EPsn: 334

AMERICAN UNIVERSITY OF BEIRUT

FACULTY OF ENGINEERING AND ARCHITECTURE

DEPARTMENT OF ARCHITECTURE

A535

FINAL PROJECT PROGRAM AND REFERENCES

NIZAR MOUAWAD, CLASS OF 95, 4-2-1995

MOUTAIN RESORT

PINES OF BOULOGNE

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I . INTRODUCTION

Now that the limits of the world have been reached, people want to find a second frontier, a personal, one-of-a-kind "getaway" apart from the world in which they have spent most of their lives.

Some see travel to recreational areas as an antidote to the typical daily hustle of the city dweller. Escape from the city is probably the most popular argument used by those who support the establishment of more parks and country recreational centers. The following statement attributed to associate justice of the Supreme Court, William O. Douglas, summarizes the belief of millions of Americans and Lebanese living in areas like Beirut.

> "As we pile up in apartments, work in ant hill office buildings and hear the roars of autos and trucks day after day, we need wilderness for release from the tension of life."

In Great Britain, it is generally believed that "Britain has reached a stage of technological economic and social development which allows considerable periods of free time to the majority of the population. It is, moreover, a stage of development at which large sums of money are being invested in the construction of recreational facilities and increasing areas of land are being turned over to recreation uses. In this sense, we are living today in an age of leisure".

- PERSONAL OBJECTIVES
- PURPOSE OF THE PROJECT

In Lebanon, taking an overview on the second part of the twentieth century, we see that before the civil war that began in 1975, Lebanon lived in an "age of leisure" where a part of the population's income was based on tourism. This situation produced many leisure projects like Tabarja beach, Coral beach hotel, Beach club, Long Beach, Golf club, ATCL and Saba'a Al Kheil etc.... They all have one thing in common which is that they all address the high income class. However, this is no longer the prevailing situation.

Now in 1995, after five years of peace and after a new stability of the economy has been reached, we have a new trend, type or style of business people who are investing in huge projects all of which pour in the same barrel ; "The Reconstruction" - On the other hand there are other types of projects popping out. Projects done by business people of "less importance" economically. This is because both the upper and the middle class are starting to reach a stage similar to the English one where people search for ways to spend their "periods of free time".

The things that control this trend are the "periods of free time", the economical factor and the social factor. We see big companies, which middle and high income classes own and work in giving "long" weekends : Saturday and Sunday off. Educated people usually earn medium to high salaries. A large number of people own their own business and divide their "periods of free time" to their own free will. The "periods of free time" and the economical factor opened the way for new health and leisure projects that would be subdivided into shares ranging from 5000$ up to 25000$ per share (e.g. "La Collina" Rabieh - Metn - Beirut suburbs). Most projects start with a share price equivalent to 5000$ more-or-less and then is raised up according to a formula based on the percentage of the number of shares sold. The sum of 5000$ is affordable by the upper class and most of the middle class.

In previous days, one had to buy or rent a bungalow or a cabin in order to swim in a swimming pool. Purchasing costs are usually outrageous and renting is not a good investment. Therefore, I am following a specific economic policy. It is the policy of definite unchangeable number of shares where the price of a share will be easily afforded by any person and RETURNABLE in case this person decided to sell his share later on.

This table shows how the number of shares is calculated. It is based on the number of rooms (units) in the hotel and separated units deduced later from the project.

Area of Unit	# of Units (u)	# of weeks used in each season	# of seasons used	# of Shares offered
30 m2	20 (u)	2	4 out of 4	4/4x6(S)x20(u)=120(S)
55 m2	10 (u)	2	2 out of 4	4/2x6(S)x10(U)=120(S)
90 m2	12 (u)	2	2 out of 4	4/2x6(S)x12(U)=144(S)
120 m2	8 (u)	1	1 out of 4	4/1x12(S)x8(U)=384(S)
160 m2	4 (u)	1	1 out of 4	4/1x12(S)x4(U)=192(S)
			Total # of shares	960

The total area of the project is 9065m2 + 2440 (Indoor Parking + Amphitheater)
The construction price of the project is 9065 x 180$/m2 + 2440 x 100$/m2

= 1,875,700$

The land needed according to the building law which is : Max. 3 floors
Max. Built up area 15%

$$\text{is : } \frac{9065 + 840 \text{ (Amphitheater)}}{3} / 0.15 = \boxed{22011\text{m2 of land}}$$

Today, land price in the area of Zaarour - Bologna ranges between 5 and 30$/m2 maximum. i am assuming that the political situation is changing which raises the price of land to 50$/m2 and this is the ultimate maximum.

1,100,550$

⇒ 50$/m2 x 22011m2 =

Then the total cost of the project is : 1,875,700$ + 1,100,550$

= 2,976,250$

Then the price of the share is = $\frac{2,976,250 \times 1.30 \text{ (profit)}}{960}$ = 4030$/share

⇒ Conclusion :

Total # of shares	960
Construction price	1,875,700$
Land needed	22011 m2
Land price	1,100,550$
Total cost of project	2,976,250$
Price of share	4030$

This share will allow the client to make use of the hotel according to the above schedule and make use of the health club facilities throughout the year.

- SOCIAL GOALS -

In addition to the two factors ; "Periods of free time" and economy, the social factor in this project plays a big role too. It is related to the "periods of free time' discussed before.

It is known that civil wars always hit the middle class and this is what happened here in Lebanon. Today we are left with the a poor class, a rich class, and a "small" middle class that can be considered as the high level of the poor class. This class id educated and tends always to reach higher levels of education. The proof is the huge number of large private schools. Usually each member of this class makes his/her best to take a degree from a University, the "best" university if possible. After he/she graduates, he/she starts working and starts earning some money. He/she is still living in his/her parent's home so all what he/she earns goes,

in most cases, to himself/herself. These aspects and facts make it possible for any person of this "group" of people to become a member in this project. Later, under the scope of the project, I will discuss in details how this factor with other factors made me reach specific decisions on where this project is going to be built.

This person is an educated one and knows that he/she has the right and the need to make the best of his/her leisure time. He/she knows that the only problem is money, because as we shall see later, to become a member in Faqra Club you need to freeze half a million dollars to build a villa which is out of the question. To buy in Faraya or Zaarour or any skiing resort a 'chalet ' to which one can go to a few weeks per year is not at all feasible (min. 60,000$/chalet & share prices is 10,000$). The same thing applies to beach projects on the coast. The need is always there and money is always the problem. He/she knows that he/she has the right to swim in a swimming pool and to take good vacations in good resorts. He/she also knows that he/she would have to pay minimum 800$ to 1000$ to rent a cabin in one of the costal resorts. After 4 or 6 months he/she notices that this 800$ to 1000$ has VANISHED!!! The 800 to 1000$ could have been the same or one of the payments of a share that he/she OWNS and can SELL later at a higher price whenever he/she needs the money. It is therefore a good investment. ALWAYS KEEPING IN MIND THE IMPORTANT SATISFACTION OF THE MOST IMPORTANT SOCIAL NEED in mans life which is to have a good time which results later on in putting more input into his work.

- ARCHITECTURAL GOALS -

After discussing the economic and social goals because of their needs, I will discuss the architectural goals. Before the goals I should mention the architectural needs of the area. The area I am talking about is in Bologna, 7 km from Zaarour. It is an area full of pine trees, topographic beauty, typical Lebanese houses and hotels which were highly known before the war . All the existing houses and hotels are stone constructed with Mediterranean features like triple arches, red tiling, huge stone constructed stairs, huge entries and stone fences always keeping a vast green area around each construction (85% of the land). The area lived a golden age before the war. During the war all constructions stopped except for some small houses. Today after 20 years of war i.e. of no construction, I want to build and I am the first to start a project of this sort. Should I build keeping the same old

architectural image or should I introduce a new architectural language to the area? If I want to introduce a new architectural language using the classical materials or new up to date materials then what kind of architectural language and why? What kind of materials and why? What effects will this architectural language have on the area itself and on the future clients and on the people that will be constantly using the Beirut - Zahle highway passing near my site?

What is obvious is that the war was a break architecturally speaking and the 20 years are also a break since what was modern in 1975 is old fashioned in 1995. But is it true that it is an old fashion in 1995? Is there any fashion or style to begin with? There is only one thing in common which is the stone construction. Whatever decision I take now will be highly discussible through the next semester. I will try to draw the lines that I will follow in my design, but even these lines will be highly flexible.

First line :The materials I will be using can be anything of today's choices. I think that using materials other than stone is favored because by this I will be identifying my project to be an "after war project". the economic aspect is also to my advantage.

Second line :The architectural language and concept that i should follow shall be definitely other than the ones used before the war in that area. This language may follow the same line of architectural language used in other projects and may be a line of its own.

Third line :The project should have an inviting image and should reflect the class of people . I am addressing mainly the educated people of the medium class society . It should have a warm and friendly atmosphere ; a sportive one physically and mentally. After all people are coming to relax and have a good time.

Fourth line :The functions should be related in such a way that the people should have maximum interaction. The functions themselves should have privacy especially the one dedicated to be private.

SCOPE OF PROJECT

I chose the site of this project to be Bolognia for the following reasons :

1. It is the nearest site to both, Beirut and one of the ski resorts. Beirut because all my expected clients are concentrated in Beirut. It is 30km away from Beirut and 7km from Zaarour ski resort.
2. It is linked to Beirut by wide highways most of which are already finished ; only the Bikfaya - Zahle part of Bikfaya - Zahle road is not done yet. Bikfaya - Bologna road is about 4km and it is in good shape.
3. It is at an altitude where it snows up to 8m in winter and it has a marvelous weather in summer. It is known for its summer breeze in summer afternoons.
4. It has a touristic history and it is wildly known even to the Arab world. Written proof can be the books written by Gobran Khalil Gobran and Amin El Rihani and Anis Frayha about the Lebanese villages and the Lebanese mountains summer hotels and resorts.
5. It has one of the most beautiful natural and topographic features in Lebanon. The war also kept this area untouched construction wise. So i can still say that the architecture pollution hasn't reached that area yet. (I hope i will be the first polluter.)

The project is a compact mountain resort having a small hotel with small, medium and big units. Some of these units will be private and separated from the complex. The activities of this project are of a wide range. It starts from the activities of the region where one can go skiing in winter and hunting and camping in summer always appreciating the beautiful, gorgeous nature of Bolognia. it ends in the recreational functions of the project itself. These functions are, the hotel, the sport facilities and the landscape around the project.

In the project the activities will cover mainly sports of all kinds and social activities starting from "Feux de Champs" to dancing in the nightclub or dinning in an exotic restaurant.

The limits of my projects are :

- Beirut - Zahle road
- High-voltage line
- Old Villa

The size of my project is :

Built up area	9065m2
Area of Amphitheater	840m2
Area of parking	1600m2
Area of site	22,000m2
Max. # of occupants	220/day

- SALIENT FACTORS -

The factors that effect my project are :

- The main Beirut - Zahle road which has been studied to be widened to 20 meters.
- The four seasons of the year each having special activities.
- The image of the "hotel and villas" of the area which were highly known and busy before the war (1975).
- The high voltage line that passes near my sit.
- The strict building law which can be summarized as :
  15% exploitation factor.
  A maximum of 3 floors.
  6 meters set back.
- The pine trees which are a character of the area and which should be preserved.
- The view which is in one direction.

II. Space Requirements:

Hotel:

Program	Net Area	Gross Area
20 Rooms	20x30=600	600x1.4=840
10 suits	10x55=550	550x1.4=770
Cafe	100	100x1.4=140
Restaurant	200	200x1.4=280
Night Club	200	200x1.4=280
Total	1650	2310

Independent Challet

Program	Net Area (m2)	Gross Area (m)
Small size chalets	90x12 units = 1080	1080 x 1.4 = 1512
Meduim size chalet	120x 8 units = 960	960 x 1.4 = 1344
King size chalet	160x 4 units = 640	640 x 1.4 = 920
Total	2680	3752

Amphitheater

Program	Net Area (m2)	Gross Area (m2)
Amphitheater	400	400 x 1.4 = 560
Services	200	200 x 104 = 280
Total	600	840

Health Club

Program	Net Area (m2)	Gross Area (m2)
Indoor Swimming Pool	500	500 x 1.4 = 700
Indoor Tennis P.G	300	300 x 1.4 = 420
Outdoor Tennis P.G	300	300 x 1.4 = 420
Squash	80	80 x 1.4 = 112
Bowling/Billiards	100	100 x 1.4 = 140
GYM. Hall	150	150 x 1.4 = 210
Saunas	15	15 x 1.4 = 21
Jacuzzis	15	15 x 1.4 = 21
Steam Bath & Massage	15	15 x 1.4 = 21
Dancing Hall	150	150 x 1.4 = 210
Boxing room	250	250 x 1.4 = 350
Waiting salon	40	40 x 1.4 = 56
Total	1915	2681

Project Department

Program	Net Area (m2)	Gross Area (m2)
Manager	40	40 x 1.4 = 56
Assistant Manager	30	30 x 1.4 = 32
Secretary and waiting	40	40 x 1.4 = 56
Documents room	40	40 x 1.4 = 56
Storage	80	80 x 1.4 = 112

Program	Net Area (m2)	Gross Area (m2)
Parking for 70 cars	1066	1600
Total	1066	1600

Project summary	Gross Area (m2)	%Area/Project Area
Hotel	2310	19
Independant	3752	33
Amphitheater	840	16
Health Club	2681	29
Department	320	3
Total	9905	
Total with Parking	11505	

III SPACE ANALYSIS AND STANDARDS :

This project has been progressing on indefinite base. The researches done on similar projects made me put definite bases specially on the architectural, economic and social levels. Also the research on the similar projects gave me definite figures which out to be an additional standard for me to follow. These figures will be discussed later in the "Similar Examples" part.
The standards I followed are divided into 3 parts :

1 - Thesis by Robert N. M. Hakim - Beirut - Lebanon - November 1968

I included to my research the following parts of this thesis :
- Introduction - pages 1 - 3
- Types and characteristics of swimming pools - pages 4 - 10
- Design Criteria - pages 11 - 3
- Fig. 4 : Sizes of Equipment Room and all its Components page 43
- The design page 51 - 54
- Construction problems page 70 - 73

2 - Time - Saver Standards For Interior Design and Space Planning :

- Hotels page 374 - 380
- Indoor recreation page 1069 - 1073

3 - Architects' data (Ernst Newfert) :

- Saunas page 117
- Sports, leisure page 315 - 339

You can go through all of the three standards or you can read only the lined parts which are the most important and directly related to the project.

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AN OPEN AIR SWIMMING POOL

USING SEA WATER

Thesis

Presented to the Faculty of Engineering and Architecture of the American University of Beirut in Partial Fulfilment of the Requirements for the Degree of

Master of Engineering
Major - Civil

By:
Robert N.M. Hakim
Beirut - Lebanon

November 1968

INTRODUCTION

Swimming has now become an exceedingly popular and useful sport because of its recreational and health values.

In places lacking favourable weather conditions that permit swimming in natural bodies of water, swimming pools have made it possible for any person to indulge in this type of sport at any time, day or night, regardless of season and climate.

Even though Lebanon boracrs the sea and enjoys plenty of sunshine, an appreciable number of swimming pools have been recently constructed. The reasons for this trend are:

- Limitations imposed by the sea shore structure at certain localities - rock formation and deep shore water.
- Frequent roughness of sea, particularly at beaches exposed to currents.
- Unsanitary beach conditions resulting from improper waste disposal.
- Attraction of tourists by providing swimming facilities at all seasons.

- High standard of living, increasing wealth and desire for luxury.

Typical examples of swimming pools constructed along the Lebanese beaches are those of Tabarja, Long Beach Club, Coral Beach Hotel and Beach Club.

The Long Beach Club has two existing swimming pools constructed several years ago. These have proved to be inadequate as users have increased and the demand for a large properly designed pool was found necessary. Therefore, the management of Long Beach Club agreed with ARMEUILD Consulting Engineers to design and construct an Olympic size swimming pool that utilizes sea water.

The author was involved in the design and construction of this project which constitutes the subject of this thesis. Details of the criteria for the design and construction are reported in the text. As a background general information relating to swimming pools is also presented.

I- TYPES AND CHARACTERISTICS OF SWIMMING POOLS

Swimming pools may be of different types and have different characteristics. They may be constructed for public or private use. They may be built either indoor or outdoor in several geometric shapes to fit a lot or to suit a landscape; while they may utilize sea or sweet water depending on the intended usage and the type of water available. The following discussion briefly outlines the different features of swimming pools.

A. Indoor and Outdoor Swimming Pools

Indoor or outdoor swimming pools have several common design features, but differ widely in some respects.

Depending on the climate, three to five months a year is the usual period for the swimming season in many areas. The rains and cold winds of fall and spring make outdoor swimming uncomfortable, even if the water is heated, and winter swimming is usually impossible. In areas with short summers, an indoor pool would extend the summer's recreational season. The advantages of enclosed pools include lengthening the period of use to all year, providing shelter from winds,

making night swimming feasible, reducing heating costs, protection from insects and debris, and privision of a climate control for the pool area. However, there are disadvantages for indoor pools. Enclosing the pool encourages moisture condensation and develops a "green house" atmosphere. Therefore, a completely enclosed swimming place can become quite steamy and uncomfortable when the temperature outside begins to drop. Another problem is cooling the swimming pool area; shelters are easily heated with a pool heater or small furnaces and fireplaces, but they are difficult to cool because of lack of circulation. The most important factor lacking in enclosed swimming pools is sunshine which is a desirable adjunct to swimming.

Indoor swimming pools should be sited as centrally as possible in a city or town, should be easily accessible, and provided with ample parking space.

Indoor pools, as indicated later, should be of rectangular shape with deep water at, or near, one end and shallow water at the other. Small outdoor pools should be of the same general design.

Outdoor pools are best suited to places where favourable weather lasts through a long period of the year. The selected site should be as far removed from industrial areas as the geographical position of the town will allow. Public parks or recreational grounds offer beautiful landscaping around pool vicinity that adds to enjoyment and pleasure of swimming. Sites are to be carefully selected so as to afford a degree of protection from prevailing winds, and provide a relaxing and healthy atmosphere.

B. Public and Standard Swimming Pools

The best shape for large outdoor swimming pools depends largely on the size and on local conditions. General public or semi-public pools, both indoor and outdoor, are rectangular in shape because of the convenience of excavation, construction and efficiency in use. In addition, such a shape offers the largest swimming space and capacity in terms of the number of users at any given time, given that there must be separate zones for diving, swimming and general play.

The dimensions of rectangular public pools are usually standard. The length should not be less than 18.0m and the width should ordinarily be some multiple of

1.5, 1.8, or 2.1 metres[1,2]. For strictly competitive pools the Amateur Swimming Association[3] recommends a length of 50m with a lane of 2.1m wide for each competitor. The depth of water at the shallow end of a pool is usually about 0.75 metre. The bottom should slope gradually toward the deep end, where the depth of water varies with the size of pool and height of diving boards - usually not less than 1.8 metres.

The general purpose pool, intended to provide diving facilities, should have a depth of water in the diving area governed by the requirements of the Amateur Swimming Association[4], which are:

a) The spring boards shall be one metre and three metres above water level, at least 4.5m long and 50cm wide, and covered along the whole length with rough coconut matting. They shall be installed at an angle of not more than one degree from the horizontal, rising from back to front. The front of each board shall project at least 1.5m beyond the edge of the pool.

b) The platform shall be five and 10m above water level, and the provision of an intermediate board

of 7.5m is strongly recommended. They must be rigid, at least two metres wide and covered with coconut matting. The 10m platform shall be not less than six metres in length and the five and 7.5m platforms not less than five metres in length. The front of the 10m platform must project at least 1.5m beyond the edge of the pool and 75cm beyond the platform immediately underneath, which must project at least 1.5m beyond the edge of the pool. The back and sides must be surrounded by a handrail, and each level must be accessible by suitable staris (not ladders) to avoid possible hazards.

The minimum depth of water over an area measured from a vertical line dropped from the centre of the front end of the Board shall be:

	1m	3m	5m	10m
Depth of water	3m	3.5m	3.8m	4.5m
Distance in front	5.3m	6.2m	7.0m	10.5m
Distance behind	Nil	Nil	Nil	Nil
Distance on each side	2.2m	2.7m	3.0m	3.0m

The angle at which the bottom of the pool may be

constructed to reduce the depth outside the minimum area shall in no case exceed 45 degrees from the horizontal.

C. Private and Irregular Swimming Pools

Private swimming pools are often irregular, designed to be best suited, functionally and architecturally, to the plot and its surrounding.

The following are the most popular irregular shape swimming pools(1):

L-Shape : Fits easily into corners with diving and shallow areas clearly separated by the natural break.

Teardrop : Fits well in most places. A similar shape is the oval, with both ends equal in size and shape.

Kidney : Fits well with most landscaping, and is the most popular shape. Curves can be modified to fit site needs.

Circle : Usually used as a shallow wading pool, but can be deep enough for diving.

Good for small areas and requires little space.

Free Form: Best for landscaping, crowded areas and irregular space. The shape is actually dictated by the topography of the available plot.

The Kidney shaped pool is the most widely used type and, in addition to its pleasant appearance, its curves and landscaping create an illusion of greater space.

D. Usage of Fresh or Sea Water

Fresh water pools, required for competitive swimming, are designed to recirculate and treat the water for economy. Pools utilizing sea water are based on a flow-through system and, compared to fresh water pools, require less attendance in respect of the purification process, especially if the inlet location and pool orientation are carefully studied in relation to shore currents and prevailing winds.

Sometimes fresh water is prefered for use in swimming pools constructed along the coastlines, due to high contamination and turbidity of sea water near the

pool site. Moreover, fresh water being less complex in composition and less corrosive is easier to handle and treat.

Swimming pools that utilize either fresh or sea water are equally subjected to contamination from bathers; if the water is not well treated and purified it could be hazardous to swimmers. Therefore, the increasing popularity of swimming warrants the imposition of regulations to maintain adequate public health standards.

II- DESIGN CRITERIA

A. Public Health Standards

In developing standards of design for swimming pools the engineer must bear in mind:

a) The protection of the bathers against

i) infection transmitted through pool water.

ii) infection transmitted outside of pool.

iii) physical injury within and outside of the pool.

b) The maintenance of the pool, its waters and of the pool surroundings in a clean, comfortable and attractive condition.

c) The protection of the pool water itself as well as the supply from which it is drawn against backflow from the drainage system of the pool and that into which it empties.

Public health standards for swimming pool water can be classified into bacterial, chemical and physical qualities.

1- Bacteriological Quality

Water, especially when polluted, is a favourable

medium for bacteria to flourish and multiply. Some bacteria in polluted swimming pool water may transmit diseases to bathers[5]. Deseases that have been associated with bathing are of the intestinal type such as typhoid and paratyphoid fevers, dysentery and gastrointestinal upsets; eye, ear, nose and throat infections, including respiratory diseases; skin diseases, such as ring-worm and swimmer's itch.

To determine a bacteriological safety of the water the coliform test has to be performed. The American Public Health Association recommends that

> "not more than 15% of the samples covering any considerable period of time, when incubated for 24 hours at 37°C on standard nutrient agar, shall not contain more than 200 bacteria per ml, nor shall show a positive confirmed test in any of five 10 ml portions of water at times when the pool is in use"[3,5,6].

Table I below shows the relative classification on natural bathing water by the American Public Health Association[3,5].

Table I - Relative Classification of Natural Bathing Water

Relative Classification	A	B	C	D
Indicated No. of Coliforms per 100 ml	< 50	51-500	501-1000	1000 >
Quality designation	Good	Doubtful	Poor	V.Poor

2- Chemical and Physical Qualities

To have a chemically safe and attractive pool, the water must be clear of dirt, algae, mineral deposits and foreign matter. Also, many of the troubles that arise with the pool's interior finish, equipment, and accessories are due to improper water treatment. A system of cleaning and purifying the water can be easily set up that will prevent any of the serious problems from developing under normal conditions, and if an unexpected problem arises, adequate treatment beforehand will make its solution much easier and less expensive.

Under normal conditions, there are two phases to water control. First is the maintenace of the water at a moderately alkaline level; and secondly is the introduction of a sterilizing agent.

For the correct application of chemicals and elimination of other problems, the pH of pool water should be maintained at between 7.2 and 7.6[7,8]. Below 7.2, the acid condition will corrode pipes, attack the pool's interior surface and irritate the eyes and mucous membranes of swimmers. On the other hand, an excessively alkaline water particularly at a pH of 8.4 and above causes the precipitation of calcium carbonate on the walls and heater tubes upon the addition of chlorine. Moreover, such water has an objectionable odour.

The pool water must be sterilized to control bacterial growth and to check the development of algae.

Chlorine is the most popular disinfecting agent, and it can be applied in one of the following forms:

a) Chlorine Gas. This is used for large public pools. It needs careful handling; is expensive and requires an authomatic chlorinator for application.

b) Sodium Hypochlorite. This is marketed as a liquid with a chlorine content of up to 16%. It can be applied simply by hand without the use of a mechanical feeder. Its quick deterioration upon storage, hence loss of its disinfecting power, limits its use.

c) Calcium Hypochlorite. This is marketed as powder, granules or tablets with a 70% available chlorine content. It is more expensive than the liquid form but much more stable on storage. This last quality makes it popular and hence widely used.

The effectiveness of chlorine treatment is based on the amount of free-residual chlorine. A range of 0.3 to 0.6 mg/l[3,5] of free-residual chlorine is considered ample; below this range, the water may have the ability to support the growth of bacteria and algae. In water with high alkalinity and a pH range of 8.0-8.9, one mg/l or above of free-residual chlorine is usually used. Factors that affect chlorine residuals are low pH, sunlight, number of bathers and the presence of debris.

Split chlorination is a method of chlorine application recently applied to swimming pools with recirculation and flow-through systems. It is now widely used particularly in large open air swimming pools where a heavy dose of chlorine is necessary to be injected into the incoming fresh water. The advantage of this method lies in the light application of chlorine in the incoming fresh water at the deep zone, and to "top up" with more chlorine at the beginning of the shallow zone. This is because the shallow zone supports the greatest number of bathers and is likely to be more contaminated than the deep zone which supports fewer bathers at any one time. Splitting of the chlorine dosage ensures comfort to swimmers by avoiding the irritation of their eyes and other mucous membrane; and also eliminating any objectionable smell due to heavy chlorine application.

It is important to keep in mind that the treatment of sea and fresh waters with respect to chlorination is exactly the same.

Algae exist in water in the form of free floating

type or the attached type. Their survival and growth requires proper temperature and sunlight.

Open air pools are subject to algae growth and their problems to a greater extent than in the case of indoor pools. There is no way to keep algae out of a pool, but there are methods of checking their growth and spread. Both sea and fresh water can support algae growth, but the species will be different in each case.

Regular chlorine dosages to maintain a residual of at least 0.3 mg/l and correct maintenance of pH normally is all that is required to prevent the spread of algae[7,8]. After repeated exposures to a low dosage of chlorine, some algae may develop a resistence to chlorine. To counteract this superchlorination is used, where the pool is shocked every ten days during hot weather and non-swimming hours, and once every two or three weeks in the off season. The dosage should be four to five times the normal amount of one day, which breaks down any resistence the algae may have developed. In some cases the use of copper sulphate to supplement the use of chlorine proves

effective in destroying certain types of algae. Continuous or occasional dosages from 0.12 mg/l up to a maximum of five mg/l of copper sulphate should be effective in destroying most kinds of algae[7,8].

Turbidity of swimming pool water can be attributed to faulty equipment, improper treatment, operation and overcrowding of the pool. The American Public Health Association[3] recommends that

> "at all times when pool is in use the water shall be sufficiently clear to permit a black disc of six inches (15 cm) in diameter on a white field, when placed on the bottom of the pool at the deepest point, to be clearly visible from the sidewalks of the pool at all distances up to 10 yards (9.15m) measured from a line drawn across the pool through the said disc".

In artificially heated swimming pools the water temperature should not be above 78°F (25.5°C). The air temperature must not be permitted to become more than 8°F (4.4°C) warmer nor than 2°F (1.1°C) colder than the water in the pool at any time when the pool is in use. For best results it is desirable that air temperature shall be

about $5^{o}F$ ($2.8^{o}C$) warmer than pool temperature[9,3,5].

3- Bathing Load Limits

The maximum permissible bathing load in any swimming pool depends largely on its surface area, provided that its water is continuously changing. In this respect the swimming pool is divided into three zones with the number of swimmers attributed to each[3,1].

a) Diving Zone. A maximum of 12 persons are permitted in the area within 3 metres radius of each diving board or platform.

b) Swimming Zone. This zone is that part of the pool other than the area required for diving, and which is deeper than 1.5m. One person for each $2.5m^2$ of pool area is sufficient for swimming.

c) Non-swimming Zone. One square metre is required for each person in that part of the pool less than 1.5m deep.

For flow-through pools, bathing loads are formulated as follows[3,1]:

$$P_f = \frac{0.6\ C\ R}{T^3\ B} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$p_f = \frac{0.6\ C\ B}{T^3} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

$$Q = 24.75\ T^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Where

P_f is the maximum number of bathers per hour

p_f is the maximum number of bathers that may be admitted to the pool during the hours that it is in use

B is the number of hours in a day during which the pool is in use

C is the pool capacity in litres

R is the number of hours in a day during which pool water is added to the pool

T is the turnover period in hours

Q is the quantity of water required per bather in litres

B. Hydraulic Design Requirements

Compliance with public health requirements for water quality would provide safe water free from harmful bacteria, foreign matter, colour and odour. To provide and maintain water with such qualities the hydraulic design requirements have to be fulfilled as indicated below.

1- Inlets

The position of inlets in swimming pools is an important factor in minimizing stagnation areas, especially in the deeper section of the pool. Inlets are usually designed as orifices subject to adjustment, or provided with individual gate valves, and are so arranged as to offer the best circulation of water.

In swimming pools with a recirculation system the inlets are provided either on opposite sides or completely around the pool. On the other hand, in swimming pools using the flow-through method inlets are provided only at the deeper section of the pool, and may be installed at different depths.

In rectangular shaped pools the following number of inlets are recommended[9,10]:

Four inlets for pools not exceeding 10m in length.

Six inlets for pools from 10m to 14m long.

Eight pools should have inlets spaced not more than six metres on centres.

The inlet piping should be of such size as to provide a velocity in the neighbourhood of three metres per second, and it should discharge at a depth of 25 to 40 cms below pool overflow level. Moreover, inlets should not be placed further than 1.5m from every corner of the pool.

2- Outlets and Floor Drains

The position of outlets is as important as those of inlets. The dirty water should find its way out through the shortest possible path. For the circulating type of pools, outlets are usually placed at the deepest point. On the other hand, in pools of the flow-through method, multiple outlets are installed at the bottom of the shallow

side because most bathers are to be found in this area, which makes the water dirtier than that in any other part of the pool.

Small pools with a recirculating system use the main floor drain opening as the outlet, but larger pools use multiple outlets at the deepest point spaced not more than six metres apart, nor more than three metres from the side walls. These outlets should be protected by a grating with openings to a total area of at least four times that of the main drain pipe. With this, excessive friction loss and suction currents at the outlet are prevented. The outlet piping should be of such size as to drain the pool in not more than five hours.

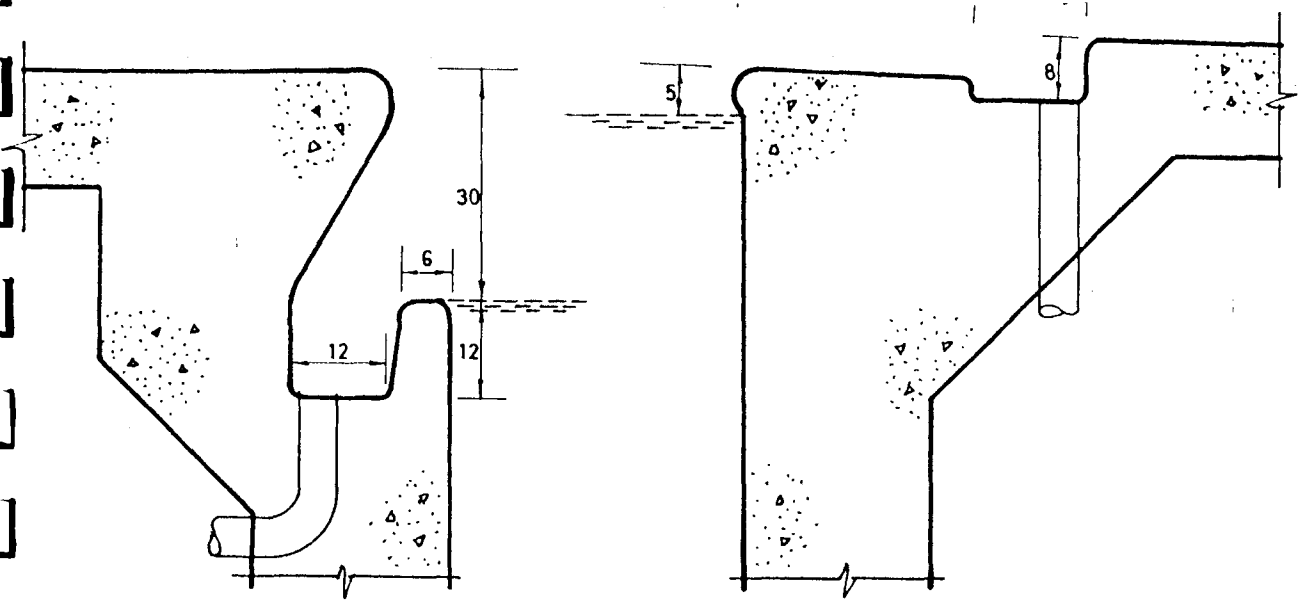
3- Scum Removing Devices

a) Scum gutters are usually located around the pool, and may sometimes be constructed only along their length. Their function is to remove the scum and floating material from the water by means of multiple outlets from which water flows either to a proper disposal area or back to the recirculating system.

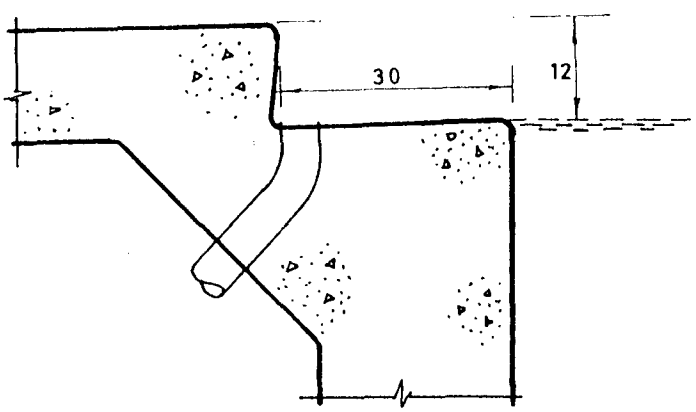
Pool water level should be maintained slightly below the gutters during the period of pool use, as wave action caused by bathers is sufficient to cause overflow. During daily pool cleaning the water should be allowed to flood the gutters so as to flush the debris.

Scum gutters can be either of the open, roll-over or semi-recessed type[3,1] as shown in Fig. 1(a), and should be easily accessible for cleaning and non-hazardous to swimmers. They should have a minimum depth of about 8cms with a 2% slope to gutter drains (2 inches in diameter) spaced at about three metres on centres[3].

b) Surface skimmers are another alternative to scum gutters and where-ever used approved handholds are installed. Each skimming device is provided for at most $50m^2$ of pool surface area[11]. They are built into the pool wall as shown in Fig. 1(b), and in such position as to minimize interference with one another to ensure proper skimming of the entire pool surface.



SEMI - RECESSED TYPE ROLL - OVER TYPE



OPEN TYPE

FIG 1(a) TYPICAL BASIC GUTTER PROFILES

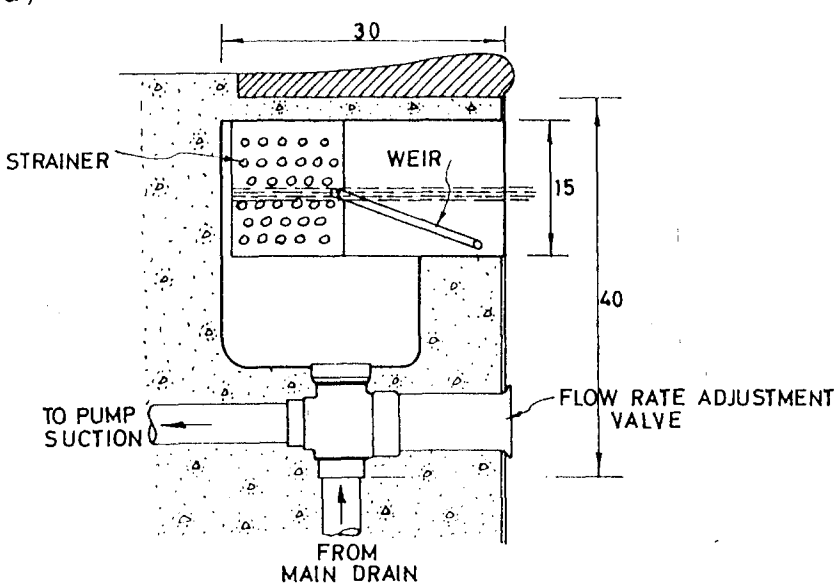


FIG 1(b) TYPICAL SECTION THROUGH SURFACE SKIMMER

Surface skimmers must meet the following specifications and the National Sanitation Foundation Standard[11]:

i) Skimmers should be provided with flow-rate adjustment valves to balance the system.

ii) Piping should be designed for a total capacity of not less than 80% of the required filter flow with a minimum flow-through rate of 115 litres per minute.

iii) Skimmer weir should be automatically adjustable with a variation in water level through a range of not less than 10 cms.

iv) Skimmer should contain an easily removable and cleanable basket or screen which serves as a trap for large particles or objects suspended in the overflow water.

v) An equalizer line is usually used in case the pool water level drops below the weir level. The function of this line is to protect the pump

by preventing air-lock in the pump suction side. It is designed to meet the capacity requirements of the filter and pump, and it should be not less than two inches in diameter and providing a minimum quantity of 115 litres per minute. Its location should be at least 30 cms below the lowest overflow level of the skimmer and be provided with a valve which is to be closed during normal conditions but automatically opens when the pool water level drops below the weir level.

4- Walk Areas

Walk areas should be self draining away from the pool with a 2% slope to an adequate drain at which the water will flow freely to approved points of disposal. They should have a width of at least 1.2m and preferably 2.5m extending all around the pool. Walk areas should be of concrete, ceramic tile or other similar material, where the surface is sufficiently roughened to prevent slipping of bathers.

5- Pumps

Motor driven self priming centrifugal pumps are best suited for swimming pools. The motor should be capable of running continuously without over-heating and should be designed for long service in moist atmosphere. If electricity is not available gas or diesel engines or turbine can be used to run the pumps.

In selecting the pump the following factors should be considered: (a) initial and future operating efficiencies, and (b) initial cost.

Operating efficiencies should be the deciding factor since the higher priced, but more efficient, pump will usually prove to be the most economical.

The capacity of the pump is determined by the turnover period and the total available head. For the recirculating system a total head of about 15m is assumed. Where three or more filter units are used the recirculation pump should deliver about 600 litres per minute per square metre of the filter area.

6- Piping

Water piping should be[3]: (a) properly designed so as to keep frictional losses to a minimum, which maintains the pumping cost at a reasonable figure - a velocity of about 2.5m per second is usually recommended; (b) easily accessible for rapid cleaning, inspection and repairs - this can be accomplished by providing unions wherever necessary; and (c) coloured for easy identification and differentiation.

Piping used for swimming pools can be of different materials depending on the availability, function and cost. For pressure lines cast iron, steel and asbestos-cement are the most popular. For simple drainage asbestos-cement, concrete and clay pipes are widely used. Wherever possible concrete channels should replace the drainage pipes as they are cheaper and easily accessible for cleaning.

7- Fresh Water Make-up Tank

This is used in connection with the recirculation system. The flow line in the tank has the same

level as the water surface in the pool. Usually the outlet piping from the pool is connected to the tank from which the recirculating pump takes its function. It is recommended that the fresh water inlet pipe be at least two pipe diameters above the maximum water elevation in the pool. Make-up water can then be controlled by means of a float valve.

8- Filters

Filters may be of the pressure, gravity or vacuum type, and may employ sand or diatomaceous earth as the filtering media.

a) Sand Fillers. These can be either of the pressure or gravity types, both having the following specifications and requirements[10].

The filtration rate should be three gallons per minute per square foot of filter area.

A backwash rate of 15 gallons per minute per square foot of filter area should be adequate.

Air release valves are only required on pressure filters.

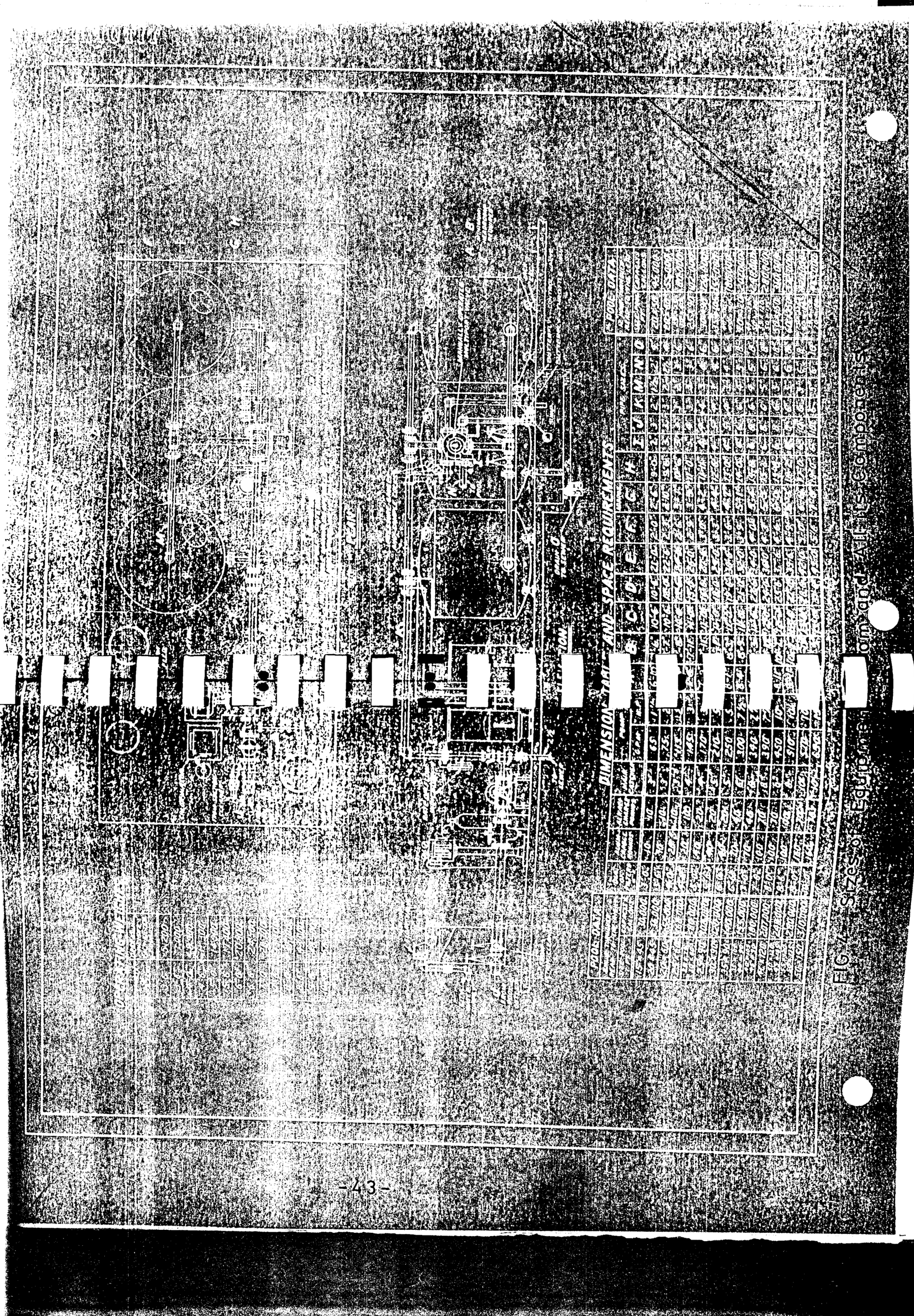
Chemical feeders are recommended to be on the suction side of the pump ahead of the sand filters.

A recent development on the pressure sand filters is the high rate ones where a filtration rate up to 20 gpm per square foot of filter area is used. These types of filters have several mechanical and media improvements, over the conventional ones.

b) Diatomite Filters. These can be either of the pressure or vacuum type with the following filtration rates[10] applied to both: (a) without slurry feed, two gallons per minute per square foot of filter area; and (b) with slurry feed, 2.5 gallons per minute per square foot of filter area.

It is recommended that slurry feed be used as it prolongs the length of filter runs.

c) Gauges. These are used on all types of filters to show the loss of head in the filter and to determine the need for backwashing. Gauges are usually installed on inlet and outlet piping.


DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED
FIG. 4

THE DESIGN

A. The Long Beach Club

The Long Beach Club is one of the most frequented bathing beaches in Beirut. It has acquired this popularity by virtue of its proximity to residential areas, its cleanliness and the number of facilities and conveniences available to members.

To cope with the increasing clientele the Long Beach Administration decided to construct a new large swimming pool in 1963 to relieve the load on the existing ones. In addition, the beach coastline suffers a number of drawbacks, most important of which are (a) rock formation and deep shore water; (b) frequent roughness of sea, as the beach location is exposed to currents; (c) traces of oil and tar on the water surface that result from ship and refinery wastes.

The Long Beach site is divided into three zones as shown on the general layout plan drawing No. 1. The first zone is the waterfront that covers the new swimming pool under consideration, the children's pool and playground. The second is the general

amenities zone that covers the entrance, the bar and the new changing cubicles. The third is the chalet zone that now includes the old changing cubicles, the dining terrace and the old swimming pool.

As the beach site is quite large and the present constructions as shown in drawing No. 1 are neither very well planned nor architecturally sound, the Long Beach Administration had decided to revise and re-develop the whole area.

B. Description of Long Beach Swimming Pool and Its Components

The Long Beach swimming pool was designed according to international requirements with regards to dimensions and shape as shown in drawing No. 2. Of the three possible systems, the flow-through system utilizing sea water was adopted to save on the cost of water and equipment. Clean water is admitted to the window tunnel leading to the two feed pump sumps through pipe intakes located at mid-sea water level, as shown in drawing Nos.3&4, in order to avoid surface floating matter and any bottom sediments. Fresh sea water will be constantly pumped in to feed the pool at the deep

end during swimming hours through 16 inlets spaced equally in two rows symmetrical with the pool's longitudinal axis (see drawing No. 5). Outlets on the opposite shallow end discharge the used water to the sea at the same rate at which it is fed in. This flow is regulated by means of a gate valve placed in a manhole at the outlet side (see drawing No. 6). The used water flows freely back to the sea under gravity. In this respect, pool orientation was chosen to utilize the prevailing wind and shore currents so as to drive used water away from the intakes.

The inlet and outlet fittings are made of bronze with the dimensions shown in drawing No. 7. The total area of the holes in each fitting is made to be equal to twice the area of the pipe in order to reduce the inlet and discharge velocities. The shape of each hole is such that inlet or outlet losses are reduced and turbulence is minimized.

The open type gutters are adopted for this swimming pool and constructed only along its longer sides. The Eastern side gutter drains empty in a canal constructed along-side the projector's tunnel as shown in drawing No. 8. This canal also takes the walkway

drainage and is finally joined to the beach surface drainage which is ultimately disposed of into the sea by means of a system of manholes.

The Western side gutter drains together with the walk-way drains on the same side pour into a 6 inch drain pipe installed in the projector's tunnel. This pipe is connected to the manhole that carries the used water from outlets (see drawing No. 8).

The under water lighting was provided by 32-1500 watt lamps which were installed equally on opposite sides facing one another along the pool's length. Access tunnels were constructed and made water tight to prevent moisture from reaching the projectors.

Pool draining was ultimately accomplished by the drainage pump shown in drawing No. 4.

Drained water discharges into the sea through a pipe that runs into the window tunnel leading to the sump of the feed pumps. This was found to be the most feasible way for installation. Water passes to the drainage pump through two floor drains made of bronze and installed at the deep end of the pool

V- CONSTRUCTION PROBLEMS

Swimming pool construction normally requires special attention and careful levelling, pipe installations, water tightness and aesthetic considerations.

In the case of Long Beach swimming pool, the construction problems encountered were more than expected. Basically the reason for these problems was the fact that the management of the Long Beach decided to execute the work and do it in their own peculiar fashion, in order to acomplish some savings.

This swimming pool is so laid out that its walking area all around the pool is 15 cms below the general beach level which in its turn is 40 cms below the beach benchmark at the bar (see drawing No. 1). The walking area is 3.15 metres above the low tide sea water level. This means that the bottom of the pool at the deep end is about 1.50m below the sea water level.

Excavation of the large amount of material was particularly difficult because of the nature of the rock, hard sea bed-rock, and because of the mode chosen for its excavation (hand excavation using chisels and hammers). This method

was used primarily so that the bathers using the beach would suffer the least disturbance, as the site of pool construction is located at the centre of the Beach Club area. Further, the management did not wish to invite the attention of the municipal police to the works by employing pneumatic jack hammers as they had decided to carry out the work without the necessary permits since the latter was extremely difficult to obtain. The excavation had thus to be carried out in silence and the spoil had to be removed from the job site inobstrusively.

The system of excavation adopted by the management retarted the progress of the work and added to the expense.

At times, and when the opportunity could be siezed, the owners managed to make use of explosives which is also illegal. Although the use of explosives helped in reducing the chisel and hammer work, it led to more serious problems. The rock became fissured, particularly at the deep end of the pool where the bottom is below sea water level. This resulted in sea water seepage. Successful attempts were made to stop the leaks by grouting, but the presence of the seepage water offset any saving that dynamiting may have brought about. It also complicated the casting of the concrete pool floor and walls.

Because of the frequent delays, the work was put off schedule, so much so that the excavation was still incomplete by the time when winter came. Rough sea played havoc with the progress of the work during this season as whenever the sea broke over the beach the pool excavations were filled. It took the only available four-inch pump two days to empty the filled excavation by the rough sea in a few minutes. The risk to the workers during periods of rough sea made the cessation of operations necessary. Any scaffolding that had been put up was naturally washed away. Plastering or tiling work recently completed was partially damaged. This could only further aggravate the work's program and increase cost beyond those anticipated. There was no way of protecting the swimming pool area from the rough sea for, as mentioned previously, the beach site is open to currents and its level is not sufficiently high above the sea level to render it safe from the destructive effects of the waves.

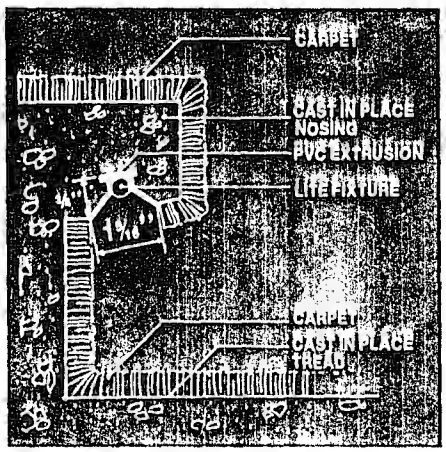
There is a general shortage of labour skilled in such work in the Lebanon. Most of the available skilled labourers are connected with contractors who specialize in this type of work. Unfortunately, the proprietors, in their efforts at saving money, decided to carry out the work themselves and refused to pay wages according to reasonable

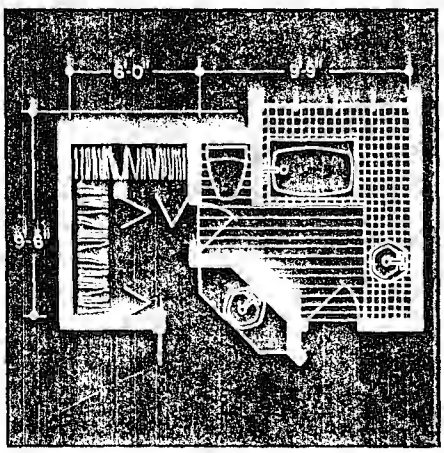
scales. This prevented them from hiring any reasonably skilled labour available for such work.

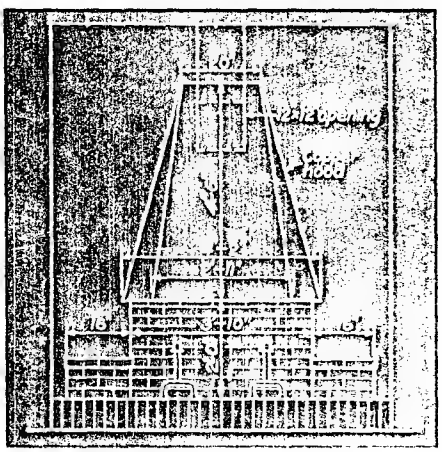
As a result of the fact that the proprietors undertook the construction of the pool without the services of a professional contractor, led to a number of problems which they have to face and additional expenses they have to incur unnecessarily. The proprietors learned to their detriment the high cost of their folly.

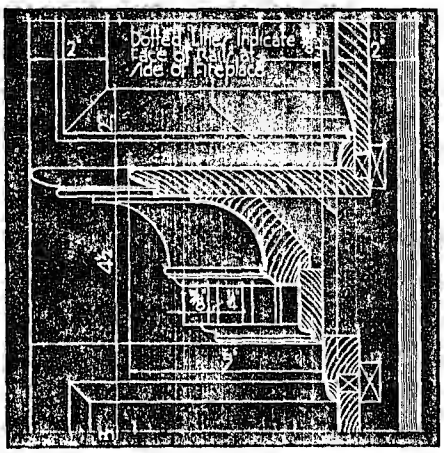
TIME-SAVER STANDARDS FOR INTERIOR DESIGN AND SPACE PLANNING

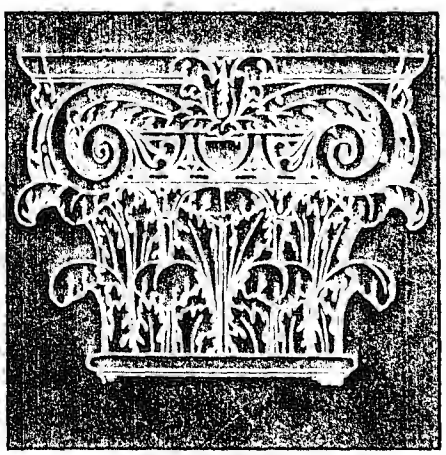
JOSEPH De CHIARA JULIUS PANERO MARTIN ZELNIK

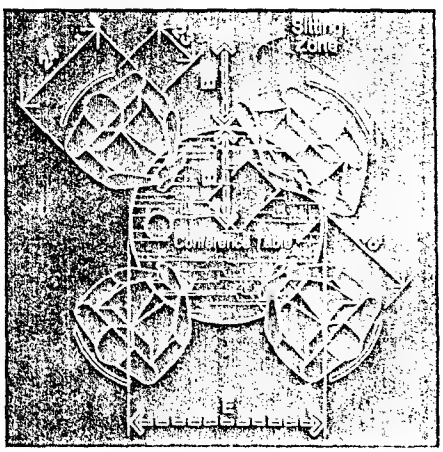


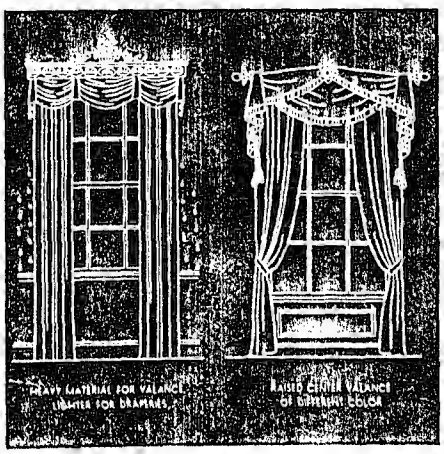


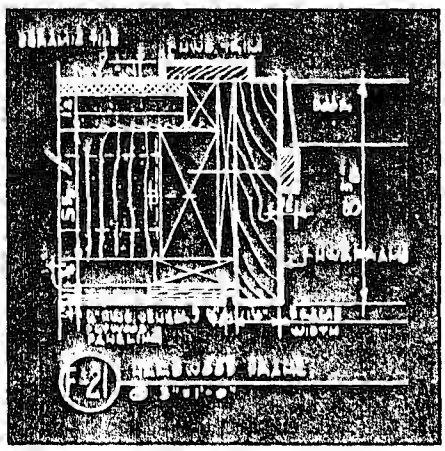


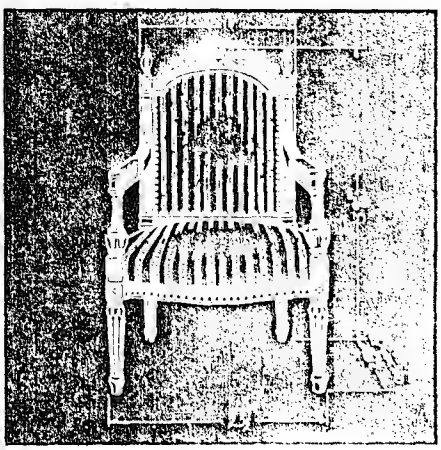












HOTELS

Guestroom Plans

It is interesting to note how trends in hotel design have headed off in two directions, especially in regard to the design of rooms. On one hand, an effort is being made to provide more luxurious multipurpose rooms and suites. The hotel room as office away from work or as fantasy sleeping/relaxation environment often results in rooms with work areas, living rooms, and hot tubs, just to name a few of the more popular amenities. On the other hand, there is a trend toward economy accommodations. Hotel rooms are being designed as a place to rest and sleep, a place to feel comfortable and safe at a reasonable cost. Accordingly, these rooms use less floor area and provide less secondary or frill items. With both of these approaches, however, designers must ensure that the room or suite layouts are accessible to the physically challenged. In that regard, various room layouts and bathroom plans are provided in this section that address this issue.

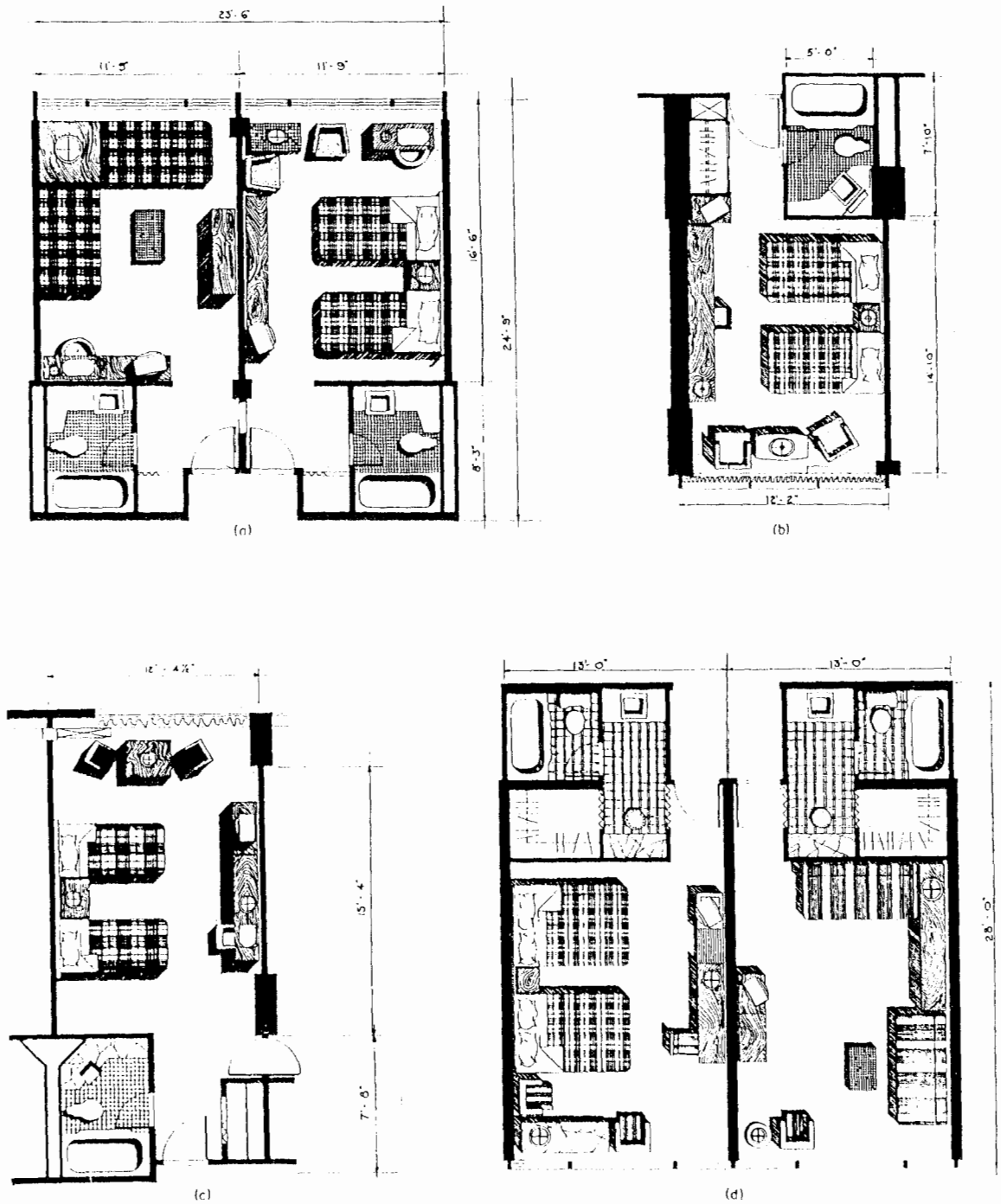


Fig. 1 *(a)* Uris Brothers Hotel, New York. *(b)* Americana Hotel, New York, typical tower room. *(c)* Loews N.Y. Motel, typical room. *(d)* Causeway Inn, Tampa, Florida.

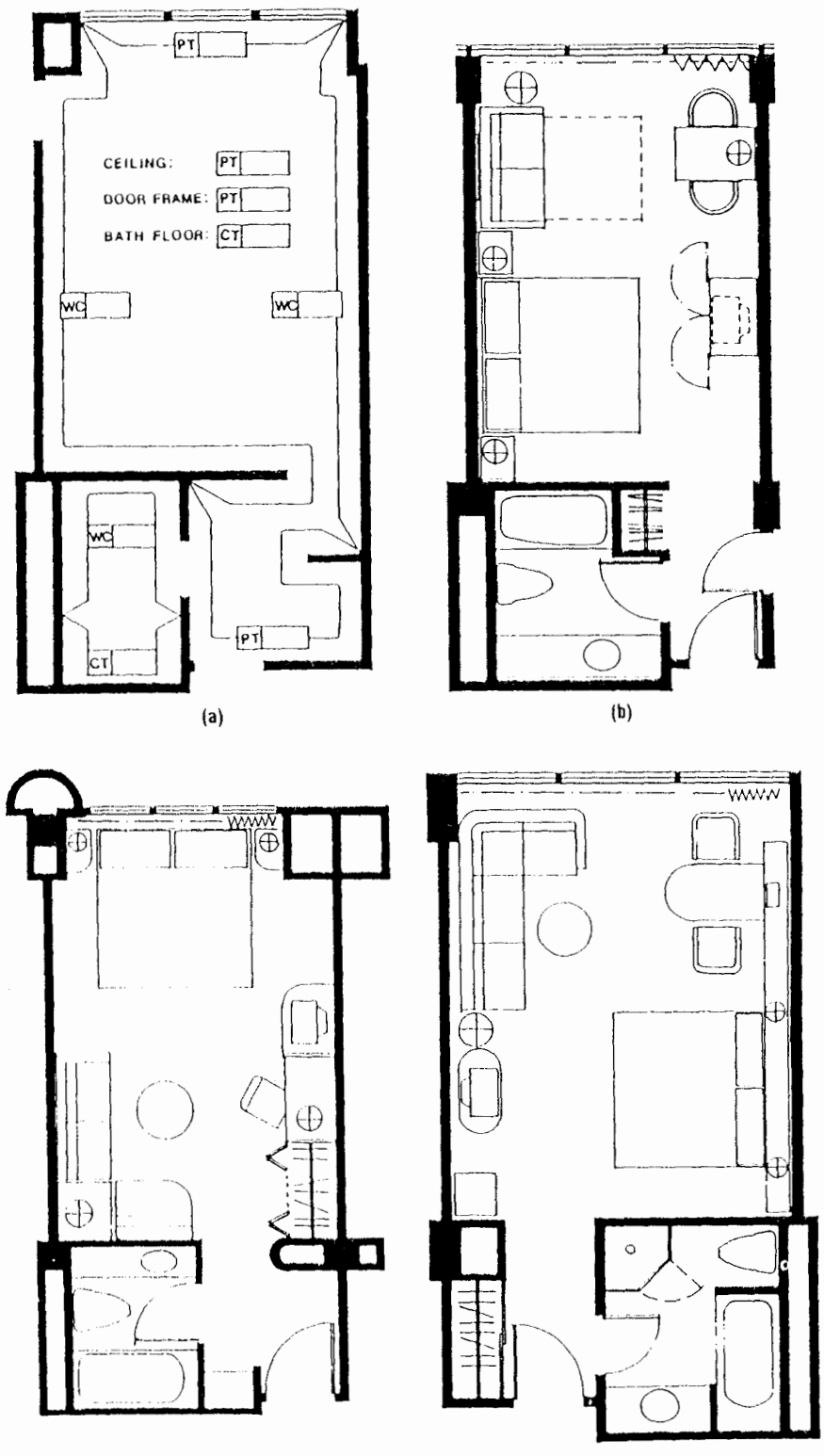


Fig. 2 Guestroom plans. *(a)* Typical double-double finishes plan: vinyl wallcovering (WC), paint (P), carpet (C), ceramic tile *(CT)* identified and keyed to legend. *(b)* King-studio (Holiday Inn): standard layout with armoire unit and large lounge area including a convertible sofa. *(c)* Reversed layout (Sheraton, Washington, D.C.): unusual room with bed placed in front of window and lounge area near bathroom. *(d)* Luxury king room (Sheraton Grande, Los Angeles): oversized room with shelf/ledge in place of headboard, large desk surface, and lounge area; four-fixture bathroom.

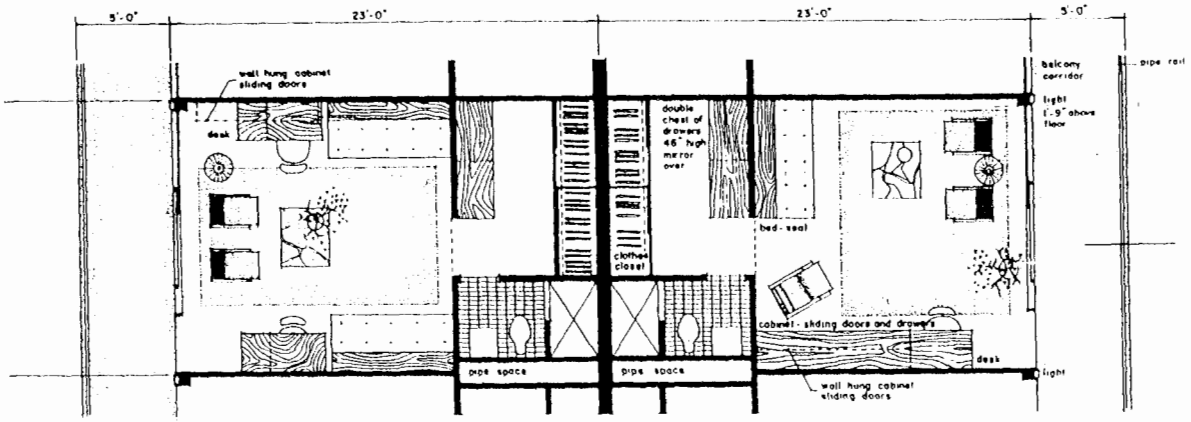


Fig. 3 Motel rooms – exterior entrance.

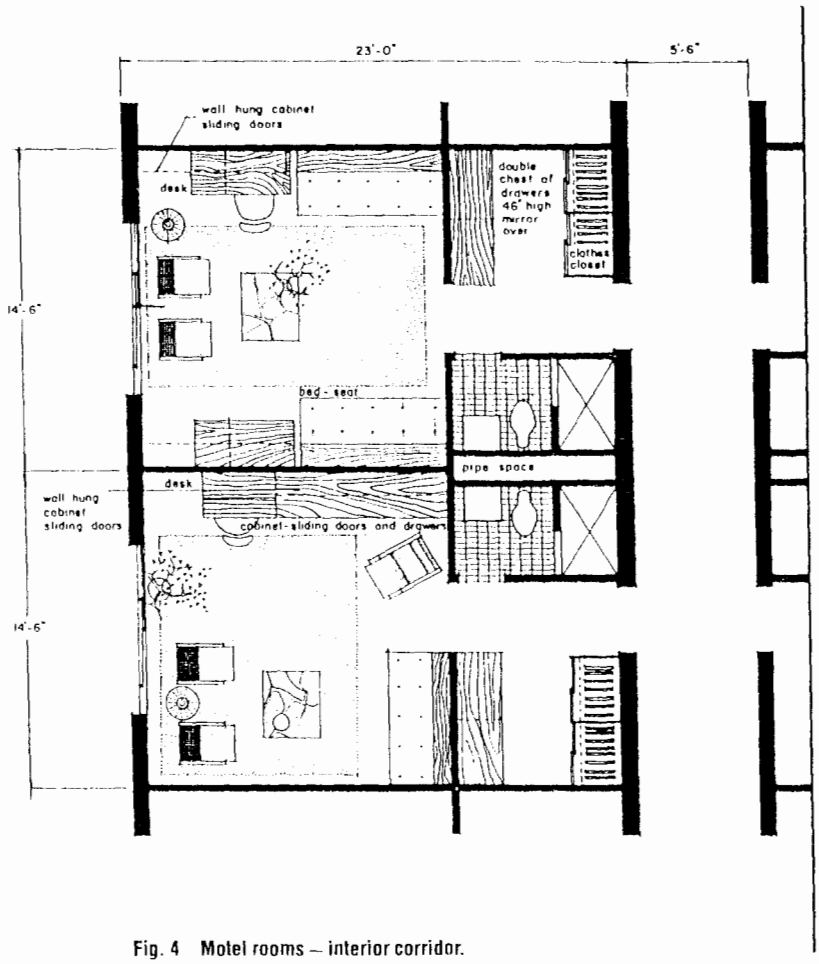
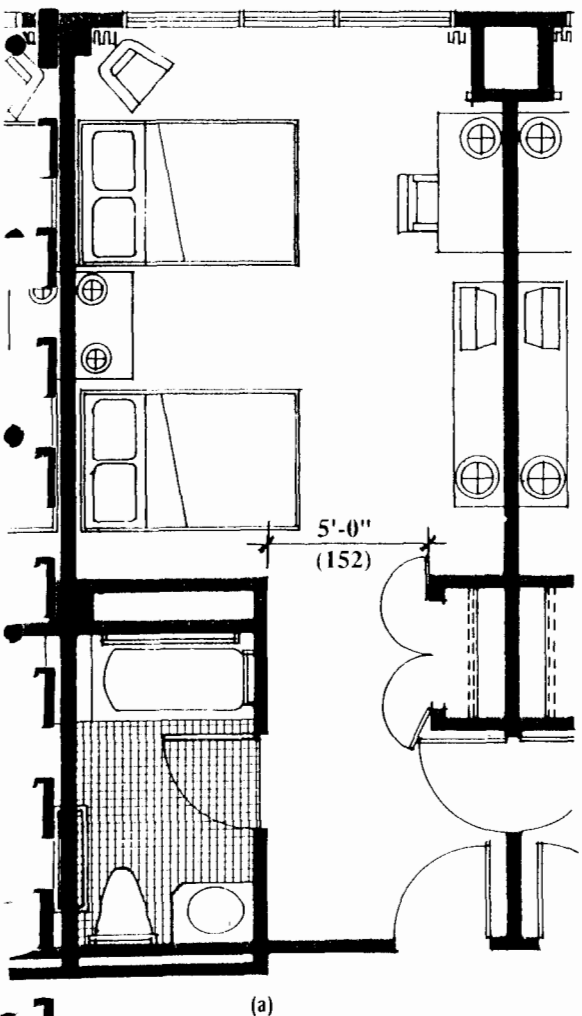


Fig. 4 Motel rooms – interior corridor.

oom Plans

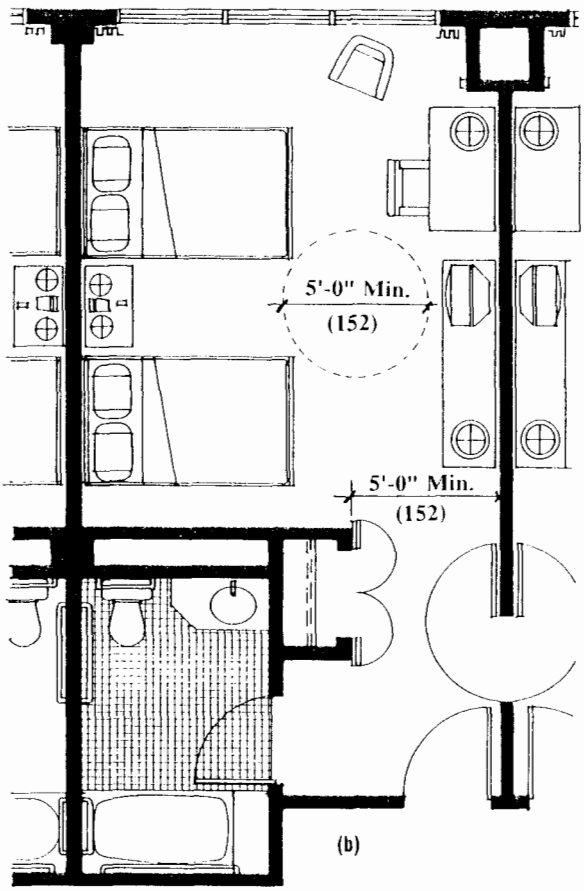
Accessible guestrooms have design features nd floor plans that provide the maneuvering nces for guests with limited mobility. es 5 to 9 show sample plans of guestrooms and bathrooms with the required:

- Widths and clearances at the entry, cting, closet, and bathroom doors
- Maneuvering space in front of the closet, in the sleeping area, and within the throom
- Clearances to use and transfer to fix- in the bathroom
- learances to open dresser drawers, to maneuver into kneespace at the desk, and to access the bed, bedside table, windows, , and thermostat
- arances may depend on the design of ic furnishings. The width of the access isle at the bed is determined by the design of the bedside table. Access to dressers is mined by the width of the drawer. The uvering space to turn into the desk is determined by the width of the kneespace.



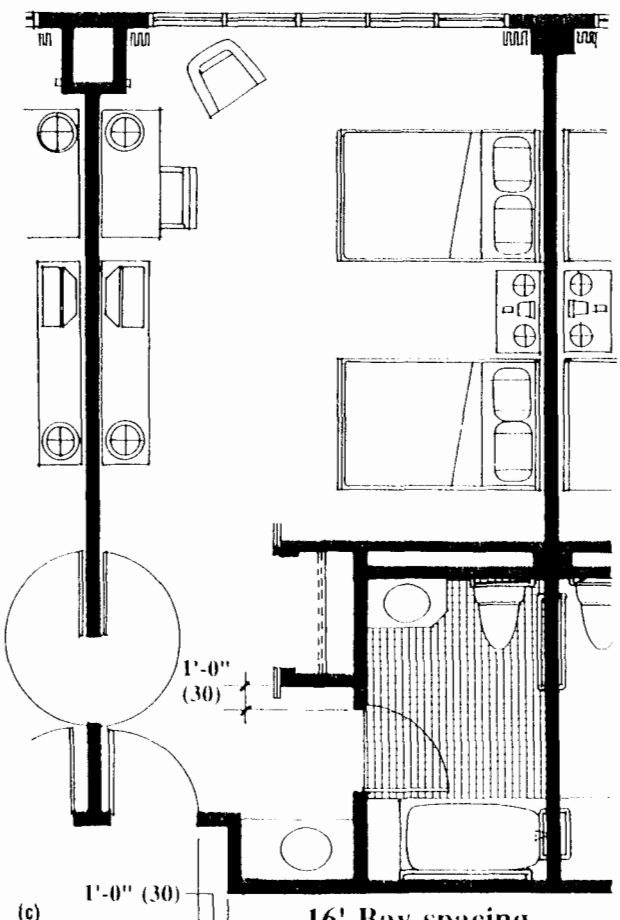
(a)

14' Bay-spacing



(b)

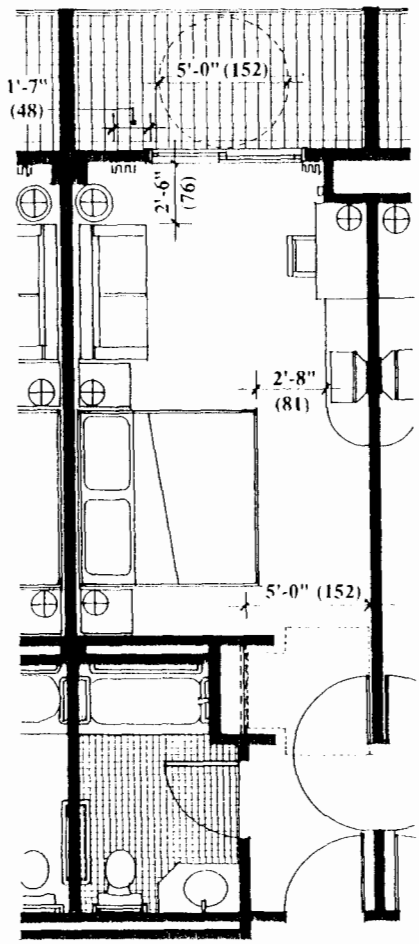
15' Bay-spacing



(c)

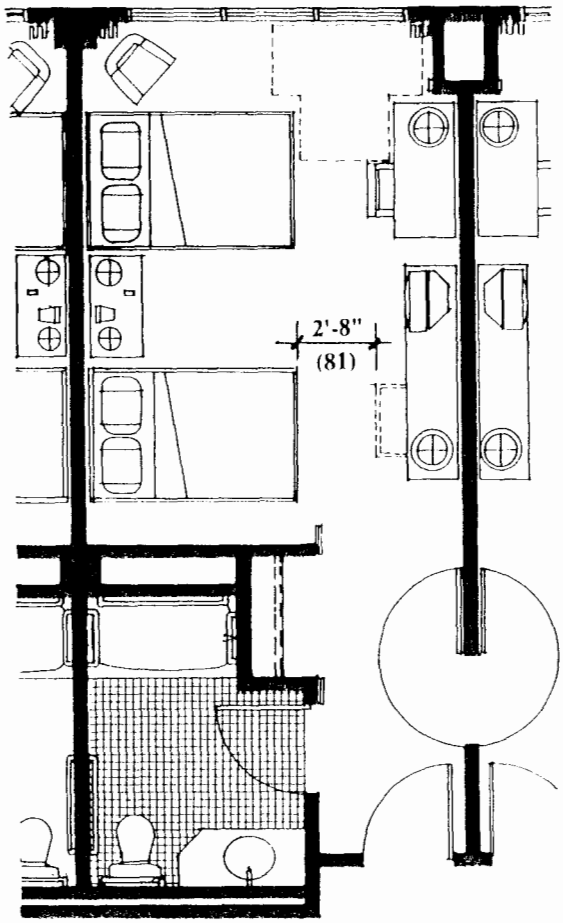
16' Bay-spacing

Bay-spacings of *(a)* 14', *(b)* 15', and *(c)* 16' can easily modate guests with restricted mobility.



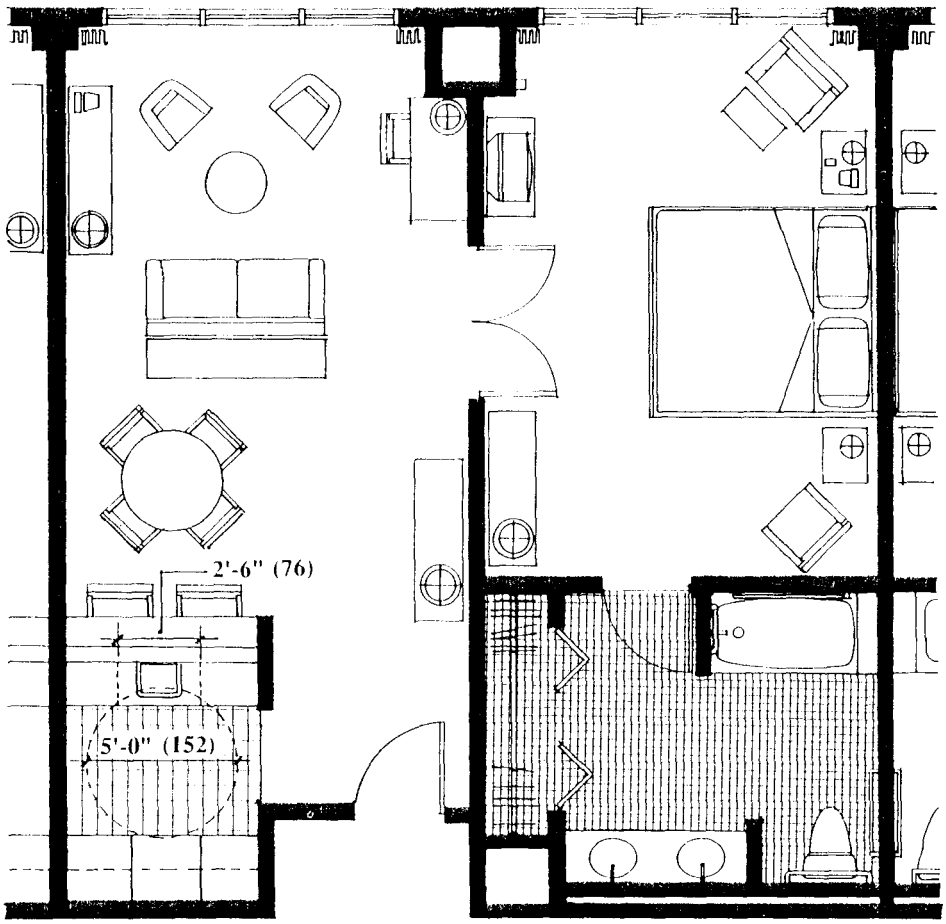
12' Bay-spacing

Fig. 6 This alternative 12'0" bay-spacing design requires the dresser to be offset from the foot of the bed. The bathroom wall is stepped back to provide clearances for the bathroom door and connecting door. The heating/cooling unit projects into the room to allow access to the thermostat. If balconies are provided, a minimum depth of 5'0" is recommended to allow guests with wheelchairs to turn around.



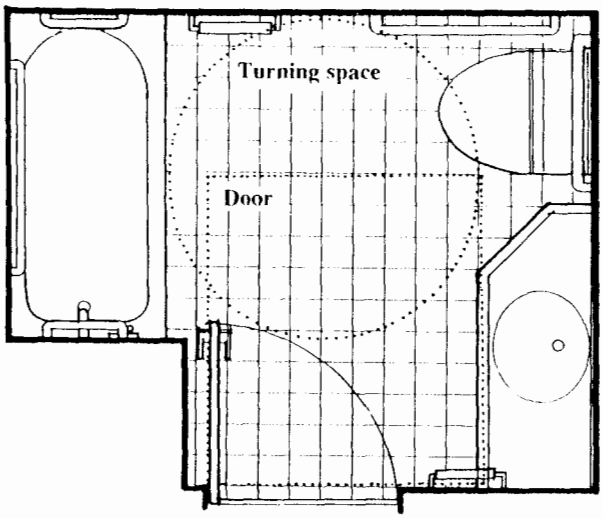
13' Bay-spacing

Fig. 7 A 13'0" bay-spacing provides room for wheelchair clearances, including a turning space in front of the closet and at the foot of the beds, an access aisle between the beds, a T-turnaround at the window aisle for access to temperature controls and blinds and drapes, door clearances, and a bathroom that meets ANSI standards.



Suite with 14' Bay-spacing

Fig. 8 Accessible suites should meet the same requirements for accessible guestrooms and guest baths. Because suites are usually more generous in terms of space, providing accessibility is less difficult. If a small kitchenette is included, a kneespace 2'3" high should be provided below the sink. A countertop height of 2'10" (2" lower than standard) is suitable for both ambulatory guests and guests in wheelchairs. A pull-out lapboard at a height of 2'6" provides a workspace for guests in wheelchairs. The kitchenette should include a 5'0" turning space.



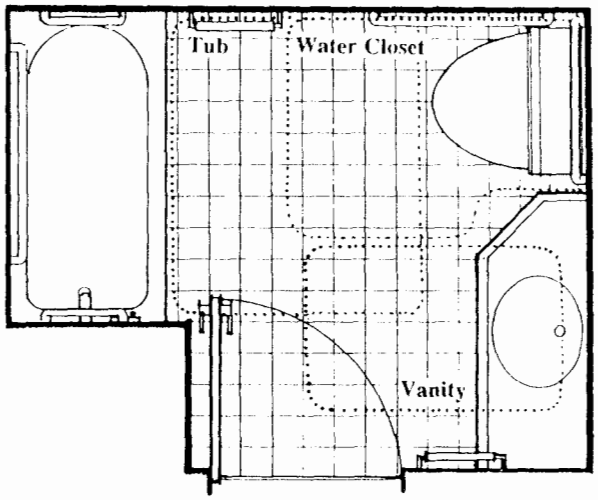
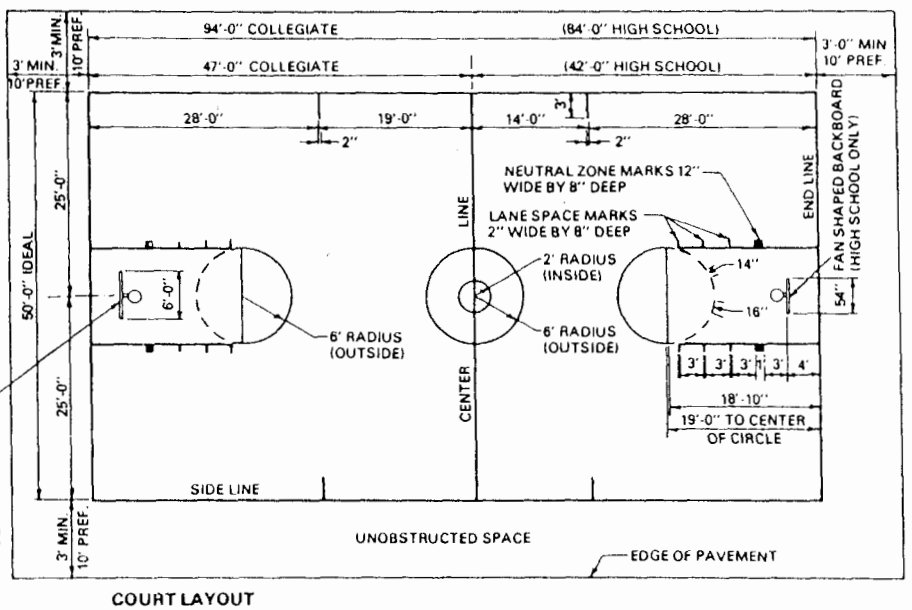
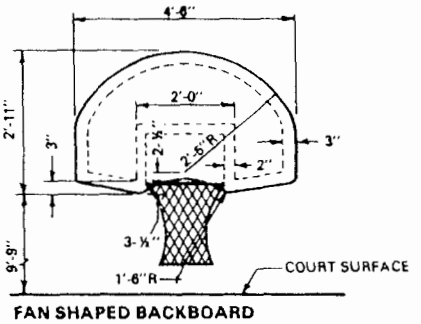


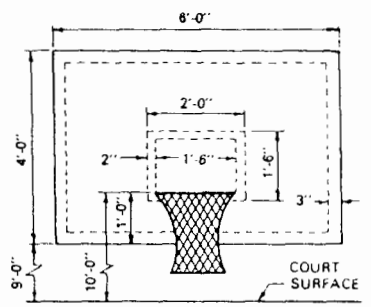
Fig. 9 These two diagrams illustrate the same bathroom plan with the required clearances for door operation and turning space and access to each fixture, including the tub/shower, vanity, and water closet. Clearances for maneuvering space, door operation, and individual fixtures can "overlap." Because of the vertical characteristics of wheelchairs, clearances can include toespace (9" high) below water closet and kneespace (2'3" high) below vanities.



COURT LAYOUT

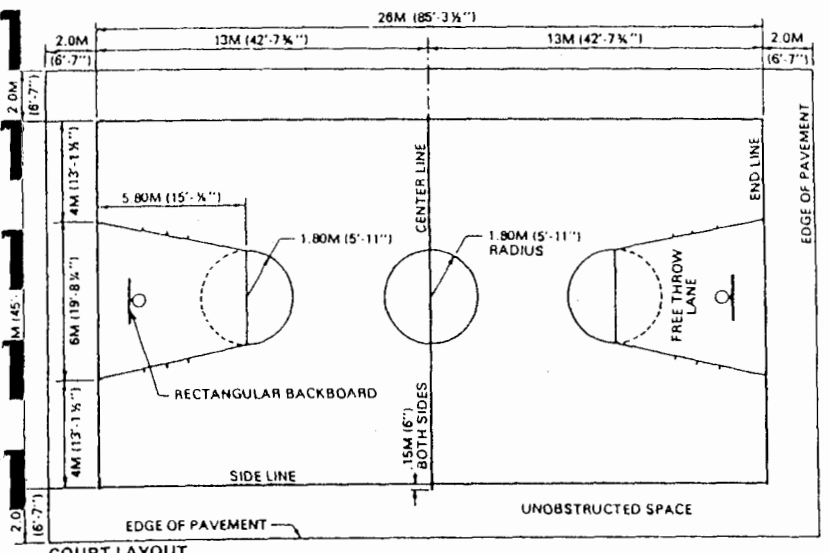


FAN SHAPED BACKBOARD



RECTANGULAR BACKBOARD

Fig. 1 NCAA basketball. The color of the lane space marks and neutral zone marks shall contrast with the color of the bounding lines. The midcourt marks shall be the same color as the bounding lines. All lines shall be 2 in wide (neutral zone excluded). All dimensions are to inside edge of lines except as noted. Backboard shall be of any rigid weather-resistant material. The front surface shall be flat and painted white unless it is transparent. If the backboard is transparent, it shall be marked with a 3-in wide white line around the border and an 18 x 24-in target area bounded with a 2-in wide white line. [High school recommended court is 84 x 50 ft with a 10-ft unobstructed space on all sides (3 ft minimum). Collegiate recommended court is 94 x 50 ft with a 10-ft unobstructed space on all sides (3 ft minimum).]

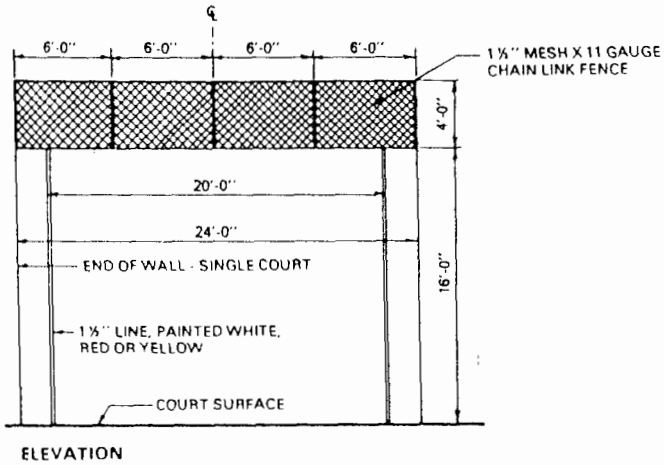


COURT LAYOUT

g. 2 AAU basketball court. All dimensions are to inside edge of lines except as noted. All lines to be .05 m (2") wide. Backboard shall be of any rigid weather-resistant material. The front shall be flat and painted white unless it is transparent. If the backboard is transparent, it shall be marked with a .05-m-wide white line around the border and a .45 x .59-m target area bounded with a .05-m-wide hite line.

INDOOR RECREATION

One-, Three-, and Four-Wall Handball



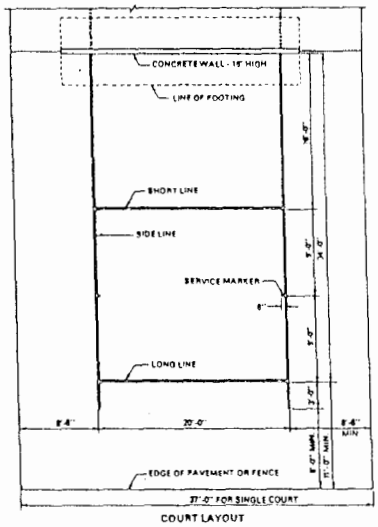


Fig. 3 One-wall handball. Playing court is 20'0" wide by 34'0" long plus a required 11'0" minimum width of surfaced area to the rear and a recommended 8'6" minimum width on each side. Courts in battery are to be a minimum of 6'0" between courts. Court markings: 1½-in-wide lines painted white, red, or yellow.

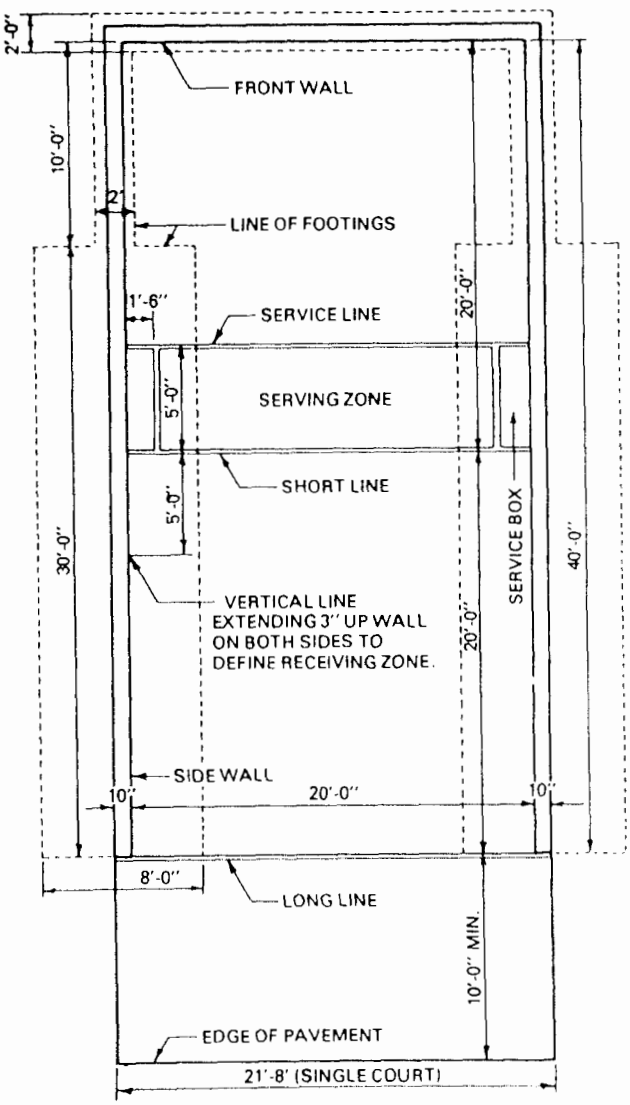


Fig. 4 Handball court layout — four-wall. All court markings to be 1½ in wide and painted white, red, or yellow.

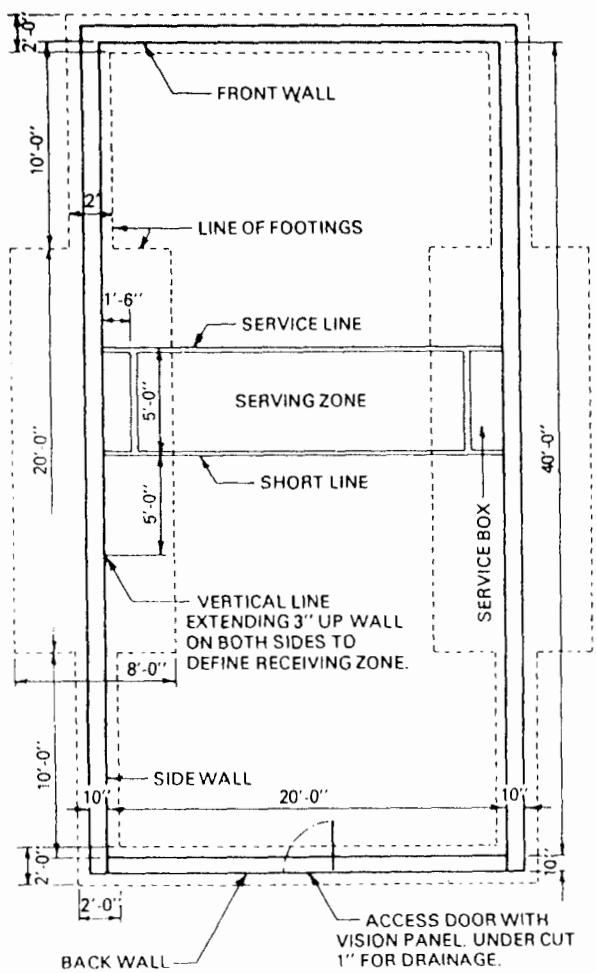


Fig. 5 Handball court layout — three-wall. All court markings to be 1½ in wide and painted white, red, or yellow. Playing court is 20'0" wide by 40'0" long plus a minimum 10'0" to the rear of the three-wall court. Overhead clearance required is 20'0" minimum.

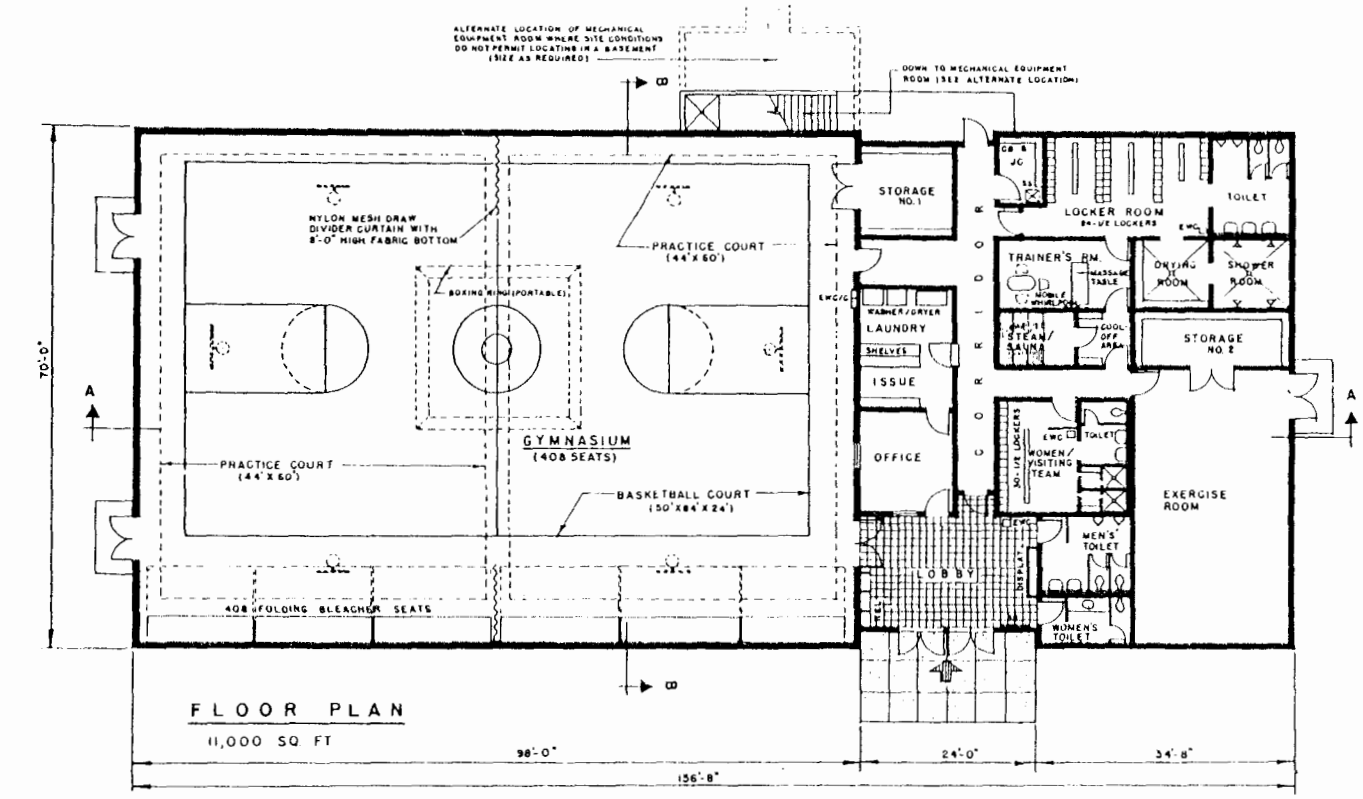
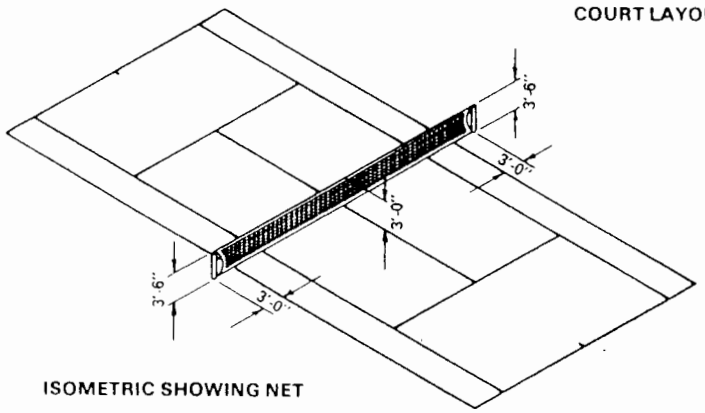


Fig. 6 Gymnasium plan and section.



ISOMETRIC SHOWING NET

COURT LAYOUT

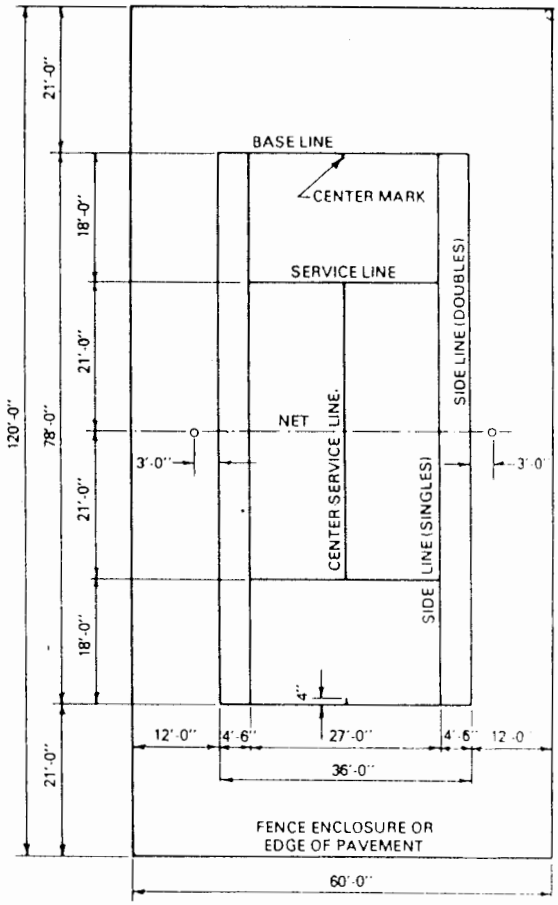
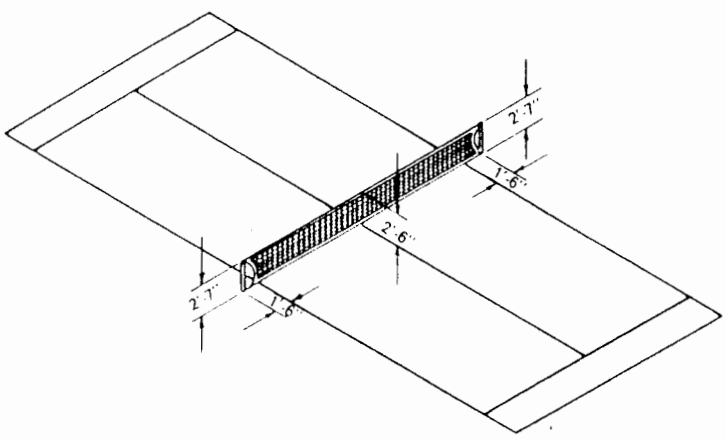
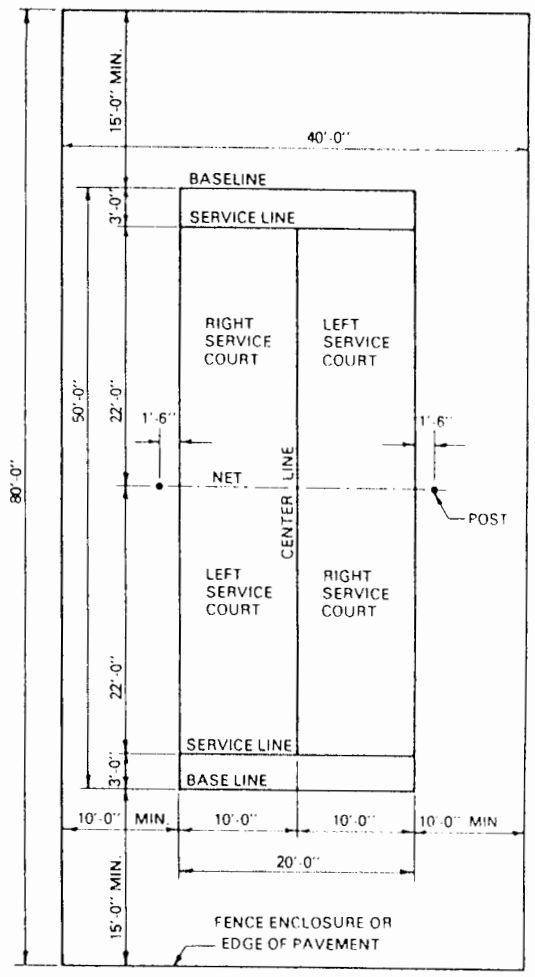


Fig. 7 Tennis court. All measurements for court markings are to the outside of lines except for those involving the center service line which is equally divided between the right and left service courts. All court markings to be 2 in wide.

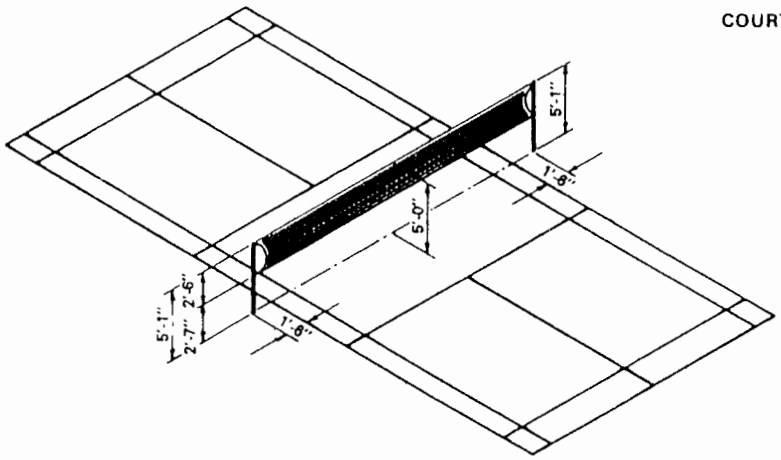


ISOMETRIC SHOWING NET



COURT LAYOUT

Fig. 8 Paddle tennis court. All measurements for court markings are to the outside of lines except for those involving the center service line, which is equally divided between right and left service court. All court markings to be 1½ in wide.



SOMETRIC SHOWING NET

COURT LAYOUT

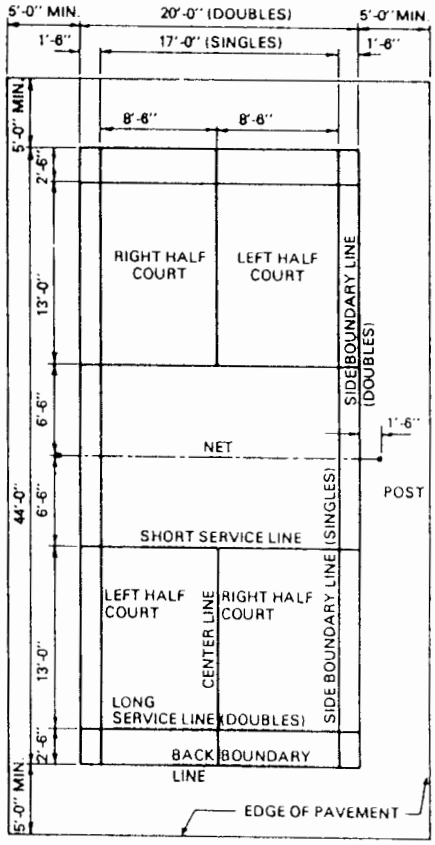
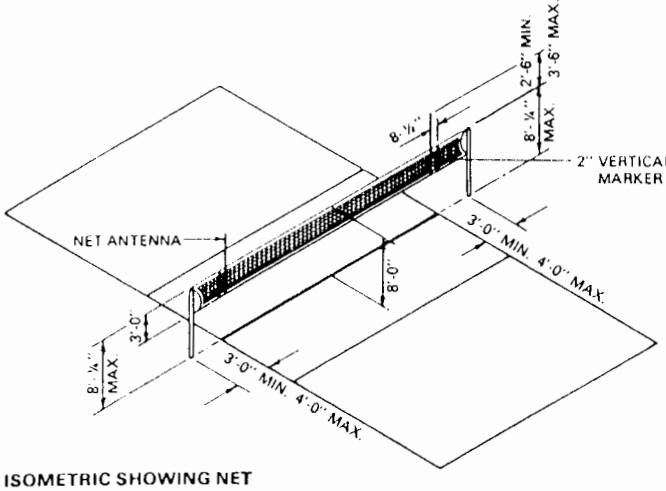


Fig. 9 Badminton court. All measurements for court markings are to the outside of lines except for those involving the center service line which is equally divided between right and left service courts. All court markings to be 1½" wide and preferably white or in color. Minimum distance between sides of parallel courts to be 5'0".



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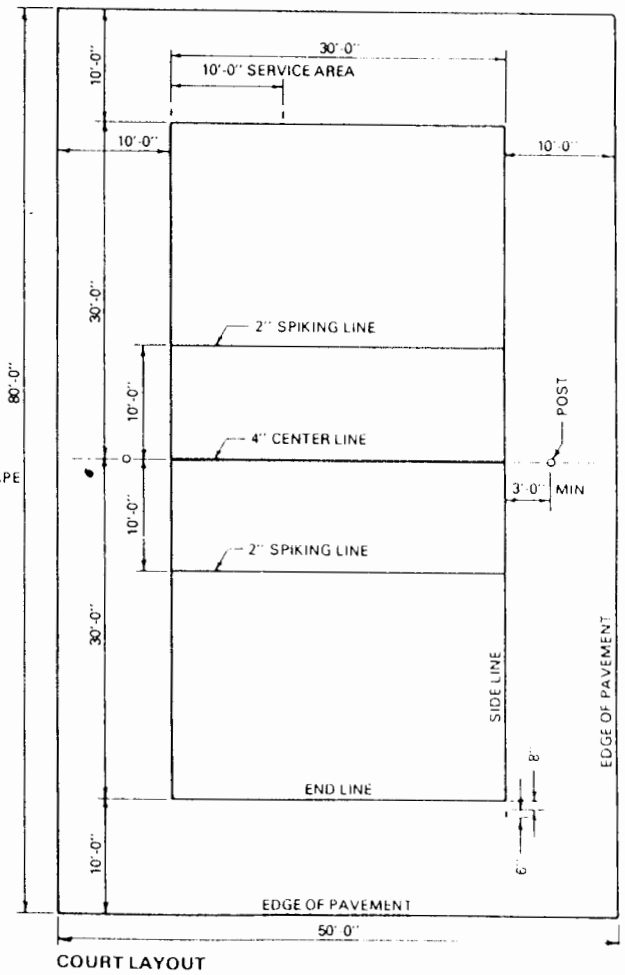

COURT LAYOUT

Fig. 10 Volleyball court. All measurements for court markings are to the outside of lines except for the centerline. All court markings to be 2 in wide except as noted.

Ernst Neufert

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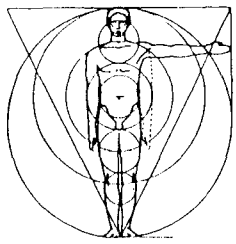

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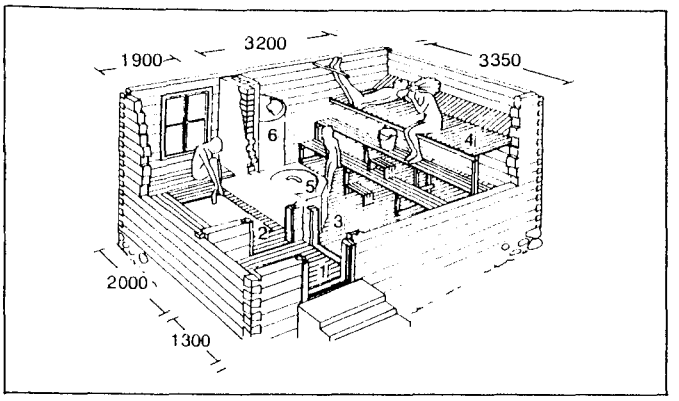
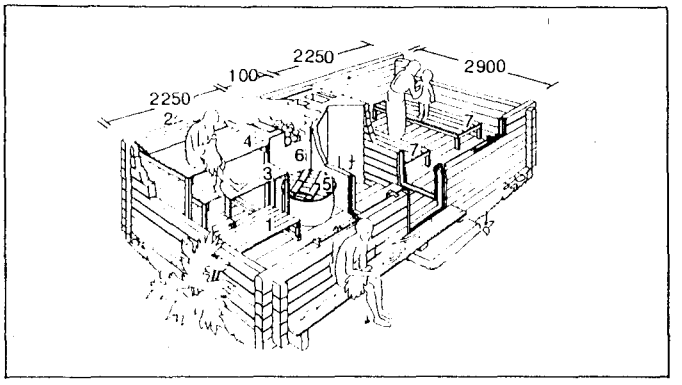
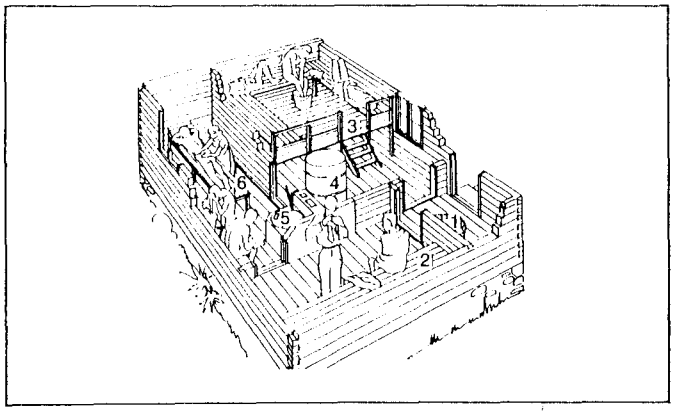


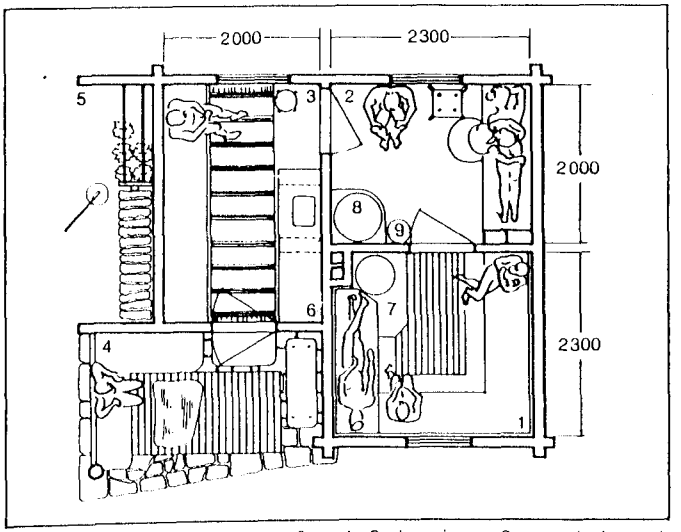
1 Sauna with lobby 1, changing rm 2, bathr 3, benches 4 →p338(4–7), water tank 5, bath stove 6



2 Sauna with lobby between bathr 1–6, & changing rm 7



3 Larger sauna with lobby 1, changing rm 2, bathr platform 3, with stove 4, & massage rm with water boiler 5 massage bench 6, water basin 7



4 Sauna with bathr 1, massage & washr 2, changing rm 3, veranda 4, wood sto 5, cpd 6, bath stove 7, water boiler 8, & water supply 9

Sauna more than body bath: for many also method of mental cleansing. In Finland 1 sauna/6 P; used 1/week.

Bathing process: alternate application of hot and cold air, sweating in dry hot air, hot clean gusts of water vapour at 5–7 minute intervals by pouring on ¼ l water. Can be supplemented with intermediate application of cold water, followed by massage and rest.

Construction: usually blocks or timber: good heat insulation necessary for enclosing walls since heat difference between inside and outside can often be more than 100° in winter.

Bathing area small as possible, ≤ 16 m^2 ≤ 2500 high. Dark wooden lining to reduce heat radiation on ceiling and walls or solid wooden walls of soft wood, except for stove area. Plank beds of lattice (air circulation) at various heights for comfortable sitting and lying, top bed approx 1000 below ceiling. Plank beds demountable for cleaning, floors of gripping material, no wood frames.

Smoke sauna: layered stones heated to high temp by wood fire, smoke being sparingly drawn off through open door. When stones glowing fire removed, remaining smoke driven off by water and door closed. After short time sauna 'ripe' for bathing. Good smell of smoked wood and reliable vapour quality. 50% traditional Finnish saunas built this way.

Fumigating sauna: after heating with smoke removal, 'heated inwards' when stove bricks heated to about 500°C. Combustible gases burn out completely without causing soot. Stove doors then closed even if still flames in grate. Temp quickly rises by 10–20°C. Last carbon fog removed before bathing by quickly opening door etc and ladle of water splashed over stones.

Chimney sauna: brick stove clad in jacket of stone or tin sheet which guides smoke and gases to chimney. Heating by fire door to bathr or lobby. When stones hot fire door closed and upper air flap in stove jacket opened when required to let out hot air or pour water on stones.

City sauna: with special el heater; heat regulation of el heated stones with press button.

Temp: at ceiling 95°C dropping by 60°C down to floor.

Relative humidity: 5% or 10% at 90° or 80°C: 100–120°C also possible if sufficiently low air hum. Sweat then evaporates immediately.

Shower or water rm: where possible separated for initial washing and water cooling, 1½–twice size of sauna area, without wood if possible. Hip bath worth while 1000 × 1000, 1100 deep.

Air bath: for breathing in cool fresh air to balance hot air, cooling of body. Protect against peeping. Shower, spray and cold water basin desirable. If no open air bath possible, then well ventilated area.

Changing: open rm or cabins, twice as many as visitors at peak times (public sauna) →p338.

Rest rm: rest benches for half guests in sauna area, remote from functional area.

Massage rm: allow for 30 persons, 2 massage points (public sauna).

Details construction & eqp public sauna →p338

Garden references:
→Bibliography entries 002 021 032 066 087 155 161 166 167 171 263 264 320 376 410 411 430 431 466 482 550 562 563

STADIA: GENERAL DESIGN

Sports data on following pages compiled with help of British Sports Council Technical Unit for Sport: basic technical information gathered from governing bodies of sports and games covered.

Activities divided into 3 categories: outdoor; those which can be played in common spaces indoors; those which essentially need separate or exclusive space. Governing bodies commonly specify dimensions for 3 standards of play: international and national; county and club; recreational. In some instances standard dimensions available for olympic competition and for sports for disabled: for these dimensions for all standard have not been included; unless specified they are inadequate for national standards.

Several sports subject to statutory requirements for lighting, temp, playing surfaces and eqp: always refer to Technical Unit for Sport and to governing body.

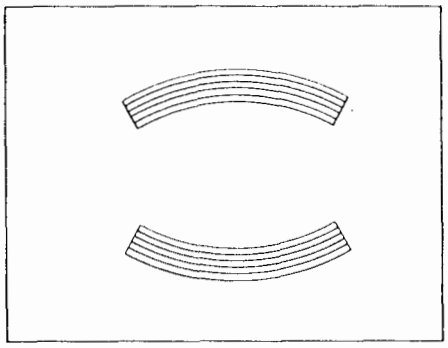
NB for UK stadia, terrace and seating design, reference must be made to Guide to Safety at Sports Grounds (Football)

Combined soccer pitch with running track round it conforming to recognised international athletics standards may determine size of sports area: basic shape ellipse →(6)

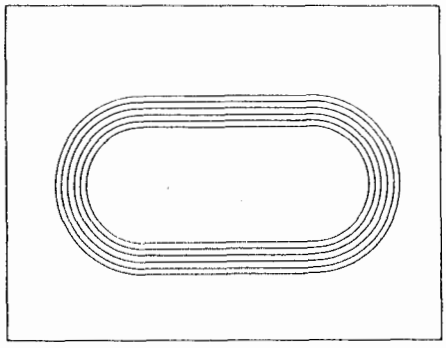
Stadium usually part excavated: earth so gained built up all round. Combination of grandstand with changing rm, shower, first aid rm and provision for police, fire service, admin, press, broadcasting now usually avoided (economy and hygiene). Dormitories for training courses in separate bldg.

Town planning: stadia should be well integrated with surroundings, with easy access for traffic and supplies (rail station, bus stops, car parks etc). Neighbouring industries with smoke, smell and noise undesirable.

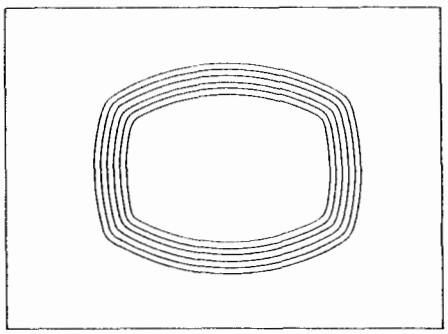
Group together covered and open-air installations for different sports: if possible in town's green belt.



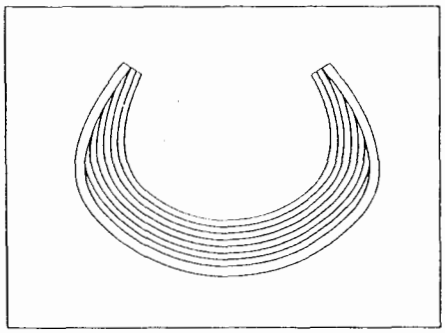
1 USA: segmental



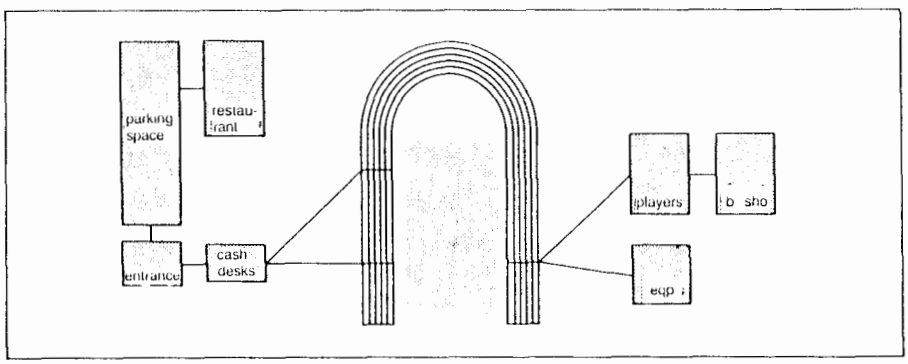
2 Amsterdam: semicircular



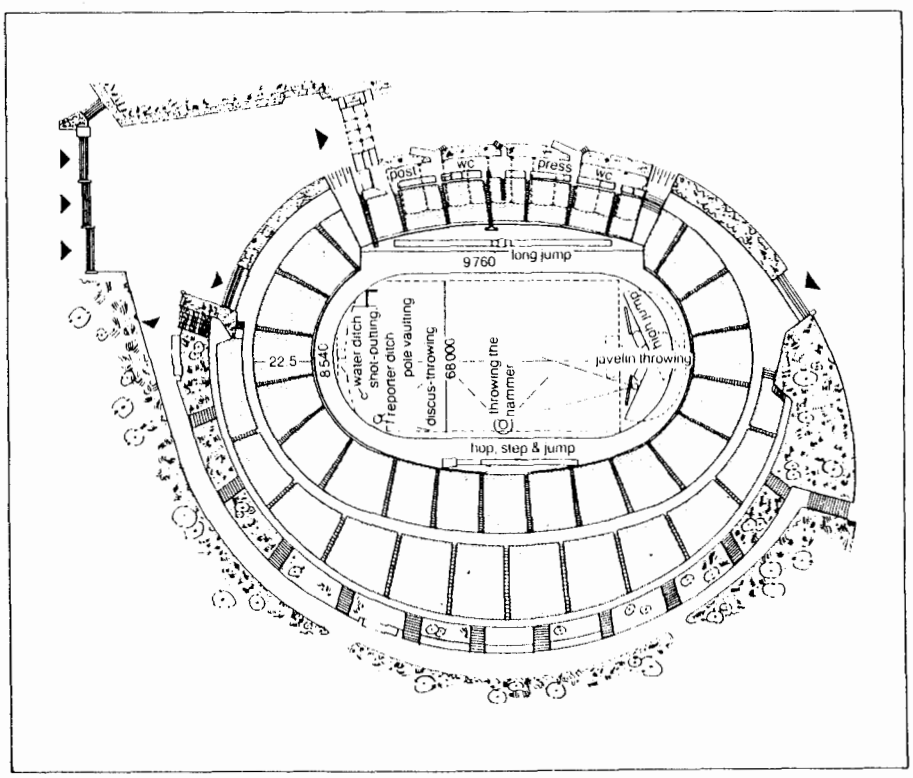
3 Rotterdam: sides & corners curved; for football only



4 Budapest: horseshoe shape about transverse axis



5 U-shaped plan

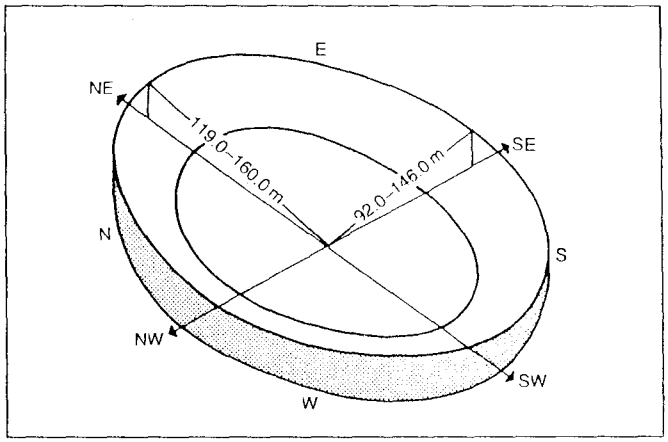


6 Stadium at Hanover Arch Hillebrecht Goesmann

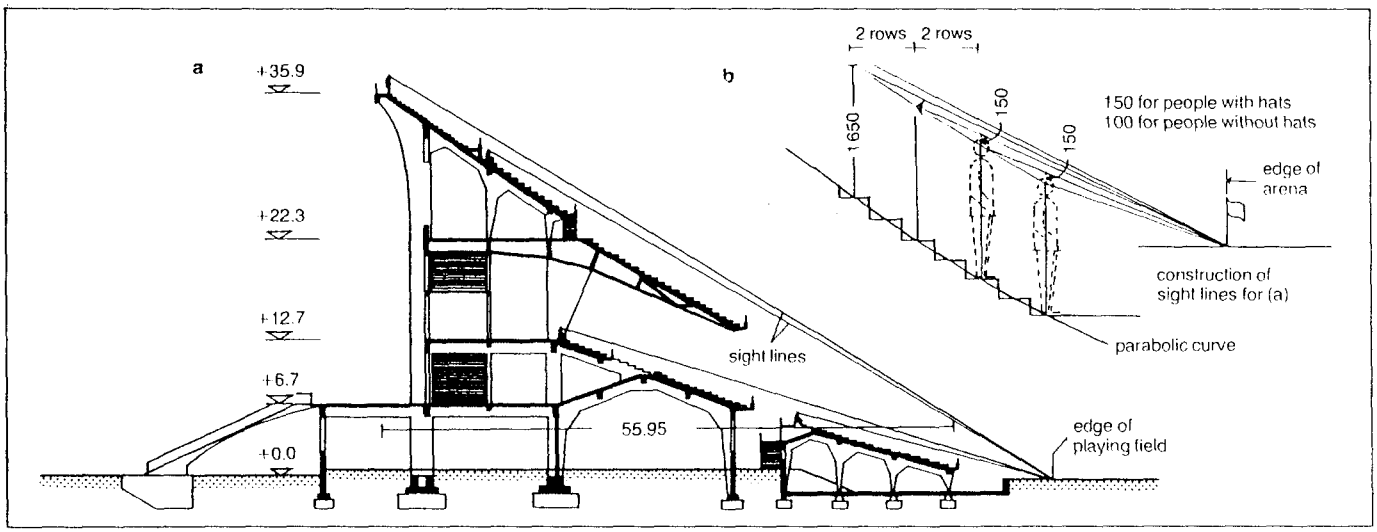
Sport: stadia

SIGHT LINES

In Europe axes of stadia usually NE-SE →(1) ensure most spectators have sun behind them. According to Vitruvius (1st century BC) rows of seats and standing terraces should rise at steady rate 1 : 2 for acoustic reasons also. Today use of amplifiers makes good view only criterion for tiering. For staggered seat arrangement every other back row should look over heads of corresponding front rows: gives parabolic curve →(26) starting with rise of ≥ 380 and ending with rise of ≤ 480. Best views on long sides within segment; hence stadia of this shape, first built by Hadden (USA), which give new and convincing impression.



1 Visibility determines size of stadium



2 Design for grandstand of stadium for 100 000 spectators (Nervi) **a** section **b** construction of sight lines

TRAFFIC

Stadia should be near traffic arteries, accessible by road and rail, with projecting turnstiles so that spectators can divide into streams for different entrances. These usually at half height of grandstand, giving access to rows higher and lower by ramps or stairs →(2). Calculate widths of passages and stairs according number of spectators leaving stadium as all leave at same time in contrast to gradual arrival. According van Eestern's investigations 5000 spectators at Amsterdam stadium need 420 s to leave by 9500 stairways (Los Angeles 720 s Turin 540 s).

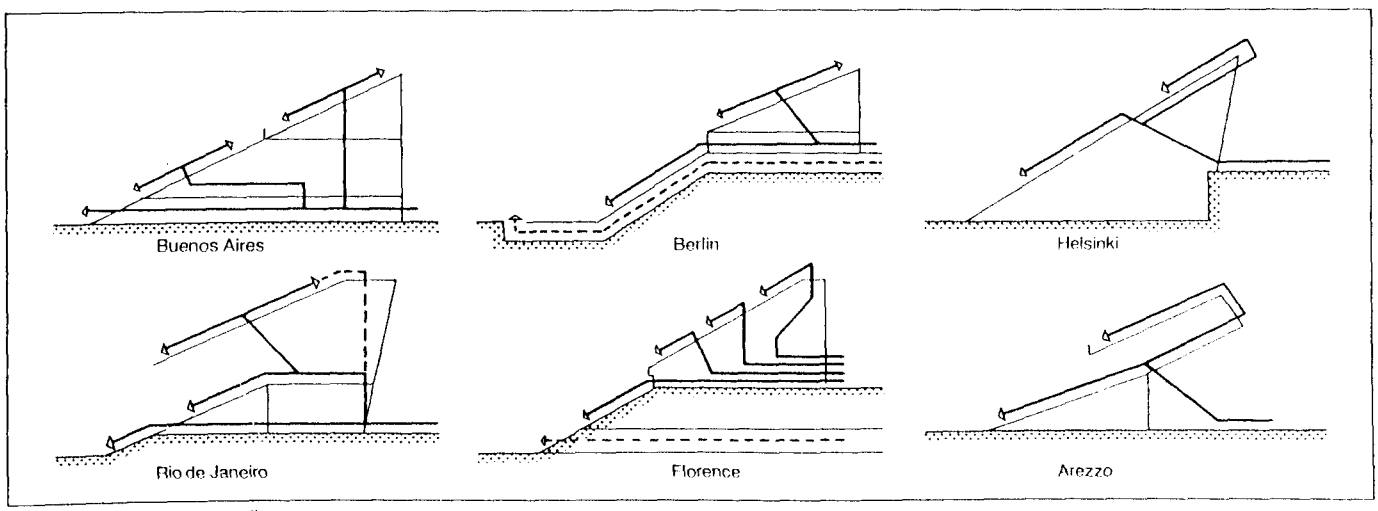
1 spectator occupies 1 000 stair w in $\frac{9500 \times 420\ \text{s}}{5000} = 0.8\ \text{s}$ or

in 1 s $\frac{5000}{9500 \times 420\ \text{s}} = 1.25$ spectators occupy 1 000 of stairway w.

To determine stair w to evacuate given number of spectators from stadium within given time: stair w $= \frac{\text{number of spectators}}{\text{departure time in s} \times 1.25}$

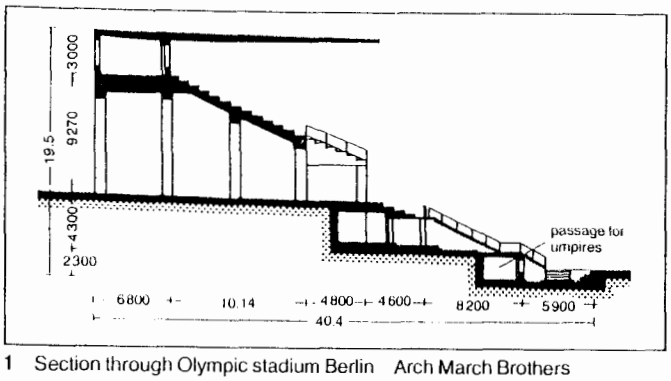
Stairs and corridors flow times →p407–8

Check applicable codes and standards.

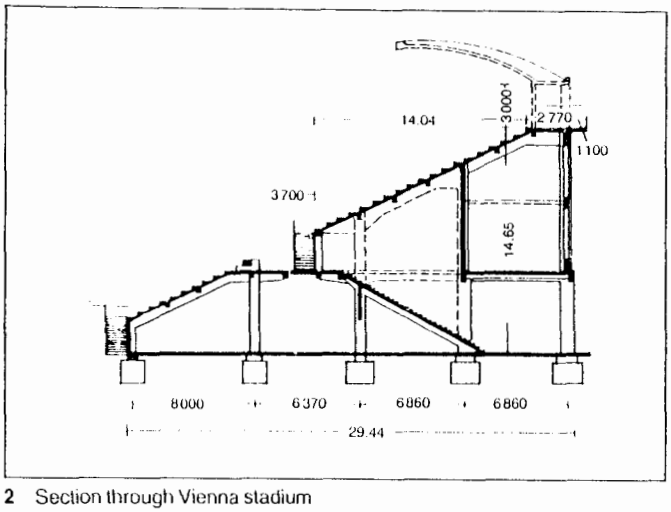


3 Circulation routes in stadia

Sport: stadia



1 Section through Olympic stadium Berlin Arch March Brothers



2 Section through Vienna stadium

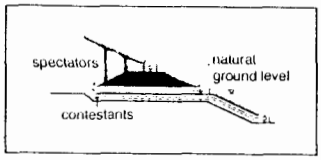
Standing terraces: proportion w : h 400 : 200 →(4)–(9)

Seating terraces: proportion w : h from 800 : 480→(11)–(17)

After 5 steps firm railings (crush barrier)

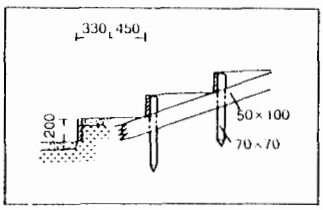
Lower passageway all round ≥ 1250 wide

Double and treble standing terraces no longer built

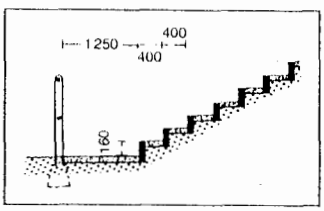


3 Section through stadium with partial excavation, earth mound & superstructure

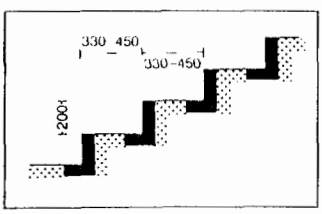
STANDING TERRACES



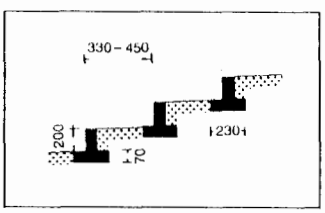
4 Steps with timber reinforcement



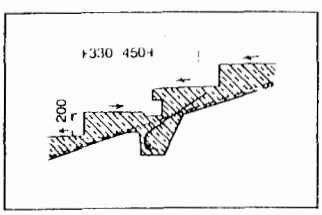
5 1 per person



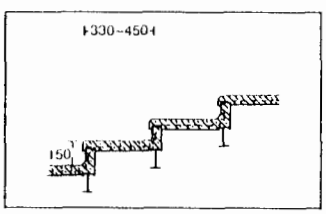
6 Angle steps



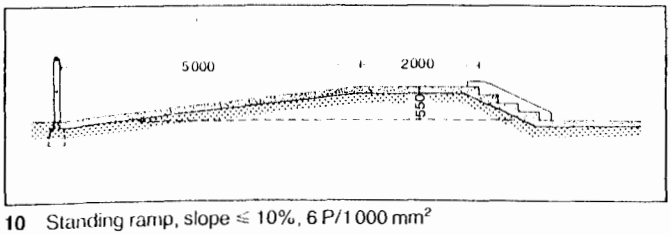
7 Movable concrete units



8 Reinforced concrete with falls to drain

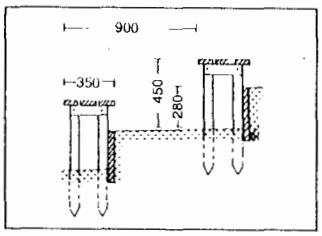


9 Prefabricated RC units on steel joists

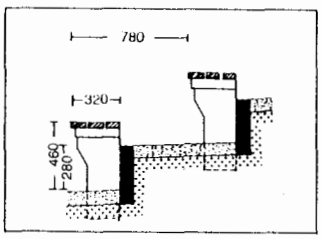


10 Standing ramp, slope ≤ 10%, 6 P/1 000 mm²

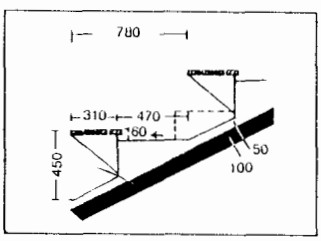
SEATING TERRACES



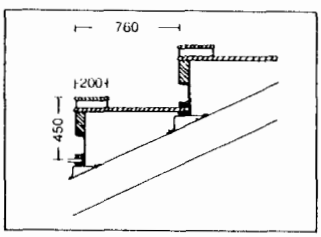
11 Wooden benches with plank step



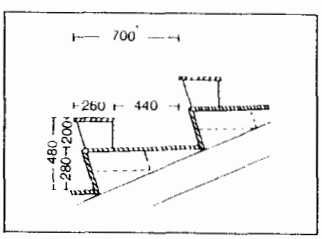
12 Wooden seats on concrete uprights



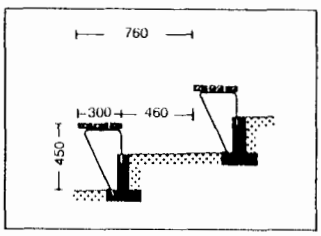
13 Sloping RC deck with steps in concrete topping



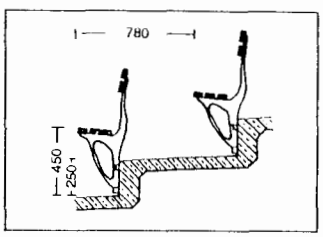
14 Seating tiers: d 750 h 450 w 500



15 On timber frame as at Stuttgart

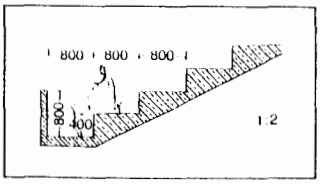


16 On metal brackets set in concrete

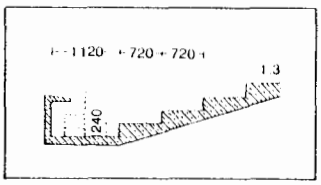


17 Seating with backs

GRANDSTAND SECTIONS



18 Normal rise, upper steps

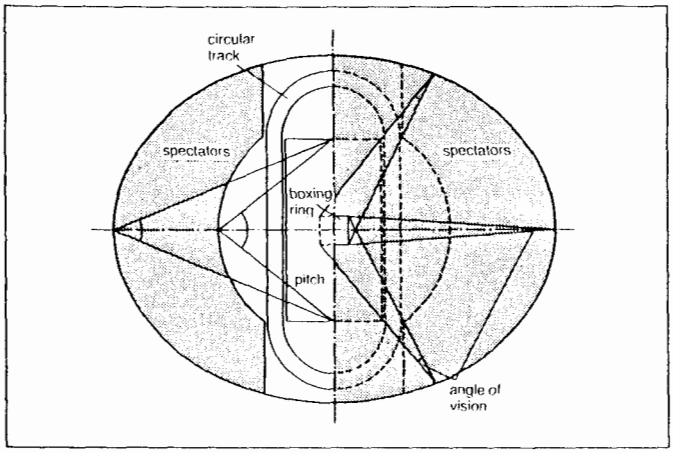


19 Normal rise, lower steps

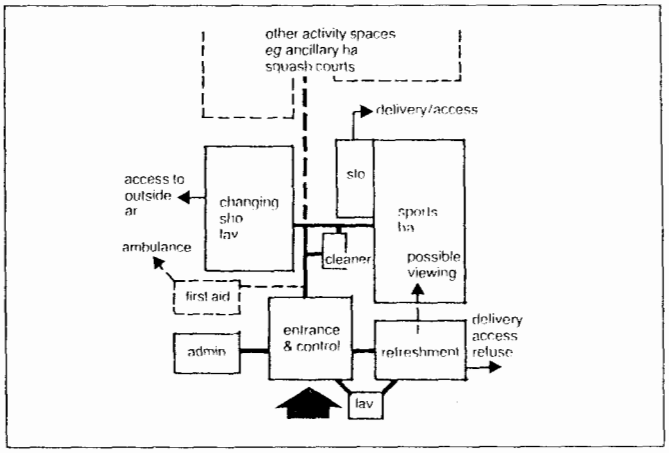
USA risers 152 - 460, treads 610 - 762 (660 usually satisfactory)

Sport centres

ORGANISATION



1 Disposition of spectators



2 Spatial patterns & circulation in dry sports centre

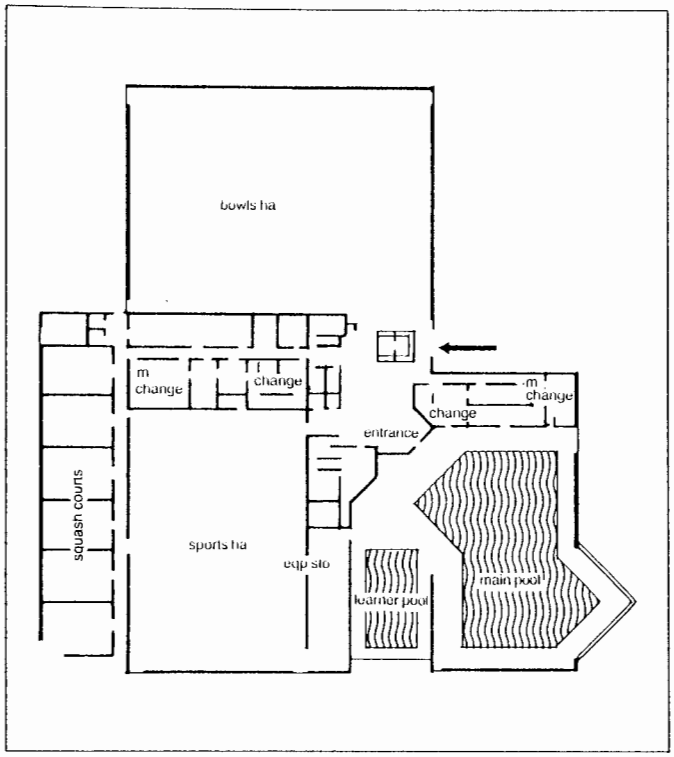
	large scale sports & leisure/rec centre	large scale sports centre (wet & dry)	medium scale wet & dry sports/rec centre	medium scale dry only sports/rec centre	small sports centre	small community provision
pools	●●	●●	●●			
50 m	○	○				
25 m	●	●	○			
20 m			○			
free shape	○					
learner	●	●	○			
diving	●	●	○			
sports hall(s)	●●	●●	●●	●●	●●	●●
large	●	●	○	○		
medium		○	●	●		
small	○	○			●	
small community						●
ancillary indoor sports accn	●●	●●	●●	●●	○	
practice ha	●	●	●	●	○	
weight training/conditioning rm	●	●	○	○		
projectile ha	○	○	○	○		
squash courts	●	●	●	●	●	●
climbing wall	○	○	○	○		
indoor bowls	●	○				
billiards/snooker	○	○				
ice rink	○					
theatre/multi-purpose ha	○					
ancillary accn	●●	●●	●●	●●	●●	●●
changing	●●	●●	●●	●●	●●	●●
spectator seating: fixed	○	○				
occasional	●	●	●	●		
informal viewing	●	●	●	●	●	●
club meeting rm	○	○				○
first aid	●●	●●	●●	○		
first aid eqp	●	●●	●●	●●	●●	●●
creche sto	●	○	○			
creche (alternative use, sto)		○	○	○		
sauna suite	○	○				
refreshments	●●	●●	●●	●●	●	●
cafeteria	●	●	●	●	○	
bar	●	●	●	●	○	○
vending machine	○	○	○	○	●	●
staff & management						
reception	●●	●●	●●	●●	●●	●●
off	●●	●●	●●	●●	●	●
staff rest rm	●●	●●	○	○		
staff changing	●	●	○	○		
outdoor grounds						
grass pitches	○	○	○	○		
hard porous/synthetic pitches	○	○	○	○		
floodlit pitches	○	○	○	○		
tennis courts	○	○	○	○		

key: ●● essential ● typical/desirable ○ possible

3 Main features required for 6 sizes of sports bldg: general recommendations only all bldg being influenced by ar served, population & other resources available

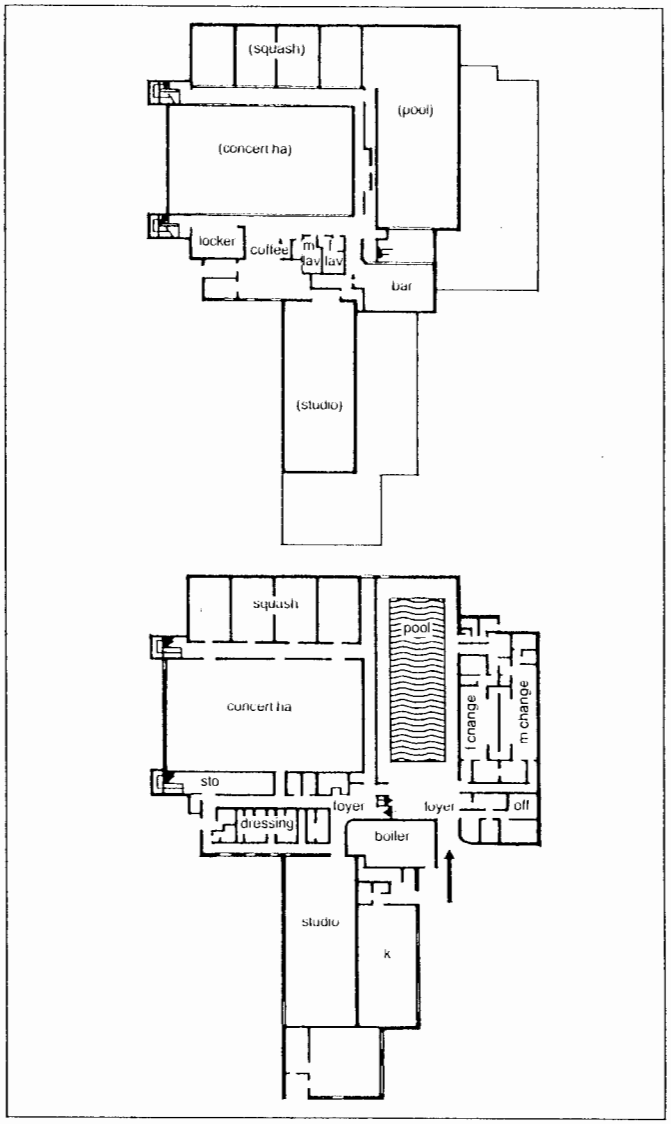
Sport centres

EXAMPLES

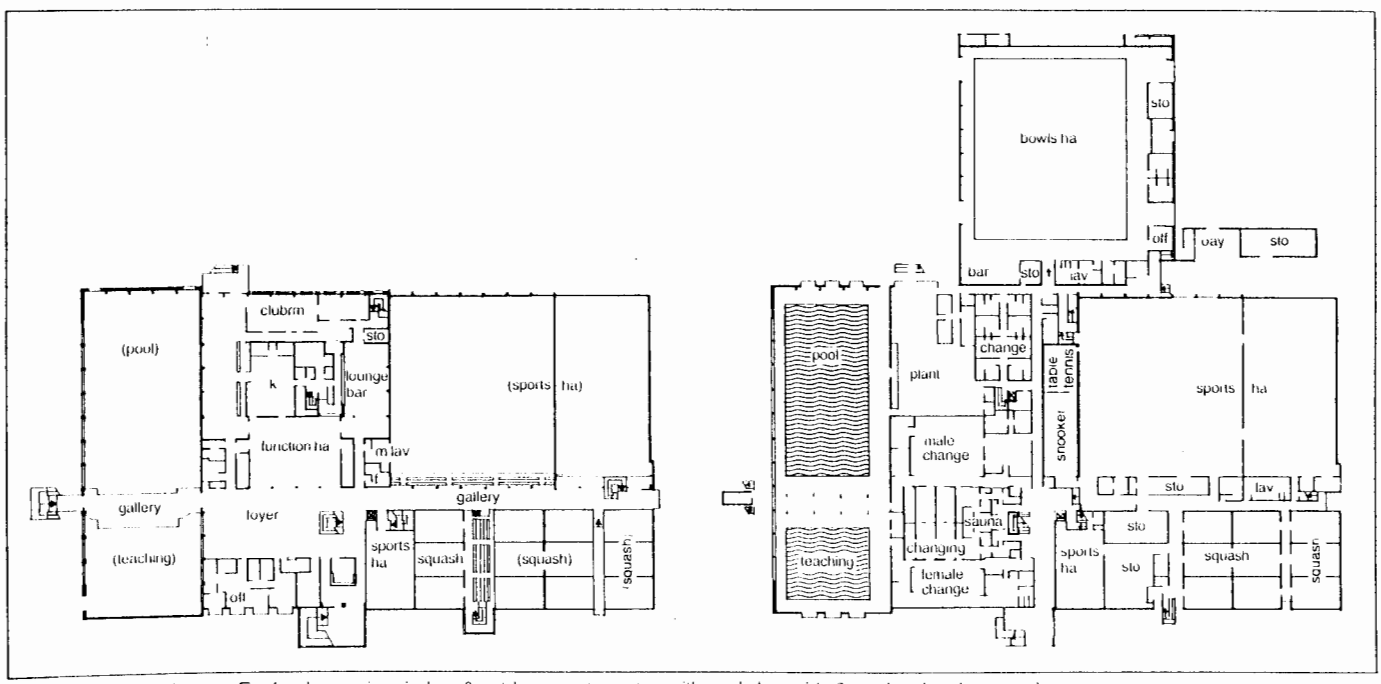


1 Dry & wet leisure centre on school site Dunstable England

Sports centres for disabled →Bib639



2 Sports centre Bridgnorth England: circulation & social spaces spatially well conceived *eg* in entrance ha glazed screen allows views into swimming pool, between sports ha & squash courts glazed bridge offers view into either ar



3 Large complex Harrow England comprises indoor & outdoor sports centre, with pool alongside & outdoor bowls ground

Sport halls

USE OF UNDIVIDED SPACE

→(1) shows number of sport playing courts or other spaces which fit into various sizes of sports or community halls. Number of spaces given for each sport optimum will fit into undivided hall space for 3 standards of play: N international and UK national; C UK county or club; R recreational. Required min space allowed for each takes into account not only actual playing area but: necessary run-out or safety margins, team bench and officials' space round playing space which amount to overall areas used for assessment; where practical some overlap of margin between parallel courts of same kind; critical heights which in some instances degrade standard for which otherwise floor space adequate; need for some additional free circulation space inside hall entrance.

For most sports possible provide spaces for mix of 3 standards; in practice several different activities may be programmed at same time.

Fire: check fr reg and max component value; in UK halls 7000 m^3 or over need DoE waiver; 'volume' can include unenclosed structural roof space.

	large ha	medium ha			small ha				community ha	
	36.5 × 32 × 9.1 1168 m^2 (120 × 105 × 30 ft) 12600 ft^2	32 × 26 × 7.6–9.1 832 m^2 (105 × 85 × × 25–30 ft) 8925 ft^2	29 × 26 × 7.6–9.1 754 m^2 (96 × 85 × 25–30 ft) 8175 ft^2	32 × 23 × 6.7–9.1 736 m^2 (105 × 75 25–30 ft) 7770 ft^2	32 × 17 × 6.7–7.6 554 m^2 (105 × 56 × 22–25 ft) 5880 ft^2	29.5 × 16.5 × 6.7–7.6 486.7 m^2 (97 × 54 × 22–25 ft) 5238 ft^2	26 × 16.5 × 6.7–7.6 429 m^2 (85 × 54 × 22–25 ft) 4590 ft^2	22.5 × 16.5 6.7–7.6 371.25 m^2 (92 × 54 × 22–25 ft) 3995 ft^2	17.0–20.0 × 15.6 × 6.7 265.2–321 m^2 (56–65 × 41 × 22 ft) 2850–3455 ft^2	17.0 × 8.5 6.7 144.5 m^2 (56 × 28 × 22 ft) 1555 ft^2
sports	no standard	no standard	no standard	no standard	no standard	no standard	no standard	no standard	no standard	no standard
aikido	4 N 6 C	4 N	4 N	2 C +3(1*) R	2 N 3(1*) R	2 N	2 N	1 N 2 R	1 N	— —
archery (I of shoot)	S30 m 25 m 18 m 20 yd	S25 m 18 m 20 yd	18 m 20 yd	S25 m 18 m 20 yd	S25 m 18 m 20 yd	18 m 20 yd	18 m 15 yd	18 m 15 yd	— —	
badminton	8 N	5 N[I] 6(2*) R	3/4 N[I]/C 4 R*	4 N[I] 6 R	4 C**	3 C** 4 R*	3 C**	3 R	2 R[I] 1	1 R[IS]
basketball	2 N	1 N 2 C*/R	1 N 2 R*	1 N	1 C**	1 C**	1 C**	1 R* 1 mini BB	— — 1 mini BB	— — — —
bowls (portable non-competitive rinks)	7 R	5 R	5 R*	4 R	3 R	3 R*	— —	— —	— —	— —
boxing (training rings)	9 N 12 R	6 N 12 R	4 N 9 R	6 N 8 R	3 C 6 R	3 C 5 R	2 C 5 R	2 C 4 R	2 C 4 R	2 R
[ns]cricket 6-a-side pitches	1 N 2 C	1 C	— —	1 C	1 R	— —	— —	— —	— —	— —
cricket nets	8 N	6 N	6 C	5 N	4 C	4 C	4 R	— —	— —	— —
fencing (pistes)	12 N 14 C	8(3*) N 9 C	7 N 8 C	6 N 8 C	3/4 N/C 2/3 R*	3/4* N/C +2 R*	3/4* N/C +1 R	3 N 4 C*	3 C	2 R
5-a-side football	1 N 2 R*	1 C 2 R*	1 R*	1 C	1 R*	1 R*	1 R*	1 R*	1 R*	— —
gymnastics (olympic)	— N	— C	— P	— C	— P	— P	— P	— P	— P	— —
handball mini-handball	1 N*	1 C	1 R*	1 C	1 R	1 R* 1 C	— — 1 C	— — 1 C	— — 1 R*	— — 1 R*
hockey	1 C*	1 R	1 R	1 R	1 R	1 R	1 R	1 R	— —	— —
judo	4 N 6 R	2 N 4 C	1 N 4 C	2 N 4 R	2 N 3 R	1 N 2 C	1 N 2 R	1 N 2 R	1/2 R	— —
karate	4 N 12 R	2/4 N/C 6 R	2 N* 4/6 C/R	2 N 6 R	2 N 6 R*	2 N*/C 3 R	1/2 N/C 3 R	1 N 2 R	1 N 2 R	2 R*
[ns]keep fit movement & dance; Yoga	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
kendo	4 N 6 R*	2 N 4 C	2 N* 4 C	2 N 4 R	2 N	2 N* 2 C	1 N 2 C	1 N 2 R*	1 R	— —
lacrosse female	1 N	1 C*	1 R	1 C*	1 C*	1 R	— P	— P	— —	— —
lawn tennis	1 N* 2 R	1 R*	— —	1 R*	1 R*	— —	— —	— —	— —	— —
micro korfball	1 C	1 C	1 C	1 C	1 R*	— —	— —	— —	— —	— —
netball	1 N 2 C*/R	1 R	— —	1 R	1 R	— —	— —	— —	— —	— —
table tennis c/c	10 N 15/21 C/C	6 N 10/15 C/C	6 N 10/12 C/C	6 N 10/12 C/C	7/9 C/C 14 R	7 C/C 12 R	6/7 C/C 10 R	4 C/C 8 R	3–6 C/C 6–8 R	4 R*
trampolining	12 N	8 N[I] 12 R	8 N[I]	4 N[I] 8 C*/R	4 C** 6 R	4 C**	4 C**	4 R	2 R	1 R
tug-of-war	— N	— C	— R	— C	— C	— R	— —	— —	— —	— —
volleyball	2 N 3 R	1 N[I] 2 C 3 R*	1 N[I] 2 R	2* N[I]/C 2 R	1 C**	1 C**	1 C**	1* C**	1 R*	— —

1 Definition of scales: max number of courts related to standards of play: (for key & footnotes →p321(1))

USE OF UNDIVIDED SPACE (cont)

	large ha		medium ha				small ha								community ha			
	36.5 × 32 × 9.1 1168 m² (120 × 105 × 30 ft) 12600 ft²		32 × 26 × 7.6–9.1 832 m² (105 × 85 × × 25–30 ft) 8925 ft²		29 × 26 × 7.6–9.1 754 m² (96 × 85 × 25–30 ft) 8175 ft²		32 × 23 × 6.7–9.1 736 m² (105 × 75 25–30 ft) 7770 ft²		32 × 17 × 6.7–7.6 554 m² (105 × 56 × 22–25 ft) 5880 ft²		29.5 × 16.5 × 6.7–7.6 486.7 m² (97 × 54 × 22–25 ft) 5238 ft²		26 × 16.5 × 6.7–7.6 429 m² (85 × 54 × 22–25 ft) 4590 ft²		22.5 × 16.5 6.7–7.6 371.25 m² (92 × 54 × 22–25 ft) 3955 ft²		17.0–20.0 × 15.6 × 6.7 265.2–321 m² (56–65 × 41 × 22 ft) 2850–3455 ft²		17.0 × 8.5 6.7 144.5 m² (56 × 28 × 22 ft) 1555 ft²	
weight lifting contests	—	N	—	N	—	N	—	N	—	C	—	C	—	C	—	C	—	C	—	—
wrestling	4 12	N C	2 6	N C	6	C	2 6	N C	2 3	N* C	3 8	C R*	2 6	C R	2 6	C R	2 4	C R	2	R

Key:
- international/national standard
- county/club standard
- recreational standard
- P practice ar only
- C/C for table tennis 2 grades of min space allowances for inter-county/inter-club standards of play
- s no standards have yet been laid down
- ar behind shooting line below safety standard recommended; acceptable space can be provided by slight lengthening of ha; or existing spaces may be used for practice
- below min space standard recommended by governing body concerned but capable of providing purposeful & enjoyable activity
- ** recreational standard where ha is less than 7600 clear h for badminton & trampolining or less than 7000 for basketball & volleyball; 6700 h suitable for mini-basketball & mini-volleyball
- county/club standard where ha less than 9000 clear h

Continuation of →p320(1) definition of scales

NB UK standards subject to revision. Current details available from Sports Council Information Centre

STORAGE

Inadequate sto space for sport halls very common fault. Allow for full range of eqp needed. As eqp must be accessible sto must be shallow (say 5000 max) and ideally placed along side of hall. Recommended min requirements for 3 catagories of hall →(2). Check list →(3)

ha	sto ar m²	h access	w access
large	112	7000	4500
medium	75	2700	4500
small	50	2250	3600

2 Min sto requirements for 3 categories ha

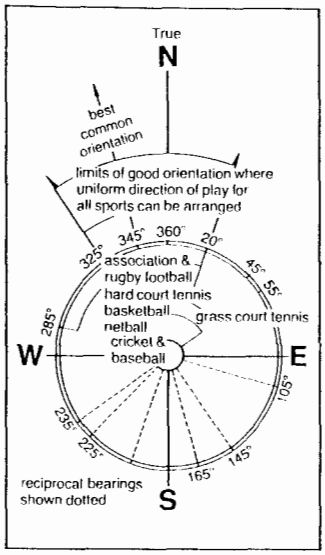
sports ha		fixed	movable
ceiling			
protection for lighting		●	
climbing ropes & trackway		●	
climbing poles & trackway		●	
speakers		●	
track system for division	nets	●	
	cricket		●
	golf		●
	archery		●
	volleyball		●
	5-a-side-soccer		●
basketball			
ceiling mounted backboards & goals (manual or el operation)		●	●
wall mounted backboards & goals (manual or el operation)		●	●
gymnastics			
asymmetric bars		●	●
pommel horse		●	●
vaulting buck			●
vaulting horse		●	●
horizontal bars		●	●
rings		●	
trampoline spotting rig		●	●
parallel bars		●	●
springboards, floors			●
boxing			
ring		●	●
games apparatus			
tennis			●
volleyball			●
badminton			●
5-a-side soccer			●
indoor hockey			●
handball			●
netball			●

sports ha	fixed	movable
walls		
scoreboard		●
wall protection/padding	●	●
seating fixings/recesses		●
fire eqp	●	●
protection to services/heating		●
wall speakers		●
floors		
court markings	●	
sockets & plates (fixed to floor or sub-floor)		●
ancillary ha		
ceiling		
track system for curtains	●	
lighting systems		
activities		
judo & martial arts (mats, wall padding)	●	●
snooker	●	
table tennis		●
fencing		●
boxing		●
boxing training	●	●
weight/fitness training	●	●
weight lifting	●	●
wrestling	●	●
movement & dance (barre, mirrors)	●	
floor		
sockets/fixings	●	
markings	●	
movable floors/platforms		●

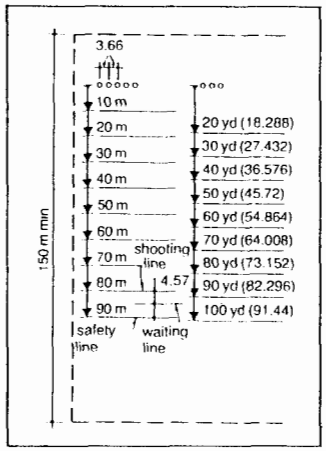
3 Sports eqp check list

Sport: outdoor

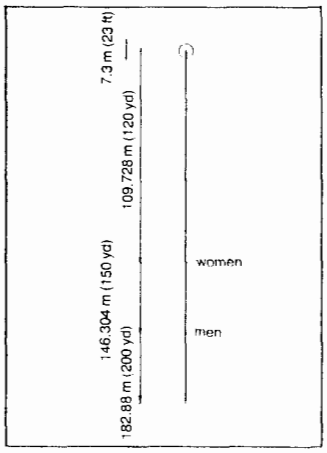
PITCHES



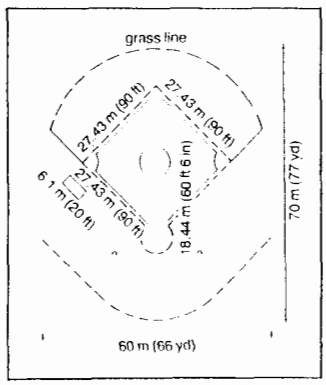
1 Orientation diagram: for purposes of this chart seasons for various games taken to be as follows (southern hemisphere excepted): association football & rugby football 1 Sep–30 Apr; hard court tennis, basketball, netball all year round; cricket, baseball, grass court tennis 1 May–15 Sep; pavilions should avoid SW-NW aspect (225°–315°)



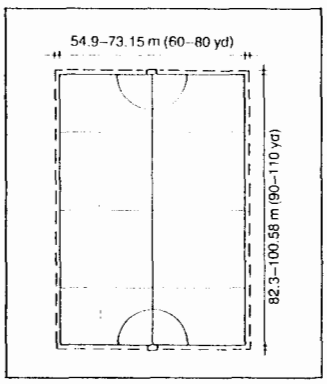
2 Archery, target



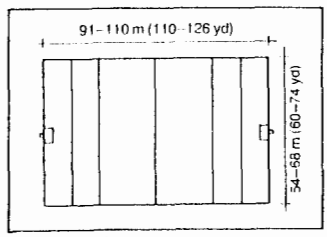
3 Archery, clout



4 Baseball (Little league ⅔ size)

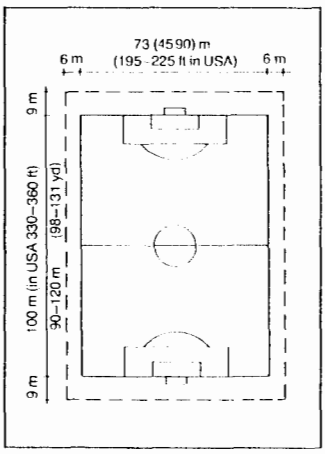


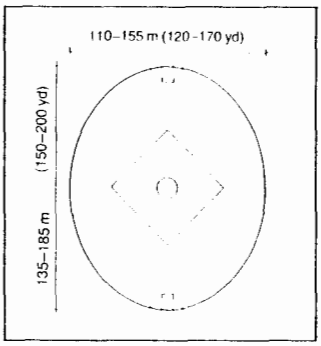
5 Bicycle polo



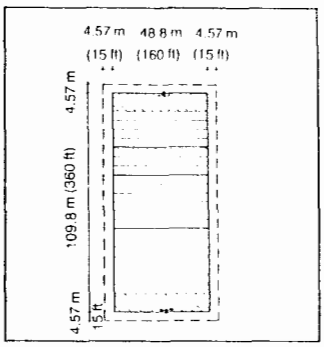
6 Carnogie

7 Football, association: National Playing Fields Association recommends sizes: senior pitches 96–100 × 60–64 (105–109 × 66½–70 yd); junior pitches 90 × 46–55 (98½ × 50–60 yd); international 100–110 × 64–75 (109–120 × 70–82 yd)

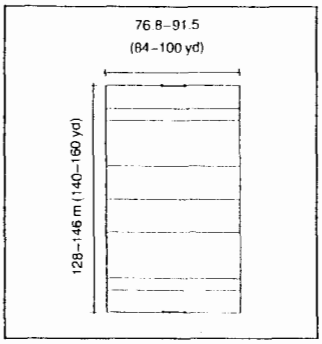




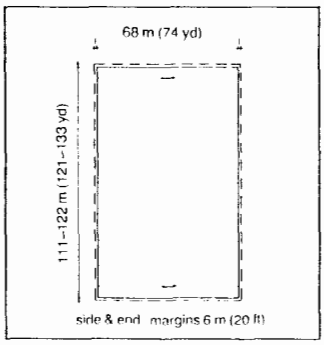
8 Football, Australian



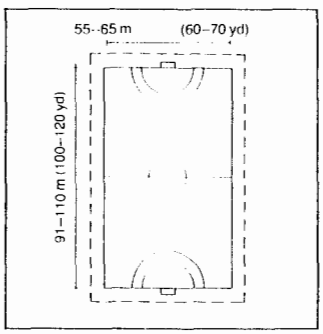
9 Football, American



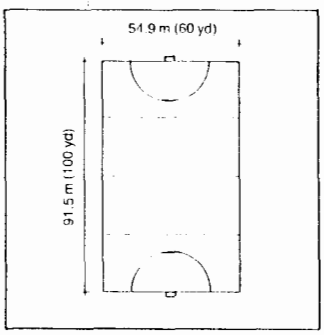
10 Football, Gaelic



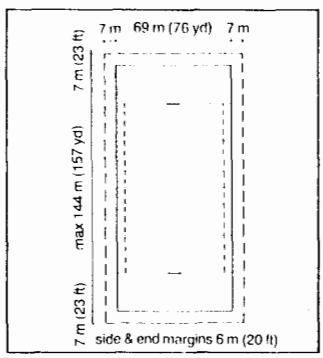
11 Football, rugby league



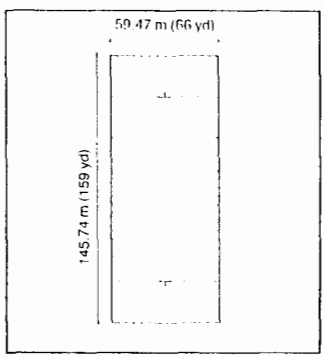
12 Handball



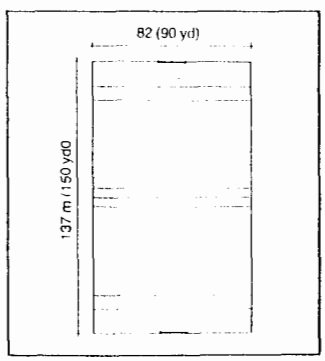
13 Hockey: for county & club matches recommended pitch 90 × 55 (98½ × 60 yd), overall space 95 × 60 (104 × 66½ yd)



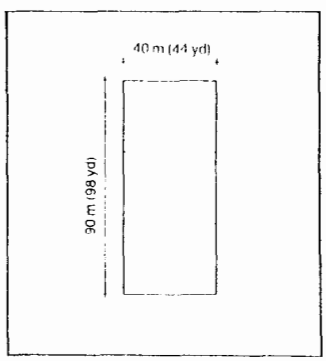
14 Football, rugby union



15 Football, Canadian

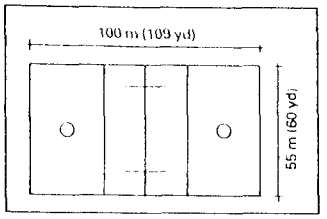


16 Hurling

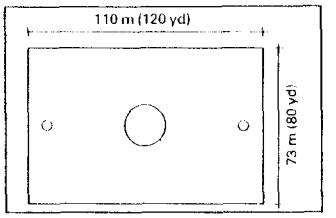


17 Korfball

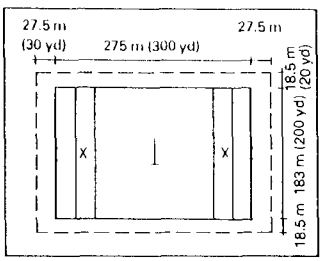
PITCHES



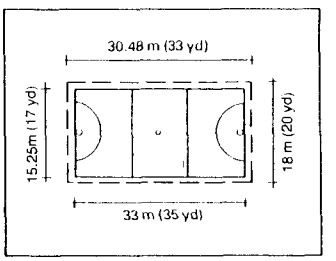
1 Lacrosse, men



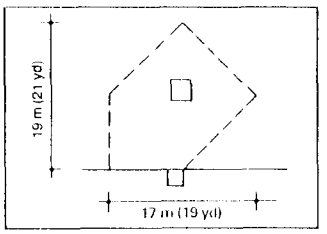
2 Lacrosse, women: ground has no measured or marked out boundaries



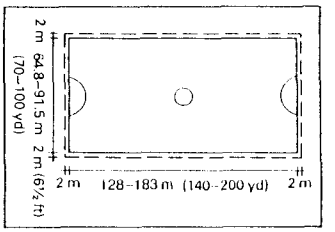
3 Polo



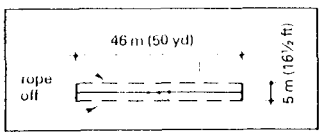
4 Netball



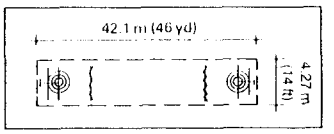
5 Rounders



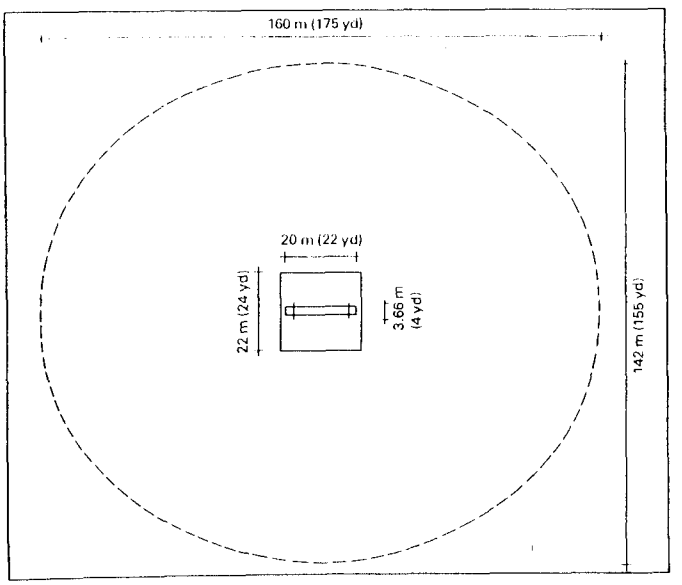
6 Shinty



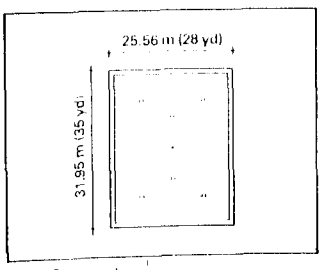
7 Tug-of-war



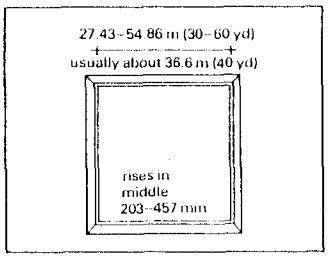
8 Curling



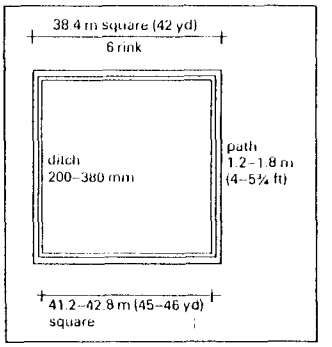
9 Cricket



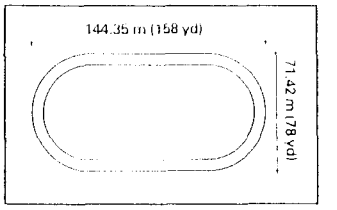
10 Croquet



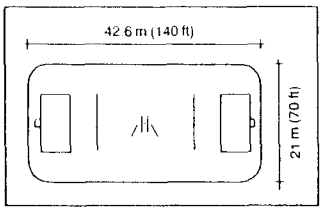
11 Bowls, crown



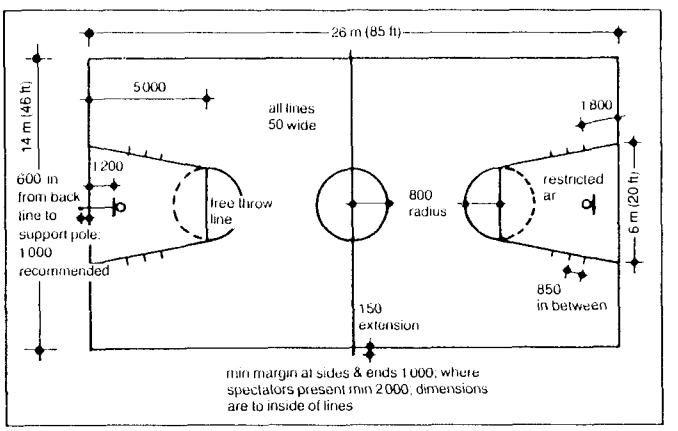
12 Bowls



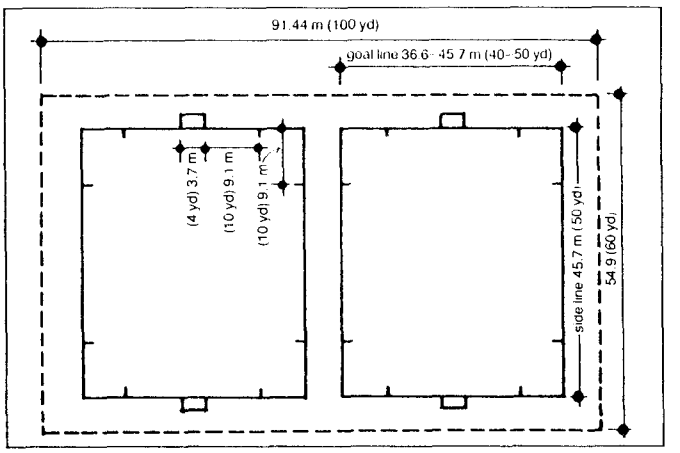
13 Cycling 333 ⅓ track



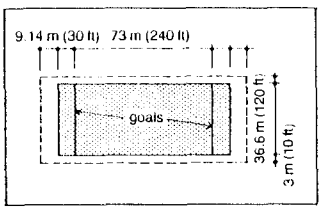
14 Roller hockey



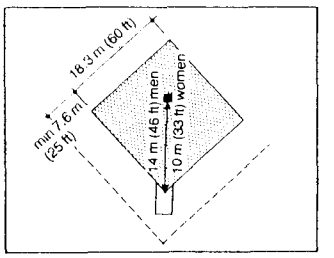
15 Basketball



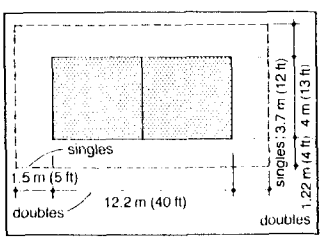
16 Mini-hockey



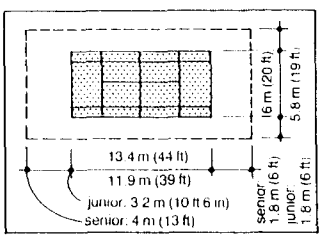
17 6-man football



18 Soft ball



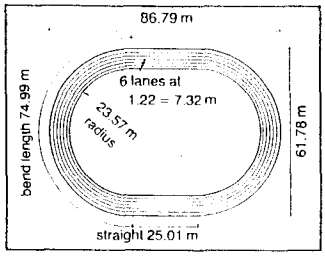
19 Deck tennis



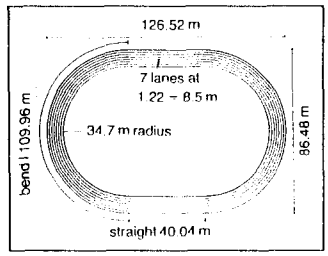
20 Paddle tennis

Sport: outdoor

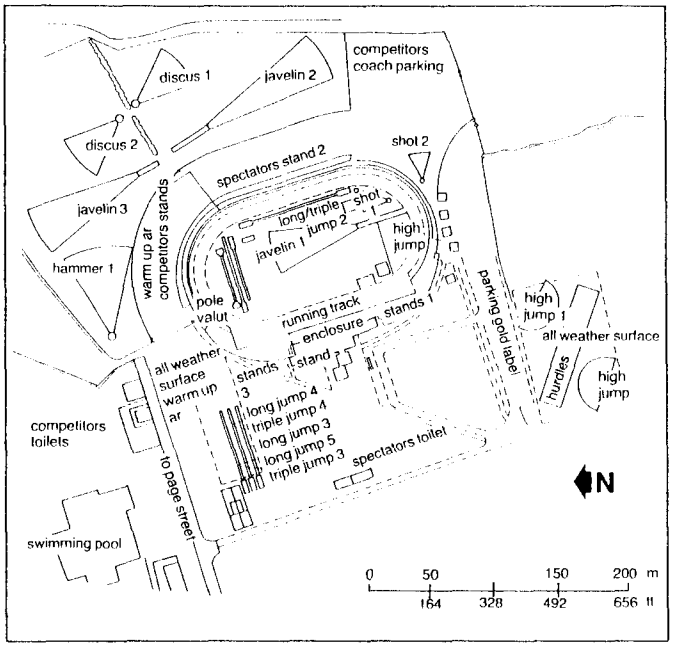
ATHLETICS



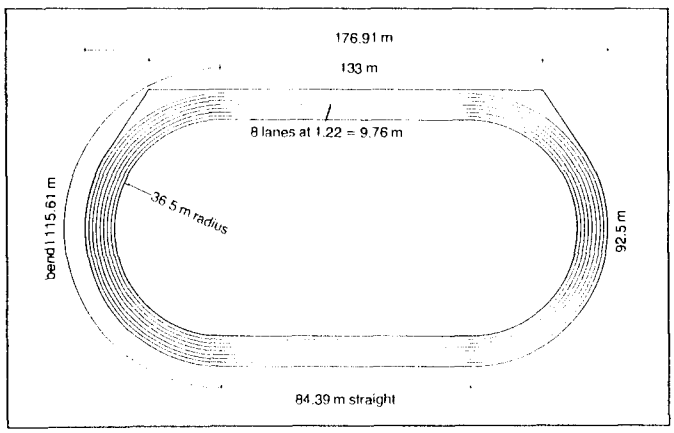
1 200 m running track



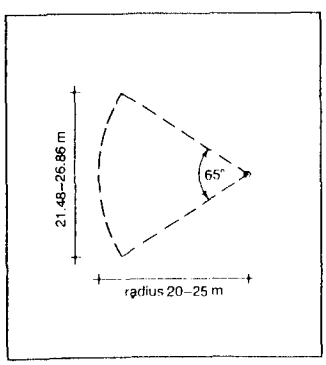
2 300 m running track



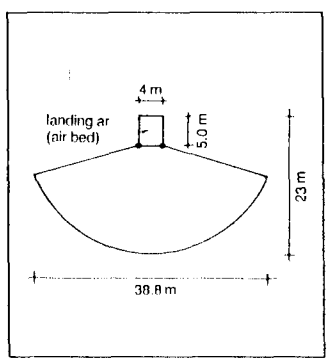
3 Plan of Copthall sports centre London England Borough of Barnet



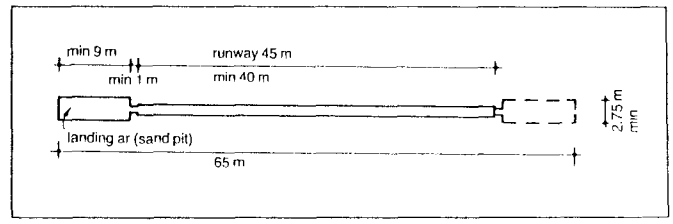
4 400 m standard 7-lane club running track: for 6-lane all-weather surfaces reduce overall dimensions by 2440 (approx overall size 179 × 106 m (193 × 116 yd)); major competition & regional tracks require 8 all-weather lanes with 10-lane sprint straight: increase overall dimensions by 2440 (approx overall size 181 × 111 m (198 × 121 yd)



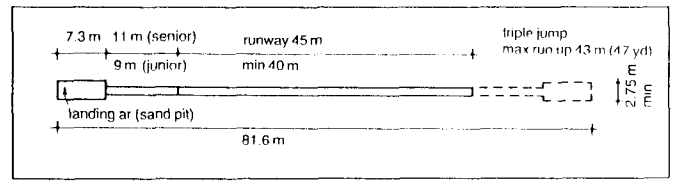
5 Shot



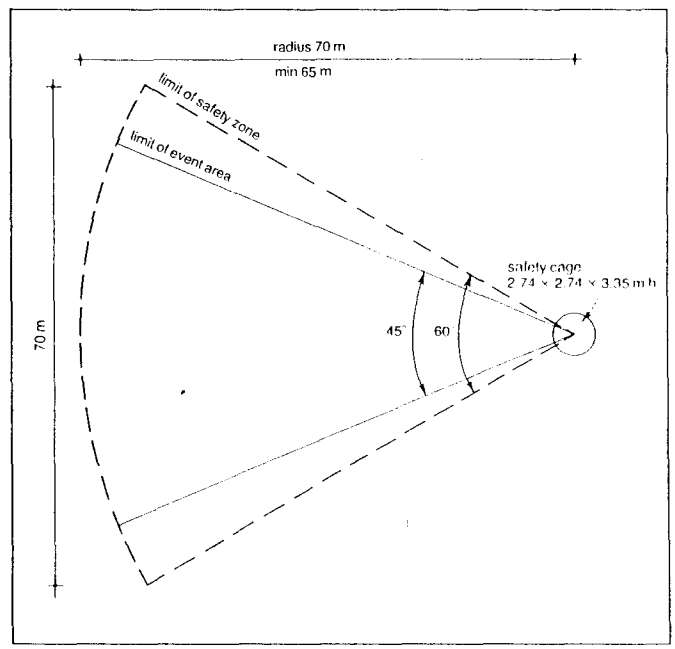
6 High jump



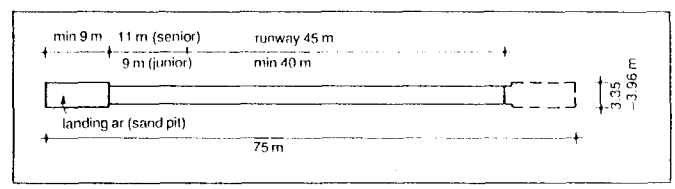
7 Long jump: NB landing ar at both ends to avoid adverse wind



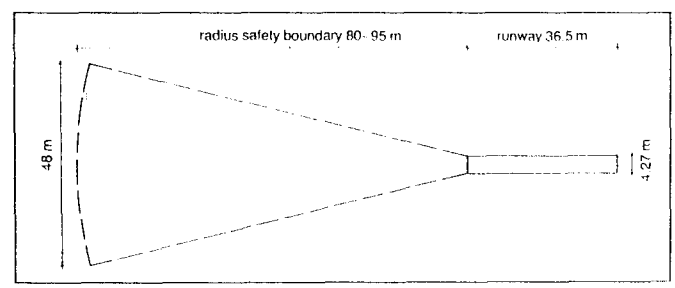
8 Triple jump (senior & junior)



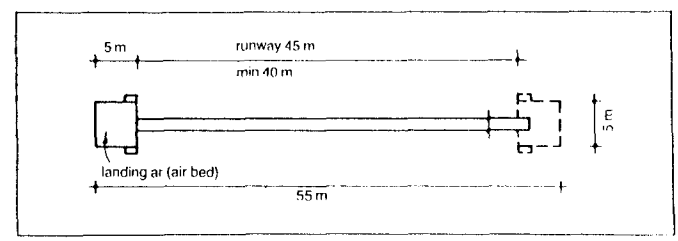
9 Discus & hammer: discus base 2500 hammer base 2135



10 Combined triple & long jump

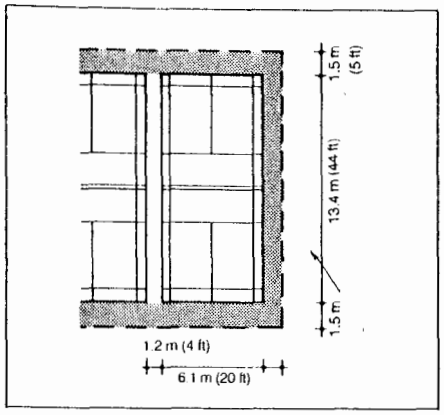


11 Javelin

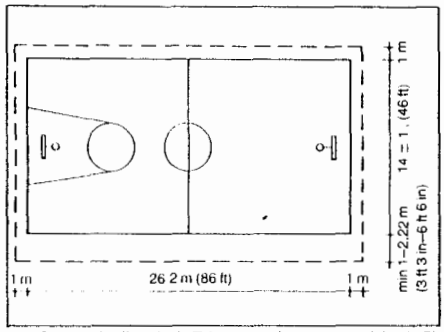


12 Pole vault

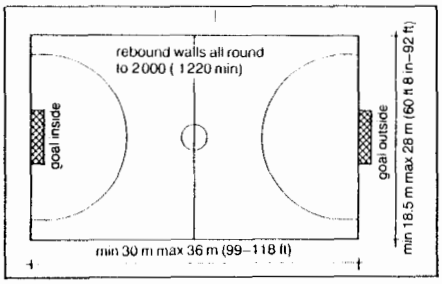
PITCHES



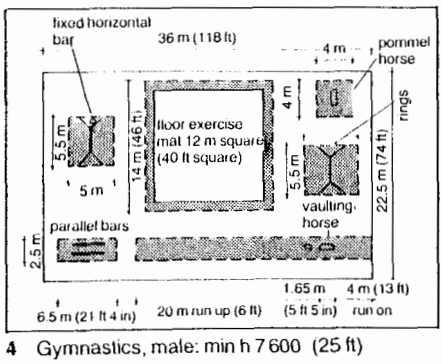
1 Badminton: min h 7600 (25 ft)



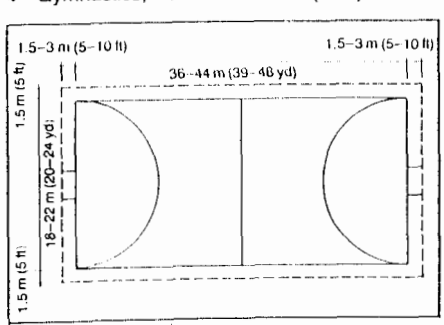
2 Basketball: min h 7000 (23 ft) →also p323 (15)



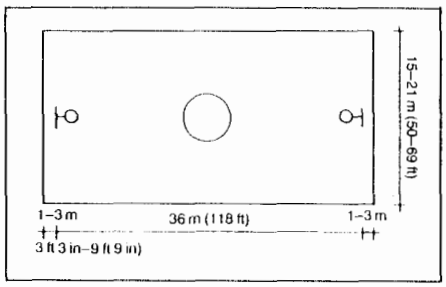
3 5-a-side football



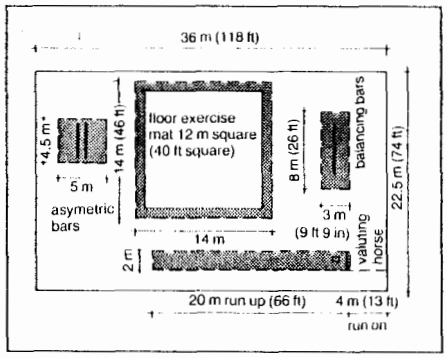
4 Gymnastics, male: min h 7600 (25 ft)



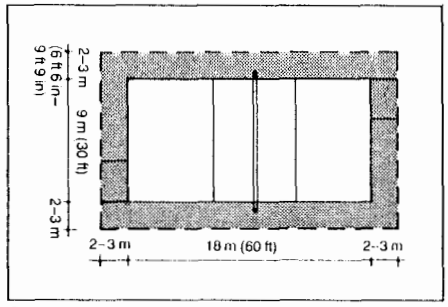
5 Hockey: team sizes adjusted according to size of pitch available



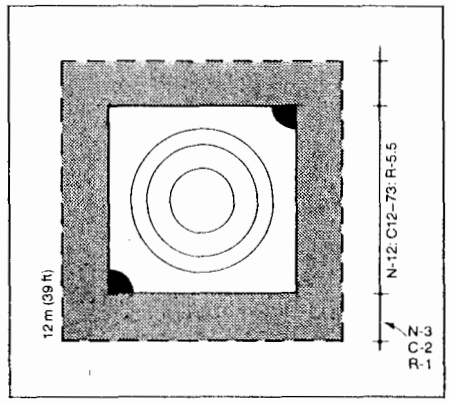
6 Lacrosse, female: pitch for male game (not shown) 46–48 × 18–24 m (151–158 ft × 60–79 ft)



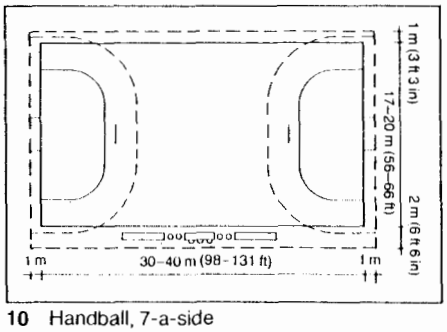
7 Gymnastics, female



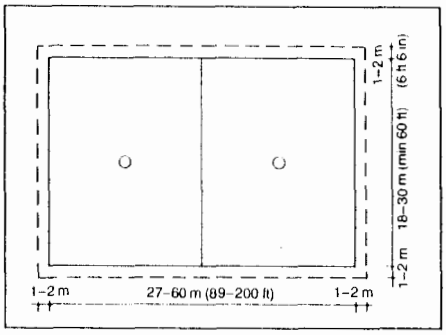
8 Volleyball



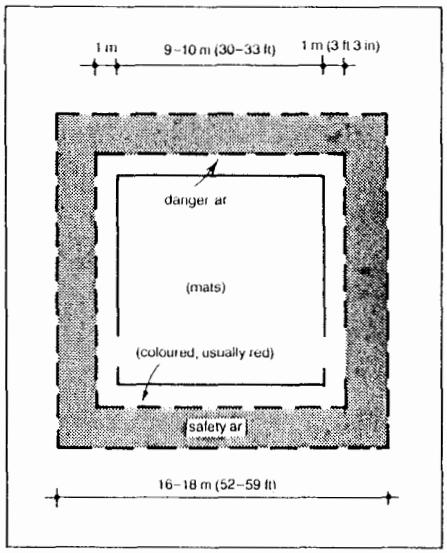
9 Wrestling (N national C club R recreation)



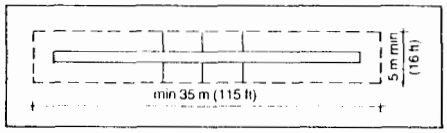
10 Handball, 7-a-side



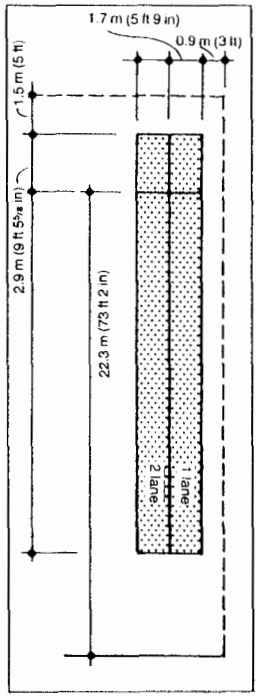
11 Micro-korfball



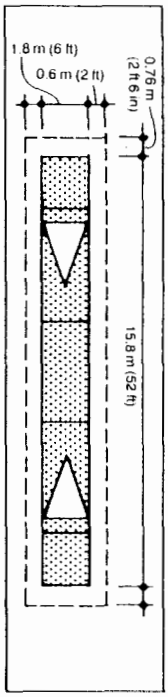
12 Judo



13 Tug-of-war



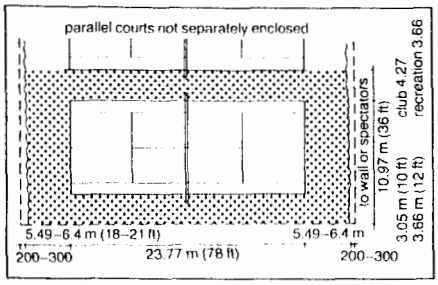
14 American bowling alley (may have any number lanes: usual min 8)



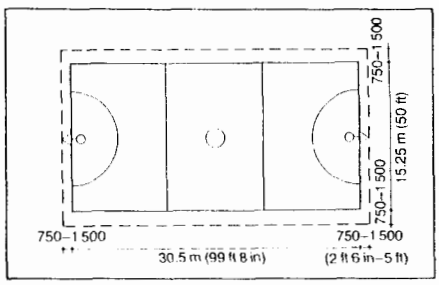
15 Shuffle board

Sport: indoor

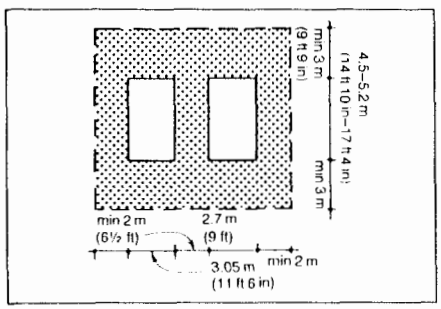
PITCHES (cont)



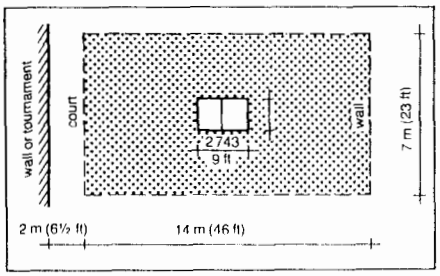
1 Tennis



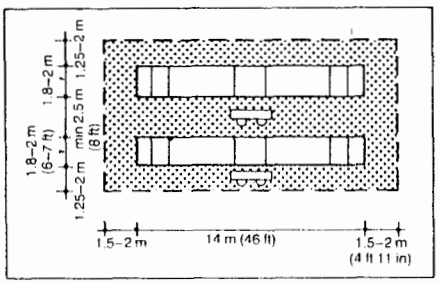
2 Netball



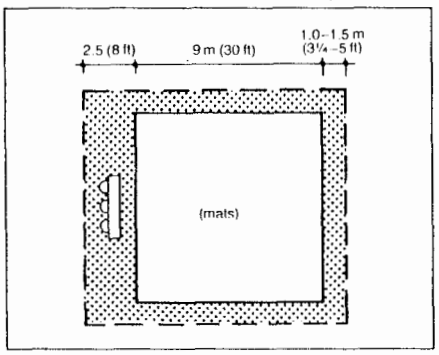
3 Trampoline



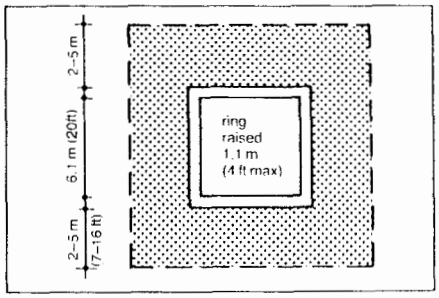
4 Table tennis: min h 4 200



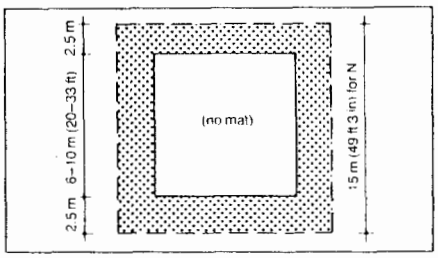
5 Fencing pistes



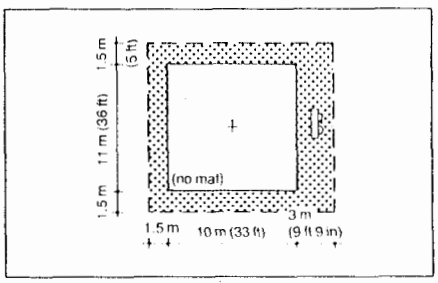
6 Aikido



7 Boxing: for competition in addition to ring & spectator accn following needed: med exam rm, weighing rm, gloving-up rm, admin, lighting above ring, water supply to each corner



8 Karate



9 Kendo

ATHLETICS TRACKS

Resources for indoor athletics fall into 2 main categories:

competition: provide for full range of competitive disciplines; will provide for spectators
training: (a) with some limited competitive use; (b) purpose built; (c) adaptations of existing sports halls.

In USA National Collegiate Athletic Association (NCAA) rules for college athletics, for other amateur events Amateur Athletic Union (AAU); some track and field events still measured in yards, feet and inches; many present tracks still in such measurements; new layouts generally in metres or other SI units.

European Athletic Association (EAA) specifies for indoor events:

Arena
Shall be covered and heated and shall consist of track circuit, sprint straight, runways for 4 jumps, site for shot putt.

Nature of tracks
Tracks and runways surfaced with wood or such other material as allows normal use of spiked shoes; number of spikes shall comply with International Amateur Athletics Federation rule 142 (4).

Circular track
1 lap of track shall measure ⩾ 160 m ⩽ 200 m in length. Each bend shall be ⩾ 35 m in length and banked at an angle ⩾ 10° ⩽ 18°. Each straight ⩾ 35 m. Where no raised border, measurement shall be taken 200 outward from inner edge of track. Track shall be ⩾ 4000 ⩽ 6100 wide; shall include ⩾ 4 lanes.

Sprint track
Sprint straight shall have ⩾ 6 lanes: width of each 1220; extension beyond finishing line ⩾ 15 m.

Hurdle races
Male: 50 m hurdles shall include 4 hurdles, h 1060. There shall be 13.72 m from start line to first hurdle; 9140 between hurdles; 8860 from last hurdle to finish line.

60 m hurdles shall include 5 hurdles, h 1060; 13.72 m from start line to first hurdle; 9140 between hurdles; 9720 from last hurdle to finish line.

Female: 50 m hurdles shall include 4 hurdles, h 844; 13.0 m from start line to first hurdle; 8500 between hurdles; 11.5 m from last hurdle to finish line.

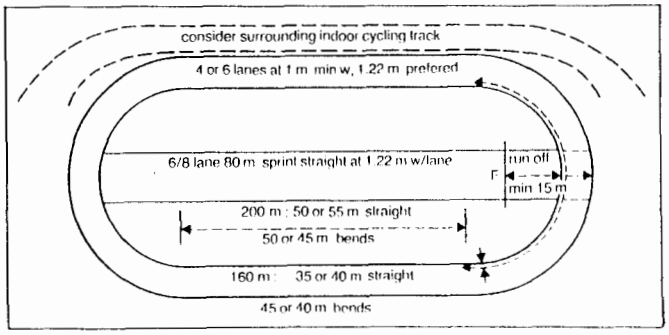
60 m hurdles shall include 5 hurdles, h 844; 13.0 m from start line to first hurdle; 8500 between hurdles; 13.0 m from last hurdle to finish line.

Events
Runways for long & triple jump & pole vault: ⩾ 40 m long and 1220 wide.

Landing area for jumps: in high jump and pole vault landing areas shall be in accordance with IAAF rules 201 (e) and 3 (d). In long jump and triple jump they shall measure ⩾ 6000 long and 2500 wide and shall consist of ⩾ 300 in depth of wet sand on synthetic track base.

Putting the shot: sector shall be 45° but may be reduced by technical delegate if necessary to meet local conditions.

Other technical installations: all other technical installations shall be strictly in accordance with IAAF rules.

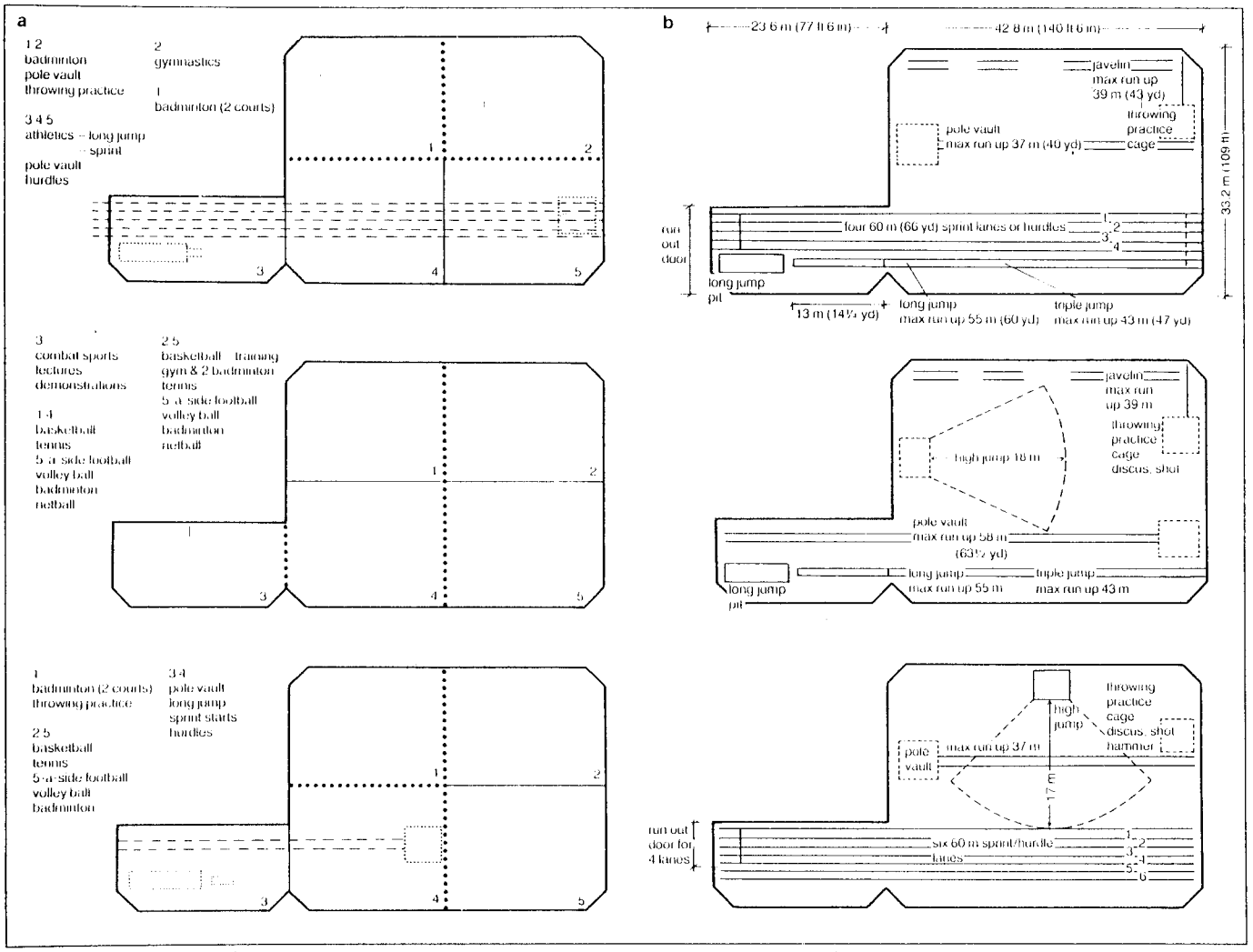


10 Requirements for indoor track

ATHLETICS TRAINING

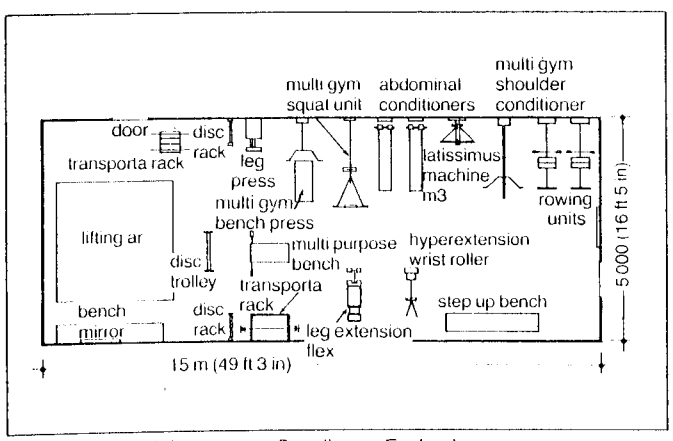
Provision for athletes training indoors, with limited competitive use, need not include expensive 200 m banked tracks. Many events can be simulated if brief thought out in advance with consideration of needs of athletes.

Needs of athletes should be considered at planning stage of sports centres so that this major spectator and participant sport can gain some of benefits from indoor provision other sports have received →(1)

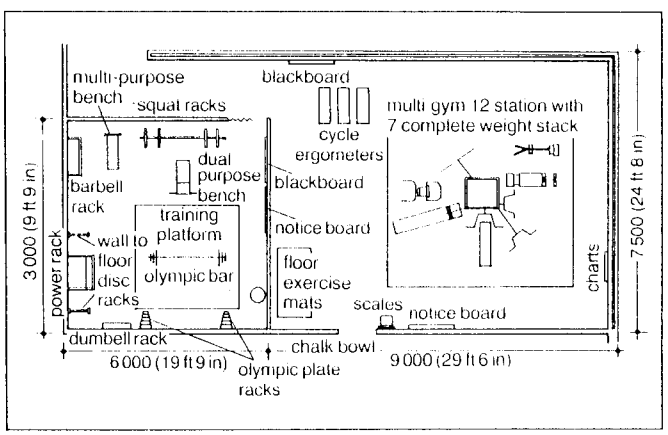


1 Sports stadium training ha Gateshead England: **a** permutations of possible activities **b** permutations of possible athletics training

WEIGHT & FITNESS TRAINING



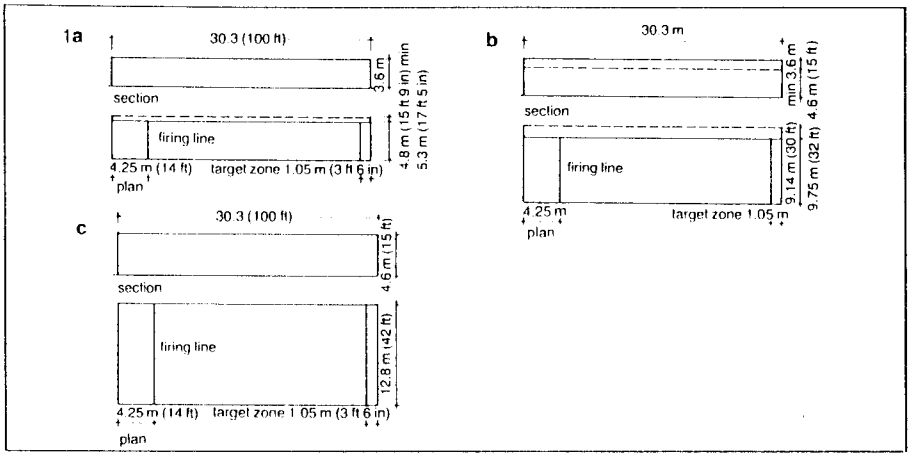
2 Fitness rm at leisure centre Cramlington England



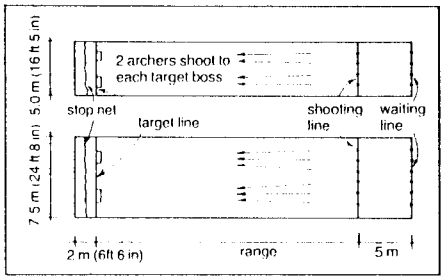
3 Conditioning & weight training rm Bunyan recreation centre Bedford England

Sport: indoor

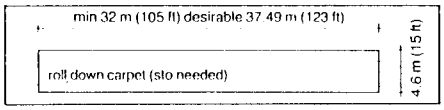
SPORT NEEDING OWN PITCHES/SPACES



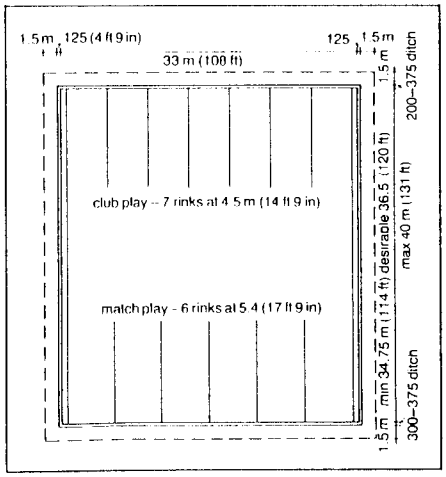
1 Projectile ha section & plan **a** small **b** medium **c** large



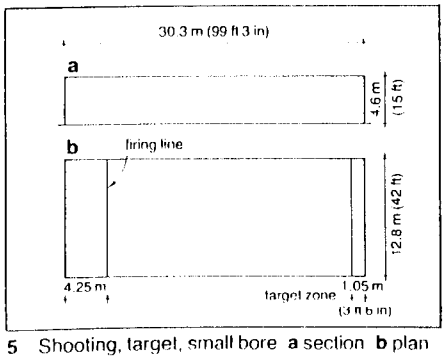
2 Archery: international & national shoots require ranges of 30 25 & 18 m & 20 yd; for club & recreational shoots 13. 716 (15 yd) will do: min ceiling h 3000



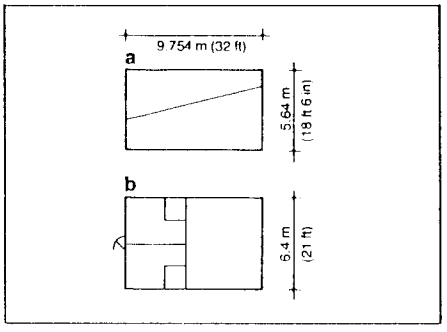
3 Bowling: single rink in projectile hall



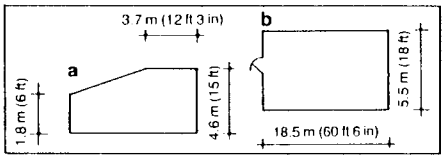
4 Bowling: 4 rinks min for recreation, 6 for tournaments



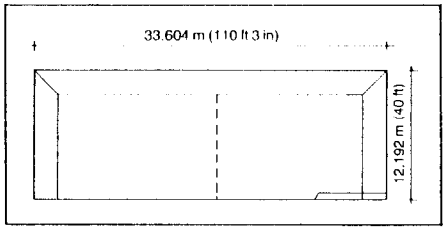
5 Shooting, target, small bore **a** section **b** plan



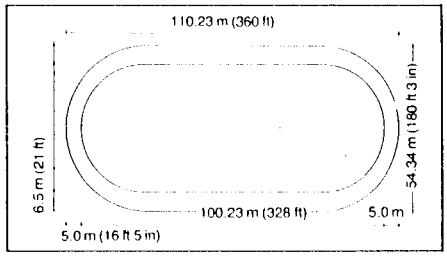
6 Squash **a** section **b** plan: dimensions & surface finishes critical; refer to governing bodies



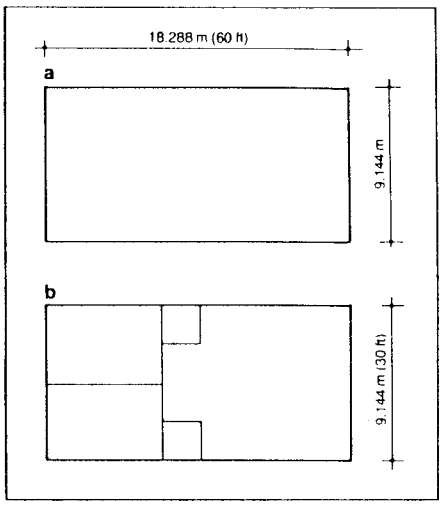
7 Rugby fives **a** section **b** plan



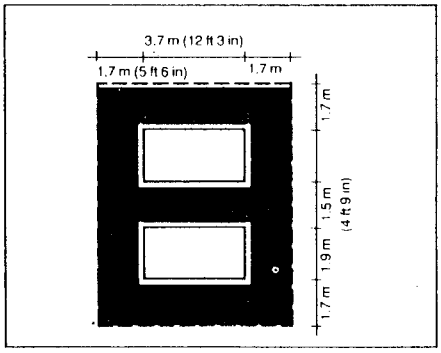
8 Real tennis: dimensions of court at Hampton Court England



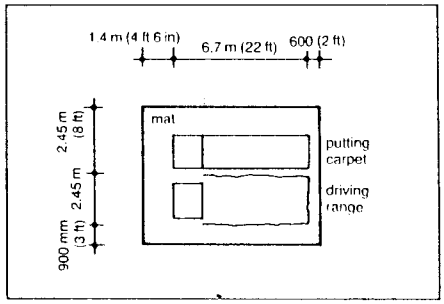
9 Cycling



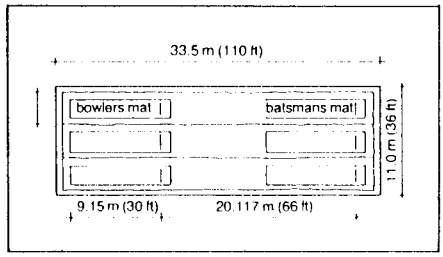
10 Rackets **a** section **b** plan



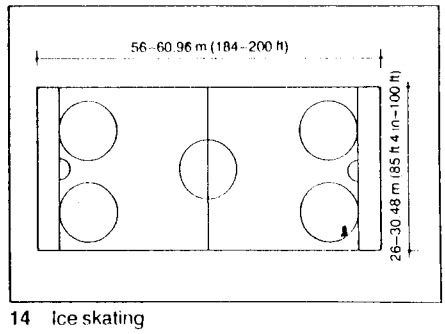
11 Billiards & snooker, agreed standards table: 3500 × 1 750 playing ar



12 Golf practice



13 Cricket practice nets; h 3.650 (12 ft)



14 Ice skating

Sport: swimming

INDOOR POOLS

Location: central, good public transport connexions. Rough guide to provision: dispersed population (rural areas) 20–25 × 11–13 m within 25 minutes travel of 30000 people; partially concentrated (surburban areas and free standing towns) 25 × 11 m pool + learner pool within 15–20 minutes travel of 30000 people; concentrated population 25 × 13 m pool + learner pool within 12 minutes walking time of 30000 people. Usage/head of population: medium and small towns 3.5 times/year; cities 1.3–2.5/year.

Water area →(1)

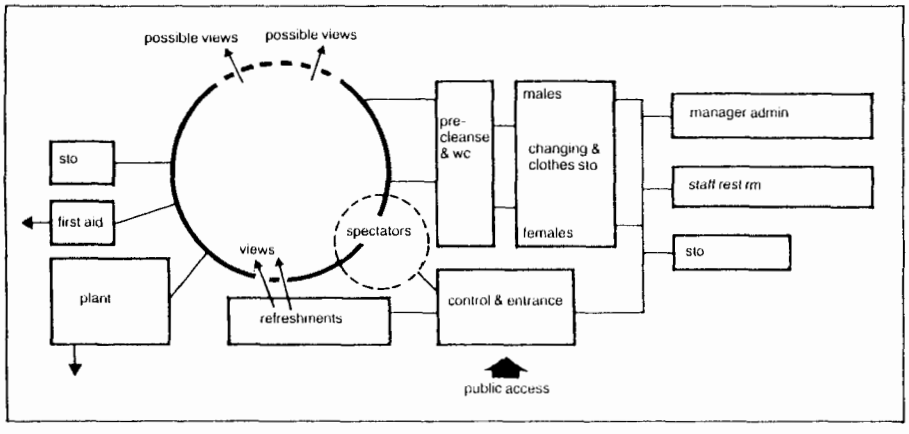
Changing rm →p336–7: accessible from hall, separated by sex; not inside pool area; 1 clo unit/1–1.5 m^2 pool area; common changing rm as extra space.

Pre-cleanse: barefoot passage past wc to showers; 1 sho/8 clo spaces: sho space required 1.35–2.15 m^2; in some countries (eg Switzerland USA) use of cleaning passages with sho activated by floor contact or light beam. Through sho rm to swimming and teaching pools →p335.

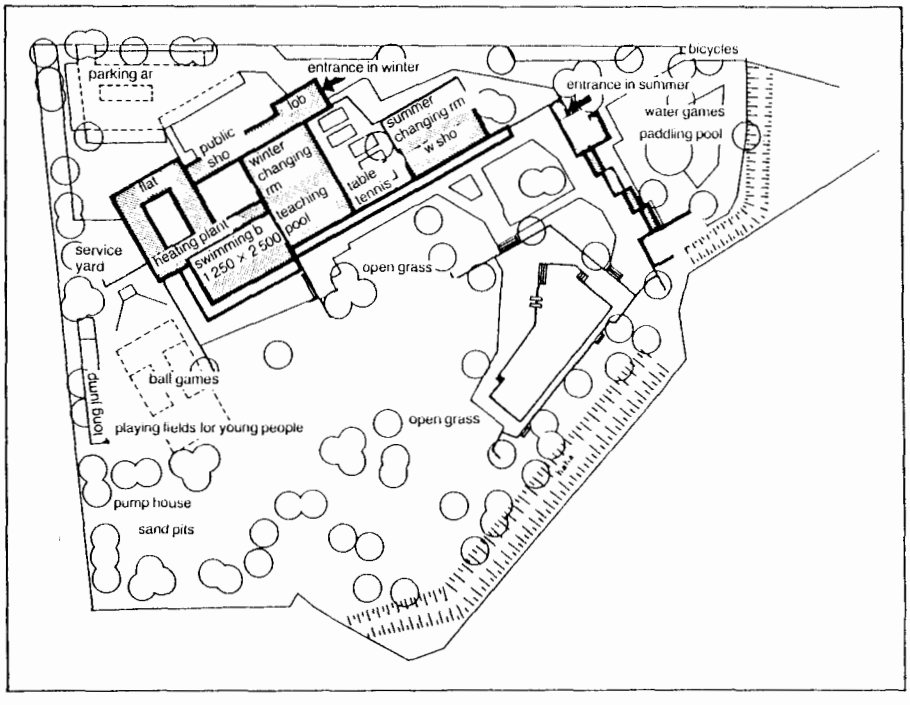
Toilets: min 2 wc; male 1/15–20 female 1/7–10; urinals 1/15–20 male.

type of b	covered space	
	changing rm 2 floors	changing rm 1 floor
small	m^3 30–40	m^3 40–50
av	40–55	50–65
large	50–70	60–80

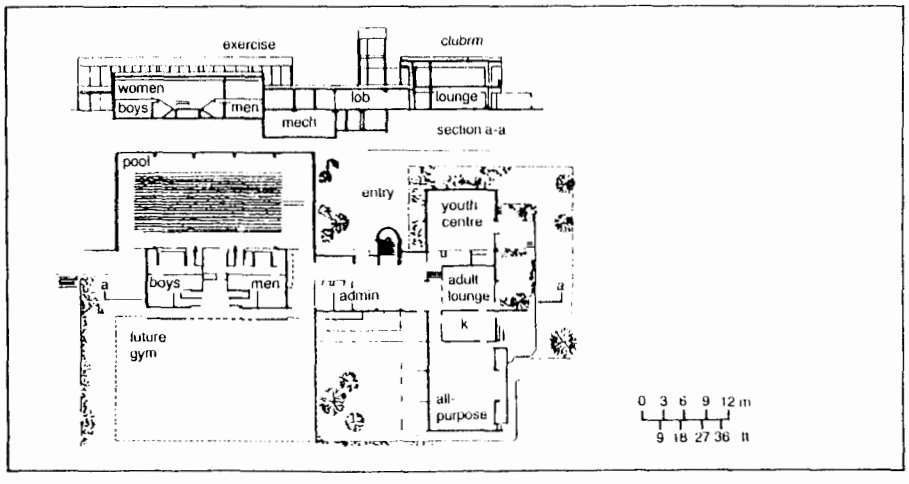
1 Ratio of enclosed space to 1 m^2 water ar



2 *Circulation & grouping of elements*

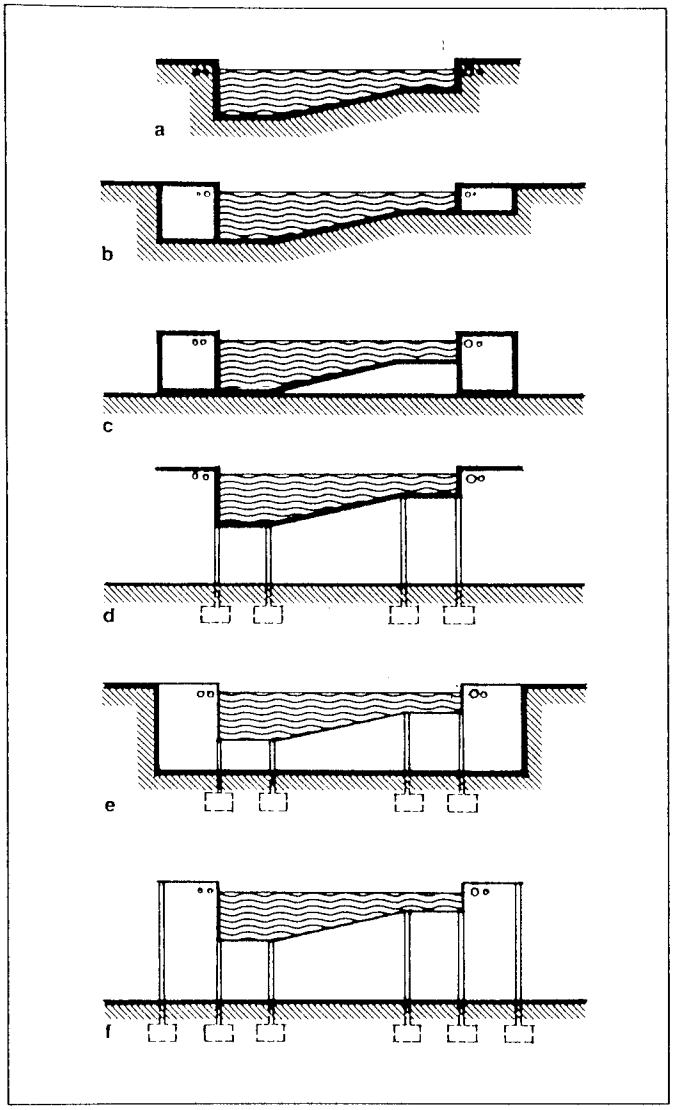


3 Baths at Hanover-Linden Germany (design Hochbauamt Hanover): indoor b separated from outdoor b by 3 submersible doors with footbasins and 6 sh in front
indoor swimming b:
pool 12.5 × 25 m
training pool 6 × 12.5 m
open air swimming b:
free-shape general purpose pool 20 × 25 m
diving pool with 10 m stage 20 × 20 m
changing: indoor 49 change-over cubicles, 600 clo & 5 group changing rm; outdoor 36 change-over cubicles & 1320 clo



4 Leisure & pool complex Roxbury YMCA USA Arch The Architects Collaborative

Sport: swimming



1 Typical pool profiles: **a** & **b** for 'in ground' pools **c** & **d** for 'above ground' pools **e** 'in ground' steel tank **f** 'above ground' steel tank

	inter-national pool	national/ regional pool	local pool	recrea-tional/ leisure pool
pool water ar				
50 m main pool	●	●		
25 m main pool		○	●	
free form shape pool			○	●
separate deep water diving pool	●	●		
separate teaching/training pool	●	●	○	○
1 000 springboard main pool			○	
recreational diving chutes			○	●
wave machine			○	○
spectator seating				
fixed raked spectator seating	●	●		
occasional spectators at poolside	○	○	●	●
informal viewing				
viewing ar overlooking pool	○	○	○	○
refreshments				
cafeteria	●	●	○	●
bar	○	○		○
vending machines	●	●	●	●
first aid rm	●	●	●	●
sauna suite	○	○		○

● definite provision
○ possible provision

2 Pool features

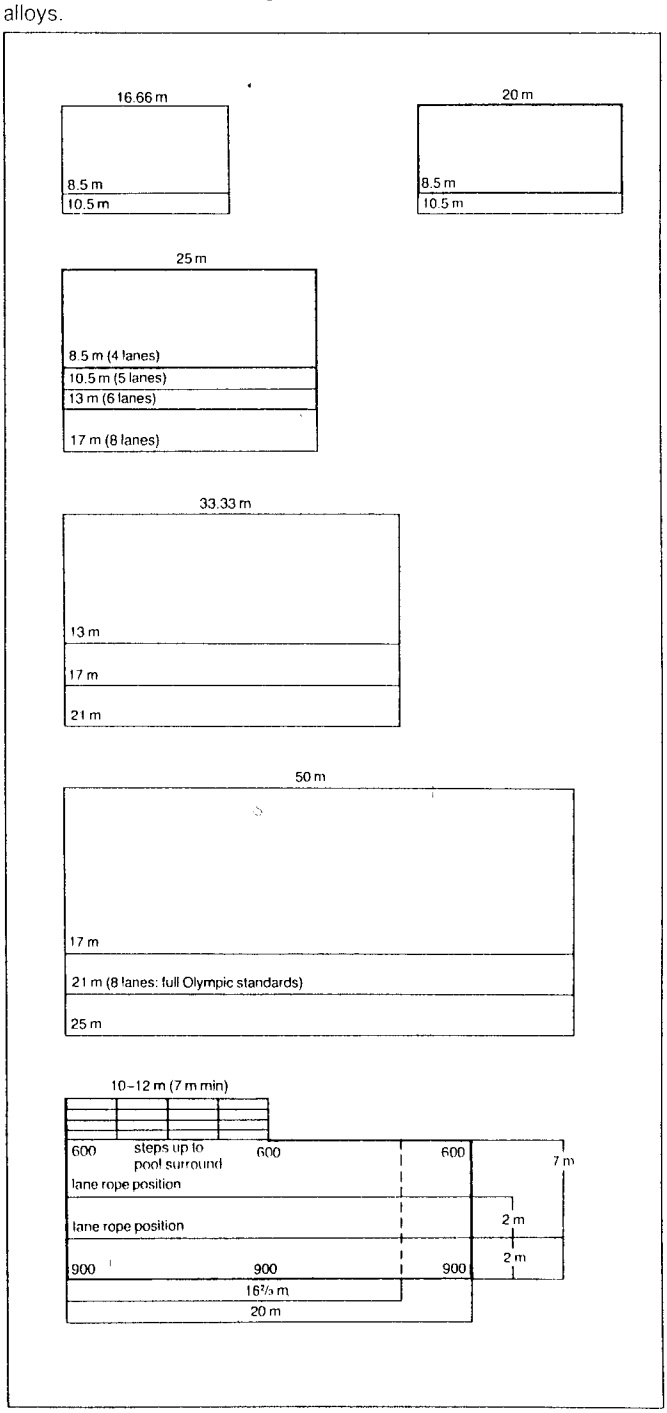
INDOOR POOLS (cont)

Heating & ventilation: water temp recreational pools 27°C, learner pools 28°–30°, diving pool 28°; air temp 1–2° above water temp: changing rm, pre-cleanse, clothes sto not less than pool water; air changes: volume flow rate of 0.15 $m^3/m^2/s$ of pool water plus wet surround.

Water purification plant for heating, filtering, disinfection. Water circulation: main pool ≤ 3 hr (if very shallow with heavy bathing load every 2 hr); learner pool ≤ 1½ hr; diving pool 6 hr; pH near as possible 7.7 or 7.6, never outside range 7.2–8.0.

Pool: width, length →(3); water depth: non-swimmers 900–1 250, swimmers 1 250–3 500, learner pool 500–900. Min depth for swimming 900.

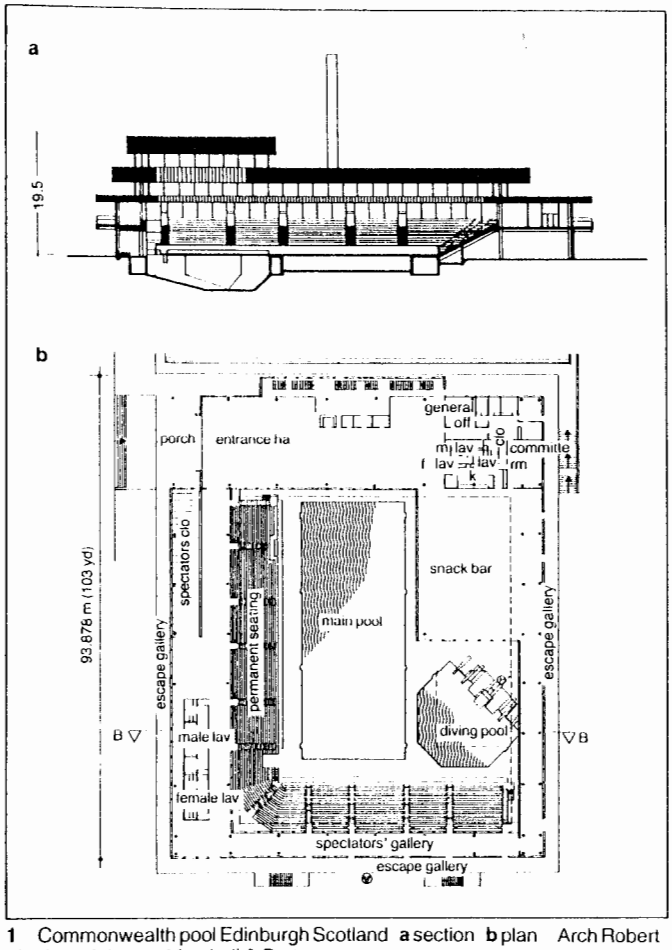
Internal finishes: floors easy-grip and slip-resistant finish, glazed ceramic tiles, small size mosaic; pool surrounds slip-resistant flooring; pool bottom and walls: tiles, wall surround up to 2 000 tiles or waterproof paint; upper wall areas and ceiling sound absorbent materials. Metal parts rust and condensation proof encased, no heat transmission bridges. Plastics generally suitable. All fixings and fittings ideally made from corrosion resistant metals, *eg* stainless steel, bronze, certain aluminium alloys.



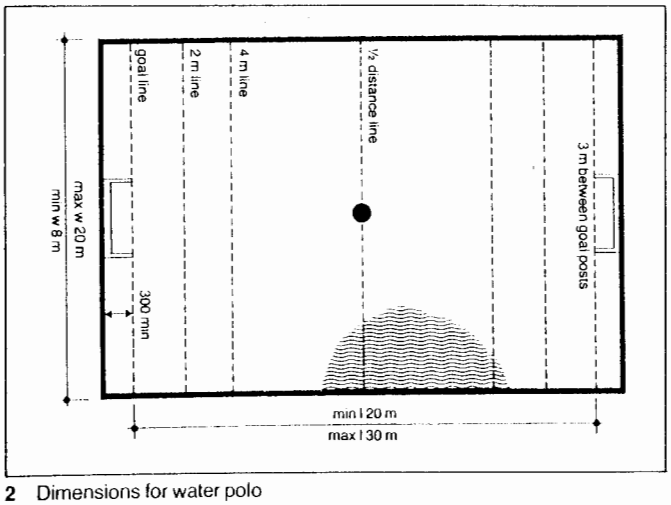
3 Main pool sizes: most common sizes shown in heavier lines

Sport: swimming

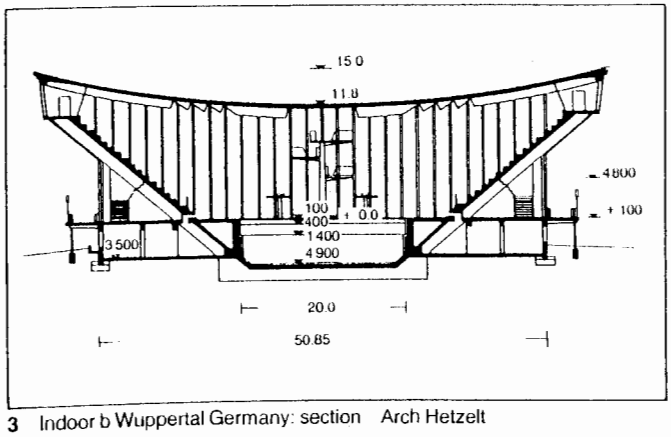
INDOOR POOLS (cont)



1 Commonwealth pool Edinburgh Scotland **a** section **b** plan Arch Robert Matthew Johnson Marshall & Partners



2 Dimensions for water polo



3 Indoor b Wuppertal Germany: section Arch Hetzelt

Water polo

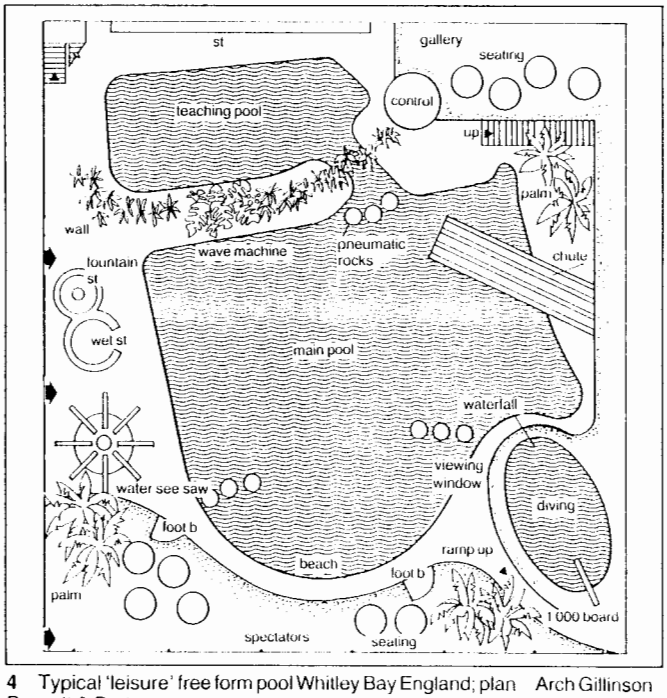
Playing area: for national/international events 1800 deep; district/county events 1500 min; club/Amateur Swimming Association events in UK 1200 min. Dimensions →(2).

Swimming pools for disabled →Bib639

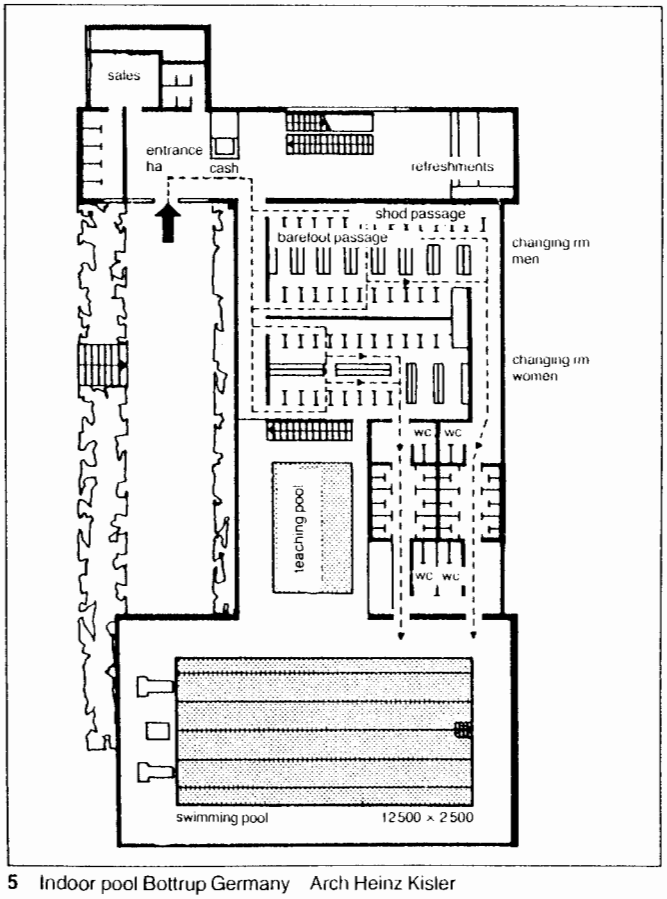
Pools for leisure

Main features of pools specifically created for indoor leisure and recreational swimming: lively, warm, gay interior; good quality materials; shallow water with beach edges; wave machines; water chutes; artificial sun bathing; plants, trees, seating, refreshment areas for swimmers.

Private indoor pools →p115–6



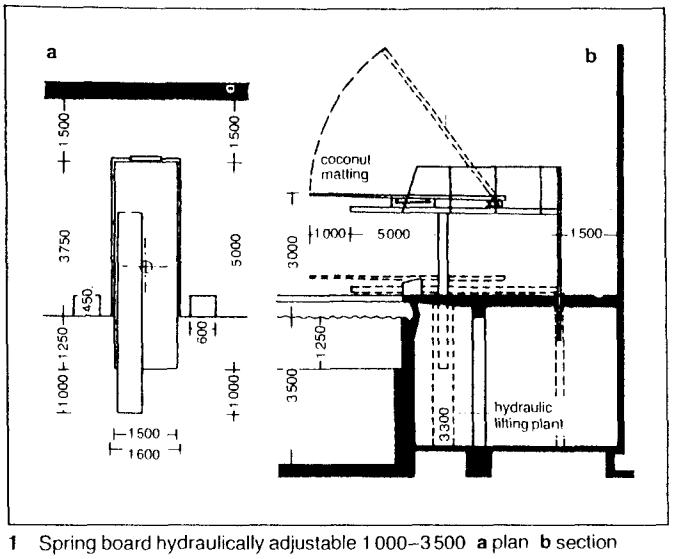
4 Typical 'leisure' free form pool Whitley Bay England; plan Arch Gillinson Barnett & Partners



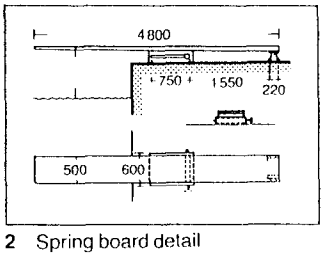
5 Indoor pool Bottrup Germany Arch Heinz Kisler

Sport: swimming

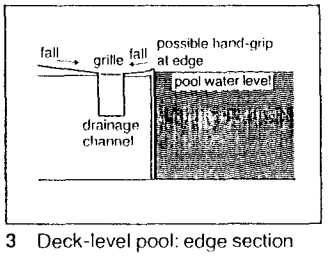
INDOOR POOLS (cont)



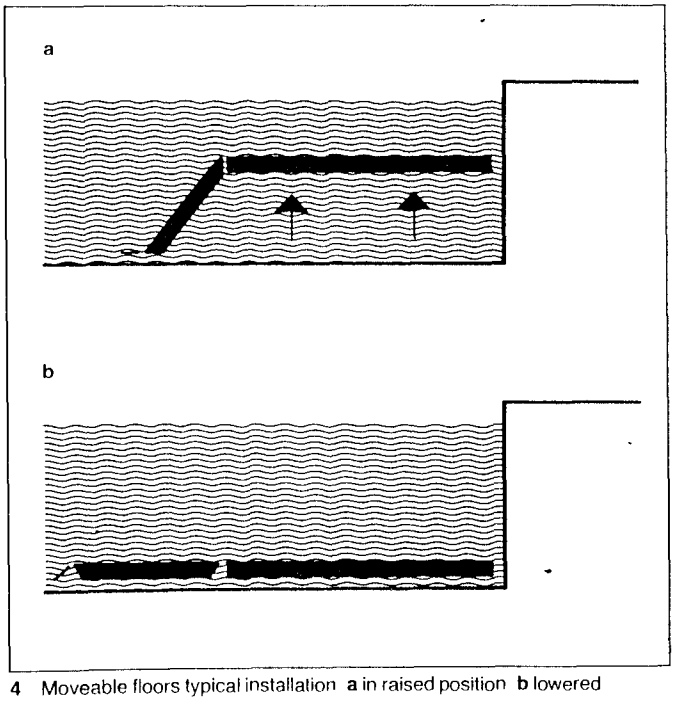
1 Spring board hydraulically adjustable 1 000–3 500 **a** plan **b** section



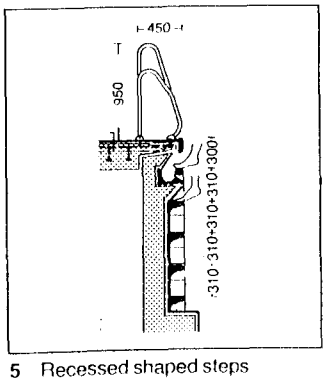
2 Spring board detail



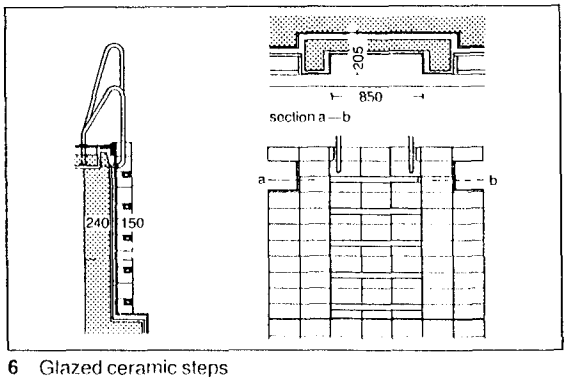
3 Deck-level pool: edge section



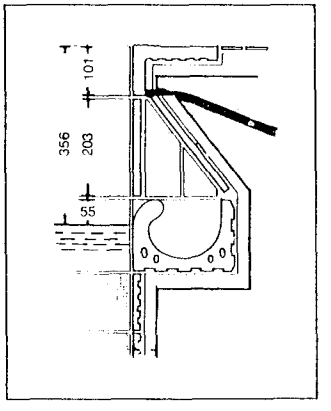
4 Moveable floors typical installation **a** in raised position **b** lowered



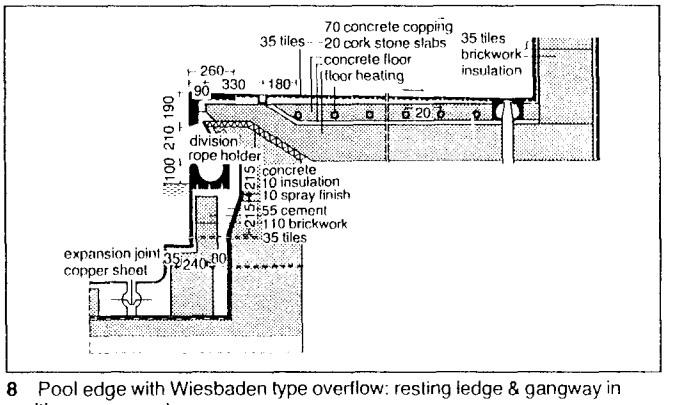
5 Recessed shaped steps



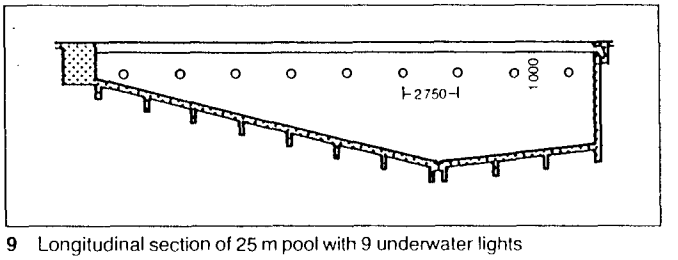
6 Glazed ceramic steps



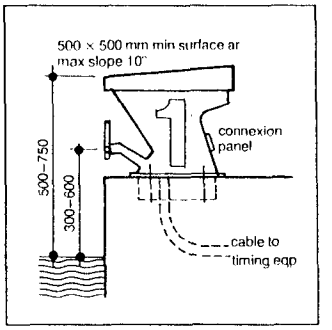
7 Pool edge detail



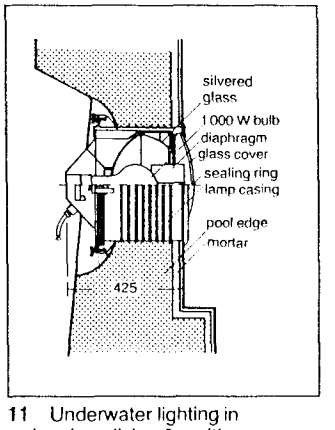
8 Pool edge with Wiesbaden type overflow: resting ledge & gangway in multi-purpose pool



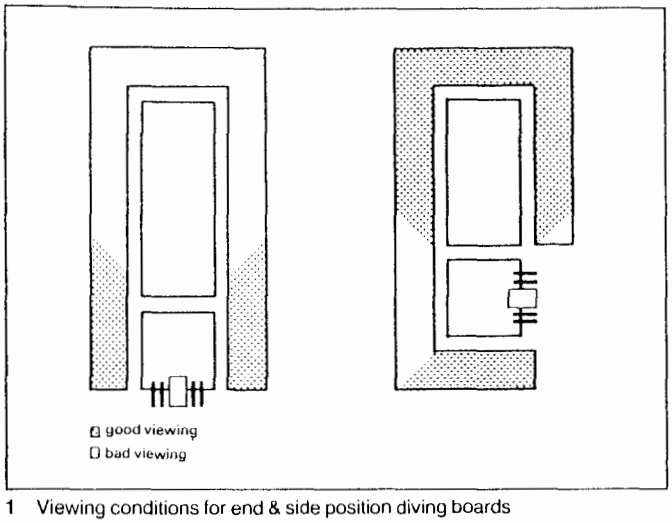
9 Longitudinal section of 25 m pool with 9 underwater lights



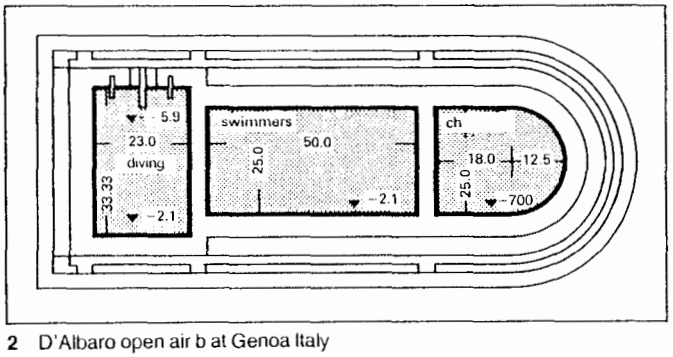
10 Diagram of starting platform: cable to timing eqp only built-in in major pool centres



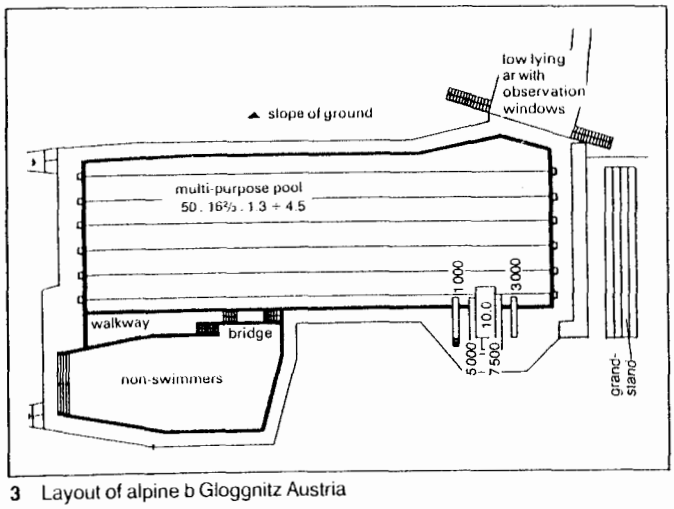
11 Underwater lighting in swimming, diving & multi-purpose pool



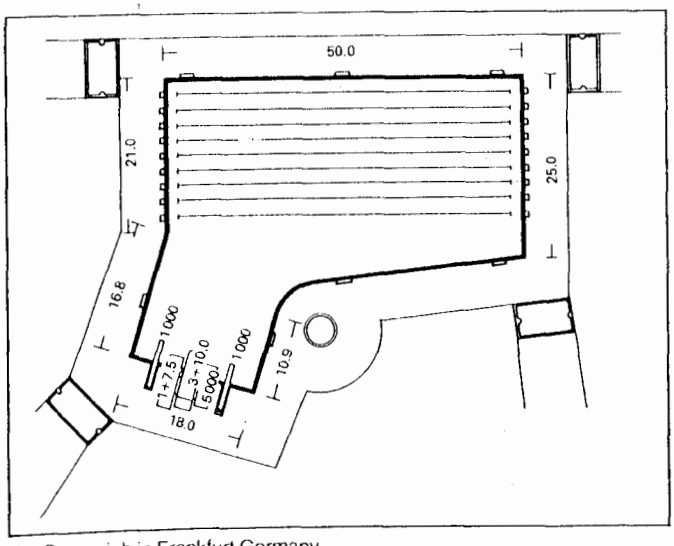
1 Viewing conditions for end & side position diving boards



2 D'Albaro open air b at Genoa Italy



3 Layout of alpine b Gloggnitz Austria



4 Open air b in Frankfurt Germany

OPEN AIR POOLS

Location: sunny, not down wind of industrial plants, nuisance from smoke or noise.

Season: depends on climate. For NW Europe:
100–120 visits/year, of which
40–60 busy days, of which
10–15 peak days

Per head of population (depending on climate):
1.5–3 visits/year.
1–2 m^2 overall site area
0.1–0.2 m^2 water area

Per visitor 0.6–1 m^2 water area

Changing rm for 5–8% of population

Non-swimmers pool: separate in large installations; depth 800–1250; easy-grip steps for sitting at shallow end; floor surface of pool not too slippery.

Paddling pool: access by gently falling ramp; free shape; depth 100–400; floor surface of pool not too slippery.

Water chute: →p337(5)

Pool construction: dense vibrated concrete or RC; inside finish frost resistant tiles, paint (epoxy resin or other).

Expansion joints depending on construction

Steps (a) corrosion resistant metal in 600–1000 wide recesses (b) special shaped ceramic glazed units built in →p332.
Distance apart of steps ≤ 10 m; distance from diving tower ≤ 8000

Starting platforms: →p332

Guide line: vertical below starting platforms.

Diving line: on pool floor, 250–300 wide.

Walk-through pool: 3000 × 4000–4000 × 6000; depth 300–400 with overflow.

Walkway round pool: ≥ 2000; ≥ 5600 near diving stages and pool access.

Water circulation: 6 hr turnover when bathing load infrequent; 3 hr turnover when load heavy. Water cleaning →p337.

Ancillaries:
entrance with cash desk, centrally situated
laundry issue & sto
swimming instructors' rm
first aid rm (or doctor's rm)
staff rm, separate for men & women
eqp, swimming & sports gear, deckchairs etc, possibly with issuing counter
changing rm, separate for men & women (communal changing rm, changing cubicles, separate rm for clubs & schools); family change
wc sited conveniently to changing rm & pool
pre-cleanse showers hand & foot wash basins
plant rm: water circulation & purification; boilers
telephone, loudspeaker & clock systems with signal device
adequate parking space
admin off

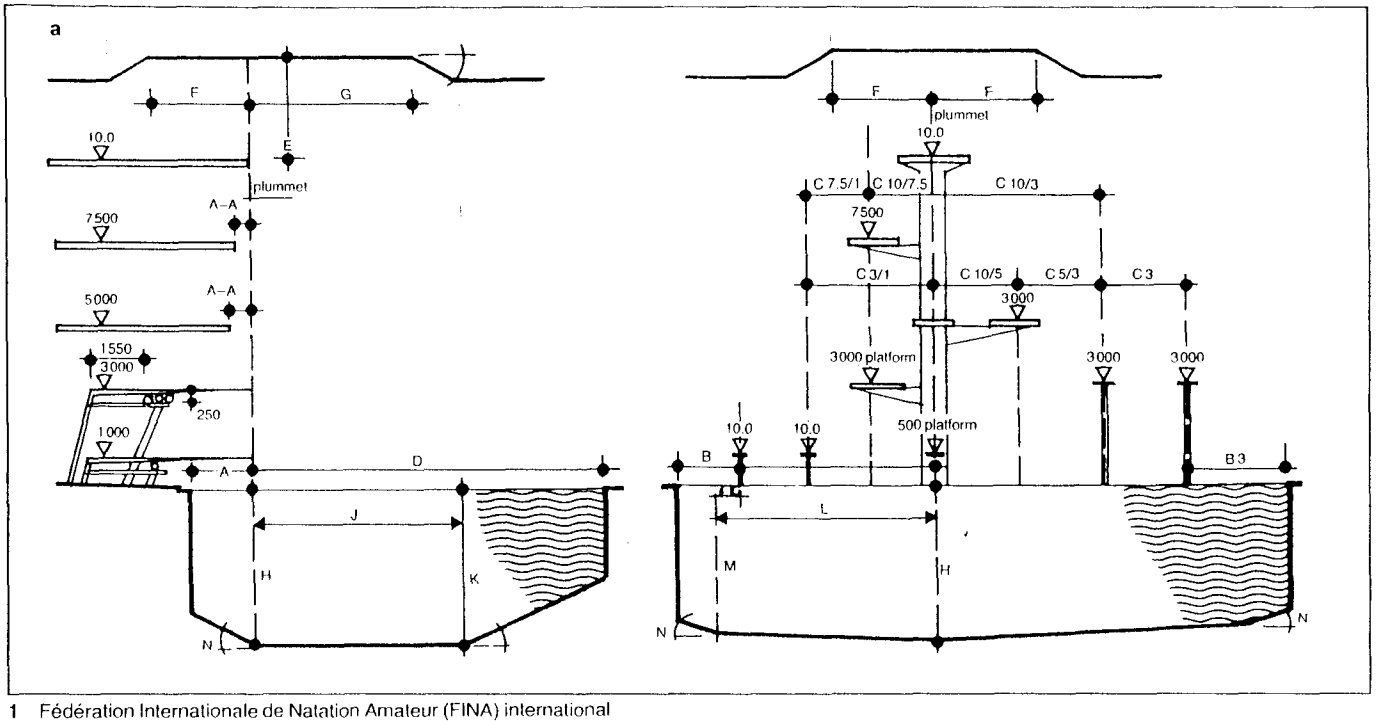
Showers, lavatories →p335; changing rm →p336

Desirable: roofed rest rm, sales rm, manager's flat, broadcasting system.

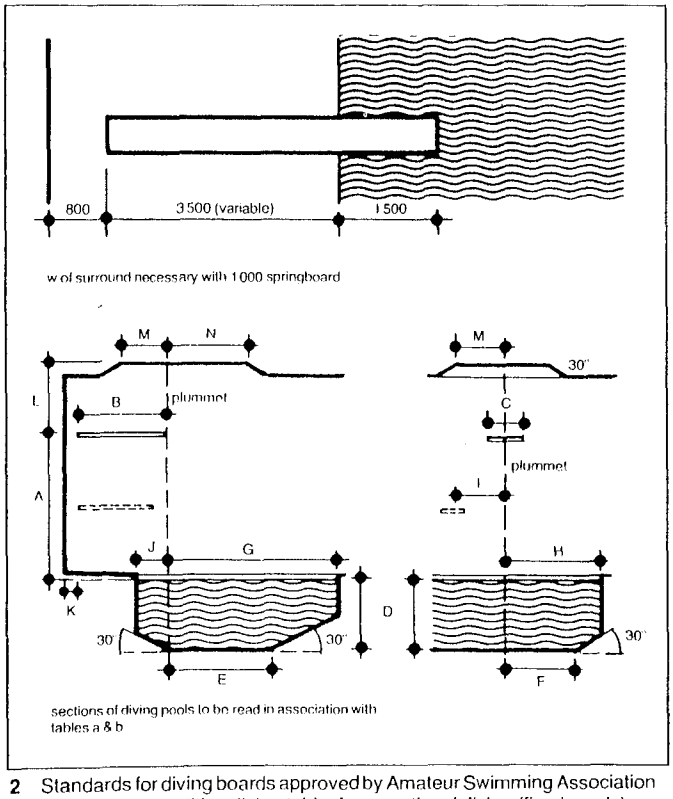
Garden swimming pools →p114

Sport: swimming

DIVING POOL DIMENSIONS



1 Fédération Internationale de Natation Amateur (FINA) international standards of diving: diagrams **a** longitudinal section **b** cross section



2 Standards for diving boards approved by Amateur Swimming Association (UK) table **a** competitive diving table **b** recreational diving (firm boards)

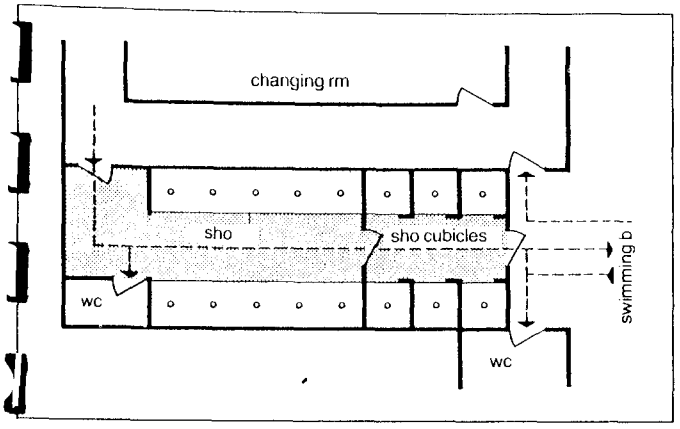
a

	springboards		fixed boards		
A board h from water	1 m	3 m	5 m	7.5 m	10 m
B board l	4.8	4.8	5.0	6.0	6.0
C board w	0.5	0.5	2.0	2.0	2.0
D d of water at plummet	3.0	3.5	3.8	4.1	4.5
E distance d D maintained forward	5.3	6.0	6.0	8.0	10.5
F distance d D maintained to sides	2.2	2.7	3.0	3.0	3.0
G clearance forward	7.5	9.0	10.25	11.0	13.5
H clearance to sides	2.5	3.5	3.8	4.5	4.5
I distance to adjacent board	2.5	2.5	2.5	2.5	2.5
J clearance behind	1.5	1.5	1.25	1.5	1.5
L clearance overhead	4.6	4.6	3.0	3.2	3.4
M clearance overhead maintained to sides	2.75	2.75	2.75	2.75	2.75
N clearance overhead maintained forward	5.0	5.0	5.0	5.0	6.0

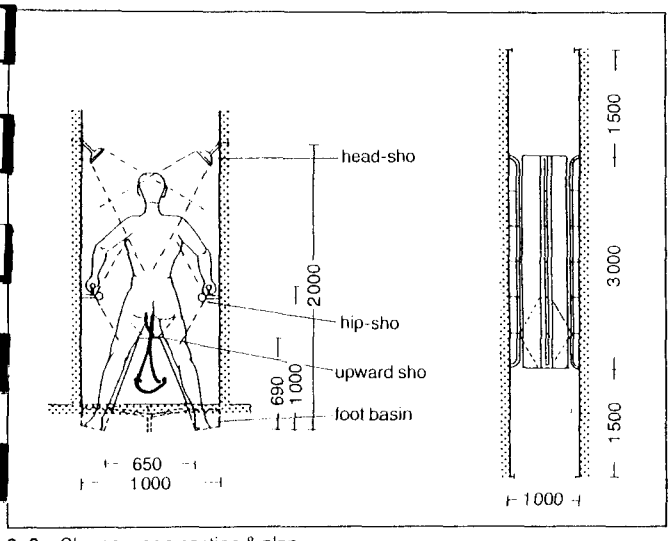
Notes: 1 table incorporates latest dimensions recommended by ASA; includes column of dimensions for 7500 platform h (considered useful for high board training) 2 ± 100 tolerance permissible on nominal board h: all dimensions should relate to central point at front end of diving board(s) 3 platform thickness should not be ≤ 200 at its front 4 designers should consider current standards specified by FINA if pool to be used for national/international standard events; recommended that diving pool be separate from main pool: where not possible board h of springboard should be confined to 1000 and when in use ar concerned should be roped off to avoid swimmers causing safety hazard

b

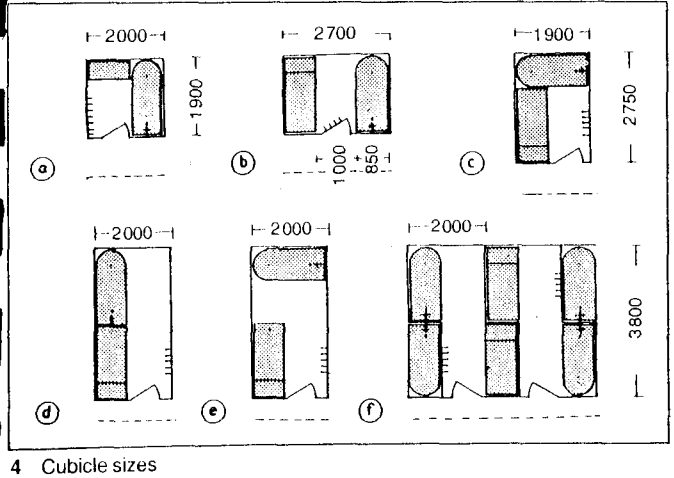
A board h from water	1 m	1 m	2 m	2 m	3 m	3 m	5 m
B board l	0.75	1.75	0.75	1.75	0.75	1.75	5.0
C board w	0.75	0.75	0.75	0.75	0.75	0.75	2.0
D d of water at plummet	2.6	2.6	3.0	3.0	3.25	3.25	3.8
E distance d D maintained forward	3.0	4.0	3.0	4.0	3.5	4.5	6.0
F distance d D maintained to sides	2.2	2.2	2.4	2.4	2.6	2.6	3.0
G clearance forward	4.5	5.5	5.5	6.5	6.5	7.5	10.25
H clearance to sides	2.5	2.5	3.0	3.0	3.5	3.5	3.8
I distance to adjacent board	2.5	2.5	2.5	2.5	2.5	2.5	2.5
J clearance behind	1.25	1.25	1.25	1.25	1.25	1.25	1.25
K clearance behind board to wall	0.8	0.8	0.8	0.8	0.8	0.8	0.8
L clearance overhead	3.0	3.0	3.0	3.0	3.0	3.0	3.0



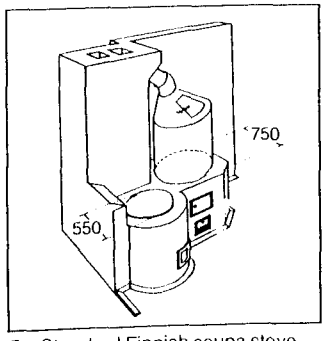
1 Arrangement of sho & wc with circulation routes



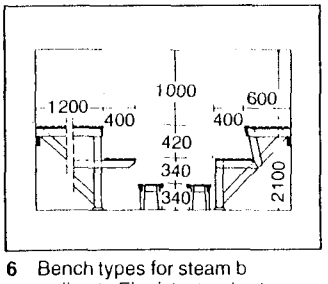
2 3 Sho passage section & plan



4 Cubicle sizes



5 Standard Finnish sauna stove with boiler (also suitable for washing clothes)



6 Bench types for steam b according to Finnish standards: l 2000; steps & benches of wooden battens nailed from below so that body does not touch hot nail heads

SLIPPER BATHS, SHOWERS

Slipper baths: in separate units; number approx 0.1 × pool size (m^2); sizes according to demand and number of visitors →(4); space required →(8).

Centre passage width 3000.

Side passage width 1600.

Clothes hooks inside on free wall or inside door.

Window cill above bath ≥ 1300 above floor level.

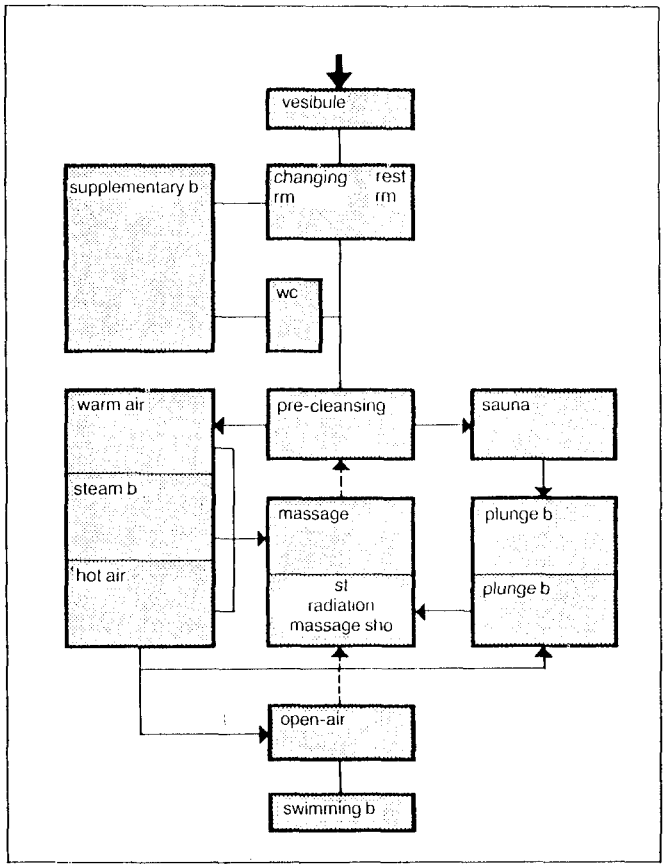
Washable walls ≥1800 above floor level.

Hard finish on solid floor with drainage; all corners and skirtings coved; all metal parts heavily galvanised; all timber painted 3 undercoats and 1 finishing coat.

Steam baths: individual cubicles, box baths or shared baths (steam baths), separate for men and women, or used at different times. Separate rest rm 22°C, massage rm 30°, sho rm 25° with warm bath 22° and cold bath 10°. Shapes of benches for lying on →(6).

Turkish bath →(7): warm air rm 45–50°C, hot air rm 55–60° and sweat rm 65–70°, adjoining rest, sho and massage rm as above. Outer walls double with heated air cavity; ceiling slopes towards outside to drain off condensation. All fittings rustproof. Windows with treble glazing. El fittings water tight.

Saunas →(5)(6) →p117 338

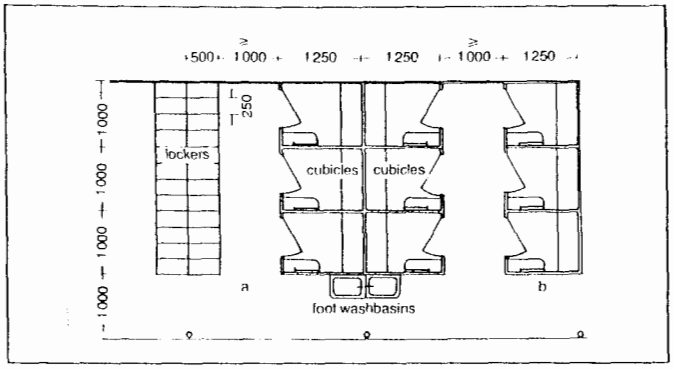


7 Functional analysis of health b

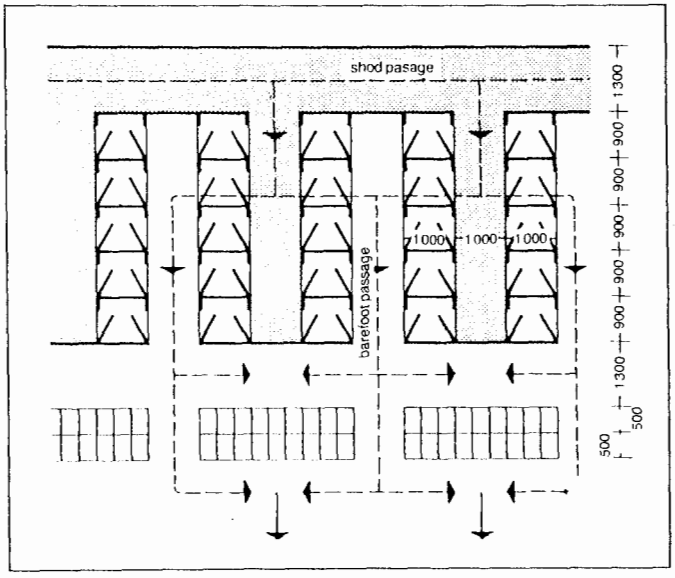
bathr layout →(4)	− vesitibule mm^2	+ vestibule (1000) mm^2
a b & bench	3800	5600
b b & couch	5120	7800
c b as above	5220	7120
d–*e* as above	7600	9600
f as above	7600	9600

8 Space needed for bath cubicles →(4)

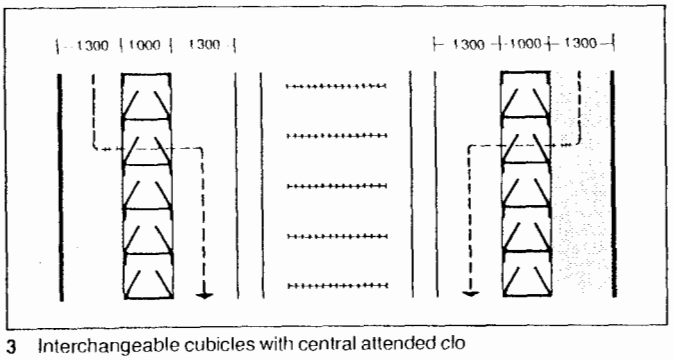
Sport: swimming



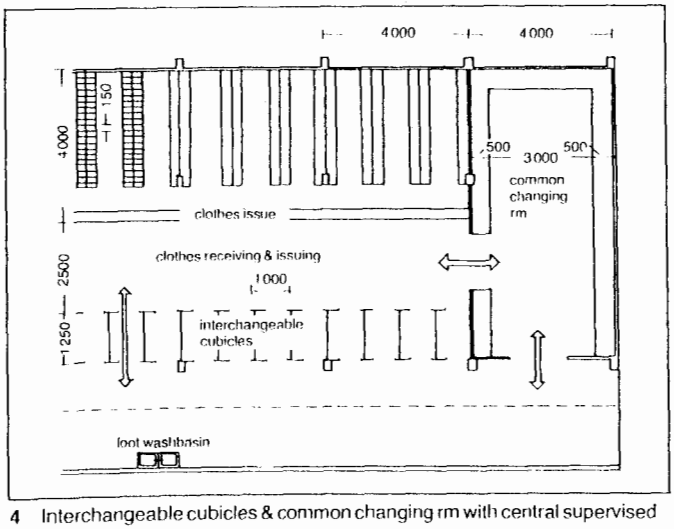
1 Cubicles without separate shod & barefoot passages: **a** interchangeable with locker **b** individual



2 Interchangeable cubicles with lockers



3 Interchangeable cubicles with central attended clo



4 Interchangeable cubicles & common changing rm with central supervised clo

POOL CHANGING ROOMS

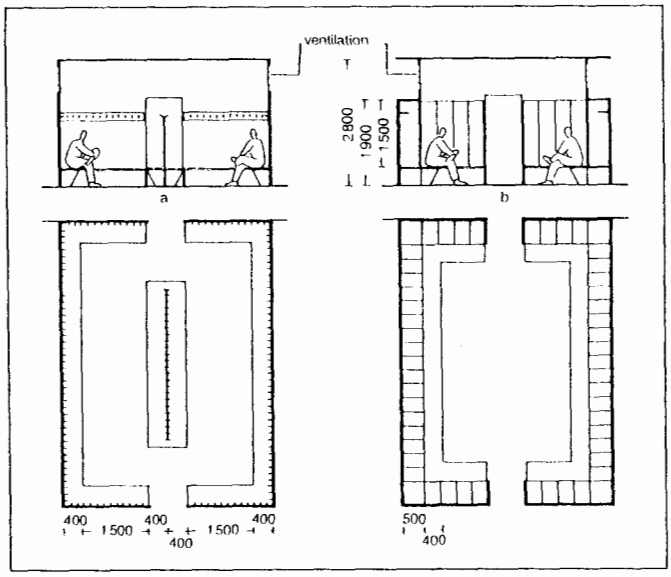
Individual cubicles →(1b): 1/visitor; size 1000 × 1000–1200; gross area of changing rm/cubicle 3–4 m².

Cubicles to be used in turn: (a) with locker →(1a)(2) 3–4 lockers/cubicle; (b) with supervised central clo →(3)(4); size and area as for individual cubicle; desirable ratio approx 53%. (Very economical: if few visitors cubicles can be used singly.)

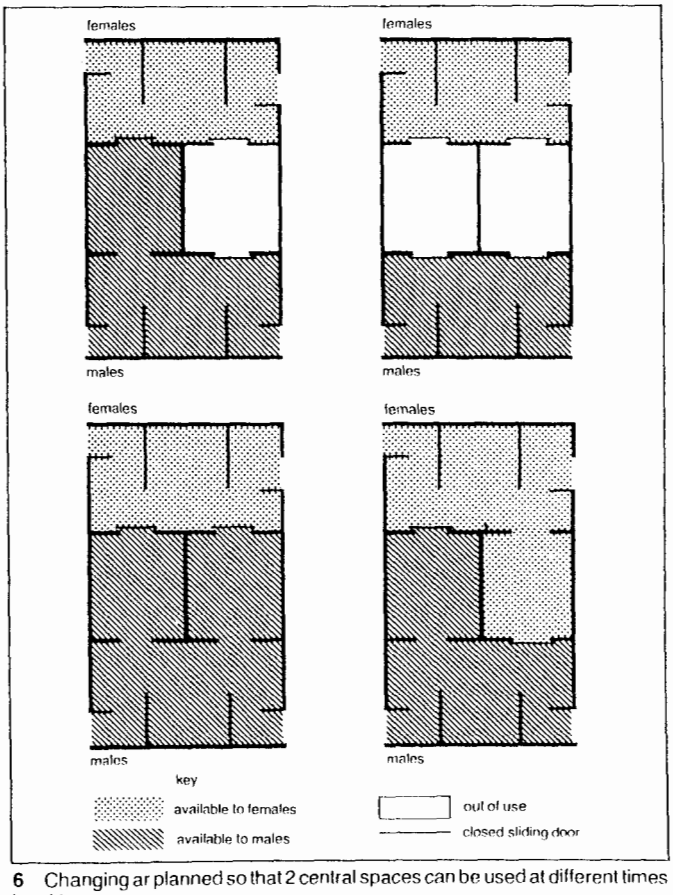
Bath cubicles →p335(4)(8)

Common changing rooms: (a) with central handing-in clo →(4); space required/place 0.5–0.8 m²; (b) with locker →(5b); space requirement as (a) + locker area, 3–4 lockers/seat; locker size: 300 × 500–400 × 600 desirable ratio approx 26%; (c) without locker, with clothes hooks →(5a); for groups supervision desirable; space requirement as (a); desirable ratio approx 14%.

Height of changing rm ≥ 2800.

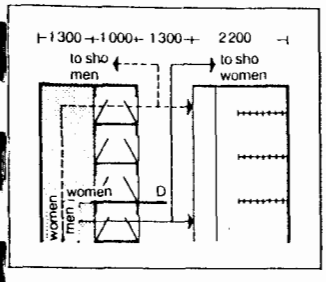


5 Common changing rm: **a** with clothes hooks **b** with lockers

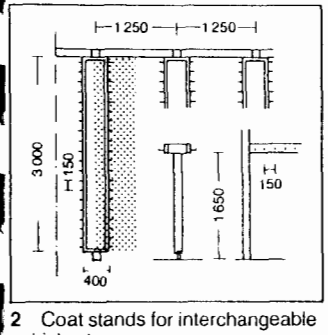


6 Changing ar planned so that 2 central spaces can be used at different times by either sex

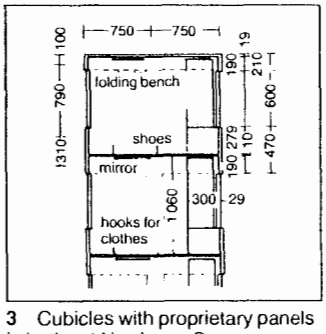
Sport: swimming



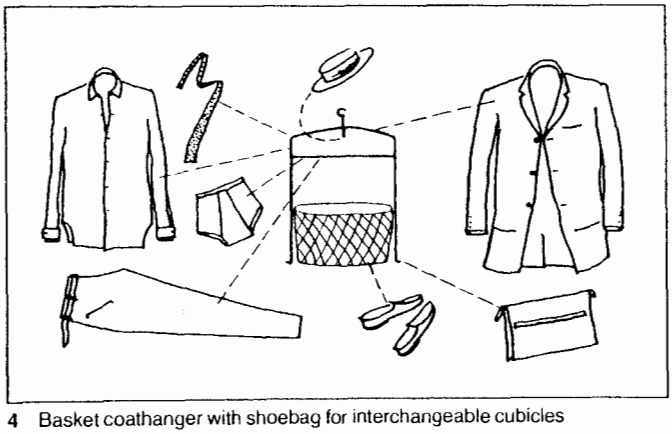
1 Cubicle with supervised clo; interchangeable cubicles for men & women; indicator board D can be switched according to demand



2 Coat stands for interchangeable cubicle clo



3 Cubicles with proprietary panels in baths at Nordeney Germany



4 Basket coathanger with shoebag for interchangeable cubicles

POOL CHANGING ROOMS

For public bldg essential find most economic staffing solution. Division of interchangeable sections by sex can be varied by use of sliding partitions →p336(6) or by switching notice boards.

Av visitors 60–70% men 30–40% women

Clothes sto: individual lockers or attendant supervised basket →(4) sto →p336(3)(4).

Space requirements →(2)(3):

500 bench/adult

400 bench/child

bench h 375; bench w 300

In open-air baths per changing rm 40 users per section or area 20 coat hooks on run of board for coat hooks 3000.

Ratio of total changing/clothes sto space per user approx 1.75 m^2.

Cubicles and clothes stand of timber or corrosion resistant metal with proprietary panels →(3).

Include changing needs of disabled users: 2000 × 2000 cubicle.

WATER CLEANING

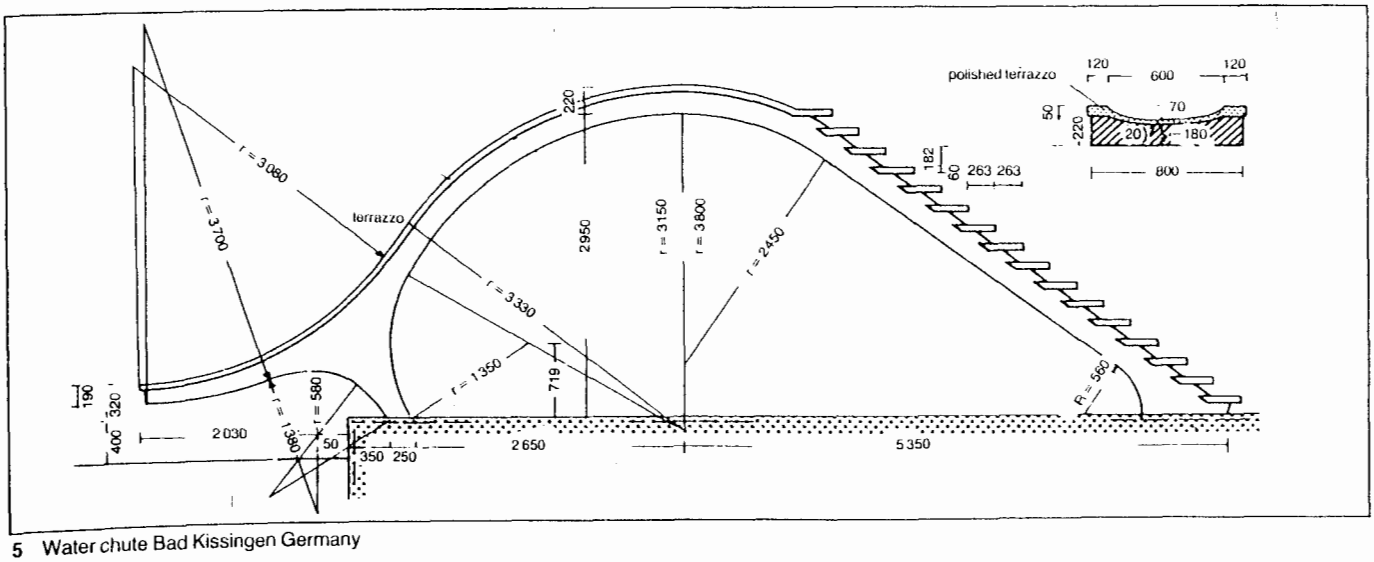
Purification, flocculation and disinfection of swimming pool water: hygienically essential turnover period for indoor public pools:
swimming pool 3 hr
learner pool ½ hr
diving pool 6 hr

Purification of river, surface and pool water chemically by flocculation of organic substances to induce coagulation followed by filtration. Filter rm sizes →(6).
Disinfection usually by chlorination.

In asymmetrical pools arrange outlets so that complete through flow possible and no water can stagnate in corners. For cleaning pool floor, specially in open-air pools, remove sediment with brushes and suction sediment pump.

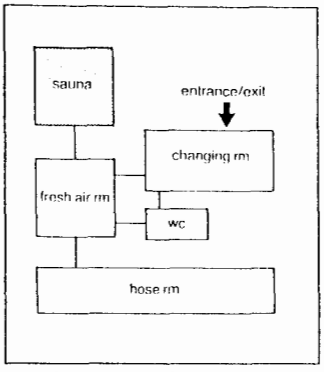
capacity/hr m^3	ar of filter rm m^2	clear h of filter rm m
20–40	20–30	3.5
60	40	3.5
80–100	50	3.5
150–200	60	3.5
250	65	3.5
300	70	3.5
400	80	4.5

6 Space required for filter installation; for open air add 50%

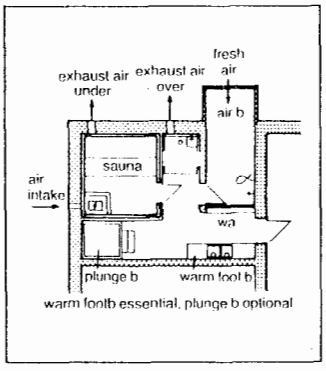


5 Water chute Bad Kissingen Germany

Sport



1 Private sauna diagram



2 Domestic sauna →p117

SAUNA PLANNING

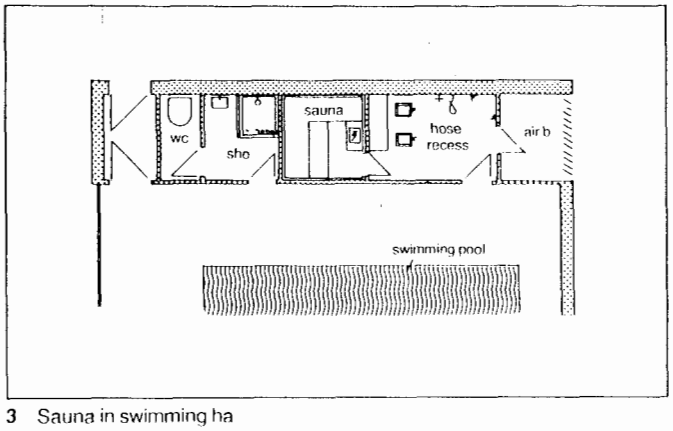
Domestic saunas →p117

Bathing time: 3 × 8–12 minute sessions, total for 1 bath 120 minutes. Rm for cooling (sho, hose, plunge) →(2)(3)(9)(10) and air bath →(3)(12). Natural cold water pleasanter: lake or sea inlet (or snow).

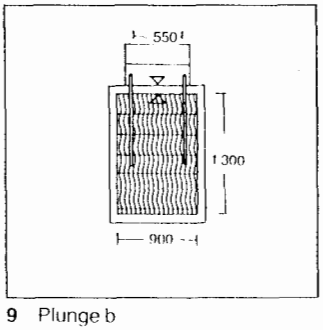
Air bath: breathing in fresh cool air as offset to hot air, cooling down body. Provide protection against peeping; seating; water cooling by hose without rose or/and plunge of approx 1000 m³. Warm footb with seating required.

Changing area: cubicles (or open) for twice number of visitors at peak times →(13); also ancillary rest and massage rm →(12) for approx 30 visitors, 2 massage points; 1 rest rm for ⅓ bathers apart from staff.

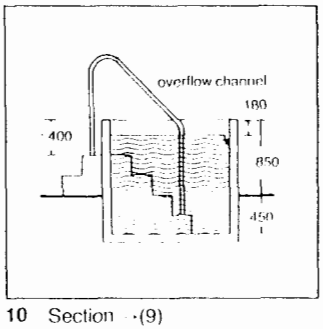
Room temp: undressing 20–22°C; pre-cleanse ≥ 24–26°; cooling (cold water) rm ≤ 18–20°; massage rm 20–22°.



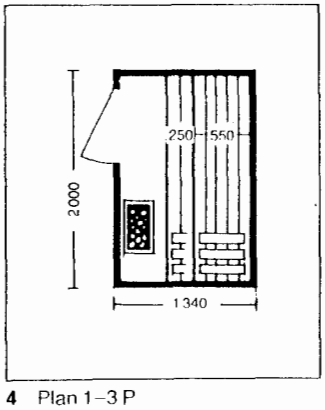
3 Sauna in swimming ha



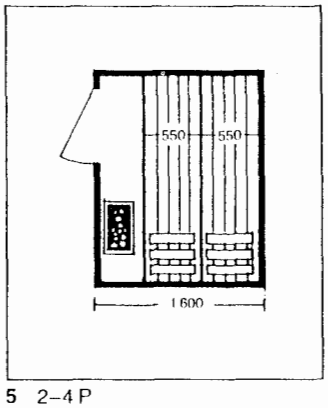
9 Plunge b



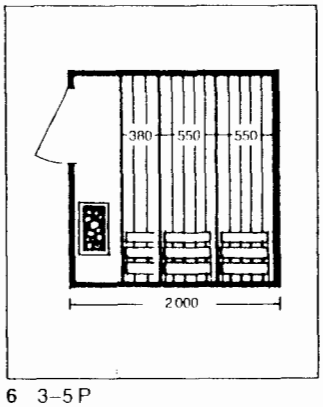
10 Section →(9)



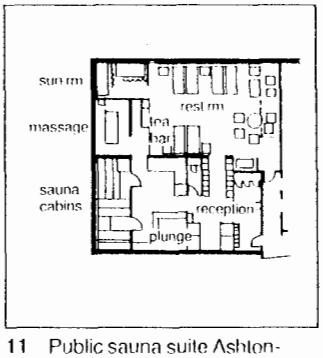
4 Plan 1–3 P



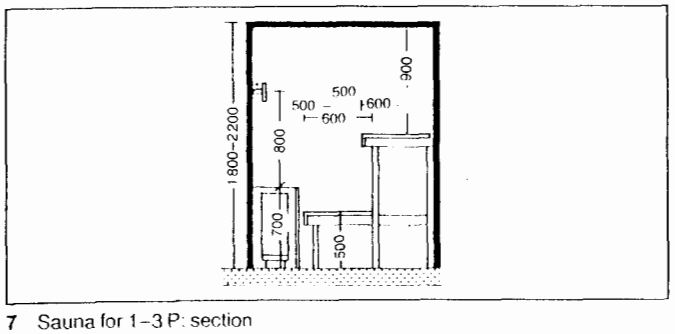
5 2–4 P



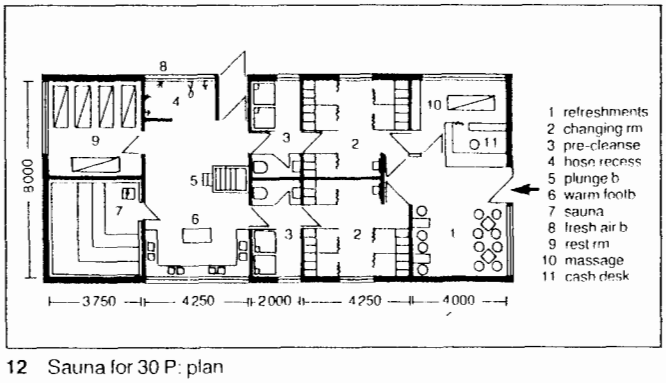
6 3–5 P



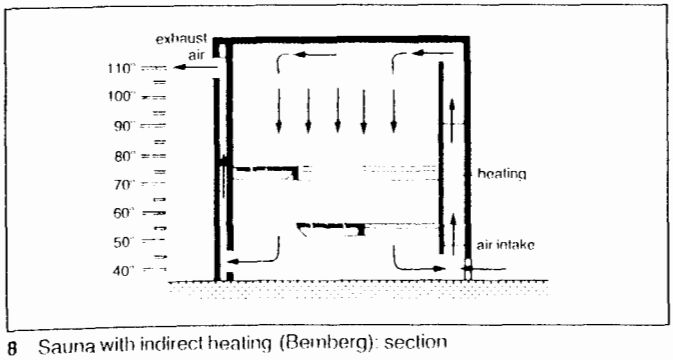
11 Public sauna suite Ashton-under-Lyne pool England
Arch Technical Unit for Sport



7 Sauna for 1–3 P: section



12 Sauna for 30 P: plan

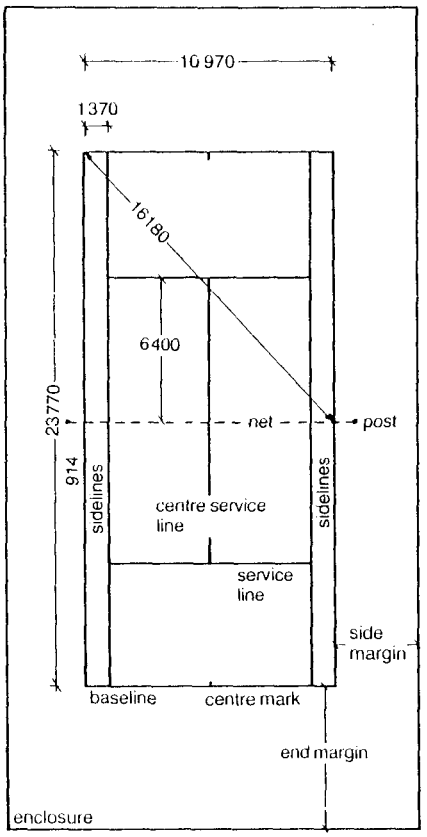


8 Sauna with indirect heating (Bemberg): section

A/P		rm sizes eg for 30 P	
changing rm	0.8–1.0 m²/P	changing rm	24–30 m²
pre-cleanse & wc	0.3–0.5 m²/P	pre-cleanse	9–15 m²
sauna	0.5–0.6 m²/P	sauna	15–18 m²
cooling rm	1.0–1.5 m²/P	cooling rm	30–45 m²
rest rm	0.3–0.6 m²/P	massage	12–18 m²
		rest rm	9–18 m²
fresh air	> 0.5 m³/P	lob, lav, corr	99–144 m²
			21–35 m²
massage	6–8 m²	air b	20–50 m²
		bench	120–179 m²

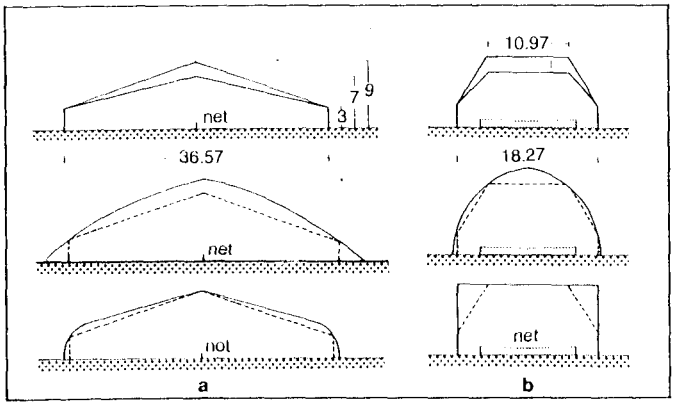
13 Ar required per P & rm sizes

Sport: tennis



enclosure dimensions relating to standards of play	international & national official championships	county & club recommended	recreational
min end margin	6400	6400	5490
min side margin	3660	3660	3050
min enclosure size for 1 court	36580 × 18290	36580 × 18290	34750 × 17070
w for courts in 1 enclosure		33530	31700
w added for each additional court		15240	14630

1 Playing space needed for courts of different standards according to requirements of (UK) Lawn Tennis Association

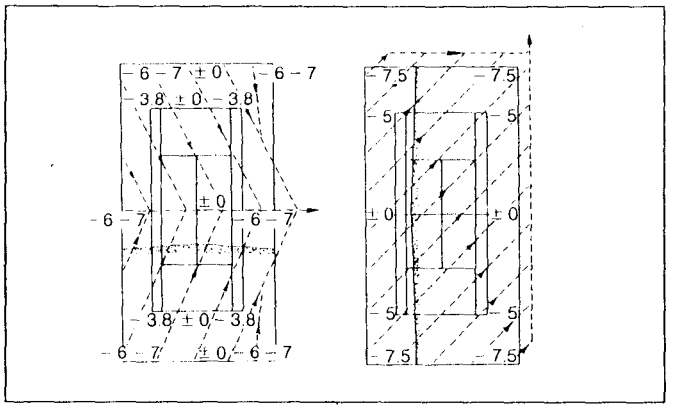


2 Dimensions & shapes for covered courts →(4) sections **a** longitudinal **b** cross

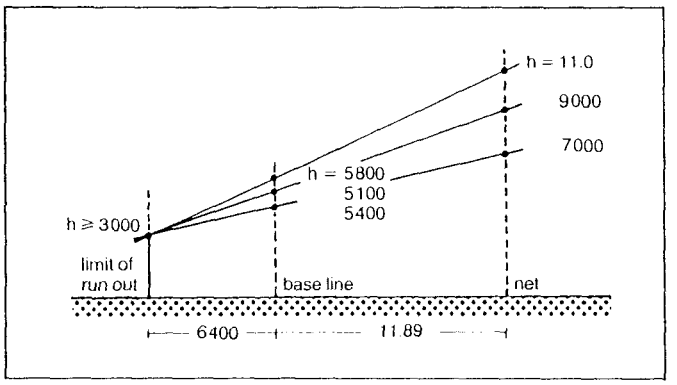
COURT REQUIREMENTS

Playing space needed for court →(1): h of net at centre 915, at posts 1060; netting enclosure h 4000; 2.5 wire 40 mesh. Artificial lighting 10 m h at long sides. Scale of courts to population: regular players av 2% of total; ratio courts/players 1:30 to 1:35 very good, 1:45 or over poor; new courts 1:30. Additional space amounting to 25% of playing space needed for car park, children's play area, paths, bldg etc.

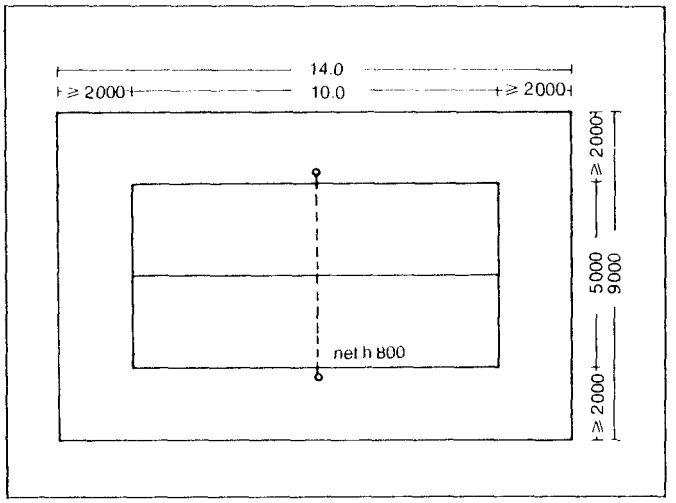
Surface: exceptionally smooth, hard and pervious to rain: must attract very little dust and be dazzle free; materials: grass, cinders, plastics.



3 Drainage plans for tennis courts



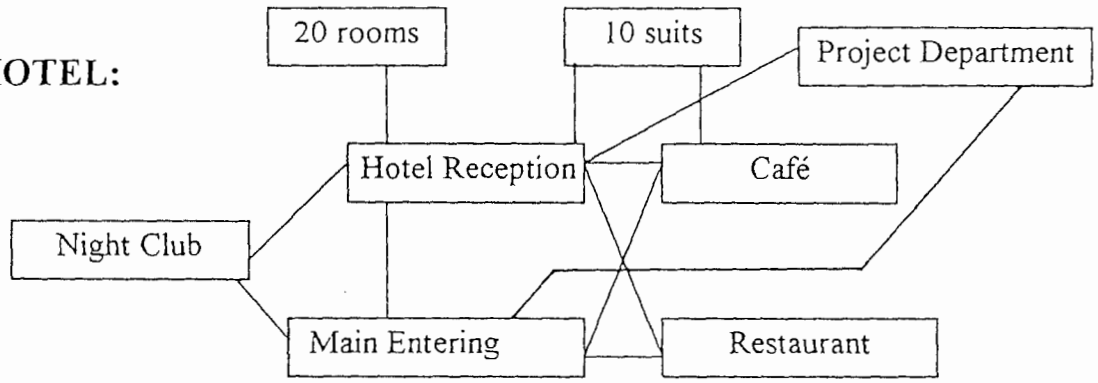
4 Covered court h



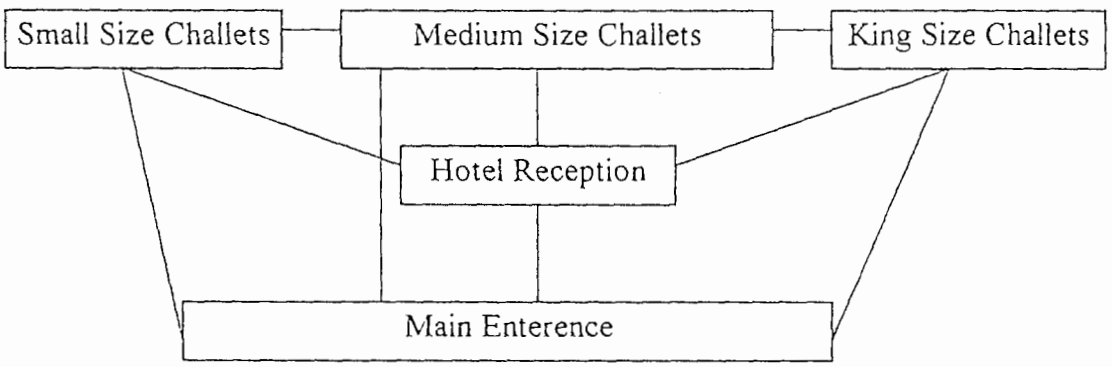
5 Children's court

BUBLE DIAGRAM

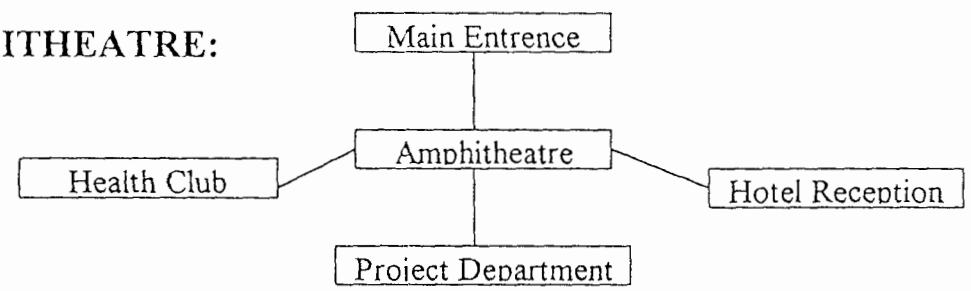
HOTEL:



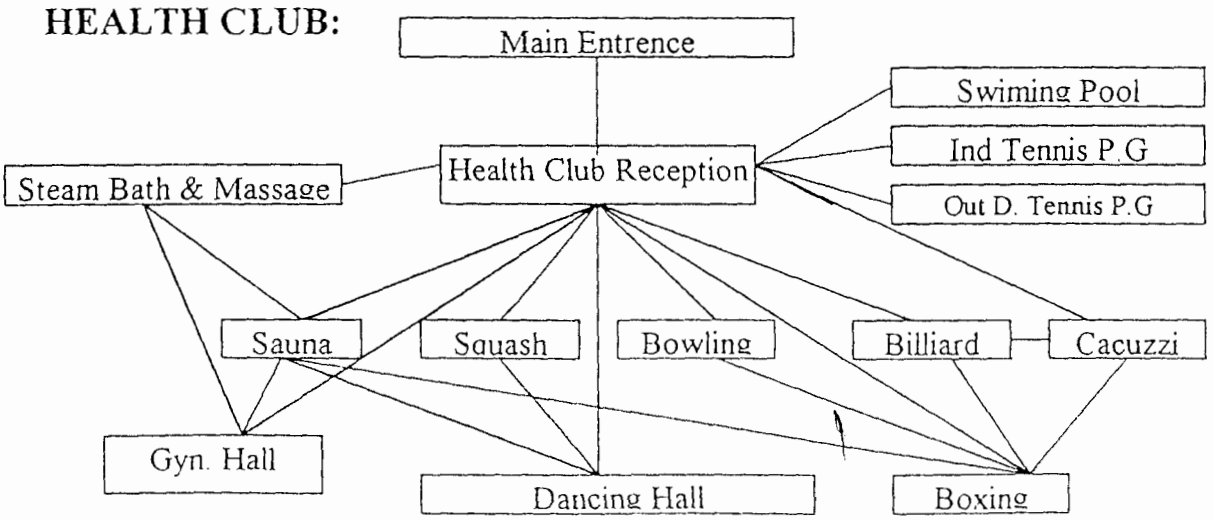
INDEPENDENT CHALLET:



AMPHITHEATRE:



HEALTH CLUB:

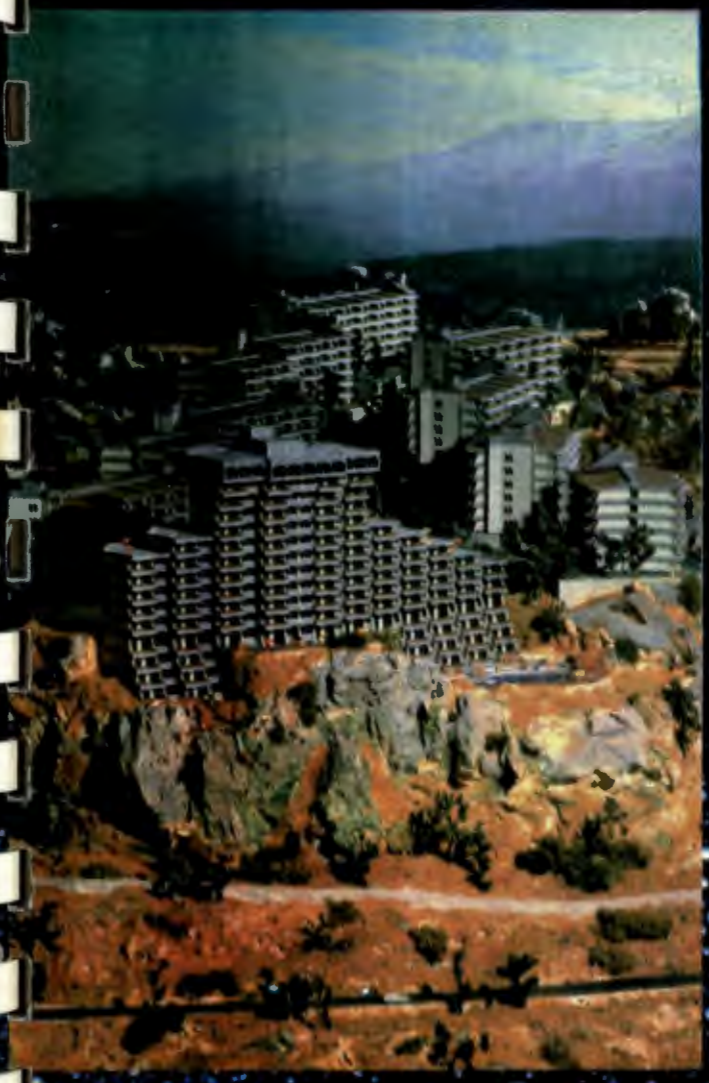


IV SIMILAR EXAMPLES:

I shall discuss the projects I researched. I shall give a table and a brief description on the typological programmatic and design approach relevant to my project.

A - Satellity I & II :

The project is about building a self-sufficient community situated at a high altitude 1200 meters above sea level 30 km from Beirut and a few-minute drive from Faraya skiing resort.
I didn't inspect any special architectural message or language except that it is a typical business oriented project. In such a project, 140,000m2 land, the program is extremely classical. The program is lined in yellow on the following brochures.



SATELLITY
NEW
FEYTROUN

PROMOTION : SOCIETE
LIBANO-SUISSE D'URBANISME s.a.l.
Adonis _ face centre St. Georges.
Tél. : (09) 911544, 900335/545;
Tlx. : TELEC 45952 LE

CONCEPT

SATELLITY NEW FEYTROUN

The city of the future... Today

Constructed in one of the most beautiful spots in Lebanon, around 30 km from the Capital Beirut, 1200 meter above sea level, and a few-minute drive from Faraya ski resort:

SATELLITY NEW FEYTROUN

a self-sufficient community, composed of 450 fully-equipped and furnished housing units, 60000 sq.m. of playgrounds, tennis and basketball courts, gardens, 3 heated swimming pools, a health club, a bowling center, a night club, a skating rink, a theater, a supermarket, a pharmacy, and various restaurants.

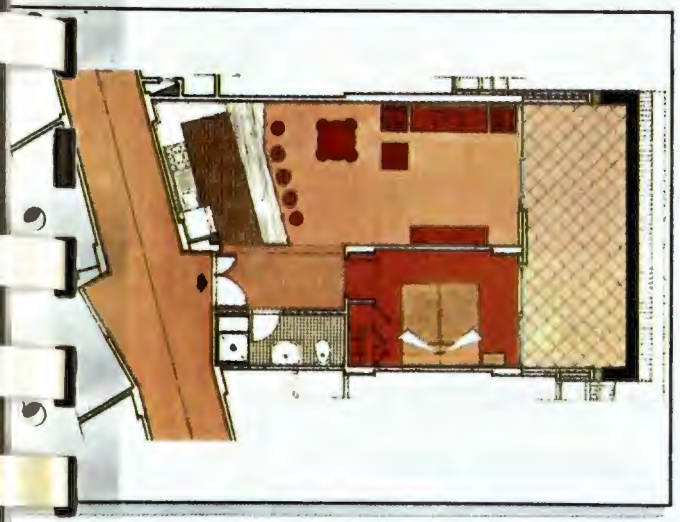
Satellity New Feytroun: Location is characterized by a fresh and cool summer weather, as well as modern heating facilities for the winter months (including a chimney in each apartment), away from noise and pollution, where the whole family can enjoy the quiet and comfort of mountain life.

The floor area of the apartments ranges between 85, 110, 145 and 220 sq.m.

Do you dream of an ideal home? Why worry?
Change the course of your life by owning
a home at «SATELLITY»

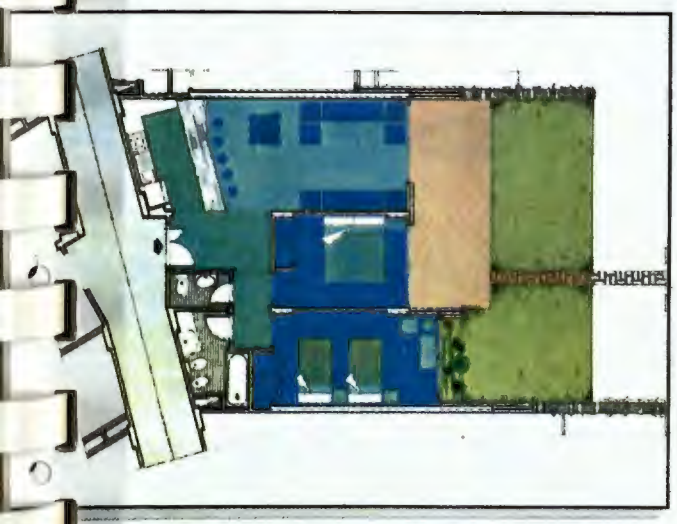
ساتيللتي نيو فيطرون

مدينة المستقبل ... اليوم



ONE BEDROOM APARTMENT (85 m2)

Entrance, Living room, Kitchen + bar
Bedroom + closet, Bathroom, Terrace.

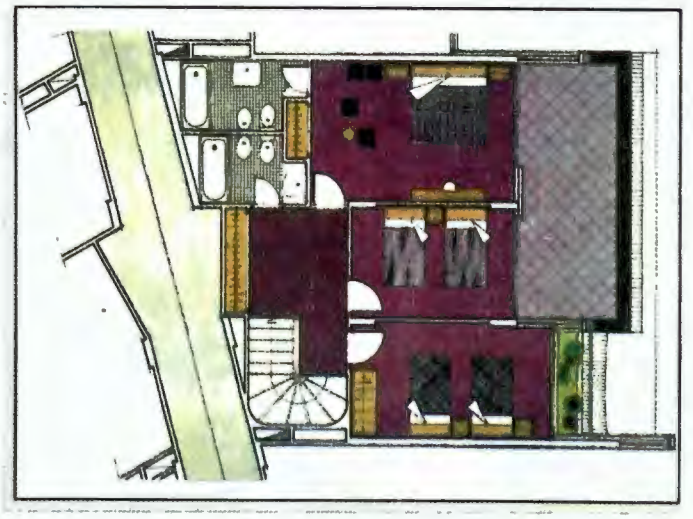


TWO-BEDROOM APARTMENT (110 m2)

Entrance, Toilet, Living room, Dining area,
+ bar, Bedroom 1 + closet, Bedroom 2 + closet,
m, Terrace, Out door planter.

DUPLEX 220 m2 (LOWER LEVEL)

Entrance area, Guest rest room, Stairs, Salon, Living room,
Dining room, Kitchen + bar, Terrace, Out door planter.



DUPLEX (UPPER LEVEL)

Hall + Closet, Stairs, Master's bedroom, Bedroom 2 + closet,
Bedroom 3, 2 Bathrooms, Terrace, Out door planter.

B. Disney Land:

Disney Land : situated on the Dog river, can be reached from the high way facing loweizy University (NDU) or from Zakrit-Nahr El Kalb road.

It is built on 80,000m2 land, 10,000 of which are a Lumapark, it contains:

1000 shalet $43m^2$

2000 Cabin (for member ship)

Hotel 250 rooms

Amphitheater 3000 seats

2 Theaters (under the Amph.) 1500 + 1500 seats.

Health Club

5 Restaurants : 1 Chinese

1 Arabic

1 Night Club ...

ParadiseLand

Liban

Financement:

SOCIETE LIBANO-SUISSE D'URBANISME S.A.L.

Adonis, face centre St Georges.
Tel: 09.911544 - 900335/543

Promoteur:

HABITAT & TOURISME (PROMOTION) S.A.L.

Adonis, face centre St Georges
Tel: 09.911544 - 900335/543

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Architecte collaborateur

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Architecte collaborateur

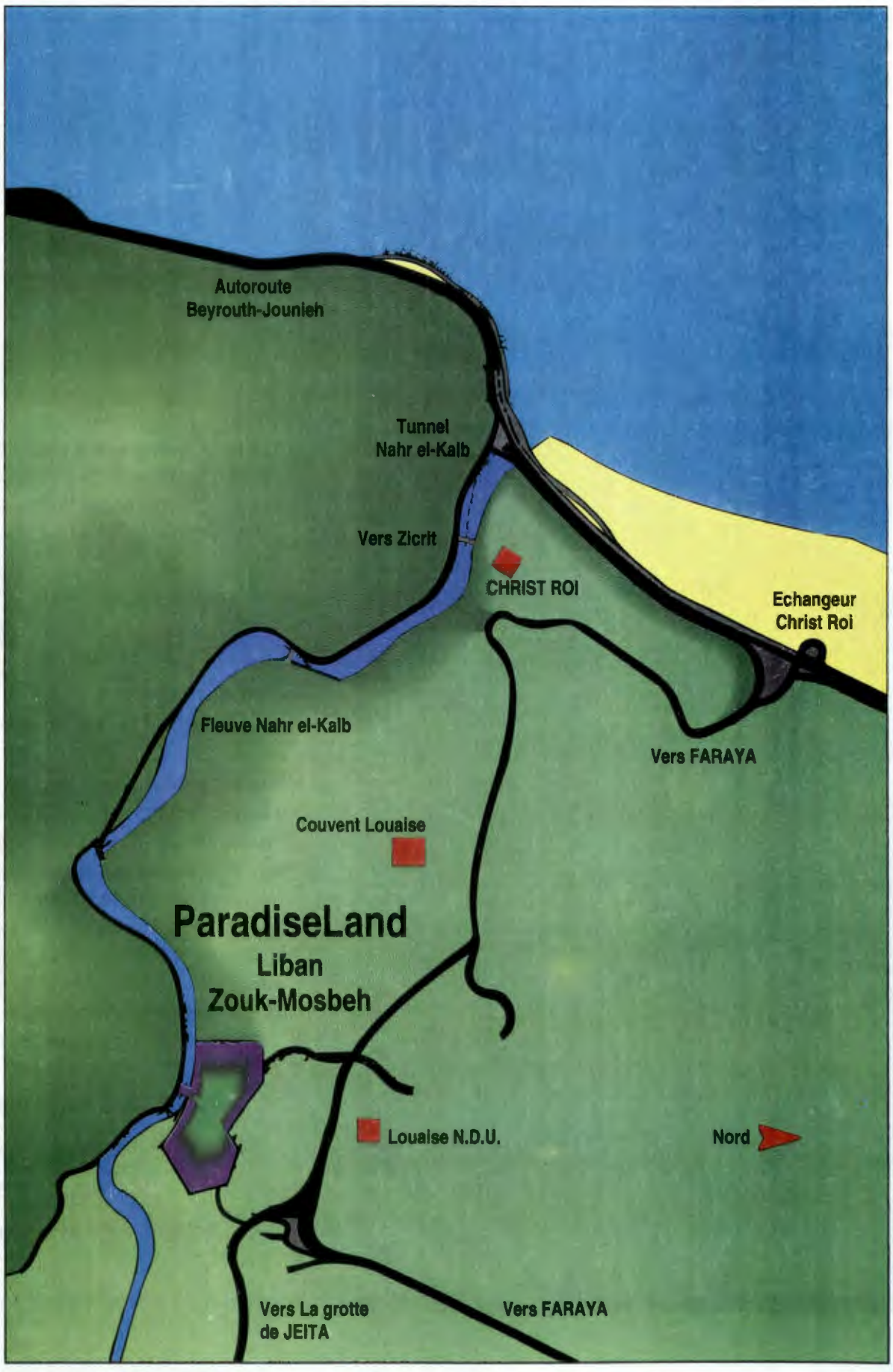
Bureau d'étude ELIE AKIKI
Ingénieur civil

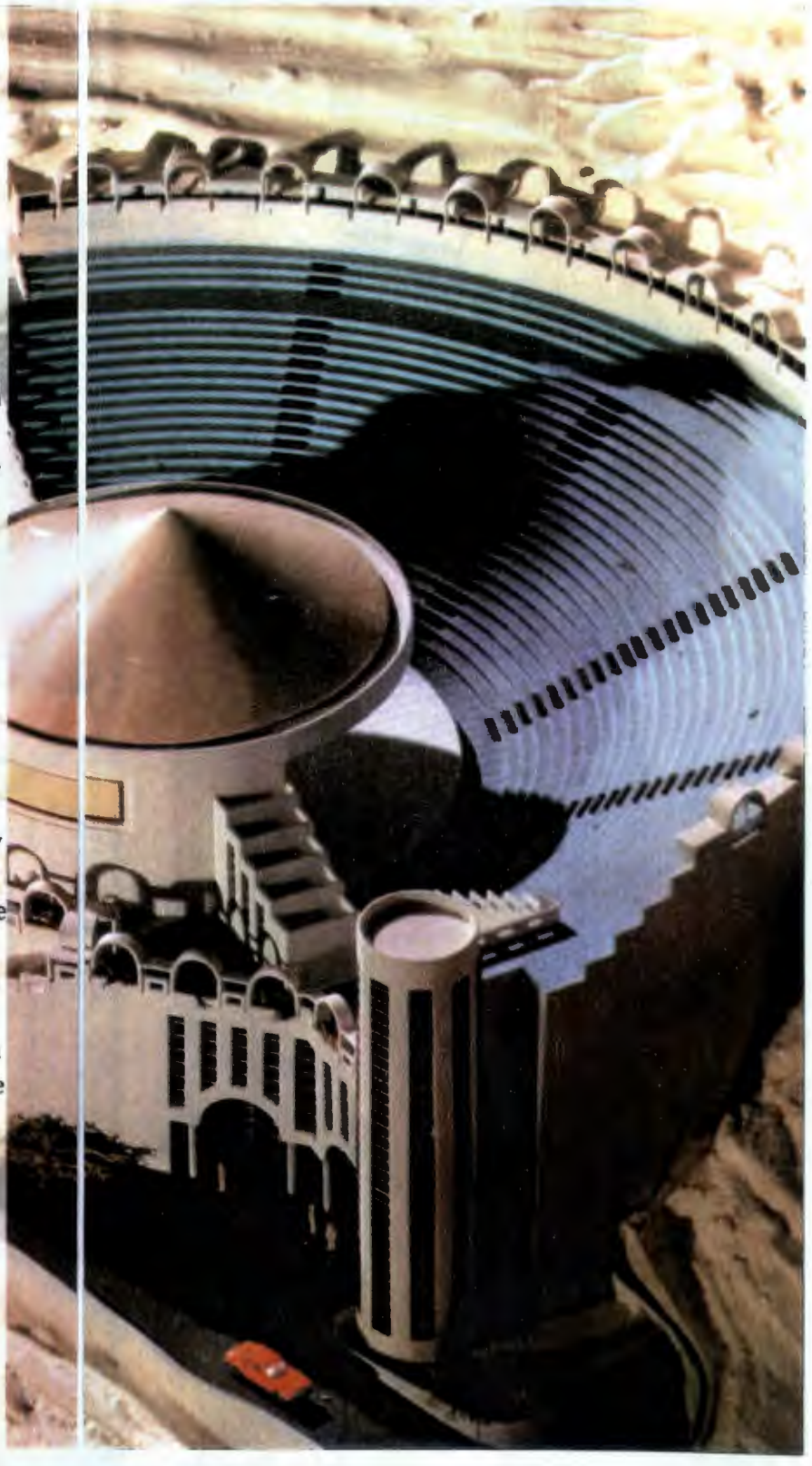
ROBERT ACHI
Décorateur

Satellity III

THE FANTASY

PARADISELAND LIBAN, ZOUK-MOSBEH





ParadiseLand Liban.

Le défi du fabuleux magicien du dessin animé de concrétiser un royaume magique fut exaucé en Floride en 1955, ce rêve devint réel pour les français en 1992 et bientôt, très bientôt , ce "dream" sera à la portée de vos enfants.

Prenez votre temps à vous amuser,
c'est le secret d'une jeunesse éternelle.
Prenez votre temps à rire,
c'est la musique de l'âme.

C'est dans notre royaume féerique que vos "petits" conserveront leur jeunesse. L'enchantement qui y règne, l'extase qui y domine et le charme qui en résulte, les emporteront dans un monde à mille lieux du leur , dans un univers fabuleux .
C'est dans notre royaume féerique que vos "amours" ne cesseront de rire. Cette musique harmonieuse de l'âme résonnera dans leurs oreilles tout au long de leur vie active et laborieuse.

Notre royaume est celui du rêve, du charme,
de la magie, de l'aventure, de l'art, de la culture,
du sport, de l'amour et de la joie.
Notre royaume est une réalité imaginative.

HÔTEL:
agnifiquement aménagé, d'un confort exclusif, d'ur ambiance feutrée et d'un luxe absolu. De classificati internationale (cinq étoiles), il comporte 220 chambres et suites.

THÉÂTRES:
Comportant théâtre pour 1500 personnes équ de scène de 30 m² de diamètre tournante, plu un théâtre expérimental pour 400 personnes un amphi en plein air pour 3000 personnes conçu pour les grands festivals internationau

RESTAURANTS:
C'est un groupement riche comportant night-club, bars, restaurants dont un pour 50 personnes dans un cadre agréable avec patio vue panoramique; un funiculaire le lie au théâtre.

Incrusté dans la montagne, perché en hauteur dans la vallée, ParadiseLand Liban s'élève au flanc de la rive de Nahr El Kalb sur une superficie de 240.000 m². ParadiseLand est un lieu d'agrément, de culture, de loisirs et de sports. Il comporte:

- Club multi-fonctionnel
- Hôtel international
- Théâtres (Amphi, théâtres expérimental et grand spectacle)
- Restaurants (Night club, restaurant, dancing-bar)

Ainsi que 2000 "Studettes" comportant chacune: bac à douche, lavabo et vestiaire.

Le Club englobe les multiples activités qu'on peut grouper sous les titres suivants:

Social & Culturel: Des salles de fêtes, des espaces de jeux, des espaces verts extérieurs à pelouse ou sous kiosque, des bibliothèques, vidéothèque, des ateliers d'art et des salles polyvalentes, ...

Sport: De différents équipements sportifs mis à votre disposition durant toute l'année: 5 piscines, 6 courts de tennis, 2 terrains de basket-ball, 4 terrains de squash, 2 manèges d'équitation, Health Club, 12 pistes de tir équipées de cible de vidéo-film, 12 pistes de bowling, ...

L'enfance: Soin particulier réservé à l'enfance dans notre programmation: montagnes russes, manèges tournants, animaux mécanisés, trains fous, garderie, théâtre de marionnettes et en prime, les personnages qui leur sont précieux: Mickey, Pluto, Donald, ...

C. Fakra Cub:

Contains 1 Hotel, 1 restaurant, 1 Pub, 2 tennis playgrounds, 1P : 3 Skiing points (Baby ski, Telesiege) and private land lots to be built according to a specific building low all on an area of 2,600,000m^2 .

Today the Club did is : 16 shalets in a compound complex (Annex).

Hotel : 20 rooms, 35m^2 each.8 suits, 50 to 100m^2.
Before, the hotel contained 65 small rooms (1976), later on, and according to the client needs,
the 65 small rooms were turned into 20 small room and 8 suits. 175$/night for 35$m^2$ room.

The clients come in two seasons : in Winter for ski, summer for vacation.

They are mainly Lebanese. Also the club contains 4 restaurants : - Cafe shop of the hotel :

- Restaurant of the peast of ski
- Pub ALHIRZAL
- Terrasse de Kfertir

Also it contains a Health Club. The introduced Building low can be summarized as follows:

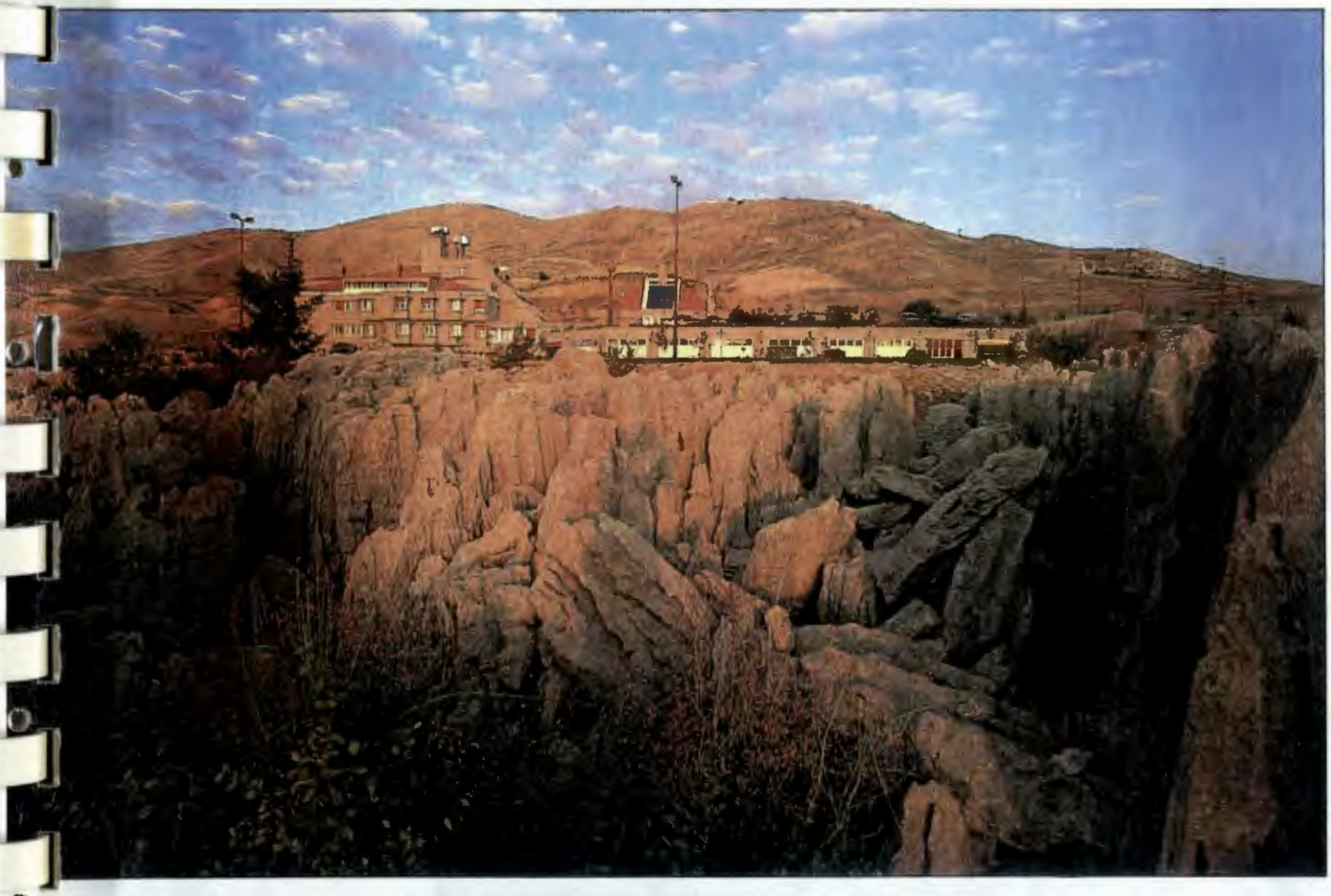
- 25% exploitation Factor
- 50% F.A.R
- Gaberi 7m high from road level
- 2 Parking lots indoor for each villa.

The client are of the high income class; the class that can afford building a villa for 700,000$ for skiing . The middle income class go to Faraya for skiing.

L'Auberge de Faqra

**** Luxe*

RELAIS & CHATEAUX



Prop. : Hôtelière Faqra S.A.L.
P.D.G. : Raymond J. DAOUD
Dir. : Nicolas M. CATTAN

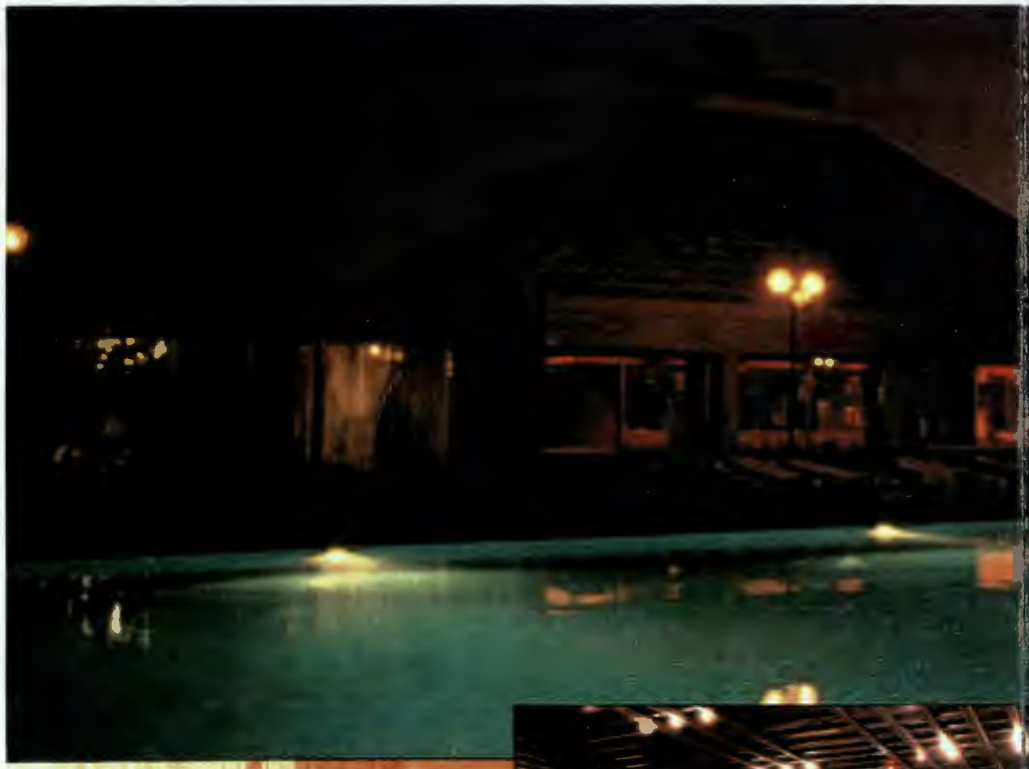
Tel.: FAQRA : (01) 339220 - (01) 885591/2/3
DORA : (01) 894021/3 - (01) 895175
Tlx.: FAQRA 42315 LE - B.P.: 11-2560

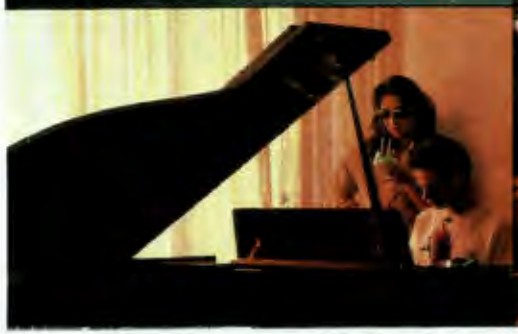
CENTRE DE FAQRA
KFARDEBIANE - LIBAN

L'Auberge de Faqra

**** Luxe*

RELAIS &
CHATEAUX





Dans l'air vivifiant de la belle saison, l'irremplaçable soleil dore les corps autour de la piscine et stimule l'effort sur les courts de tennis. A l'heure de la bonne chère, sous les claies des terrasses, des grillades et des fruits frais font la joie des gastronomes, entre l'azur et l'eau. Et lorsque la nuit tombe, les chants des cigales font place à l'ambiance musicale qui accompagne le rougeoiement des crépuscules d'été.

Situé sur les étonnants rochers du Mont Sannine, Faqra Club fait face aux antiques temples de Faqra. C'est ici, à une altitude de 1720 m., que les Romains avaient déjà joui de ce site exceptionnel où les montagnes et le ciel prennent au loin racine dans la mer.

Aujourd'hui, à Faqra Club qui propose tous les agréments d'une station de montagne européenne, l'Auberge de Faqra offre à tous les fanas de ski et d'après ski cette éternelle douceur de vivre: chambres douillettes, cheminées qui réchauffent tes cœurs, petits repas sous des voûtes rustiques et festins des grands jours, sous le superbe manteau de l'hiver de Faqra.

Les Cures Minceurs De Faqra Club

Cent fois vous vous êtes promis de retrouver les bonnes habitudes alimentaires ainsi qu'une hygiène de vie correcte, et de faire un minimum de sport. Cent fois vos bonnes résolutions se sont envolées au bout de trois jours. Il vous reste une solution: Les "cures-minceur" de Faqra Club.

Situé à 45 km. de Beyrouth, à une altitude de 1720 m., le centre de Faqra offre un cadre idéal pour une "cure-minceur", pour un séjour de mise en forme.

Vous serez totalement "pris en charge" durant l'une des sessions de 10 jours qui vous conviendra. Hébergement à "L'Auberge de Faqra", bilan médical complet dès votre arrivée, régime alimentaire personnalisé mis au point par la nutritionniste et l'endocrinologue, activités physiques et thérapies amincissantes adaptées à chacun.

Le "Fitness-Club" de l'Auberge vous permettra de profiter des tous derniers équipements en matière d'amincissement: Galvanothérapie, massages mécaniques, massages aux jets d'eau, hydropack, baignoire physiothérapique bouillonnante et sauna.

Vous serez également pris en charge pour un remodelage complet du corps dans la salle de gymnastique et pour une balnéothérapie vivifiante dans la superbe piscine d'eau de source de l'Auberge de Faqra.

L'hébergement, compris dans le forfait "minceur", est prévu à l'Auberge de Faqra où vous bénéficerez de tous les services hôteliers de l'Auberge.

1 Galvanotherapie

2 Salle de Gymnastique

3 Sauna

4 Hydro

5 Baignoire Bouillonnante

6 Massage

LES CURES MINCEURS

de

L'Auberge de Fagra

*** Luxe

RELAIS & CHATEAUX

D. Zaarour Project:

Zaarour Project:

This project has a building low based on that of Faker with slight changes to render it attractive for the middle income class i.e. with 80,000$ you can own your own chalet and parking. You can build 4 floors.

The project contains today around 700 shalet (9Units) 500 of which are sold. The client are all from Beirut.

ZAAROUR

"Les Cimes"

A KAMAL MOUJAES - GABRIEL EL MURR
DEVELOPMENT

ZAAROUR

The Attributes

- A strategic location at a distance of 37 km from Beirut.
- A private club offering access to a restricted select group.
- Ski slopes having north orientation offering optimum snow conditions.

The Facilities

- Winter sports to include alpine skiing, cross country skiing, paragliding, swimming and indoor sports.
- Health club.
- Summer sports to include tennis, swimming ,hiking and others.
- Social activities to include restaurants, snack bars, banqueting areas, game rooms and discotheque.

The Amenities

- Particular about safety precautions, the resort accommodates an in house medical unit.
- Focusing on the child, Zaarour dedicates numerous areas of interest to children; a nursery, winter & summer sports classes, and vacation colonies.

CHNICAL CHARACTERIST.

ZAAROUR

"Les Cimes"

- BUILDING CONSTRUCTION SPECIFICATIONS.

- Reinforced concrete skeleton frame.
- Insulated cavity to all external walls.
- Fair faced concrete finish in excess of 60% of external facials.
- Red roof tiles to concrete pitched roofs.
- Aluminum windows with double glazing.
- Independent fuel operated heating systems.
- Fireplace to living area.
- Stand by generator.

- INTERIOR FINISHING SPECIFICATIONS.

- Parquet flooring to reception areas.
- ceramic flooring to bedrooms and corridors (European make).
- 20 x 20 cm ceramic floors & walls to kitchens and bathrooms (European make).
- Sanitary fittings (European make).
- Internal doors in natural stain hardwood.
- Kitchen cabinets finished in natural stain hardwood with built in cooker, hob & refrigerator.
- Heavy texture finish to internal ceilings except in kitchens & bathrooms.
- Provision of built in closets finished in white spray paint.

- OUR PAYMENT TERMS.

Zaarour "Les Cimes" attractive formula brings to the prospective investor a unique opportunity, comprising.

- No advance payment.
- Interest free installments.
- No bank guarantee.
- Installments starting from 36 months.
- Cash options negotiable.

ZAAROUR

"Les Cimes"

A large scale development consisting of a multitude of one, two & three bedroom chalets, designed as simplex or duplex, extending over 130 prime parcels.

A flexible scheme offering a variety of functional requirements characterized by different architectural expressions.

An abundant number of parcels that could be tailor designed to meet with group requirements.

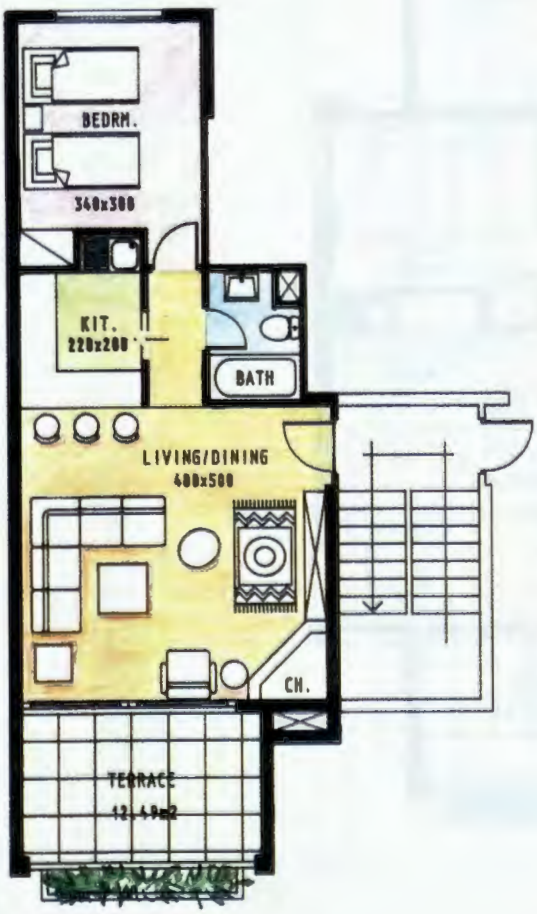
ARCHITECTURAL FEATURES

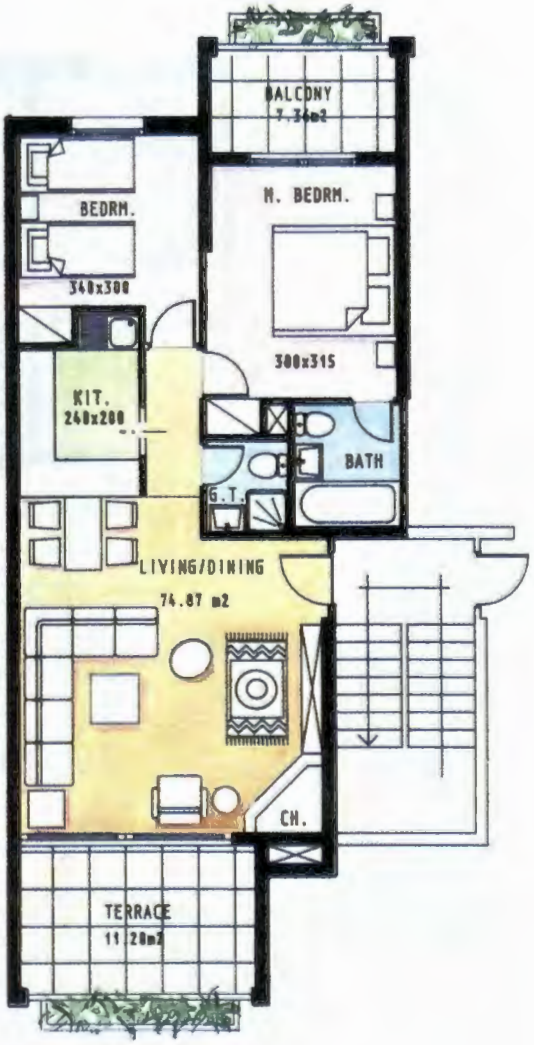
- South oriented living areas.
- Underground covered car park.
- Private entrance to each block.
- South oriented terraces to reception areas.

THE SIMPLEX

ZAAROUR

"Les Cimes"





1 Bedroom Chalet

Total Area 68m^2

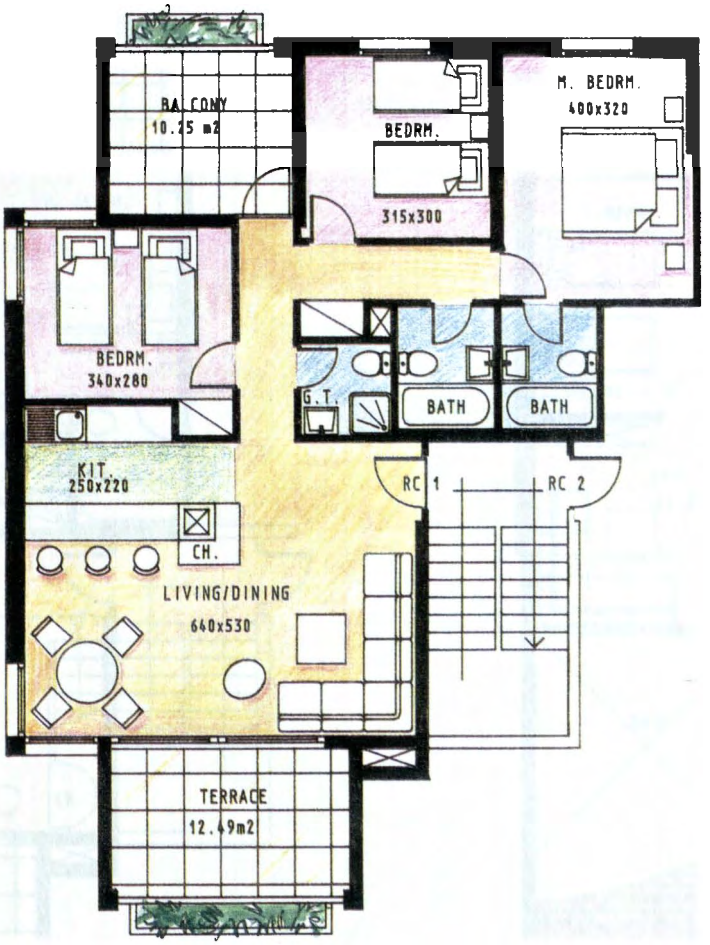
2 Bedroom Chalet

Total Area 93m^2

THE SIMPLEX

ZAAROUR

"Les Cimes"



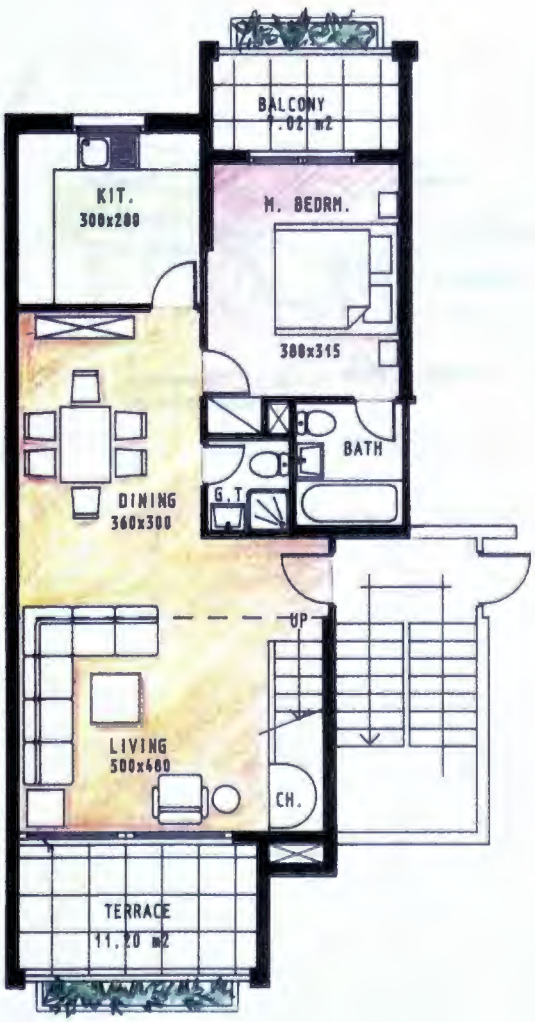
3 Bedroom Chalet

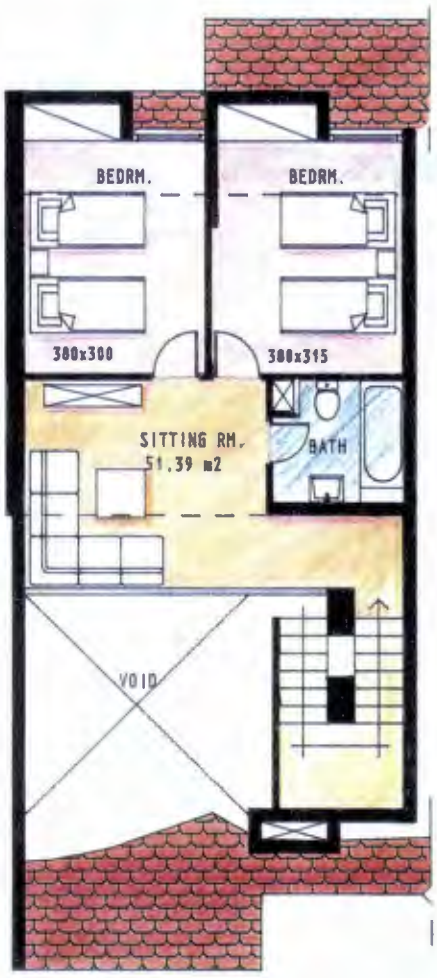
Total Area 118m^2

THE DUPLEX

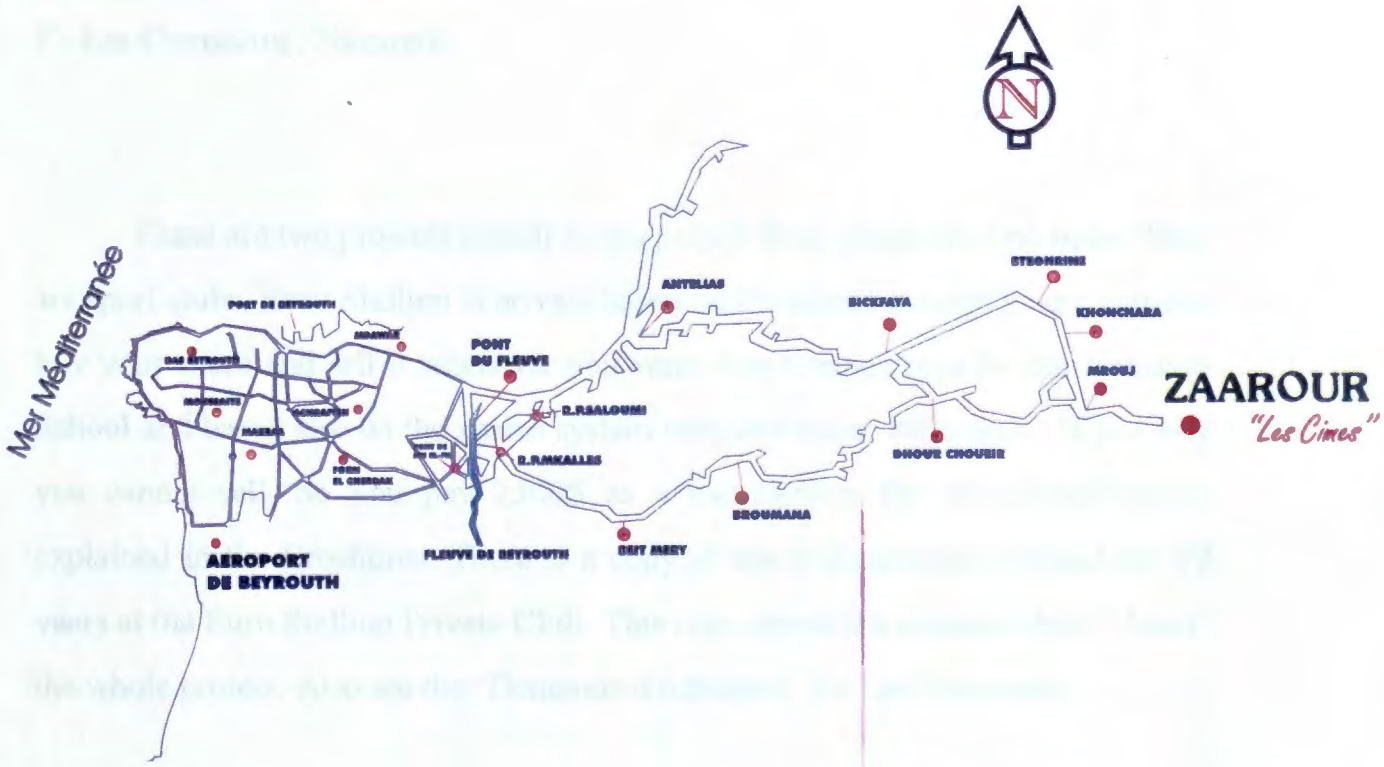
ZAAROUR

"Les Cimes"





Total Area 145m^2


N
Mer Méditerranée
PORT DE BEYROUTH
RAOUCHE
PONT DU FLEUVE
ANTELIAS
BICKFAYA
STEPHRINI
KHONCHARA
MROUJ
ZAAROUR
"Les Cimes"
D.R.SAADOUMI
D.R.MKALLES
DHOUR CHOUEIR
BROUMANA
DEIR MEEY
FLEUVE DE BEYROUTH
AEROPORT
DE BEYROUTH

E - Euro Stallion : Private Club

F - Les Cremeaux : Nazareth

These are two projects similar to my project if my project had no hotel. They are sport clubs. Euro Stallion is private based on the shares concept where you can buy your share and sell it whenever you want. Les Cremeaux is for the Nazareth School and based also on the shares system with one major difference : If you buy you cannot sell. So you pay 2500$ as a membership for life. Everything is explained in the Brochures. There is a copy of the Participation Contract for 99 years at the Euro Stallion Private Club. This copy shows the clauses which "direct" the whole project. Also see the "Demande d'Adhesion" for Les Cremeaux.

EUROSTALLION

private club


EURO STALLIONS

Euro Stallion Private Club

La Société."**Euro Stallion International Investment** " a créé un complexe sportif et de loisirs d'un type moderne à Kounaitra "Kornet Chahwan" qui est en cours de construction sous la dénomination "**Euro Stallion Private Club** " .

La construction de ce complexe se réalise selon les conceptions architecturales les plus modernes. Le complexe qui se compose de sept étages a une superficie de plus de 3500m2, auxquels s'ajoutent deux terrains olympiques externes de jeux de tennis.

Le Complexe a une capacité d'accueil de 548 adhérents avec leurs familles. Il comprend les sections suivantes:

1) Une piscine "semi Olympique" couverte et chauffée , mesurant (25 x 8 1/2 m.)
2) Un restaurant de première classe avec un bar.
3) Un centre d'amusement, salle de bowling et de billiard, etc .....
4) Une salle de Squash.
5) Des salles de : Jaccuzi(s), Saunas(s), Bain a vapeur, et massage.
6) Une salle de massage par pression d'eau.
7) Une clinique physiothérapique.
8) Une salle de gymnastique équipée par les installations les plus sophistiquées et les plus modernes.
9) Des boutiques spécialisées dans la vente des produits de beauté : parfums, habillement et équipements sportifs.
10) Une salle d'attente pour les enfants des souscripteurs.
11) Une salle spéciale pour le Yoga.
12) Une salle conçue pour tout ce qui concerne l'esthétique, tels la coupe et soins des cheveux et traitements de la peau.
13) Une salle de Solarium.
14) Une salle spéciale pour le Ballet, la danse occidentale et orientale.
15) Une salle de Boxe.
16) Une salle d'arts martiaux, Judo, Karaté et Taekwando.
17) Une clinique chinoise (acupuncture) qui comprend aussi sa propre salle de Jaccuzi, Sauna et des chambres pour massage.
18) Une salle équipée de bains de boue, d'argile, de soufre et de cire.
19) Une salle de ping-pong.
20) Vestiaires et Douches.
21) Un centre de renseignements spécialement conçu pour les activités sportives.
22) Une salle de repos et d'attente avec cafétaria dans la majorité des sections .
23) Un parking souterrain interne au deuxième sous-sol.

L'adhésion à ce Complexe se fait par un contrat de participation dont la durée est de 99 ans. La société propriétaire a limité le nombre de contrats à 548 seulement. Ces contrats sont soit individuels (Célibataires accompagnés d'une personne). Soit familiaux (Homme,Femmme plus deux enfants).
Pour d'amples renseignements prière de se présenter aux bureaux de la Société situés au sein même du Complexe à Kounaitra, ou de téléphoner aux Nº suivants: 04.922828 - 922829

The Euro Stal
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Euro Stallion International Investment Co.

Kounaitra, Tel.: (04) 922828 - 922829, POB.: 70901

يورو ستاليون برايڤت كلوب

تنشيء شركة «**يورو ستاليون انترناشيونال انڤستمنت**» مجمّعاً رياضياً ترفيهياً من الطراز الحديث في منطقة القنيطرة (قرنة شهوان) تحت اسم «**يورو ستاليون برايڤت كلوب**» والذي يتم بناؤه حالياً بأحدث التصاميم الهندسية لاحد اروع المجمعات الرياضية – الترفيهية

يتألف المجّمع من سبع طبقات لبناء تفوق مساحته ال ٣٥٠٠ م٢ اضافة إلى ملعبين خارجيين لكرة المضرب (تنس) بالمقاييس الاولمبية.

يستوعب المشروع ٥٤٨ منتسباً مع عائلاتهم ويحتوي على الاقسام الداخلية التالية:

١) حوض سباحة مسخّن مقفل شتاءً ومكشوف صيفاً بقياس ٢٥ × ١/٢ ٨ م.
٢) مطعم درجة اولى وسناك
٣) صالة تسلية وصالة بولينغ وبليارد
٤) صالة سكواش
٥) صالات جاكوزي وسونا وحمامات بخار وتدليك
٦) صالة خاصة للتدليك بالاهتزازات المائية
٧) مركز طب فيزيائي
٨) صالة مجهزة بأحدث الآلات للرياضة البدنية
٩) مراكز خاصة تعنى ببيع ادوات التجميل والعطورات والالبسة والمعدات الرياضية
١٠) صالة خاصة لانتظار الاطفال
١١) صالة خاصة باليوغا
١٢) صالات خاصة بالتجميل وتزيين الشعر والعناية بالبشرة و«شد» وتنشيط الجلد
١٣) صالة سولاريوم
١٤) صالة خاصة بالباليه والرقص الغربي والشرقي
١٥) صالة خاصة بالملاكمة
١٦) اقسام خاصة بالجودو والكاراتيه والتكواندو
١٧) صالة خاصة بالطب الصيني يتبعها جاكوزي وسونا وغرف تدليك
١٨) صالة خاصة للمغاطس الصحية المجهزة بأحواض المياه الموحلة والارجيلية والكبريتية والشمعية
١٩) صالة خاصة لكرة الطاولة
٢٠) كابينات تبديل وڤستيارات ودوشات
٢١) مركز للاستعلامات الصحية الخاصة بالرياضة
٢٢) استراحات وصالات انتظار وكافيتريا تتبع لكل قسم على حدى
٢٣) موقف سيارات داخلي في الطابق السفلي الثاني للمشروع

يتّم الانتساب إلى المجمّع بموجب عقد انتساب لمدة ٩٩ عاماً. وقد حصرت الشركة المالكة عدد العقود ب ٥٤٨ عقداً مقسمّة الى نوعين: عقد فردي لشخصين وآخر عائلي لأربعة اشخاص.

لمزيد من المعلومات بإمكانكم الحضور إلى مكتب الشركة القائم داخل المجمّع

او الاتصال بالأرقام التالية: ٩٢٢٨٢٩ / ٠٤ – ٩٢٢٨٢٨ / ٠٤.

Euro Stallion International Investment Co.

Kounaitra, Tel.: (04) 922828 - 922829, POB.: 70901

Participation Contract For 99 Years
at the

Euro Stallion Private Club

Please NOTICE, *that this english text is but a translation of the arabic text appearing in the same file. The translation is being provided as a matter of convenience and for information only. Though it is being regarded as a faithful translation of the original, the ARABIC text only will be binding in all respects and shall govern all diputed meanings and interpretation.*

Contract Number ---------- Date ----------

As dated and accordingly and between the two parties:

First party: *"Euro Stallion International Investment Company" S.A.R.L. (E.S.I.I. Co.) Hereinafter called "the owner" located at Kounaitra on the property of Mr. Antoine Ishaak Sreih, registered under the commercial number 50608 Baabda, represented by the acting partner and manager Mr. Antoine I. Sreih.*

Second party: *Hereinafter called "the subscriber"*

Full name ----------
Registery number ----------
Place and date of birth ----------
Place of residence according to ID ----------
Occupation ----------
Present residence ----------
Work address ----------
Married or single ---------- Phone Nº ----------
Names of other beneficiaries of this contract:

1) ----------
2) ----------
3) ----------

Second Party's Signature

I the manager of Euro Stallion International Investment Company (E.S.I.I. Co.) confirm that Mr.----------has been registered in our official records books of participation according to contract number ---------- and filed under the registration number ---------- according to the observed rules.

First Party's Signature

Please sign the Arabic text.

Since the owner who is registered according to the observed rules owns the rights to manage and exploit the *Euro Stallion private club*, hereinafter called "the Complex" which is actually under construction according to the architectural principles and in conformity with the legal license the realty number 378 (chawié). This realty is owned by the manager of the previously mentioned company, and comprising the following divisions:

1) Semi olympic covered and heated swimming pool (25 x 8 1/2 m.)
2) First class restaurant and snack bar.
3) Amusement center : Bowlings, Billiards, —etc.
4) Squash court.
5) Jacuzzi(s), Sauna (s), Steam Baths and massage rooms.
6) Pressured water massage room.
7) Phisiotherapy clinic.
8) Gym. Hall fully equiped with the latest and most sophisticated machines.
9) Special boutiques for beauty products, perfumes, outfits and sport articles.
10) Children waiting hall.
11) Yoga Room.
12) Aesthetic center that includes hair styling, plus all kinds of skin care and treatment
13) Solarium hall.
14) Dancing hall for Ballet, oriental and other kinds of dancing.
15) Boxing room.
16) Special divisions for martial arts, Judo, Karate, Taekwando.
17) Chinese clinic (Acupuncture) that also includes its own Jacuzzi, Sauna, and massage rooms.
18) Special Rooms for mud baths, argil, soufre and wax pools.
19) Table tennis hall.
20) Cloak cabins, lockers and showers.
21) Sports activities advisory office.
22) Cafeterias, waiting halls and saloons , approx. for every division.
23) Underground parking.

In addition to the previously mentioned activities, the owner has the right to exploit the neighbouring realty number 72 (Beit Chabab) according to an investment contract. This division includes the following sections:

- **2 Olympic tennis courts**

So, after that the subscriber has been awared of all the previously mentioned details, both parties mutualize the agreement of the following:

Preliminary clause : The introduction is considered as an essential element of the contract in terms and principles.

Clause Nº1: The subscriber has been informed that the conditions and bases of using any future expansion concerning the complex, will be determined and negotiated timely.

Clause Nº2: The benefit of the services and functions offered by the complex lasts for a period of 99 years starting before the end of the first half of year 1995 , and ending before the end of the second half of year 2093, notifying that the participation contracts number is restricted within 548 (five hundred fourty eight) contracts as a maximum.

First Party's Signature Second Party's Signature

Please sign the Arabic text.

Clause Nº 3: *An alternation of this participation contract into a share holding ownership of the real estate number 387 with all what it includes, will be considered in future and that is by mutual agreement between the owner and the majority of the subscribers, taking into consideration the following obligatory terms and conditions:*

1) A written approval of the owner.
2) Undertake the required expenses resulting from this alternation and owning
3) The approval of the majority of subscribers by 61% after debating.

Clause Nº4 : *The owner has given the subscriber who has accepted a usufruct right of the functions and services available at the complex excluding any other rights, and that is for an exchange amount of : U.$ ---------- on date----------*

The previously determinated amount will be divided to be paid as follows:

40% upon signing this contract = U.$ ----------Date ----------

30% four months later =U.$ ----------Date ----------

30% four months after the second payment date =U.$ ----------Date ----------

Note: *If the subscriber wish to pay the total amount at time of signing this contract, a deduction of 8% will be granted.*

Clause Nº5 : *Any delay of paying any of the instalments determinated before, gives the owner the right to cancell this working contract and its participation number after 15 days of any payment delay and without prior notice, however, the subscriber will be entitled to recover the amounts already paid without any interest, and after a 25% deduction of the total contract amount, as a penal clause.*

Clause Nº6: *Since the number of contracts are exclusively limited to a maximum of 548 contracts, and since the participation rate value is changeable and related to the supply and demand pattern, the owner is committed to announce the value of the rate inside the complex along with two local newspapers as soon as the change occurs.*

Clause Nº7 : *This contract grants the subscriber the right to benefit only with one person appart from himself, if he is unmarried, however, if the benefit from this contract is restricted to the subscriber and his immediate family, that is the wife and the unmarried children, the number of beneficiaries appart from himself will be increased then to 3 as a maximum, as well as they must be appointed and registered in advance in his entry card.*

Clause Nº8 : *The subscriber after paying the total contract amount, is entitled to resign his participation contract along with all his rights, permanently or temporarily, provided that he observe the current rate value at that time, and after a written approval from the owner who has the right of priority if he wish to be the substituant.*

Clause Nº9 : *In case of temporarily resign, the subscriber must limit this resign for a maximum of one year , as well as this resign must also be limited by two persons only,(the new beneficiary and one other person with him) named in advance.*

Clause Nº10 : *Upon the owner's request and at the begining of each year, a committee of 8 members will be elected from among the subscribers, its task will be purely advisory with the possibility of initiating ideas concerning the activities of the complex, plus all what could improve and develope for the welfare of both parties.*

Clause Nº11 : *All subscribers have equal rights and obligations. During the first month of each year an advance annual payment will be required from each of them to cover the different operating expenses. This fee will be fixed by the owner. The elected committee have the right to be acquainted with that mentioned fee, as well as the right to discuss and express their opinions*

Please sign the Arabic text.

about it. Moreover, that fee value will be calculated and devided on a base of 300 subscribers, as long as the number of the mentioned subscribers doesn't exceed 300. If the annual fee is not settled by the due date mentioned before, the amount of 12% will be added to every one month of delay.

Clause Nº12 : *All the operating expenses for the year 1995 will be free of charge and assumed by the owner only.*

Clause Nº13 : *The subscriber along with the other beneficiaries commit themselves to the terms of using the facilities and observing the rules set for the services, particularly the ones which are not gratis, but the subscribers will benefit from a special discount in these areas along with the beneficiaries from their contract.*

Clause Nº14 : *The subscriber has been informed about the existance of a number of sections inside the complex, appart from where the members would attend, the public will have the right to benefit from. These sections are the following :*

1) The chinese clinic
2) The aesthetic center plus all its divisions.

Clause Nº15 : *The owner has the exclusive right to set and modify the rules of the byelaw, as well, this byelaw will have a compulsory character towards all beneficiaries. In any case the subscriber will be responsible jointly and severally with the members affiliated under his name for any damage caused by any of them throughout the period of their attendance, also they will be responsible for observing all the general ethical principles concerning social behaviour and public hygiene.*

Clause Nº16 : *Access to the internal sections of the complex will be possible only for subscribers and beneficiaries listed on their names.*

Clause Nº17: *Since the capacity of the underground parking is only 35 cars, parking space will be rented to members who wish to use it.*

Clause Nº18 : *For the best interest of all beneficiaries and to preserve public health, the subscriber is requested to obtain a medical report at date of entrance and successively every two years.*

Clause Nº19 : *The subscriber acknowledge accordingly, considering that all the obligations of the present contract are cancelled by the end of the period of this contract, along with that, abates every right to the subscriber towards the owner as well as any demand or claim, and this will be related to clause Nº 3 (Review clause Nº 3).*

Clause Nº20 : *Accordingly, all fiscal fees are assumed by the subscriber, including tax stamps and municipality tax necessary for this contract.*

Clause Nº21 : *Any conflict emerging from implementation of the present contract is decided under the jurisdiction of Mount Lebanon Courts.*

Clause Nº22: *The present contract was formulated and drawn up in two essential copies, in possession of both parties one original copy, to be issued when and where necessary.*

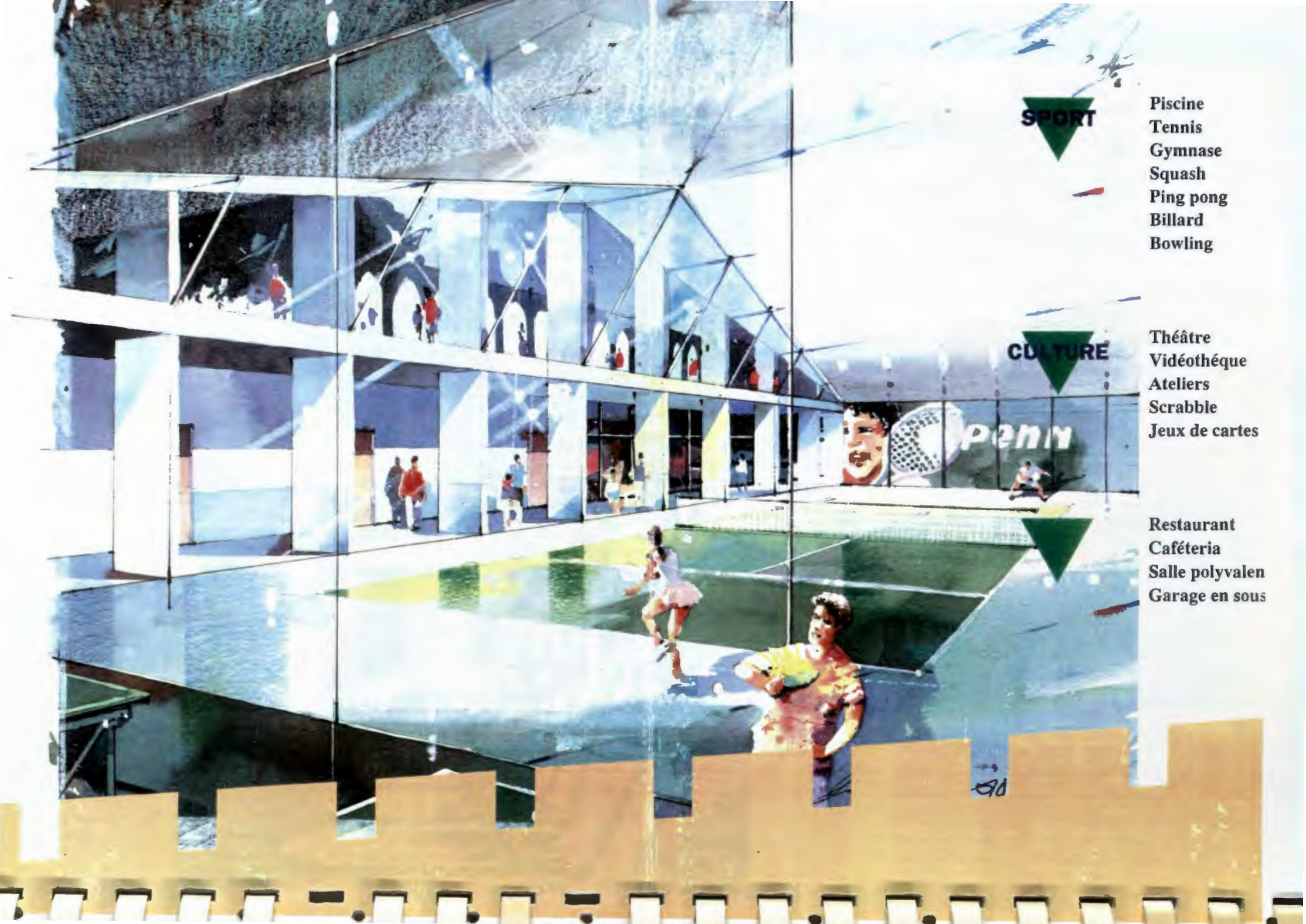
Kounaitra

---------- *First Party's Signature* *Second Party's Signature* ----------

It takes too many good people to make one good Club.
You are welcome among us inside the ***Euro Stallion Private Club.***

Les Créneaux

nazareth

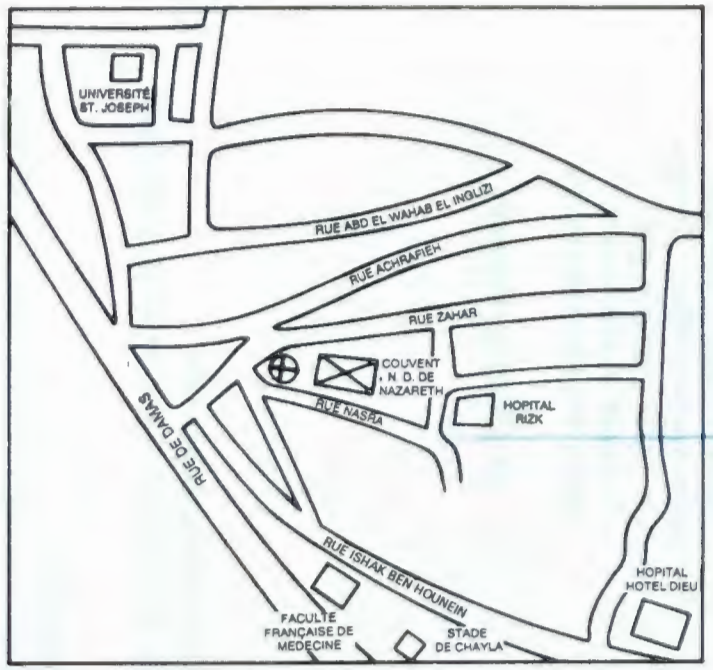


Piscine
Tennis
Gymnase
Squash
Ping pong
Billard
Bowling

Théâtre
Vidéothéque
Ateliers
Scrabble
Jeux de cartes

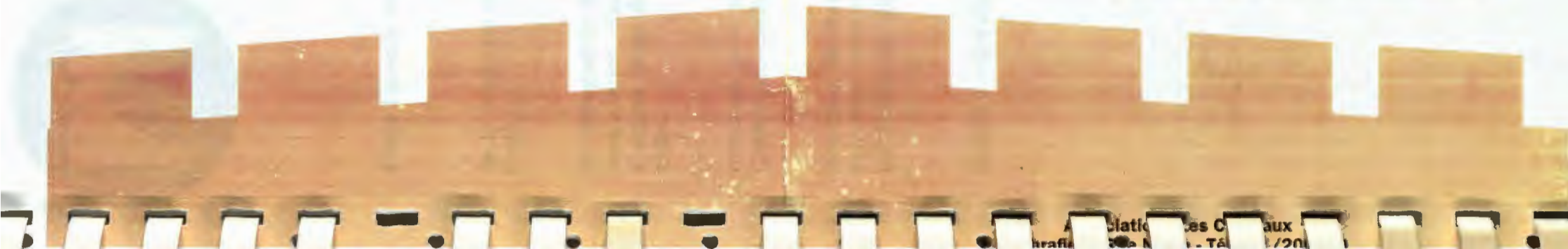
Restaurant
Caféteria
Salle polyvalen
Garage en sous

Au cœur de Beyrouth, une invitation à la détente dans un cadre tout en transparence et en fraîcheur.



Toute l'année, été comme hiver, le centre de sports et de loisirs "LES CRENEAUX" vous propose une remise en forme à la portée de tous.

Une mosaïque harmonieuse d'activités culturelles est à votre disposition pour vous ressourcer l'esprit en douceur.



LES CRENEAUX

Beyrouth, le 27 Octobre 1994.

Chers Parents, chers Anciens, chers Amis,

Nous sommes heureux de vous annoncer la finalisation des plans et de la maquette du projet de Centre de Loisirs et de Sport que vous pouvez admirer au Collège.

Une Association à but non lucratif qui a pour nom "Les Créneaux" a été enregistrée et nous tenons une copie des statuts à votre disposition. Le but de l'Association étant de promouvoir les activités socio-culturelles et sportives, elle se chargera donc de la construction du projet et ses membres feront d'office partie des clubs.

Vous trouverez ci-joint une demande d'adhésion à remplir et à nous retourner pour réserver vos places et participer avec nous à la construction de notre Centre aux conditions préférentielles de lancement.

Sont admissibles, après avoir reçu l'approbation du Comité Directeur de l'Association, les parents d'élèves scolarisés, les anciens élèves ayant passé au moins trois ans au Collège, les parents, conjoints et enfants d'anciens élèves et les personnes parrainées par trois membres de l'Association.

Nous espérons que vous adhèrerez à notre Association et nous nous tenons à votre disposition pour tous renseignements complémentaires.

Le Comité Fondateur

Maya Achkar Abdelnoor
Nada Abouhamad
Dany Dahdah Baz
Anne-Marie Dagher Chouéri
Mona Braidi Ghannagé
Simone Kosremelli
Randa Attié Makhoul
Hoda Yared Semaan

DEMANDE D'ADHESION

Je soussigné(e) _____

Adresse _____ Téléphone _____

Parent	☐	**Ancien**	☐	**Ami**	☐
Célibataire	☐	**Marié(e)**	☐	**Nombre d'enfants**	☐

Après avoir pris connaissance des statuts de l'Association "Les Créneaux " ainsi que de l'avant-projet du Club demande d'adhérer à l'Association "Les Créneaux".

Je choisis la formule de paiement suivante :

Célibataire

☐ Paiement comptant en un seul versement de US$ 2.500 à la signature du bulletin d'adhésion.

☐ Paiement en un an en trois versements :
- US$ 1.000 à la signature du bulletin d'adhésion,
- US$ 1.000 6 mois après le premier versement,
- US$ 750 6 mois après le deuxième versement.

☐ Paiement en deux ans en cinq versements égaux de US$ 600
- Le premier versement à la signature du bulletin d'adhésion,
- Les quatre autres versements tous les 6 mois suivant cette date.

Famille

☐ Paiement comptant en un seul versement de US$ 3.500 à la signature du bulletin d'adhésion.

☐ Paiement en un an en trois versements :
- US$ 1.500 à la signature du bulletin d'adhésion,
- US$ 1.500 6 mois après le premier versement,
- US$ 850 6 mois après le deuxième versement.

☐ Paiement en deux ans en cinq versements égaux de US$ 850
- Le premier versement à la signature du bulletin d'adhésion,
- Les quatre autres versements tous les 6 mois suivant cette date.

Le versement effectué à la signature du bulletin d'adhésion me sera remboursé si les deux conditions ci-dessous ne sont pas réalisées dans les délais prévus et ce sans besoin d'aucune formalité :

- Que le nombre des adhérents atteigne un minimum de 300 endéans 6 mois à dater du 1/7/1994.
- Que les travaux de construction du Club soient entamés endéans 6 mois à dater du 31/12/1994.

Beyrouth, le

L'Adhérent

APERCU DES STATUTS DE L'ASSOCIATION

L'OBJET

- Regrouper les anciens élèves et amis du Collège Notre Dame de Nazareth.
- Promouvoir entre les anciens élèves et amis du Collège Notre-Dame de Nazareth les activités sociales et culturelles.
- Encourager les loisirs des jeunes.
- Apporter un concours vigilant au développement de l'esprit social

LES CONDITIONS D'ADHESION

Pour être membre de l'Association il faut remplir les conditions suivantes :

- Avoir atteint l'âge de 25 ans.
- Avoir payé la cotisation d'adhésion à l'Association.
- Présenter une demande d'adhésion dans laquelle le membre s'engage :
  a) à respecter les règles et usages de l'Association ainsi que leurs modifications ultérieures.
  b) à avoir une conduite honorable.
  c) à remplir toutes les obligations qui seront prescrites dans les présents statuts et le règlement interne ainsi que leurs modifications ultérieures et les décisions des organes administratifs.
- Avoir reçu l'approbation du Comité Directeur.
- Appartenir à l'une des catégories suivantes :
  + Avoir passé au moins 3 ans au Collège Notre-Dame de Nazareth.
  + Etre parrainé par trois membres de l'Association.
  + Etre le conjoint, l'enfant ou le parent d'un ancien élève du collège N.D. de Nazareth.
  + Etre le parent d'un élève scolarisé.

L'ADMINISTRATION

L'Association est gérée par un Comité Directeur sous la supervision de l'Assemblée Générale composée de tous les membres adhérants.

Le Comité Directeur, élu par l'Assemblée Générale pour une durée de 4 années renouvelable par moitié tous les 2 ans, est composé de dix membres dont : un président, un vice-président, un secrétaire général, un trésorier et deux membres désignés par la congrégation des Religieuses de Nazareth.

Ce comité dispose des plus larges pouvoirs pour exécuter les décisions des Assemblées Générales et entreprendre tous les actes nécessaires au bon fonctionnement de l'Association.

LES RESSOURCES

Elles proviennent des cotisations d'adhésion, des cotisations annuelles, des montants requis exceptionnellement par l'Assemblée Générale et de dons volontaires.

لمحة عن النظام الاساسي للجمعية

الموضـوع

- اعادة جمع الطلاب القدامى واصدقاء مدرسة سيدة الناصرة .
- تشجيع النشاطات الاجتماعية والثقافية بين قدامى واصدقاء مدرسة سيدة الناصرة .
- تشجيع النشاطات الترفيهية للاجيال الشابة .
- تقديم مؤازرة يقظة لتنمية الروح الاجتماعية .

شروط الانضمام

ينبغي على كل فرد يود ان يكون عضوا في الجمعية ان تتوفر فيه الشروط التالية :

- ان يكون بلغ من العمر ٢٥ سنة .
- ان يكون سدد رسم الانتساب الى الجمعية .
- ان يتقدم بطلب انتساب يتعهد فيه بما يلي :

أ- ان يحترم قواعد وتقاليد الجمعية كما وتعديلاتها اللاحقة .

ب - ان يتمتع بسلوك جدير بالاحترام .

ج - ان يوفي بجميع الموجبات التي ينص عليها هذا النظام والنظام الداخلي كما وجميع التعديلات اللاحقة وقرارات الهيئات الادارية .

- ان يكون قد حصل على موافقة اللجنة الادارية .
- ان ينتسب لاحدى الفئات التالية :

+ ان يكون قد امضى ٣ سنوات على الاقل في مدرسة سيدة الناصرة .
+ ان يرعاه ثلاثة اعضاء من الجمعية .
+ ان يكون زوج او ابن او نسيب طالب قديم لمدرسة سيدة الناصرة .
+ ان يكون نسيب تلميذ لا يزال في المدرسة .

الادارة

تدير الجمعية لجنة ادارية تحت اشراف الجمعية العمومية المؤلفة من جميع الاعضاء المنتسبين .

ان اللجنة الادارية ، المنتخبة من قبل الجمعية العمومية لمدة اربع سنوات قابل نصفها للتجديد كل سنتين ، مؤلفة من عشرة اعضاء من بينهم : رئيس ، نائب رئيس ، امين سر ، امين صندوق وعضويين معينين من قبل رهبانية راهبات الناصرة .

تتمتع اللجنة الادارية بصلاحيات واسعة جدا بغية تنفيذ قرارات الجمعيات العمومية والقيام بكافة الاعمال التي لحسن سير جمعية "LES CRENEAUX" "لي كرينو" .

الموارد

تنتج الموارد من رسوم الانتساب ، من المشاركات السنوية ، من المبالغ المطلوبة استثنائيا من قبل الجمعية العمومية ومن هبات تلقائية .

أهلاً وسهلاً بكم في دير الناصرة.

أهلاً وسهلاً بالصحافة المكتوبة والمرئية والمسموعة. نُرَحِّب بكم جميعاً على هذه التلّة الشامخة... هل تعرِفونها؟ هل تعرفون دير الناصرة ؟ سوف نبدأ بإلقاء بعض الأضواء على مشروعنا ثمَّ نكتَشِفَه معاً بعد دقائق.

نطوف معًا في أرجائهِ، تحت أشجاره، في الكواليس وتحت القناطر حيثُ الذكرَيات الحبيبة ذكريات مئة سنة ونيّف تكدَّست في أذهاننا وقلوبنا أخبرتها الجدات ونقلتها الأمهات لاولادهنَّ وسينقلها هؤلاء بدورهم لاحفادِنا متَوَقِّفين عندَ سنة ١٩٩٤ حيث أعلنت جماعة من قُدامى الناصرة ومن أعضاء لجنة الأهل تأسيس نادٍ إجتماعي ثقافي على أرض الدير وقد وضعت الرهبنة مشكورة قطعة أرض مساحتها ١٤٠٠ م٢ تحت تصرِّفهم لمُدّة مئة سنة.

ولا عجب في ذلك، فالراهبات اللواتي يسهرنَ على هذا الدير كنَّ دائِماً ولا يزلن السبّاقات بين المُرَبين في لبنان لتلبية حاجات الشبيبة مهما تطوَّرت

واليوم كلٌّ مِنَّا يَعلم ان الحرب خلّفت عدة فئات من المحرومين: فَمنهم من حُرم العيش ومنهم من حُرِم البيت... ولهؤلاء الأولويّة في سِلّمِ اهتمامات المسؤولين الرسميين.

ومن بين المحرومين أيضاً قسمٌ كبير من الشبيبة البُرجوازيّة التائِهة التي كبُرَت تحت القذائِف ولعبت في الملاجئ فتفجّر نشاطُها درساً هنا أو في الخارج. نتغنّى بلبنان أمامَها ونتوقّف فتقول: " أين هو ؟ دعونا نرجع إلى حيث كنّا، أو نذهب إلى حيث يُنظر إلينا بإحترام وتقدير ".

– هنا في دير الناصرة أحست الرئيسة والمديرة بهذا القلق وهذا التزمّر وإنبَرتا تبحثان عن الحل. جمعتا لجنة الأهل وطرَحتا المشكلة مقترحين حلاً مناسباً: "عسانا ننشئ معاً نادياً يضمّ الأهل والأولاد يدعم العائلة المهدَّدَة بالتفكك ويُنعش الشبية".

في الوقت نفسه كانت لجنة القدامى تحلمُ بمكان يجمَعُ الشمل بين أعضائها فكان الحلمُ واحدا ووُلِدت الفكرة.

"تأسيس نادٍ رياضي إجتماعي ثقافي في خدمة الشبيبة والعائلة معاً."

فإقتناعاً منّا بالقول المأثور: العقل السليم في الجسم السليم أَولَينا الإهتمام في تصميم النادي لإتاحة الفُرَص، لتَنمية الجسد إلى جانب الروح فأوجَدنا ملاعب لكرَة المضرب، وحوضاً للسباحة وصالات للرياضة، كما أفسَحنا المجال لِلخَلق الفَني والإبتكار في شتى الميادين. ففي النادي مسرح وعدة قاعات للإجتماع والنشاطات الثقافية. وعندما تصبح الشبيبة سليمة تضعُ طاقاتها في خدمة الغير ويَتعافى لبنان وحرصاً منا على خدمة الشبيبة كل الشبيبة أعطينا النادي إستقلاليَّته التامة. فأسَّسنا جمعية تَرعى شؤونَه ولها الصلاحية المطلقة لإدارته ووضع شروط الإنتساب إليه. حلِمناه واحة في قلب بيروتِنا حَمَّلناه أحلامَنا وأطلقناه حراً.

جمعناكم اليوم لنقول لكم: هذه هي مساهمتُنا المستقبليّة في الإعمار، إعمار الروح والجسد ، إعمار الشبيبة، إعمار العائلة ولبنان فكما قال أَحدُ المفكرين::

"الوطن الذي يصون أبناءَه يبني أمنع الأسوار"

Le comité fondateur du club "Les Créneaux" remercie tout ceux qui ont bien voulu répondre à son invitation et plus particulièrement les représentants de la presse, de la radio, et de la télévision.

Ce club sportif aux activités également sociales et culturelles est la concrétisation d'un double rêve:

- Celui de la direction sensible aux malaises des jeunes d'après guerre et soucieuse de voir leur énergie favorisée dans un cadre familial épanouissant.

- Et celui du comité des anciennes à la recherche d'un endroit qui les regroupe toute autour d'activités enrichissantes.

Il est également le couronnement d'une pensée éducative: celle du Collège Notre Dame de Nazareth. Elle tend à former des personnes responsables ouvertes aux dialogues et à l'échange.

C'est dans ce but qu'une association a été créée indépendante du Collège, chargée de gérer ce club et de fixer les conditions pour y adhérer. Aussi pour le rendre accessible à toute la jeunesse la congrégation a gracieusement mis à notre disposition un terrain de 1878 m^2 au sommet de cette colline, au centre de la ville, à charge pour nous d'en faire un oasis au coeur de Beyrouth.

Adhérez nombreux à ce club, aidez-nous à gagner notre pari!

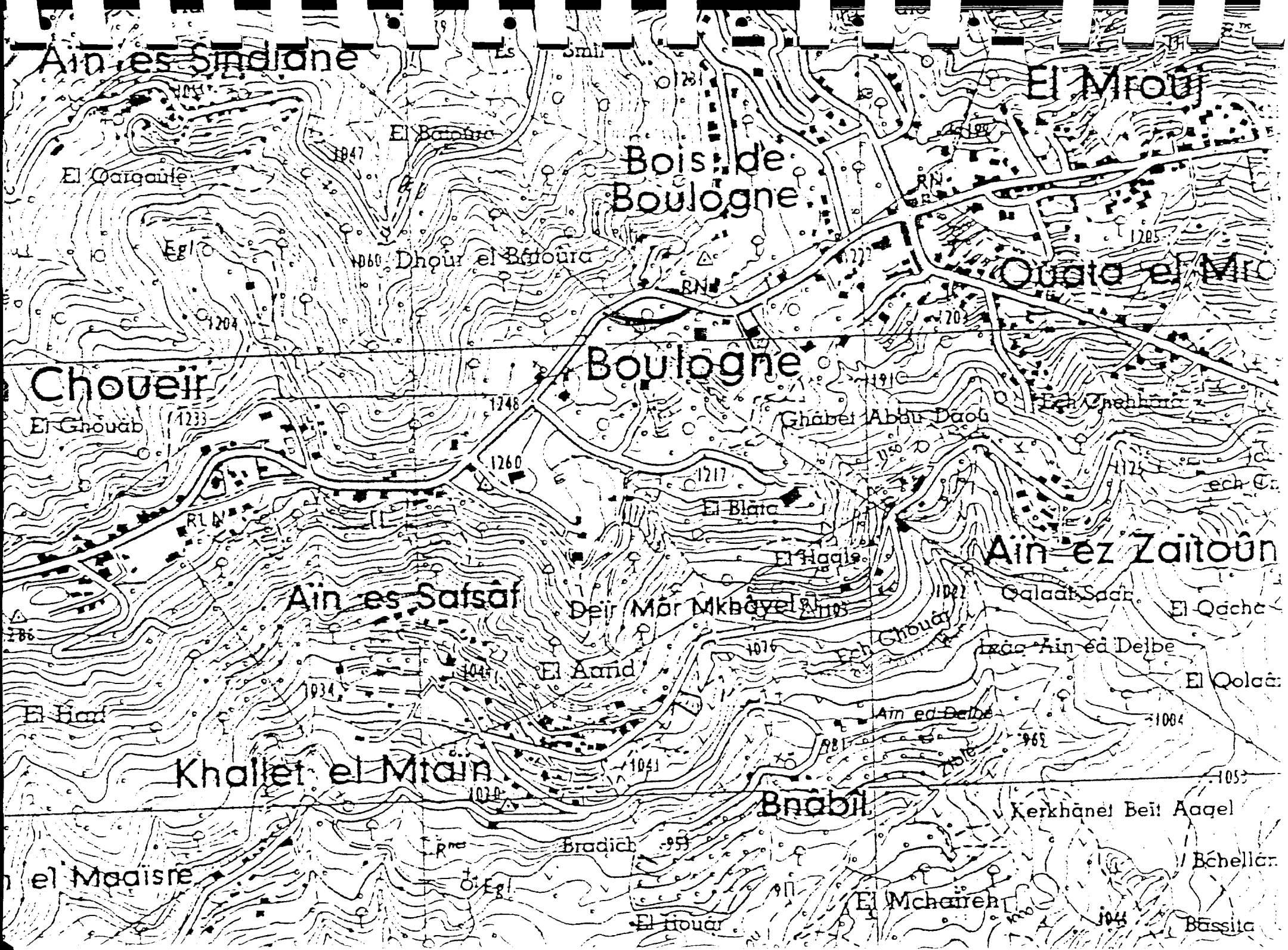
Name of Project	Total land area m2	Altitude	Major Functions	Main Information Used	Minimum Project fee entrance
Satility I & II	140,000	1200	-Apts.- Nightclub- Sport facilities- Restaurants	-Areas of Apts.- # of swimming Pools/# of Apts.- Altitude	- Buy an apt.: 70x600=42000$
(Paradise Land)	80,000	100	-Disney Land- Hotel- Chalet and Cabins- 2Amphitheaters- 2 Theaters	-Hotel- Theater & Amphitheaters	- Buy a 12m2 chalet for~ 16000$
Fakra Club	190,000	1720	-Hotel- Villa- Club	Building Law- Hotel- Club- Economic System	Buy peace of land & build a villa min 500,000$
Zaarour	190,000	1600	-Hotel- Chalet- Club- Ski Resort	Ski Resort- hotel- chalet- Economic System	Buy chalet min 60,000$ or Buy Share 10,000$
Euro Stallion (private club)	1200	550	Health Club - Economic System	-Health Club- Economic System- Health Club dimensions	Buy a share for 3500$(1994) - 5500$ (1995)
Les Cremeaux	1400	100	Health club - Economic system	-Health Club- Economic System- Health Club dimensions	Buy a lifetime membership (2500$)

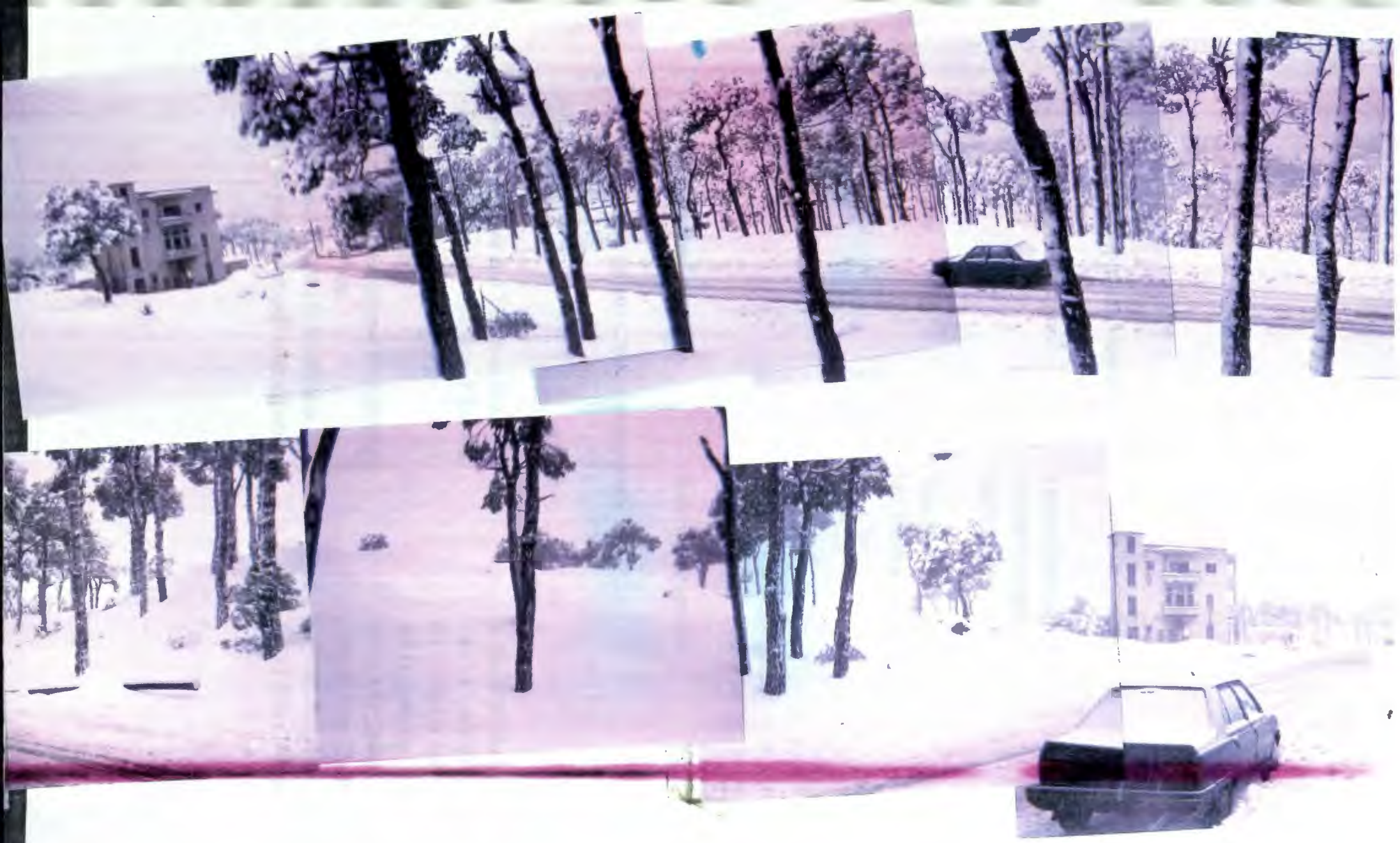
V. Site Documentation and Analysis:

Based on several visits to my site, and based upon location map, topographic map and photo survey I say:

- Topography is a descent topography. The site is the top of a small hill; actually the site is the hill and the road goes around the hill. I am speaking about 15 meters max topographic difference.
- Climate : As the photos shows. In Winter it snows up to one and a half meters. In summer the temperature goes up to 40°C Max. In day time which will be softened by the sweet breeze of the night. All this renders my site to have the most beautiful relaxing weather in all Lebanon.
- Ecology: The dominant plant life is the presence of ping trees which will be preserved. The only pollution can be considered is the road. Build 15% of total area. Total area minimum 2000 m^2 . Allowable 3 floors above ground.

Finally My site in Bologne village is 30 km from Beirut, 7km from Zaarour Ski resort, on the top of a hill full of pine trees.


Aïn es Smdiane
El Mrouj
Bois de Boulogne
El Qargaule
Dhqûr el Bâoûra
RN
Ouata el Mr
Boulogne
Choueïr
El Ghouab
Ghâbet Abdu Daoû
El Blaïa
Aïn ez Zaitoûn
El Haqla
Aïn es Satsâf
Deïr Mâr Mkhâyel Ahnô
Qalaât Sacr
El Qacha
Ain ed Delbe
El Aamd
El Bard
Khallet el Mtain
Bnabil
Kerkhânet Beit Aaqel
Bradich
el Maaïsra
El Mchaïreh
Bassita



Appendices : People interviewed :

- Satellity - Paradise Land : Vincent Massaad
  : Gabriel Massaad
  : Samir Ghawi

- Faqra Club : Toni Saaid
  : Mr. Hbaika
  : Mr. Rizk
  : Mr. Sfeir

- Zaarour : Ghabriel El Murr
  : Kamal Mjahes

- Les Cremeaux : Simone Kosremelli

- Euro Stallion Private Club : Antoine Sreih

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- Gunn : Vacation Scape E333.78:G976v
- Places For People EF75.2:P697p
- Tourism and Recreational Development E711.558;338tc
- Great Hotels of Paris EF:647.944:E84P
- Recreational Centers In California EF:725.8:M658S
- Recreational Centers : Health aspects E:711.558:G564p