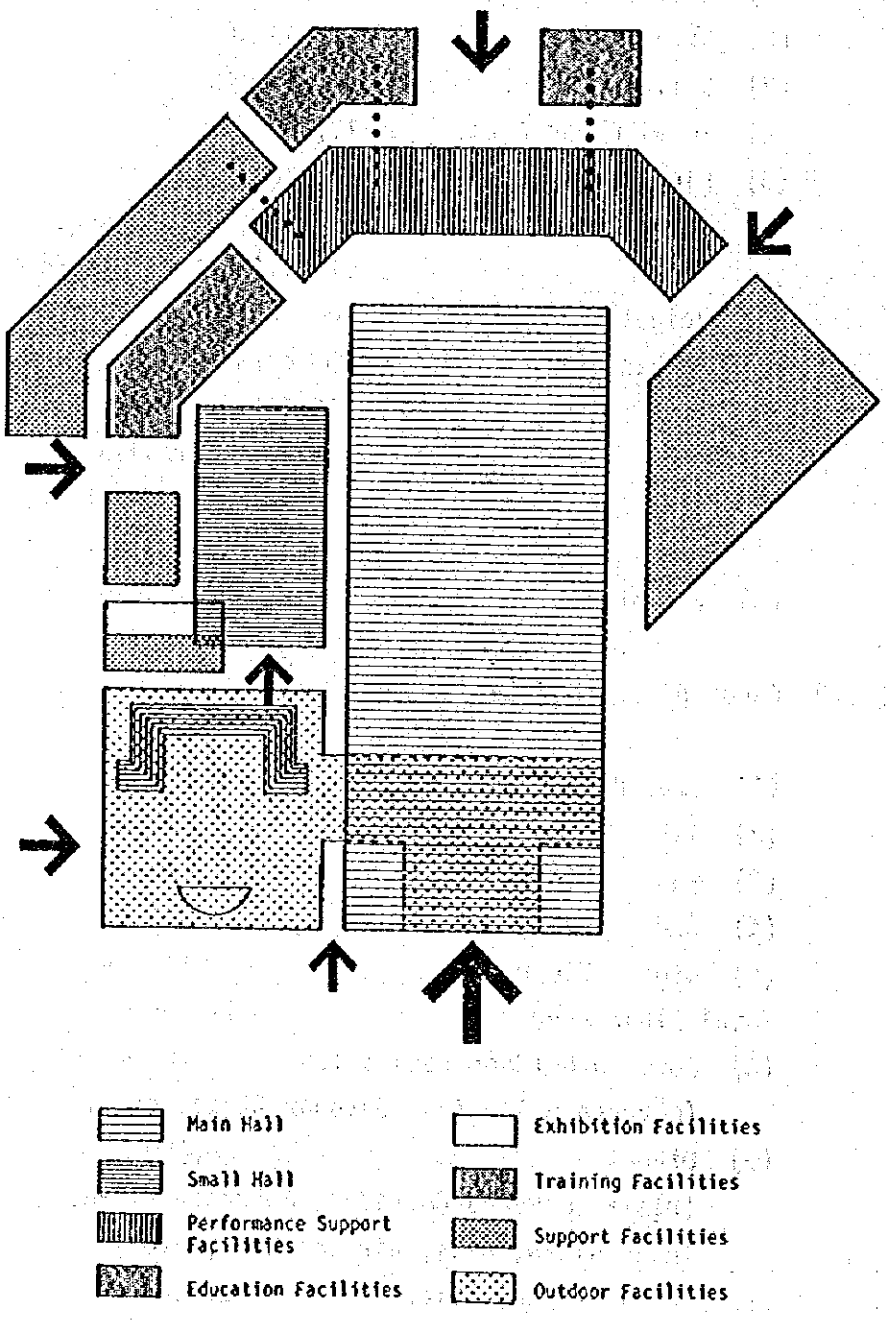
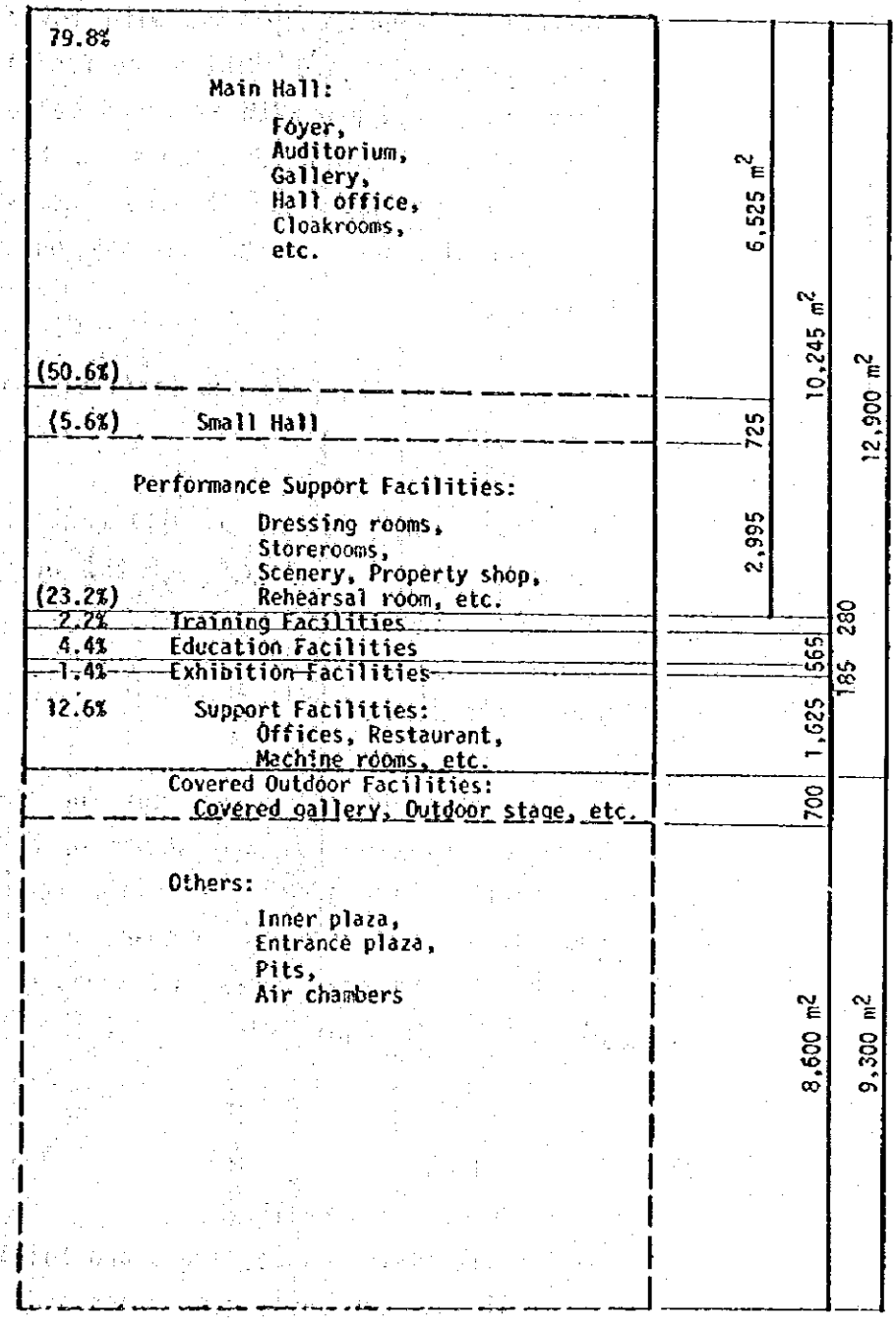


Fig. 5-3-1 Constitution of the Components

(2) The component floor area ratios of the Center's facilities are given below.

Table 5-3-1 Component floor area ratios



5-3-4 Hall Design

(1) Main Hall

1) Facilities for the audience will consist of auditorium, foyers, VIP room with foyer, entrance lobby and service and maintenance facilities. The auditorium, equipped with terraced balconies will seat 1300, including the seats in the orchestra pit and in the gallery. The royal box will occupy the central part of the balcony on the second floor.

The outline of the audience facilities is shown in Fig. 5-3-2.

2) Facilities for performance will consist mainly of the main and side stages and the orchestra pit. The main stage will be provided with an adjoining scenery shop and storage, which will be used as a back stage when necessary.

Some examples of stage settings for the following types of performances are shown in Figures 5-3-5 to 5-3-12, which indicate how the requirements of the following various performances could be satisfied with the shapes and areas of the stages planned for this project:

a) Opera
b) Ballet
c) Concert and recital
d) Folk music, dance, drama and folklore
e) Cinema, lectures, ceremonies and conferences

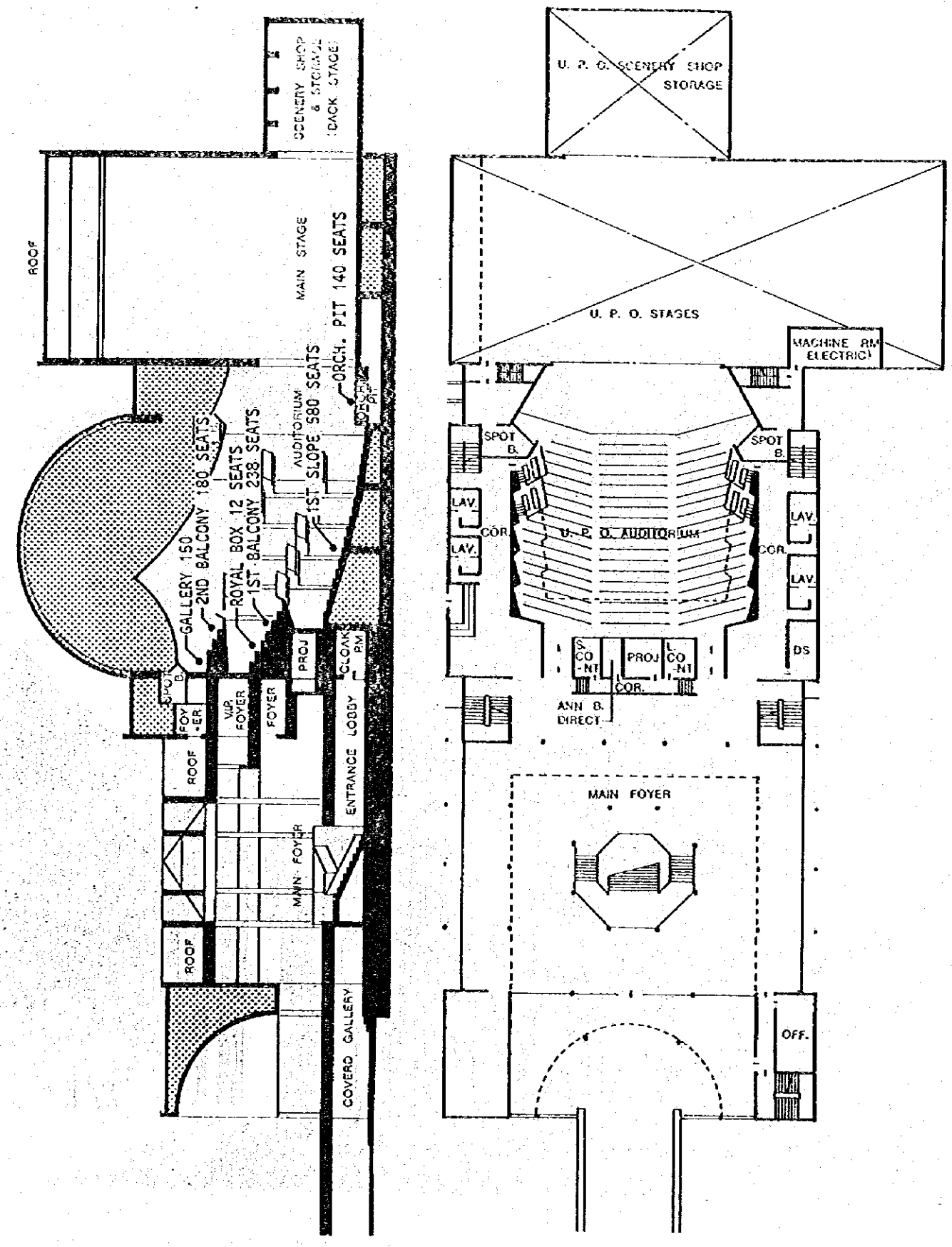
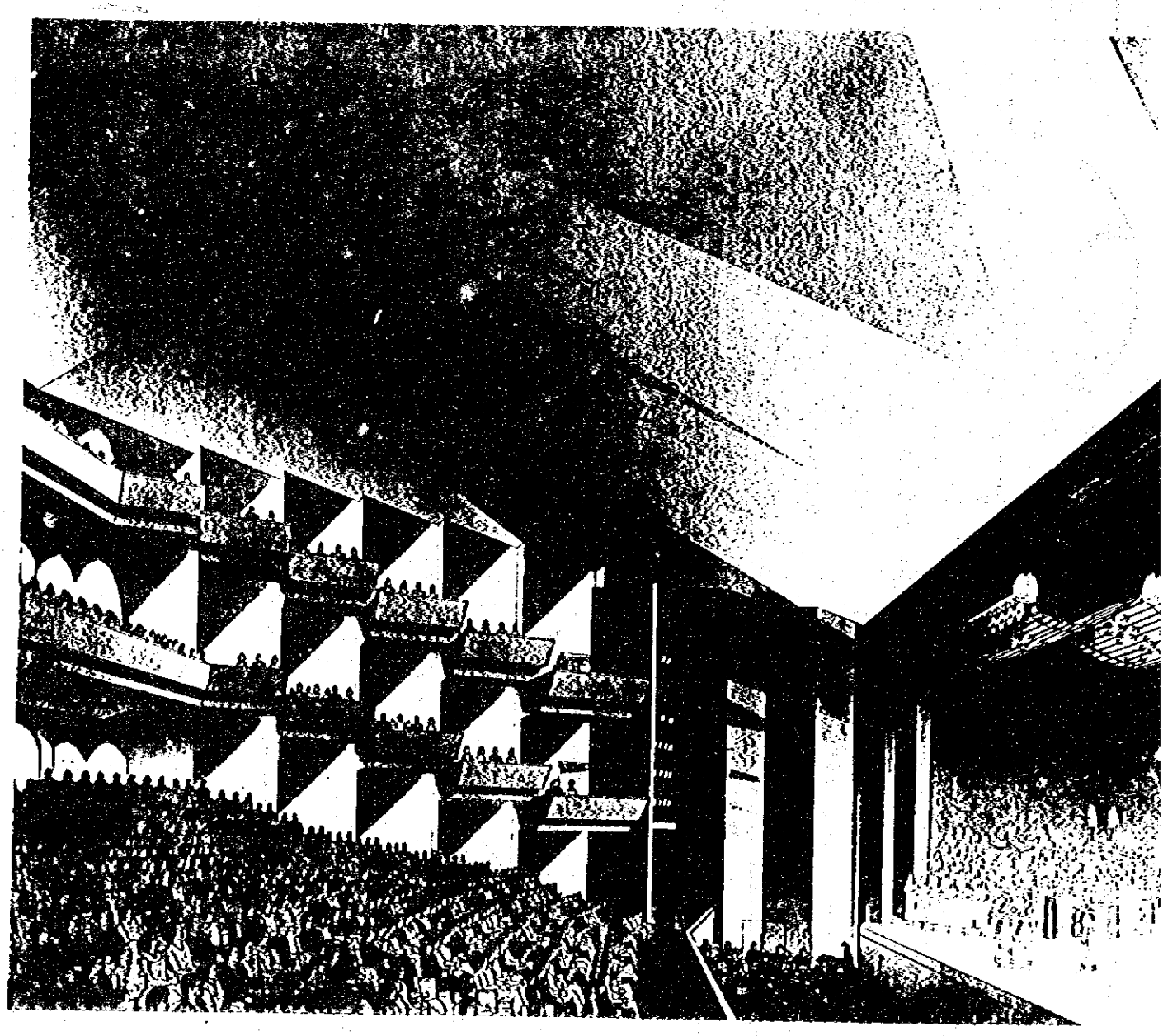


Fig. 5-3-2 Section & Plan of Main Hall



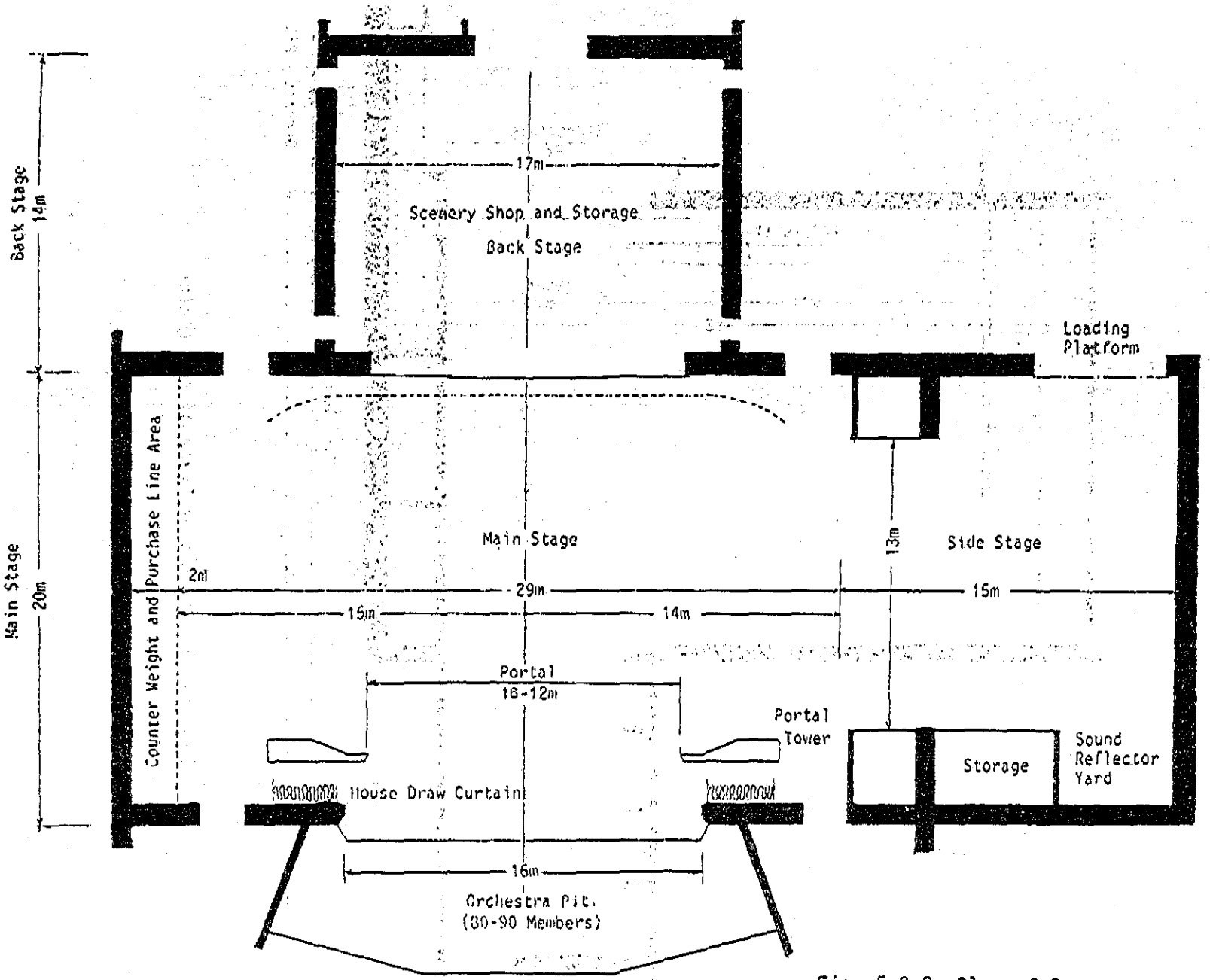


Fig. 5-3-3 Plan of Stage of the Center

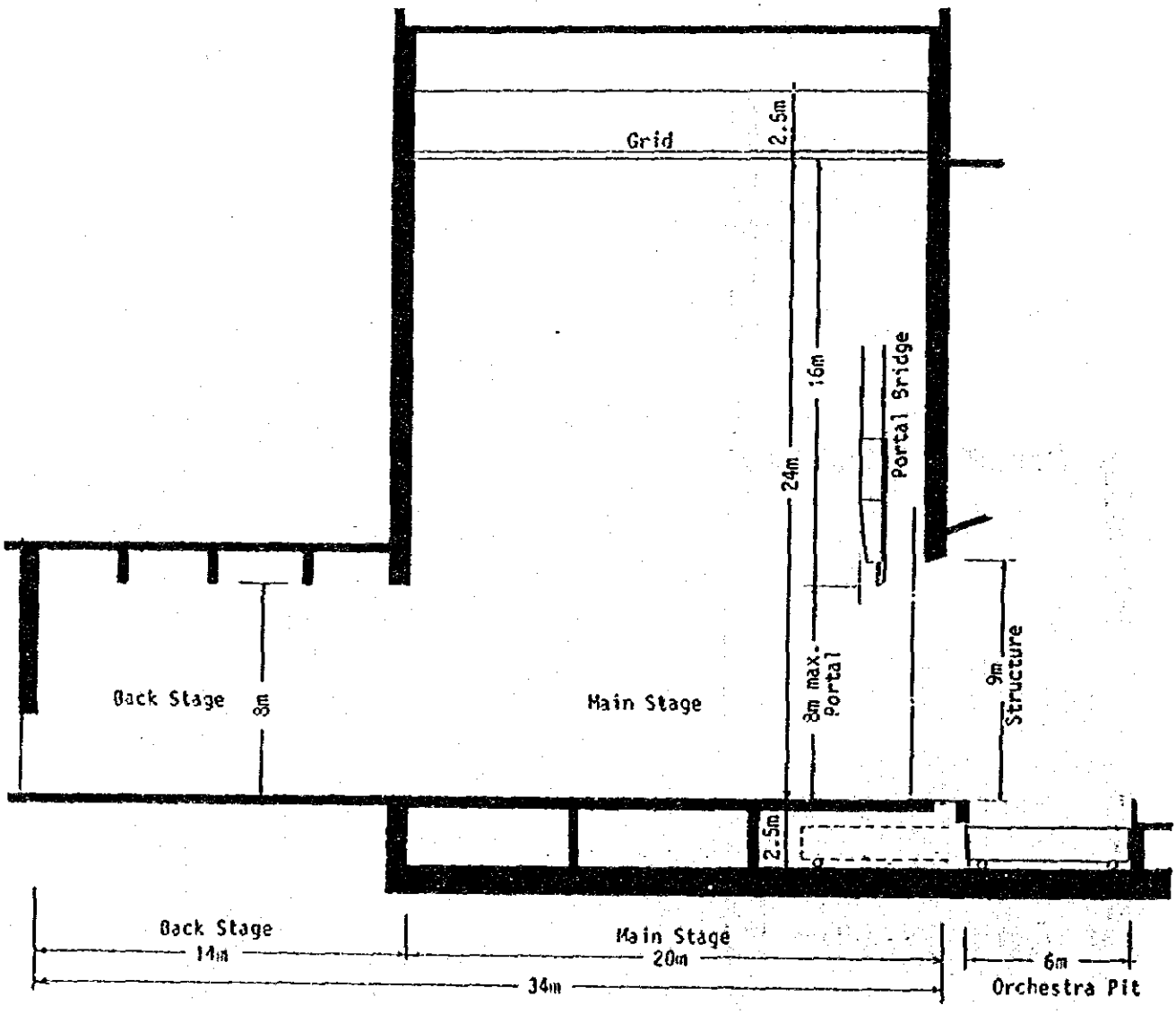
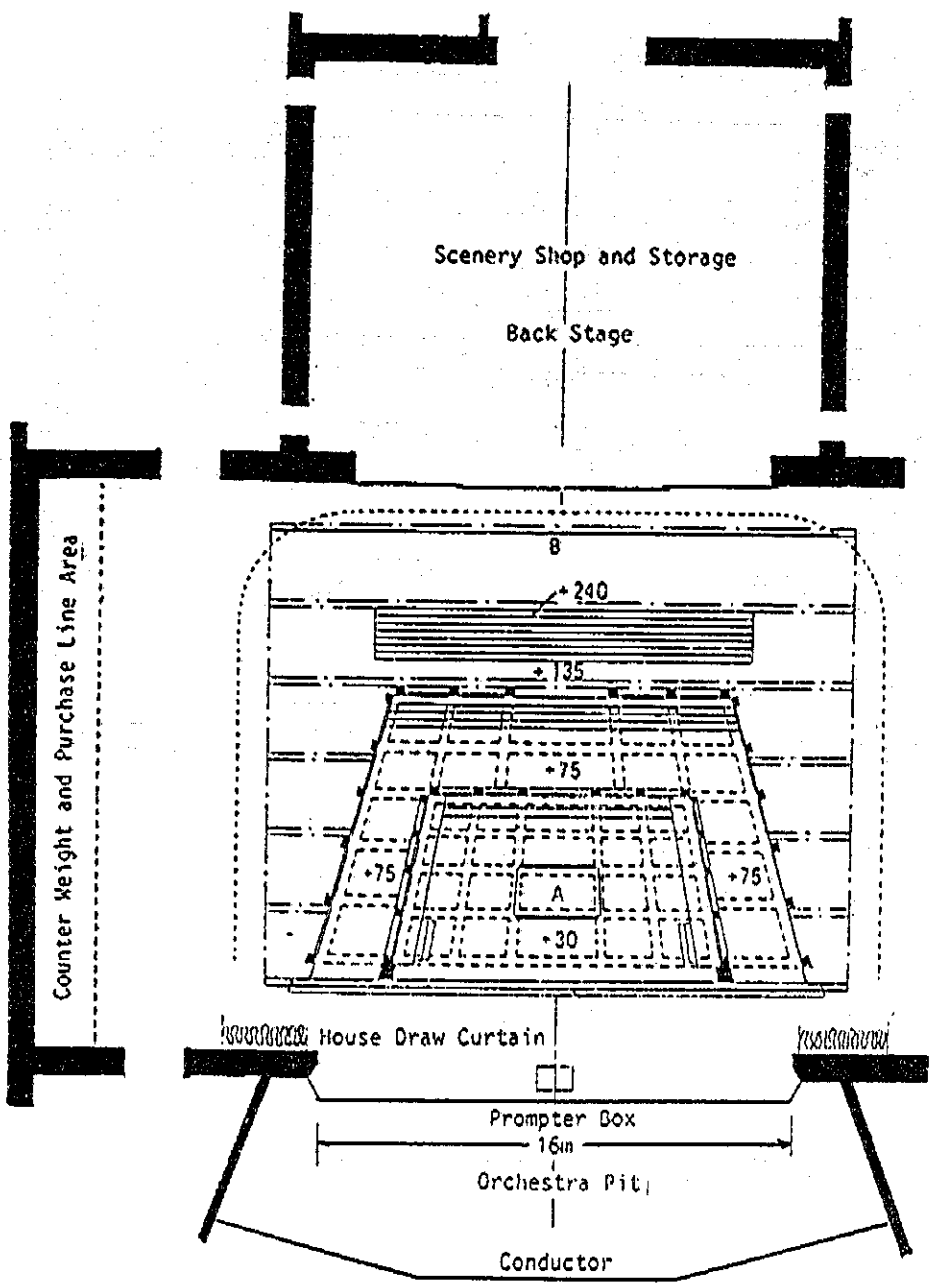
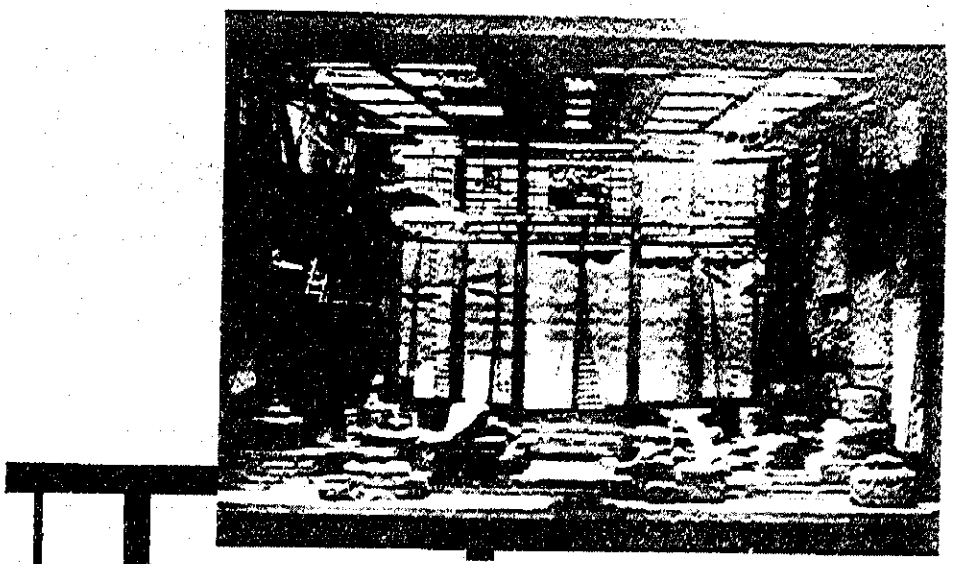


Fig. 5-3-4 Section of Stage of the Center





"OTHELLO" Act 1, TEATRO ALLA SCALLA, NHK HALL, JAPAN, Sep. 1981

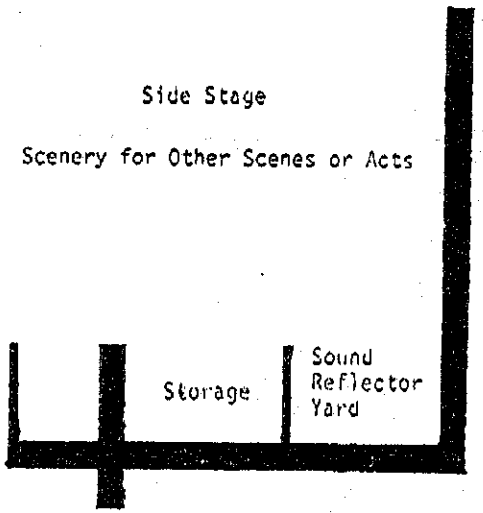
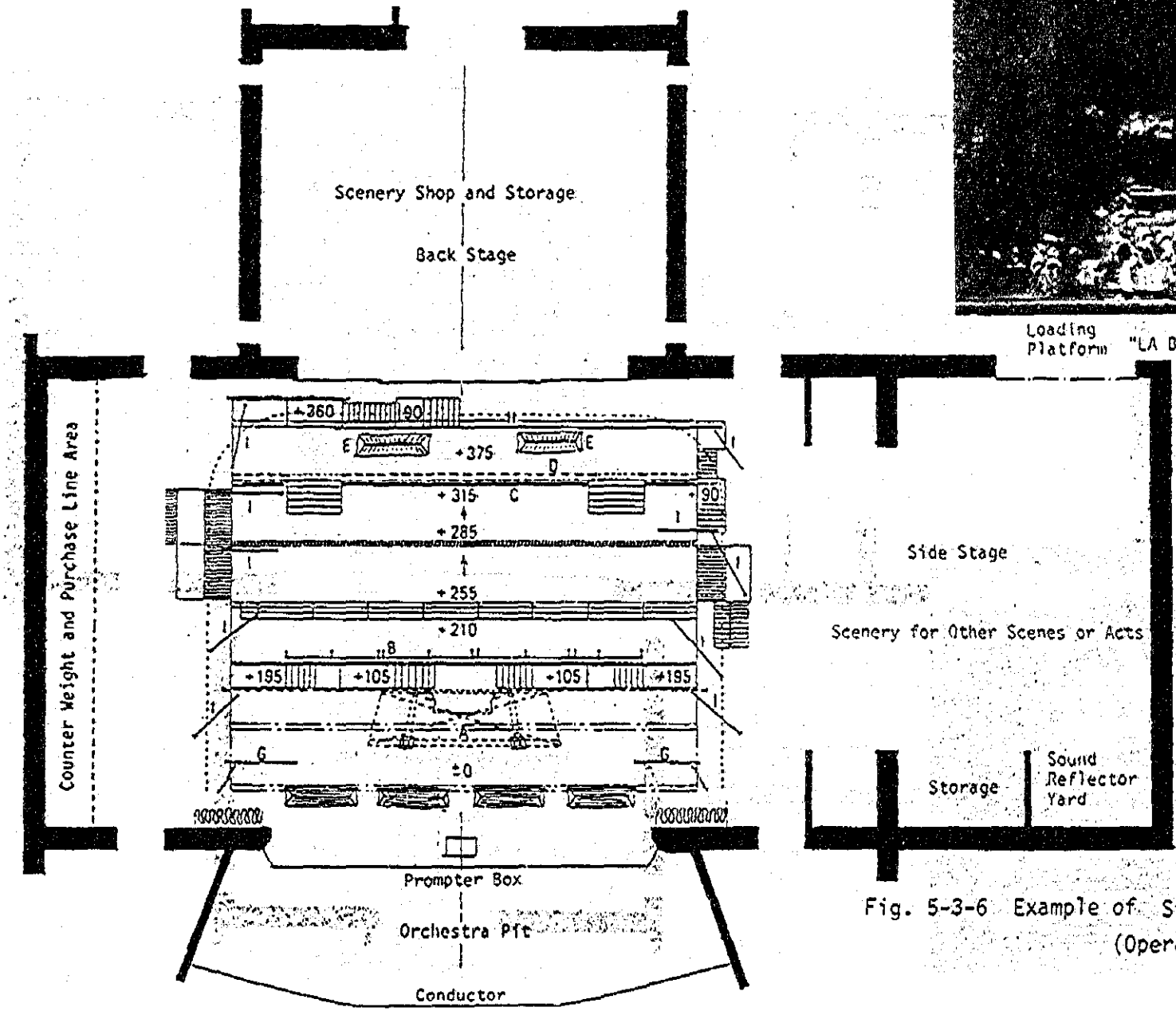
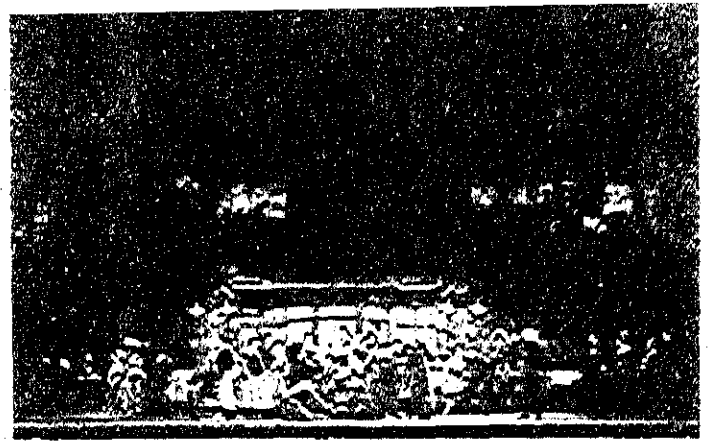


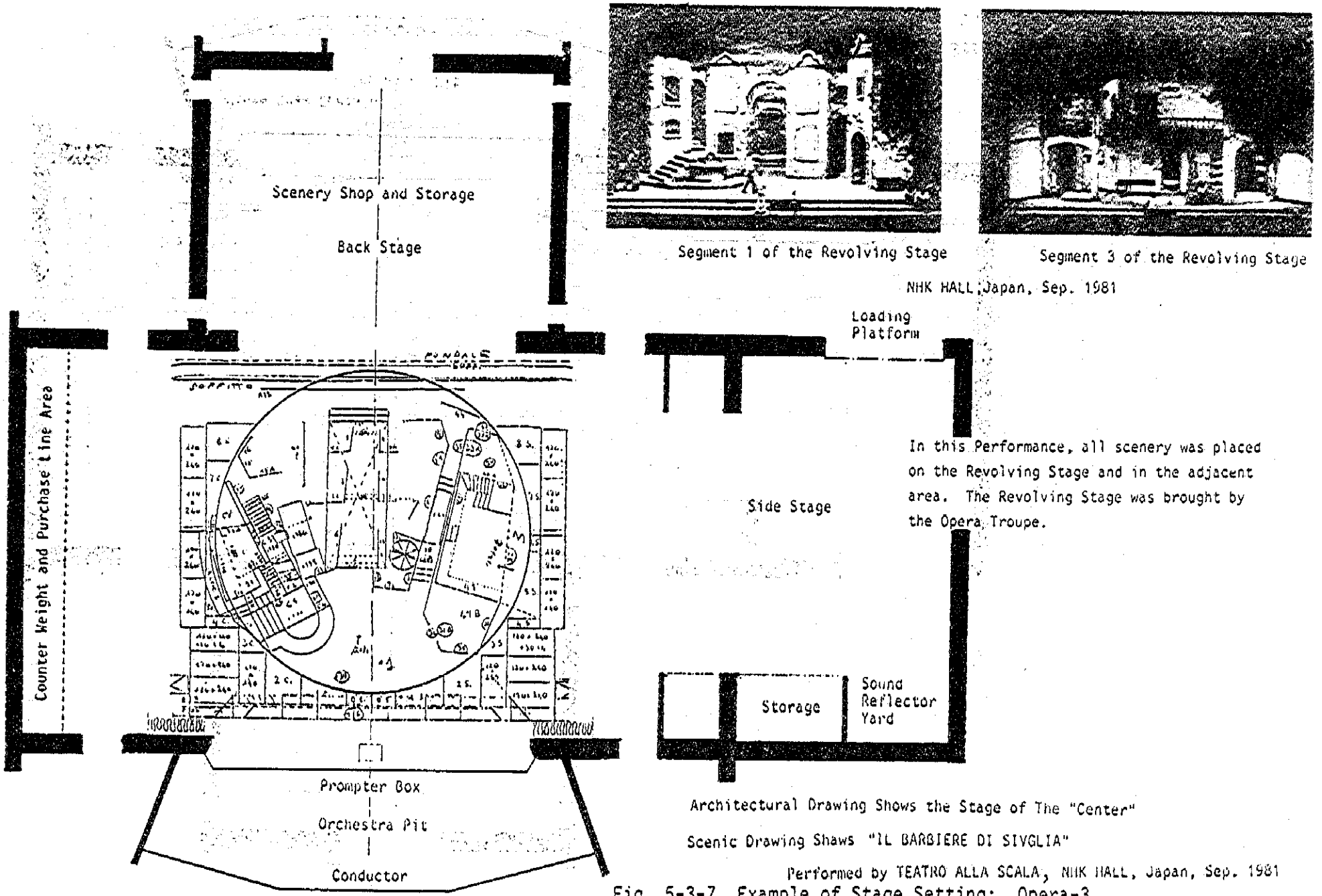
Fig. 5-3-5 Example of Stage Setting (Opera-1)





Loading Platform "LA BOHEME" Act 2, TEATRO ALLA SCALA

Fig. 5-3-6 Example of Stage Setting (Opera-2)



Segment 1 of the Revolving Stage

Segment 3 of the Revolving Stage

NHK HALL, Japan, Sep. 1981

In this Performance, all scenery was placed on the Revolving Stage and in the adjacent area. The Revolving Stage was brought by the Opera Troupe.

Architectural Drawing Shows the Stage of The "Center"

Scenic Drawing Shaws "IL BARBIERE DI SIVGLIA"

Performed by TEATRO ALLA SCALA, NHK HALL, Japan, Sep. 1981

Fig. 5-3-7 Example of Stage Setting: Opera-3

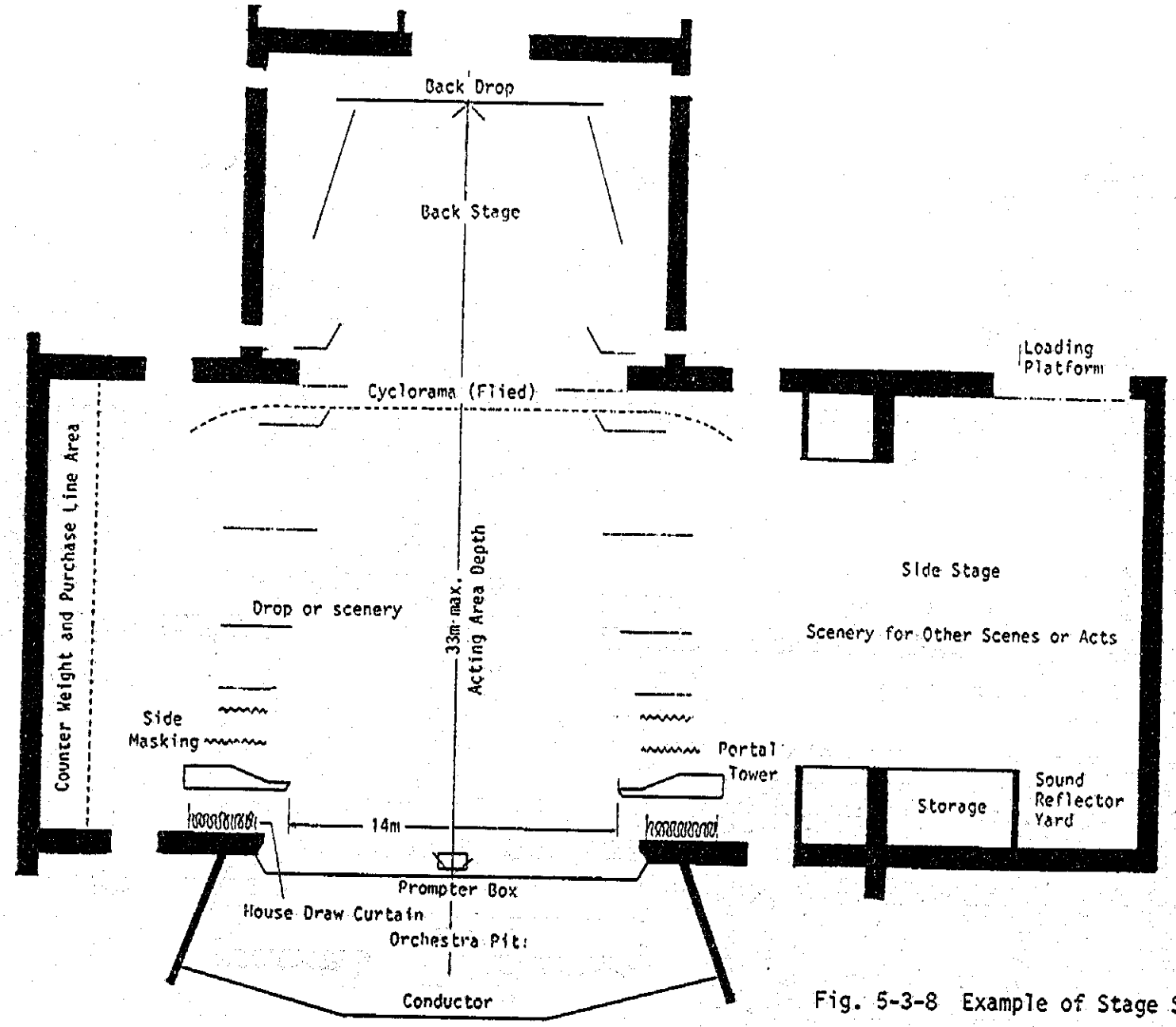


Fig. 5-3-8 Example of Stage Setting: Opera-4
Acting Area Extending to the Back Stage

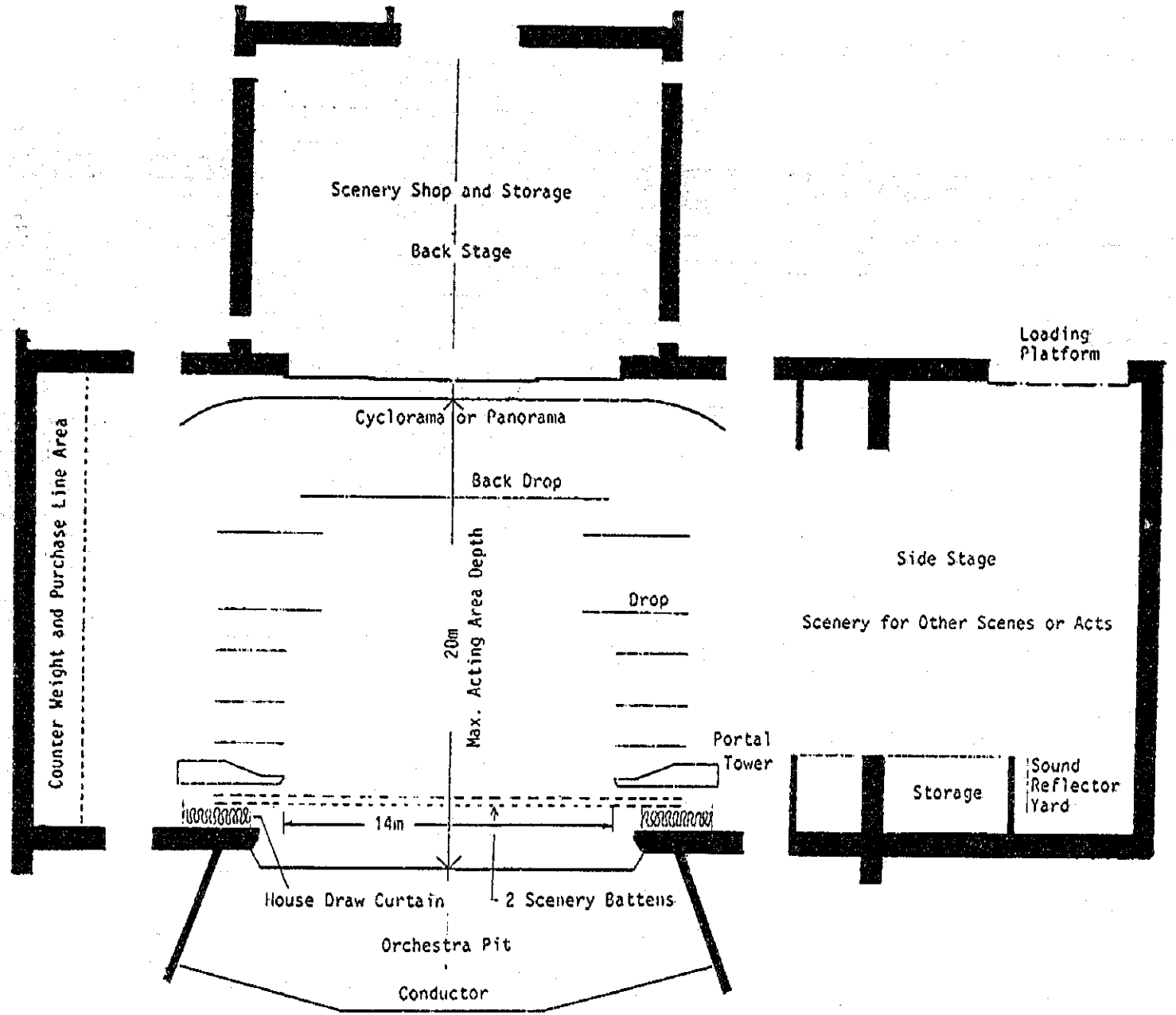


Fig. 5-3-9 Example of Stage Setting: Ballet

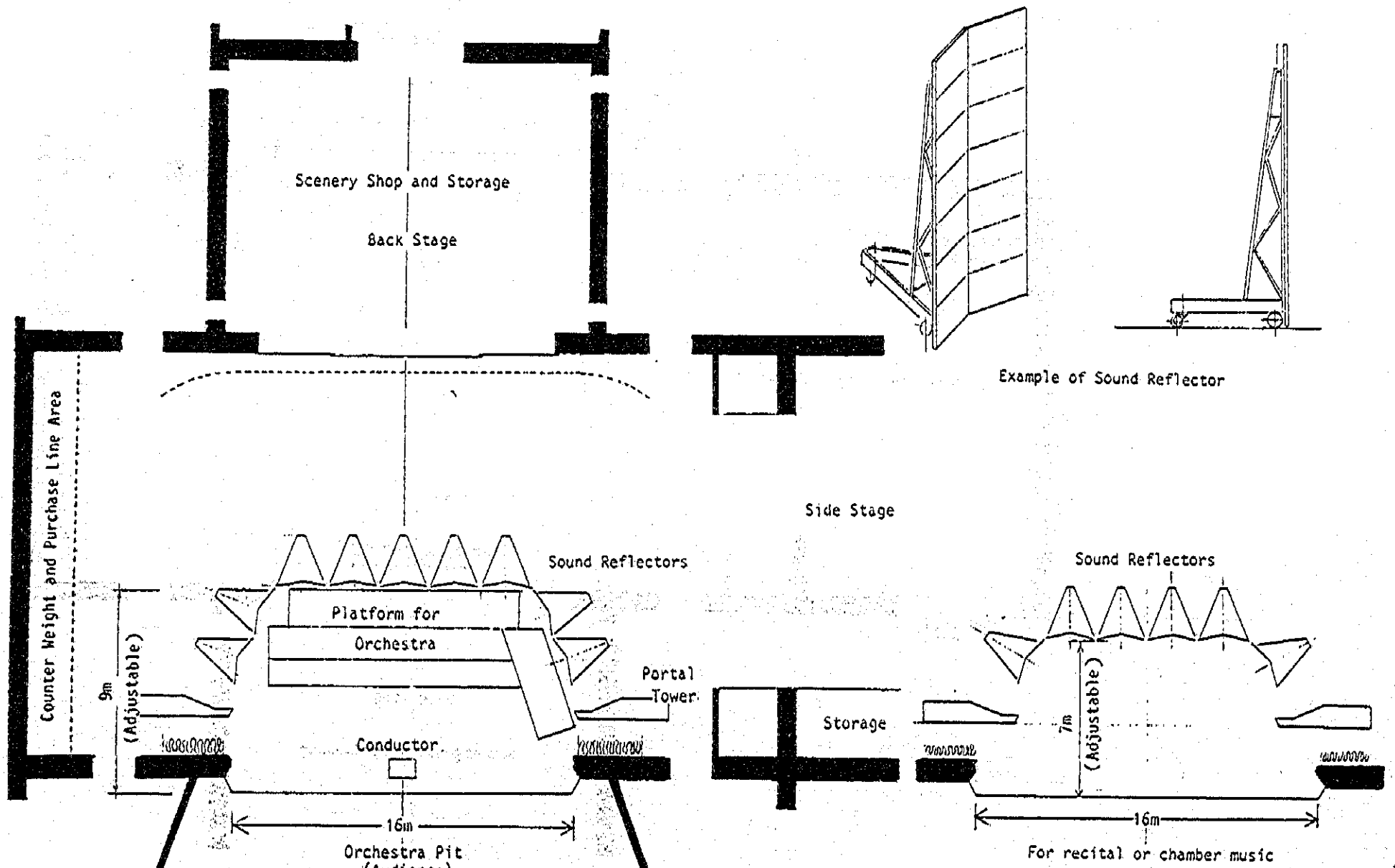


Fig. 5-3-10 Example of Stage Setting:
Concert, Recital or Chamber Music

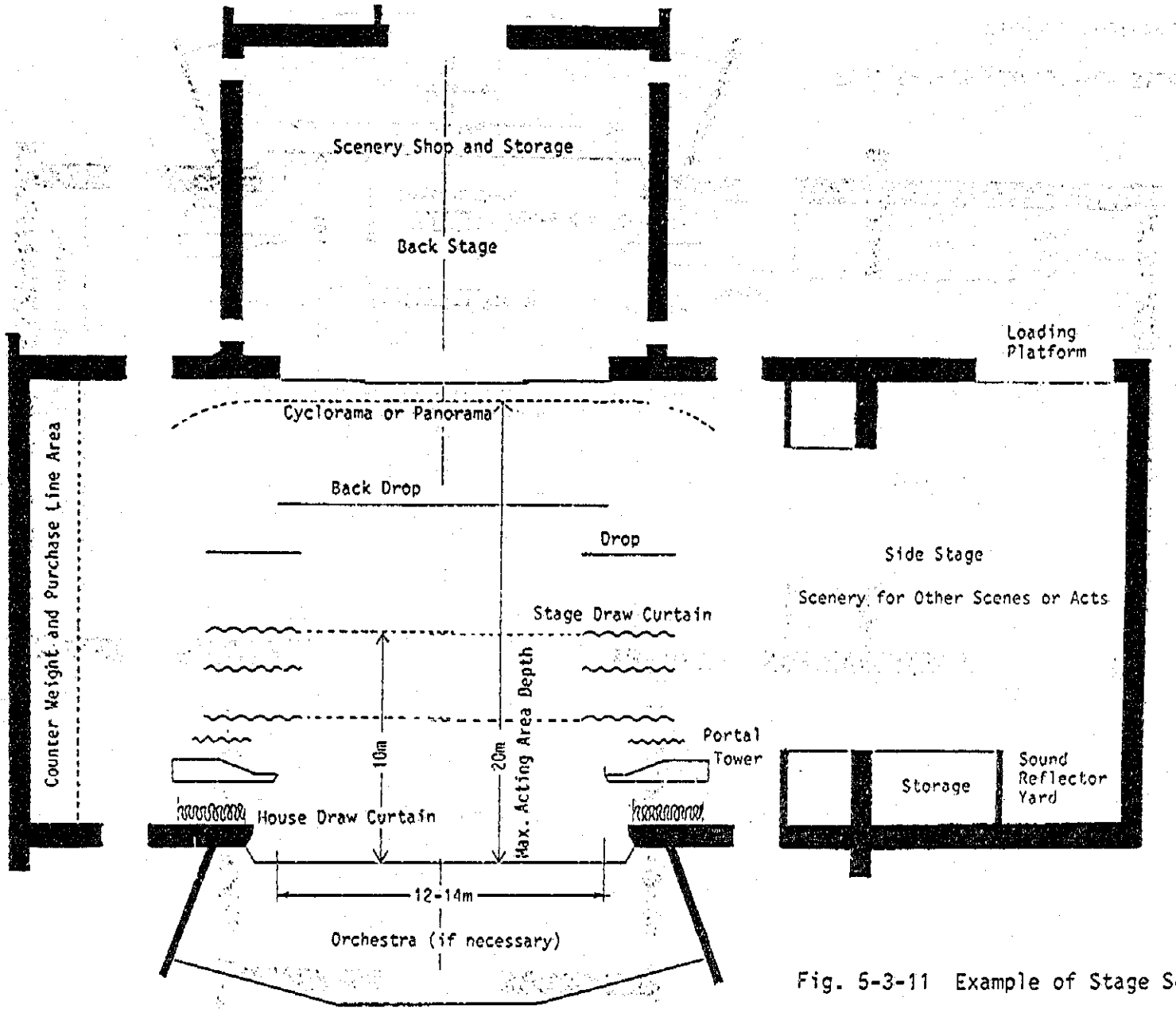


Fig. 5-3-11 Example of Stage Setting:
Folk Music, Dance, Drama and Folklore

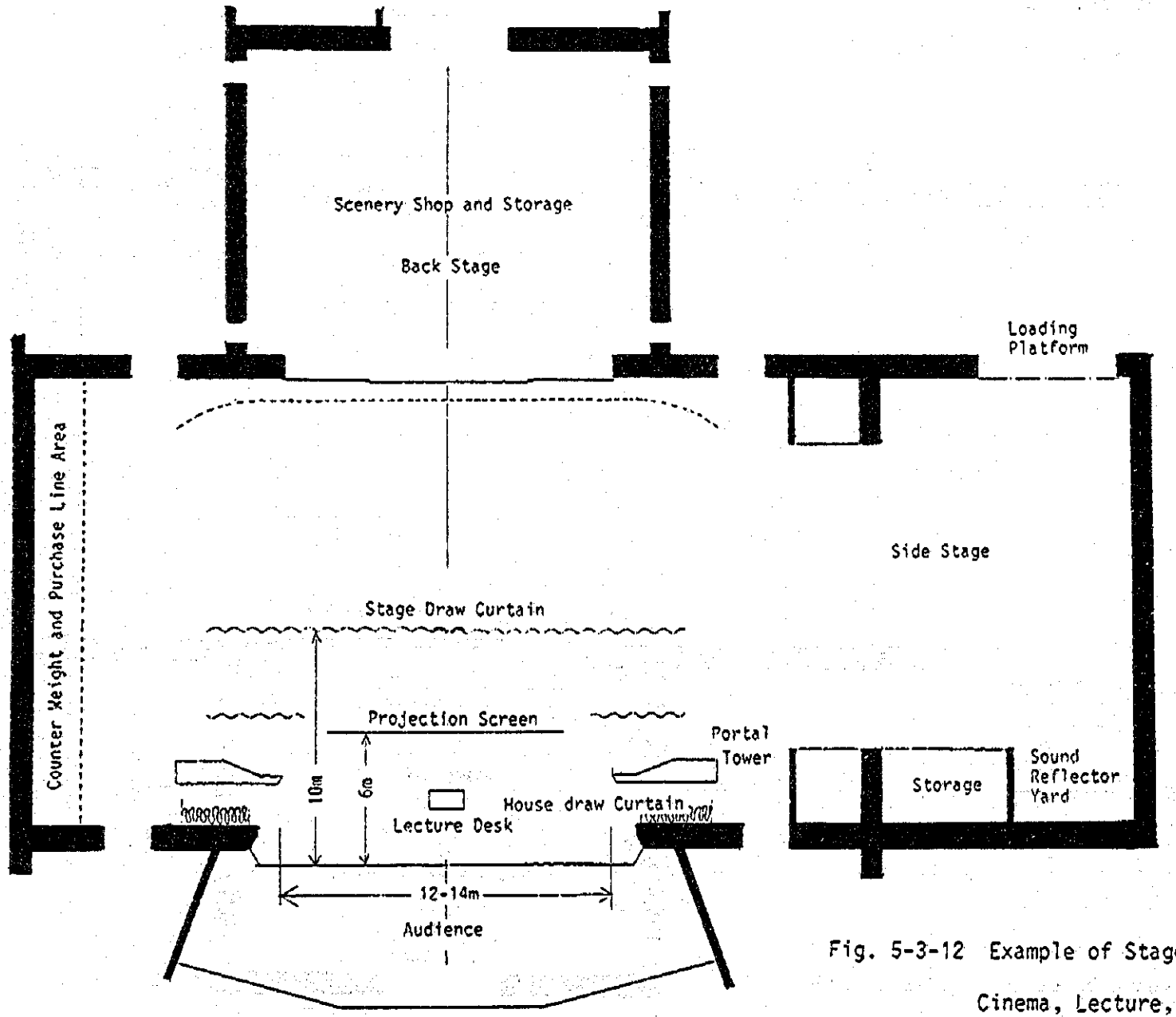


Fig. 5-3-12 Example of Stage Setting:

Cinema, Lecture, Ceremony and Conference

(2) Small Hall

A small hall will be provided with a flat floor and a movable stage and seats so that the hall can be used for multiple purposes.

Arrangements for some typical uses patterns are illustrated in Fig. 5-3-13 to Fig. 5-3-17.

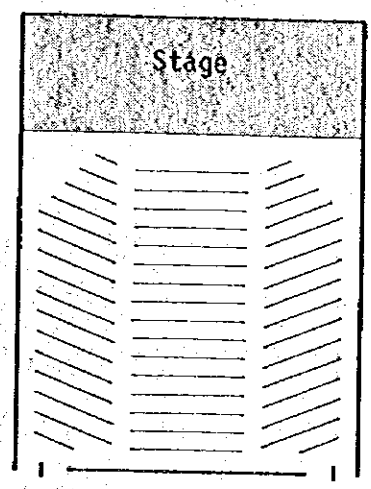


Fig. 5-3-13 Concert - 420 seats

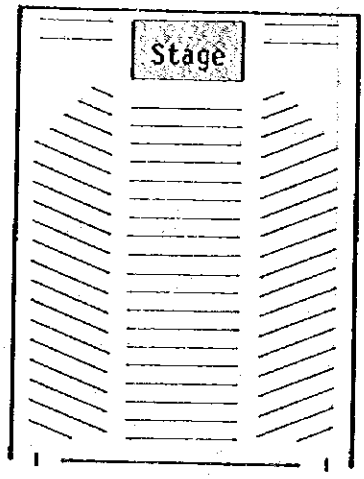


Fig. 5-3-14 Lecture - 500 seats

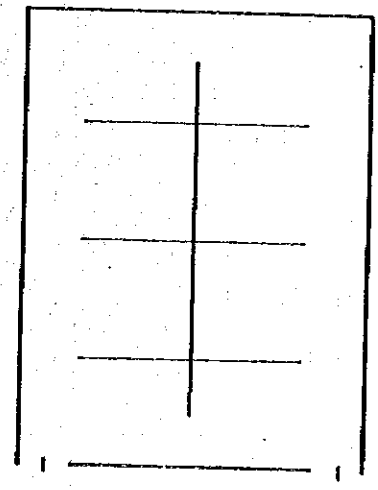


Fig. 5-3-15 Exhibition with display panels

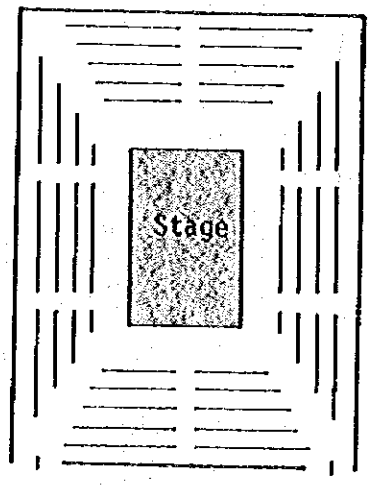


Fig. 5-3-16 Arena stage - 390 seats

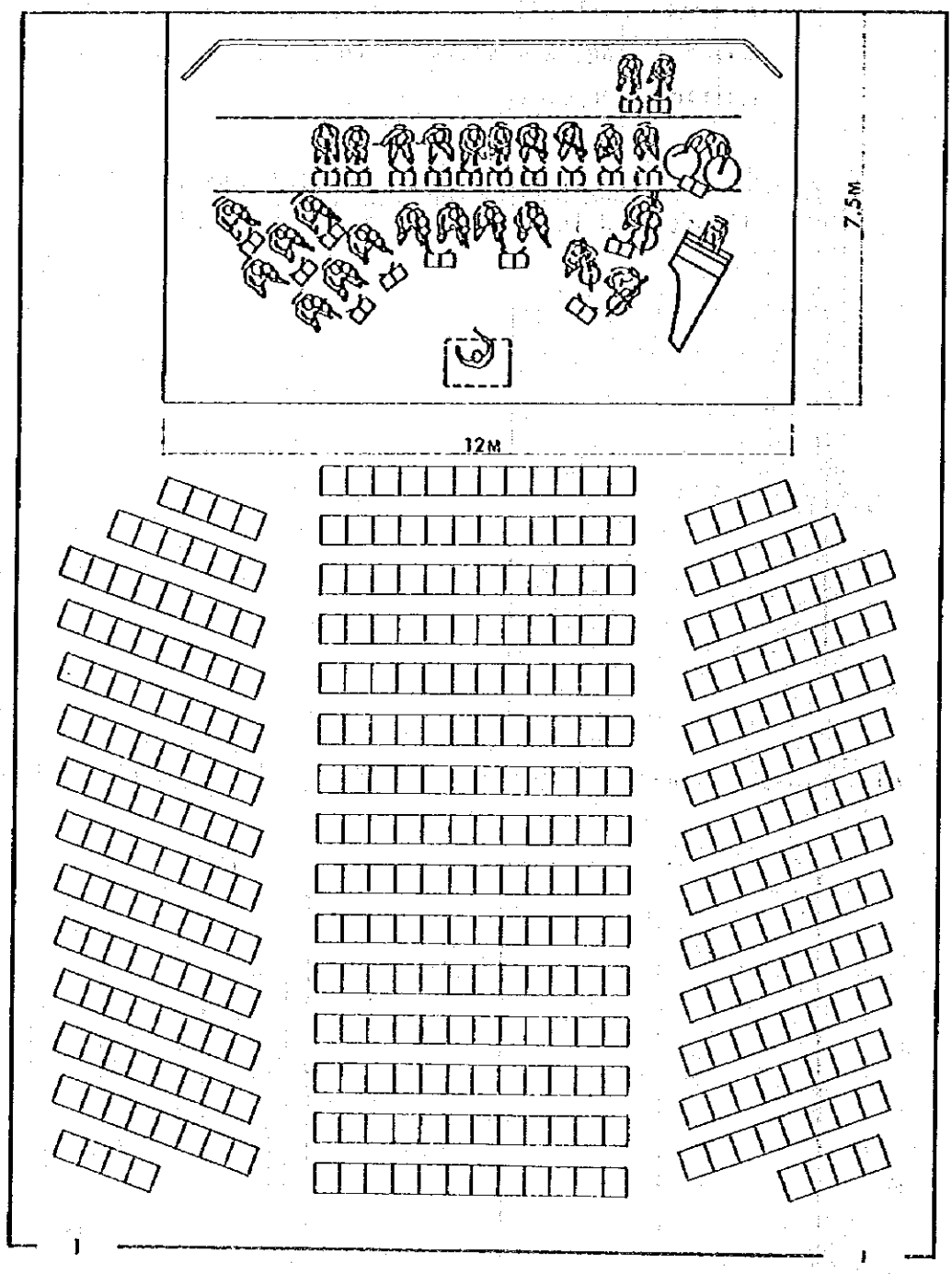


Fig. 5-3-17 Small-scale concert - 380 seats

5-3-5 Room Allocation of Components (Table 5-3-2)

Functional Component	Room	Floor	Area m^2	Remarks
Main Hall	Foyers	1st	725	
		M	165	
		3rd	130	
	Auditorium	Orch. Pit	120	140 seats
		1st slope	500	580 seats
		1st balcony	275	250 seats
		2nd balcony	215	180 seats
				150 (Gallery)
				1300 (Total)
	Stages	G.	760	Main stage 36mx20m
			210	Side stage 12mx15m
	Entrance Lobby	G	290	
	Cloakroom	G	80	
	Hall office	1st	50	
	VIP room	2nd	135	
	Refreshment	1st	45	
	Spot booth	1st-3rd	80	
	Sound control	1st	10	
	Lighting control	1st	10	
	Projection	1st	15	
	Ann.B./Direct.	1st	10	
	Lavatories	G-3rd	320	
	Others	G-4th	2,380	
	Sub-total		6,525	
Small Hall	Foyer	G	125	
	Auditorium	G	345	Max.500 seats
	Stage	G	130	Movable
	Cloakroom	G	40	
	Lavatory	G	85	
	Sub-total		725	

Functional Component	Room	Floor	Area m^2	Remarks
Performance	Storages	G	245	
Support	Atelier	G	75	
Facilities	St./Atelier	4th	300	
	Dressing Rms.	G	215	5 medium-sized rooms
	Artists' Rms.	G	210	9 rooms
	Make-up Rm.	G	24	
	Hair Dress.Rm.	G	24	
	Quick-change	G	27	
	Lav./Shower	G,1st	150	
	Cafeteria	G	55	
	Medical Staff Rm.	G	25	
	Stage office	G	65	
	Stage hand/Loading office	G	60	
	Stage Lobby	G	80	
	Scenery shop/ Storage (Back stage)	G	260	
	Loading deck	G	90	
	Rehearsal Rms.	1st	200	
	Others	G,1st	890	
	Sub-total		2,995	
Training Facilities	Training Rm.(1)	1st	280	For ballet
	Sub-total		280	

Functional Component	Room	Floor	Area m^2	Remarks
Education Facilities	Classrooms	G,1st	480	Classroom(1) 50m^2 " (2) 50 " (3) 50 " (4) 50 " (5)110 (Training Rm.(2)) " (6)170 (Training Rm.(3))
	Office	G	85	
	Sub-total		565	
Exhibition Facilities	Theater museum/ Art library, Music Library	1st	185	
	Sub-total		185	
Support Facilities	Entrance Lobby	G	55	
	Offices	G,1st	405	
	Restaurant/ Kitchen	1st	170	
	Machine rooms	G,1st	805	
	Others	G,1st	190	
	Sub-total		1,625	
Total Floor Area			12,900	
Covered Outdoor Facilities	Covered gallery, Outdoor stage, Others		700	
	Sub-total		700	

Functional Component	Room	Floor	Area m^2	Remarks
Others	Inner plaza, Entrance plaza, Pits, Air-chambers, Others		8,600	
	Sub-total		8,600	
Gross Total Facilities Area			22,200	

5-3-6 General Finish Materials

(1) Exterior Finishes

1) Roof (common):		Waterproof membrane, cement tile finish with thermal insulating materials (Celton)
	Roof (Dome):	Waterproof membrane
	Roof terrace:	Ceramic tile finish
2) Walls:		Granolis or Artificial Stone
3) Inner plaza:		Marble
4) Entrance plaza:		Marble
5) Parking space:		Concrete pavement

(2) Interior Finishes (Table 5-3-3)

Room	Floor	Wall	Ceiling
1) Main Hall			
Stages	Wood	Mortar Woodchip board	Woodchip board
Auditorium	Plastic tile, carpet (aisle)	Plaster-P	Acoustic board
Foyers, Entrance Lobby	Marble	Plaster-P	Acoustic board
Main stairs	Marble	Plaster-P	
2) Small Hall			
Hall	Wood	Plaster-P	Acoustic board
Foyer	Carpet	Plaster-P	Acoustic board
3) Classrooms,etc.			
Rehearsal, Training Rm.	Wood	Acoustic board Plaster-P	Acoustic board
Dressing Rm Classrooms, etc.	Carpet	Plaster-P	Plaster-P
Museum, Library	Carpet	Plaster-P	Plaster-P
Offices	Carpet	Plaster-P	Plaster-P

5-3-7 Acoustic Design of the Main Hall

(1) Reverberation Time

1) The optimum reverberation time of an auditorium depends on its volume and function. Figure 5-3-18 gives a range of optimum reverberation times of auditoriums plotted against their volumes as recommended by various authorities. Symphony orchestras prefer much greater reverberation times than are suitable for speech. The optimum reverberation time for an operatic performance is half-way between that for a symphony orchestra and that for speech.

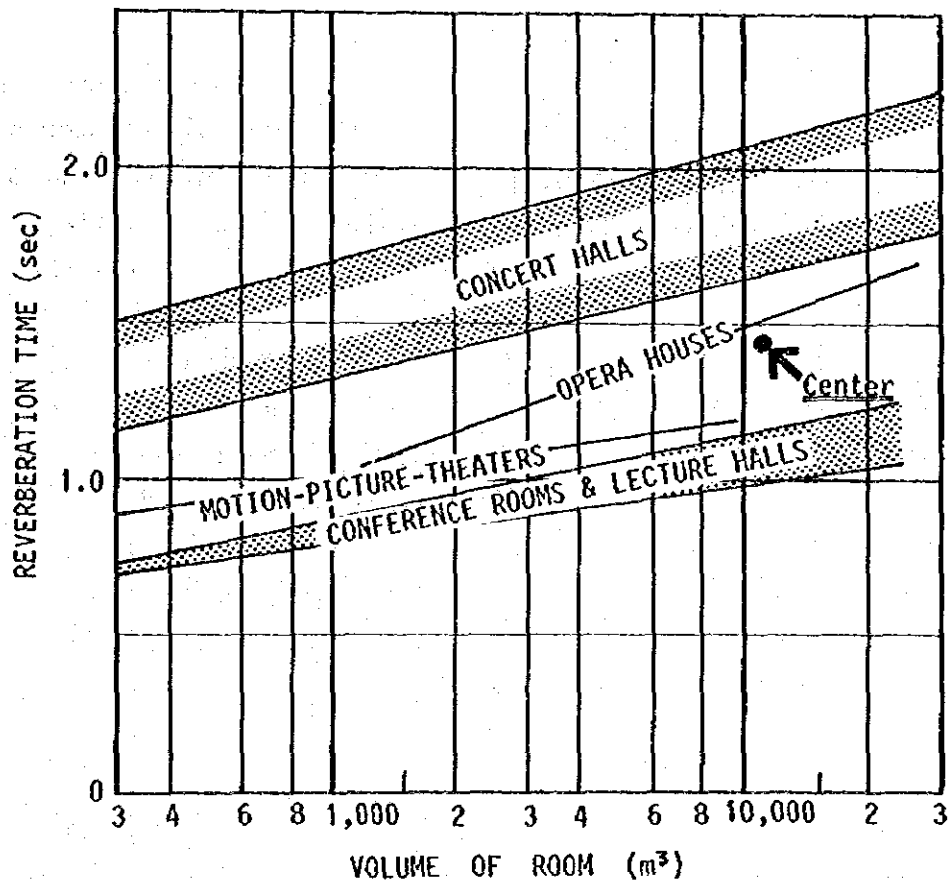


Fig. 5-3-18 Optimum mid-frequency reverberation times for occupied rooms of various volumes and functions.

2) The volume of the Main Hall will be approximately 10,500 m^3 (8 m^3/seat). The estimated occupied mid-frequency reverberation time is approximately 1.4 seconds. This value is in the optimum range for an opera performance.

3) In the case of concerts using sound reflectors, the reverberation time will be a little longer.

For speech using stage draw curtains, it will be a little shorter.

4) The detailed acoustical design will be studied in the detailed design stage.

(2) Noise Control

Insulation will keep out virtually all outdoor noise, and air-conditioning noise will be controlled so as not to disturb the audience or the performers.

5-4 STRUCTURAL DESIGN

5-4-1 Structural Design Policy

The structural design of the Center will be principally in accordance with the Egyptian Standard Specification and the A.R.E. Code of Practice as given in Section 5-1-3.

The skeleton of the building is planned to be a reinforced concrete structure, which will be designed on the basis of the concepts of foundation design, superstructure design, the allowable stress of structural materials in use and the design load conditions.

5-4-2 Foundation Design

Boring tests conducted in five spots on the site provided the following results necessary for drawing up the foundation design:

(1) In each of the five spots, the boring test detected a layer of soft clayey silt with a depth of 2 to 8 meters underground. Further boring into the ground revealed that the stratum gradually changes from one composed mainly of sand, to one including fine and medium grains of sand and, finally, one including fine gravel in a layer of sand. A standard penetration test showed the N value to be around 40 at a spot 11 to 12 meters underground.

(2) The underground water level is about 2.5 meters below the average ground level, approximately the same level as that of the Nile flowing near the site. There seems to be little fluctuation in the water level throughout the year.

(3) A soil test conducted in a laboratory on a sample of the soft clayey silt recovered from 2 to 8 meters underground revealed its low strength. It was therefore decided that a regular footing foundation would present problems in terms of differential settlement, and that a safer and more reliable method of pile foundation should be adopted.

The above results indicate that the optimum foundation plan would be to set up the foundation bed above the underground water level, drive in VIBRO piles, which are the most common type in Egypt, and connect each of the pile caps with foundation beams.

5-4-3 Superstructure Design

The superstructure will be of reinforced concrete, which is in general use in Egypt; however, the roof of the main hall, which has a long span, will be a steel truss structure to facilitate installation work for ceilings, lighting fixtures and stage settings. The roof will have a steel deck, which will be covered with concrete slabs. This structural system will shorten the construction period as it eliminates slab forms and supports. The balconies in the main hall will be of cantilever structure extending from suitably rigid wall columns. Further, the slabs to be used there will also be of high rigidity to prevent vibration of the balcony floors.

5-4-4 Design Principles for Superstructure

The design method will be based on the Code of Practice (A.R.E.) and/or linear elastic design method of ACI-318 (U.S.A.). The following values based on the Code of Practice (A.R.E.) will be adopted for the allowable stress of structural materials and the load conditions:

(1) Allowable stress for materials

1) Steel Bar:

a)	Round bar (Steel 37)	ft = 1,400 kg/cm^2
b)	Deformed bar (steel 52)	ft = 2,000 kg/cm^2

2) Concrete:

a)	Concrete strength (cylinder)	240 kg/cm^2
b)	Allowable compressive stress	80 kg/cm^2

3) Steel (shape):

a)	Steel 37 (Local)	ft,c = 1,400kg/cm^2
b)	Steel 42 (imported)	ft,c = 1,600kg/cm^2

(2) Load conditions

1) Live load

a)	Roof	150 kg/m^2
b)	Offices, Classrooms, Entrance halls, Foyers, Staircases, Dressing rooms, etc.	300 kg/m^2
c)	Restaurant	400 kg/m^2
d)	Auditorium, Stages, Rehearsal room, Small hall, Training room	500 kg/m^2
e)	Machine rooms, Storages, Atelier, etc.	600 kg/m^2

2) Dead load

Own weight is the weight of the element under consideration. The weights of the main materials are as follows:

a)	Steel	7.85 t/m^3
b)	Timber	1.00 t/m^3

c)	Reinforced concrete	2.50 t/m^3
d)	Plain concrete	2.20 t/m^3
f)	Celton	0.12 t/m^2
g)	Mortar	1.90 t/m^3

3) Wind pressure

The effect of wind pressure need not be considered for this building.

4) Expansion joints

Expansion joints will be provided every 30-50m.

5-5 ELECTRICAL SYSTEM DESIGN

5-5-1 Electrical System Design Policy

(1) The design of the electrical system for the Center will reflect the local climate and life style, and the usage requirements of the Center's facilities.

(2) The electrical system will be simple in make-up, and easy to operate and service.

(3) Electric appliances and fixtures to be employed in the electrical system will be of standard types so as to make for easy replacement of parts.

5-5-2 Power Supply System

Power will be supplied from two 11kV feeders by the Cairo Electricity Distribution Company. It will be distributed from two different transformer stations near the Center to the transformer room of the Center by underground power cables. The power supply system is shown in Fig. 5-5-1. The following secondary distribution voltages will be obtained through transformers in the Center:

1) For motors and other power loads:
Three-phase 3-wire 380 V 50 Hz,

2) For lighting and convenience outlets:
Single-phase 2-wire 220 V 50 Hz.

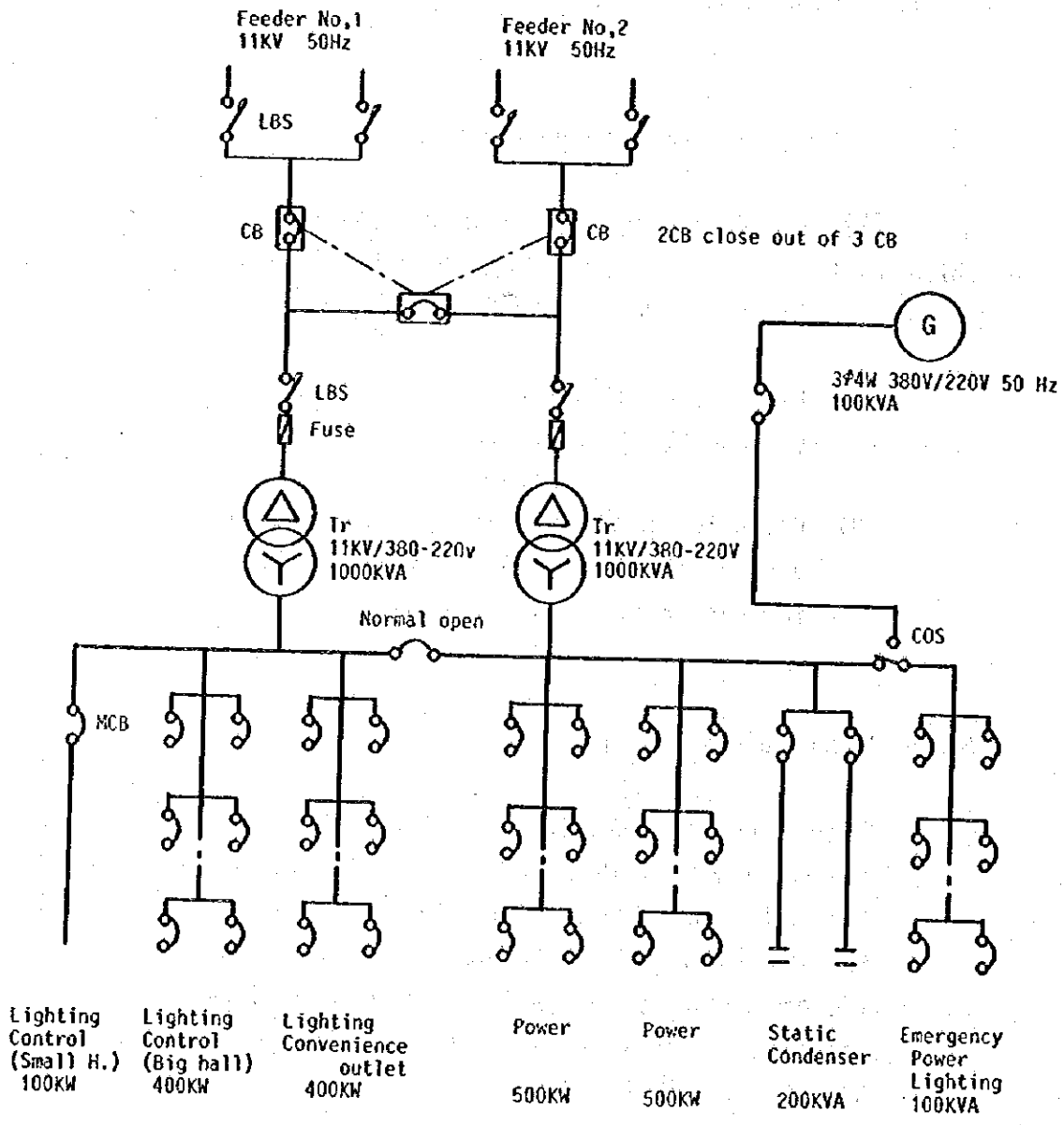


Fig. 5-5-1 One-Line Diagram of Power Supply

5-5-3 Power Generating System

One stand-by generator will be provided to supply generating power for exit lighting and minimum emergency power in case of power interruption. A battery system will be considered for special emergency lighting.

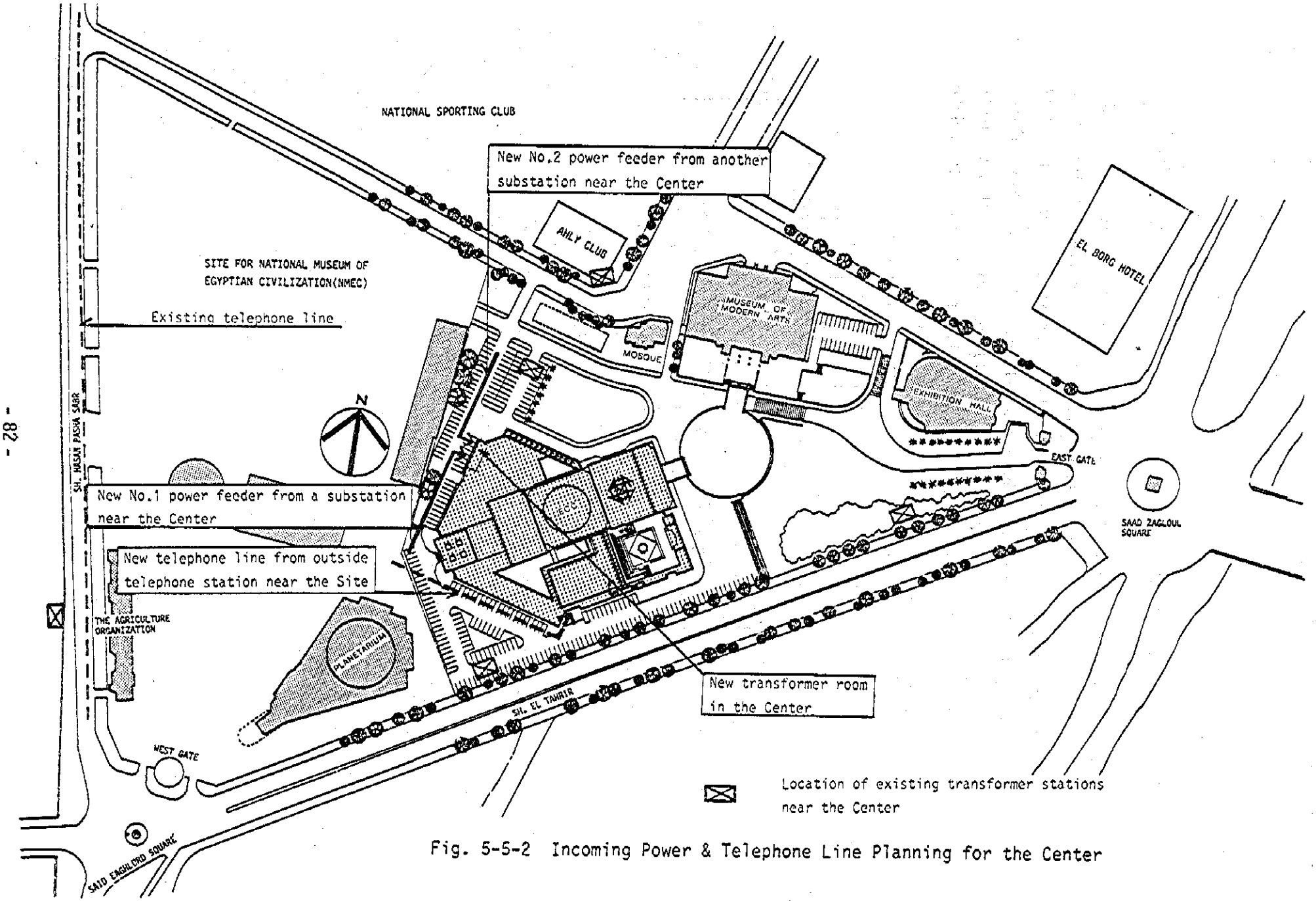


Fig. 5-5-2 Incoming Power & Telephone Line Planning for the Center

5-5-4 Power Distribution System

Power mains for power and lighting will be provided from the distribution panelboards in the transformer room to the power and lighting panelboards in several zones. Power mains will be made of - for example - cross-linked polyethylene-insulated and PVC-sheathed power cables (CV) and PVC insulated wires (IV). Cable racks and conduits will be used to accommodate power mains.

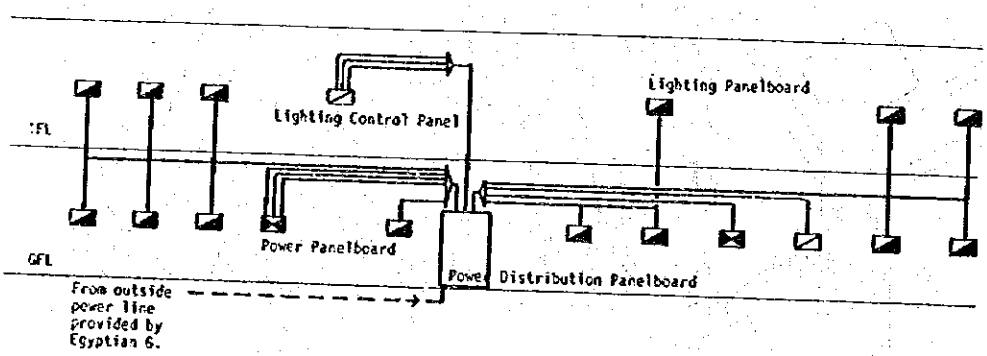


Fig. 5-5-3 Power Riser Diagram

5-5-5 Lighting System

Incandescent lamp fixtures shall be provided mainly for the halls and related areas, and for other areas such as offices, classrooms, etc. Fluorescent lamp fixtures shall also be used. The average illumination levels in the major rooms will be as follows:

(1) Offices: 250 lux
(2) Classrooms: 250 lux
(3) Auditorium, Small Hall: 100 lux
(4) Lavatories: 50 lux
(5) Restaurant: 100 lux

Illumination levels and lighting environments will be studied further in comparison with those in existing theaters and halls in Cairo.

5-5-6 Convenience Outlet System

Each room will be furnished with the necessary number of convenience outlets of standard Egyptian types.

5-5-7 Communication System

(1) Telephone System

Several pairs of telephone trunk lines will be provided to the administration office from outside by the Egyptian Government. A small-capacity push-button telephone exchange will be installed in the administration office. Extension telephones will be placed in the following rooms.

1) Administration offices
2) Board Representative's and Secretary General's offices
3) Secretariat
4) Security office and ticket office
5) V.I.P. room
6) Others

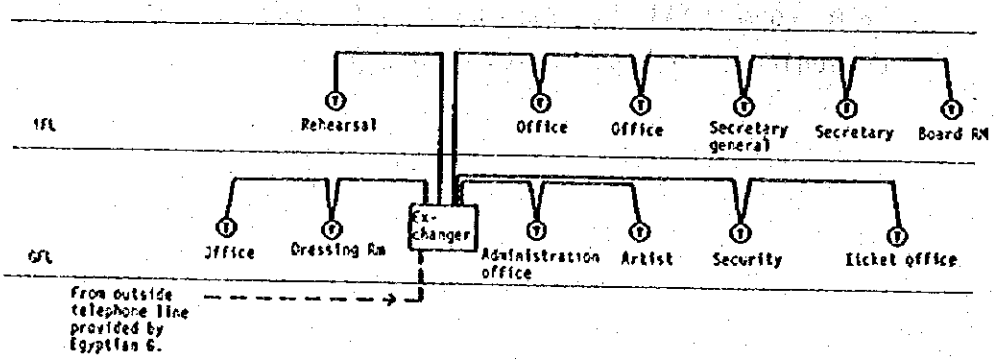


Fig. 5-5-4 Extension Telephone Wiring Diagram

(2) Intercommunication System

Interphones will be provided for communication between the following major rooms:

1) Administration office
2) Dressing room
3) Sound and lighting control rooms
4) Stage Director's room
5) Spot booths
6) Machine room
7) Others

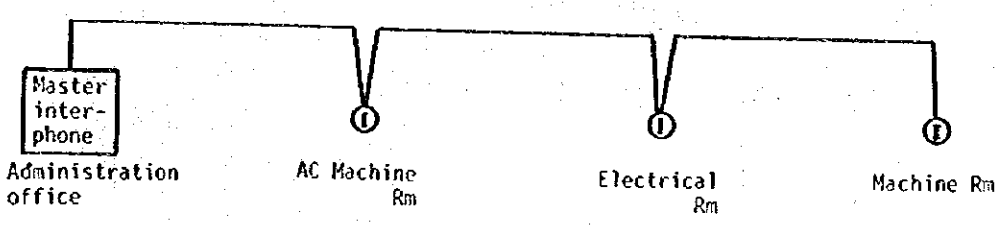


Fig. 5-5-5 Maintenance Interphone Wiring Diagram

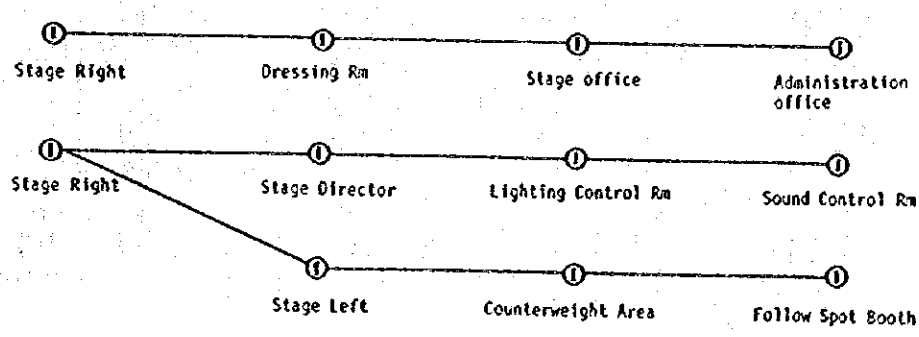


Fig. 5-5-6 Stage Intercom Diagram

(3) Public Address System

A public address system will be provided for ordinary announcements and emergency broadcasts in public areas like corridors.

(4) Other Systems

The following communication systems will also be provided to facilitate management of the Main Hall.

1) Buzzer system
2) Clock
3) Intermission indicator system
4) Stage monitor TV system
5) Central TV antenna system

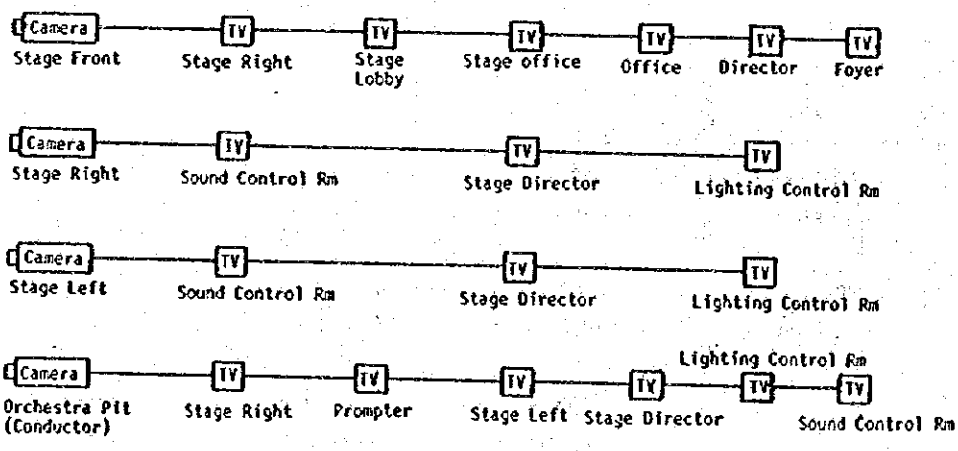


Fig. 5-5-7 Stage Monitor TV Diagram

5-5-8 Fire Protection System

An automatic fire alarm and monitor system will be planned to protect human life and property in the Center. The provision of emergency lights and guide lamps will be considered, since they are important elements of a fire contingency system. An alarm and monitor panel will be provided in the administration office and alarm bells in several zones.