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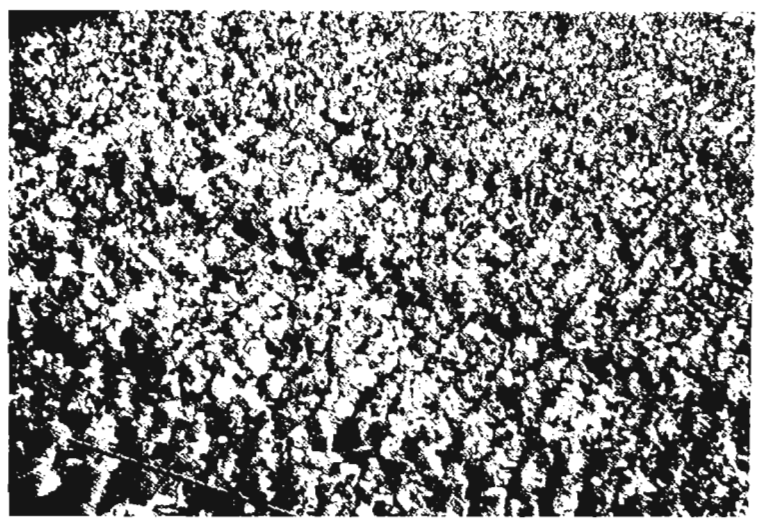
Omar Koleilat

AUB Sports Facilities

by Omar Kobeissi

A sports stadium is essentially a huge theatre for the presentation of heroic feats.
This kind of powerful civic building can vary from great prototypes such as the coliseum of Rome to the worst, sordid uncomfortable places casting a spell of depression on their surrounding for the long periods when they stay empty and unused.
The key issue is the use. The street corner next door or any empty lot can seem more successful than the complex designs of Olympic stadia. It is not a rarity, in any country, to see the width of the street turned into a sporting arena of any kind, baseball, football or even fighting ring. These spaces not only accommodate for the game, using stones as imaginary posts and so on, but they also develop their own adaptive rules and attract spectators.
Therefor this discipline, although having set rules and criteria, is international and ever lasting in the sense that it can adapt to circumstances, day and age and culture because it instigates two main innate characters of the human being, the desire to play, and the desire to be entertained.



At each of these street corners events are marked. Children are winning world cups everyday. You can witness Brazil vs. Spain three times within the same afternoon. And if they don't win, they'll go over and over again until all is right. Of course all of this occurs within an imaginary setting.
But what makes this event exciting to the participant is the relation of the imaginary to the reality. They aspire to those role models, they want to recreate moments that have marked history and they want to create their own moments in history. These participants are actually spectators of the real thing trying to produce their own imaginary scenarios.
On the higher and more professional level this relationship, imaginary vs. reality, still rules. The game becomes a matter of life and death, not only to the participant, but more importantly to the spectator. It all starts there, in the stands, in front of a TV screen.

Sport is a discipline that is very dear to my heart. I believe that it is a discipline that not only keeps a person in shape, but also develops character. In this research I will introduce Sports, explaining my understanding of it as a discipline that forms a whole society and life around it. I will highlight the aspects of Sports that render it more than just an activity. Making it a context of discipline, self-awareness and self-satisfaction. And I will try to introduce the elements that create those feelings.
Sport, in addition to all the benefits that it gives the athlete, is an entertaining part of life. It instigates exciting moments, establishing a tie between the entertaining and entertained to which I will address particular attention.

Brief Historical Overview

Physical Training and competition made their appearance in prehistoric times and were later transformed by the Greek civilization, in the 8th century BC, into a nation wide institution. The Greeks recognized the physical and moral influence of athletic training on man and showed a great interest in developing it together with the mind, as the only means of correct upbringing.
Among the advocates of physical exercise were Plato, Hippocrates and Aristotle who also believed that the competitive games presented the peak of the relationship between the body and the mind. These games – known as the Olympic games after mount Olympia – were held regularly and care was taken to keep the relation of the physical and mental values in harmonious balance. And that is most clearly demonstrated in the ancient city of Olympia on the island of Peloponnesus. The site housed a great complex of temples, altars to various deities and a sport field situated adjacent to an enclosed training gymnasium and along the edge of the field a colonnade with stone stepping to accommodate ultimately 45000 spectators.

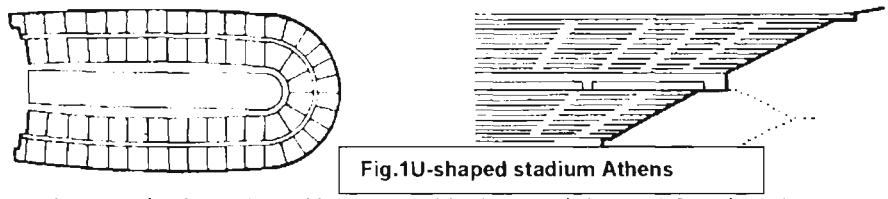


Fig.1U-shaped stadium Athens

Greek stadia, in general, were laid out in a U-shape with the straight end forming the start-line. They varied in size, the one at Delphi being just under 183m in length and that of Olympia 192m. (Fig.1)
However with the advent of the Romans, this balance was shaken for the latter stressed only the physical capabilities. They were interested more in public displays of mortal combats rather than races and athletic events. Therefor they developed the amphitheater form: an elliptical arena surrounded on all sides by high-rising tires enabling the maximum number of spectators to have a clear view. Some of them were able to accommodate up to 21000 spectators.
Likewise in the Middle Ages, the imbalance persisted but this time by stressing only the mind and repressing the body. The emphasis of society shifted to religious salvation, and architectural efforts were turned to churches rather than recreation and entertainment. No major sports stadia or amphitheater would be built for the next fifteen centuries.
With the Renaissance, this unnatural separation between Mind and Body was mended and the balanced unity was restored. And so athletic training and competition were again held in towns and schools.
Competitive games however did not regain their institutional character until the beginning of the 19th century with the advent of the French Pierre, Baron de Coubertin, who thought to give a particular form and cultural direction to athletic competition. And this led to the idea of reviving the Olympic Games, but unlike the old ones, these revived Olympics were meant to *embrace the whole world and not just one civilization.* In parallel the stadium as a building type saw a revival after the industrial revolution.
There was a growing need for mass spectator events. The arena's built took a gigantic form accommodating up to 80000 people in the second modern Olympic games in London, the first purpose-design modern Olympic stadium, with a steel frame, by James Fulton.(Fig.2)

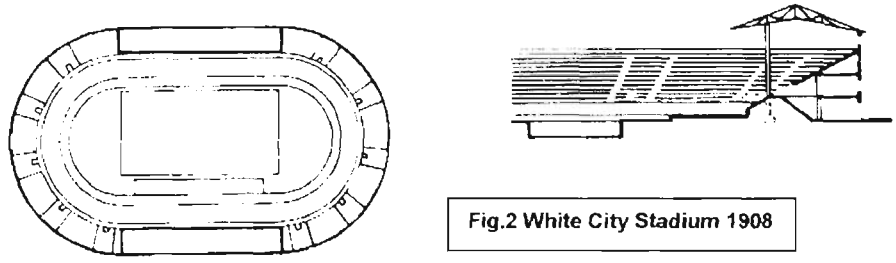
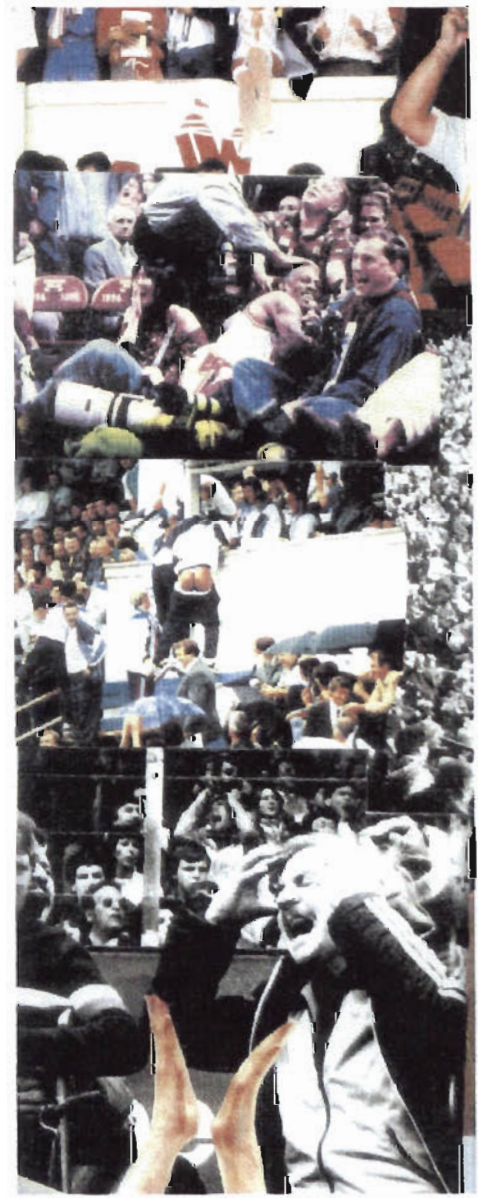


Fig.2 White City Stadium 1908

Sports as a discipline in its modern sense encompasses all that surrounds it, in terms of industry, publicity, economy, spectacle, events, bureaucracy, federations, hierarchy and much more. Most people feel they understand the meaning of sport, but few can agree on a precise definition. Some refer to it as 'recreation' others as 'entertainment'. Nevertheless two overwhelming aspects of sports are always highlighted.
First as a discipline that involves the body, health, and communal way of life and as a means of grouping people. Sport as source of local and national pride, as an outlet of pressure from the daily life. Also as a context of discipline, self-awareness and self-satisfaction.
Second as the discipline related to spectator sport. Events that take place in distinctive setting, where the structured activity is enhanced with props and performed with the end of providing a gratifying experience for participants and spectators.



"If all the year were playing holidays, to sport would be as tedious as to work" [1]

Sport as Health

The first view, a situation in which one person, with no financial incentive, and employing his own body directly, performs physical exercises in which he exerts his muscles, cause his blood to circulate and his lungs to work to their fullest capacity, makes of sport something very beautiful and pure. It is this that makes sport something worthy to spend time on, it's direct connection to health and shape. This also makes it a competitor to philosophical reflection or cultural betterment, such as reading a book or engaging in philosophical debates.
Within this view lies also a competitive aspect that brings people together, whether in personal or team sport. Although this aspect of sport might sound boring, it is the essential departure point that makes the facilities appropriate for a University campus.
Furthermore this activity stem from man's, like every animal, physical and psychic need for play.

"Sport is theatre where the primal things are in play- courage, passion, perfidy, endeavor, fear; where grace and sometimes incredible gifts pass in front of us" [2]

Sports as Spectacle

The second view will encompass an understanding of sport in its modern sense. The sport that reacts to the other. Binary relationships, athlete to the spectator, viewer to the viewed, paying to the paid etc.
The continuous need of the other, those serving and served by the sports, spectators or financial partners, insures the continuity of this sport. Sports discipline reaches a level where it surpasses the game, to become a life.
The friendly game has not only developed this spectator side of it but that in return has transformed this pleasant recreational event, under the pressure of the interests, under the

[1] Shakespeare, *Part One*, Henry IV
[2] David Robinson, former sports editor of *The Sunday Times*

weight of a machine crashing the athletes, astounded by the pressure of the indulged supporters, financial partners and media.
The demand for spectator sport continues and there seems to be little likelihood that most will lose delight in seeing 'other people's marvelously developed biceps' in rhythmic team action.
This gratifying experience is the result of not only the spectacle itself, but the binary relation between viewer and viewed within the context of place, space and time.

"Show business is amusement, faintly culpable, whereas a lecture, a Beethoven symphony, a philosophical discussion are boring experiences (and therefor "serious"). The son who gets a bad grade at school is strictly forbidden by his parent to go to a rock concert, but may attend a cultural event"[3]

These two aspects of sports aroused different reactions. Le Corbusier, for instance, was worried by the passive nature of spectator sport: "Exhibition sport has nothing to do with real sport; it is more to the theatre, the circus, etc. The stadium provides a spectacle where other people's marvelously developed biceps and calves can be seen. Sport at the very door of one's house is needed, so that everyone on reaching home, can change their things and come down for play and exercise, to fill their lungs and relax and strengthen their muscles."[4]
Insisting on the first aspect of sport as being the one to be sought for.
Within the same logic of the *'Sports and Health'*, Umberto Eco describes sport as an activity dominated by the idea of "waste", waste of energy, a waste proper to play, but a waste that is profoundly healthy.

Personally I believe that the present discipline and the way to tackle the project lies between these two aspects. Both are of major importance, especially when situated within an academic institution. The first aspect holds sports as an essential complement to the person's life. A need is identified that develops into a structured game with rules and regulations and most important a place. The sporting experience is tied to the participants' ambitions and character only.
The second aspect has developed the sport into a world in itself with a particular society, traditions and rituals. It has showed another side of it, the spectacle. A spectacle is strongly tied to its setting. In the eyes of both participants and spectators, there is an ideal or a perfect place for each sport, one that makes the sporting experience incomparable. The sporting experience goes beyond the individual to encompass the society and geography. And the basis of the complex within the University is a means to improve both the individual and the group interests and ambitions by accentuating the affects that render each important for the game as a whole.

"The sports landscape has become an integral of a gratifying sporting experience, for spectators and participants alike. On one hand the sports place, like the theatre, shapes the play. On the other, for the spectator, the sports place provides a context foe experience."[5]

[3] Umberto Eco, *Culture as Show Business*, Travels in Hyperreality
[4] Le Corbusier, *The city of Tomorrow*, The Architectural Press, London 1929
[5] Karl B Raitz, *Preface*, The Theatre of Sport, London 1995

Existing Sports Places

A sporting event takes place in a distinctive setting that is a kind of theatre. As mentioned in the *Historical Overview,* the types have evolved from the times of the Greeks to our present times. No building has proposed the ideal design solution to such complexes. Each examples built is accompanied by certain logic and motives that highlight important issues, and that incorporates certain inherent implication on the different level being it political, social or spatial. Through examples of Universities sports facilities or Olympic stadia and others, I will try to expose as many issues as possible with which I will deal later in the research.
Indoor sports halls, in particular, have a more difficult task to be accomplished due to the spanning of tall and voluminous spaces free of columns and thus stimulate audacious structural solutions.

The first non-traditional designs after World War II had a lumpen quality and were often miserably sited. As at Montana State College, the potential of a graceful surrounding landscape and relationship to the central campus was lost in the need to get as much parking space, and the fear, not unfounded, that the new structure, first modern University building in its region would overwhelm its neighbors.
The earlier traditional examples did possess commanding presence, especially when trees, paving and path arrangements could help scale down these structures, and connect them visually to adjacent campus buildings.

Greek stadia shaped out of earth and blending quietly into the surrounding held themselves as examples to post industrial revolution stadia. One example would be a stadium built in Berlin in 1913 by Otto March in anticipation of 1916 games (that never happened because of WWI). It was a stadium that manifested no monumental gesture yet accommodated 60000 people that formed a prototype for numerous Sport-parks built in Germany. In 1931 the city of Berlin did finally host the Olympic games. The Nazis had recently assumed power and used the occasion to extend the stadium of 1913 to a great oval structure accommodating for 110000 spectators. This monumental stadium was used also for mass political demonstrations.(Fig.3)

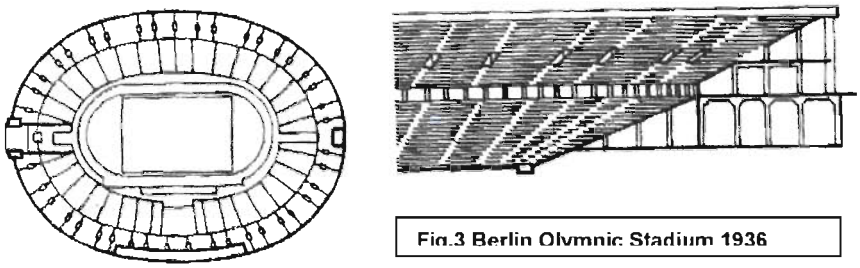


Fig.3 Berlin Olympic Stadium 1936

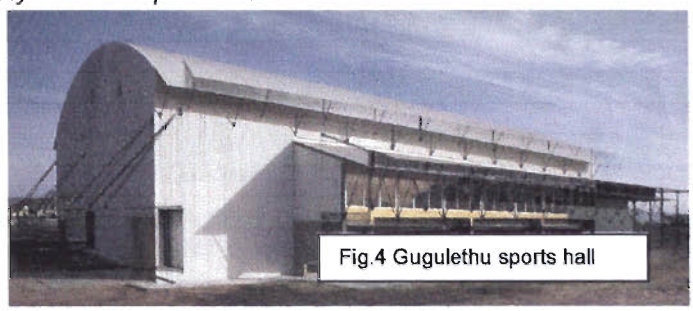


Fig.4 Gugulethu sports hall

As an Example of a cost-effective sports center, Gugulethu, a small town outside Cape Town, has a straightforward, space efficient indoor sports hall.(Fig.5) The dominant feature is a large multi-use hall, which can accommodate 12 different types of sporting activities. There are also committee rooms, meeting areas and general social spaces. The ancillary accommodations

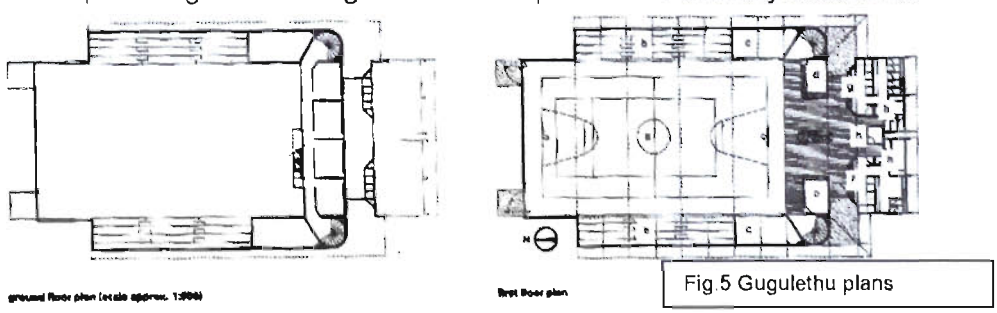


Fig.5 Gugulethu plans

are wrapped around the main of the sports hall (Fig.5), reducing the scale of the overall composition and articulating the elevation.

Fig.6-7 Shad Hall, Harvard

Shad Hall Harvard Athletic Center, is composed of two contiguous buildings and gives the impression of a large house with a dependant outbuilding. The carefully articulated main building runs across the front of the site. The second volume, which resembles a large red box (Fig.6), is concealed behind this structure and overlooks the athletic field. The four-storey building in front overlooking the campus is a much more formal design. In order to bring it down to the scale of the neighboring buildings(fig.7). That of the surrounding building also influenced the interior scale, to fit within the context of one of the most traditional and prestigious schools in the United States.

Fujisawa Municipal Gymnasium by Fumihiko Maki was meant to show the constant reflection by the architect on the relationship between the construction and the site, the nature of internal spaces and the synthesis and component parts and the totality of the building. The project is composed of two buildings, (Fig.8) linked by a one-story entrance foyer. On one side there is the large arena with a capacity of 2000 with space for up to three volleyball courts, and on the other a secondary building which accommodates a variety of activities. The difference between these two buildings is emphasized through differences in form and materials used. The main arena is crowned by a beautiful roof of glossy steel that pursued the objective of establishing an 'intimate union between sky and earth'. Again the roof of this gymnasium is a sculpture that determines the form of the internal space and contributes to create a 'fertile' tension between the different areas.

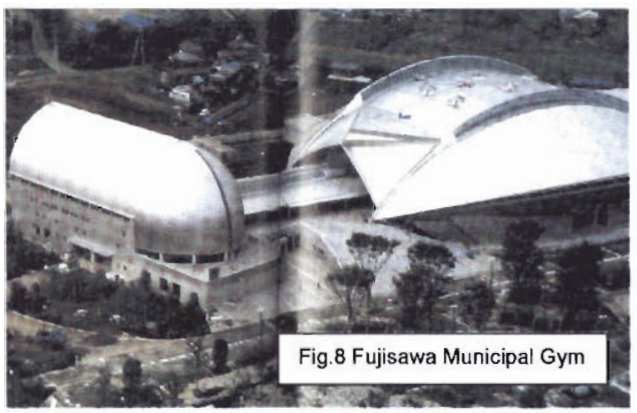


Fig.8 Fujisawa Municipal Gym

Bari Stadium by Renzo Piano is best seen within the context of high-tech trend expressed through (Fig.11)his extreme sensitivity in the volumetry of the visible parts.
The architect opted to excavate on the site an artificial depression where he situated the playing field. The project was thus divided in two parts. The upper level is composed of the large grandstand, which seats the majority of the spectators, and the lower stands, which are set into the artificial depression. Between these two sectors, a horizontal band has been left clear facilitating the penetration of natural light and allowing a partial view of the interior (Fig.9-10). The spatial separation of these two basic parts of the structure is what gives this work the feeling of weightlessness, movement and lightness sought by the architect.

Each of these examples highlights various kinds of issues that are directly related to programs of this nature and some that are implied, such as the grandstands, light, topography, scale and roofing or political agenda, architects preferences and institution's image. And each of them suggests also solution, whereby some aspects are highlighted and concepts are manifested, such as the volumetric expressions, size, grouping under one roof, or scattering, sinking or elevating.
Throughout the paper I will highlight ways that I will deal with some of these issue whether on the planning, program, technical or architectural expression levels.

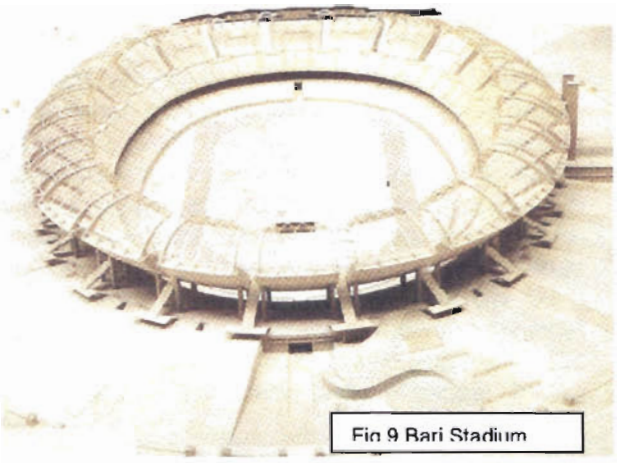


Fig 9 Bari Stadium

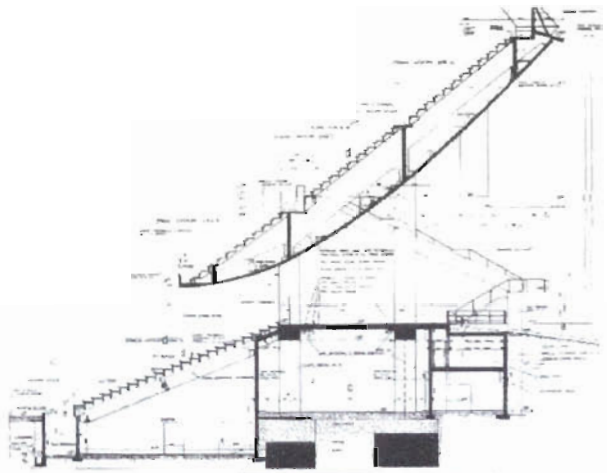


Fig 10 Bari Stadium

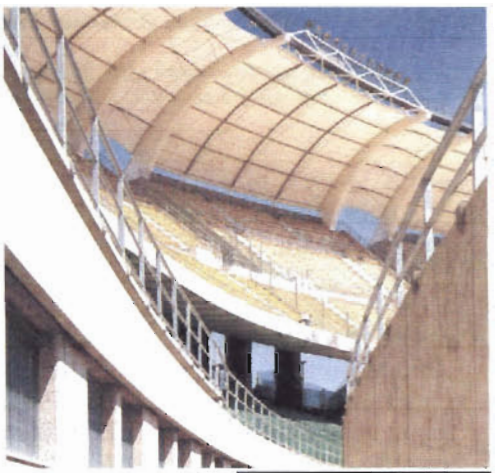


Fig 11 Bari Stadium

Neighborhoods

Sport, although some people might not be aware of, develops its own society. Just like architects, medical doctors or artists have their common circle through the exposure of one to the others work, this happens within the sports discipline too. As in all the others, this society is mainly tied to a locus. Therefor, the AUB basketball players, not necessarily on the varsity team but people who play at AUB, start having their own standards, they distinguish each other in skills and abilities. The same thing happens in other places that accommodate for sporting activities, and all of these form small groups that are aware of each others yet they don't know each other properly, just like the different neighborhoods within one city. At a higher level there are the players who are known among all universities, then the regional level, national level to reach the international level. Even at that stage you have the superstars and the non-superstars. Sports society entails more than just the people. It also involves rituals, gossip, role models and norms.

"Every Sunday the football game is awaited. After the game speed chases with flags hanging outside the car window. Then we meet at the bar to discuss the game and remember all the great moments that happened. That is if we win. If we loose, then forget about the speed chase, straight to the bar to blame somebody and explain how it could have been done better.
Tuesdays we meet to discuss international happenings. Not all of us meet, only those who support Brazil and Ronaldo (a famous Brazilian soccer player), of course considering that they support also the same local club, all others are enemies"

The norms to this society lie in the knowledge of this matter. Loyalty is also of prime importance, loyal to the players, the club and the nation, not necessarily one's own nation.

The Population

It is this spectator that forms this society. They are the basis to the improvement of the performances. Fans are demanding, they cause a great deal of pressure on the athletes. They behave as members of this society, they demand their rights, and in counter-part they spend their money. It forms a kind of taxing system whether direct or indirect. They could spend their money to attend the game, or, richer people can contribute directly. They can buy the club's products, the athlete's movie, the sports magazines all of these feed into sport industry. It, on the other hand, provides a great amount of jobs, sustains financially the athlete and provides the spectacle.

This society is indifferent to a person's age, gender, social or ethnic background, but does insist on a level of commitment and on the basic rules mentioned previously. Each age group deals with it differently.

Kids go out and play, dreaming every night that they'll become famous athletes, not necessarily internationally renown but it is quite satisfying to play for Nejmeh.

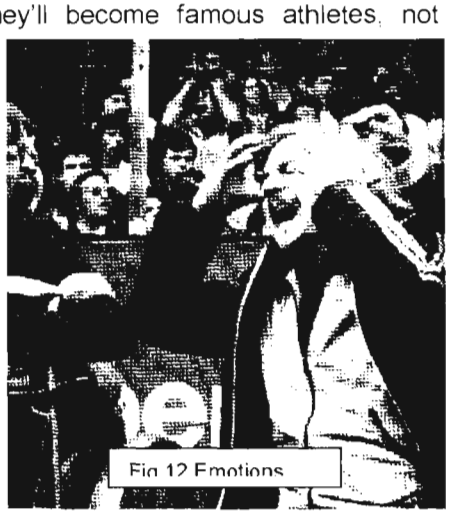


Fig 12 Emotions

Teenagers and young men in their twenties, have either picked up the sport seriously or have decided to abandon it. Picking up the sport could mean setting straight whom their loyalty will go to, or engage seriously in the sports activity. If they are not of the athletic type than they start to be the active fans. They loose their voices after every game due to the heavy cheering, and they attend every single game, whether home or away.

Men in their thirties or so start to develop their gossiping expertise, they criticize heavily players saying that if they loose a couple of pounds or had trained as much in their early days they would have done it better. These might from time to time still play.

Older people, on the other hand, do not engage in sports, but they are avid readers of the magazine, and their age has given them the necessary experience to criticize, analyze and

gossip. They criticize coaches mainly, basing themselves strongly on precedents regardless of the improved techniques.
Happenings originated on court, they get transported to the stands where they transform into debates, quarrels, teasing and bragging, later be spread on the streets. Then the reverse happens. Grudges are formed on the streets, they get transported onto the stands and transmitted to the field, rivalry is born and competition increases. This rivalry might grow to be among two players, two coaches, and two clubs even to extend to two of the previously mentioned sports neighborhoods or to two cities. All of these are very serious in nature and embody lots of emotion. (Fig.12)
The crucial domain, which instigates all of this, lies at the edge between the field and the stands/streets. This edge is very elastic, extending sometimes to the middle of the field (when lots of pressure is exhorted) or staying on the sidelines when all is well. It is this edge that makes the athlete comfortable, or keeps him stressed. (Fig.13)

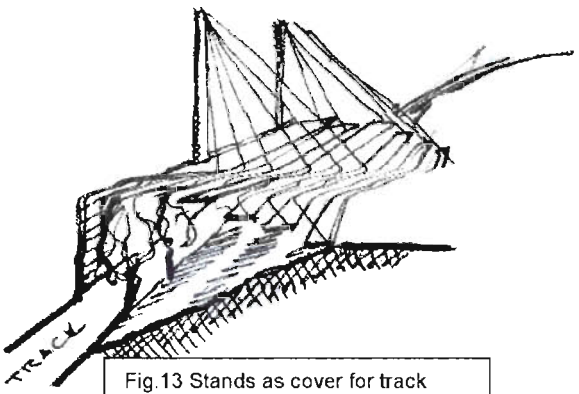


Fig.13 Stands as cover for track

Being a real fan allows the privilege to apply this pressure to the extent where fans are running the game, when this elastic plane covers the field. (They demand that players be put out, or placed in, demand a record to be broken, or a mistake to be repaired).
Fans are there not only to watch, but also to insure the well being of the game, since they are very harsh judges condemning wrong behavior and applauding the good.

"Is it possible to have a revolution on a football Sunday?"[6]

Superstardom
Like in any society stardom is a necessary phenomenon. It is a level that every person aspires to. Superstars are necessary to establish ambitions within the younger generations in this day and age. These superstars promote hard work, and persistency. Slogans like "Practice makes perfect" or "No pain No gain" start to emerge.
Each bears an image, Good, Evil, Wise, Smart and others. And above all lie a few that are idolized such as "the King" Pele or His "Airness" Michael Jordan.
(The peek of image making is witnessed in Spectacle Wrestling. Nevertheless Spectacle Wrestling, although indulging in physical activity, is a predetermined act therefor not a Sport.)
These stars are accompanied by stories, whether they are myths or realities it does not really matter. What matters is the existence of the story, and its appropriateness to their image. The stories involve the transition from the normal human being to the stardom with the help of the slogans mentioned before.
Other cases include the "Bad" image. These are developed also accordingly. Dennis Rodman (Fig.14), for instance, a NBA basketball player who has won the world championship four times with two different teams is a "bad boy". He is black, dies his hair differently to every game, his body is covered with tattoos and his nose is pierced. Although he was a great player at high school, back then he was still normal, (i.e. his hair was black), it is said that he had attempted suicide several times. He interprets nowadays these attempts nowadays as the results of a

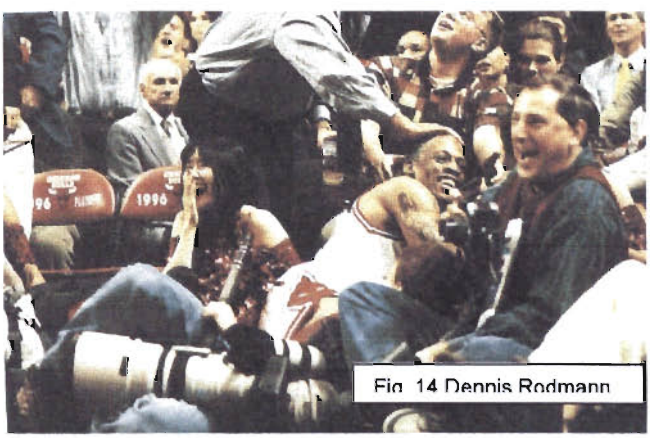


Fig. 14 Dennis Rodmann

[6] Umberto Eco, *The World Cup and Its Pomps*, Travels in Hyperreality

psychological conflict between the real him (present) and the one that was then. Similar stories but appropriate to the person are found in all sports. Nevertheless due to the popularity of basketball and soccer, they are present more there. Some examples of figures considered as 'bad', are Andre Agassi- tennis player/ because of his hairstyle and clothing-, Eric Contona- soccer/ bad temper-, I could also name some that belong to Lebanese sports.
These images are attributed to athletes by the spectators at first, and from their on they are expected to act accordingly. Small stories that fit to those images have to appear from time to time in the Tabloids, to retain this image. This structure, which forms the role models, is present on all the different levels mentioned in the section before, local, regional... but at their respective scale.
But most important is that all these role models insure the continuity of this discipline. Because these games lead to the death of the best, a decline -*"quit while you're on top"*- or a retirement, way is given to the new figures allowing this discipline to pursue its existence.

"It has been noted that in America wrestling represents a sort of mythological fight between Good and Evil (of quasi-political nature, the 'bad' wrestler always being supposed to be a red."[7]

Politics

Politics is evoked on different levels within the sports society.
Sports society has a very well established bureaucratic chain, with different institutions that form a clear hierarchy, at the top of which lies the International Olympic committee IOC. Each sport has its own local, regional and international federation. And these are headed by figures that need not be athletes themselves, but they are active participants in the formation in today's sports discipline, most famous of whom is Joao Antonio Samaranch who is in his third consecutive mandate as president of the IOC.
Different major international sporting events happen every year, and countries fight over hosting them. Hosting sporting events is a huge income generator. The choice of the countries that will hold the event involves a lot of politics, and the selection is a very delicate one.
These international events produce their income in the same way as mentioned in the "population" chapter. The difference is the number of people that this event is catering for, and the international marketing of the products. A major addition is also the media, which invests huge amounts of money due to the high spectator demand. Nevertheless I do believe that the reason for this income stems from the accumulation of the small-scale episodes as those I have mentioned before. Those children that are playing on the street corners, the fans shouting in the stands and the people at the bar are responsible for this demand.
Every fan dreams of attending the World Cup. Therefor it needs to exist and keep on existing. And the same applies for all sports.
Bringing up the issue of 'hosting an international event' was, merely, to insinuate the huge chain of events that one choice might imply.
I felt it important to touch upon this subject just to show how this society is in itself tied to the international scene and how big its impact can be as a means for international politics.
But it is the small-scale episode that should be the matters in focus, because it is these that affect more directly my sports complex, and go on to affect the major events.
There, another level of politics is found: sports debate.
Sports debate requires, to be sure, a more than vague expertise, but it is limited, well-focused, allows a person to take position, suggest solution without exposing yourself to arrest or to suspicion. It is intrinsic to this society, and is the major producer of analyses and solutions, and therefor can predict all future results (few of which get fulfilled).
Sports debate again starts on the field, during games. It starts as a monologue. The spectator shouts from the stand telling the player what to do. The fan gives orders, praises or swears at the player. Then it evolves into a dialogue, when the spectator sitting adjacent responds by giving the cause why the player did not act as shouted, or by agreeing on the defects or skills of the player in cause. It later expands to become a debate in other premises that can accommodate discussions of deeper nature, such as the bar.

[7] Roland Barthes, *The World of Wrestling*, Mythologies

In this relationship, because the first phase, the monologue, gets no response (none is expected), it redirects itself to another party, the spectator on the adjacent seat, or later in the bar. But this Monologue is the starting point of the tension. It is located at that edge. The tension is there due to the ability to see yet the incapability to communicate. And that is where my project begins.

"If through some diabolic machination of the Mexican Government and Chairman Avery Brundage, in agreement with all TV networks in the world, the Olympics were not to take place, but were narrated daily and hourly through fictitious images, nothing in the international sport system would change. So sport as practice...exists for economic reason (for it is easier to make an athlete run than to invent a film with actors who pretend to run."[8]
In terms of AS

[8] Umberto Eco, *Sports Chatter,* Travels in Hyperreality

- **Sporting Experience**

Sports combines symbolic behavior with a symbolic place. One abides to a set of rules and regulations for a certain period of time. The rewards and penalties' value on other grounds is completely different, and the sets of rules are at once social and spatial but are not found outside the playing site. The participant, trained within the outside social norms, tends at times to engage in conflicts. These conflicts

- **The Rules of The Game**

To start, a Sport is a game that abides to strict rules. These rules apply on these grounds only, and are mainly of social and spatial nature.
The different rules weigh differently. They try to ensure maximum talent output and a continuous balance between the opponents.
All these rules concern only those involved in the game. It is not a democratic regime, since the rules do not apply on the referee, and it is not dictatorship, because the referee can only apply those rules, but it is a constant logic throughout.
That is what concerns the spaces on courts.
As for the viewers, they assist as if they were in the cinema, only they are more involved. They know these rules so they can foresee probable consequence. Only these are only probabilities, thus instigating a certain anxiety.

- **Violence**

Violence is a means to relieve frustrations. Spectator sports builds up frustration momentarily. "The enemies" are those of the opposite stands, but no they do not deserve to die. (though some think they might)

-39 dead, many others injured Wembley stadium 1985. They came to watch a soccer game.
-Patrick Battiston, World Cup 1982, Spain. 4 broken ribs, bruised jaw. He nearly scored. Fig(X)

Violence occurs on both parts of the stadium. Tension is part of the general atmosphere. Violent accidents do happen, but they are only accidents. The purpose is not that of violence, nor is the anxiety building up one of hatred. Although the level of involvement is very deep, sports anxiety is attached to the hope of something good happening or something spectacular. A miracle at times is wished for, and a miracle at times happens.

- **Records**

Space. Time. Models of sports, models of man.
Records hold themselves at the peek of the sports edifice. Is it a matter of winning, beating today's competitors, careless of the bad performance? Or is it about improving the past and setting new standards.
"Record", an English word born in the 18th C derived from the verb, "to record" (remember, register) that is of French origin "recorder" (remember) (derived from the Latin *recordari).* Therefor the sportsman surpasses all predecessors, achieving a performance never yet seen.
And that is the main feature that distinguishes modern, from ancient sports practice. The possibility of an outstanding performance. Witnessing a "recorded" moment in history (Fig.15). A euphoria of a moment that sends the shivers into thousands or, now a days, millions of spectators, feeling to have reached virgin grounds.
Therefor it is the hunt for these Records that insure the internal continuity of modern sport.

Fig.15 Ben Johnson NWR 1998 Seoul

In my project, AUB Sports Facilities, I try to emphasize the aspects of this discipline that go beyond the simple physical exercise. The health, physical aspect of the discipline is intrinsic to the activity, nevertheless it is not the instigator of the particular feelings, demonstrated prior, that can be achieved. These feelings are primarily the results of the relationships between spectator and athlete, relationships that extend far beyond the court's lines. But the feelings themselves are of anxiety in nature. The same feelings are produced as a consequence of many other experiences throughout our daily life. Such as waiting to enter a classroom for a final exam (tension), witnessing a car accident (a happening) or trying to catch a glass that we have pushed by mistake before it brakes on the floor (react to the unfolding of an event).

Fig.16 Happenings

I do distinguish two states of beings of the project, the Sporting events days, and the non-Sporting events days.
During Sports events, stands are filled, things are happening, teams are winning and others are loosing. The tense atmosphere is present whether in the minds of participants, ready for the next challenge in front of hundreds of eyes, or the spectators, awaiting the clash and the, second by second, performance.
Whilst during the days when there are no sporting events, this atmosphere disappears. And the area that I find most problematic are those designed for the spectators. These stay empty casting a spell of depression and sadness onto stadia.
As an attempt to maintain the lively character, certain activity has to be present. The presence of the ever-busy Corniche strip would be beneficial or taking advantage of the non-sporting uses that are constantly occurring, such as sunbathing or others, in an attempt to develop the anxiety spaces. (Fig.17)

Fig.17 Tension viewing and viewed

Anxiety Spaces
There is the on court life versus the off-court life, and they are clearly distinct. The off-court areas should instigate a certain anxiety through the procession from one area to the other or in their functions as such. These spaces could transform and adapt according to the on-court life that is going on. The experience should be one that informs yet keeps doubts. Whilst the on-court life should be a homogeneous experience abiding to one set of rules all the way.
The anxiety spaces are the ones that instigate the tension, that witness happenings, and that react to unfolding of events, and the planning of the spaces should involve similar logic.
Tension stems from the experience, they should be placed in setting that instigate tension through experience, such as being the target when targeting somebody else, or being viewed when viewing. Happenings can occur also off-court (Fig.16). These spaces should form in a way that allows them to witness happenings, not necessarily of sporting nature, or maybe of sporting nature, but not the one attended. These spaces should also react to the unfolding of the events, not necessarily, the one event on the particular court, but rather the combination and juxtaposition of the different events and spaces within the complex.

So basically three factors dictate these spaces, tension through function. Happening through visual relationship and juxtaposition to other spaces, and reacting to unfolding of events through the procession and linking of these spaces to the general scheme of the complex. These spaces basically filter within the program settling between the different spaces creating these effects. (Fig.18) They could be part of the circulation areas, of the spectator stand or the outdoor spaces, but one thing they leave intact is the courts premise, (meaning by court as the place where the game takes place and not the changing rooms, stands or referees tables)

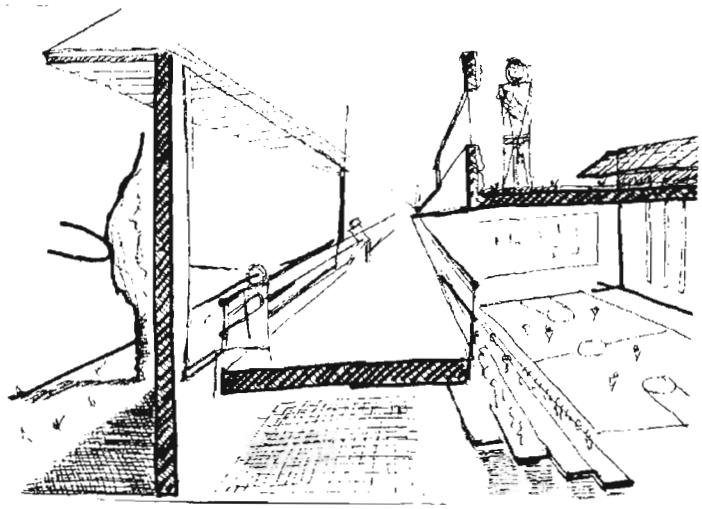


Fig.18 Anxiety spaces

By allowing complex juxtaposition or viewing of different areas these areas have potential to be occupied more than the usual spectator stands that usually end up deserted spaces.
Furthermore these spaces can be green spaces that can witness leisure activities such as Frisbee or relaxing areas at times and viewing areas at other.
The fact that the Green field accommodate for other events that are non sporting in nature, would be dealt with, in a designed manor, where certain spaces such as circulation spaces could turn into a viewing arrangement. Similar would be the case for the indoor sports hall that could accommodate for certain exhibition, as is the case in the present indoor hall. In the reverse manor, the spectator areas and the circulation attributed to the spectators, can themselves acquire functions at other times, so they become the areas being viewed.

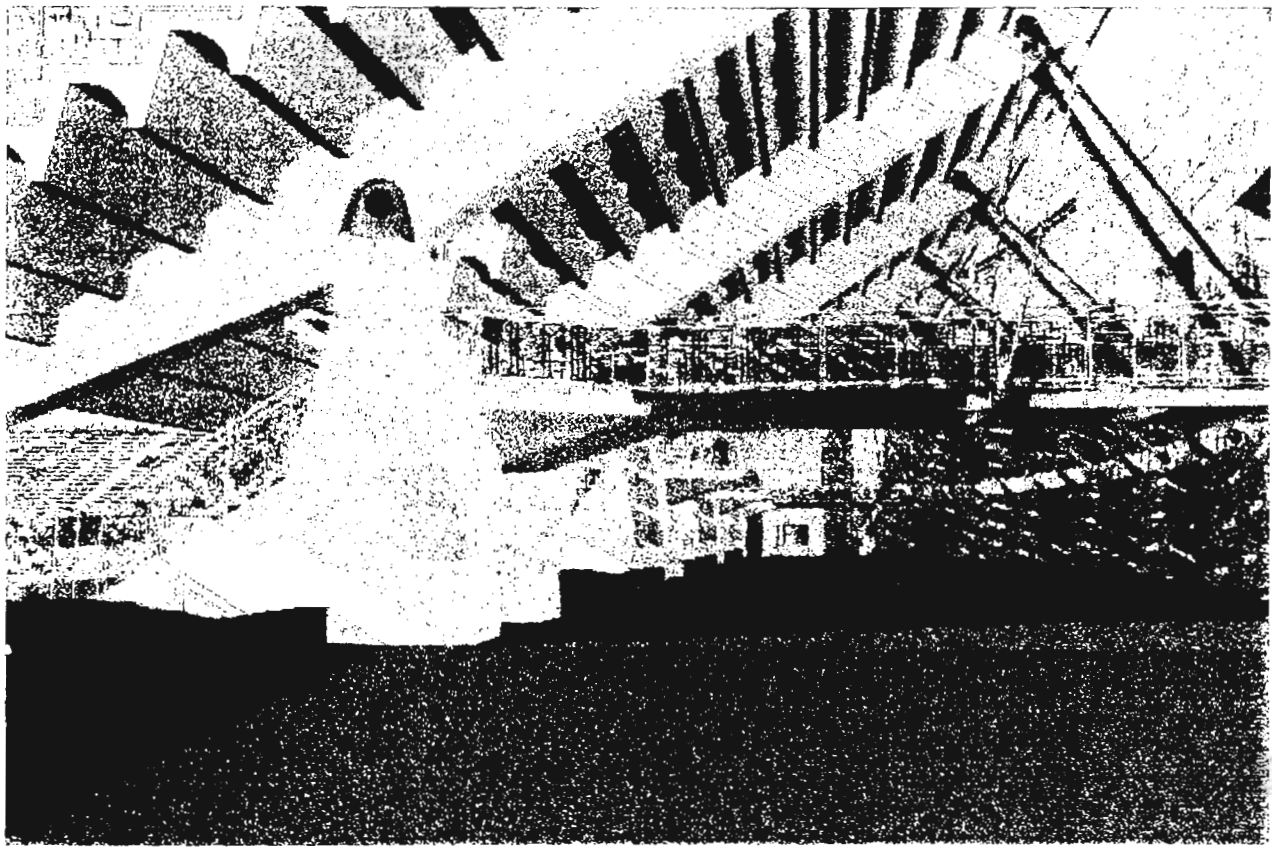
Athletes Areas

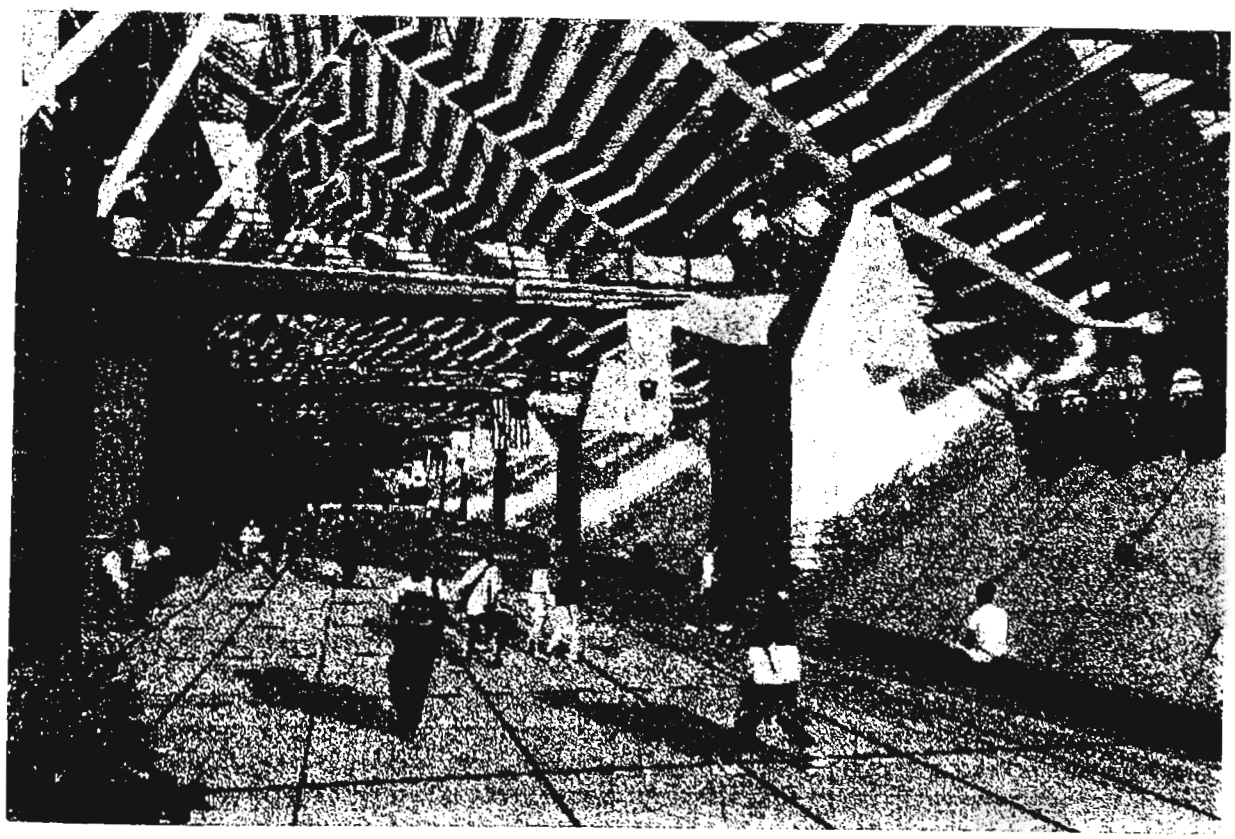
The basis of the complex within the University is a means to improve both the individual and the group interests and ambitions, by accentuating the affects that render each exciting within the game as a whole.
The anxiety spaces are the means to improve the group interests by implementing an atmosphere that constantly induce particular feelings through spatial qualities and relationships.
As concerning the individual, and in particular the athlete, the spaces attributed to the sporting activity and its procession (from changing to court to lobby etc.) should be clear and simple. Nevertheless, they could be exposed at certain point to circulation or to other activities, to stimulate the anxiety spaces and of course they will be exposed at the court to the main public. The quality may not be compromised, in terms of finishing, light, equipment and especially ventilation. Therefor control is necessary so as to insure that anyone within the athletes' territory is there with a physical exercise intention.
Furthermore the athletes' area should reflect his presence at the top of his level, not at his decline, it should be reflective of the ideal or a perfect place that makes the sporting experience incomparable.

Catering for AUB

Within the context of AUB, the sporting experience need not be considered for practicing athletes only. Spectators also need not be professionals in the domain, or highly knowledgeable of the rules, nevertheless they need to have a minimal understanding of the game, and provided with a comfortable, enjoyable space where they can meet and interact with people with a common purpose.
Nevertheless the facilities should be of AUB's standard by implementing the theatricality of American sports, sports complexes through architectural expressions. (Fig.19)

Fig.19 Princeton University's complex under construction





The project will be located within AUB campus. A campus that covers a slope from top of the Ras- Beirut hill at Bliss street down to the seashore where the Greenfield is located.
The site lies specifically at the seashore edge of AUB campus. The AUB administration had planned to locate these facilities on the western edge of the green field extending to the middle of the sea parking. The site would encompass the existing sea entrance, the present athletic department, changing rooms and the weight lifting room. The parking gate would act as the new vehicular entrance to the campus, connecting to the roundabout leading to the tennis courts.
The AUB campus provides a great panoramic view of green spaces and open spaces from the Corniche stretch due to the cascading topography that ends with the Greenfield's plain. Again this also allows an overwhelming view of the sea from the campus. All that relies on the edge that separates AUB from the Corniche.
The Corniche being a main public area and the AUB campus a closed campus throws us to the problem concerning the relation and the dialogue between these two parts.

Ras-Beirut

Along the same Corniche stretch lie two other main sporting arena's, the Nejmeh soccer field, and the Sporting Club sports hall. Nejmeh soccer field particularity lies in the big amount of spectators that attend it, not due to the size of the stadium, but because of the popularity of the Club. It is common knowledge that Nejmeh club has the biggest fan club among all sports in Lebanon and is a yearly important contestant for the soccer championship. Sporting Club, on the other hand, has an indoor sports hall occupied mainly by a Basketball court along with three other rooms for Table Tennis and other activities such as Aerobics and Martial arts. The public, without extra fees, can use both of these facilities during the hours when the courts are unoccupied.
Going up a little along Ras-Beirut hill, El-Nahda Club is located near the lighthouse and has four open air tennis courts overlooking what used to be a soccer field, now a Syrian army headquarters. Close to the El-Nahda club lies a health club, ZO's, a body building club situated on the ground floor of a building. And opposite Nejmeh club is the Escape sports club, with Tennis and Squash as the main sports adding to them bodybuilding and Aerobics. On the Ain el-Mreisse side of the stretch there is the Body wave, another club specialized in Aerobics, Martial arts and dance classes situated on the first floor of a building overlooking the see. These four clubs are private they require monthly or yearly memberships.
All of these sports facilities are within Ras-Beirut area together with the numerous hotels' their health clubs and beaches, for example the St. George, or Riviera Hotel. Nevertheless only Sporting Club and Nejmeh's courts are obvious and play a significant role as sports arena's, whether for the athletic public or for the spectators.

The AUB sports complex should come also as a major sporting arena in the area. With Nejmeh and Sporting of very poor architectural expression, AUB itself has an overwhelming presence due to its beautiful panoramic presence with the vast green spaces, trees and the vernacular red tile roofed buildings. The complex in itself need not present a monumental presence as such, but could manifest itself through elements that distinguish sports arena's from other mega-buildings, such as the soccer field lights or the spectator stands. Yet the present visual aspect of the AUB, the cascading effect (Fig. 25) of its topography platforms ending at the sea, should be maintained avoiding any obstructions. Because few spaces remain where it is possible to extend the scope of vision yet looking inland. Creating a

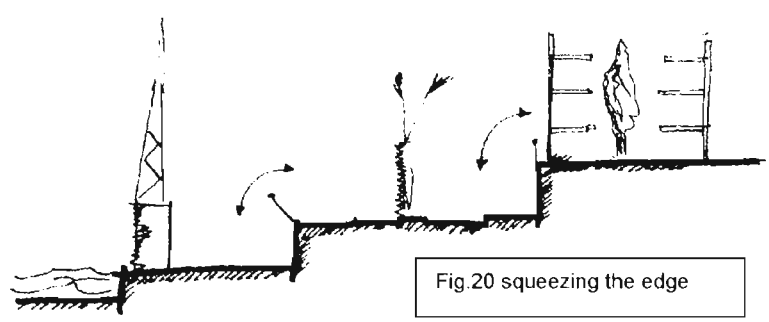


Fig.20 squeezing the edge

monument at this edge of AUB would immediately break this panorama, creating a harsher edge of the city at the seashore, and renders the Corniche strip less comfortable.(Fig. 20-21) Furthermore this Corniche strip should be given primary importance, due to its presence as a major public space encompassing sporting and non-sporting activities, and a potential driving force for the success of this sports complex within the logic of modern sports.

The Corniche

At this natural edge of the city, lies the most important gathering space in Beirut. The Corniche is a place for leisure, sports and entertainment. People from all ages, social classes and with different motives come to this street to spend some time. Besides the great natural view, Corniche is one of the few remaining public open spaces in Beirut. The Corniche strip at Manara and Ain el-Mreisse is actually only part of the larger strip starting at Ramlet Al-Baida (Blvd Rafic Hariri) and ending at St George Hotel Ain el-Mreisse. This strip holds four important nodes all entertainment or leisure in nature. First at Ramlet Al-Baida there is a public beach with a soccer playground (sand of course) that can be booked at certain times during the day, there are also a fun park and some restaurants at that edge. Then there is the Raouche area with major development at the Rock's site, different restaurant chains have opened branches together with other local restaurants, that ends at the steep slope leading to Manara node. At Manara, other than sports arenas, there are some restaurants as well as another fun park and coffee places that serve traditional *Argile*. The fourth node would be at Ain el-Mreisse, a hotel district with private beaches and restaurants. All of the above mentioned places are leisure and entertainment spaces none of really high standard or high class services aiming at accommodating for the usual and daily free time. Except for the hotels node since actually the strip's activity ends right before it and all pedestrian activity and major gathering occurs at an open piazza opposite the Ain el-Mreisse mosque.

As mentioned before, the AUB sports complex will cater mainly for AUB students, staff and alumnus. Nevertheless its relation to this area is of major importance. It can dictate certain lines of development similar to what is already evident at the higher edge of the campus, at Bliss Street, where all is directed to serve the university walls, and responding to these walls. Similarly the walls at this edge could dictate some different kind of development. The presence of this project, that increases the flux, would definitely lead to a fifth node along these walls. Some basic needs and factors can already suggest possible forces such as the need for parking, or the presence of a bus stop. Others, such as refreshment kiosks or snack bars, could stand there as a strategic place to accommodate for both AUB and Corniche public. Since AUB property extends to the edge of the street then anything that occurs there would be AUB property. Therefor any possibility of such (kiosk etc.) facilities that benefit from this juxtaposed public should be AUB owned.
The strip sandwiched by the Greenfield and the AUB beach would be the ideal place to create this extension of the walls, or communication between AUB and Corniche. Keeping in mind that this communication is necessary due to the nature of the discipline as relying on the outside factor pressuring and then evaluating its success.

Fig.21 Inland Panorama

AUB

The Sports facility's nature as a place to exercise the body and the mind, renders its healthy and pure atmosphere and natural surrounding a must, which makes AUB an ideal locality.

Therefor this aspect of the campus atmosphere should be incorporated within the design, and the facility should act as a continuation to the existing buildings and curriculum, rather than just as an addition.

The main features within AUB campus that will affect the project are the clock tower, the pedestrian paths, the topography and the vernacular architecture.

Fig.22 Clocktower

The clock tower lies facing the main gate of the University, (Fig.22) and overlook the whole campus, especially the Greenfield. It has been a long lasting symbol to which lots of efforts have been put to preserve it so. Therefor this major symbol should not get a contestant within the premises of the campus.

The College Hall's completion will revive the clock tower and create a new node within the AUB patterns. The main present agglomeration area is situated at the West Hall extending onto the Green Oval. Other minor agglomeration areas are situated at the doorstep of every department.

Four main pedestrian routes connect to the Southern end of the Greenfield. The first coming from the Biology and Chemistry department, is a flat vehicular road. The second connects Nicely to the Tennis Courts through steep stairs of 98 steps. The third comes from Jaffet library, also through stairs, and the fourth, a vehicular road, leading to the Engineering and Architecture departments. Two other paths connect to the Northern edge of the Greenfield, one coming from the Department of Health and Food Sciences at the western side, the other from the physical plant at the eastern side. (Fig 36)

Therefor the Complex's entrance will lie at this southern edge of the Greenfield, trying to create a new node within the overall pattern. It does not necessarily have to mark its presence through a building, but rather through a gathering space *the platforms* that benefits from certain advantages in views and quality, whether through lawn or seats. (Fig.33-36-37-38)

As for the topography and the landscape, these are two overwhelming aspects of the campus. They are to be taken as driving forces for the project. Landscape and topography are to be incorporated with the design whether as screening, shading or separation techniques. The project is to blend within this topography yet showing a clear presence, as all other departments do, through structures that act as a continuation to the existing architectural expression and not as a break.

Existing sports facilities within AUB are scattered all over the campus, nevertheless the main sporting area is around the Greenfield.

The aim of this project is to regroup these sports halls into one area and under one complex.

The Green Field

The green field area holds several sports related buildings: The athletic department (Fig.23), the changing rooms, the only indoor hall, the AUB beach, the bodybuilding room, the soccer and track field together with two outdoor basketball courts and an outdoor volleyball court and the spectator stands.

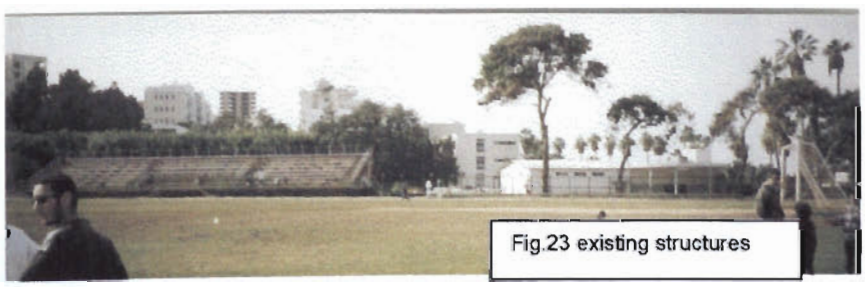


Fig.23 existing structures

This area is highly fragmented due to the numerous fences and obstacles. First the existing indoor hall is situated at a lower level and in a semi-isolated area. Second the Greenfield is fenced from all sides allowing only two small gates.

Third the area is pierced by a vehicular street connecting to the overall AUB vehicular network, there you reach the athletic department and the changing rooms that are in horrible state, before getting to a car parking.
And that is along the main axis that connects those five facilities.
This scattering and those breaks have led to the creation of much unused *left over spaces*. (fig 1 and photo) Further more most of these spaces lie at very strategic point, the edge onto the sea and the southern edges of the Greenfield. As mentioned before I would propose to transform this southern edge into stepped platform area that takes advantage of these spaces and forms an open gathering space *the platforms*. The Corniche edge has to be treated with more attention keeping in mind that this edge allows a person that is shielded from the view of the public on the Corniche, due to difference in level, to be seen (sketch). This inconvenient could be further accentuated by making this space a seating space a space for viewing the inside while viewed from the outside. This could be an ideal effect to keep this space alive in the terms of the anxiety space, where at each moment different things are occurring.

Fig.24 leftover spaces

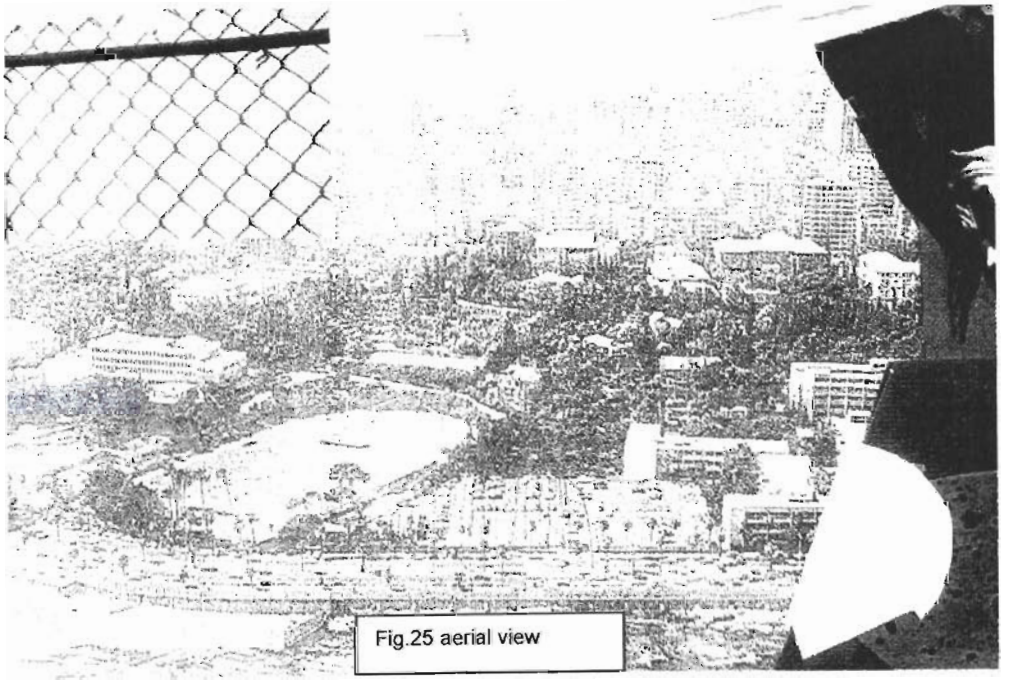


Fig.25 aerial view

Fig.26 leftover spaces

Program

A "three level" program (fig X) has been already formulated by the physical plant as a preliminary model for what is expected in this new facility. The main new features of this program are the bowling alleys, the indoor basketball court and the indoor swimming pool. I formulated my studied estimates of the spaces and the areas required setting those presented by the physical plant as a minimum.
An estimated six million dollars will be raised for this project, and it should complete all the sports and recreational needs of the students in terms of spaces.

My program is divided into two parts. First the sports halls together with their support facilities, including support facilities for existing sports places if needed. Second additional spaces that cater for the students, the workers and the necessary extra facilities to serve this complex.

Sports Areas

The Main Indoor Arena:
The main hall would be that of the Basketball, Volleyball and Handball team sports. The court would accommodate for these three and the existing indoor hall would act as an addition whether for training or games of lesser importance. This hall would witness the major events in these sports, and could cater for other important happenings, such as Judo or occasional tournaments.
This hall could be situated underground or sunken, yet natural light access is advisable. The point is to try to integrate this big structure within the natural surrounding and topography of AUB not obstructing the predominant view. FIG (sections)

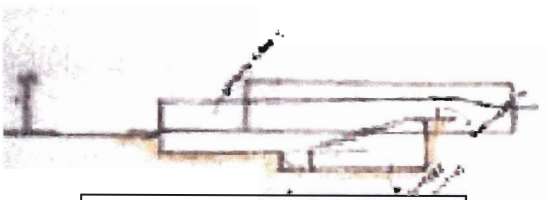


Fig27 section through indoor arena

A Spectator stands catering for three hundred people will be implemented for the new hall together with toilets, showers, lockers and visiting room for men and the same for women.
In these changing room areas, for each men and women, showers and toilets connect to the two briefing rooms, Home and Visitors, that contain the Lockers. And these four briefing rooms would connect directly to the court, together with an additional room that would act as a storage space.
The access to the stands should be separate from the access to the changing rooms.
The stands could connect directly to the outside (of the complex but within AUB) with a secondary connection to the lobby, where toilets would be available. Whilst the access to the changing rooms and the court would be only through the lobby. At the court level the stands are clearly separated from the court.
The existing indoor sports hall should be incorporated within the general scheme. Nevertheless its rehabilitation and upgrading will be necessary. Ideally it should connect to the Lobby but due to its difficult location, it could act as a separate building for training and for the general public. Therefor the final number of Indoor sports halls will be two.

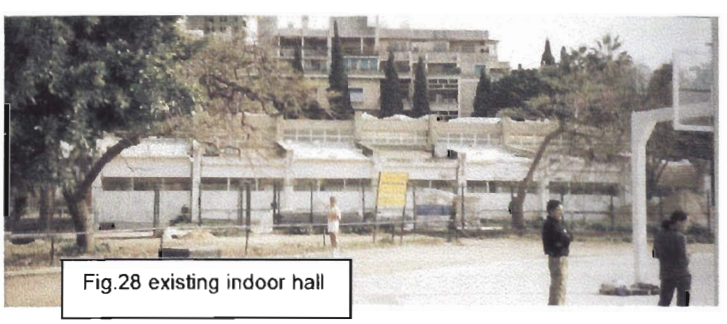


Fig.28 existing indoor hall

Indoor Swimming Pool
It is not advisable to have this facility underground, because it would loose the clarity and clean feeling of the water surface. Therefor the Indoor swimming pool should relate to the edge of the site or at least benefit from a view of the sea to enhance the spatial quality of the space. The toilets, showers and lockers will also accommodate for the AUB beach hence the

proximity from the edge would be advisable. Spectator stands for 100 persons will be present. These stands would be connected to the main spectator entry (Fig.29) from the outside of the complex, and to the lobby. It could use the same network provided for the main indoor hall. The stands are also separated from the pool, so as not to mix dry with wet areas. But these stands could have visual relationship to other stands such as those of the main indoor hall or glimpses of the track and field. As for the changing areas, these are again accessed only from the lobby, where control to the AUB beach would be present. Grouped with these changing rooms a storage space for both the AUB beach and swimming pool's equipment should be provided. Definitely these changing room should be as close to the tunnel leading to the AUB beach and on the axis from the lobby to the beach.

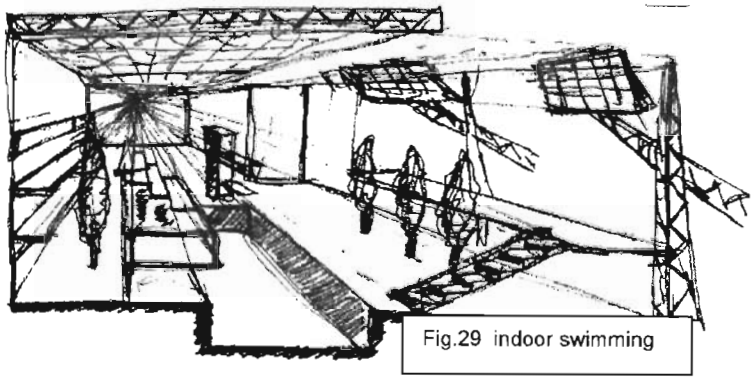


Fig.29 indoor swimming

Auxiliary Halls

This area is divided into six parts, all of which are dry sports that do not attract many spectators. They would form a common quarters so as not to have scattered empty rooms within the project. This quarter would have at least one or two of these spaces active within the span of the day, thus keeping this area alive, especially that the bodybuilding room is frequently used.

Aikido, Karate and Kick Boxing would share a common room that accommodates for two mats. On average there are 30 participants yearly in these three disciplines together and their schedules differ therefore a 200m2 room would be able to accommodate for all of them. Such a room does not necessarily require natural light, since it would be used mainly in the afternoons or evenings.

The second part is the body building room, it has to accommodate for 25 people exercising at once together with the space needed for the machines. This room would usually be used around the clock therefor a view or natural light would be encouraged.

The third part consists of two squash courts. These courts can be positioned underground(Fig.30) or at a level where little light is admitted because the nature of the game forbids direct sunlight or uncontrolled light that can cause disturbances by reflecting on the white walls.

The fourth is an Aerobics and Dance room that needs good acoustic consideration therefor can not be tangential to the squash courts or the Table Tennis room. The fifth is a longitudinal fencing hall accommodating for one mat and the sixth is the Table Tennis room that contains four tables.

All of these spaces could be set juxtaposed around a common area that could provide light and viewing space for all. Viewing point would be incorporated within the general scheme. They could fall among the circulation spaces or others. These common spaces could act as buffer zone filtering light and heat to and from the spaces. But Squash particularly will need a set viewing space and the others could make use of it too.

Fig.30 sect. Auxiliary spaces(squash w/ spectator stand

These spaces would have common changing room, showers and lockers (Each men and women having their own).

The access to this quarter will be from the lobby, and the changing area would lie along that axis. The common spaces to those parts could be situated in a way to have a visual relation to the soccer field or other outdoor areas.

Outdoor Spectator Stands

The Grand Stand will accommodate for 1000 seats. Its location is preferably the same as the existing one due to its orientation and it should be connected to the spectators' circulation area. i.e. connected to the Indoor hall and the swimming hall. The soccer field on the other hand should have a separate athlete's access that comes from the changing areas that are accessed from the main lobby.

Additional green open spaces would be included that could accommodate for viewing Greenfield and adjacent outdoor courts. These should replace the *left over spaces* creating spaces that can be used as additional viewing areas when other festivities or spectacles are happening on the green field, or used as resting areas for sunbathing and lying around or Frisbee playing. These spaces can be seen as extensions to the main lobby, situated at the entrance or tangential to it but having clear views of the activities happening. Some might be directed towards the outdoor activities, other might have peeks at the indoor activities.

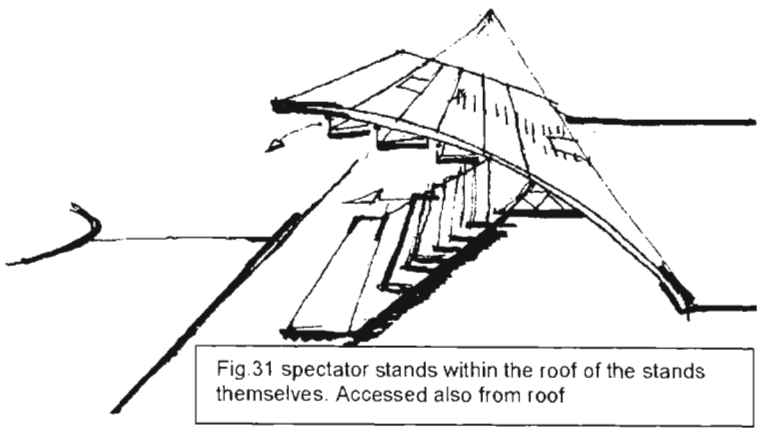


Fig.31 spectator stands within the roof of the stands themselves. Accessed also from roof

The Bowling Arena

The bowling arena consists of six lanes a desk, shoes changing area, viewing area and a bar. It will be in direct relation to the lobby, and having its own control desk. The viewing area, behind the lanes, would be part of the bar where sets of tables would be placed that can see the lanes and be served by the bar at the same time.

At the entrance lies the control desk with the shoes changing area, due to the necessity for preserving the wooden lanes.

Additional Areas

Recreational Area

The recreational area contains the main lobby, a reading room, a coffee lounge, a Proshop, an information desk, the first aid room and the security area.

This area consists of a large room that contains the information desk, the security desk and a large seating area with a TV screen for students to sit around and enjoy, which could transmit major events happening within the complex. Also It has to have toilets to cater for the students and workers at the desk.

This lobby acts as an extension to the outdoor rest areas and should have visual connection to some of the sports activities. It is also the main distribution space.

The lobby lies tangent to two circulation networks, one for the spectators and one for the athletes'. It connects to the Proshop, the reading room and the coffee lounge.

The information desk is within the lobby, it could act as a control and servicing point for the changing rooms and access of the different sports, meaning that it could provide the students with the keys for the lockers, towels or let sporting equipment. It also keeps records of booking and training schedules so as to avoid conflicts.

The first aid room is situated between the information desk and the changing room, so as to lie at the connections to the sports halls. It has to accommodate for twenty people having one attending at all time appointed from the infirmary.

The coffee lounge could be at higher level benefiting from both views onto the sea and onto the sports field.

The Proshop is directly connected to the lobby and it consists of a small shop that sells AUB related sports material, and sports equipment. It sells AUB sweatshirts, caps, badges and all other such things.
The reading room is reached also from the lobby, but should be in a more secluded and quiet place. It could benefit also from the views.
The access to all of the above spaces does not require control other than that on the AUB peripheries.

Administrative Areas
This part would include the athletic department's staff together and staff's toilet, lockers and shower rooms.
The Athletic department consists of the Directors office, assistant's office, secretary, toilet, storage and a conference room.
Also changing rooms with showers and lockers would be located in the vicinity.
This area would be accessed from the lobby directly and could have an outside entrance if possible. The staff's changing room would be directly connected to the athlete's circulation core and accessed also from the lobby.

Circulation Spaces
There are two main circulation networks.(Fig32) The main one, *athlete's path*, starts from the Lobby and connects all sports spaces with their respective changing rooms, the other, *spectators path*, connects the outside to the main spectator areas yet relates to the lobby.
The athlete's path has as a check point the information desk, where users are controlled, whilst the spectators has no control, anyone who has entered the campus can get into the spectators stands.
This *spectator's path*, connecting the stands, should have at different intervals visual connections to the different sporting activities so as to facilitate directing of the crowd. These should develop to be part of the Anxiety spaces described above. It does not have to be a covered circulation path, and can be crossed by paths leading to other areas, such as the cafeteria or the lobby, but not onto courts. This path does not have to be delimited in anyway, but should be directional. This path could pierce roof structures (Fig.31) to reach the stands or be simply on ground level tangent to a sporting activity, with glass separation. Nevertheless it does have an entry point next to the sea-gate entrance but could be accessed from the Greenfield.

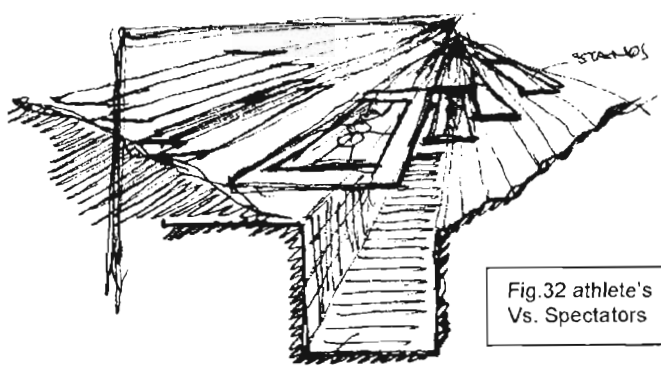


Fig.32 athlete's Vs. Spectators

As a main concept, it is the *spectators' paths* that will act as the anxiety spaces themselves designed to acquire at different point different new or added qualities. It connects all "problematic" spaces (meaning the stands when empty), trying to create a processional space that connects the outside (sea-gate node) to the complex and to the piazza (*platforms*), which will be the inner node.

Certain important issues have to be tackled when dealing with complexes of this size such as security, control and roofing and master planning

Master Planning

As part of the master planning, six main masses are distinguished: the bowling alleys, the indoor swimming pool, the indoor gym, the administration, the auxiliary sports halls and the lobby. Their sizes are relatively large, which makes the task of blending within the site very difficult. Nevertheless certain relationships of these masses is evident.

The Lobby being the central space is connected to the main Universities pedestrian network. The Bowling alley is directly related whilst all the others are connected to it through their support services areas. The Indoor swimming pool should go towards the edge of the site next to the tunnel leading to AUB beach and the main changing room areas would supposedly be close to the grand stands thus lying in Between the soccer field and the Indoor hall. The administration is also connected to the lobby yet it should address the main sea entrance to the AUB, i.e. the sea-parking gate.

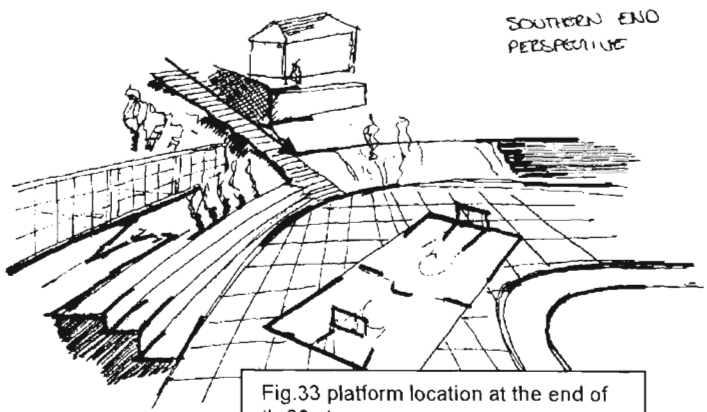


Fig.33 platform location at the end of th 98 steps

As for the Auxiliary hall they could either be situated within these different masses, or stretch along the Greenfield's edge. (FigX)

All of this complex would be situated starting from the roundabout connecting the Biology to the Engineering department, at the end of the long staircase coming down from Nicely hall. There, at an important node of the AUB overall circulation, the entrance should be located. And the facilities would stretch all the way down to the Corniche edge.

At the entrance point, an open piazza *the platforms* (fig piazza) could be formed that extends onto the Greenfield, thus removing all the barriers at that point and taking advantage again of *those left over spaces* at there. (Fig left over spaces)

Safety

Safety is a crucial aspect in the success of a stadium. The protection office will provide the main security, due to AUB regulations. As for safety on the courts, where mass spectators is expected a clear separation from the court is designed. A special attention should be attributed to the team sport stands, where crowds gather particularly in a context of intense emotion. These stands are all connected to open spaces or other stands at various points (if there are accidents then these would turn into extreme anxiety spaces!) therefor quick exist is not difficult. Otherwise there should not be many problem because the facility lies within AUB campus and caters mainly for its students.

Control

Control is an essential factor to safeguard the properties of the complex, especially that four open tournaments are held yearly. The controlled areas are the courts themselves, and not the spectator areas, so as to insure their condition. Since no fees are charged for viewing these events, no control would occur at the access of the viewing areas. If control is needed, for any other event that is occurring on the Greenfield, than the Greenfield's edge at the piazza would be sealed forming an entry point there to those allowed accessing the field. As for those allowed access to the stands only (e.g. spectators) then they enter from the

spectator's path entry at the sea-gate, where they could be seated on the grand stands or in other areas that overlook the Greenfield.

Roofing

Spanning of tall and voluminous spaces, free of columns, stimulates audacious structural solutions, of which the most important is the roofing. In my project, with the attempt to blend the project within the topography, the roof structure could act as a continuation, at some point, to the landscape, thus supporting circulation or sometimes spectator seats.

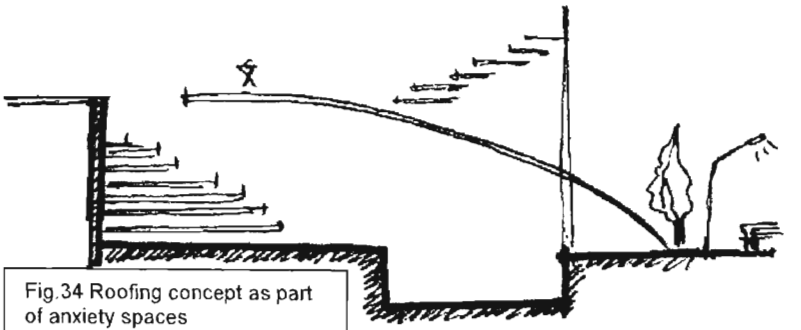


Fig.34 Roofing concept as part of anxiety spaces

Schlussfolgerung

As a summary, I could say that the Greenfield in its present situation contains only a small spectator viewing area, and that is the reason why it looks relatively as a pure and virgin land. The advent of this complex should be a sort of shy one that does not break the present simplicity, yet introduces the complexity needed for a place that houses a multitude of events of different kind. This introduction will be manifested in the main two part explained earlier, the straight forward part, relating to the *athlete's path with obvious relationship,* and the superimposed part that creates the necessary extra changing support facilities.

I tested with two types of design implementation within the set criteria that I have discussed in my program. The first (Fig35) consisted of testing with the various volumes of the major spaces in my program to position them on the site in a manor that would respond to direct inner AUB site forces. A process of adding to the present facilities, that tries to deal with the edges in particular. Figures .27-30are parts of an extended section of model (fig.35) that present the spaces sunken and how that facilitates the positioning of the various seating spaces.

In the second scheme Plates I-II, I try to use the site suggested by the Dean of student's office, forming three blocks. One has the lobby on the basement and the main indoor above the second houses administration and auxiliary spaces above it and the third has the bowling arena on the ground and the indoor swimming pool above it. The three parts, forming U-shape, together with the football field start to form a type of inner volume, which would house the support areas that service all of them. The *Spectator's path* would start from the sea-gate, and pierce through the first volume, connecting to the indoor hall and the football stadium.

One thing should not be forgotten and it is that we are in Football World Cup year (an event that occurs once every four years). Considering myself as a fan and an active participant, I will certainly have trouble managing my time in June. But even if I'm not working and am in front of my TV screen then I'll be resting assure considering it part of a later stage research.

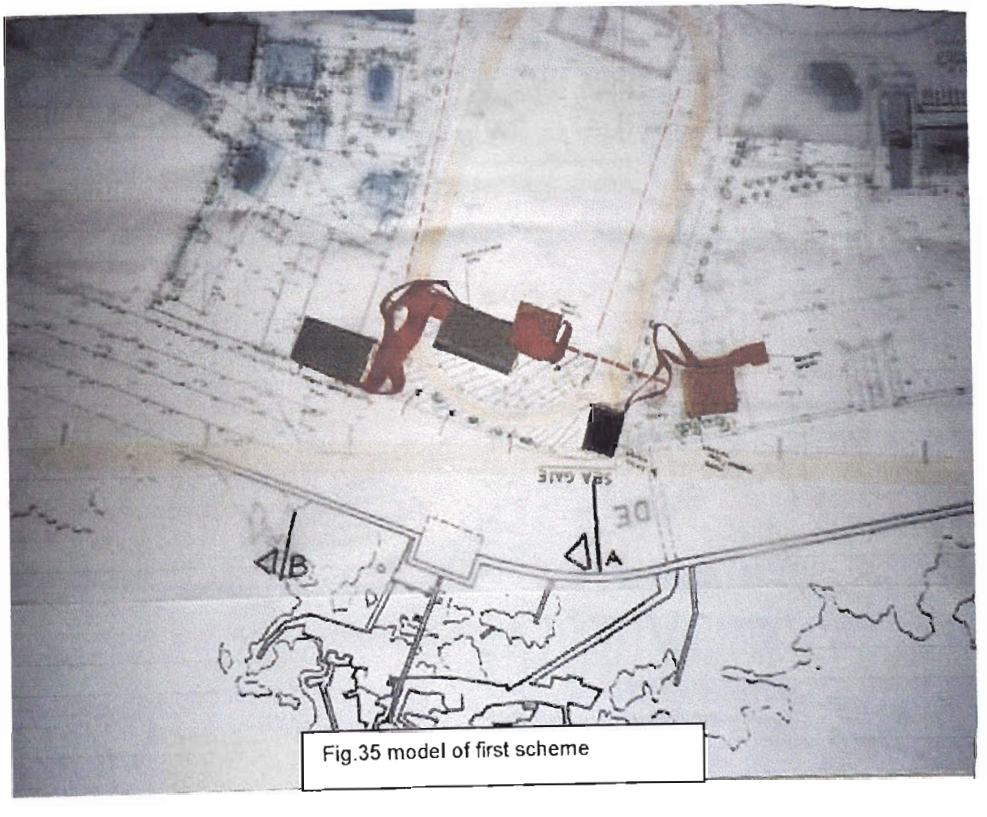


Fig.35 model of first scheme

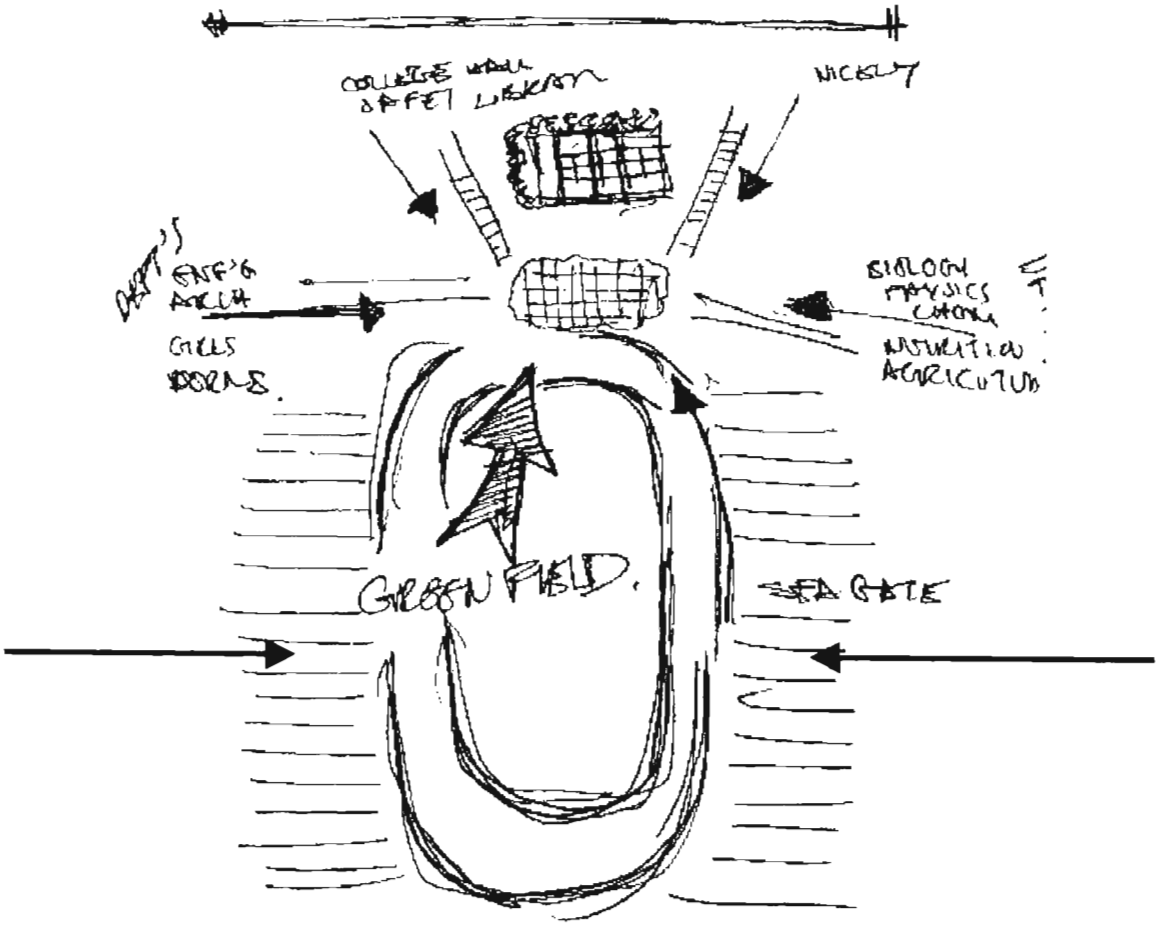


Fig.36 Site flows together with the location of the platforms.

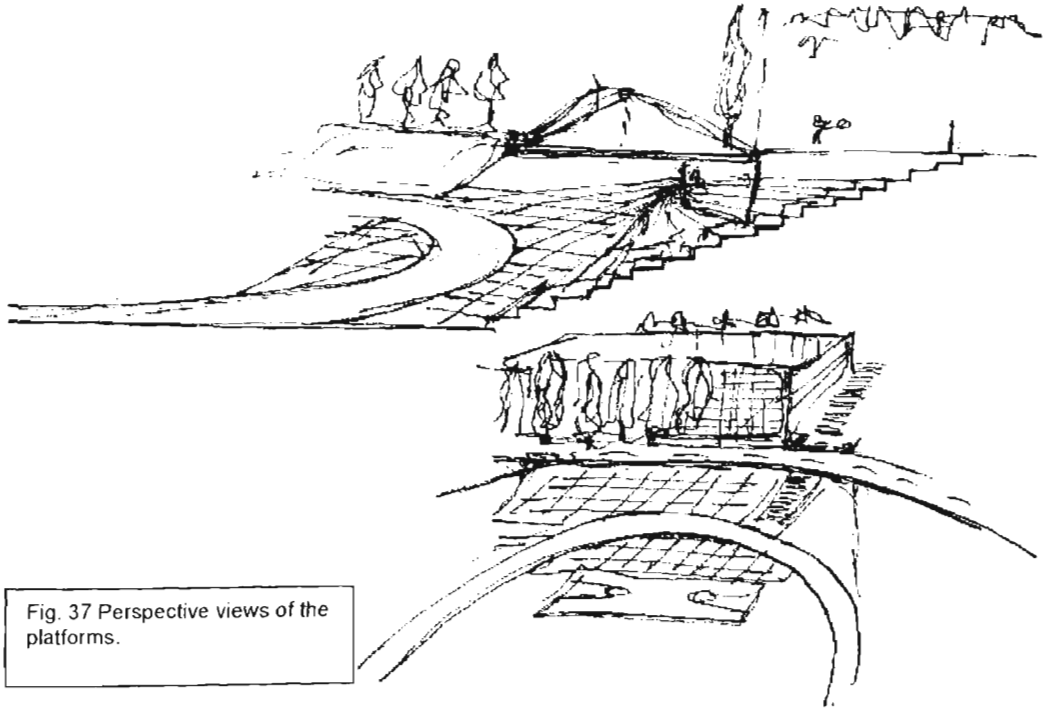


Fig. 37 Perspective views of the platforms.

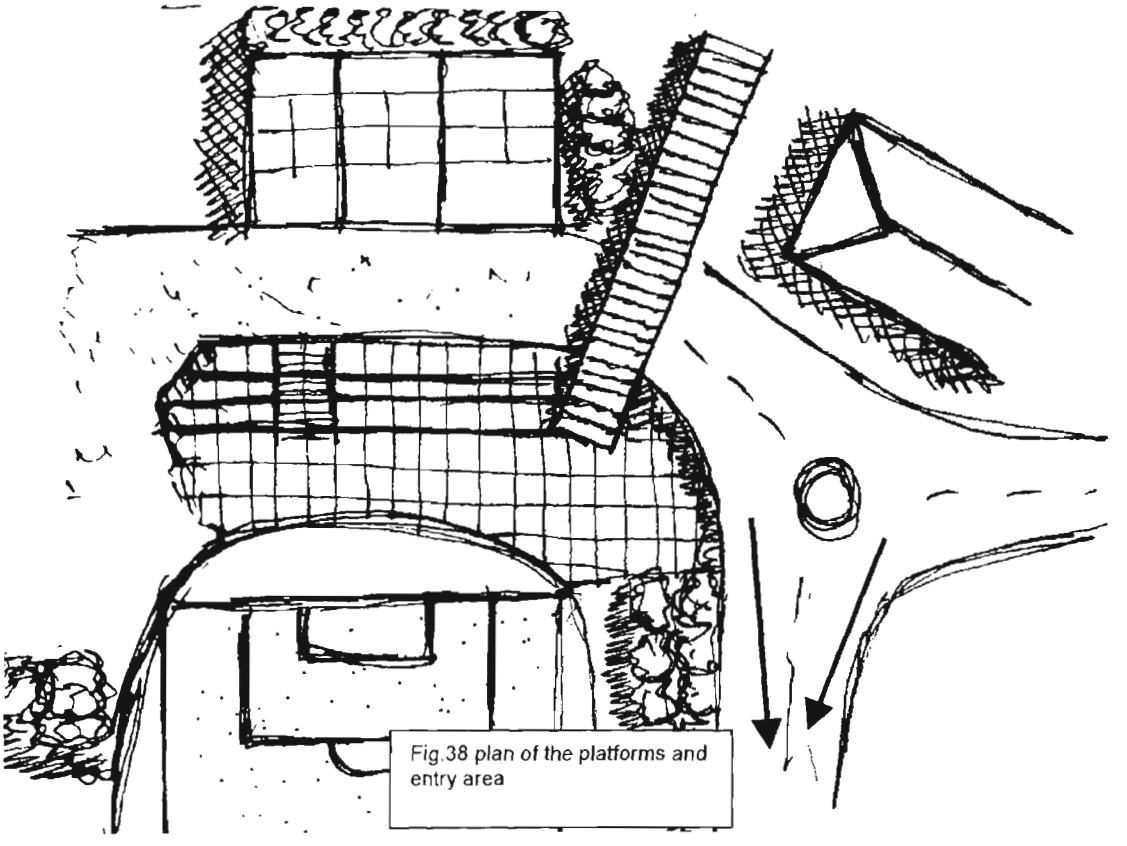


Fig.38 plan of the platforms and entry area

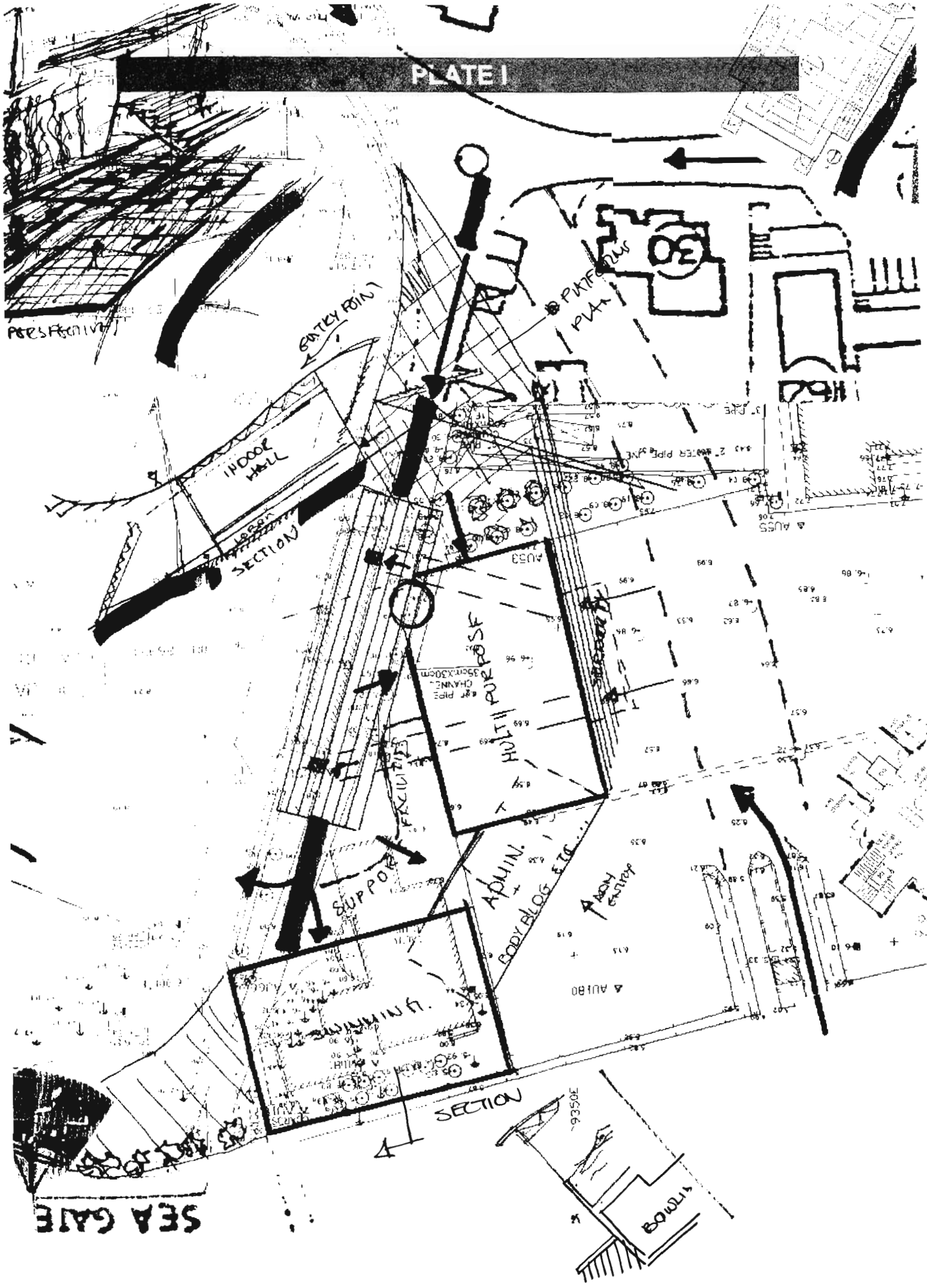


PLATE I
ENTRY POINT
INDOOR HALL
SECTION
SUPPORT
SECTION
SEA GATE

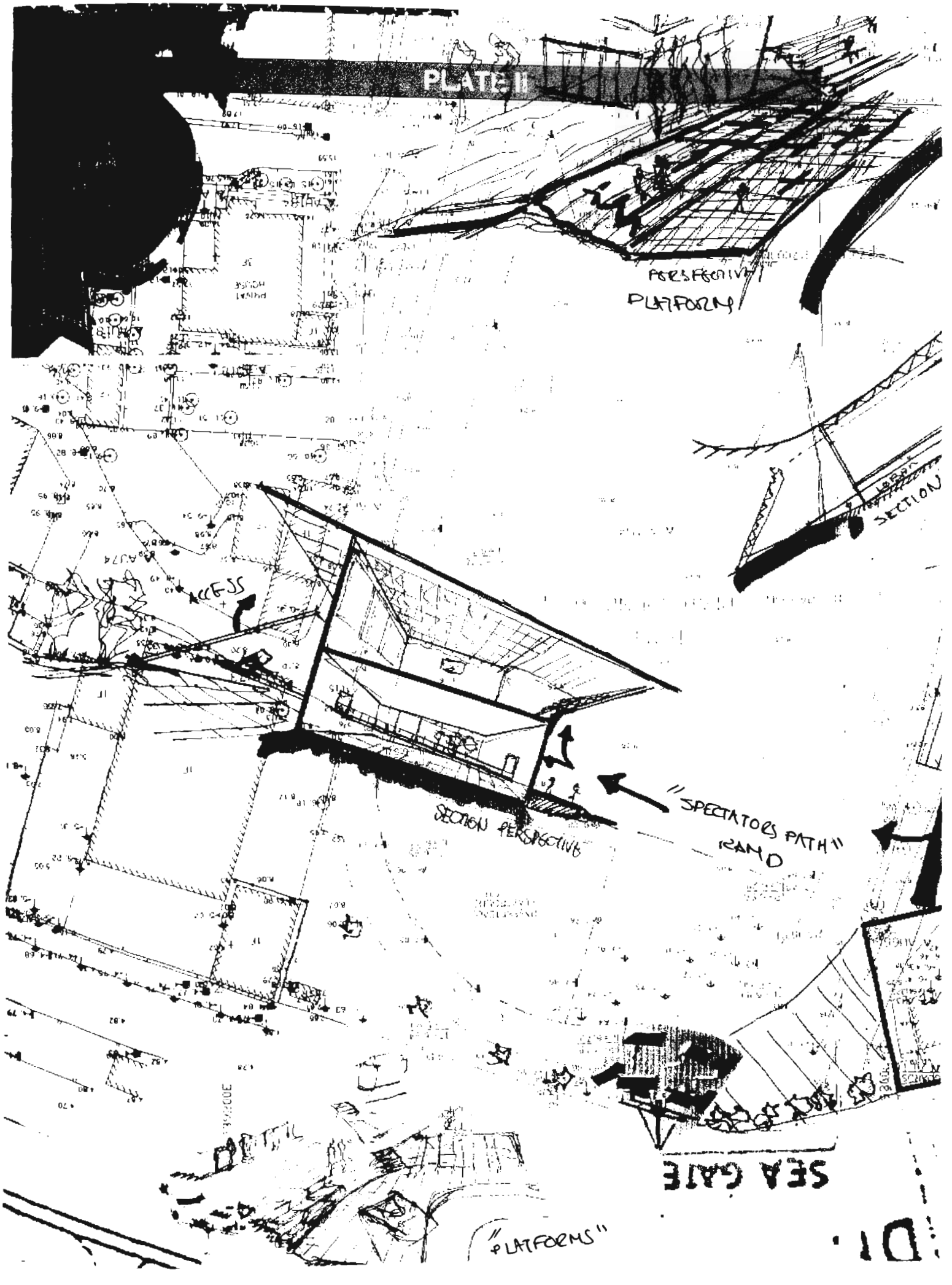


PLATE II
PERSPECTIVE
PLATFORMS
SECTION
SECTION PERSPECTIVE
"SPECTATORS PATH"
RAMP
SEA GATE
"PLATFORMS"

Bibliography and References

- **The Theatre of Sport,** *edited by Karl B Raitz,* John Hopkins University Press Baltimore1995
- **Sports Buildings,** *edited by Allan Konya*, The Architectural Press, London 1986
- **Design for Sports,** *Gerald A. Perrin,* Buttersworth 1981
- **Indoor Sports,** *Geraint John/ Kit Campbell*, British Library Cataloguing in Publication 1995
- **Stadia,** *Geraint John /Rod Sheard,* British Library Cataloguing in Publication 1994
- **Campus Architecture / Building in The Groves of Academe,** *Richard P. Dober,* McGraw-Hill 1996
- **New Architecture / Sports Facilities,** *Fransisco Cerver,* Atrium Spain 1992
- **Great Sporting Graphics,** Rockport Publishers, Rockport Massashussets, 1995
- **Le Betisier du Sport,** *Rudolph Baudeau, Florent Milesi, Cyril Toulet,* Editions Hors Collection 1997
- **Le Grand Livre du Sport,** *Jean Durry,* Nathan Paris 1992
- **Architectural Review,** *issue 1186,* December 1995
- **Travels in Hyperreality,** *Umberto Eco*
- **Mythologies,** *Roland Barthes,* Hill anf Wang

SPACE PROGRAM

	Area sqm.	Remarks
LEVEL 0		
Squash	65	
Squash	65	
Unassigned	100	
Storage	20	
Bowling	330	
Horizontal and Vertical Circulation	110	
Services	260	
Total	950	
LEVEL 1		
Indoor Basketball Court	700	
Indoor Swimming Pool	700	
Administration	70	
Conference	30	
Library	30	
Coffee Lounge + Services	120	
First Aid	12	
Covered Court Storage	12	
Toilets, Showers Lockers & Visiting Team Room (Men)	175	
Toilets, Showers Lockers & Visiting Team Room (Women)	140	
Staff Toilets, Showers & Lockers	70	
Proshop	12	
Multipurpose Room 1	95	
Multipurpose Room 2	95	
Storage	12	
Multigym	80	
Squash Viewing Area	17	
Horizontal and Vertical Circulation	480	
Total	2850	
LEVEL 2		
Spectator's Stand	250	
Spectator's Stand	250	
Horizontal and Vertical Circulation	250	
Green Filed Covered Spectator's Stand	450	
Total	1200	
TOTAL	5000	
Underground Parking	2500	
GRAND TOTAL	7500	

SPACE PREGRAM

AREAS (m2)

Main Sports areas:

	Existing	*Required*
• Basket/ Volleyball/ Handball	660	700
Situated within one Multipurpose Indoor hall		
+ Toilets, Showers Lockers & Visiting team room (Men)		70
+ Toilets, Showers Lockers & Visiting team room (Women)		85
+ Storage room		12
+ Spectator stands (300 seated)		250
Remarks:		
The existing indoor sports hall should be incorporated within the general scheme. Nevertheless its rehabilitation and upgrading will be necessary. Therefor the final number of indoor sports halls will be 2		
• Indoor Swimming Pool/ Water Polo		850
+ Spectator Stands		150
+ Storage area		25
+ Toilets, Lockers &Showers (Men)		70
+ Toilets, Lockers &Showers (Women)		85
Remarks:		
These will also accommodate for the AUB beach		
• Aikido/ Karate/ Kick Boxing 2 mats	130	200
+ Viewing area		
• Body Building (fitness gym) 25 people +machines	80.75	130
• Squash (2 courts 6.5X10 each)		130
+ Spectator stands		17
• Aerobics and Dance room	117.5	120
• Multipurpose room accommodating primarily for fencing		120
Might include Archery consideration within this space or the multipurpose indoor hall.		
+ Viewing area		
+Toilets, Showers Lockers (Men)		45
+Toilets, Showers Lockers (Women)		55
+Storage		35
Remarks:		
These 5 spaces will share common changing rooms and lockers. And those in need of viewing or waiting areas, those would be provided yet incorporated within the design. Except for squash that would have its own spectator stands. Major Events would be held in the main multipurpose hall.		
• Table Tennis (four tables) min 10m length	260	180
+ Storage space		
• Bowling arena 6 lanes (11.13X31.15)		350
+ Desk and shoes changing area		15
+ Viewing area and Bar		60
• Greenfield covered spectators stands (1000 seated)		450
Total 1		**3934**

Remarks:

Include additional green open spaces that could be used for viewing Greenfield and [illegible] courts, that could be used for viewing other occasions that occur on the Greenfield.

Additional spaces:

• Reading room for 15-10 students	30
• Students Lobby	
+ Information desk	70
+Security	6
	10

Remarks:

This would be the main indoor [illegible] access to the Cafeteria, and may include a large TV set showing sporting activities.

• Administration (Athletic Department)	
Directors office	20
Assistance	15
Secretary	15
+ Storage	6
+ Toilets	8
+ Conference	30
• Coffee Lounge	
+ Kitchen and bar	120
• First Aid (accommodate for 20 people)	12
• Staff Toilets Showers &Lockers	35
• AUB Proshop	15
+ Storage	
• Underground Parking	2500

Total 2	**2892**
+Total 1	**3934**
TOTAL	**6826**

APPENDIX

Athletic Department's Data

These information include statistics of number of people that attend games. Number of students that participate in sports, and such relevant material.

It also contains the preliminary program given to me by the physical plant office. And an aerial view of the site that shows where they desired the location.

File

To : Dr. Fawzi Hajj ,Dean of Student Affairs.
From: Ghaleb Halimi, Director of Athletics.
Subject: Athletics Facilities.

FOOTBALL FIELD :

LENGTH : 103M
WIDTH : 70M

TRACK :

LENGTH : 450M ---OUTERLANE
WIDTH : 6M

OUTDOOR BASKETBALL AREA :

LENGTH : 32 M
WIDTH : 21.50M

OUTDOOR VOLLEYBALL AREA :

LENGTH : 21.50M
WIDTH : 12M

LIGHTED TENNIS COURTS (4)

LENGTH : 60M
WIDTH : 38.70M

TENNIS COURTS (2)

LENGTH : 33.50
WIDTH : 32

COVERED INDOOR COURT

LENGTH : 33 M
WIDTH : 20M
SUPPLIED WITH ELECTRICAL SCORE BOARD
FEMALE TOILETT, MALE TOILETT, STORE ROOM

BODY BUILDING ROOM

LENGTH : 9.50 M
WIDTH : 8.50M
SUPPLIED WITH UNIVERSAL GYM MACHINE,WEIGHT BENCHES,TREADMILL,
ERGOMETER, FREEWEIGHTS,DUMBELLS,ROWINGMACHINE BICYCLES

MARTIAL ARTS DOJO

LENGTH : 13M
WIDTH :10M
SUPPLIED WITH HIGH QUALITY MATS.

DANCE ROOM

LENGTH : 11.75M
WIDTH : 10M

SUPPLIED WITH HIGH QUALITY MATS AND MIRRORS ALL AROUND.

TABLE TENNIS AREA

LENGTH : 20M
WIDTH : 13M

BEACH AREA

SWIMMING AREA ,SNACK BAR , STORAGE ROOM.

ATHLETICS OFFICE

DIRECTORS OFFICE
ASSISTANCE OFFICE
SECRETARY OFFICE
STORAGE ROOM.

DRESSING ROOMS

FEMALE ROOM
MALE ROOM
JANITORIAL ROOM

G. Halimi

GHALEB HALIMI
DIRECTOR OF ATHLETICS

الجامعة الأميركية في بيروت
AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
Beirut - Lebanon

شـــؤون الطـــلاب – دائـرة الريـــاضة
STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقيا : امينوب
تلكس : LE ٢٠٨٠١
بيروت – لبـــنان

AUB INDEPENDENCE TOURNAMENT NOV.1997 FOOTBALL

GROUP 1	GROUP 2
AUB (VARSITY)	AUB (JUNIOR)
LAU(JBEIL)	BAU
HAGAZIAN	LEBANESE ARMY
AUB (Varsity)	1- LA
	2- BAU

M1G1	AUB v/s LAU	WED12/11/1997	3:00P.M.
M1G2	AUB(J) v/s BAU	THUR13/11/1997	3:00P.M.
M2G1	LAU(J) v/s HAG	FRI 14/11/1997	3:00P.M.
✓ M2G2	BAU v/s LA	SAT 15/11/1997	1:00P.M.
✓ M3G1	AUB v/s HAG	SAT 15/11/1997	3:00P.M.
M3G2	AUB(J) v/s LA	MON 17/11/1997	3:00P.M.
M7	W1G1 v/s W2G2	TUES 19/11/1997	2:30P.M.
M9	W2G1 v/s W1G2	WED 20/11/1997	2:30P.M.
M10	FINAL	FRI 21/11/1997	2:30P.M.

AMERICAN UNIVERSITY OF BEIRUT
ATHLETICS DEPARTMENT
دائرة الرياضة

GHALEB F. H...
DIRECTOR OF ATH...

الجامعة الأميركية في بيروت
AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
Beirut - Lebanon

شـــؤون الطـــلاب – دائـرة الريـــاضة
STUDENT AFFAIRS - ATHLETICS DEPARTMENT

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تلكس : LE ٢٠٨٠١
بيروت - لبـــنان

AUB
INDEPENDENCE
TOURNAMENT
NOV.1997
VOLEYBALL(WOMEN)

PARTICIPATING TEAMS:

AUB/ BAU/ KORNET CHAHWAN/AL-INTISAR.

M1	AUB V/S BAU	THUR 13/11/1997	4:30P.M.
M2	BAU V/S CHAHWAN	SAT 15/11/1997	4:30P.M.
M3	AUB V/S CHAHWAN	TUES 18/11/1997	4:30P.M.
M4	BAU V/S INTISAR	THUR 20/11/1997	4:30P.M.
M5	AUB V/S INTISAR	TUES 25/11/1997	4:30P.M.
M6	CHAHWAN V/S INTISAR	THUR 27/11/1997	4:30P.M.

GHALEB HALIMI
DIRECTOR OF ATHLETICS

AMERICAN UNIVERSITY OF BEIRUT
ATHLETICS DEPARTMENT
دائرة الرياضة
الجامعة الأميركية في بيروت

الجامعة الأميركية في بيروت
AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
Beirut - Lebanon

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STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبنان

AUB INDEPENDENCE TOURNAMENT NOV. 1997 VOLLEYBALL(MEN)

GROUP1	GROUP2
AUB	LAU(JBEIL)
BAU	LEBANESE ARMY
USA EMBASSY	AL-SADAKA CLUB

M1G1	AUB V/S BAU	THUR 13/11/97	7:30P.M.
M1G2	LAU V/S L A	THUR 13/11/97	6:00P.M.
M2G1	BAU V/S USAE	SAT 15/11/97	4:00P.M.
M2G2	LA V/S SADAKA	SAT 15/11/97	5:30P.M.
M3G1	AUB V/S USAE	TUES 18/11/97	7:30P.M.
M3G2	LAU V/S SADAKA	TUES 18/11/97	6:00P.M
M7	W1G1 V/S W2G2	THUR 20/11/97	6:00P.M.
M8	W2G1 V/S W1G2	THUR 20/11/97	7:30P.M.
M9	FINAL	TUES 25/11/1997	6:30P.M.

LAU/S SADAKA 6:00 – 7:30

AMERICAN UNIVERSITY OF BEIRUT ATHLETICS DEPARTMENT دائرة الرياضة

GHALEB F. HALIMI
DIRECTOR OF ATHLETICS

الجامعة الأميركية في بيروت
AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
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شـــؤون الطـــلاب – دائـرة الريـــاضة
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برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت - لبـــنان

INDEPENDENCE DAY TOURNAMENT NOV. 1997

HAND BALL(MEN)

PARTICIPATING TEAMS

AMERICAN UNIVERSITY OF BEIRUT
BEIRUT ARAB UNIVERSITY
AL SADAKA- CLUB
St. ELIE - CLUB
ABNA'A-AL KHALIJ

THURSDAY 27/11/97

AUB v/s BAU	7:00P.M.
SADAKA v/s ABNA'A -AL KHALIJ	8:00P.M.

TUESDAY 2/12/1997

AUB v/s ABNA'A -AL KHALIJ	7:00P.M.
BAU v/s St. ELIE	8:00P.M.

THURSDAY 4/12/1997

AUB v/s St. ELIE	7:00P.M.
BAU v/s AL-SADAKA	8:00P.M.

TUESDAY 9/12/1997

ABNA'A -AL KHALIJ v/s St.ELIE	7:00P.M.
AUB v/s AL SADAKA	8:00P.M.

THURSDAY 11/12/1997

ABNA;A -AL KHALIJ v/s BAU	7:00P.M.
AL-SADAKA v/s St.ELIE	8:00P.M.

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AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
Beirut - Lebanon

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STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقيا : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

AUB
INDEPENDENCE
TOURNAMENT
NOV.1997
BASKETBALL WOMEN

PARTICIPATING TEAMS:

AUB/LAU(J)/HAGAZIAN/ SADAKA-CLUB/AL CHABAB CLUB.

M1	AUB V/S LAU(J)	WED 12/11/1997	4:30P.M.
M2	CHABAB V/S SADAKA	MON1/12/1997	4:30P.M.
M3	AUB V/S SADAKA	MON 17/11/1997	4:30P.M.
M4	LAU(J) V/S CHABAB	WED 19/11/97	4:30P.M.
M5	AUB V/S HAG	FRI 21/11/1997	4:30P.M.
M6	LAU(J) V/S SADAKA	MON 24/11/97	4:30P.M.
M7	AUB V/S CHABAB	WED 26/11/97	4:30P.M.
M8	LAU(J) V/S HAG	FRI 28/11/97	4:30P.M.
M9	HAG V/S CHABAB	MON 1/12/1997	4:30P.M.
M10	SADAKA V/S HAG	WED 3/12/1997	4:30P.M.

GHALEB HALIMI
DIRECTOR OF ATHLETICS

الجامعة الأميركية في بيروت
AMERICAN UNIVERSITY OF BEIRUT

Cable : AMUNOB
Telex : 20801 LE
Beirut - Lebanon

شؤون الطلاب – دائرة الرياضة
STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبنان

To:Dr. Fawzi Al Hajj ; Dean Of Student Affairs.

From : Ghaleb Halimi; Director of Athletics.

Subject : Annual Sports Activities At AUB.

Date: May 2 , 1997

Following is a list of sports activities, number of students practicing on regular basis i.e three sessions per week, number of matches held during the season in each event, intramurals, special events and the use of AUB sports facilities by faculties and departments.

	Sport Activites	# of Students
	Iteido Aikido	12
1-	Football (Men)	19
2-	Football Juniors	18
3-	Basketball (Men)	14
4-	Basketball Juniors	9
5-	Basketball (Women)	14
6-	Volleyball (Men)	17
7-	Volleyball (Women)	12
8-	Handball (Men)	16
9-	Track & Field (M&W)	10
10-	Tennis (M&W)	12
11-	Table -Tennis(M&W)	12
12-	Karate	10
13-	Kick- Boxing	9
14-	Fencing	6
15-	Archery	5
16-	Swimming (M&W)	12
17-	Body-Building(Men)	149
19-	Aerobics(Women)	113
20-	Tennis (Recreational)	94
21-	Water-Polo	12
22-	Rugby	15
	Ozbke (dance)	35
	Total :	578

A.W.D 10

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AMERICAN UNIVERSITY OF BEIRUT

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Beirut - Lebanon

شـــؤون الطـــلاب – دائـرة الريـــاضة
STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقيا : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

Matches Played At A.U.B

Activity	# Of Matches	# Of Participants	Total	
Football	18	18	324	150
Basketball (Men)	16	12	192	75
Basketball(Women)	12	12	144	50
Volleyball(men)	14	12	144	50
Volleyball (Women)	14	14	196	50
Handball (Men)	4	12	48	50
Table-Tennis	8	12	96	20
Tennis	6	8	48	30
Karate	2 Seminars+2 Tournaments	50	200	100
Swimming	2 Tournaments	8	16	25
Archery	2 Tournaments	5	10	10
Kick-Boxing	2 Tournaments	9	18	50
Body-Building	1 Tournament	30	30	80
Arm-Wrestling	1 Tournament	45	45	75
Total :	104	247	1367	815

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برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

Matches Played Outside AUB

Activity	Place
Skiing(M&W)	Farayha
Snow Board	Farayha
Cross-Country	Jamhour
Skiing(M&W)	Cedars
Basketball(men) Tournament	Balamand University
Football/ Handball Tournaments	Beirut Arab University
Indoor Football Tournament	Lebanese American University - Byblos
Volleyball (M&W) Tournament	Lebanese American University- Byblos
Table-Tennis Tournament	University of Kaslik
Indoor Football Tournament	Notre Dame University- Louise

Upcoming Scheduled Events Outside AUB

Basketball Tournament (M&W)	Notre Dame University- Louise
Track & Field	Antonieh-Baabda
Summer Universiade	Las- Salinas/ Tripoli

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برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

Intramurals
Matches Between Faculties

Activity	# Of Matches	Participants	Audinces/ Match
Football	15 * 18	270	100-150
Volleyball(Men)	10 * 12	120	50
Basketball (men)	15 *12	180	75
Tennis	18 * 8	144	25
Table Tennis	16 *10	160	24
Total	74	874	

Upcoming Scheduled Events At AUB

Tennis tournament	May12-May22	150
Football Game of The Year	May 29	1500
Volleyball (M&W) Game of the Year	May 27	200
Basketball (M&W) Game of the Year	May 26	350
Handball Game of the Year	May 28	100
Water Fight & Parade	May 29	1000
Field-Day	May31	150
Martial-Arts Festival	June 1	500
Athletes Night	June 5	2000

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تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

Reservations of Sports Facilities To Faculties & Departments

Arts & Sciences:

Football Field

Nov. 30
Dec. 20
Feb. 7 , 18, 22
Mar. 8,16,27
Apr. 5, 18

Indoor Court

Nov.28
Apr. 19,20

F.E.A

Football Field

Nov. 8
Dec. 6,19,24
Feb. 28
Mar. 12,13,14,15,18
22,24,25,27,29
Apr. 1,3

Indoor Court

Dec.14,19
Mar.6,7,8,11,13,14

Faculty Members:
Every Tuesday & Thursday

F.A.F.S

Green Field

Dec.23

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برقيا : امينوب
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بيروت ـ لبـــنان

Medicine

Football Field

Jan.11,26
Feb. 27
Mar.11

AUB Syndicate

Practice Sessions every Wednesday of each week

Matches:

Nov.24
Mar.16
Apr.6

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STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقياً : امينوب
تلكس : LE ٢٠٨٠١
بيروت ـ لبـــنان

OverSeas Activities

Alexandria- Egypt

A sports delegation of 67 AUB Athletes, Coaches and Administrators visited Alexandria - Egypt and held matches in different sports activities with the Arab Academy of Science & Technology , Sporting Club and Samouha Spoting Club.

Istanbul- Turkey

A potential visit may take place to participate in the tournament held by the University of Bugazichi in Istanbul - Turkey during end of June 1997.

Sicili- Italy

A potential visit may take place to participate in the Summer Universiade that may take place in Sicily - Italy between August 20 till August 31 , 1997.

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STUDENT AFFAIRS - ATHLETICS DEPARTMENT

برقيا : امينوب
تلكس : LE ٢٠٨٠١
بيروت – لبـــنان

To: All Students , Faculty and Staff
From: AUB Athletics Office
Subject: AUB X-Mas Tournament

Nov.24 , 1997

The AUB Athletics Department has the pleasure of informing you of the 1997 X-Mas tournament that will be held at AUB between Nov. 25 & Dec.19 , 1997. Participating universities include:

1-American University of Beirut
2-Lebanese American University- Beirut
3-Notre Dame University- Louisie
4-Beirut Arab University
5- University of Kaslik
6-University of Balamand
7-University of Saint Joseph
8- Lebanese University
9- Haigazian University

Sports events include:

1-Football
2-Volleyball (Men & Women)
3-Basketball(Men & Women)
4-Handball
5-Tennis
6-Table -Tennis
7-Swimming
8-Martial Arts(Kick-Boxing , Karate)
9-Cross - Campus

Additional Spaces Technical Data

These include main technical data and necessary bubble diagrams for the administration, control, First aid, Social areas and cafeteria's, changing rooms and all necessary information concerning lighting, heating for these spaces

54
Administration and control

Stuart Miller

1 General planning considerations

Poor planning and inadequate provision of administration and control facilities can have a harmful effect on the efficiency and smooth running of a centre. If basic errors in the planning and location of the administrative accommodation are to be avoided it is essential that the designer has a good understanding of the proposed management philosophy and a detailed understanding of the function of each member of staff. The key factors are likely to be charging policy, levels of use and the quality of service to be provided. In addition, because management policies tend to change and patterns of use vary over a period of time, the layout of administration areas should be flexible.

1.1 Compulsory competitive tendering (CCT)

In the UK the Local Government Act 1988 highlighted the need for clear objectives and value for money. With the market becoming increasingly sophisticated and the need to compete for leisure expenditure it is important to produce attractive buildings and provide a high quality of service with the minimum of staff. The layout of administration and control areas has a direct bearing on the level and efficiency of staffing and it has become normal practice for members of staff to carry out more than one function at off-peak times.

The introduction of closed-circuit television (CCTV) for monitoring security in the more remote areas of a centre, particularly during off-peak times, can also allow management to operate more efficiently and cost effectively, although capital installation costs may be quite high.

1.2 Entrance and control

The main entrance should be easily identified and welcoming for visitors approaching the building. Visitors arriving by car should be able to set down at the entrance and park close by. There should be parking provision for people with disabilities as close as possible to the entrance and for coach parking if the management deems it necessary. Staff parking is best provided in a separate area, away from the main public car park, possibly linked to the service yard.

Once inside first impressions are important. The entrance area should be warm and welcoming; in this lighting often plays a particularly important part. The principles and techniques used by the retail sector in shopping malls and speciality high street outlets can be used to good effect in leisure centres.

Finally the entrance foyer should be designed with sufficient space to allow the efficient movement of visitors at peak periods. Projected annual attendance figures provide the basis for an area calculation, but where possible the foyer should be as generous as possible in both area and height. It should be the heart of the centre, the hub from which, and into which, all activities are directed.

1 *Reception area in the Arches Leisure Centre, Greenwich, London. Architects: Miller Associates. Design and build contractor: Sunley Projects*

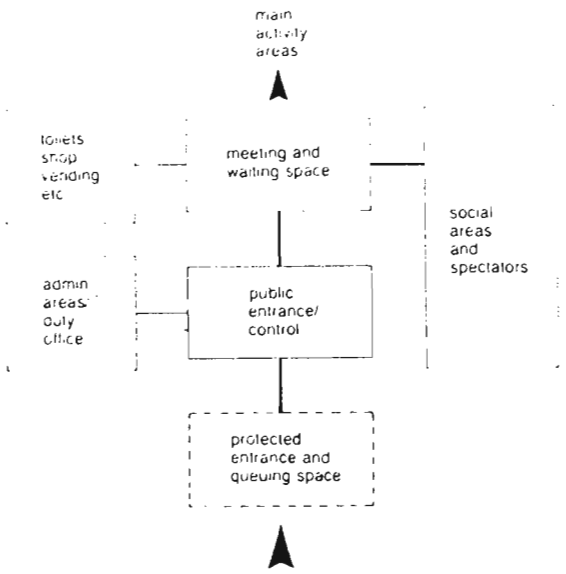
Large commercial centres with specialist facilities

In centres with a range of specialist activities likely to attract large numbers of visitors it may be necessary to remove some of the administration functions to a point further within the centre to avoid congestion. For example, where a centre contains a number of major elements such as an ice rink, ten pin bowling, multi-screen cinema, swimming pool and a multi-use sports hall, the reception area may function only as an information and advance bookings point and security control.

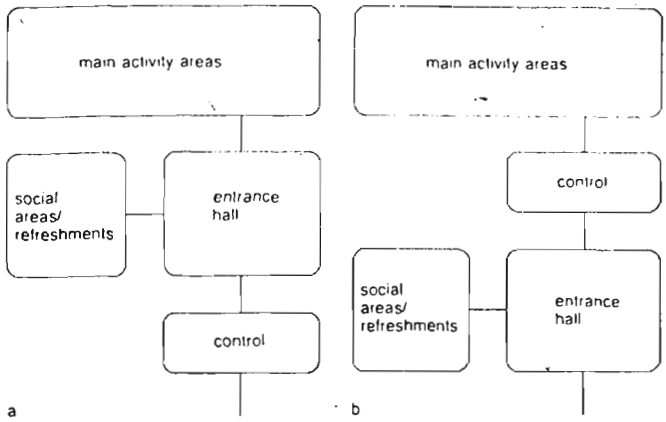
This method of control is becoming popular in commercial centres where visitors are allowed entry free of charge, or on the basis of a nominal charge, to the profitable food, drink and retail facilities and pay user fees only at the point of entry to each activity area.

Wet and dry leisure centres

In wet and dry centres, in addition to the general functions described below, the entrance reception should separate users of wet and dry areas. It should have distinctive yet



2 *Principal relationships at the public entrance/control area*



3 a *Access in cases where entrance fee is charged for all activities.* **b** *Access to controlled activity areas; other areas are freely accessible*

discreetly defined entry and exit channels which guide visitors to the reception desk and then to their respective changing or activity areas. This can be achieved by a permanent system of light barrier rails, planters or screens located to control different patterns of use during the day. Alternatively a system of demountable posts linked by flexible tape which can be located in the most practicable position can provide the best control of queues for a specific function or event.

Sufficient space should be allowed between the entrance doors and control desk to avoid external queues forming during normal use. Where this becomes uneconomic an external canopy should be provided to protect visitors from the weather.

An area for the storage of prams and pushchairs should be located immediately adjacent to the main entrance and be in full view of reception staff.

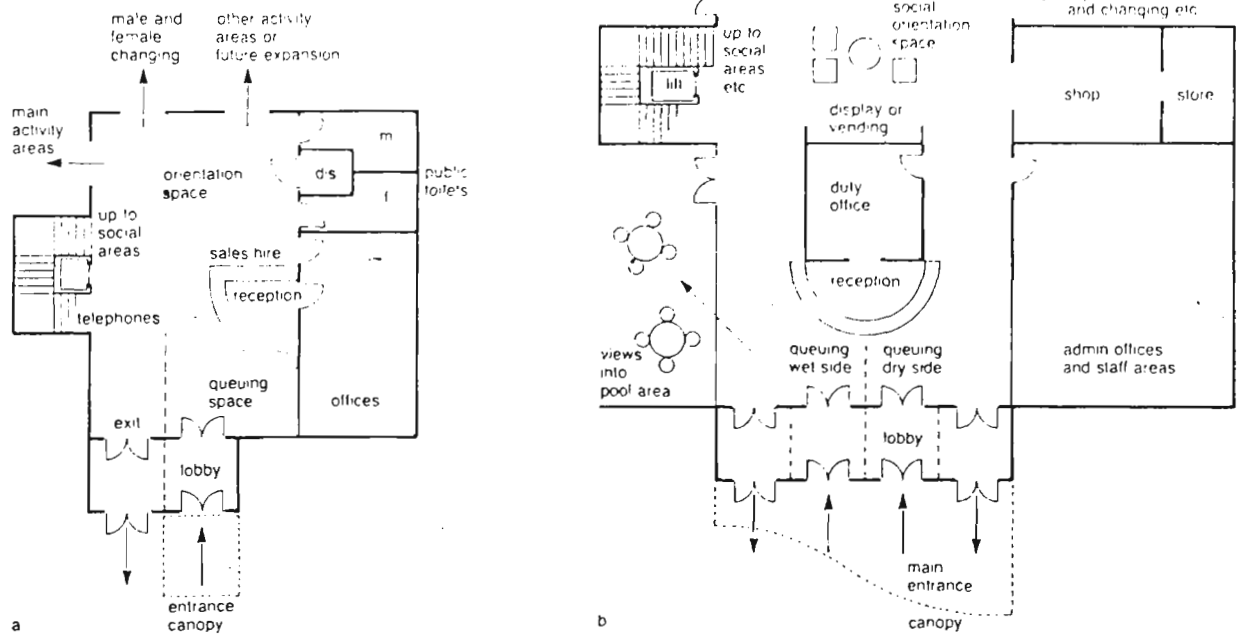
1.3 Key areas

Entrance lobby
A lobby at the main entrance will help to reduce draughts, particularly for staff on reception and avoid excessive heat loss. Doors can be either double swing or bi-parting types.

Meeting and waiting space
It is important that adequate circulation space is allowed beyond the control desk for use as a general meeting point and to allow visitors to orientate themselves. Good signage is essential to indicate directions and avoid congestion. In many centres there will also be a need for generous display boards or video walls providing information on the centre's activities. In larger centres it may be appropriate to provide casual seating at this point to form a relaxation and meeting area. At the same time visitors should be able to enjoy glimpses of some of the centre's activities from the meeting area. It may be appropriate to provide a refreshment area, vending machines or even a speciality retail shop adjacent to the meeting/waiting area.

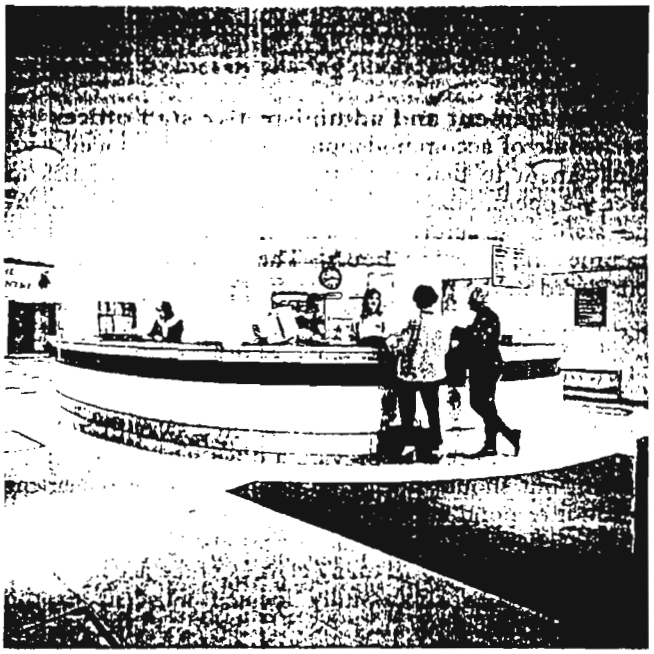
Public toilets including a fully equipped disabled user toilet should also be located adjacent to the meeting area together with a telephone facility and a public staircase and/or lift serving upper floors.

Reception desk
The reception desk acts as the central control point for the facility and should be located so that it provides maximum efficiency for both the staff and the user.



4 a *Typical small sports centre arrangement showing ideal relationship of elements and demonstrating excellent visual control over all areas.* **b** *Typical combined centre arrangement showing ideal relationship of elements and demonstrating 'island' reception*

5 Reception area in Stirling Centre, Rochester, UK. Architects: Miller Associates. Design and build contractor: Warner Group



6 Island reception desk arrangement in the Hart Leisure Centre, Fleet, UK. Architects: Miller Associates. Design and build contractor: Warner Group

The principal functions of staff at the reception desk are:

- To issue tickets to users
- To monitor season ticket holders
- To record bookings of the centre's facilities
- To hire or sell sports equipment
- To provide visual security control over strategic areas
- To monitor and action incoming telephone enquiries
- To monitor the centre's fire alarm system
- To monitor the centre's security system.

From behind the reception desk staff should be able to see:

- The main entrance doors, to ensure visitors pay on entering
- The entrance or access to changing rooms, to monitor activities and deter likely vandalism
- The entrances or approaches to the centre's main activity areas.

If possible the reception desk should be located immediately adjacent to the administration offices. In the case of larger centres it may be designed as an island unit with dedicated serving points for the centre's main activities and combined with the duty office and cashier's room.

The main factors to be considered in designing reception desks are:

- Provision of suitable space for the public to queue at pay points to cater for maximum demand
- Provision of a suitable space behind reception to allow staff circulation
- Provision of suitable space behind reception for the storage of equipment if it is to be hired or sold.

The design of the reception desk should be suitable for both users and staff. The working height of the reception desk is therefore particularly critical and should be designed to be suitable for:

- People with disabilities as well as the able bodied
- Children
- Staff working at VDU monitors.

Detailed discussions should take place with the end user management to provide suitable facilities for the storage and handling of cash. The means by which money is transferred from the reception desk to the main safe located in the duty office or administration area must be considered very carefully. Money from the tills or cash drawers is normally transferred at frequent intervals to a safe located within a secure room immediately adjacent to the reception desk. For security reasons this transfer must not involve crossing the flow of visitors. In large centres a secure cashier's room may be required.

The means by which money is transferred from the safe to security transport should also be considered carefully. The advice of a security expert and the end user's insurance company should be sought at an early stage. The aim should be to have a friendly yet tight control policy for handling money without the need for security screens.

Other factors to consider include:

- Space and suitable power points for ticket and accounting machines; in the case of computer based systems these will require 'clean' lines
- Space for telephone switchboard
- Space for control of public address system
- Space for security alarm control
- Space for fire alarm control
- Where required, space for CCTV monitoring screens; it may be preferable to locate this equipment in the adjoining duty office or security room
- Provision of a clock
- Possible display area for sports equipment where no individual shop is provided, subject to agreement with the management

- Possible display area/cabinet for sports club, subject to agreement with the management.

1.4 Management and administrative staff offices

A schedule of accommodation should be developed with management to determine the scale of staff facilities to meet the operational needs of the centre, the management and staffing structure, the administration method, programme and opening hours. The following should be considered in the planning of staff accommodation:

- Staff should be located as near as possible to the function they perform and, for economy, facilities should be grouped together.
- Office accommodation should be sited away from noisy sport activity areas to provide a quiet working environment, but should not be so isolated that management cannot respond effectively to emergency situations.
- Managerial staff should have reasonable access to the reception desk and in many centres office accommodation has been successfully located adjacent to the reception area.
- Administration offices should be accessible to the public but protected by and accessed through reception.
- In larger multi-facility centres it can be an advantage for administration offices to view over the entrance foyer or the main activity area depending upon management needs.

In the UK, office and staff accommodation must comply with the Shops, Offices and Railway Premises Act 1963 and the Health and Safety at Work Act 1974. These standards should be treated as a minimum. Discussions should be held with local authority officers to establish specific requirements.

1.5 Administration office requirements

The following examples give an indication of the office accommodation likely to be required for different sized centres. These requirements may vary depending upon specific end-user requirements and the scope of facilities offered and should be discussed with providers at the outset.

Small community recreation centres

The requirements of small community recreation centres (see Chapter 68 in this volume) and similarly scaled buildings may be met by a general office with a workstation for one person and a view over the entrance and corridors giving access to changing and other facilities. This can be achieved by:

- An extension to the staff area behind the reception desk, although some screening will be required
- An independent office adjoining the reception desk
- An independent office.

Small sports halls

The needs of small dry centres with one main hall and a total area of up to about 500–600 sq m may be met by a manager's office and either:

- An independent office adjoining the reception desk to allow direct staff communication
- An independent office.

The manager's office should be private and contain a workstation for one person and adequate space to hold meetings for up to about six people. Ideally it shou accessed through the general office.

Medium to large sports halls

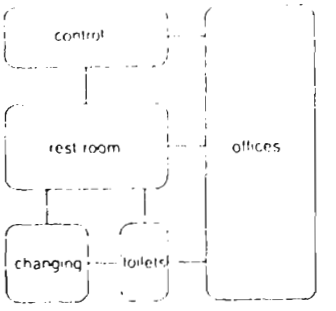
Sports halls with a total area of about of area 600–12 m will require broadly the same accommodation as sr centres except that the general office should be expa to provide space for three workstations.

Medium to large centres

Centres offering a comprehensive range of dry an sports facilities will need:

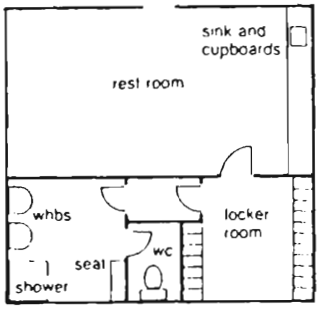
- *General office*: a separate office with space for workstations.
- *Manager's office*: as for small dry sports hall.
- *Duty office*: an independent office adjoining the r tion desk which can either be attached to the administration centre or an island unit. It s accommodate up to about six people. Supervisor tend mainly to be involved with the activity are which they are responsible and use the duty offic base. It should therefore be located so that it will easy access between staff and users.

Large centres offering a comprehensive range of ca and beverage facilities such as a cafeteria, licensec lounge and function room may also require a kitche catering manager's office. This should be an indepe room adjoining the lounge/cafeteria bar service area. be used for administrative tasks related directly r catering operation. The space needed will be propor to the number of restaurant seating covers.



a

7 *Relationship of administration areas.*



8 *Typical staff room, locker room plan.*

1.6 Manual and attendant staff accommodation

There are many factors affecting staff accommodation requirements. The most important are usually:

- The range of activities provided and the layout of the centre, particularly the extent of catering facilities.
- Opening hours: where the span of a centre's opening hours is considerable, say from 06.30 to 22.00, shift working is essential. There is a corresponding need to provide a reasonable level of staff accommodation such as rest areas, changing rooms with showers and locker storage and self-catering facilities.
- Programming: a centre that maintains a constant activity programme aimed at schools, clubs and courses will normally have fairly low staffing levels.
- Location of staff accommodation: staff accommodation should generally be sited away from the main noisy activity areas so that staff can relax in relative peace and quiet.

Staff accommodation should be:

- Easily accessible to staff
- Controlled through reception
- Ideally linked with staff changing or administration offices
- Not so remote as to cause a delay in an emergency
- Provided with a reasonable external view where possible.

1.7 Attendant staff accommodation requirements

Small community recreation centres

Staff will generally use public facilities as appropriate.

Small sports halls

Small dry centres with a total area of up to about 500–600 sq m will require a staff rest room for both full and part time staff and should be equipped with a table, chairs and a means of boiling water.

Staff may use public areas for:

- Catering
- Food storage
- Washing up
- Changing
- Showering
- Storing clothes
- Toilet facilities.

Large sports centres

Sports halls with a total area of about of area 600–1200 sq m will require broadly the same accommodation as a smaller centre except that the rest room should be larger and equipped with a table and chairs, kitchen cupboards with sink unit and worktop, small cooker or microwave, refrigerator, drinking water supply and hot water supply if possible.

Staff needs for changing, showering, storing clothes and toilets may be met by sharing public facilities.

Medium to large centres

In centres offering a comprehensive range of dry and wet sports facilities the scale of facilities provided should relate directly to the number and sex of staff employed and may be met by:

- Staff rest room – as large sports centres
- Male and female changing rooms each equipped with bench seating, a locker for each staff member, toilets and cubicle or communal showers, depending upon staff numbers and sex
- Instructor's office.

Depending upon staff numbers and the complexity of facilities offered it may be appropriate to provide an instructor's office with sufficient space for workstations for two people, together with one male and one female changing space and shower cubicle.

1.8 Environmental services

For general details of environmental services requirements see Chapters 60 and 61 in this volume.

Natural lighting and ventilation

It is desirable that some natural lighting and ventilation should be provided in staff offices and rest rooms, but care must be taken to control glare and excessive solar gain.

Entrance foyer

Special care should be taken in designing entrance doors especially where double doors are not used and there may be a high rate of natural air changes or draughts. In this case a hot air draught curtain can be positioned above the doors to counteract excessive heat loss.

Artificial lighting

The design of the lighting system should be carefully considered in relation to its importance not only as a source of illumination but also for the decorative and atmospheric effects that can be achieved by well designed lighting. The benefits to management can be substantial in terms of providing a welcoming atmosphere particularly in the entrance foyer.

Power supply

The modern office is becoming increasingly dependent on electronic machines. Sports centre offices may contain computer booking systems, accounting systems, word processors and CCTV installations. Adequate power supplies with a number of 'clean lines' for computers must be incorporated from the outset.

58
First aid provision

Sylvester Bone

1 Introduction

This chapter deals with first aid provision for dry indoor sports facilities with halls catering for a maximum of 2000 spectators. It does not cover wet facilities, which are included in *Safety in Swimming Pools,* or facilities for full scale sports arenas which are discussed in the Sports Council publication *Arenas.*

2 Legal requirements

Under the Health and Safety (First Aid) 1981 Regulations the management of a sports centre has a legal obligation to make adequate first aid provision for employees in the event of either illness or accident. These regulations apply only to employees but management should also ensure that first aid provision caters adequately for foreseeable types of accidents to other users of the building. The guidance from the Health and Safety Commission is that where there are regular users of a building the management may wish to make first aid provision for them.

A European Economic Community Directive 89/654 concerning minimum health requirements for the workplace stipulates (in clause 19) in that 'one or more first aid rooms must be provided where the size of the premises, type of activity being carried out and frequency of accidents so dictates'. This may lead to a more precise definition of the requirements for first aid rooms than that given in the current UK regulations, Approved Code of Practice and Guidance.

When application is made for a licence under the Fire Safety and Safety of Places of Sport Act 1987 (a requirement when the public are invited to attend sports events as spectators), the licensing authority may make the provision of a first aid room a condition of that licence.

2.1 Levels of provision

First aid provision will vary according to the size and use of the building concerned. In broad terms there is a choice between three levels of provision.

First aid box

The most basic provision is a first aid box on a wall in a convenient location – such as an office or rest room. This can be considered adequate only in very small buildings, such as village halls, and then only when they are well covered by ambulance services.

Shared use room to be available for first aid as required

In smaller sports halls, eg of the SASH type, a dedicated first aid treatment room is seldom used. A more appropriate provision would be a room normally used for another purpose, such as an office, but equipped to become an effective first aid room in an emergency and located at the same level as the main sports hall close to ambulance access. Convenient access is vital for all levels of provision. This level of provision does not conform with the Approved Code of Practice, however, if a first aid room is a requirement. The code clearly states that the room 'should not be used for any purpose other than the rendering of first aid or health screening'.

Dedicated first aid room

In larger sports halls and in halls used by large numbers of people, either as participants or spectators, there should always be a dedicated and fully equipped first aid room. It must have easy access to the entrance that will be used by ambulances and be clear of the main activity space and public access routes.

Table 58.1 suggests the size and type of provision which would normally be appropriate for different facilities. However, types of use, the numbers of users, including users of adjacent outdoor facilities, and the cover provided by the local ambulance service should all be taken into account when deciding what first aid provision to make. Figure 1 gives three diagrammatic plans for different sizes of first aid rooms.

A dedicated first aid room will be essential:

- If stipulated in the sports licence from the local authority
- If the premises are being used for particular sporting events – eg boxing
- If the facility is used to deal with casualties from external playing fields or a swimming pool.

2.2 Use of first aid facilities

A first aid room will be used for the treatment of minor injuries such as cuts, sprains, nosebleeds, blisters and knocks. The provision of a comprehensively stocked first aid box with bandages, scissors, cotton wool, antiseptic cream, safety pins and sticking plasters and similar items will usually be sufficient to deal with such minor occurrences.

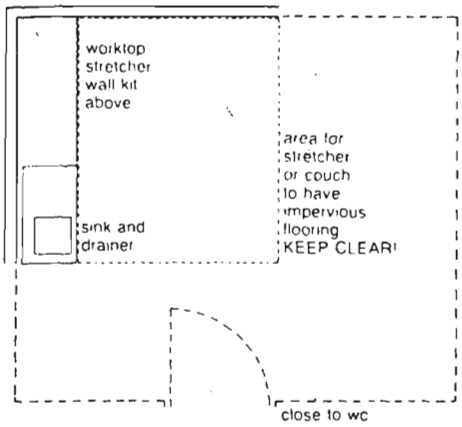
For any serious accident such as a potential fracture or heart attack an ambulance should be called immediately and treatment will generally be restricted to making the injured person as comfortable as possible. The injured person will only be moved if the first aider considers that no risk is involved. In doubtful cases it is preferable for the ambulance personnel, who have greater experience, to move the patient.

2.3 Location of the first aid facilities

It is important for the first aid facilities to be centrally located near and on the same level as playing facilities.

Table 58.1: First aid provision for sports halls of different sizes

Size and type of hall	*Spectator accommodation*	*First aid accommodation*
Dedicated first aid room		
Large sports, leisure or recreation centres	Up to 2000 None	35 people 20 people
Large-scale sports centre	Up to 1500 None	20 people 20 people
Medium scale & outdoor	Up to 1000 None	20 people 15 people
Medium scale indoor only	Up to 1000 None	15 people 15 people
Shared use room to be available for first aid as required		
Small sports hall (SASH)		Casual only
First aid box		
Small community provision (eg SCRC)		Casual only



1 *First aid facility for a small sports hall, provided in an office*

Signposting
First aid facilities should be clearly signposted throughout the building. Notices should give the location of first aid equipment and facilities as well as the names and the location of the qualified first aiders in the building and how they can be contacted.

Use of WC
Ideally, first aid facilities should be close to WC facilities; disabled WCs for the disabled are particularly suitable as they are often unisex. They therefore have the advantage of being equally available to either sex and this creates less embarrassment for a first aider accompanying someone of the opposite sex who is feeling queasy and may be needing assistance.

Access routes
Routes to first aid facilities (ie corridors, lifts and doorways) and the entrance to any first aid room should be wide enough to allow access for stretchers, wheelchairs or carrying chairs. Widths of 900 mm for doorsets and 1200 mm for corridors are generally considered to be minimum dimensions.

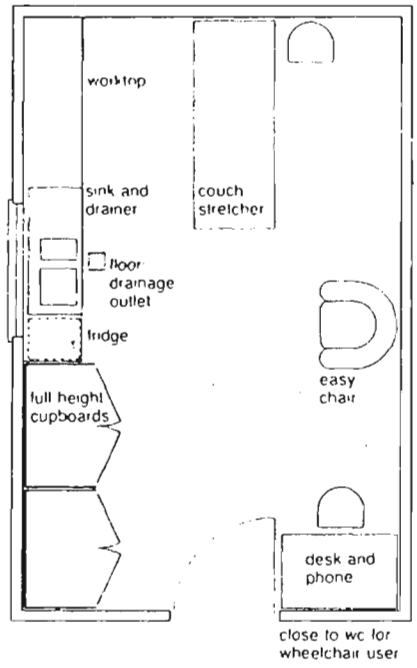
Ambulance access
It is highly desirable for there to be a direct route out of the building from the first aid room to an ambulance outside, perhaps by the use of an emergency exit. This route should not involve passing through either an activity space or the reception area. All corridors on a potential exit route should be able to accommodate a stretcher (1900 x 560 mm) and helpers; changes of direction may need particular attention.

The site layout should be arranged to allow an ambulance to drive as close to the building as possible to reduce the journey distance of a stretcher to the ambulance. A 6-m wide access road is required for an ambulance.

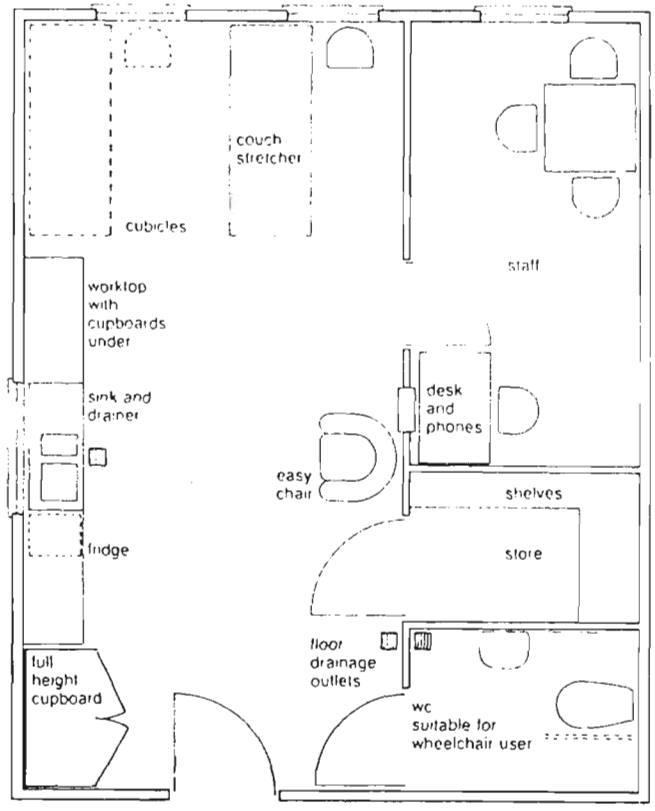
2.3 Size and design of first aid room

The size and design of the first aid room will vary according to the size of the building and whether or not the building is intended to accommodate spectator events. Figures 1 to 3 show possible layouts. Table 58.2 shows the recommendations and guidance published by HMSO as an Approved Code of Practice in support of the Health and Safety (First Aid) Regulations 1981.

Under the RIDDOR 1985 Regulations (see References and further advice), specific accidents to all staff and visitors have to be reported to the Health & Safety Executive.



2 *First aid room for a medium-sized sports hall, minimum area 15 sq m*



3 *First aid room for a large sports hall, minimum area 35 sq m*

2.4 Design features

It may be preferable to provide a stretcher rather than a couch, as this can also be used to remove an injured person from a playing area if necessary. (See 2 and comments on Stretchers below.)

Table 58.2: Recommendations for first aid rooms

Recommendations forming part of the Approved Code of Practice
- Room should be large to hold a couch with space for people to work around it, and a chair
- It should contain suitable facilities
- Impervious floors (Note: a floor drain is suggested; see text)
- Effective ventilation and heating
- Easy to clean surfaces
- Effective lighting
- Be clearly identified by a safety sign
- Have an outside telephone

Guidance notes
- Have nearby toilets
- Possibly have emergency lighting
- Have sink with running water (eg stainless steel with drawer and drinking water tap)
- Drinking water and disposable cups
- Soap (and soap dish)
- Paper towels
- Smooth topped working surface (Note: also needed for writing records)
- First aid materials
- Refuse container and binliners (black and maybe yellow)
- Couch with waterproof surface (eg disposable sheets and blankets)
- Protective garments (eg disposable gloves)
- Chair
- Record book and somewhere to keep it
- A bowl
- Notice on door saying who is First Aider and where located

Other advice
- Scoop or York 4 stretcher (see discussion in text)
- Refrigerator for ice packs
- Internal telephone
- Hot water at sink
- Electric kettle and point for making hot drinks
- First aid 'snatch bags'
- Torches

Refrigerator
Although not included in the official recommendations, the availability of a refrigerator for ice packs can help first aiders to reduce the pain and swelling of some common injuries. Some experienced sports hall managers consider that a refrigerator should be an essential part of the equipment of a first aid room. However, chemical cold compresses are available as an alternative.

Floor drain
A floor drain should be provided to allow blood to be washed away with mild disinfectant solution. It is difficult to clean up blood without risk of infection if it has to be wiped from the floor.

Telephone
A telephone which can be used for direct outside calls is essential to enable the first aider to summon other help such as an ambulance. This is particularly important when:

- the first aid facility may be used out of the normal working hours; or
- is shared between indoor and outdoor activities; or
- if use of the outdoor facilities may take place at a time when staff for the building are not present (eg on a Sunday) and phones in management offices are locked up.

If there is an internal telephone system, one of the internal phones should be in the first aid room. The outside line can be a pay phone from which emergency calls can be made free of charge.

Accommodation for volunteers
If the centre has facilities for spectator events, the first aid room may be used by volunteer first aid organisations (St John or St Andrew Ambulance or the Red Cross) when dealing with any spectator casualties. Guidance should be sought from the organisers on the number of volunteer personnel to be accommodated; it should relate to the type of event and the number of spectators.

A kettle and limited tea making facilities are useful, but the facilities in the first aid room should not be used for regular tea making and should never be on a scale that could become an alternative canteen.

2.5 First aid equipment

Stretchers
The York stretcher is recommended by St John Ambulance. This is a stretcher which can be lowered to floor level to minimise the distance an injured person needs to be lifted. It can also be used in a sitting position as a chair for someone who has injured an ankle. Once on a York 4 stretcher, a person can be transported from the site of the injury to a hospital casualty department and even into an operating theatre without needing to be moved on to a different couch. The criticism made of this type of stretcher is that it is seldom used in all the intended positions and the ambulance service is not prepared to take stretchers away from a building. Some larger centres have equipped themselves with orthopaedic scoop stretchers which can be placed underneath an injured person prior to lifting them. This is a less expensive alternative and can be used to lift an injured person on to an ambulance stretcher.

Many smaller centres are equipped with folding stretchers although they seem to be used very rarely. When someone has been injured sufficiently badly to warrant the use of a stretcher, most managers would prefer ambulance personnel to be responsible for moving the injured person.

Resuscitation equipment
This is used primarily for cardiac patients. Its general provision is not recommended as it should only be used when medically trained personnel are present. Advice on appropriate provision is available from the UK Resuscitation Councils. They do not recommend the use of mechanical ventilators except by personnel specifically trained in the techniques of advanced life support.

First aid boxes
In larger buildings more than one first aid box may be needed. Additional locations are kitchens, reception, plant rooms, and adjacent to any playing facility remote from the first aid room. Snatch bags – officially called 'Travelling First Aid Kits' can be used to provide first aid materials at the spot where an accident occurs.

2.6 Internal environment
For general details of environmental services recommendations refer to Chapters 60 and 61.

56
Social areas

Stuart Miller

1 General

Social areas within sports centres have traditionally been considered as secondary to the main sports facilities. Consequently, a large number of centres exist which contain only the most basic facilities for relaxation or refreshments. As customer expectations rise, however, social areas can play an important role in providing an enjoyable and high quality leisure experience. In the case of neighbourhood centres there is also a need for facilities which fulfil the function of a social centre.

The income from bars and restaurants can contribute up to 25% of the gross income from a large centre and as much as 50% of the gross income from a small centre or squash club. The benefits of encouraging visitors to stay longer and use the social facilities are very important to the success of the centre and cannot be overstated.

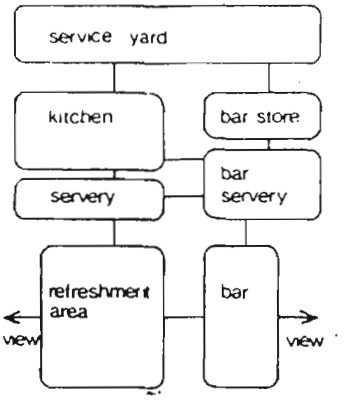
In a similar way, the provision of meeting spaces for local clubs and affinity groups, together with crèche and day care centres, has expanded the scope of sports centres to appeal to a far wider market.

2 Planning considerations

The careful location, planning and detailed design of social areas is a major factor in ensuring their success.

The size and scope of the social facilities should be based on an assessment of demand within a defined catchment area. A detailed study should be commissioned by the end-user or operator to assess the anticipated use, the management philosophy, the demographics and the spending power of visitors. An assessment of other competition within the area will allow the designer to establish the most suitable size and combination of facilities for any particular location.

1 *The social area at the Arches Leisure Centre, London, UK. Architects: Miller Associates. Design and build contractor: Sunley Projects*



2 *Grouping of the principal social areas will allow maximum flexibility in use of both the public and service areas*

The need to maximise user spend also has a bearing on the location of the social facilities, in particular the bar and restaurant areas. Whereas it is often considered an advantage to create a view of the main activity areas, it may be more important to locate the bar and restaurant in a position where they are readily visible to the majority of visitors as they enter or leave the centre, for example adjacent to or forming part of the main entrance area. However, careful consideration should be given at the same time to siting these elements to avoid congestion at the entrance as this could detract from the warm and welcoming atmosphere. A positive approach to design will achieve both a good commercial location and also good views over some of the main activity areas.

The planning and location of facilities can also have a major influence on levels of staffing. Service facilities should be arranged so that the minimum of staff are required during off-peak times while at busy periods there is some flexibility between the two areas. Generally, areas should be planned to allow the minimum requirement for good supervision. A back-to-back situation with the bar and cafeteria serveries can provide a successful solution.

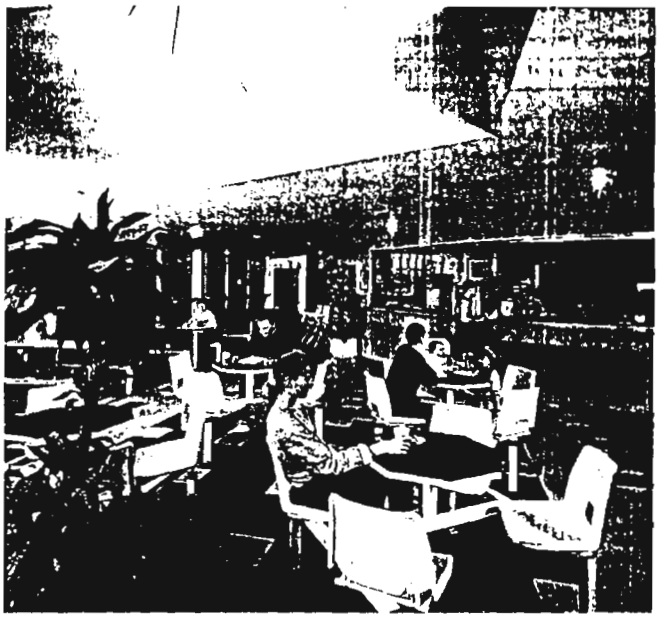
Requirements for the size and the layout of social areas tend to vary considerably during the course of the day depending on the number of users and the nature of the activities. If the management are to meet the varying demands it is important to design in as much flexibility as possible so that when necessary, certain areas can be subdivided to cater for small groups or opened up for large events. This can be achieved by an arrangement of sliding/folding acoustic screens or demountable partition systems. In the smaller centres the demand may vary from groups of 10–12 individuals up to say 100–150 for a larger social event.

Although of secondary importance to the convenience of the visitor, social facilities must be located so that they can easily be serviced from the main service yard. Adequate storage space should be allowed for restaurants and bars and suitable means of transporting heavy boxes, crates of bottles and beer kegs, possibly to an upper floor level, considered from the outset.

Means by which considerable amounts of refuse are to be disposed should also be considered and discussed with the end user and Local Authority Cleansing Officer at an early stage.

2.1 Restaurant and refreshment areas

A decision on the size and layout of these facilities should be determined by a detailed assessment of the local demand, the available capital and management philoso-



3 *Cafe/social area in the Hart Leisure Centre, Fleet, UK. Architects: Miller Associates. Design and build contractor: Warner Group*

phy. Catering facilities can range from a full restaurant or cafeteria service through to a more modest self-service or snack facility. In the case of very small centres, where the cost of staffing a catering area can be prohibitive, a range of vending machines will often be more appropriate. This will also provide a service in off-peak periods.

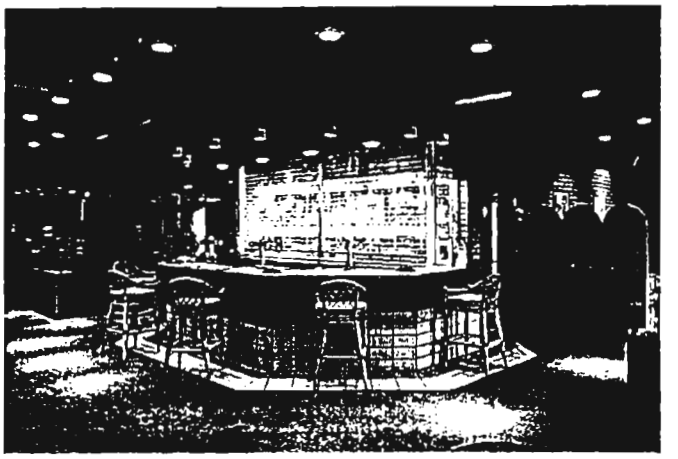
Management philosophy will dictate whether the catering is to be managed by the in-house staff or contracted out to a specialist catering company. On the basis of the latter arrangement, the management will expect to receive an annual payment from the specialist company. This is usually based on a fixed lump sum, a percentage of the annual turnover or profits, or a combination of both. Although contracting out will to a large extent remove responsibility from the centre staff, it will also mean loss of control over the quality of the food and service.

With a few notable exceptions the restaurant and refreshment areas in most centres are regarded as complementary to the main sporting activities on offer. In this respect it is unusual for visitors to use the centre for the sole purpose of eating and drinking.

The periods of maximum demand, usually weekday evenings and weekends, can be calculated with reasonable accuracy from past attendance records of the centre and those researched from other centres. Most reasonable sized centres can justify the employment of full time catering staff.

Space allowances per diner for catering areas vary with the type of service provided and the seating and layout proposed. Typical space allowances are:

Table service	
Square tables in rows seating 4	1.3 to 1.7 sq m per diner
Circular tables in rows seating 4	0.9 to 1.4 sq m per diner
Self-service	
Square tables in rows seating 4	1.5 to 1.7 sq m per diner
Square tables in rows (including counter)	1.7 to 2.0 sq m per diner



4 *Bar/social area*

The general atmosphere must be warm and relaxing with the emphasis on good quality but easily maintained finishes. In dining areas subject to light use, and where a high quality restaurant atmosphere is required, a good heavy duty contract quality carpet will be suitable. Where heavy use and frequent spillage is anticipated a more robust and easily maintained finish will be required. The interior decoration and furniture should be robust, well designed and contribute to the overall atmosphere and a feeling of quality.

2.2 Vending areas

The range, capabilities and quality of vending machines have improved dramatically over the last few years and it is now possible to provide a wide range of good quality foods and beverages to meet most demands.

In addition, it is possible to use vending machines to sell essential sports consumables and equipment such as squash balls, shuttlecocks or shampoo with the same efficiency. However, all vending machines require regular replenishment and maintenance. When they are installed on a hire basis it is essential to ensure that a service agreement is included in any contract.

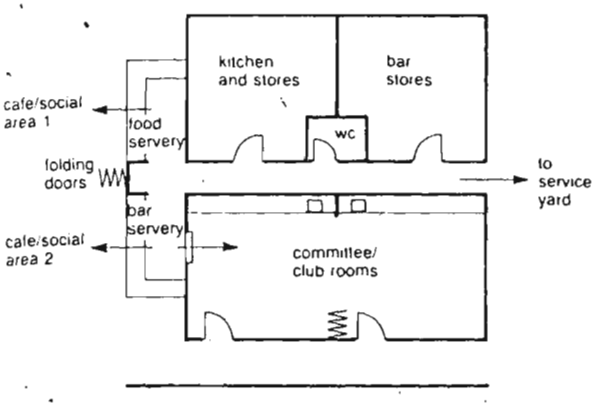
The location of vending machines is dictated by the same commercial considerations as other catering areas. However, it is important that good visual supervision is maintained at all times, say from the reception desk or the duty office.

It is inevitable in an area of this intensity of use that spillages and litter will occur. It is important that floor finishes in particular can be easily cleaned and regular maintenance is carried out throughout the day. Machines should where possible be contained in purpose designed recesses and equipped with all the necessary water supplies, electricity and waste services.

The vending area should provide a pleasant and relaxed atmosphere and where furniture is to be included it should be robust and of good quality and appearance. A storage area should be situated immediately adjacent to the vending machines to allow a suitable range of refills to be stocked.

2.3 Kitchens

The kitchen area should be located immediately adjacent to and at the same level as the restaurant or cafeteria area. The size and range of equipment will be dictated by the number and frequency of meals to be served, the type of menu and the method of service. The layout of the equipment and the position of essential service outlets and



5 *Typical arrangement of social areas in relation to food and drink service, allowing flexibility of use and achieving staff economies*

drainage runs should be determined in consultation with an experienced specialist catering design company.

In designing and equipping the kitchen, in the UK the Food and Hygiene Regulations 1955 and the Food Safety Act 1991 will apply and consultation with the Local Authority Environmental Health Officer is essential. A wash hand basin with hot and cold water supply must be installed within the kitchen for staff. One may be required to service each catering outlet. A toilet must also be provided and a cloakroom for staff, but must not open directly off the kitchen.

The size and layout of back-up stores will depend on the type of kitchen and the frequency of deliveries. A dry store and a cold store are normally required but there may also be a need for a large freezer store. If so it should be installed by a specialist company. The design of these elements should form part of the expertise of the specialist catering consultant.

An enclosed service yard should be located nearby to accommodate kitchen waste and refuse from the restaurant and all other parts of the centre. This area may also act as a storage space for empty crates and containers from the bar. An unloading platform is a useful facility where regular deliveries of heavy items are expected and, if provided, should stand approximately 1 m high with a non-slip surface laid to fall to a wash down gully. For kitchens above ground floor level, a goods lift is essential.

2.4 Self-service counters

The counter length and layout of equipment depends on the scope of the menu, the frequency of service and the number and spending power of visitors and should be determined by a specialist catering consultant. A typical self-service counter of between 9 and 11 m in length, with one cashier's position, will cater for an average of 6–9 persons per minute.

Finishes should be attractive, easily maintained, robust and sufficiently hard wearing to withstand the purpose for which they were intended. Particular attention should be paid to the floor finish both behind and immediately in front of the counter. A fully vitrified ceramic tile with non-slip finish is most suitable for this purpose.

2.5 Licensed bars

Most of the factors raised in determining the size and location of the restaurant and cafeteria area apply equally to the licensed bar.

In the UK, changes in the licensing laws have resulted in a relaxation of the rigid separation of the licensed area from other social areas and allowed a far more casual physical relationship with the catering facilities. However, interpretation of the laws appears to vary between licensing authorities and no rigid rules have yet been established. Each proposal should therefore be discussed on its own merits with the local licensing authority at an early stage in the design process.

The bar should be capable of combining with the restaurant, refreshment area and function areas to provide a large and comprehensive facility that is adaptable to suit as demand dictates. Similarly, the kitchen should be located so that it is capable of serving all necessary areas and providing flexibility of use. This should provide a saving in the initial capital expenditure, economies in staff numbers and long-term running costs.

It should be possible where appropriate to combine the serveries for both food and drink to effect further savings. It is important that the size and appearance of the bar servery is in proportion to the room it serves. The length of the servery counter and the extent of the equipment provided should be directly related to the anticipated demand. The advice of a specialist consultant or the operator's preferred brewery company should be sought.

All bar fittings should be designed with a degree of flexibility that allows for future developments in equipment or changes in management requirements.

A staff toilet should be provided adjacent to the servery for bar staff as well as a wash hand basin separate from the glass washing sinks in the bar. In small centres public toilets may have to be used.

The work of equipping bars is usually carried out by specialist bar fitters, associated with a brewery.

Beer storage should be located close to the bar servery or immediately below with python pipe lines running direct to the bar pumps or with a hoist for crates and other heavy bulky items. The beer store size will relate directly to the expected sales capacity and frequency of deliveries proposed by the brewery company.

The temperature at which beer is kept and served is very important. Cooling may be carried out either in the cellar or on the python pipeline to the servery. In the case of the former, the store must be insulated locally and should generally be fitted with a sink and a wash down gully.

A separate lockable store, with alarm or security warning light linked to reception, should be located immediately adjacent to the bar servery for storing wines, spirits and tobaccos. In most centres, the space required for these items is not large, but additional space or a separate store will be required to accommodate bulk items such as cartons of crisps.

An enclosed service yard should be located nearby to accommodate refuse, empty crates, and gas cylinders from the bar. An unloading platform is a useful facility and could be combined with the service area to the kitchen and main plant area.

2.6 Committee and club rooms

There is a regular demand in most sports centres for small meeting rooms for sports club and committee use, seminars, film shows, promotions and other activities. In order to achieve flexibility and maximise the use of these rooms, consideration should be given to incorporating acoustic room dividers and links to adjacent bar or refreshment areas for larger functions. Meeting rooms offer opportunities to extend the use of the centre for more community based activities.

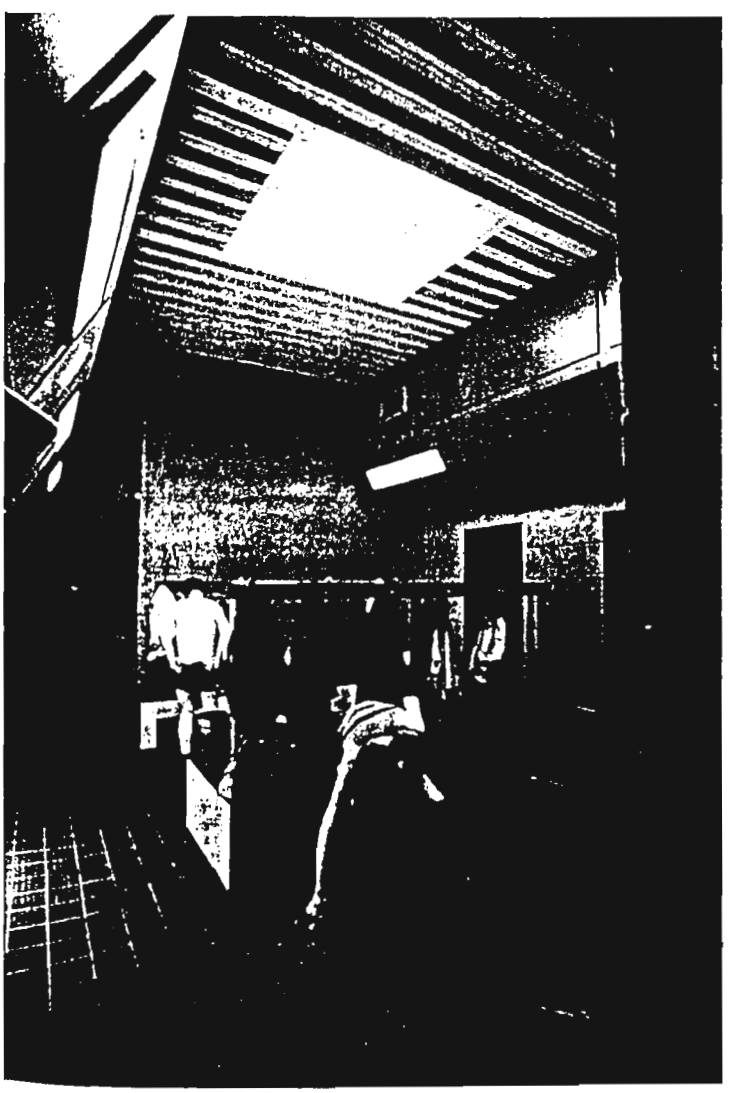
57

Changing areas

Christopher Harper

1 Introduction

The design of changing areas should provide for good levels of user comfort allied with adequate space standards, a clear circulation pattern and finishes which ensure easy maintenance and high levels of cleanliness, 1. With the exception of activities such as badminton, squash and fitness training, sports centres tend to attract a high proportion of team or group activities. This pattern of use dictates that sports are programmed for the principal activity spaces with the result that demand for changing occurs in a series of predictable peaks.

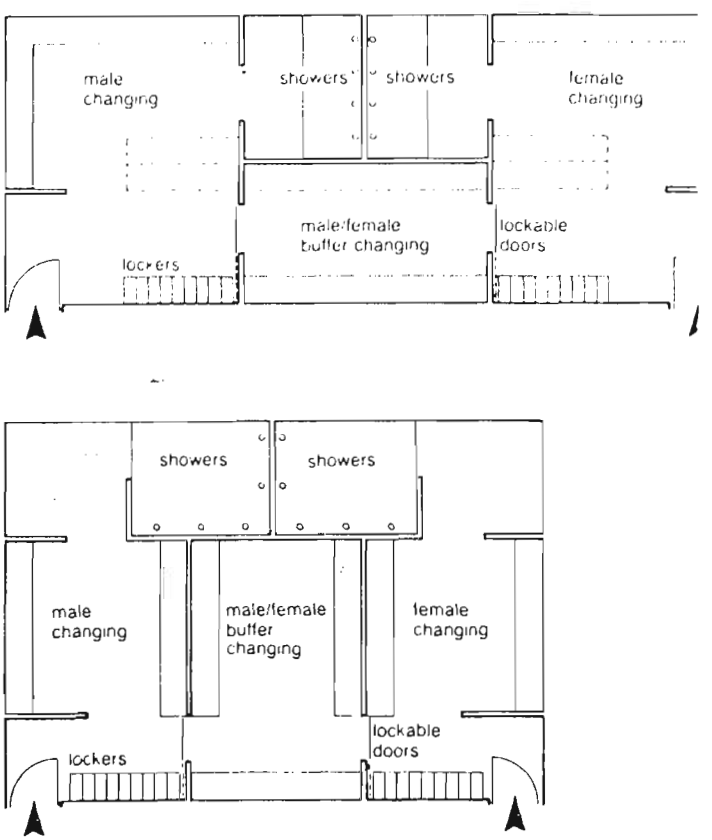


1 *The standard SASH centre changing room. An influential design with built in flexibility and good finishes. Photo: D J Butler*

activities other than aerobics/keep fit and the allocation changing space must allow for flexibility and for group us by clubs and schools. This is generally provided b separate open plan changing rooms, but a small percen tage of cubicle space may be considered, particularly the female side. With this traditional arrangement buff rooms with intercommunicating lockable doors are t best way of accommodating different levels of use and a essential for schools classes, 2. Alternatively, several tea size rooms can be provided and can be allocated for mal female or group use as required. In both cases, surplu capacity can remain locked during slack periods.

The number of changing spaces specified will relate the maximum number of players using the centre facilities plus an allowance for overlap. The method assessing total capacity given below has proved to be useful guideline although requirements for each individu centre should be adjusted in the recognition that, in son locations and for some sports, there will be a tendency f players to arrive ready changed.

- *Main hall*: calculate the maximum number of badmi ton players on the basis of 4 per court. In a fou badminton-court sports hall, this would result in courts × 4 players = 16 players × 2 for overlap in t changing area = 32 spaces. In small centres with only single hall an additional allowance will have to be ma to cater for single sex group activities such as keep fit aerobics. Larger centres with more activity spaces a hence a greater number of changing spaces have great all round flexibility.

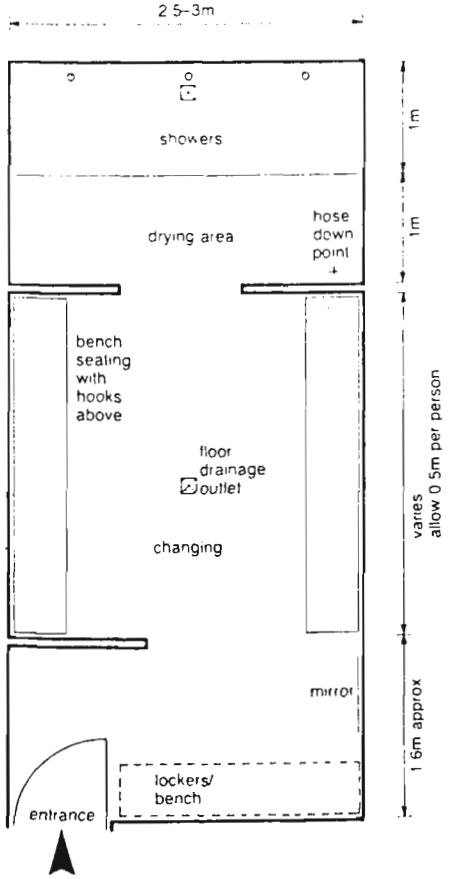


2 *Two examples of buffer room planning to meet the needs fluctuating user levels*

- *Ancillary halls*: calculate on a floor area basis, taking particular account of the needs of martial arts, movement and dance and keep fit groups. Allow one changing space for between 5 and 10 sq m (approx 54–108 sq ft) of floor area × 2 for overlap.
- *Fitness rooms*: changing requirements relate to the number of fitness stations specified. A rule of thumb assessment is one changing space per 5 sq m (approx 54 sq ft) of floor area × 2 for overlap. This can also apply to related facilities such as sun beds, saunas and steam rooms. It is not necessary to include a factor for overlap.
- *Squash courts*: calculate on the basis of two players per court × 2 for overlap. This may be regarded as a minimum space allocation because of the typical 30–40 minute turnover rate of squash courts.

Total changing capacity can be assessed using this method of calculation but on school (joint-provision) sites, the resulting figure will invariably be over-ridden by the numbers required for school physical education classes. A 450–600 mm (approx 1.5–2 ft) run of benching is normally allocated to each changing space; 500 mm (approx 1.6 ft) can be regarded as average.

All finishes will be selected for durability and ease of maintenance and the floor should be specified to be impervious to water with good slip resistant characteristics. Changing benches and cubicles will have to be of robust construction and resistant to moisture with the detailing of floor and wall supports requiring particular attention (refer to Chapters 119 and 101 of this volume). Each bench space should be equipped with 2 rail mounted coat hooks of a snub-nose pattern. Changing room entrance doors will be provided with suitable screening and shelving, mirrors and hairdryer sockets can be located close by, 3.



3 *This simple plan demonstrates the key principles of a changing room layout*

Showers

Showers will be included with male and female changing rooms and the total number of fittings should include an allowance for any additional (buffer) changing space. Shower numbers should be calculated on the basis of 1 per 7 changing spaces. In considering the overall planning, it is important to locate showers as far as possible from entry doors to avoid cross circulation and prevent water migration. It is also important that showers are provided with a dry-off zone laid to falls and with good drainage to control and contain water spillage.

Individual shower compartments are often preferred in female changing rooms, but their inclusion and the consequent need for screens or curtains and individual drainage outlets leads to greater cost. Walls should be tiled and detailing must prevent water seepage into the construction or adjoining areas (see Chapter 8 of Volume 3). Shower fittings should be robust with concealed pipework. Automatic units are recommended to prevent water wastage with a central thermostat to control temperature. Where possible, showers should be planned with a walk-in access duct to conceal pipework and master controls and permit easy maintenance. Inset soap trays should be included and the dry-off area should be fitted with towel hooks. A hose down point is best located in the shower area and a drinking water dispenser included close to established services.

Clothes storage

Clothes and personal possessions are usually stored in lockers operated with coin release/retain mechanisms. Lockers must be of robust construction and planned with sufficient clearance to prevent users obstructing access routes, 4. The most convenient location is in the changing rooms adjacent to benches, but the most cost effective and

4 *Corridor located lockers in SASH offer maximum flexibility between male and female changing rooms and are overseen from reception. Photo: Martin Charles*

easily supervised location is in the circulation space between changing rooms and activity areas. A guideline figure of 2.5 lockers per occupant is recommended based on the occupancy assessment used for changing space calculation. Half-height lockers are usually preferred or a combination of one-half and two-quarter-height stacks. When lockers are placed in changing rooms either in central banks or as wall mounted units, they should be of a moisture resistant specification and raised from the floor on a plinth to protect against corrosion.

2.1 Services

For general details of environmental services recommendations refer to Chapters 60 and 61.

Heating

Areas should generally be maintained at 20-25°C. Underfloor or low level heating should be considered in order to help maintain warm, dry floor areas. Location and protection of the heat emitters has to be considered with regard to safety and vandalism.

Ventilation

A well distributed mechanical ventilation system providing 10 air changes per hour of fresh air should ensure that comfortable conditions are maintained.

Lighting

A general illuminance of 150 lux is recommended. All fittings should be suitably protected against moist atmosphere and potential vandalism.

Power

All outlets should be recessed with protective cover and suitable for use in potentially wet environments.

2.2 Toilets

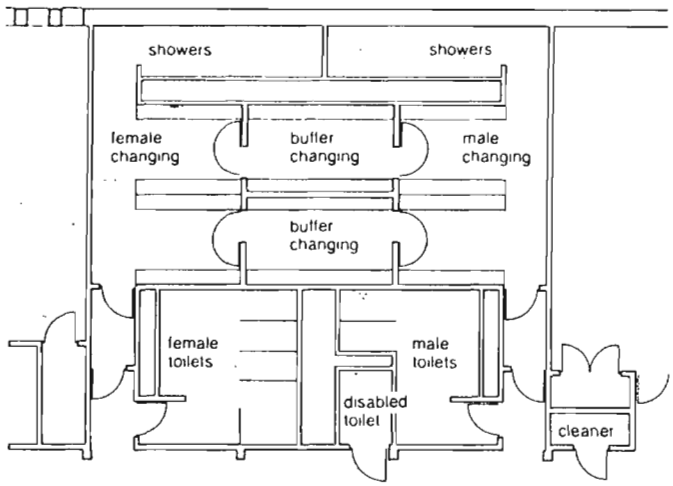
The recommended standards related to changing spaces are:

WCs	1 per 15/20 men
	1 per 7/10 women
Urinals	1 per 15/20 men
Handbasins	1 per 15 men
	1 per 15 women

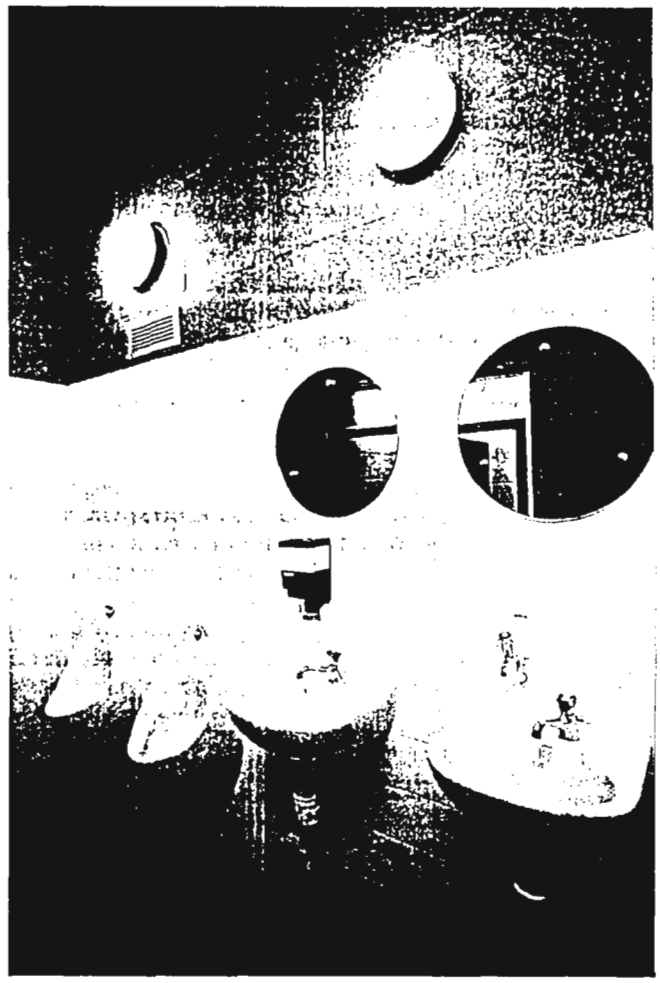
In addition, at least one fully equipped disabled persons WC will be required. This compartment can also be equipped with a changing bench and a showering facility. In small to medium sized sports centres, toilet accommodation will be planned close to changing rooms with perhaps a shared entrance lobby, 5. In large centres or multi-sport complexes, toilets will invariably be dispersed between the foyer, refreshment areas and the changing rooms. Where there is access via changing rooms to outdoor sports facilities it is inevitable that individual toilets are included as part of the changing room brief, 6. For services requirements refer to Chapter 60 of this volume.

2.3 Wet and dry changing

Combined changing accommodation for swimming pool and dry sports users can be considered but, although capital cost savings can result, supervision and the problems imposed by cross-circulation and different user expectations and habits are difficult to resolve. It is more difficult to devise satisfactory circulation routes in this type of plan with the result that outdoor footwear can cause floors to become dirty more rapidly and moisture transferred on to the dry side floor finishes.



5 *SASH toilets and changing rooms share a common approach lobby. An economical solution for smaller sports centres*



6 *Toilets in SASH with easy to clean surfaces and concealed pipework. Photo: D J Butler*

2.4 Outside sports activities

In some centres, and often in joint provision schemes, changing space is shared between indoor and outdoor activities. As a general principle, this shared use should be discouraged unless the outdoor playing surfaces are of an all-weather synthetic construction. A more satisfactory

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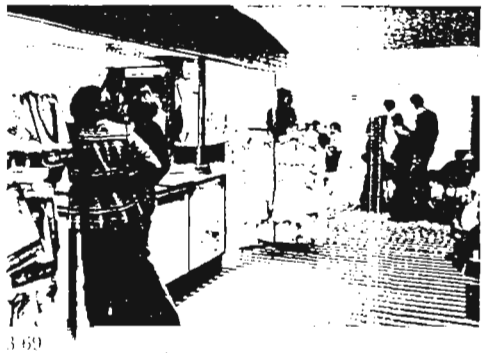

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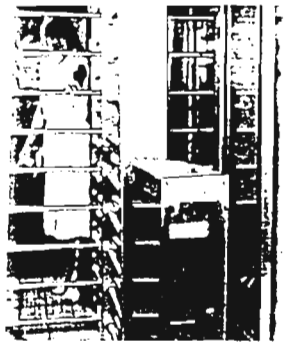

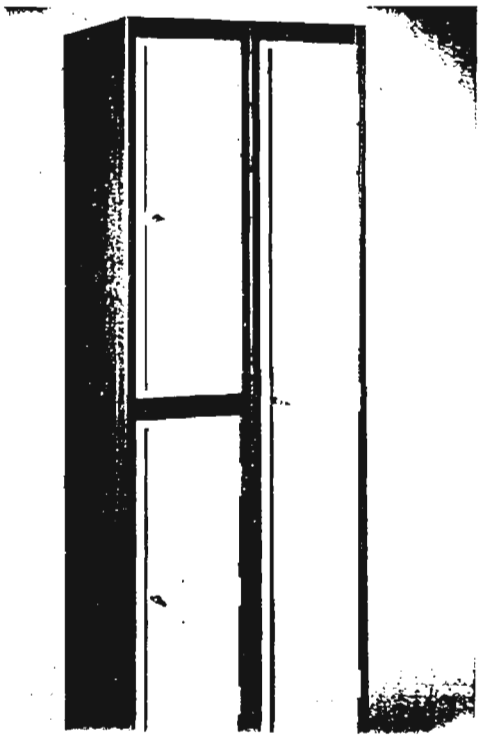

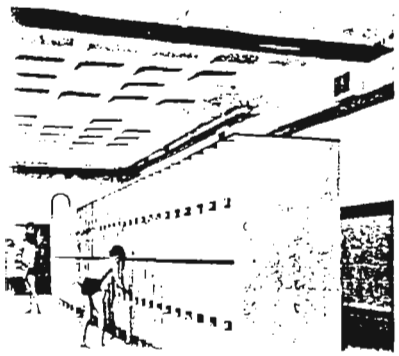

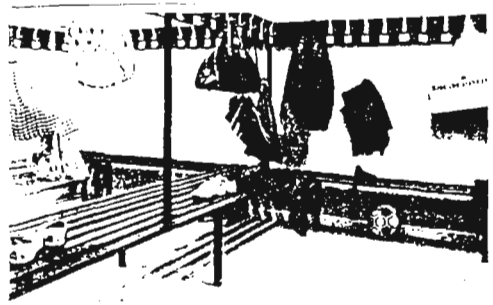

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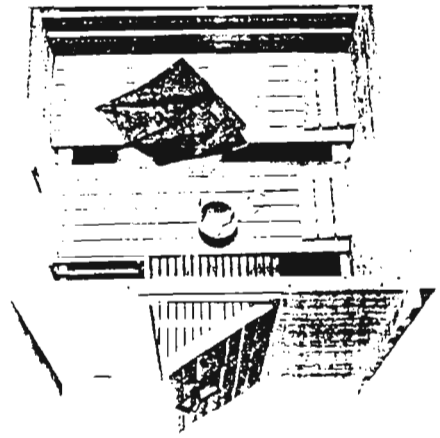

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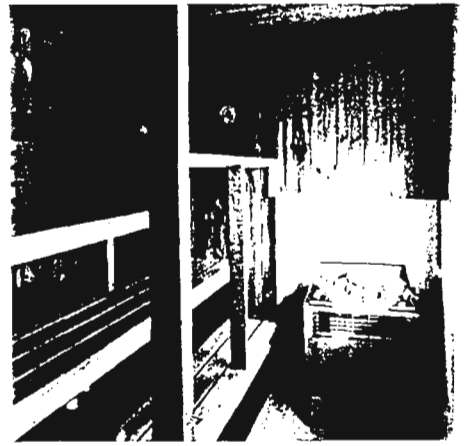

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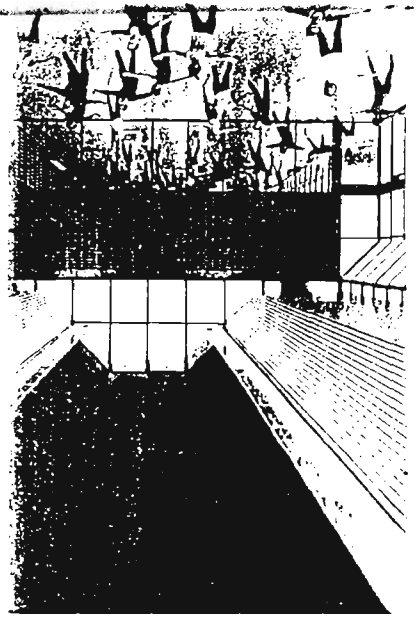
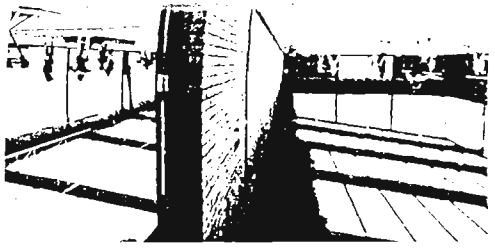
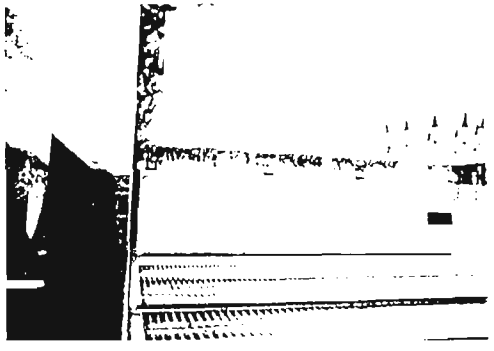
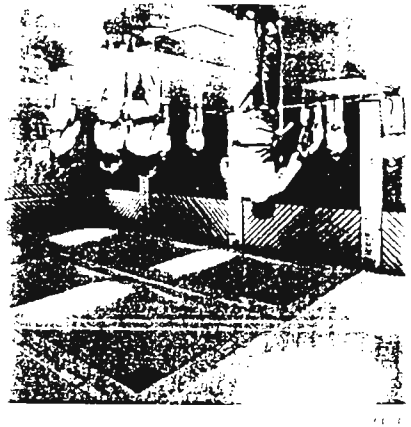
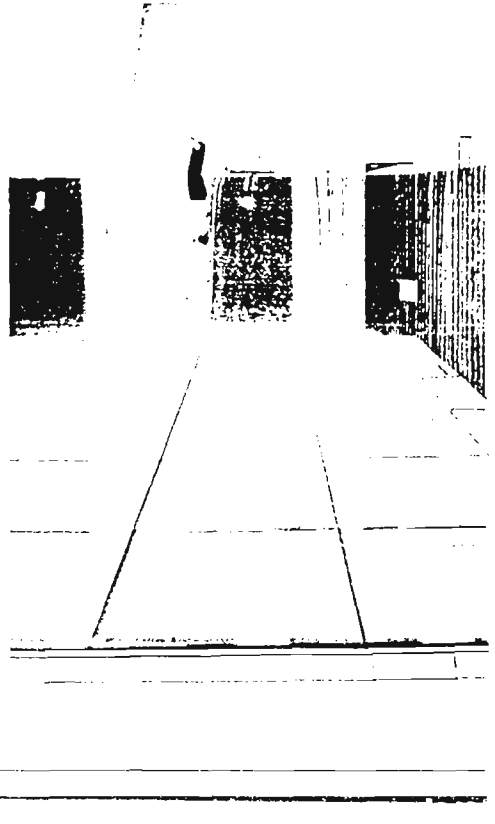
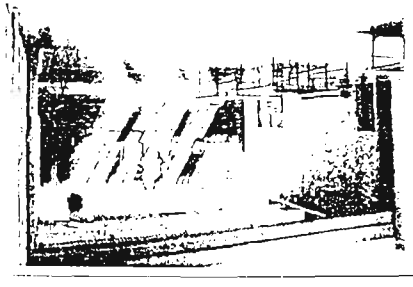


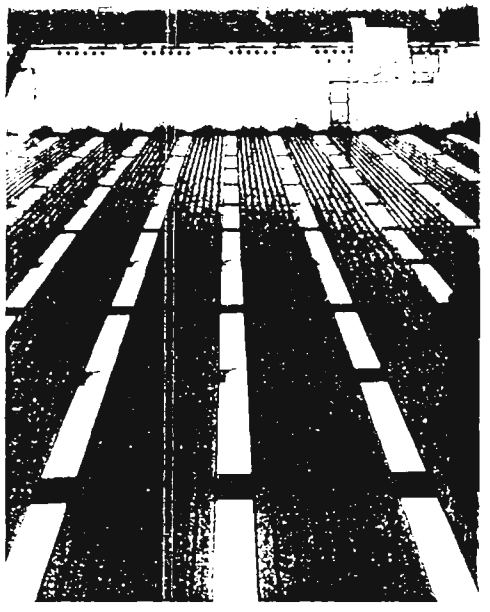


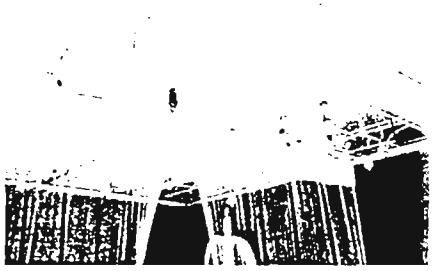


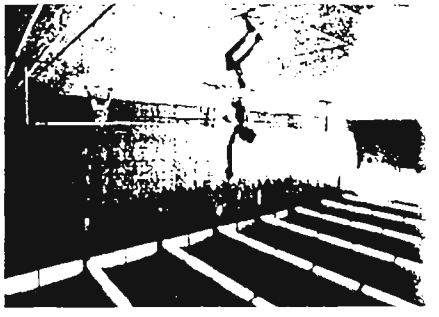


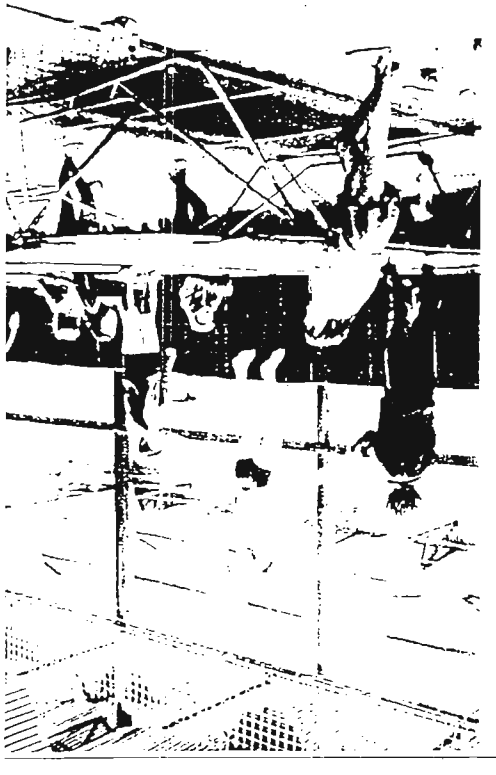












30
Handball: seven-a-side and mini-handball

Peter Ackroyd

1 Introduction

The International Handball Federation (IHF) has standardised the seven-a-side court size to 40×20 m (approx 132×66 ft) but this is still longer than most UK sports halls. The Sports Council has included in its standard sizes of hall a rectangular proportioned large hall to provide full size courts for hockey, handball and korfball (see Chapter 49).

1.1 Critical factors

- Size of hall including safety margins around the court, 2
- No unprotected glazing or breakable light fittings
- Clarity of line markings to avoid confusion with hockey markings
- Projection-free flush wall surfaces
- Adequate temperature for players on substitutes' bench.

1.2 Space

The dimensions given below for county, club and recreational levels of play are less than the standard recommended by the British Handball Association (BHA) for all levels of play but are the agreed minimum court dimensions to promote seven-a-side handball in typical UK sports halls.

The five-a-side version of the game has been discontinued by the BHA. Nevertheless in small halls, where the width is a serious restriction, team numbers are adjusted to the size of court available for recreational play.

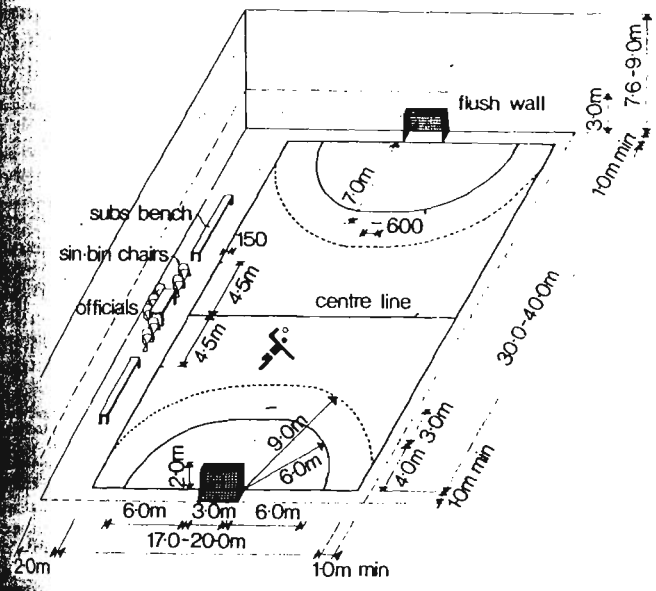
Mini-handball has been developed for 5–11 year olds. This version of the game can take place in a sports hall or school gymnasium (if protection can be given from the projections of wall bars and other equipment), indoors or in the playground. It will fit into Sports Council small halls for local community provision, 3 and 4.

Space table

	International National (N)	*Regional (RG) County (Cy) Club (C)*	*Recreational (R)*
Length	40 m (1)	40-34.5 m min	30 m min
Width	20 m	20-18 m min	17 m min
Side margins minimum	1 m	1 m	None (3)
Officials team bench space, additional one side	1 m	1 m	-
End margins minimum	1 m	1 m	1 m
Minimum overall area	42 x 23 m (1)	42-36.5 × 23-21 m	32 x 17 m (3)
Height (2)	9 m	9-7.6 m	7.6-6.7 m

Note (1): British National League games may be played on 36 × 20 m courts in overall area of 38 × 22 m.
Note (2): Maximum height is an important factor: goal-keepers can attempt whole length lobs to score directly into the opponents' goal. Minimum height recommended by the IHF is 6 m (approx 20 ft).
Note (3): Side wall - side wall play in halls of 20 m (approx 66 ft) or less wide.

1 *Photo: Busser Pressefotograf, Copenhagen*



2 *Diagram of seven-a-side handball space. Note that the international maximum area of court is 40 × 20 m (approx 132 × 66 ft).*

3 *A sport ideal for 5–11 year old boys, girls or mixed teams, indoors or on the playground. Junior handball for 10–14 year olds is now played on a minimum full sized handball court, but with a junior ball. Photo: British Handball Association at Milton Keynes Leisure Centre*

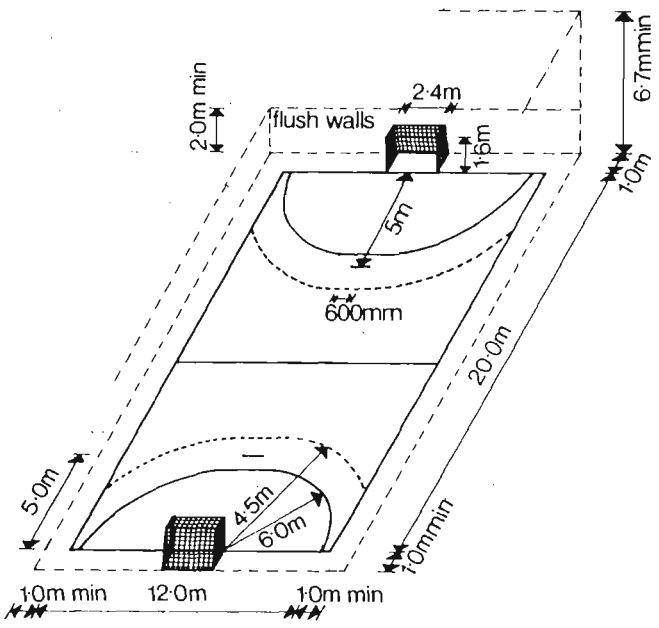
1.3 Floor

A slip-resistant, resilient floor is preferred. Asphalt or tarmacadam surfaces are unsatisfactory for the seven-a-side game. 'Rolling resistance' is important: see Chapter 64.

1.4 Court markings

Lines 50 mm (approx 2 in) wide for seven-a-side handball are included in overall court sizes, **4.** Yellow is required for all markings under IHF regulations. The BHA will accept yellow and black striped lines, using 'hazard' tapes as an alternative for club and national matches. Orange is acceptable for recreational play. There is similarity with hockey dimensions and lines.

Mini-handball can share markings with four or five-a-side soccer in small halls if played from side-wall to side-wall. Courts marked in the centre of a hall should have a 1 m (approx 3 ft 3 in) minimum margin all round and have 50 mm (approx 2 in) wide orange lines.



4 *Diagram of mini-handball court. The goal size is 2.4 m wide x 1.6 m high x 1 m deep (approx 8 ft × 5 ft 3 in × 3 ft 3 in)*

1.5 Walls

Walls should be absolutely flush (as for five-a-side soccer) and up to 3 m (approx 10 ft) high without any projections such as basketball winch gears. Basketball boards should be protected. Clerestory and other windows are best avoided but if provided they must be protected, for example with steel mesh.

1.6 Spectators

Handball is a growth spectator sport in Europe and it could increase in the UK. The BHA suggests allowing for 50–250 spectators at national league and club matches with up to 1000 or more at finals and internationals. Spectators should be sited at least 2 m (approx 6 ft 7 in) from the side lines and restricted near or behind goals.

1.7 Internal environment

For general details of environmental services recommendations refer to Chapters 60 and 61.

1.8 Storage

Storage will be required for goal units made up of 80 mm (approx 3 in) square posts and cross-bar to withstand the force of ball rebounds. For recreational games dual-purpose handball/hockey units may be acceptable but thin hockey goals can be damaged by the ball.

Storage is also required for an officials' table, seven chairs, team benches, match control equipment and scoreboard.

For mini-handball storage will be required for goal units only.

2 References and further advice

British Handball Association.
Hockey datasheet, Chapter 31.
Korfball datasheet, Chapter 35.

44
Volleyball and mini-volleyball

Peter Ackroyd

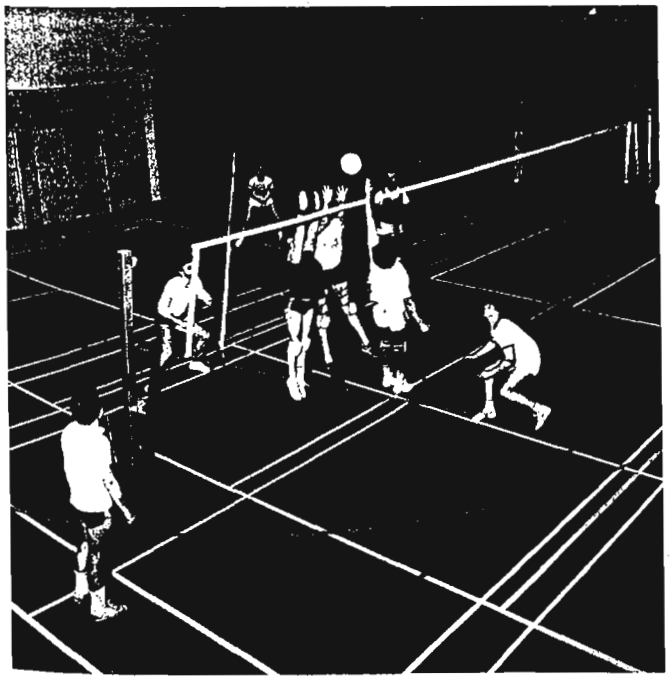
1 Critical factors

- Overall area including safety margins around the court
- Adequate height
- Floor surface and permanent sockets for net posts
- Siting of court to maximise multi-sports use of floor
- Environment.

1.1 Space

Provided the court has a safety margin of not less than 2–3 m (approx 6 ft 6 in–10 ft) all round, this game can be played anywhere in a common sports space. In its equipment and facilities guide, The English Volleyball Association (EVA) recommends that sports halls should be wide enough to accommodate a volleyball court width-ways to maximise the use of floor space and allow other activities to take place at the same time. For regional standard play and below this is possible in halls with a width of 24 m (approx 80 ft) or more while national standard play is possible in 28 m (approx 92 ft) wide halls with an increased clear ceiling height of 10.5 m (see Chapter 49).

When volleyball is set out in small halls so that other activities may take place at the same time, the court should be placed to one end allowing space for other sports behind curtaining (see Chapter 49).



1 *Photo: Sports Council Publications*

Space table

	International	*National (N)*	*Regional (Rg) County (Cy) Club C)*	*Recreational (R)*
Playing area				
Length	18 m	18 m	18 m	18 m
Width	9 m	9 m	9 m	9 m
Backline clear space	8 m	3 m min	3 m	2 m min
Sideline clear space	5 m	3 m min	3 m	2 m min
Officials' space additional on one side	3 m	2 m	2 m	–
Spectators' margin addition on the other three sides	3 m	2 m	–	–
Minimum overall space				
Area	40 × 25 m	28 × 19 m	24 × 17 m	22 × 13 m
Clear height	12.5 m	10.5 m(1)	7 m	7 m (2)

Note (1): Increased unobstructed height recommended by the English Volleyball Association from March 1994.
Note (2): 7 m is preferred but 6.7 m is acceptable for mini-volleyball with a lower net.

1.2 Floor

The main aim in volleyball is to prevent the ball touching the floor, but on many occasions players will come into contact with the floor when playing the ball. A basic technique of volleyball is the forward dive recovery shot which results in the player landing on his chest and sliding forward. This means:

- Because of the large numbers of jumps and landings by players, a slightly flexible floor of sprung wood, resilient vinyl or the like is preferable to a rigid floor
- Cork tiles, tarmacadam and felt type finishes are totally unsuitable for halls where volleyball is played
- The EVA requires that net posts be of the floor-socket type and not held down by weights; for socket details consult equipment suppliers
- The floor must be smooth and non-abrasive but not slippery
- The surface must be splinterproof
- Where floor fittings are inserted they must be flush fitting
- Channels for sliding partitions should not run across volleyball courts
- Roll-down portable courts (used for major events) can be obtained to order and size.

1.3 Net

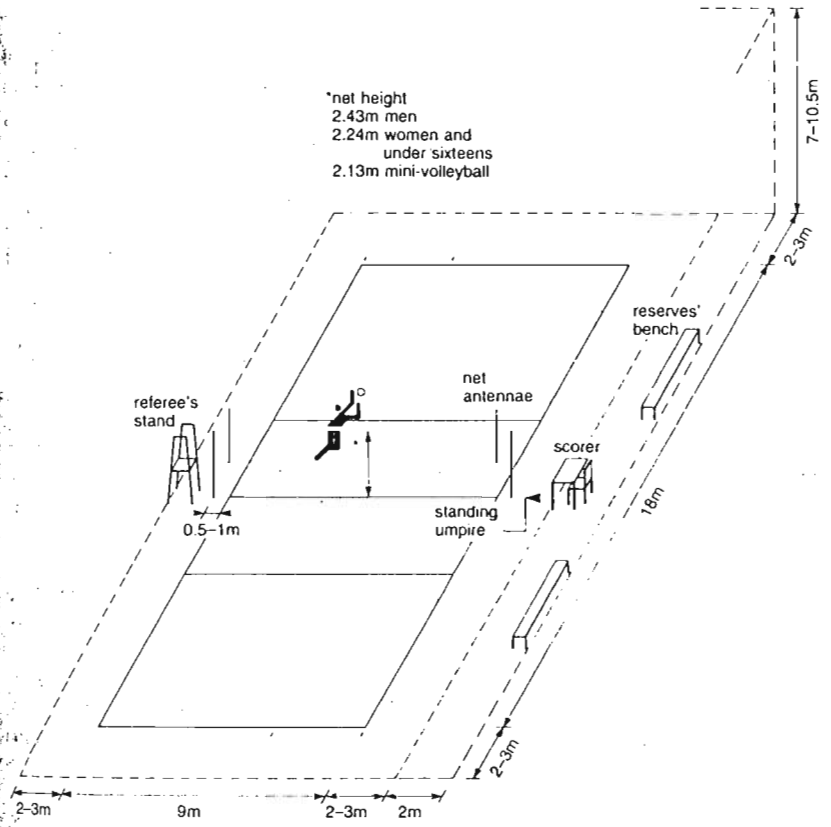
The net, as dimensioned in 2, is held by two heavy-duty galvanised mild steel tubes of 2.55 m (approx 8 ft 4 in) height. They must be held in floor sockets, set at a distance of between 0.5 m (20 in) and 1 m (3 ft 3 in) from each side line; they must not be held in position by weights or wires. The posts must be round and smooth, with no stays or dangerously protruding parts of any kind.

1.4 Court markings

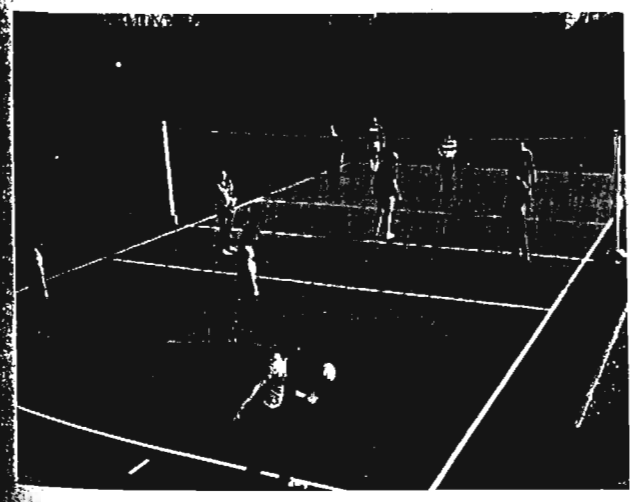
The lines, 50 mm (approx 2 in) wide, are included in the area of the court and should be green although other colours are acceptable if there is sufficient contrast with the floor colour and other lines. Portable roll-down courts are marked in white.

1.5 Spectator facilities

Volleyball is a highly popular spectator sport in most countries of the world and particularly in Europe. Spectator facilities should be along the side of the court so that play in both halves of the court can be watched. For international matches the court is normally placed centrally within the seating.



2 *Space diagram. A 3 m (approx 10 ft) zone is recommended all round the pitch (see space table). Note various net heights including mini-volleyball*



3 *An outdoor portable court. Photo: Spurgeon Wallis Associates and Ruberoid Ltd*

1.6 Walls

White or light-coloured walls and doors should be avoided as the ball is white.

1.7 Internal environment

For general details of environmental services recommendations refer to Chapters 60 and 61.

Background heating only is required. International rules require a minimum of 10°C for players but if spectators are to be accommodated a temperature of at least 15°C is required. For international competitions the temperature must be 16-25°C.

Lighting

Because the action is fast, good lighting levels are required. For further details refer to Chapters 60 and 61 and the *CIBSE Lighting Guide, Sports.*

Acoustics

Walls and ceiling should be designed to reduce reverberation time. The game is noisy and should not be played near quieter games such as badminton.

1.8 Storage

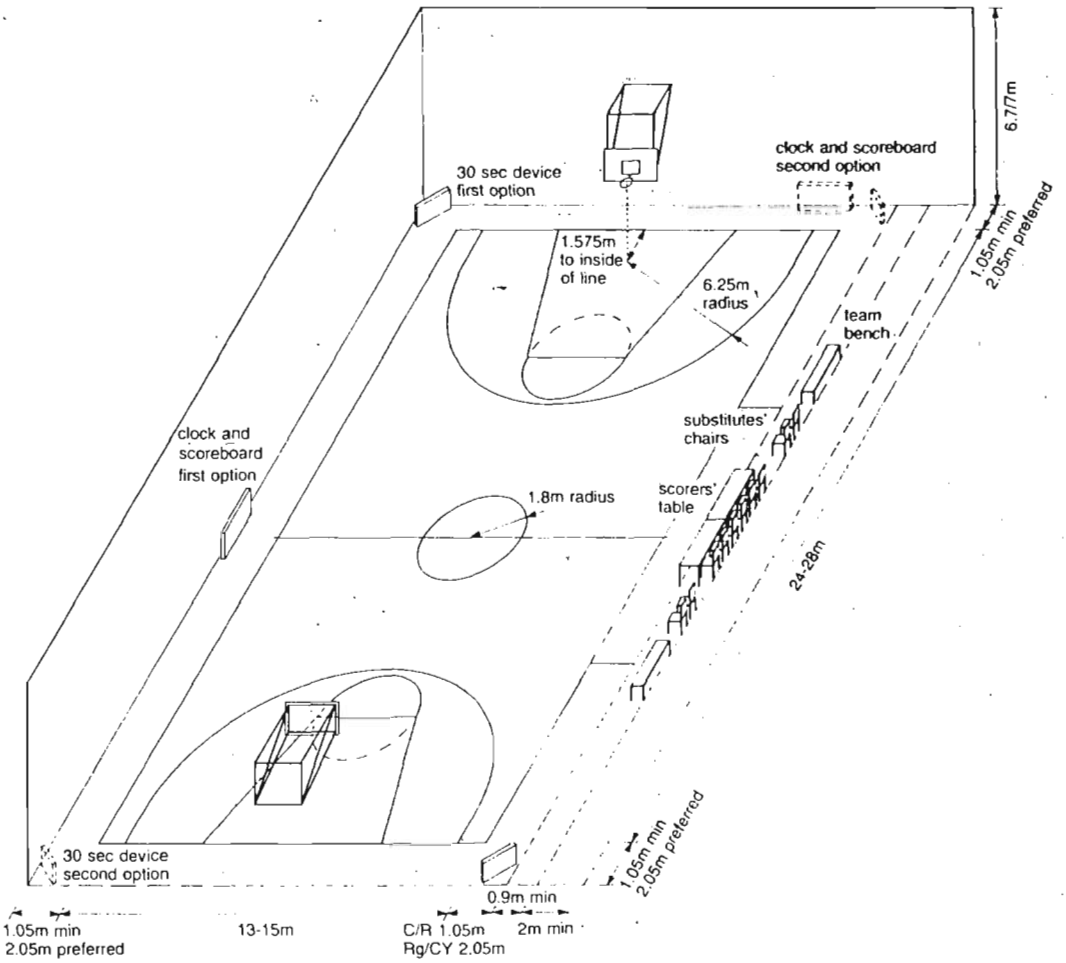
Storage is required for the rolled-up net, which measures approximately 1 m × 300 mm in diameter (approx 3 ft 3 in × 1 ft), posts and net height-gauge. For matches storage will also be required for officials' tables, control equipment and a referee's stand approximately 0.6 × 0.75 × 2.1 m high (approx 2 ft × 2 ft 6 in × 7 ft).

2 References and further advice

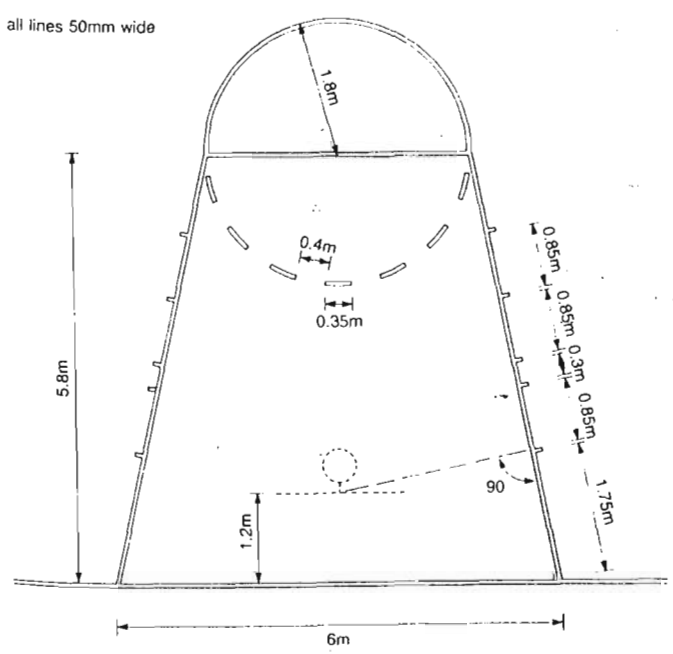
International Volleyball Federation.

Sports Council, *Arenas*, Sports Council, London (1989) (includes details of additional accommodation for national events).

The UK governing bodies for volleyball.



3 *Space diagram. Note that courts are set out with a wider space along one side for the scorer's table and team benches. This is obligatory for competitions. The officials seated at the table must be able to see the court clearly. The table may be raised on a low platform which should not obstruct spectator sightlines. Different types of support for goal units are shown. In small halls, side folding, wall supported units at both ends are generally specified. In large halls, up to 5 m projections from rear walls are possible or units are hung from the roof structure. Alternatively a pair of free standing mobile units require storage space. Note that in school gymnasia all the safety margin widths should be clear of wallbar projections. Wallbars at the ends of courts should be removed or well padded to a minimum height of 3 m (approx 10 ft). See also fotnote (3) of Space Table.*



4 *Diagram of restricted area and free throw lines*

Space table

	N/NL	*Rg/Cy/C(TD)*	*C(LD)/R(3)*
Court dimensions			
Length (1)	28 m	28–24 m	28–24 m
Width (1)	15 m	15–13 m	15–13 m (4)
Out-of-bounds surround (2)	2.05 m min	2.05 m	1.05 m min (4)
Extra one side for officials and team areas (5)	3 m	3 m	C: 0.9 m min (4)
Overall minimum dimensions			
Area (1)	32 × 22.1 m	32.1 × 22.1 m to 28.1 × 20.1 m	C: 30.1 × 18 m (1) to 26.1 × 16 m (4) R: 20.1 × 12.1 m (3)
Height, clear minimum	7.0 m	7.0 m	C: 7.0 m R: 6.7 m (6)

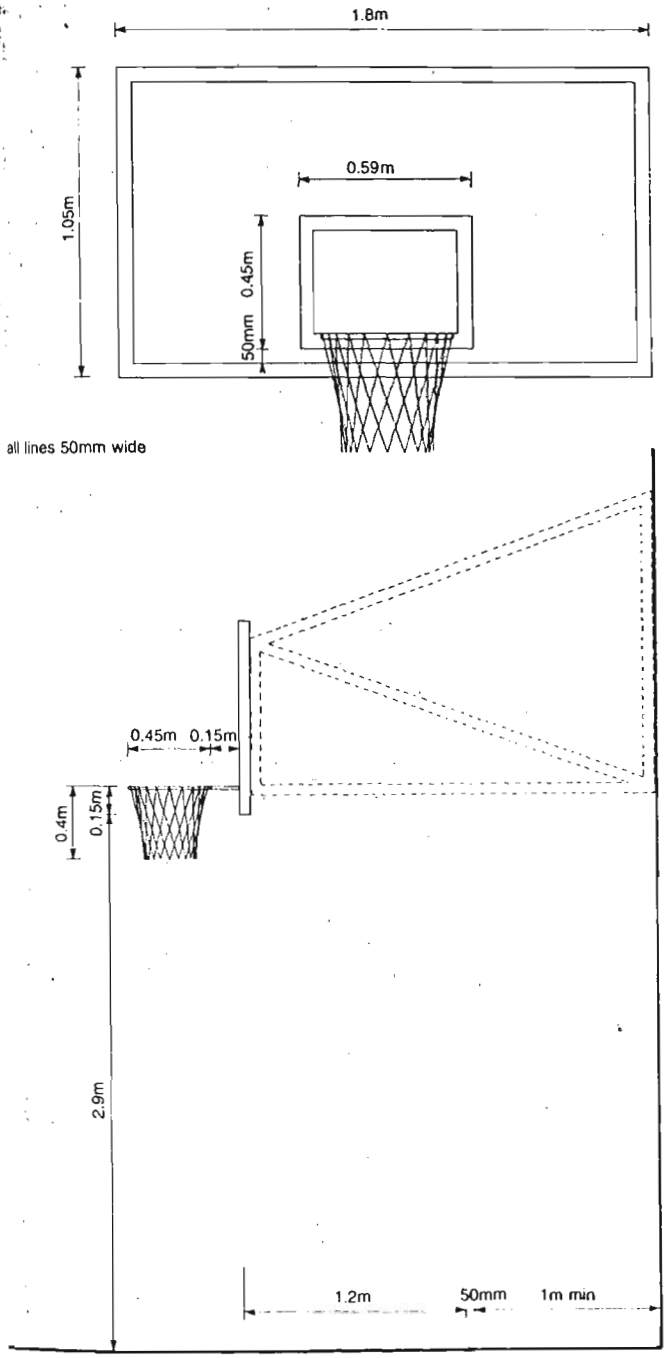
Note (1): All new courts should be constructed 28 × 15 m (see Court Markings below) in an overall area of 32.1 × 22.1 or 18 m minimum width for local competitions. For all domestic competitions on *existing* playing courts, dimensions which fall within the following limits are permitted: 4 m off the length and 2 m off the width, provided that the variations are proportional to each other (for example 26 × 14 m). In an EBBA modified Rule it is permissible to extend the width to 15 m subject to note (4) below where existing permanently fixed backboards make it impossible to increase the length from 26 to 28 m.

Note (2): An area free from obstruction of at least 2.00 m must be provided *outside* the boundary lines around the entire playing court. This may be varied only in respect of C/R courts as noted in notes (3) and (4) below. Taking into account the thickness of the boundary lines the out-of-bounds area extends 2.05 m around the court which is measured to the inside of the boundary lines. See Spectators below.

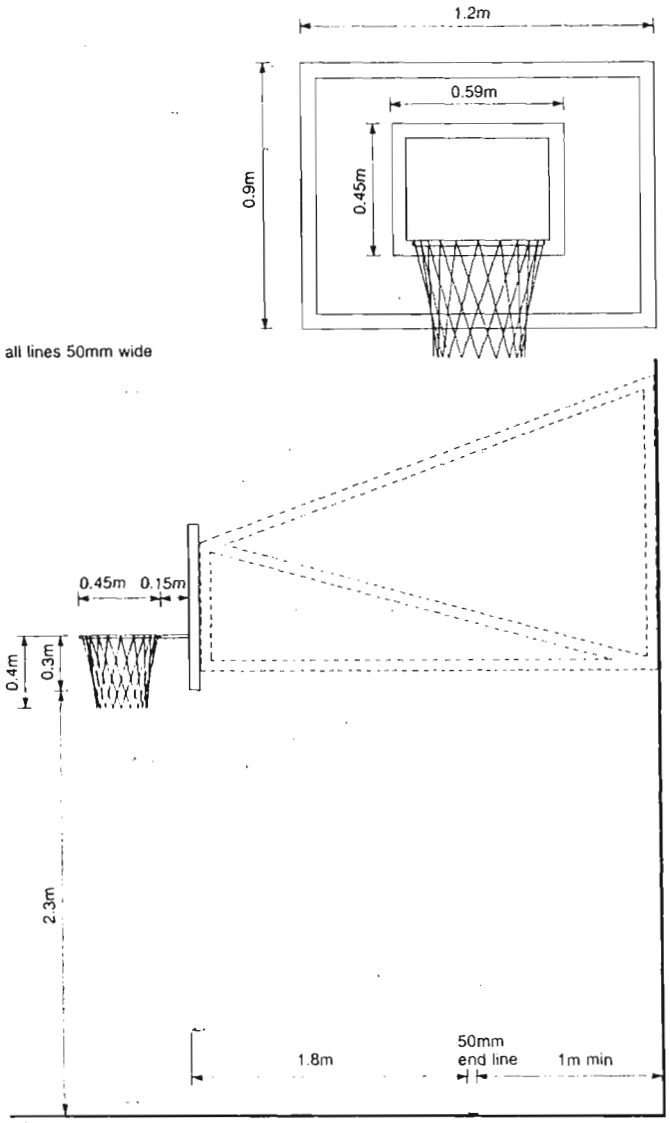
Note (3): *Recreational and local club competition play.* The EBBA also recommends the use of smaller sized school gymnasia, where court dimensions are reduced in proportion by 0.5 m in width for each 1 m reduction in length. However, the court should, if possible, be at least 13 m wide to give space between the corners of the court and the three-point goal arc. End out-of-bounds space must be 1 m minimum clear of wall bars and other fixtures, but side margins may be less provided all protrusions within 1 m of the lines are safely padded.

Note (4): In existing 17 m wide halls, assuming that a 1.05 m out-of-bounds area continues to be adequate for local competitions, the EBBA 'would prefer the basketball court to be marked out 26 x 14 m so as to leave adequate space around the court' for players and officials. Therefore a 26 x 14 m court should be marked out 1.05 m from one side wall. This provides a 1.95 m wide space along the other side including a narrow width for match officials and team benches, as alternatively shown in 1.

Note (5): Note that the revised recommended layout of team bench areas, scorer's table and substitutes' areas shown in 1 includes safety separation between officials' and teams' benches and spectators (EBBA *Guidelines for Control and Safety of Spectators*).



5 *Diagrams of backboard and goal (new specification, 1990–94)*



6 *Mini-basketball backboard and goal dimensions*

edge of the basketball ring, the distance to the free throw line will be the specified 4 m. Therefore no extra markings are required on the standard basketball court for the playing of mini-basketball.

7 References and further advice

The governing bodies of basketball.

Basketball outdoors: see Volume 1, Chapter 41.

British Standards Institution, *BS 1892: Specification for Basketball and Mini Basketball Equipment*, BSI, Milton Keynes.

Chartered Institution of Building Services Engineers, *Lighting Guide – Sport*, revised, CIBSE, London (1990).

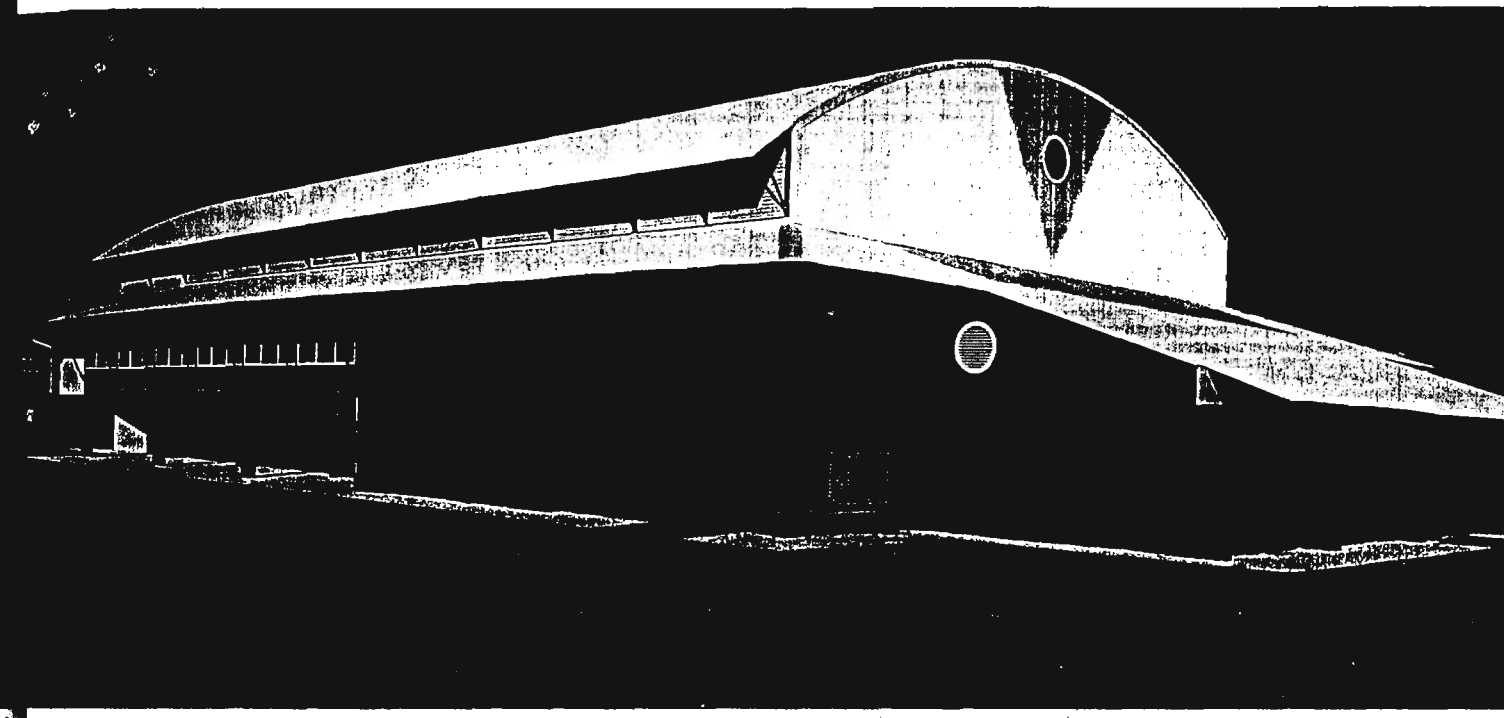
English Basket Ball Association, *Marking a Basketball Court*.

Guidelines for Control and Safety of Spectators, in *Guide to Safety*, EBBA.

English Mini Basket Ball Association.

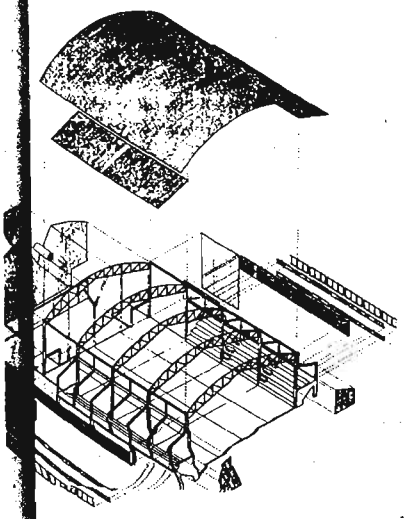
Manufacturers of sports equipment.

Sports Council, *Arenas: A Planning, Design and Management Guide*, Sports Council, London (1989).



This sports centre in a South African township fulfils wider community needs as well as a range of sporting functions.

SPORTING GESTURE



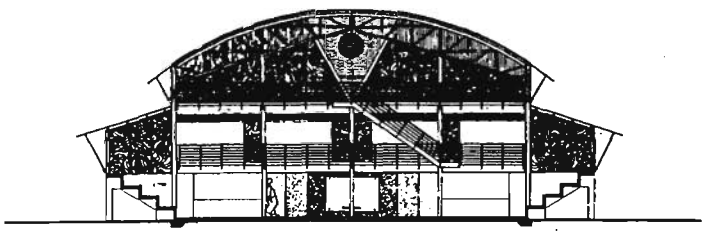
axonometric

Gugulethu (meaning 'our pride' in Xhosa) is a sprawling township on the wind-swept Cape Flats outside Cape Town. This sports centre in Gugulethu was commissioned by the National Sports Congress as the first in a proposed series of cost-effective indoor sports centres to be built in townships throughout South Africa. The sports building programme is a response to a report published by the Community Agency for Social Enquiry (based at the University of Witwatersrand) which revealed that 60 per cent of the country's youth were active participants in one or more forms of sport. Yet although sport clearly has the potential to play an important part in youth development, there is an appalling dearth of facilities in most townships.

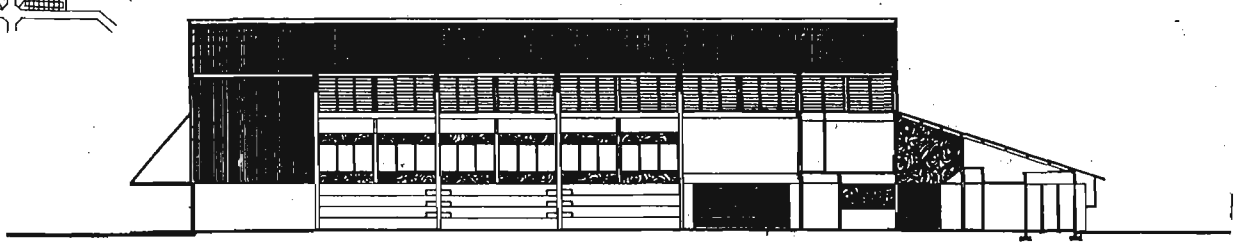
The new centre in Gugulethu has a twofold brief. Essentially it provides a much-needed sports facility for the township, but equally important is the notion that the centre can support youth development through sporting activities. In this way, the building embraces both sporting and community needs.

The centre is set in a sports field surrounded by mainly single-storey houses. The dominant element of the new building is a large multi-use hall, which can accommodate 12 different kinds of sporting activities, from table-tennis to basketball, supported by the usual changing and ablutionary facilities. There are also committee rooms, meeting areas and general social spaces. The

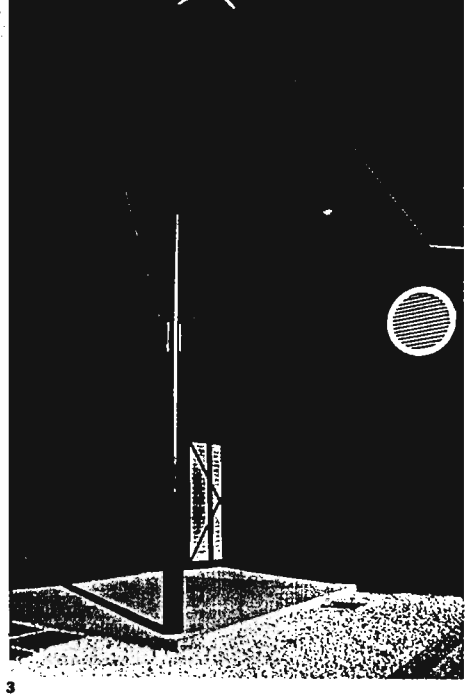
site plan



cross section



longitudinal section



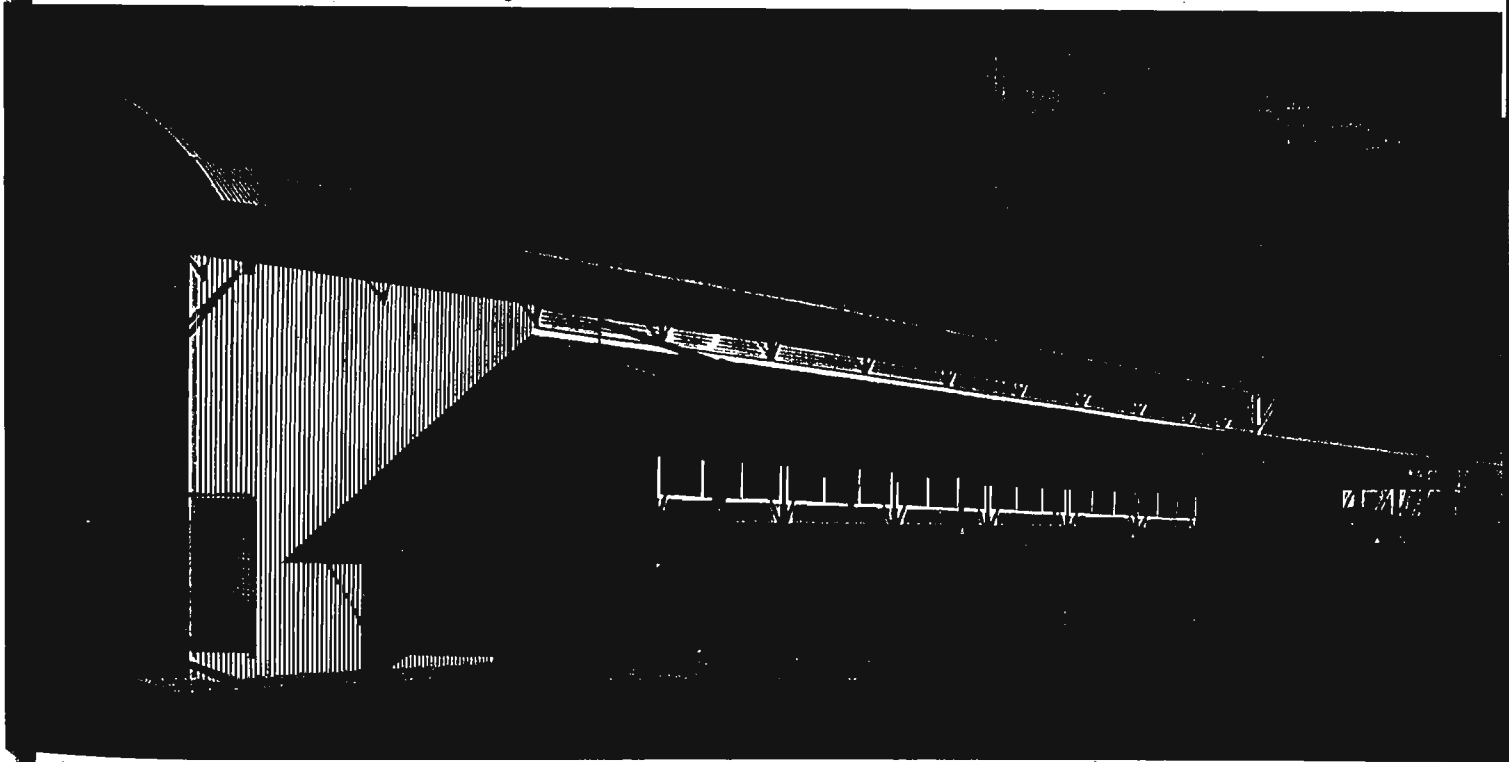
3

Sports and community centre, Cape Town, South Africa

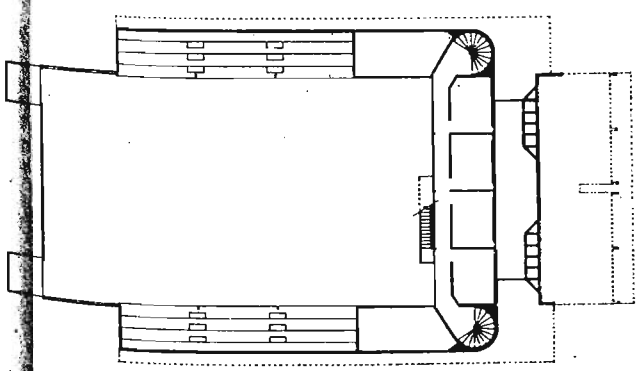
Architect

Jo Noero Architects

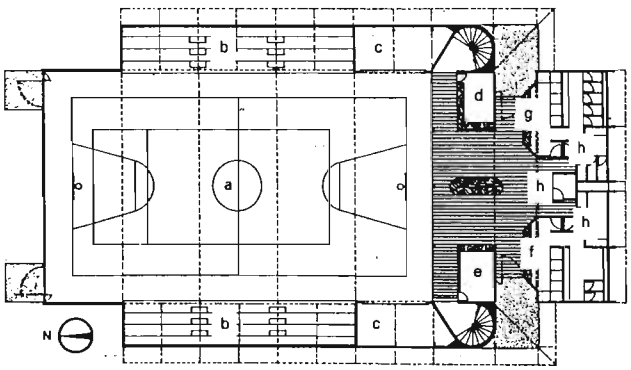
1
The scale of the building is broken down by wrapping the ancillary accommodation around the main sports hall.
2
Detail of side elevation.
3
Oversailing entrance canopy.
4
Tiers of seating register as corrugations on the side walls.



a ports hall
b ked seating
c ore room
d ck shop
e fice
f ale changing
g male changing
h cs
i eeting rooms



nd floor plan (scale approx. 1:500)



first floor plan

Sports and community centre, Cape Town, South Africa
Architect
Jo Noero Architects

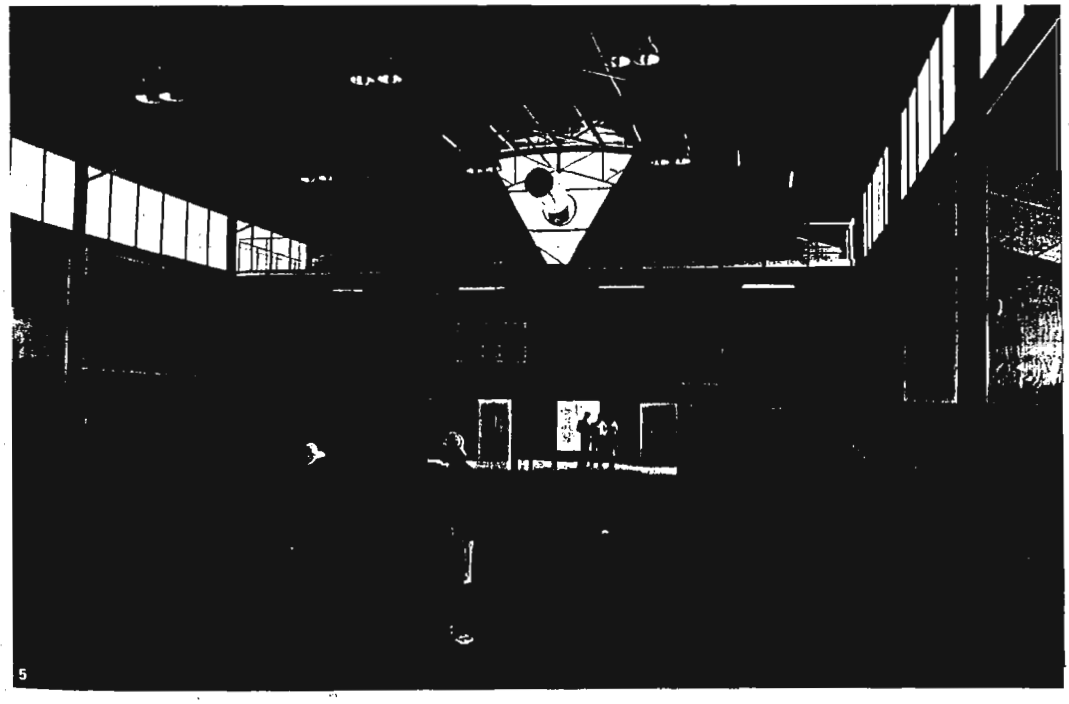
5
The main hall can accommodate 12 different kinds of sporting activities.
6
Materials and detailing have an ascetic yet robust refinement.
7
Top-lit space between the main hall and chenging areas.

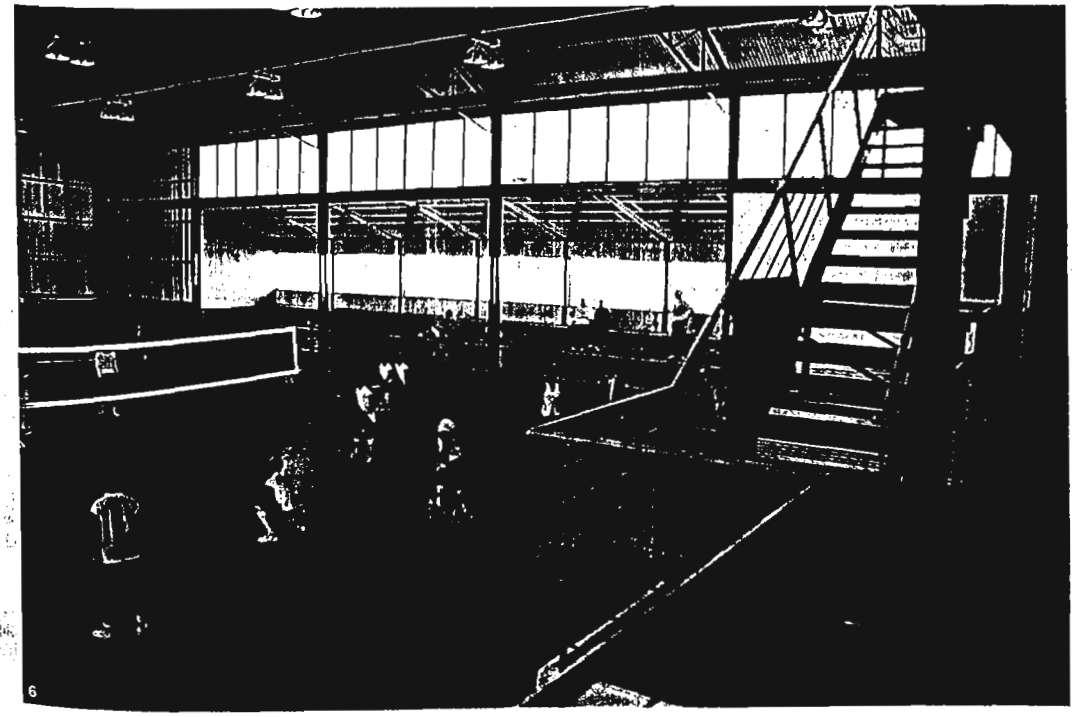
ancillary accommodation is wrapped around the main volume of the sports hall, reducing the scale of the overall composition and articulating the elevations. Tiers of seating running along edges of the sports hall register externally as corrugations on the side walls. The large, barrel-vaulted volume of the hall is fully revealed on the north elevation, creating a sense of civic presence.

In common with his other projects for South Africa's townships (AR July 1994 and March 1995) Jo Noero's latest building embodies a culturally neutral yet strangely poetic functionalism. Despite their apparent simplicity, materials and detailing have a robustly ascetic refinement. The steel-framed structure is infilled with different materials, including concrete blocks and plywood. The process of construction is didactically revealed through the assembly of materials and their relationship to the steel frame.

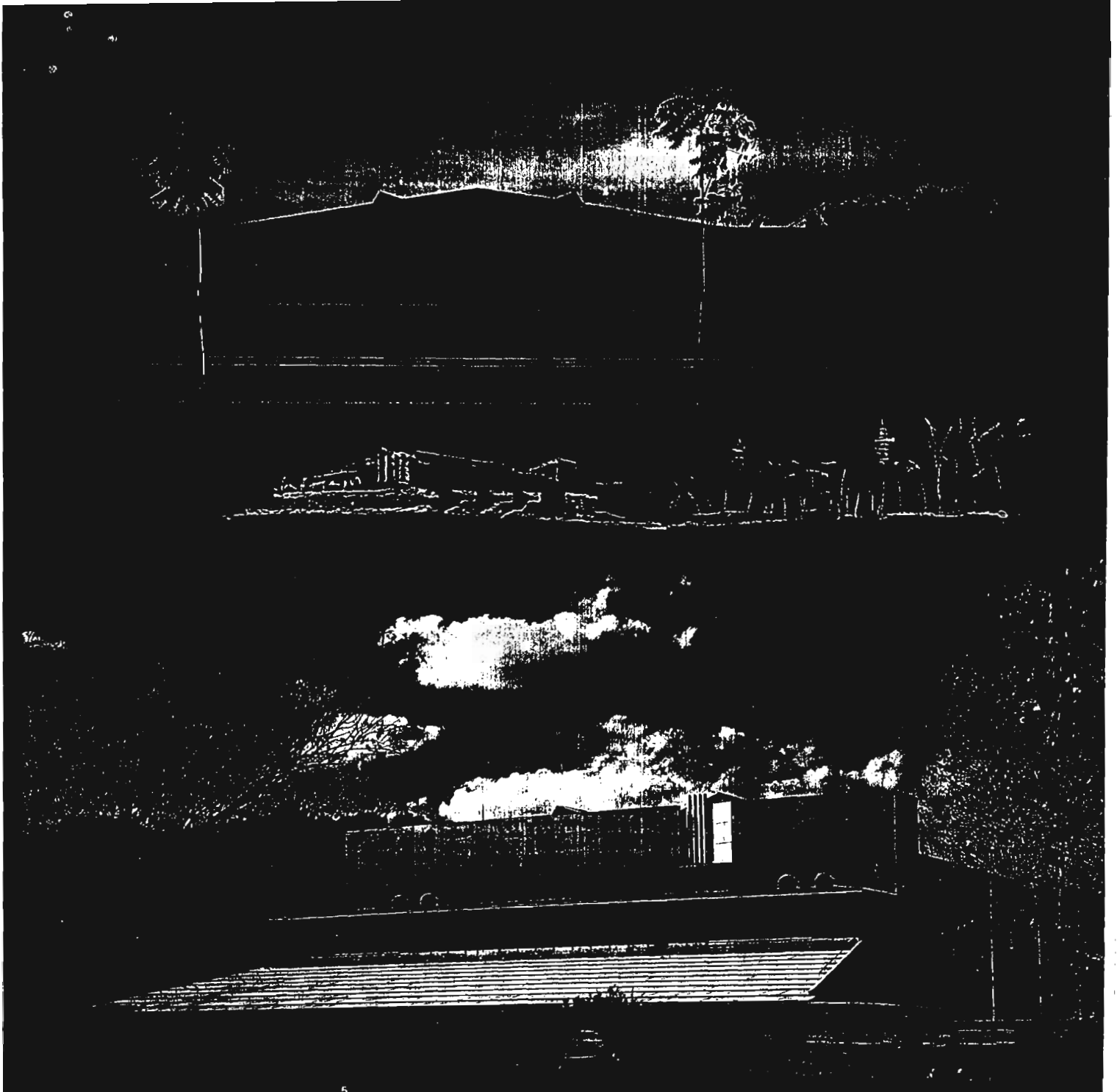
The centre was constructed by a firm of local builders who entered into a joint-venture partnership with a prominent Cape Town based contractor. The contractor undertook to train workmen on site as well as transfer management skills to an individual seconded by the community as building manager.

The centre is run by a committee drawn from the community and is managed by a full-time sports and community development officer. Typical projects include sports programmes as well as educational and life skills development, but since it is the only facility of its kind on the Cape Flats, it is hugely over-subscribed. Its uplifting influence is also a drop in the ocean – it is envisaged that an additional seven centres need to be built during the next three years to deal with the pressures in the area. C.S.

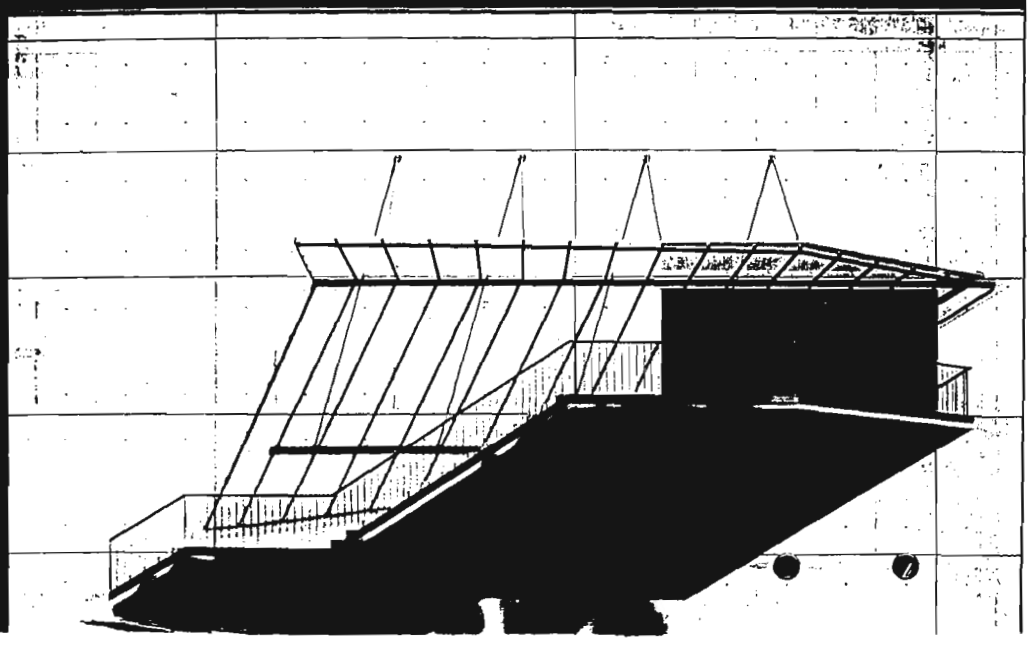




Architect
Jo Noero Architects
Associate architect
Meirelle and Lawson
Project team
Jo Noero, Heinrich Wolff, Quinton Lawson
Engineer
De Villiers and Hulme
Quantity surveyor
Walters and Simpson
Contractor
Dekon Construction



5



he sports centre in its sylvan setting

he massive flank walls punctuated
y escape staircases and canopies.

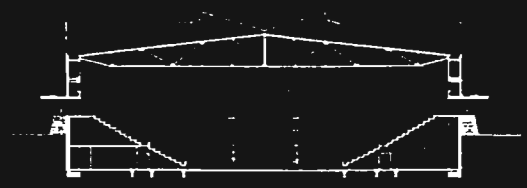
lorth-west elevation, a thin sliver of
orizontal elements.

outh-east elevation with heroic
taircase.

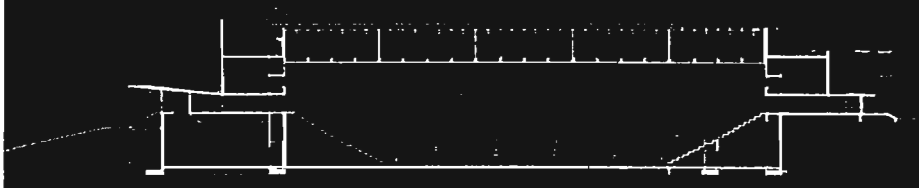
anopies and staircases cast rippling
hadows on the stark concrete
urface.

Sports centre, Girona, Spain
Architects
Bonell & Gil

cross section (looking north-west)



cross section (looking south-east)



longitudinal section

6

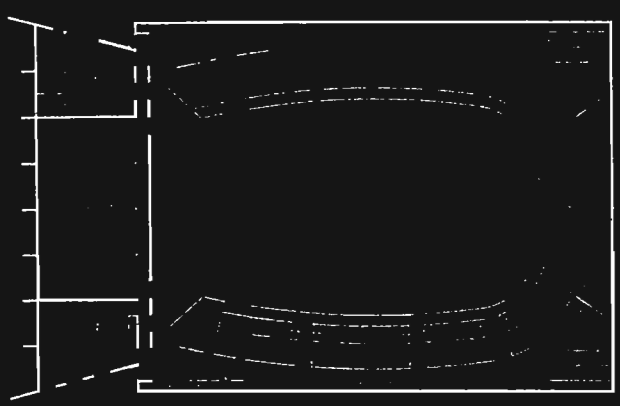
intricacies concealed below. Instead, the prevailing sensations are of drama and light, orchestrated by a heady eruption of scale, as the building seamlessly expands from meditative cloister around the perimeter to the full-blown, cavernous maw of seats and spectacle at the heart of the building. The arena itself is an expression of pure form, like a classical amphitheatre, or perhaps more appropriately, in this Spanish context, a bullring. Daylight penetrates the bowels of the cavern from symmetrical ranks of saw-toothed rooflights and also filters in from the perimeter cloisters.

Informed by elegant economies of form and materiality, Bonell & Gil's building works as both a social focus and modest civic monument. The complex has the lean, muscular poise of a gymnast, distilled with invigorating clarity into tautly functional architecture.

CARLA BERTOLUCCI

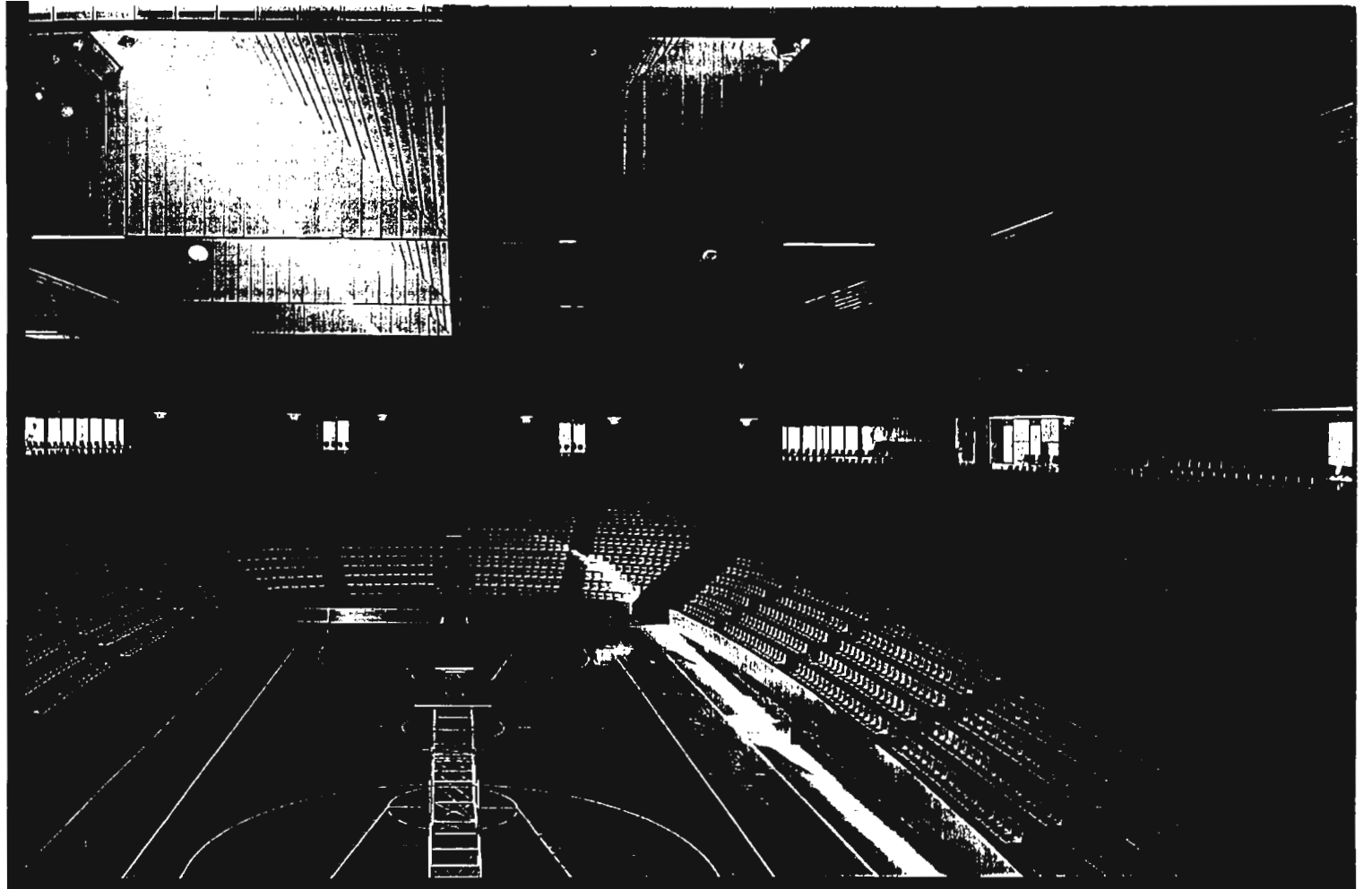
upper level plan (scale approx. 1:1500)

7



lower level plan

Architect
Bonell & Gil
Project team
Esteve Bonell, Josep Maria Gil, Serge Butikofer, Josep Llobet, Thomas Lussi, Desirée Mas
Structural engineer
Brufau & Obiols & Moya
Photographs
Lluís Casals



6
The gladiatorial arena.
7
The cloister-like perimeter expands into the maw of the arena below
8
Subterranean training hall

17
Archery

Peter Ackroyd

1 Introduction

Indoor shooting ranges must not share a hall with other simultaneous sports activities, even if separated by a net or barrier. Any sports or practice hall which is compatible with the dimensional and other requirements given below is probably suitable for archery.

1.1 Critical factors

- The 20 yd round is the only remaining UK official distance kept in Imperial measurement
- Archery must not share a space with any other simultaneous activity or users; see safety notes below
- Overall area of space including the safety margins and nets surrounding the shoot
- The increased minimum height above the shoot, clear of all obstructions and fittings
- Access and viewing must be only from the rear of archers
- Other safety precautions, including location of unlocked doorways, balconies and danger notices.

1.2 Space

The official distances of rounds for all standards of archery are:

- 18 m (approx 59 ft)
- 20 yd (18.29 m)
- 25 m (approx 82 ft)
- 30 m (approx 98 ft 6 in).

Note that there is no longer a 15 yd Imperial distance.

A minimum clear ceiling height of 3 m is required and preferably higher.

The official diameters of target faces are:

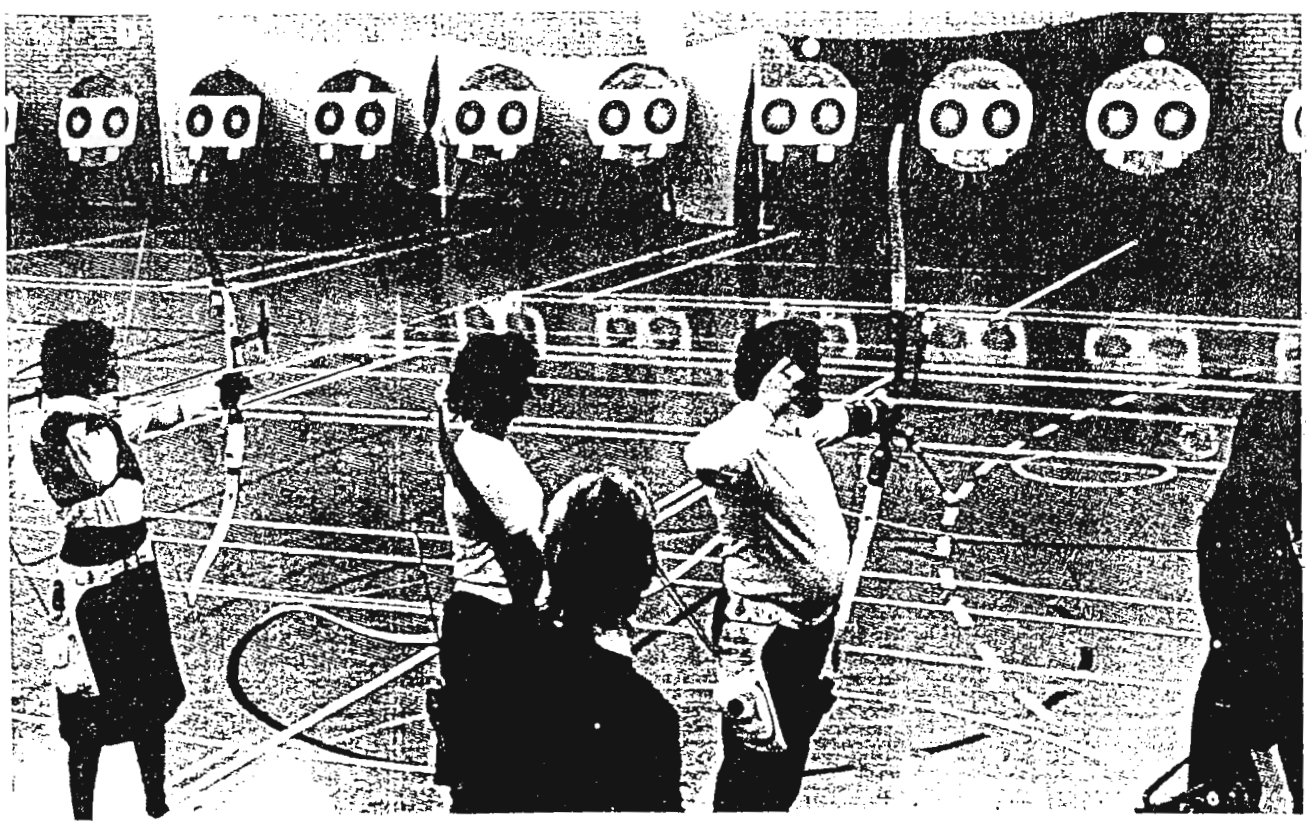
- At 18 m, 400 mm diameter
- At 20 yd, 600 mm diameter
- At 25 m, 600 mm diameter
- At 30 m, 800 mm diameter.

The most economical and usual space allowance is for four archers per target, shooting in two shoots of two archers shooting at once. To conform with competition rules, the minimum intervals between target centres for the number of archers at a time on the shooting line, are:

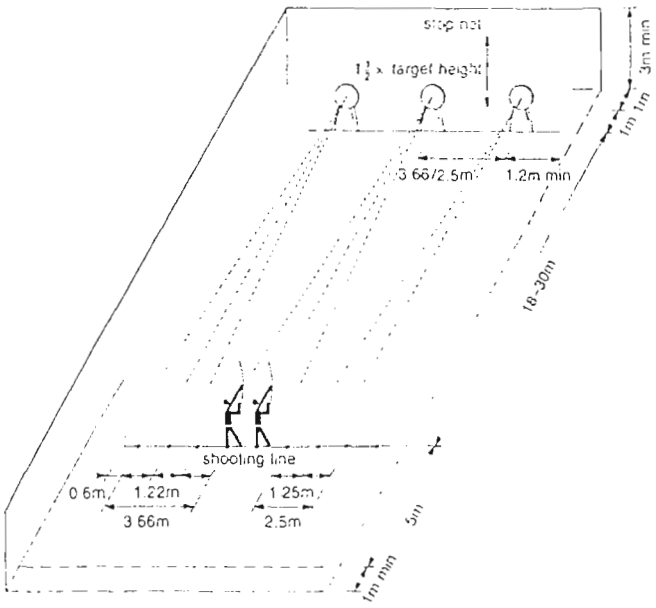
- For two (or four) archers per target (the more usual number), 2.5 m
- For three archers per target (less usual), 3.66 m.

1.3 Layout and safety

The general layout of an indoor range is shown in 2. Spectator provision must be behind the archers and raised if this is possible. Access must be from behind the archers.



1 *Photo: Grand National Archery Society*



2 *Diagrammatic setting-out of targets and archer positions for the various recognised lengths of rounds*

There must be no shooting towards a balcony or viewing area and there must be no spectators alongside the shooting range, even on a balcony. All doors except those behind the archers must be kept locked during shooting to prevent people entering.

Safety nets

Safety nets must be made of white archery mesh and should be as high as possible, preferably up to beneath the roof; but if this is not feasible, 3.5 m (11 ft 6 in) is an absolute minimum height for distances up to 30 m and 6.1 m (20 ft) the preferable minimum height. The stop net behind the target should be at least 3 m high, or half a target higher as viewed from the shooting line, whichever is the greater.

1.4 Floor and markings

The floor finish should preferably be wood. Marking lines are required to represent the shooting line and the target line (see diagram), with space markings for the targets and archers. The markings at the target stands should be non-slip.

1.5 Storage

There should be storage provision large enough to allow stacking of targets on their face, rather than on edge. A tackle box shelf measuring at least 750 × 300 × 75 mm, provided the zone is behind the shooting line, is an advantage. Also secure storage for demountable target lighting, if provided.

1.6 Environment

For general details of environmental services recommendations refer to Chapters 60 and 61.

Targets must be well-lit in the interests of the sport and safety. General illumination levels in multi-use facilities may be too low for archery, especially where targets are situated against end walls. Provision for additional lights directed at the targets (and away from the archers) is recommended.

2 References and further advice

Grand National Archery Society and 1990 *Rules of Shooting*.

Volume 1, Chapter 38, for archery outdoors.

26 Fencing

Peter Ackroyd

1 Introduction

Fencing developed from mediaeval combat with lances, axes and heavy swords. There was a gradual shift (especially in Italy) towards lighter and swifter blades which were more elaborate and also more deadly than their cumbersome precedents. Towards the end of the 16th century several Italian teachers established themselves in London teaching the new skills. Today the sport is performed by two competitors wearing masks, protective clothing and gauntlets using either an epee (a stiff triangular blade), a foil (more flexible) or a sabre (a cut-and-thrust sword with a V-shaped blade). A bout comprises an agreed number of 'hits' on the opponent's body within a given time. The weapon may be wired to a battery, in which case the fencers wear metallic jackets and a hit registers automatically on scoring lamps.

1 *Photo: Sports Council*

1.1 Critical factors

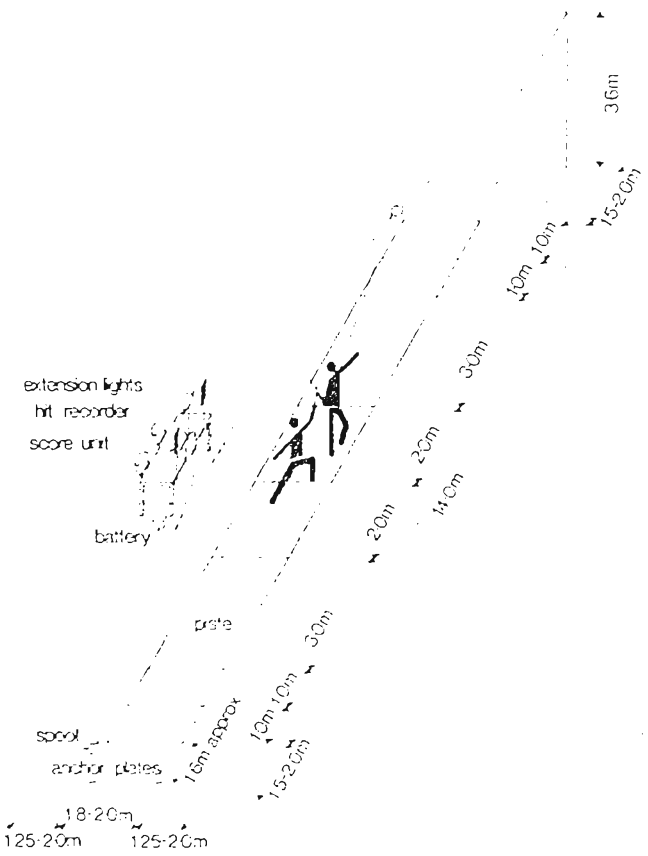
- Overall area including safety margins around the pistes
- Action is often extremely fast and requires a high degree of viewing concentration so lighting must be adequate to enable participants quickly to discern an opponent's movements or make attacks; glare must be avoided
- A quiet situation is required, with no distractions
- Floors must be non-slip
- Floor anchors for metallic piste in specialist facilities.

1.2 Space

One of the advantages of fencing is that it can take place in any reasonably sized room or hall provided that the lighting and the floor are suitable. Fencing lessons, training sessions, practice bouts and normal fencing (or loose play) should take place in surroundings which avoid distraction and interruption. However, as fencing competitions will probably be held in such spaces, it is desirable to base the dimensions on the area required for competitive pistes, 2, using the space table below. Additional accommodation for national and international events is listed in Chapter 50; see also References.

Space table

Piste space	*International National (N)*	*Regional (RG) County (Cy) Club (C)*	*Recreational (R)*
Length	14 m	14 m	14 m
Width	1.8–2.0 m	1.8–2.0 m	1.8–2.0 m
Clear space (both ends)	1.5–2.0 m	1.5–2.0 m	1.5–2.0 m
Clear space both sides (including match officials' table space on one side)	3 m	1.25–2 m	1.25–2 m
Space between parallel pistes	3 m min	2.5 m min	2.5 m min
Overall areas			
Single piste	17–18 × 8 m	17 × 4.5 m min	17 × 4.5 m min
Two parallel pistes	18 × 13 m min	17 × 9 m min	17 × 9 m min
Additional piste each	18 × 4.5 m	17 × 4.5 m min	17 × 4.5 m min
Height	3.6 m min	3.6 m min	3.6 m min



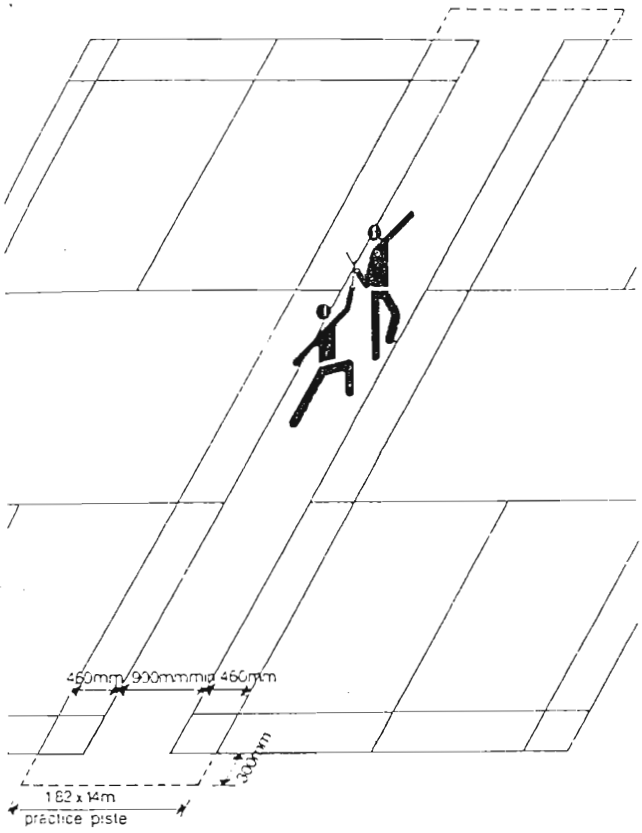
2 *Space diagram of piste*

During a competition one piste will usually accommodate a pool of 6–8 competitors. A competition may start with several elimination pools and finish with a final pool. Therefore it is advisable to have as many marked-out regulation pistes as possible so that the maximum number of pools can be held simultaneously.

The minimum regulation for the overall length of the piste will fit across the widths of small sports halls given in Chapter 49.

1.3 Markings

When a metallic piste is not used, 50 mm (approx 2 in) wide white lines are marked out on the floor surface, 3.



3 *Training and recreational fencing can use the space between badminton tramlines*

1.4 Floor

It is important that the surface on which fencing takes place should be non-slip and impart a degree of person/surface resilience when in use. A wooden floor is ideal. When the floor is excessively slippery, or of a solid construction, a special roll-down rubber piste should be used. During fencing bouts using electronic scoring apparatus a special metallic piste can be used. This prevents hits on the floor being registered by the electronic scoring apparatus. It is generally supplied as a roll of special mesh. When the floor is hard, a rubber piste can be laid directly beneath the metallic piste to minimise damage.

Provision must be made for attaching the mesh firmly in place during use. Consult specialist equipment suppliers (see References).

1.5 Internal environment

For general details of environmental services recommendations see Chapters 60 and 61.

1.6 Storage

Rolled-up rubber and metallic pistes, scoring equipment and personal equipment will need storage space.

1.7 Spectators

In the UK this activity currently attracts between 60 and 200 spectators to the majority of its major events but crowds of up to 1000 have been known and therefore the activity is potentially one which could use an indoor arena.

2 References and further advice

Amateur Fencing Association.

Leon Paul Ltd (specialist equipment supplier).

Sports Council, *Arenas*, Sports Council, London (1989) (for national and international events accommodation).

16 Aikido

Peter Ackroyd

1 Introduction

There are two different forms of aikido. Tomiki aikido is a competitive combat sport, based on an ancient Japanese system of self-defence. Force is met not with counter-force but with avoiding action, enabling the defender to take advantage of the attacker's temporary loss of balance to score with a successful aikido technique.

Orthodox aikido, on the other hand, is a strictly non-competitive discipline based on a traditional system of self-defence, aimed at physical, mental and spiritual development. There are no contests or bouts of sparring and therefore many of the recommendations below do not apply. Also, the safety requirements for the non-combative activity are not so stringent. Requirements for traditional aikido are generally the same as for judo, except that no special provisions are necessary for contests or spectators.

1.1 Critical factors

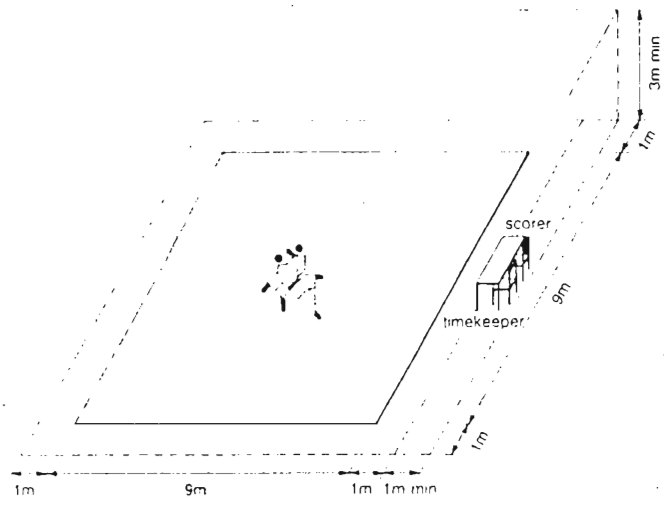
- The overall area of space including safety margins around the combat mat
- The distance of spectators from the mat
- For this bare-footed sport the floor surface, cleanliness and personal hygiene are important
- Flush walls, and safety padding where necessary
- Fire precautions for mat storage.

1.2 Space

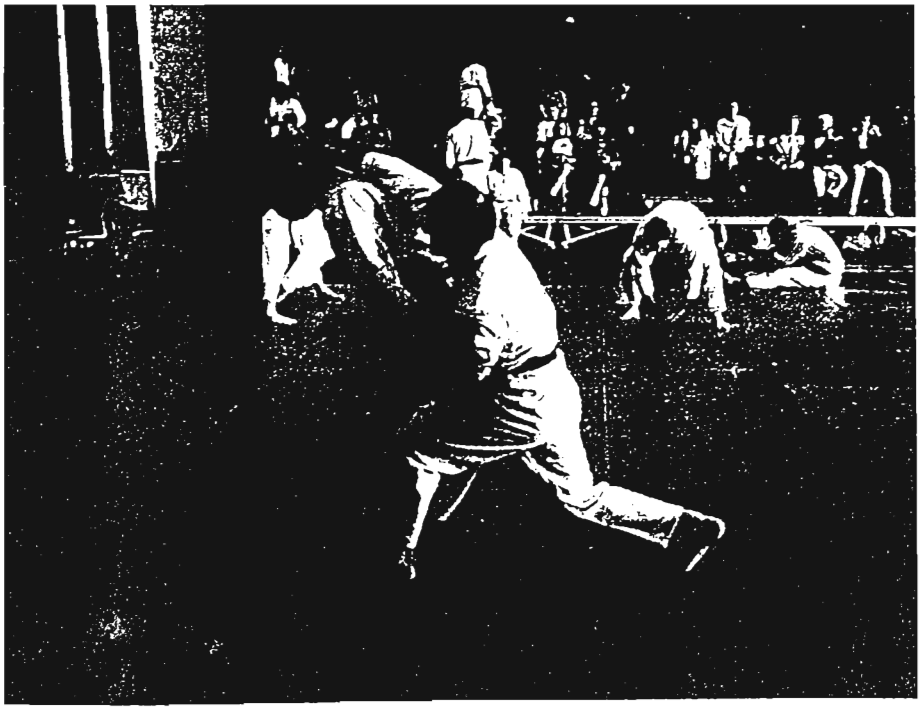
The mat can be placed anywhere in a common sports space having a minimum clear area of at least 9 × 9 m, preferably with a surrounding safety area, and a minimum clear height of 3.0 m, 2. For competitions at least three combat areas are required in a minimum overall space of 33 × 13 m.

Space table

	International National (N)	*Regional (Rg) County (Cy) Club (C)*	*Recreational (R)*
Combat mat	9 × 9 m	9 × 9 m	9 × 9 m
Minimum safety area around mat	1.5 m	1 m	1 m
Additional officials' table margin at one side	1 m min	1 m min	–
Minimum overall area	13 × 12 m	12 × 11 m	11 × 11 m



2 Space diagram. Spectators should be at least 1.5 m from the mat or officials' seating



1 Photo: British Aikido Association

1.3 Storage
Storage will be required for mats on trolleys, officials' table and scoreboards. Mats may be a fire risk and require storage in a separated fire resistant store.

1.4 Floor mats
Consult specialist equipment suppliers. Sectional mats must be prevented from slipping or opening up.

Preferably a 'soft floor' without need for mats should be considered. This could be particularly suited to practice halls or specialist training and combat rooms where other activities such as gymnastics and movement and dance would also benefit from the surface resilience.

1.5 Surrounding enclosure
Hall walls or netting. In small practice halls, walls should be padded by upstanding mats or mattresses to a minimum height of 1 m.

1.6 Internal environment
As for judo. For general details of environmental services recommendations refer to Chapters 60 and 61.

1.7 Competitors and judges
Allow changing space for five persons per contest.

1.8 Spectators
Some mat-side chairs can be arranged in the spaces on both sides of the officials' table or on tiered units around the safety area. Spectators should be at least 1.5-2 m from the mat depending on the standard of competition. The sport is developing and could possibly attract 1000 or more spectators and devotees at major events and championships.

References and further advice
The British Aikido Board.

33
Karate

Peter Ackroyd

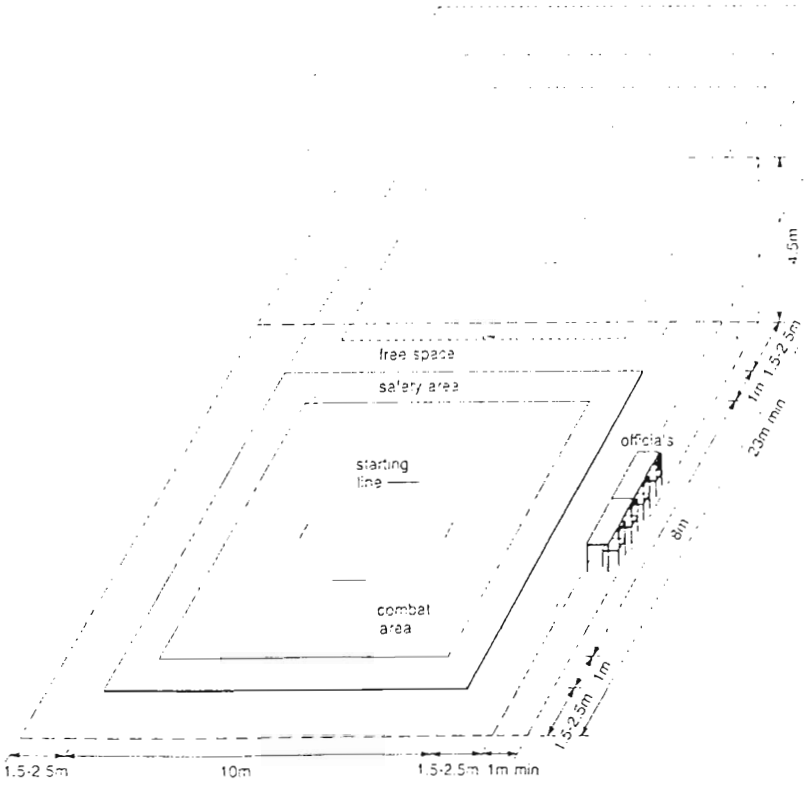
1 Introduction

Karate is a practical, empty-handed fighting technique, a formal method of physical and mental training and a competitive martial art. Karate contests are held as kata, male and female competitions (introduced in 1978) and as sparring matches, in which some karate techniques are not permitted. To avoid injuries all punches, blows, strikes and kicks are controlled. Contact is permitted providing it is controlled to skin contact only.

1.1 Critical factors

- Overall area of space including the *two* safety margins: a matted area (around the central combat area) surrounded by an unmatted free-space, 2
- Dimensions apply to all standards of this martial art, from recreational to international
- Lighting must be sufficient to enable participants to quickly discern an opponent's movements and gauge or make moves without the discomfort of glare. The speed of action in martial arts is often extremely fast.

1 *Photo: Stan Knighton, EKGB*



2 *Space diagram. The 10 x 10 m matted area comprises a 1 m safety area surrounding the 8 x 8 m combat area. The line between these may be broken or in a different colour (to the perimeter line on the mats). The overall area for multiple areas is given in the space table. For international events the competition area of 10 x 10 m may be elevated on a podium of up to 1 m above floor level.*

1.2 Space

Space table for all standards of competition	
Length of matted area	10.0 m
Width of matted area	10.0 m
Free space, unmatted surround	1.5 (min)–2.5 m
Additional width one side for officials	1 m
Overall areas (minimum dimensions):	
One mat	12 × 13 m
Two mats (1)	22 × 13 m
Three mats for regional competitions (1)	32 × 13 m

Note (1): There is no free space between adjoining matted areas.

1.3 Floor

For competitions a firm matting which does not move apart is required.

1.4 Internal environment

For general details of environmental services recommendations refer to Chapters 60 and 61.

1.5 Other requirements

These are the same as for aikido and judo.

2 References and further advice

English Karate Governing Body.

32
Judo

Peter Ackroyd

1 Introduction

Judo is derived from the Japanese word ju which means 'pliant'. The skill lies in overcoming an opponent not by weaponry or brute strength but precise action based on an understanding of the opponent's anatomical and even psychological weaknesses. With a few lessons in breakfall, judo can be made safe and highly enjoyable and in this form it has become a popular sport. Preferably, training and contests should take place in a specialised permanent 'dojo', 2, but practice and recreational judo can be played in a multi-purpose sports hall subject to adequate space and safety conditions.

1.1 Critical factors

- Consider dedicated dojo (or training hall) provision, with suitable daytime dual-use, in preference to use of a multi-purpose zone or room; permanently laid mats also avoids a repeated, laborious and heavy job
- Overall area of flat space including safety clearways around the competition mat; and minimum clear headroom
- Fire resistant store for mats
- Special requirements for competition venues
- For this bare-footed sport the floor surface, cleanliness and personal hygiene are vital
- Flush walls, and safety padding where necessary
- Ventilation.

1.2 Space

As a guide, allow floor space of 4 sq m (43 sq ft) per participant for practice and recreational judo. A multi-purpose space, 2, is suitable providing that it is flat, with at least the volume of space for the appropriate standards of judo participation set out in the columns of Table 32.1.

Practice halls (see Chapter 51) are preferred to main halls, though the larger spaces are satisfactory provided that other activities taking place are compatible, or preferably separated in a net-divided zone, 3.

1.3 Equipment and storage

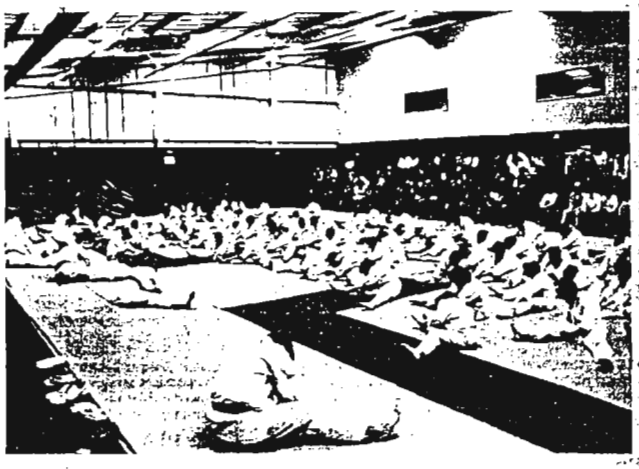
- Mats. One 14 × 14 m matted area requires 98 mats each 2 x 1 m (6 ft 6 in × 3 ft 3 in). A full size area takes 128 mats and the smallest competition area of 13 × 13 m uses 100 standard mats around one 1 × 1 m mat in the centre. These are best stored on trolleys ready for easy use and to avoid mishandling. Consult suppliers regarding space allowance for storage trollies in a separated fire resistant enclosure. Foam filled mats are a high fire risk. Refer to Chapter 55 and consult fire prevention officers.

1 *Photo: Richard Gardner*

Table 32.1: Space requirements

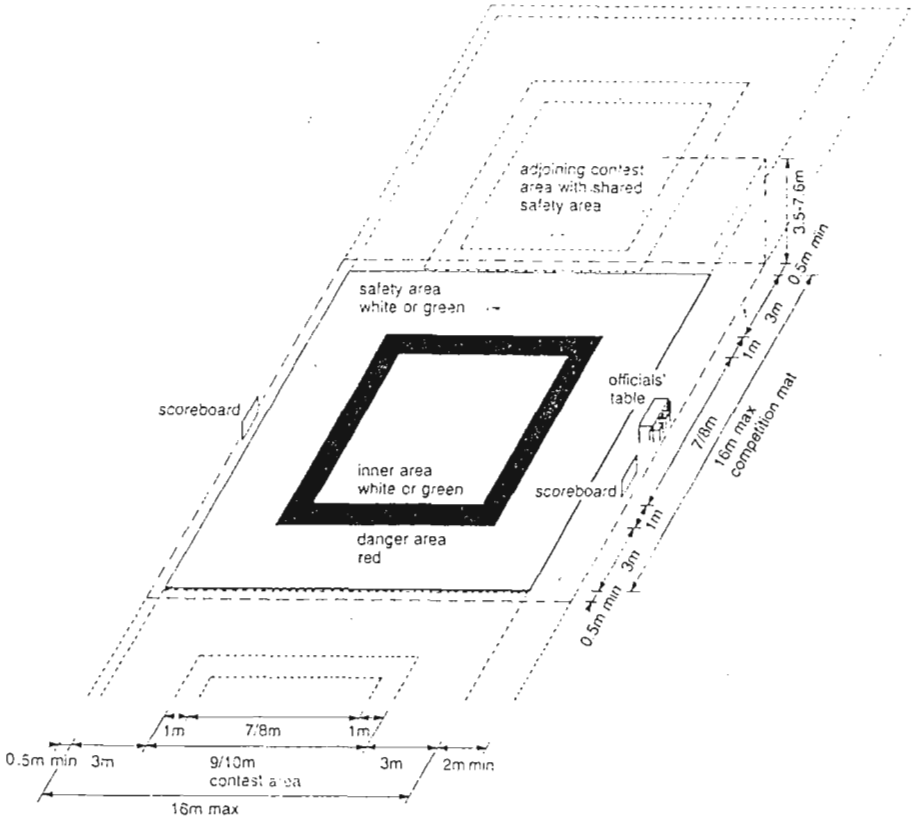
	National (N) (1)	*Regional (Rg) County (Cy) Club (C)*	*Recreational (R)*
Contest/practice area (including danger area) (2)	9 × 9 or 10 × 10 m	9 × 9 or 10 × 10 m	9 × 9 or 10 × 10 m
Minimum matted safety space on each side	2 or 3 m	2 m	1 or 2 m
The competition mat – ie the total matted area (1 m increments)	13 × 13 m to 16 × 16 m	13 × 13 m or 14 × 14 m	11 × 11 m to 14 × 14 m
Plus officials' and competitors' space on one side	2 m min	2 m min	–
Plus clearway on three sides	0.5 m min	0.5 m min	0.5 m min (on each side)
Overall contest volume (minimum)			
A one-contest/practice area	15.5 × 14 m to 18.4 × 17 m	15.5 × 14 m or 16.5 × 15 m	12 × 12 m to 15 × 15 m
A two-contest/practice area	15.5 × 27 m to 18.4 × 33 m	15.5 × 27 m or 16.5 × 29 m	–
Or with shared safety area between (3)	18.5 × 30 m (including 10 × 10 m contest areas)	15.5 × 26 m or 16.5 × 28 m	–
For each extra contest/ practice area	Add 13–16 m to overall length (4)	Add 12–13 m to overall length (4)	–
Or with shared safety areas between (3)	Add 13 m to overall length	Add 12 m to overall length	–
Clear headroom	7.6 m	4.5 m	3.5 m

Note (1): Refer to *Arenas* (see References) for fuller accommodation requirements for national events and for space and other requirements for international contest events.
Note (2): A 1 × 1 m mat is required in the centre of a 9 x 9 m contest area.
Note (3): With shared safety area it is essential to allow at least 3 m between adjoining contest areas and around each – see also note to 3.
Note (4): Depending on chosen dimension of contest area and safety space variables (at top of table).



2 *High Wycombe Judo Centre Dojo – built as a training dojo but at the same time suitable for small tournaments. It has a mat area of 24 × 12 m. There is a dais on one side for competition officials and 180 tiered seats on the opposite side for spectators. There are ancillary facilities of sauna, physiotherapy room, a small conference room and also an excellent bar/lounge. During the daytime the permanent mat area is used for gymnastics for children from 18 months to 9 years. The Centre is both used for area and county judo trials and as a regular training venue for the Great Britain Women's National Squad. Photo: John O'Brien*

- Match officials' table, scoreboard, timer and pool-sheet notice board. A wall-hung blackboard is used for recreational and training sessions.
- At a competition book-in point: four tables each of minimum size 1.5 × 0.75 m (4 ft 6 in × 2 ft 6 in) are required.
- At the event control centre: provide two tables as above; at each table, four chairs for the tournament directors; and musical equipment, including records or tapes.
- At the weigh-in point: provide balance-type scales; screens to give privacy to male and female contestants being weighed in; and barriers to keep everyone except the weigh-in officer at least 2 m (6 ft 6 in) away from the scales.



3 *Space diagram. For competitions the inner area and the outer safety area mats should be coloured green or blue. For practice and training mats covered by a white canvas may still be in use in some older sports centres*

91
Fitness facilities

Jim Clough

1 Types of fitness facility

There are several fundamentally different types of fitness facility. Accordingly, providers should set clear objectives at the outset relating to their target markets and the range of facilities to be provided together with the required quality and 'image'. Dedicated fitness facilities may be:

- A key element in a fitness and health club
- A self-contained unit which complements other indoor sports facilities in a multi-sports complex
- A training unit for people involved in specific sports (eg in a rugby club)
- A corporate unit provided and maintained by a company or other employer for the use of employees and possibly also their families.

Fitness facilities can also be categorised by the type of equipment provided:

- General fitness, with mainly multigym type equipment
- Executive fitness, with mainly cardiovascular equipment such as bicycle ergometers or rowing machines
- Luxury club, with state of the art equipment
- Women only with a relaxation emphasis and fairly light exercise equipment
- Bodybuilders' 'sweatshop' with heavy equipment consisting mainly of loose weights, racks and benches.

These categories are not mutually exclusive and some facilities will be a mixture of different types. Nevertheless, problems may arise if providers seek to satisfy too many different user groups in one complex. It is for this reason that clarity of objectives from the outset is one key to success.

The following recommendations relate primarily to newbuild projects but can be adapted for conversions. The more specific the initial brief the better the finished result should be. Owners and managers may otherwise attempt to adapt, add to or alter the end product to accommodate things forgotten or not fully considered, often in an untidy or unsafe manner.

1.1 Schedule of accommodation

This section describes the requirements of the main fitness facilities in a typical stand-alone club and how they impinge on other aspects of the complex. It should be fairly simple to adapt these guidelines to the requirements of a corporate or other type of facility.

The following areas are normally considered to be essential:

- Reception/office (see Chapter 54 in this volume)
- Gymnasium (see below)
- Exercise studio (see below)
- Changing rooms (see Chapter 57 in this volume)
- Relaxation, lounge or snack area.

Clubs may also have one or more of the following, some of which are very common:

- Beauty and hair salon
- Treatment/massage rooms
- Sun beds (may be incorporated into changing rooms)
- Swimming pool
- Squash courts (see Chapter 87 in this volume)
- Shop
- Training/meeting room
- Staff room
- Fitness assessment area – usually an enclosed area of at least 3 × 2.5 m off the main gymnasium area will be adequate.

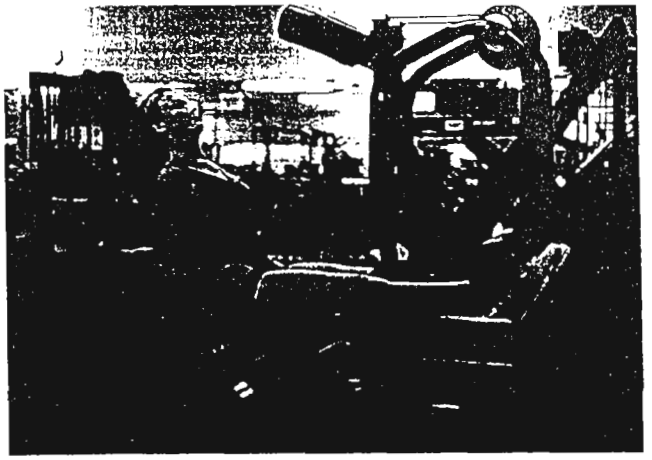
1.2 Fitness gymnasia

Shape and dimensions

The shape of fitness gymnasia is not critical; far more important is that they should be easy to clean and supervise. Simple shapes work best with a rectangle being better than a square. It is inadvisable to exceed a length/width ratio of 3:1 and designers should allow about 2.5 sq m per user (gym only; 5 m^2 for overall facility). Additional space can be made by the use of galleries and mezzanines and may be particularly suitable for cardio-vascular equipment such as treadmills, bicycles, rowing and climbing machines.

With one or two exceptions, exercise machines (both cardiovascular and resistance) function within their base

1 *Free weight equipment may seem to take up little space, but this is deceptive. A lot of ancillary space is needed for benches, stands, storage and carriage to and from storage. Photo: Jim Clough*



2 *Exercise machines require less space. The equipment shown here is an example of modern 'resistance' equipment: big, heavy and high-tech. Photo: Jim Clough*

area. At least 1 m should be allowed around machines except where they are placed back to back or against walls.

Free weight equipment requires a greater area than may at first appear. Space is required for storage racks, carriage to and from storage racks, benches, stands and use. Designers should allow about 3 sq m per exerciser in addition to bench and rack equipment.

There is usually no functional requirement for a high ceiling. Ceiling height will depend upon the need to make the space appear generous rather than cramped, avoid feelings of 'stuffiness' and provide adequate clearances for equipment delivery and use. A minimum height of 3 m is suggested.

Floor finishes

- Generally avoid use of platforms and split levels (other than galleries and mezzanines). Any height changes may result in falls, rolling weights and twisted ankles; they also make moving heavy equipment unnecessarily difficult and possibly dangerous.
- Assess floor loadings carefully: exercise machines may weigh several hundred kilograms and each user may weigh an additional 100 kg.
- Consider shock/vibration – dropping weights, weight stacks, vibration and shock from treadmills.
- Few items require floor fixing, but some do.
- The floor finish should be non-slip with high traction, durable and non-brittle as weights may be dropped on to it. It must also withstand heavy cleaning and the use of cleansing agents. Heavy duty carpet on a good quality underlay is often specified. Free weight areas are usually covered with high density rubber matting.

Wall finishes

- Consider the need for bolt fixings for wall mounted equipment. Fixed equipment can result in high forces on the wall and may require 75 mm bolts.
- Consider the need for large mirrored areas. (Note: a user can see their whole body in a mirror half their height; 1 m mirrors should suffice.)
- Wall finishes should be smooth, easily cleaned, durable and free of projections.
- Space for charts, notice boards and pictures should be 'designed in'.

1.3 Studios

Dimensions

Studios have become an integral part of fitness facilities. They are used for aerobics and activities such as yoga, pre- and post-natal classes, martial arts and the like. The best proportions are between a square and a 3:2 rectangle.

See also Chapters 51 and 52 in this volume.

Floor finishes

The following should be considered:

- The floor finish should be light in colour, resilient and sprung: timber such as maple or beech is common and probably the best finish. Cushioned surfaces which are deformable but not resilient have been tried but are not popular.
- The floor area should be rectangular and completely clear of projections, protruding shapes and or columns.
- Hi-fi equipment and speakers should not sit on the floor. They can be wall mounted, inset or fixed in a cupboard.
- A non-porous surface is best for swift dry and wet cleaning.
- The noise and vibration beneath a studio used for aerobics can be considerable. It may be necessary to provide sound proofing.

Walls

The following should be considered:

- Large (possibly floor to ceiling) mirrors on one wall
- Fixing of ballet barre to one or more walls
- Door(s) should open out from the studio
- Non-abrasive surface.

1.4 Internal environment

For general details of environmental services recommendations refer to Chapters 60 and 61. Environmental requirements are likely to be similar to weight training (see Chapter 90).

Lighting

- Exercise areas should be brightly lit with no harsh direct lights such as spot lamps shining in users' faces. Lighting design should take account of the large amount of mirrored surface.
- Dimmer switches are useful for yoga, antenatal and relaxation classes. Some clubs may require more exotic lighting systems (eg colours or strobes linked to music) for certain classes, demonstrations, competitions and social events.
- Lighting controls should be accessible to staff only.
- Basement spaces can require particularly careful lighting design.

Ventilation

Ventilation systems for fitness areas pose a particular design problem and must cope with considerable metabolic heat, body odours and humidity. Temperature and humidity controls must be capable of wider variation than normal and have the capacity to react swiftly.

1.5 Changing rooms

Space is often a limited commodity but in health clubs and gyms there is a tendency to give insufficient space to the gym and changing rooms, especially the latter. It is important to provide generous and well fitted changing rooms. If space allows female changing rooms should be allowed a little more space than male.

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Squash courts

Squash Rackets Association and Kit Campbell

1 Background information

Squash evolved from the earlier game of rackets in the 19th century, primarily in England. Players occupy the same area of the rectangular court (there is no net) and strike the ball alternately towards a front or play wall to hit it above the playboard or 'tin' and below an out of court line, 1. The ball may be hit towards any of the four walls of the court - that is, directly towards the front, back or either side wall - provided it hits the front wall before the floor.

There are two versions: 'softball', played in most countries in the world, and 'hardball', played in North America. The courts are slightly different with the hardball court being slightly longer and narrower and having slightly different markings. The hardball game is slowly giving way to the softball and most projects will involve only softball or international courts. The US Squash Association should be contacted for details of hardball courts; this chapter deals only with those for softball.

1.1 Types of court

Most courts are permanent structures although the final rounds of professional events are now often played on demountable glass or 'Perspex' courts, 2. Traditional plastered masonry construction – provided the plaster finish is in good condition – is generally regarded as providing the best playing conditions but there are several prefabricated or panel court systems on the market which also give good playing conditions. Traditionally courts have been provided with a viewing balcony or gallery at first floor level behind the back wall but since the mid-1970s increasing numbers have had a toughened glass back wall, 3.

While for several decades most squash has been singles, there is growing interest in doubles using a court which is 1.2 m (4 ft) wider than for singles. Many such courts are likely to be purpose-built although one manufacturer offers a motorised sliding wall which allows singles courts to be converted to doubles or for other activities such as aerobics.

There is also growing interest in a 'micro-court' for juniors (a response by squash to the popularity of short tennis) which is designed to be demountable and so is not discussed in this chapter.

Squash provides intensive exercise within a short time; most courts are booked for periods of 30–45 minutes. In Australia and the UK its popularity increased dramatically in the 1970s; in Europe and many other parts of the world significant growth took place slightly later. It remains one of the few sports in which many facilities are run commercially, particularly in continental Europe, North America, the Far East and Australia.

1.2 Levels of provision

Various provision guidelines have been suggested from time to time but the need for squash courts, as all other indoor sports facilities, relates primarily to local patterns of demand and fashion. Providers should consult the appropriate national governing body for up to date information. The most useful and consistent guideline is that clubs should aim for about 100-125 members per court. Below this number a club may not be viable; above it members will probably find it difficult to book sufficient court time to justify their membership fees.

In facilities designed to serve the needs of small communities a squash court can also be used for other activities such as table tennis or aerobics.

1.3 Court capacity

Estimating court usage is the essential first step in assessing revenue and viability. The peak hours at most centres – in which about 80–90% of total use is likely to be concentrated – are midweek lunchtimes, midweek evenings (Fridays usually less so than Mondays to Thursdays), and Saturdays and Sundays from about 11.00–18.00. This gives about 45 peak hour use per week or a total of about 55 hours total use per week. Multiplying this figure by the income per hour (taking account of the length of the booking period) will allow gross income to be estimated.

1.4 Planning

The following factors should be assessed in considering squash provision:

- Objectives of the scheme (social and/or financial)
- Location
- Size of population and catchment area – present and future
- Nature of population and its age and socio-economic structure
- Existing facilities within the area
- Availability of land
- Methods of promotion available
- Staffing requirements
- Provision of additional facilities (sport or social).

In the UK, promoters should consult the national or regional Sports Council and the appropriate squash association.

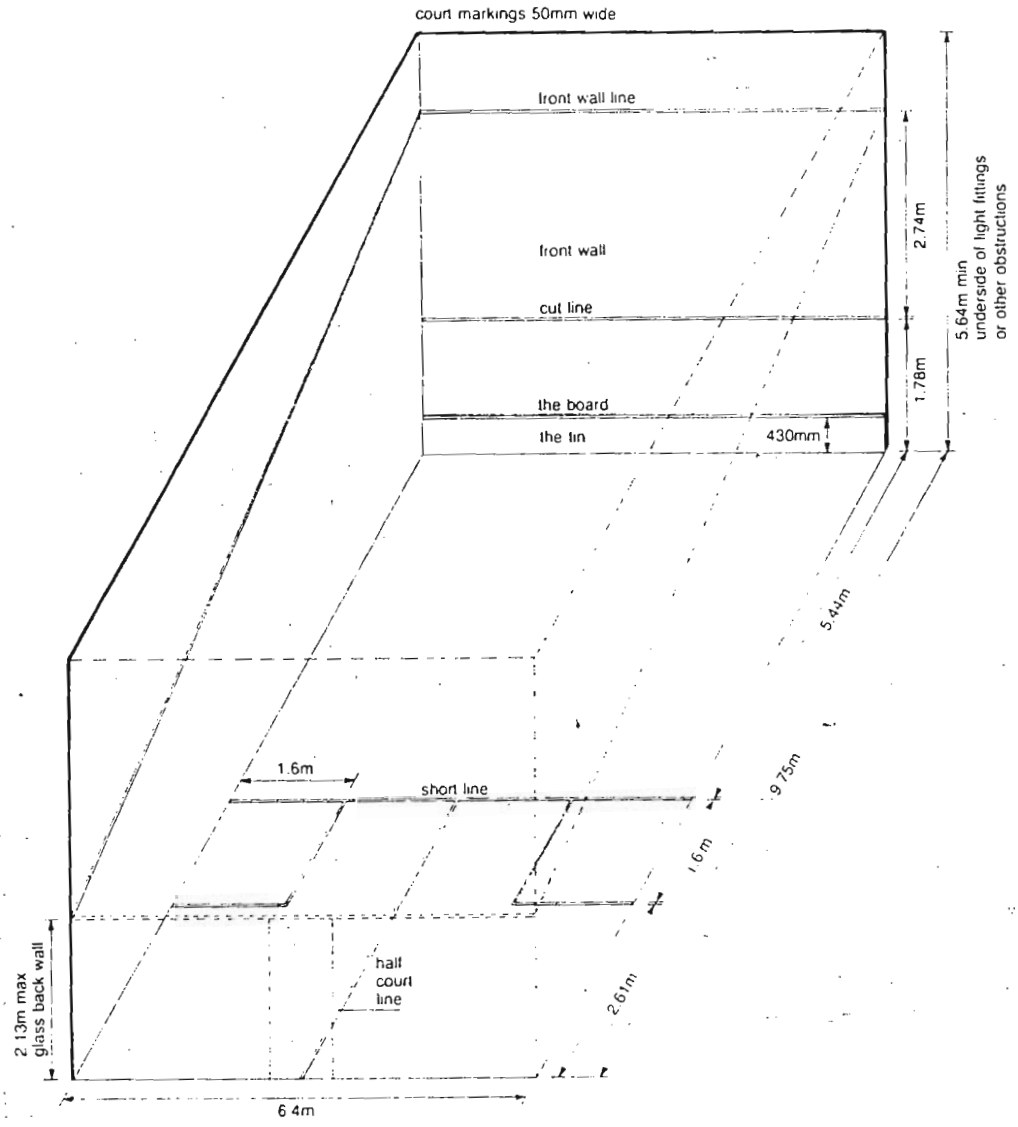
1.5 Location

The vast majority of squash players are between the ages of about 12 and 45 years, with participation generally being highest amongst males in their twenties and those in non-manual occupations. Car ownership is normally high amongst squash players and therefore accessibility by car and the provision of car parking are important. This can increase the amount of land required for a centre significantly.

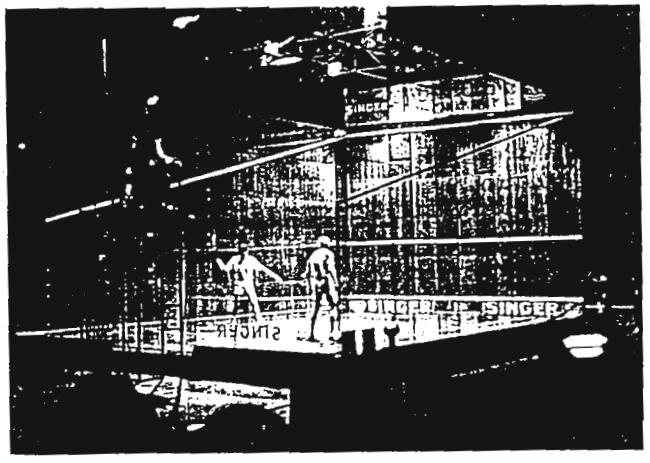
With very few exceptions, squash centres are not highly profitable. Land costs are an important element in development costs and in many countries it is fairly common for centres to be provided within industrial units, on suburban sites or as part of complexes in urban fringe locations.

1.6 Car parking

A very rough guide to the number of car parking spaces which should be provided for players at a squash centre is six times the number of courts. This factor is derived by allowing two players per court and assuming that three



1 *Squash court – general view*



2 *Demountable court with four transparent walls used for the later rounds of major professional and other competitions*

pairs of players will be present in the centre at any one time – those changing before playing, those on court and those changing after playing. In addition there will be a need for additional parking for social users, spectators and staff.

In some areas a slightly lower level of provision may be acceptable because players may travel two to a car or use other forms of transport.

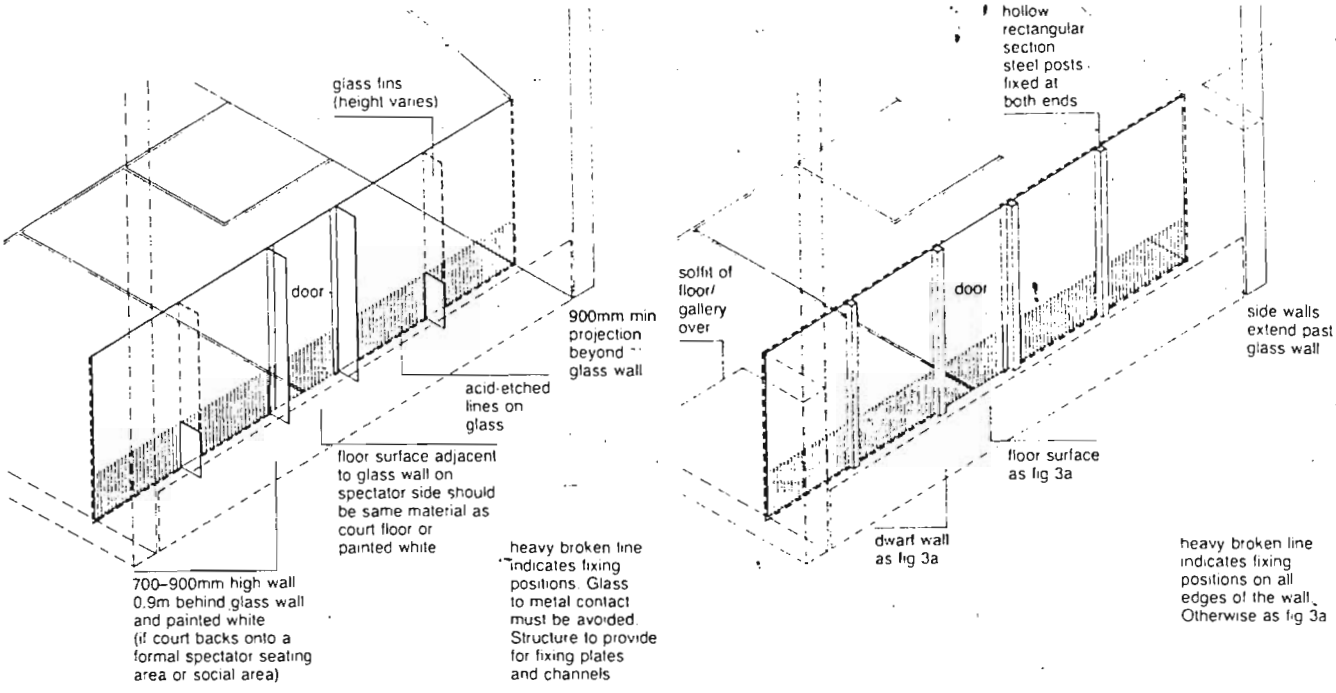
2 Types of centre

Squash centres can be grouped into two broad categories:

- Commercial centres
- Local or community facilities.

2.1 Commercial centres

Commercial centres usually depend for their viability on the economies of scale in operating costs which are possible when six, eight, ten or more courts are grouped together. Because a singles court is only occupied by two players at a time, however, the total hourly throughput of centres with only squash courts is low. European squash centres, in particular, tend to have a range of other facilities which both encourage players to stay in the club



3 *Glass back walled court*

for a reasonable length of time after playing or visit it for other activities such as fitness training or sauna.

Squash can also be an integral component of hotel-linked or commercial sports clubs. In addition to squash courts and fitness areas, these clubs may have a small swimming pool, indoor or outdoor tennis courts, an aerobics/dance studio, snooker room, a creche and a bar and high quality refreshment facilities. They will also have a good range of support accommodation including management offices and a shop or display counter linked to reception. Most users of these centres travel by car and therefore adequate parking is essential.

In commercial centres glass back walls are usually the preferred form of provision for most courts.

2.2 Local or community facilities

Local facilities for squash can take several forms, including:

- As an integral part of a local authority sports or leisure centre
- Linked to other club facilities, for example a rugby or tennis club
- As part of community facilities in a joint use centre on a school site.

Local competitions require a minimum of two to three courts although local demand may require additional courts. If they cannot be provided at the outset space should be allowed on site for future expansion. Space for expansion is in any case always desirable .

2.3 Competition facilities

As in other sports, competitive squash covers many levels of play from club leagues to world championships. Competition courts are exactly the same size as those for local use but more courts may be required and the specification will normally be upgraded in terms of:

- Lighting
- Spectator facilities
- TV facilities.

It will normally be sensible to plan a hierarchy of competition facilities over an area rather than try to make every centre suitable for major events. The range of accommodation required in competition centres is normally dictated by the level of competition it is planned to stage. To cater for high level competitions it is usually necessary to provide between four and eight courts. Temporary spectator accommodation for between 50 and 100 people can be provided at low cost behind a glass back wall in social or circulation areas. Where larger numbers of spectators are to be accommodated tiered seating and therefore greater headroom will be required. Typically space for 200–300 spectators will be required behind most designated spectator courts and this will be suitable for the preliminary rounds of major tournaments.

The later rounds of many world, national and professional championships are now staged in glass or 'Perspex' courts, often erected specially for the purpose in conference centres or exhibition halls. These courts allow viewing through all four walls and have the twin advantages of providing accommodation for a large number of spectators and making effective TV coverage possible.

In a limited number of specialist competition centres a permanent 'centre court' has been provided with either three or four glass walls. Where such courts are under consideration there should be close liaison over their installation with both manufacturers and TV companies.

2.4 Accommodation for match officials

The development of glass walls and high profile professional events has increased the popularity of the game as a spectator sport. There are also many local competitions and league matches. Squash matches are controlled by a referee and a marker, although for local events one official

y perform both roles. The officials must be able to see ery part of the court and all of the playing surfaces; hear e play; and communicate with the players.

If there is a gallery behind the court (see below), the atch officals will stand or sit in in the front row of ectators and there will be no difficulty. There are also e advantages of a gallery for casual viewing and enabling nall groups of players to be given instruction in the game, though the problem of the coach outside the court peaking to the players inside does remain. The gallery hould be open to the court.

The positioning of match officials in glass back wall ourts is not so simple. With a freestanding glass back wall he best arrangement is to have them on a platform mmediately above and behind the centre of it, accessed by ladder. This provides the minimum obstruction to the iew of spectators and TV cameras and it is better than forcing the officials to sit well behind the wall where they are remote from the play and players. In courts where the glass wall is taken up to ceiling level and therefore encloses the court fully the officials sit behind the wall, sometimes on a high chair. In such courts it is necessary to provide a microphone and speaker system to allow the officials to be heard by the players.

3 The design of squash centres

The main factors which determine the eventual layout and cost of a squash centre are:

- The number of courts and range of other sports and ancillary facilities required
- Whether formal spectator courts are required
- Whether to have an 'open plan' or 'cellular' layout of courts and other accommodation; the former consists primarily of glass back walled courts immediately adjacent to and viewed from social areas while in the latter type of centre the squash courts and social areas are separated
- Whether to have one or two (or more) levels: single storey solutions tend to have a more open and relaxed atmosphere
- Making provision for expansion.

The key decision, however, is the number of glass back walled courts. Glass back walls can be thought of in several ways:

- As a means of providing a facility for spectators – in which case it is sensible to provide tiered seating behind the wall
- As a means of of creating a more informal club layout and design than is possible with fully enclosed courts
- As a means of allowing casual viewing (for example from social areas)
- As an aid to club/centre supervision and control.

While glass walls are more expensive than plastered masonry or solid panels their use can often result in cost savings if it is not necessary to provide an upper floor and staircases.

Casual viewing through glass back walls can take place from refreshment areas, wide circulation areas or even from other activity spaces. The factors to consider are:

- Will there be distraction to the squash players?
- Will the circulation areas be obstructed?
- Will the lighting and noise of squash courts be a distraction to other areas?

In the UK the most common solution for buildings containing a number of courts is to have the majority with a solid or traditional back wall (offering privacy for beginners) and one or two glass back walled courts with spectator facilities. In other parts of Europe at many centres most of the courts have glass back walls and a more 'open plan' arrangement which both makes supervision easy and creates a lively atmosphere.

4 The design of courts

4.1 Dimensions

The clear height should be measured from the finished floor level to the underside of the lowest projection, normally the light fittings. The World Squash Federation (WSF) requires a minimum clear height of 5.64 m (approx 18.5 ft) in courts to be used for championship play and this standard has been adopted by most countries.

4.2 Types of construction

The principal methods of construction for squash courts are:

- Solid walls with plastered or similar surfaces
- Prefabricated panel systems.

All of the panel systems can be erected and installed in an existing building; they are entirely of dry construction and, if necessary, insulation can be incorporated to minimise condensation.

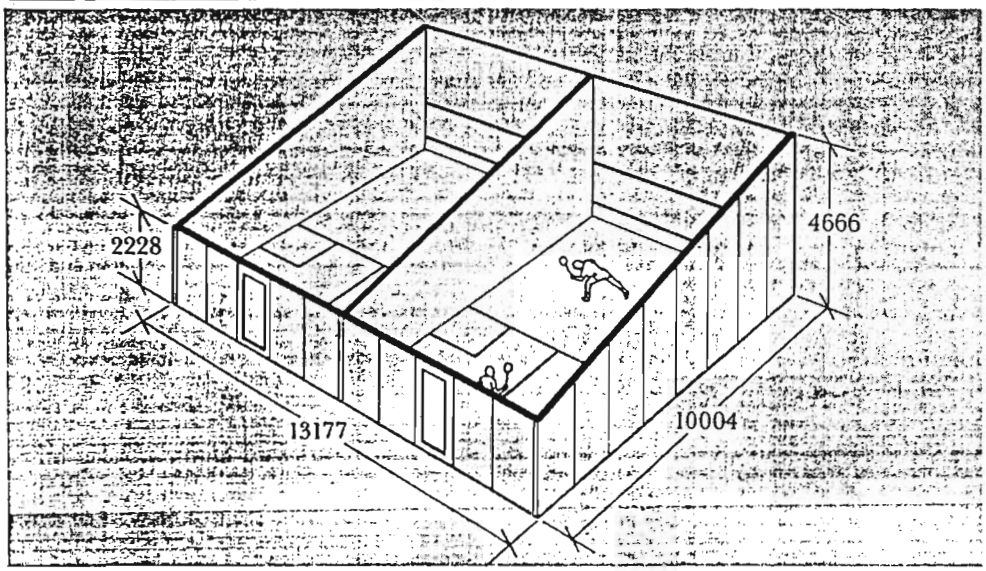
Solid walls with plastered surfaces This type of construction is the most commonly used and consists of a dense inner leaf usually at least 200 mm (approx 8 in) thick and a 112 mm (approx 4.5 in) outer leaf with a 50 mm (approx 2 in) cavity. Building and other regulations can determine the thickness and detailing and in the UK court walls have to comply with *Codes of Practice CP 111/121* or *BS 5628 Part 1: 1978: Code of Practice Structural Use of Unreinforced Masonry*. Professional advice on any proposed structure should be obtained from an engineer.

The inner (court side) face of the structural wall should be continuous and uninterrupted by changes of material, construction or movement joints. This is necessary to provide a consistent backing material for plastering. A common mistake is to incorporate structural columns or beams in a masonry wall. This invariably leads to cracking of the plaster finish and should be avoided.

For brickwork clay commons should be used but never in kiln-fresh condition (see *BR Digests 65* and *66* in relation to irreversible moisture expansion). Bricks for internal court walls should be stacked dry under cover on site for at least seven days before being used.

Dense aggregate concrete blocks to BS 6073: Part 1 having a minimum compressive strength of 7 N/sq mm may be used as an alternative to bricks providing they have undergone their initial shrinkage and are not susceptible to moisture movement. The Cement and Concrete Association should be contacted for details of suppliers of suitable blocks, construction details and the specification of suitable mortars. Lightweight blocks or bricks of a shrinkable material are not suitable and should not be used because failure of the plaster playing finish will result. Like bricks, blocks should be stored dry until used.

Timber or steel-framed courts faced with small prefabricated panels A number of systems on the market use prefabricated panels of various thicknesses which are small



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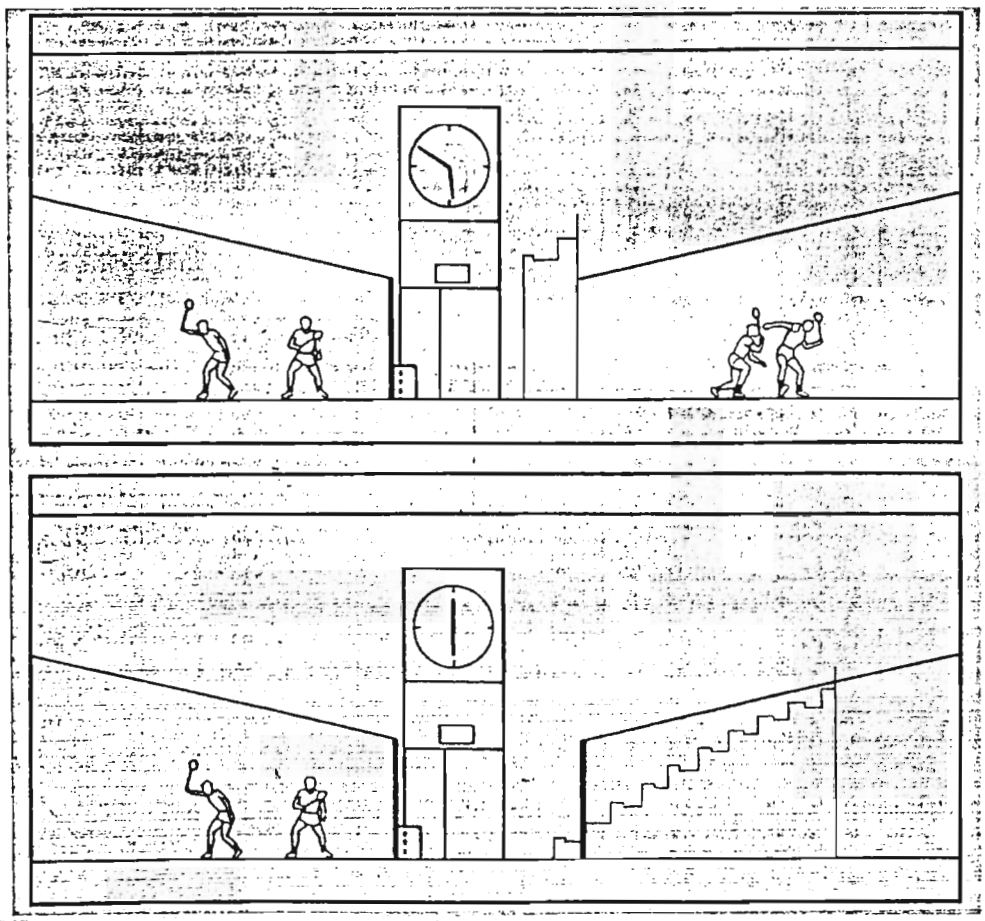

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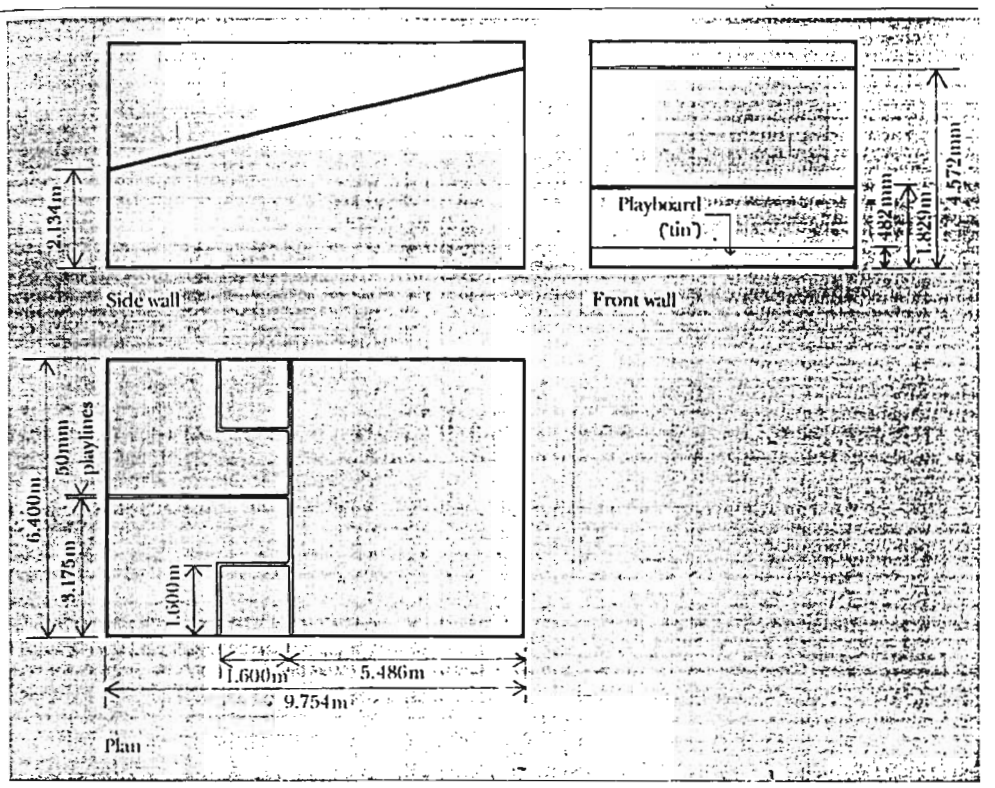

Tenpin bowling: the overall length of the bowling lanes including the approach area and the automatic pinsetter is 25–25.5 m depending on the type of automatic equipment used. A clear service passage – minimum 914 mm, preferably 1.5–1.8 m – must be provided behind the lanes and a bowlers' seating area of 3.0–3.5 m in front of the lanes.

The width required depends on the number of lanes to be included: two lanes, 3.46 m; four lanes, 6.85 m; six lanes, 10.23 m. For each additional pair of lanes add 3.387 m. Side (or access) aisles must connect the concourse area to the service passage (minimum width 0.76 m).

Additional space may be required for a concourse area behind the players' seating, spectator seating, a control counter and manager's office. Spectator seating is usually provided between the bowlers' seating and the concourse.

The bowling alley must be linked to (or provided with) locker area and toilets and refreshment facilities. Facilities are roughly calculated on the basis of five persons per lane. Storage necessary for pins, pinsetter parts, etc., together with a small workshop either behind or to the side of the lanes.

Weight-training: normally requires a self-contained space in which equipment is permanently installed as it is impracticable to move it from place to place. Space can range from between 80 m to 148 m^2: a space 10 m–12 m^2 × 3.5 m high is adequate. If majority of equipment is loose and movable, space could be used for

boxing training. N
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The activities can
over other spaces.
Storage necessary
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2 Indoor games

Arts workshop
A space of 9–15 m
workshops, musi
ancillary/practice
ideally be close
changing-rooms.
— a small pr
and lightir
— a gallery f
— a large ext
Storage necessary
piano, audio, seat
may be required.

Billiards/snooker
Because of size ar
separate space sh
Clear playing sp
seating, 7 × 5.25 r
3.2 m.
A bay off a multi-
are best installed
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may also be put t
least 8 m × 4.5 m.
The room should
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40
Table tennis

Peter Ackroyd

1 Introduction

The popularity of table tennis stretches across all ages and all socio-economic groups. It is normally played indoors by two or four players on a table of standardised size with a net across the centre.

The following data specify the different levels of facility provision which are required for accommodating everything from a beginners' session to a major international open event. Table tennis is a very safe sport, but should at all times be set out and played with due consideration to the safety of those participating and spectating.

As a sport suitable for integration of players with disabilities, there are not any official adaptations to equipment, spatial requirements or conditions, though the service law allows for disability.

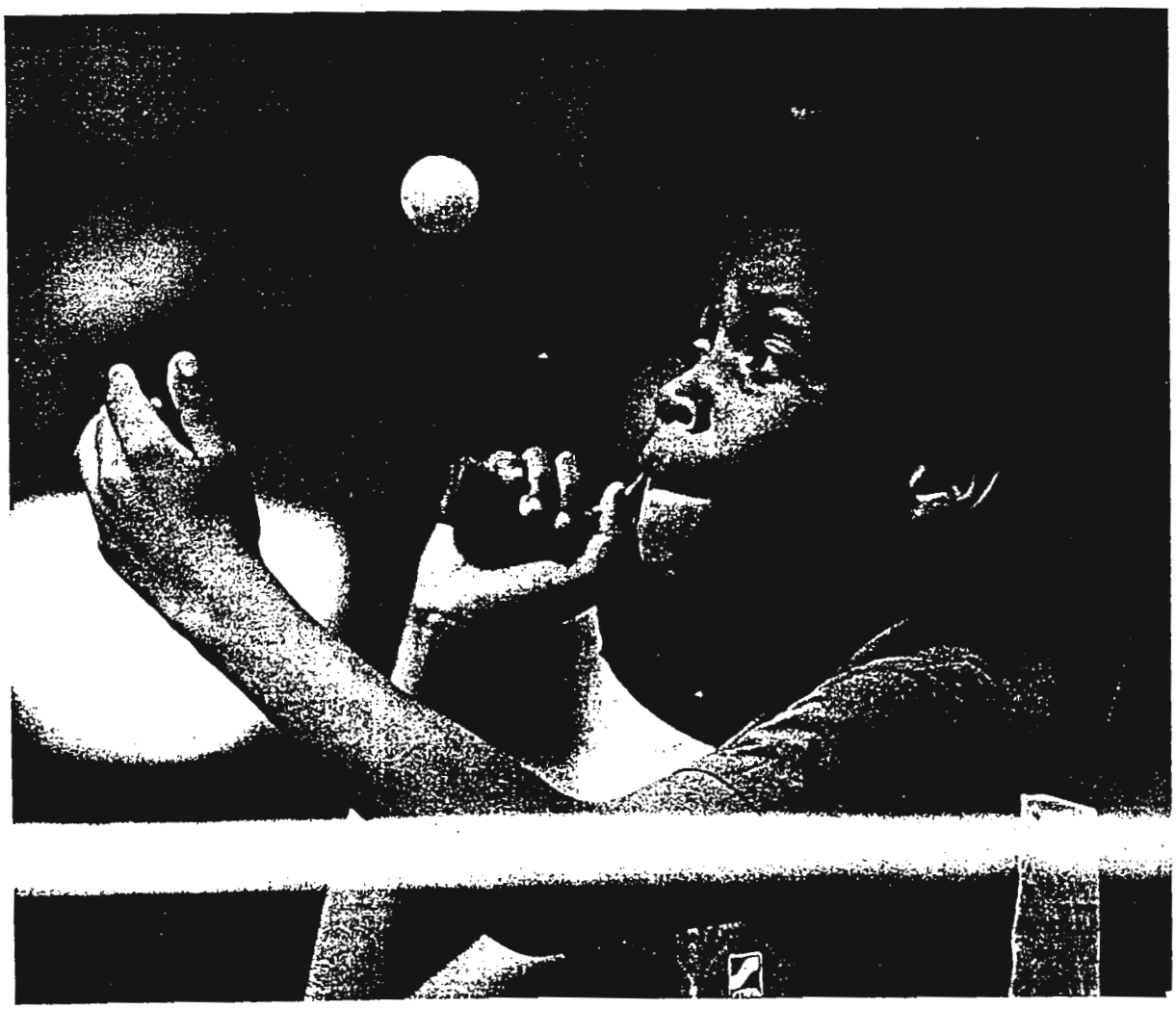
1.1 Critical factors

- Overall playing area including specified clearances around and clear height above a table
- Colour, reflection, friction and resilience characteristics of the floor
- Floors and walls of dark (but not excessively so) non-reflective colour
- Uniform light over the playing area without any stroboscopic effect
- Reduced lighting intensity over spectators outside the playing area
- Good ventilation but without draughts.

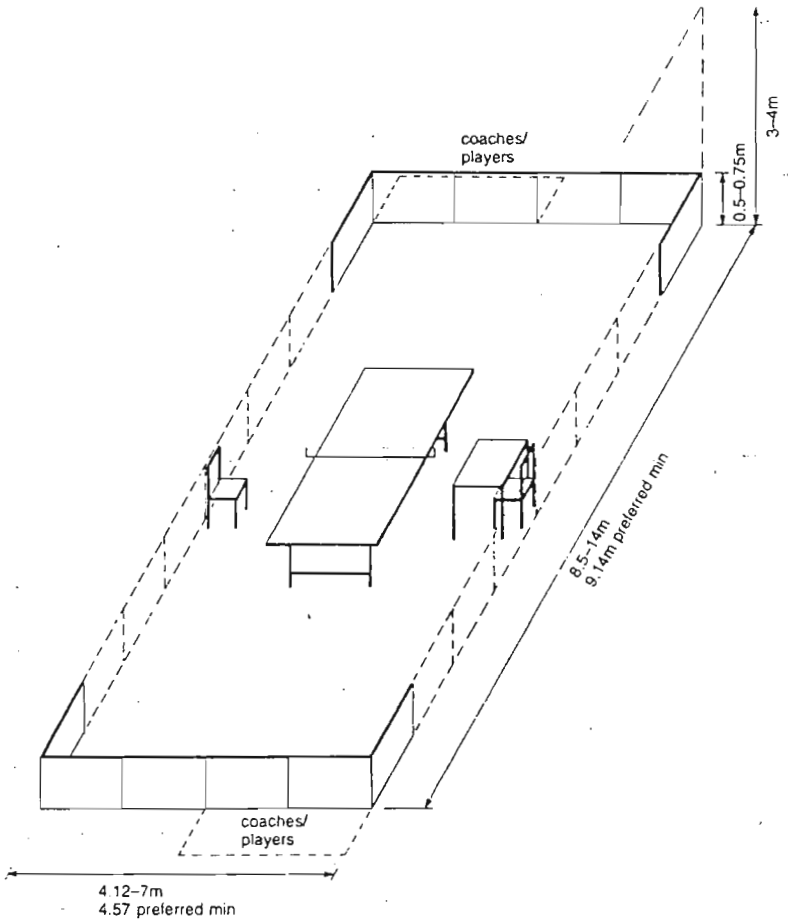
1.2 Space requirements

Space requirements in comparison with many sports is small, so enabling a wide range of buildings to accommodate table tennis matches, championships and recreational play, 2. Important dimensional and other changed requirements are included below.

The ideal venue is a purpose designed club facility (see references) or a dedicated space within a table tennis or sports centre with tables and lighting permanently available for play. However, one of the great advantages of the sport is that it can satisfactorily use ancillary spaces in sports centres and village, school, community or church halls as well as club rooms/pavilions of other sports.



1 *Photo: Charlie Wooding*



2 *Space diagram. Dimensions are ranged from the recreational minimum to the largest for grade 1 competition play: details are given in the space table. Grade 1 and 2 events require a continuous flexible barrier along all four sides of a playing area, for other standards of play see Section 1.3, Barriers. The diagram also shows the closest possible position for match officials, but if space allows, the officials' table can be located in a side bay outside the playing area. A 'pit' space of appropriate area for coaches and players is shown at the right-hand corner of both ends. Lighting and all other obstructions must be totally above the increased clear height zone, shown by the broken line at the top of the diagram*

Recreational play/coaching purposes

Spatial requirements for satisfactory play are significantly increased in the space table below and in Note (1) to that table. The range recommended allows four tables to fit on a space approximately equivalent to a badminton court. Other conditions, such as flooring, walls, environment, storage and lighting, will vary widely depending on facility availability; however, the ideals stated should be followed where possible to ensure maximum enjoyment for players. Though side by side is preferable, table layout should reflect space limitations with safety being the overriding factor.

Competitive play

Tables should be laid out side by side and not end to end, **3-4**. Each playing area should be at least the size recommended below for the three grades of play (a previous fourth grade is now obsolete). Boundaries are marked out by movable barriers. It is recommended in a multi-table venue to leave gangways between playing areas, both to enable easier player/official access to courts and to give courts total independence from each other and reduce disturbance by balls from other courts. Some major events, eg World Championships, may possibly require playing areas of 16 × 8 m.

There should be provision within each playing area for officials' tables and chairs each side of the table in line with the net. For some events, additional 'pit' spaces are required for coaches and in some cases for players sitting-out outside the end of the playing areas, 2.

Championships and tournaments

For these events, there are commonly eight or more tables in use simultaneously in a single hall. Additionally, there should also be a separate working area in the playing hall of at least 9 sq m for the officials managing the tournament. This area should be slightly raised above the level of the floor of the playing hall, should be easily accessible from it, and allow a clear view of all the tables in use.

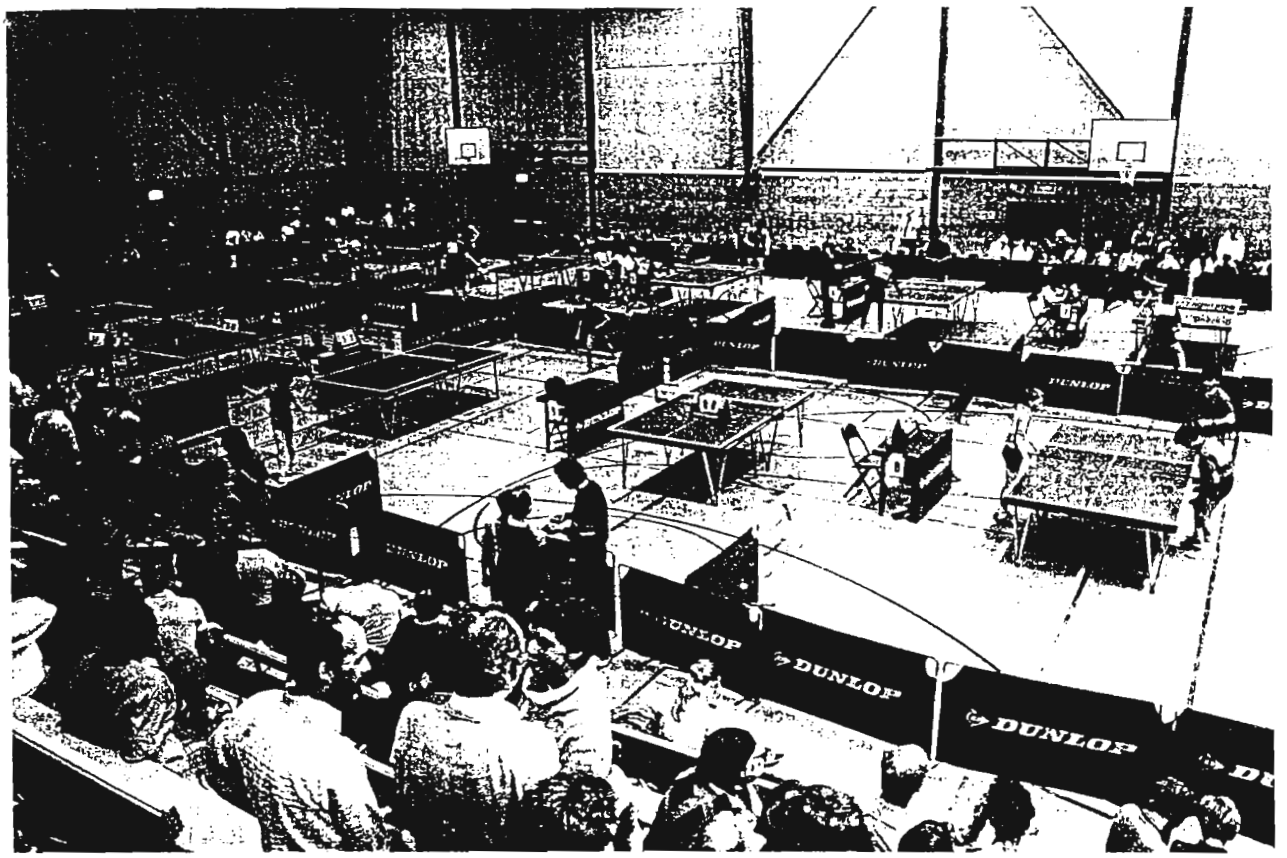
Playing area

The three grades of competitive play, each of which has related standards of playing area space, are:

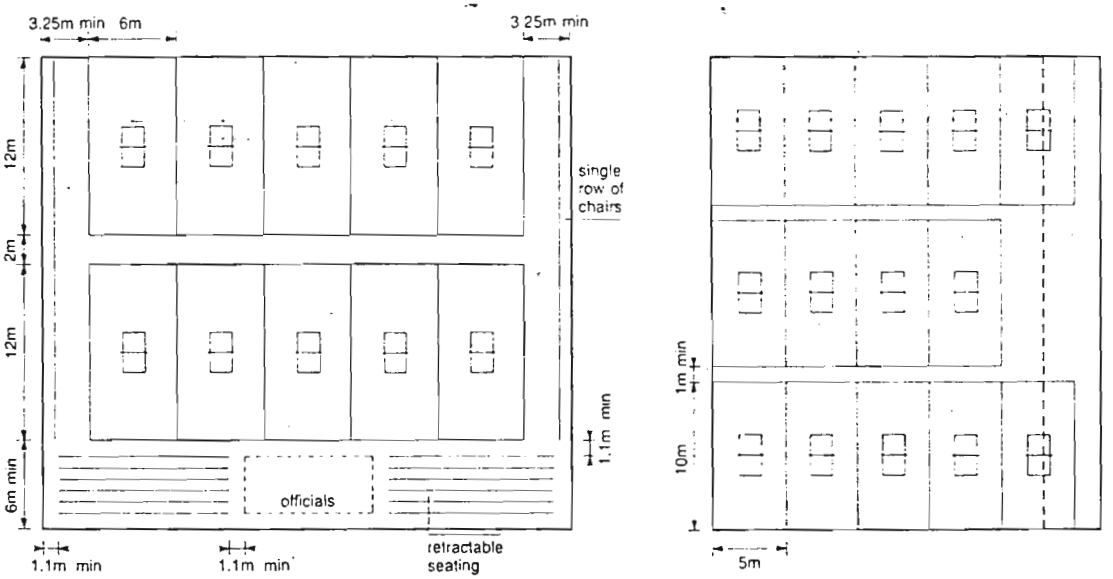
Grade 1: International Table Tennis Federation (ITTF) standard for World, Continental and Open International Championships and International matches

Grade 2: English Table Tennis Association (ETTA) standard for English National Championships, 5 star and 3 star open tournaments, Premier Division matches in British League and County Championships

Grade 3: ETTA 2 star open tournaments, matches and other than Premier Division in County championships and British League



3 *A junior tournament scene with less space between tables. Photo: ETTA*



4a *A typical grade 2 tournament layout in a large sports hall. Eight or ten table layouts are normal. If twelve tables are required then space is very tight for adequate access gangways around the playing areas to more than grade 3 standards*
4b *Grade-3 10 × 5 m playing areas set out in a medium sized hall of 33, 32 × 27, 26 m or 23 m width, with table capacities. For layouts of Grade 4 and recreational/coaching tables in smaller sized halls, refer to Sports Council Datasheet 42*

Space table

	Grade 1	*Grade 2*	*Grade 3*	*Grade 4*	*R* (1)
Length of playing area	14.0 m (46 ft)	12.0 m (39 ft 4 in)	10.0 m (32 ft 10 in)	9.0 m (29 ft 6 in)	9.0–8.5 m (29 ft 6 in–27 ft 11 in)
Width of playing area	7.0 m (23 ft)	6.0 m (19ft 8 in)	5.0 m (16 ft 5 in)	5.0 m (16 ft 5 in)	4.57–4.12 m (15 ft–13 ft 6 in)
Clear height from floor to light fitting	4.0 m (13 ft 2 in)	4.0 m (13 ft 2 in)	3.0 m (9 ft 10 in)	3.0 m (9ft 10 in)	3.0 m (9ft 10 in)
Clearance from end of table to barriers or other obstruction	5.65 m (18ft 6 in)	4.63 m (15ft 2 in)	3.63 m (11 ft 11 in)	3.13 m (10 ft 3 in)	3.13–2.88 m (10 ft 3 in–9 ft 5½ in)
Clearance from side of table to barriers or other obstruction	2.74 m (9 ft)	2.24 m (7 ft 4 in)	1.74 m (5 ft 8½ in)	1.74 m (5 ft 8½ in)	1.53–1.3 m (4 ft 11 in–4 ft 3 in)

Note (1): Space standards acceptable for recreational play and coaching purposes. Increased dimensions are ranged from the ideal (maximum) to absolute minima taking into account the most economical use of small hall space and layout of tables.

Grade 4: Recommended for 1 star open tournaments, local league and club matches and championships.

For purely recreational play and coaching slightly lower space standards are acceptable; these are identified as 'R' in the space table below.

1.3 Equipment and storage

Storage facilities should be considered when building or converting a venue for table tennis use. Different table types require different volumes of space and heights of entry into storage space. Refer also to Chapter 55. Advice should always be sought with specialist suppliers and/or the appropriate governing body before making a decision. Different manufacturers have different descriptions and names for each type of table.

Tables and nets

A table tennis top measures 2.743 × 1.524 × 0.762 m from the floor (9 ft × 5 ft × 2 ft 6 in). Different types and qualities of tables are required for different levels of play from coaching/recreational to international matches and tournaments.

The playability of the table is affected mainly by the thickness of the playing surface. For coaching and recreational play, the ETTA would not recommend table-top thickness of less than 18 mm. For Grades 1-4, 22 to 25 mm is recommended.

There are three types of table, differentiated by the undercarriage to suit storage and movement:

- *Free-standing type.* This is the easiest for storage and takes up least space. Used for all levels of play, it has two separate halves and eight legs, some with built-in caster wheels for easy movement. Also the easiest for handling and moving in and out of vehicles.
- *Rollaway type with playback facility.* Easy to move and erect but is much more bulky to store and requires higher headroom of 1.83 m (6 ft) for movement, being taller in its closed position than other types. An advantage is that it can be half closed so a player can practice from the horizontal end against the vertical face of the other half of the table (like a tennis player practising against a wall).
- *Rollaway type designed for mobility and economical storage but no playback facility.* Two halves fold or wheel together almost flush, with the distance between the wheels being closer than the type above. Ideal for sports centres.

Net and post sets should be sturdy, simple to assemble and easy to attach to tables of any thickness. Removable nets and posts are recommended (fixed nets can snap off and may protrude and hinder storage and safety).

Barriers

If more than one table is in use, each playing area should be divided by movable, dark-coloured, non-reflective barrier units about 50–75 cm (1 ft 8 in–2 ft 6 in) high and 1.5–2 m (4 ft 11 in–6 ft 7 in) long. Grade 1 and 2 events require a continuous barrier on all four sides. For Grades 3 and 4, barrier units should be placed along both ends and for at least 2 m (6 ft 7 in) on both sides at the corners of the playing area, 2, 5. Where the playing area of an end table in a row does not extend to a wall, then a continuous side barrier is advisable, both to contain the ball and define gangway space. For recreational and coaching play, barriers (if available and space permits) are useful to limit ball stray particularly from the minimum playing area. See the space table. Also, from a safety point of view, barriers help to avoid players and other centre users colliding.

Each barrier should be sufficiently stable to stay in place when struck by the ball, but it must fall easily, without toppling the adjacent barrier units when a player runs into it. Therefore, for safety reasons, barriers must not be fixed to the floor or heavily weighted.

Championships and tournaments

Scoring machines are strongly recommended, particularly for staged matches and where the general level of background noise may make it difficult for the umpires to be heard. Electronic scorers are becoming increasingly common for high profile events. The most common type of scoring machine uses manual flip-over cards and displays pairs of numerals on two faces; it is normally placed at the side of the table opposite to the umpire and operated by a match official. Draw sheets and match results should be displayed in an area accessible to spectators.

Public address facilities are necessary to notify players of play and broadcast information. Loudspeakers should also be mounted in changing rooms, refreshment and other waiting places for players. For single staged matches, the umpire should be provided with a public address microphone. For finals, British League, county or international matches, only spectators need to be addressed and the public address system should therefore have the facility to switch off loudspeakers that are not required.

1.4 Spectators

For staged or one table events, spectators should be able to sit close to the surrounds, to create an 'arena effect'. See also References and further advice.

1.5 Flooring

The floor surface must be smooth, level and able to support the table firmly. Wooden semi-sprung non-slip flooring is the ideal surface, with the main requirement being for players to be able to move rapidly and re-position their feet without slipping or affecting the table.

Solidly based, non-yielding floors are very tiring, even when surfaced with a material giving the desired friction characteristics and are therefore unsuitable. Surfaces such as concrete and some carpets are totally unsuitable.

Brightly reflecting or light colours are also precluded. Suitably dark floors are advisable which provide an adequate contrast for both spectators and players to be able easily to distinguish the ball, playing surface and surrounds.

For venues likely to stage major televised events, consideration should be given at design stage to providing underfloor ducting for power, telephone, television cables, etc. See also References and further advice, and Chapter 64.

1.6 Walls

Walls should provide a uniformly non-reflective background, without bright light sources, uncovered windows or doors letting in daylight which might affect players' vision. Ideally, the wall colour should be dark up to 2.5 m (8 ft) to provide sufficient contrast to follow clearly the flight of the small white or yellow ball. To gain maximum benefit from lighting, above 2.5 m (8 ft) walls should be light coloured. However, in multi-purpose sports halls a primary critical requirement is that walls should be of a uniform, unbroken colour (reflective value 0.3–0.5) to give

89
Ten pin bowling centres

Peter Ackroyd and Maritz Vandenberg in association with AMF Bowling Inc UK

1 Background information

After a period of declining popularity in Britain (due perhaps to the slightly seedy image of some bowling alleys) ten pin bowling has gone 'up-market' and is flourishing. Britain now has 3000 lanes in over 200 centres, and the figure is rising rapidly. The smart new centres (no longer 'alleys') are usually set in impressive premises and cater for the family. They are more expensive than before but offer cleanliness and comfort, sophisticated equipment with electronic scoring, and facilities which may include bars and restaurants, a nursery, even conference or meetings rooms.

2 Critical factors

- Consult specialist company
- Car parking provision
- Overall space requirements as shown in the guide and table below
- Control of noise
- Lighting
- Ventilation.

2.1 Planning the centre

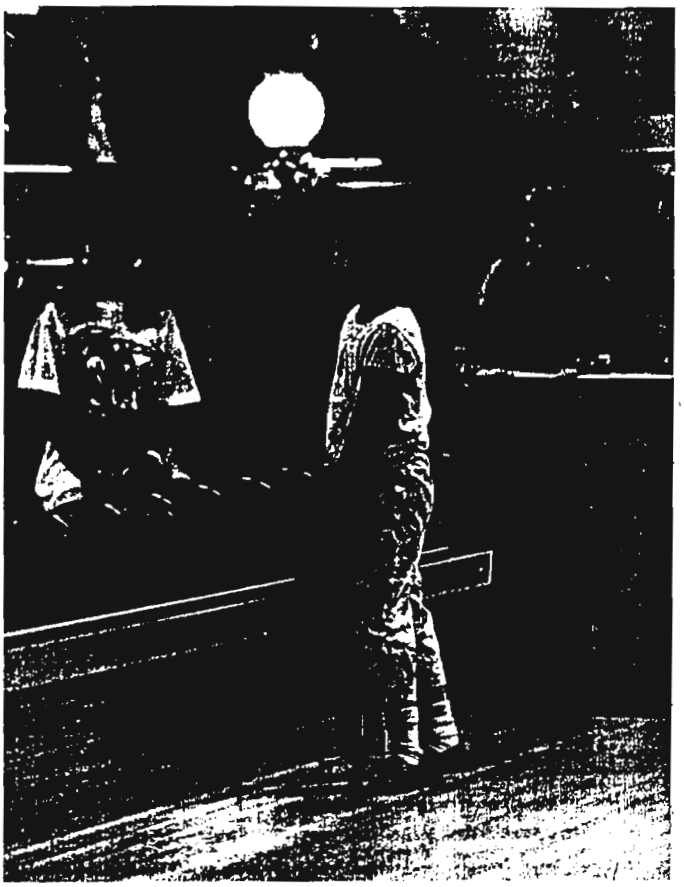
From the outset of a project, consider possible future expansion and allow sufficient space to do so. A centre should be located where it is accessible from, though not directly on, main traffic arteries. It should have ample parking facilities and several entrances and exits.

The following must be considered:

- The location, size and zoning of the property.
- Environmental factors and the form of construction.
- Efficient locations for, and local regulations for:
  (a) Food and drinks service
  (b) Retail sales area: pro shop, other merchandise
  (c) Coin operated games area
  (d) Nursery and meeting rooms
  (e) Billiards and snooker area
  (f) Other recreational areas
  (g) Storage for pins and other equipment
  (h) Mechanics' work area.
- Facilities for those with disabilities, in the car park, at the entrance, cloakrooms and toilets and bowling areas.
- Requirements for bowls, control and scoring systems.
- Practical provisions for security.
- Expansion review and space allowances.

2.2 Space

As a 'rule of thumb' guide allow approximately 94 sq m (1000 sq ft) of building area per lane, or for 16 lanes or more allow at least 85 sq m (900 sq ft) per lane.



1 *Photo: World of Tenpin*

Parking can be critical for success. Allow 3 to 5 cars per lane, of 33.4 sq m (360 sq ft) space per car to include ingress, egress, driving lanes and parking spaces.

Table 89.1 quantifies lane area and overall building area for numbers of lanes:

2.3 Schedule of accommodation

A centre consists of multiple parallel bowling lanes (for dimensions see 2 and Table 89.1), plus the following ancillary spaces to serve the lanes:

- *Concourse.* This is essentially a passageway for access to the lanes and other bowling centre facilities. The larger the number of lanes, the shallower the concourse need be, but 3.65 m is a minimum. The concourse may also be used for tables and chairs (allow 2.5 m for each row of these), for food and vending drink sales, and for payphones. Unless the centre is specifically planned as a tournament centre spectator seating is not recommended here. See also Food and bar lounge, below.
- *Retail sales area and ball drilling.* Provide a glassed-in area for the sale of bowling balls and other supplies. Install modern merchandising display systems. The sales facility should enhance the product being promoted and be located so that it faces potential retail customers. Power requirements for a ball driller are two 15–20 amp mains voltage circuits.
- *Bowlers' seating area.* This is situated at the 'front end' of the bowling lanes and opening off the concourse. It should be at least 3.66 m deep and 0.15 m below concourse level. This contains the automatic scoring and control systems.
- *Ball racks.* A space behind the bowlers' seating area for the ball racks. Width must be at least 0.36 m, increased

Table 89.1: Bowling centre dimensions (Note: width excludes any columns)

No. of lanes	*Width*	*Side aisles*	*Total width*	*Length seating to rear wall*	*Minimum building interior (total sq m)*	*Recommended building interior (total sq m)*
2	3.46	1	4.36	32.15 (1)	165 (2)	195 (2)
4	6.85	1	7.75	32.15 (1)	375	395
6	10.23	1	11.13	31.15	510	575
8	13.62	1	14.52	31.15	675	760
10	17.01	2	18.81	31.15	820	940
12	20.40	2	22.20	31.15	985	1130
14	23.78	2	25.58	31.15	1150	1315
16	27.17	2	28.97	31.15	1310	1500
18	30.56	2	32.36	31.15	1475	1690
20	33.95	2	35.75	31.15	1640	1880
22	37.33	2	39.13	31.15	1800	2065
24	40.72	2	42.52	31.15	1965	2255

Note (1): In two and four lane centres the seating to rear wall length is increased by 1 m to provide an extra deep service aisle and compensate for minimum building width.
Note (2): The minimum and recommended areas for two lane centres excludes food and drinks service.

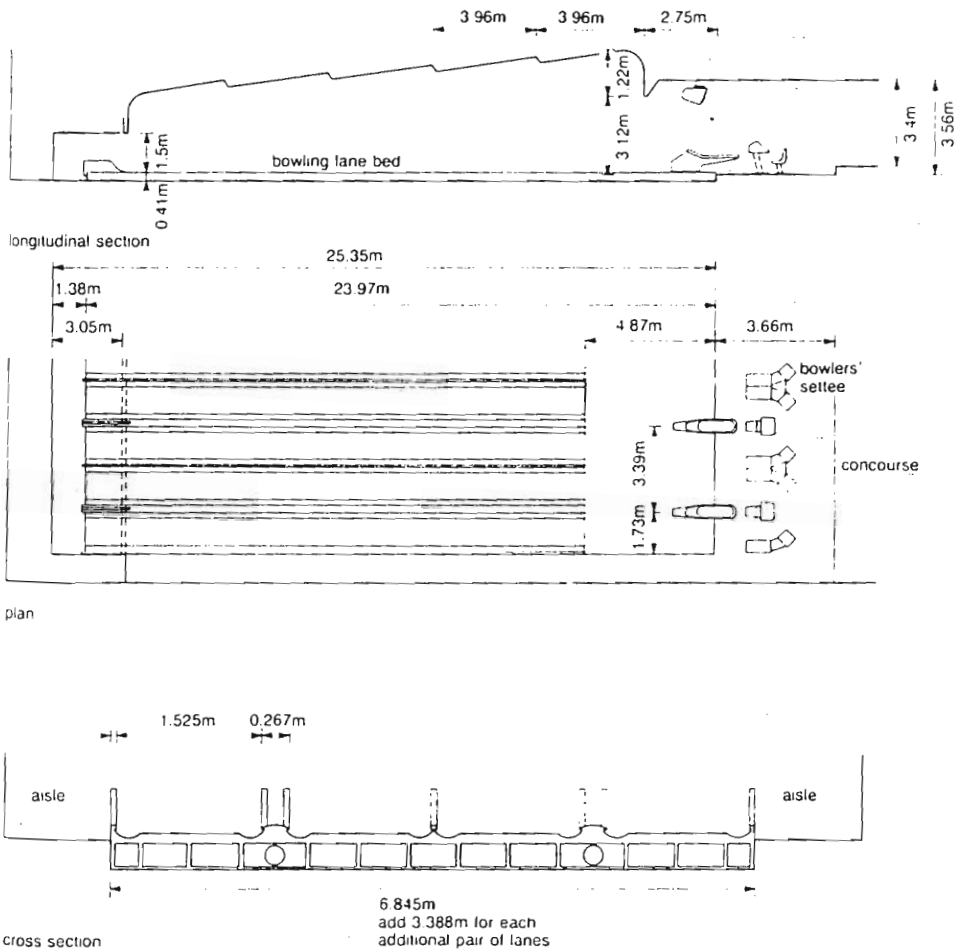


Diagram of bowling lanes and related spaces. AMF and SC

the racks are on the same level as the bowler seating rea. Racks may be 16-ball mobile storage racks, or fixed uilt-in racks.

Coat racks. These may be incorporated in the same area s ball storage, or provided for in a special 'check room' ear the control counter.

Pinspotter service area. This is at the far end of the owling lanes. This should accommodate storage of ins and other supplies, plus a service aisle at least 1.8 m ide for maintenance personnel. Ideally a large service oom and a mechanic's workshop should be accessible om this service area.

- *Aisle.* A 0.9 m wide aisle, for mechanic's access, running from the front to the rear of the lanes. Smaller centres may have one aisle only; but for larger centres there may be two, one adjoining the first lane and the other adjoining the last lane.
- *Bowling pin maintenance area.* This may adjoin the service area (see above) in which case excellent ventilation and extractor fans must be provided for fume extraction.

In addition to the above, most or all of the following *administrative and social facilities* will be necessary:

- *A manager's office.* This should be large enough for the back office elements of an automated business system. In larger centres there may be more than one room, to allow for a private managerial meetings room as well as an administrative office for the counter assistants and book-keeper. The office size is dependent upon the size of the establishment and its administrative requirements. In many cases, a small private office apart from one for counter help and book-keeper/secretary is preferable for dealing with personnel, discussions with league officers and handling other confidential matters. Sufficient space should be provided for the back office elements of the automated business system as well as ample electrical points for that and other business machinery.
- *Control counter.* This is rather like the bridge of a ship, and the floor must be raised to give the control clerk a commanding view of all entrances, all lanes, and the video area, regardless of the flow of traffic. The counter should accommodate all the sophisticated electronic scoring and business equipment which forms part of a modern centre, and must therefore have ample electrical points. A display area for rental show racking and other merchandise may be included.
- *Food and bar lounge.* A whole range of attractive facilities of high quality are essential in a modern 'up-market' bowling centre. These should at least include a bar and a fast-food outlet with limited but good quality menu. A separate outside sales entrance may be considered to bring in new business. The lounge should be designed to invite bowlers in. Where permitted a pass-through service window to the concourse should be provided for waitress service to the concourse. Storage and access to an outside loading bay must be provided for all these facilities.
- *Video games.* There may be much waiting for free lanes in a busy centre, and coin-operated games help pass the time. Properly supervised and controlled video games and coin operated amusement machines contribute support for the operation and a welcome diversion for waiting list bowlers during peak periods. They should be concentrated in an area unobtrusive to bowlers on the lanes but in full view of the control counter.
- *All-purpose room(s).* This may operate at times as a nursery room for young children (therefore storage for toys and play equipment is necessary), at other times as a club and league meeting room, a function room, or a special event room. If not on the bar floor level, provide a dumb-waiter for service from the bar/snacks.
- *Media room.* In large centres where televised events may be held, a special media room may be required; but normally the 'all purpose room' above will suffice.
- *Billiards and snooker.* A billiards and snooker club or an 'open' facility, providing at least as many tables as bowling lanes is not uncommon, 4. See also Chapter 71 in this volume.
- *Toilets.* To keep up-market clients happy these must be well-designed and finished (eg ceramic wall tiles from wall to ceiling), have excellent ventilation to prevent odours, and must be designed for excellent maintenance (coved corners, wash-down floors with drainage outlet, etc). They must be located for easy supervision. Provision must be calculated for five persons per lane at peak periods, following local authority regulations. Include a women's powder room lounge, well furnished and decorated.
- *Lockers.* There should be rental lockers, probably near the toilets or opening off the concourse, where customers of both sexes can store clothes and belongings. Five lockers per lane are recommended.
- *Bulletin boards.* There must be ample, easily accessible bulletin board space for posting of lane assignments, current team standings, special events and the like.
- *Staff rest room.* Facilities to comply with the Health and Safety at Work requirements.
- *Storage and utility spaces.* There must be adequate space for heating and air conditioning plant, utilities meters, cleaning equipment and supplies storage for all service, management and amenity rooms.

3 *Scoring control system in the bowlers' seating area. Photo: AMF*

2.4 Finishes

Floor finishes

Bowling lane beds are built using selected tongued and grooved maple and pine boards or laminates, dense particle board and particle board approved and tested to Federation Internationale des Quilleurs (FIQ) standards and from specialist suppliers. Concourses and circulation areas are usually carpeted. Heavy circulation areas such as the step up from sitting to concourse, control counter, entrances, game and vending areas, sitting area are usually vinyl or rubber sheeting.

Wall finishes

High quality, attractive, but easily maintained surfaces are important. The acoustic properties of soft furnishings should be considered.

Ceiling finishes

Sound absorption must be provided to ensure that average noise levels are kept down, following specialist advice. A sprinkler installation is advisable.

2.5 Internal environment

For general details of environmental services recommendations refer to Chapters 60 and 61.

Acoustics

It is important that the noise created by the activity is contained by utilising sound absorbent material on the walls and ceiling surrounding the lanes.

El Bunkyo Sports Center puede ser contemplado como evidente manifestación de la poliédrica esencia de la actividad arquitectónica. Los encargados de materializar en unidad formal todos estos prismáticos componentes son los japoneses Sachio Otani y Otani Kenkyushitu, que cuentan con la colaboración de The Architectural Section, The Bureau of Architecture and Environment, Bunkyo Ward Office.

El arquitecto japonés Sachio Otani es profesor emérito de la Universidad de Tokio y miembro de la JIA (Japan Institute of Architects). Su dilatada trayectoria profesional comprende numerosos reconocimientos, entre los que destacan: el Grand Prix of the Kyoto International Conference Hall (obtenido en julio de 1963), el Pan Pacific Prize (recibido en noviembre de 1969) y el trofeo de la AIJ (Architectural Institute of Japan) por el Kanazawa Institute of Technology Designing (mayo de 1983), el Kaozama Institute of Technology (1967), el Okinawa Convention Center (1983) y el Complex Building of Museum and Office for Chyouu Ward in Chiba City.

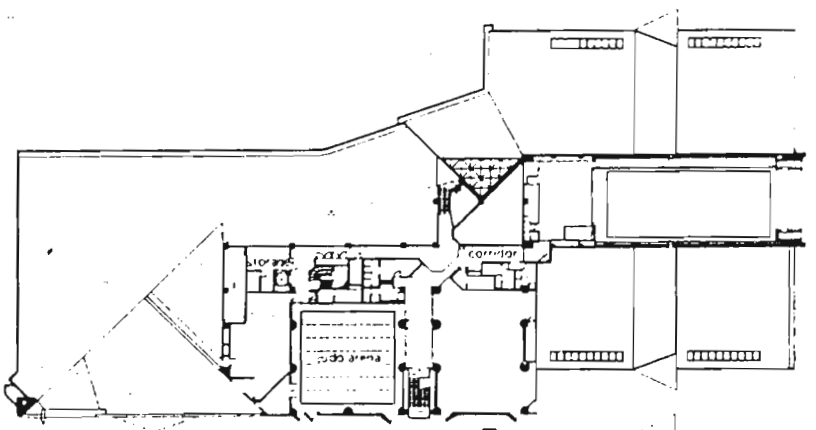
El Bunkyo Sports Center está situado en el punto donde anteriormente se ubicaba la Universidad de Educación de Tokio, trasladada en la actualidad a la Tsukuba Science City. Este traspaso revierte en beneficio de los vecinos de Bunkyo Ward, dado que el objetivo de los promotores del trabajo postula la transformación de la totalidad del área del antaño *campus* del centro docente en un gran parque público.

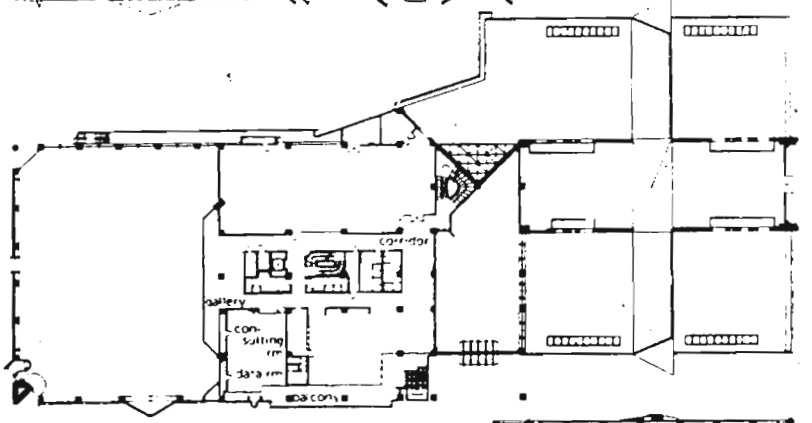
Sin embargo, la fisonomía de esta construcción evidencia que su función no se limita únicamente a ejercer como eventual alojamiento de deportistas, sino que ésta también actúa a modo de potencial refugio en caso de situaciones de emergencia y de centro de control en circunstancias provocadas por catástrofes naturales.

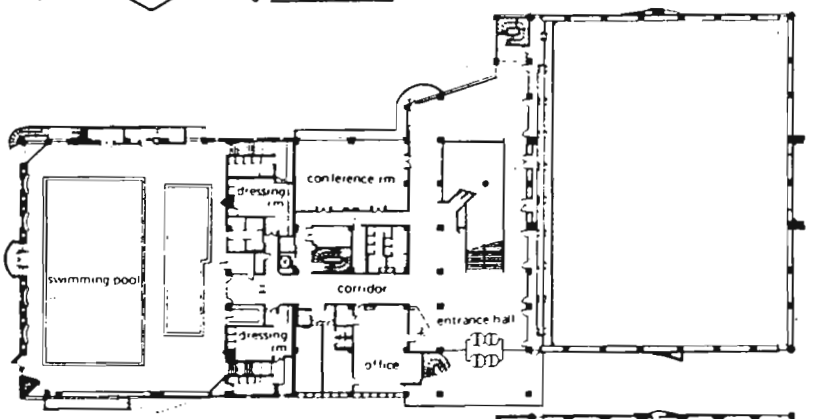
De este modo, el aspecto del inmueble revela que posee la seguridad idónea para hacer frente a las posibles contrariedades que la orografía nipona pueda ocasionar. Esta invulnerabilidad se manifiesta en la consistencia de su base, en su moderada altura y en la extrema rotundidad de sus paramentos.

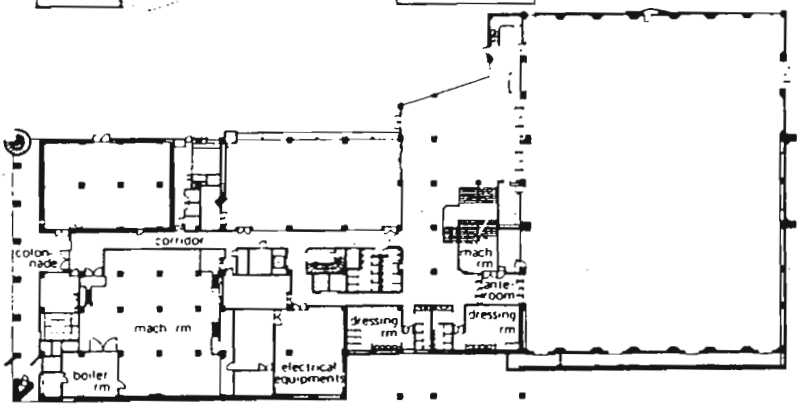
En concreto, el Bunkyo Sports Center se compone de gigantescos espacios internos (como, por ejemplo, vestíbulos) en los que se instalan grandes ventanales, a modo de claraboyas. Estas áreas están acondicionadas para la práctica de diversas actividades deportivas y la heterogeneidad de éstas es la causa de la diferente extensión de las mismas. Dicha disposición vertical explica la existencia de los citados tragaluces, que permiten el libre paso de la luz solar a través de sus transparentes cristales y, por ende, se convierten en benefactores del *confort* de los deportistas y del de los potenciales refugiados.

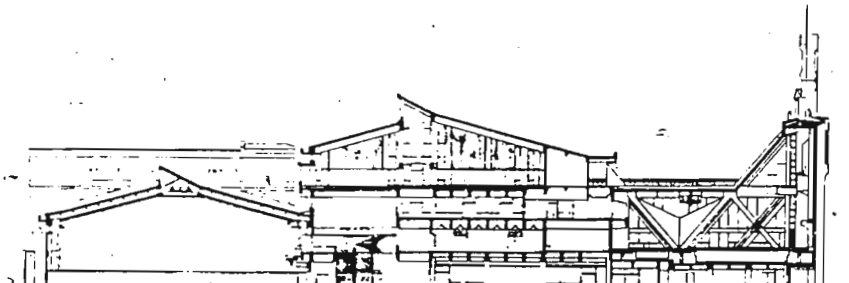
Los 4 478 m^2 de los que consta este *bunker polideportivo* (que, a su vez, forman parte de los 8 857 m^2 que mide el área total del parque público en el que se ubica) se reparten en cuatro pisos y un sobreático. Todos ellos se caracterizan por su amplitud espacial y por la perfecta comunicación que mantienen con respecto a los demás. Por otra parte, la funcionalidad

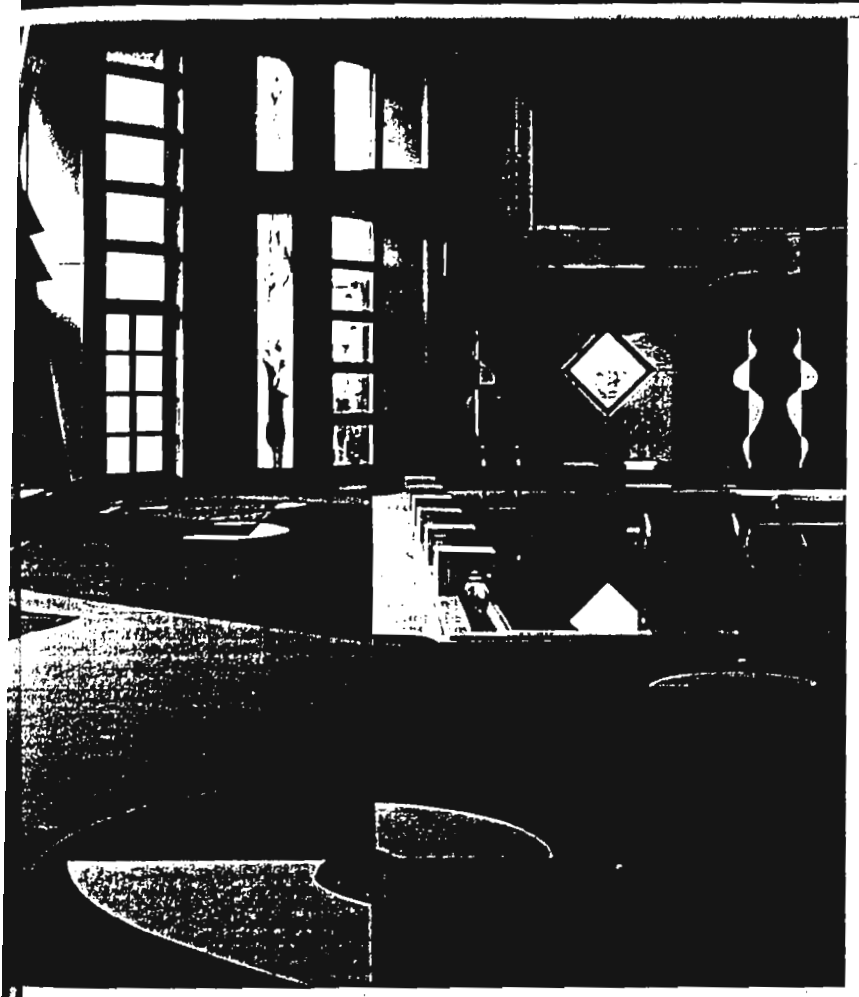












Fotografía del hall
que ya se captan l
tectónicos que del
Sports Center.

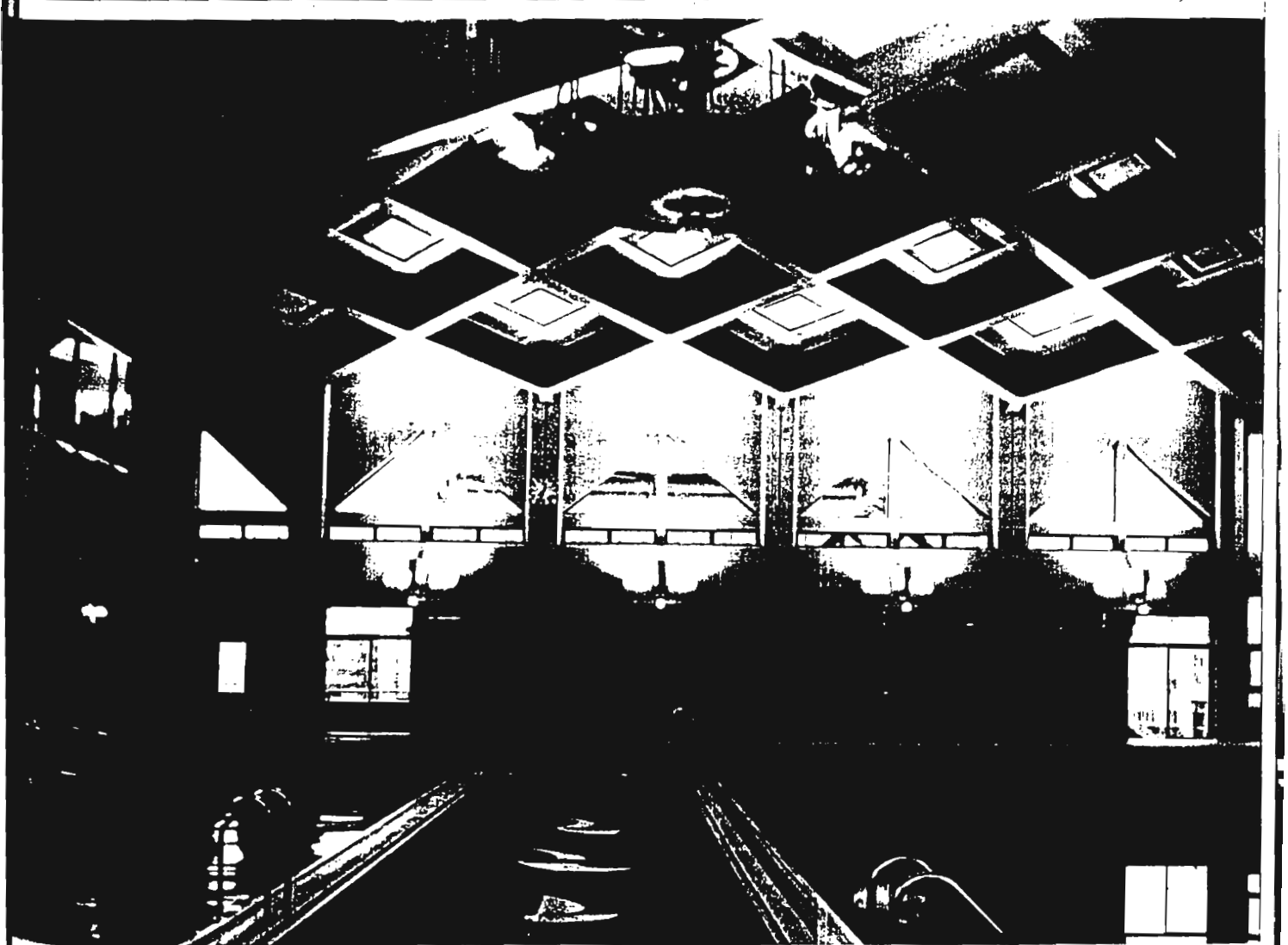
en el cuarto se ubican las destinadas al *judo*, *kendo* y una pieza para la instalación del aire acondicionado.

Las cuatro plantas del Bunkyo Sports Center coinciden en su perímetro y en su capacidad intercomunicativa, potenciada por la existencia de amplios corredores y escaleras, así como la de espacios alrededor de los cuales se desarrollan éstas. Asimismo, en estos cuatro niveles se localizan estancias de idéntica función y de inevitable presencia, como vestuarios, oficinas o extensos espacios abiertos. Por último, cabe mencionar que la totalidad de los pisos de los que se compone el complejo de Bunkyo Ward concuerdan en la originalidad de los muros externos que los contienen, conjunciones estéticas de diferentes volúmenes.

A la mencionada resistencia de esta obra de Otani y Kenkyushitu contribuye la naturaleza de los materiales utilizados en su construcción. Entre éstos sobresale el hormigón armado, empleado para la elaboración de la estructura, y el acero, que también forma parte del citado armazón. Las óptimas consecuencias del uso de estos materiales están avaladas por la tradición; de hecho, en la historia de la arquitectura, estos componentes se definen por su recurrencia, motivada por su capacidad para armonizar equilibradamente los conceptos de belleza y funcionalidad.

View of the gymnas

Vista del gimnas
Sports Center
Otani y Otani Kenk



SLOTSSØBAD

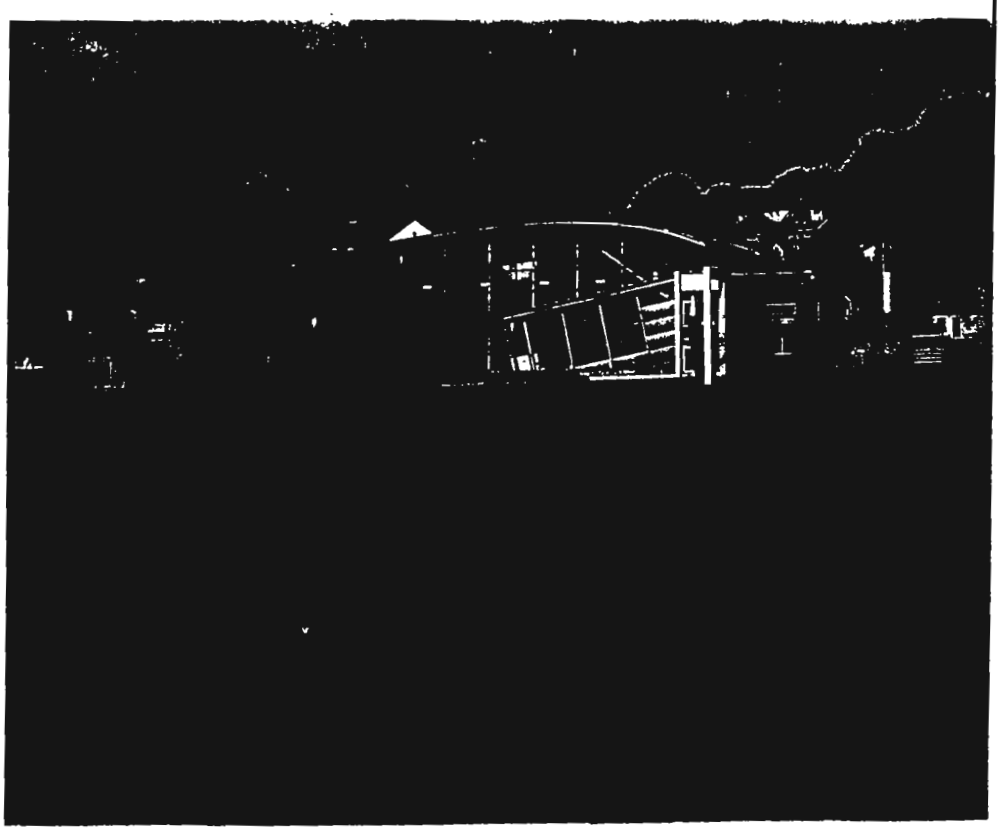
This ingenious and daring swimming pool continues the Danish traditions of fine construction and generous public building, while carefully responding to the sensitive centre of one of Denmark's finest old towns.

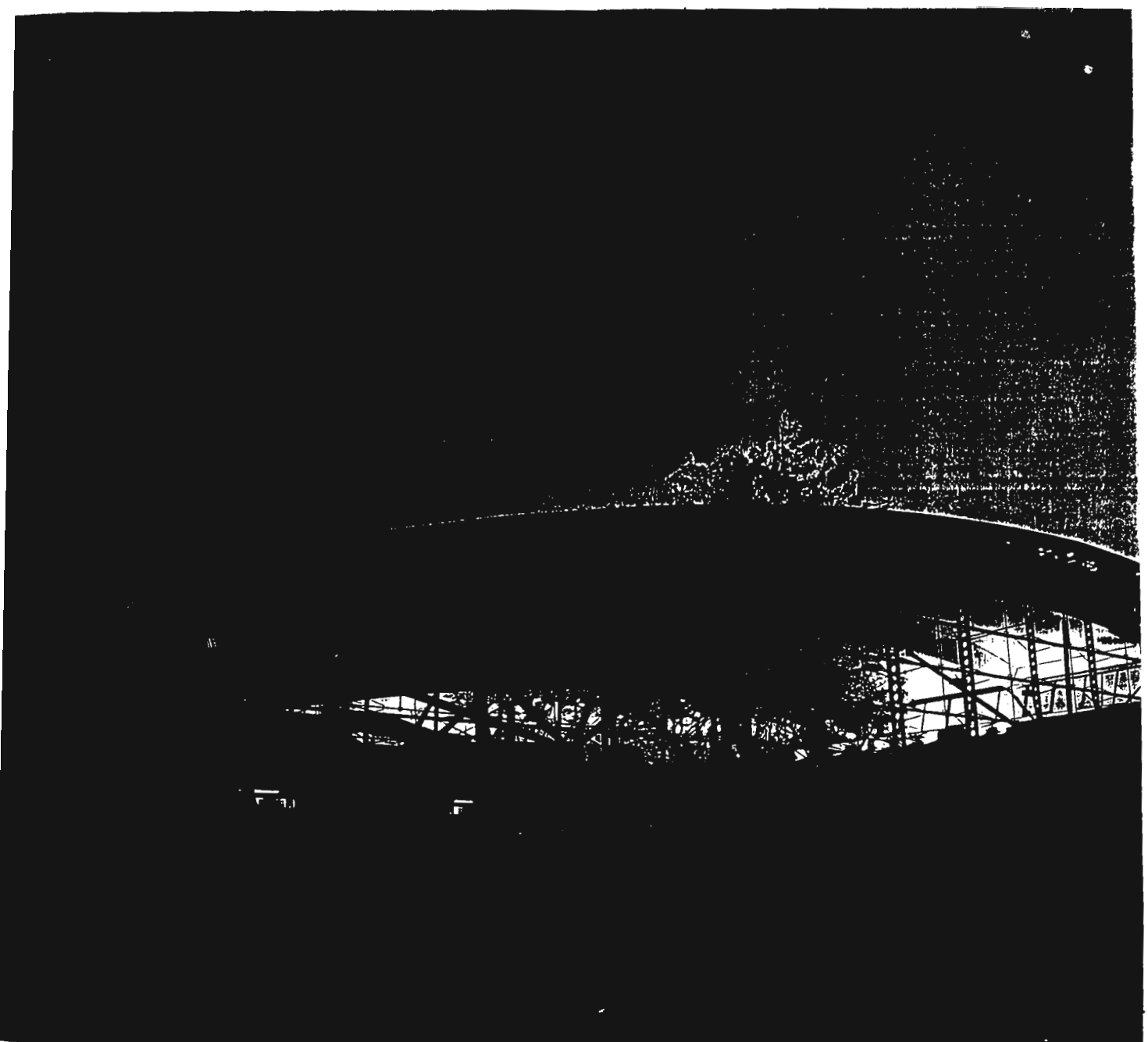
Kolding is a small old town at the head of a little fjord in south-eastern Jutland. It curves picturesquely around a lake and the whole bosky composition is dominated by the Koldinghus castle – a medieval structure on a mound, made Baroque and almost domestic in the eighteenth century. The town council is plainly most concerned to retain the qualities of the old centre, and has supported projects as different as the imaginative and radical restoration of the castle by the Exners (AR October 1993, pp63-67) and this new swimming pool by the lakeside.

The pool is part of a holiday complex which was the subject of a competition sponsored by the Labour Unions' Holiday Fund. There was an existing swimming bath and changing block in the lakeside park (the Slotssøbad, castle's lake baths). The challenge was to add to that complex and bring it up to modern standards. The winner was Niels Sigsgaard, of A5 Tegnestuen (now Nøhr & Sigsgaard), who made two new elements: a long thin service strip to the north, and a new pool hall that overlaps the existing buildings and brings the whole together.

The service strip is oriented east-west, running back perpendicular from the lake shore to the town, because that is the direction of the grain of the centre. The strip sets up the orientation of the new work and is signalled by projecting two apparently overlapping planes of concrete that are projected as portals at each end. One of these signals the entrance in the north-west corner.

Because of the slope, the foyer is half a level above that of the pool hall, and from it the visitor gets an instant view of the splashing about below. To the left are the steps that lead up to the





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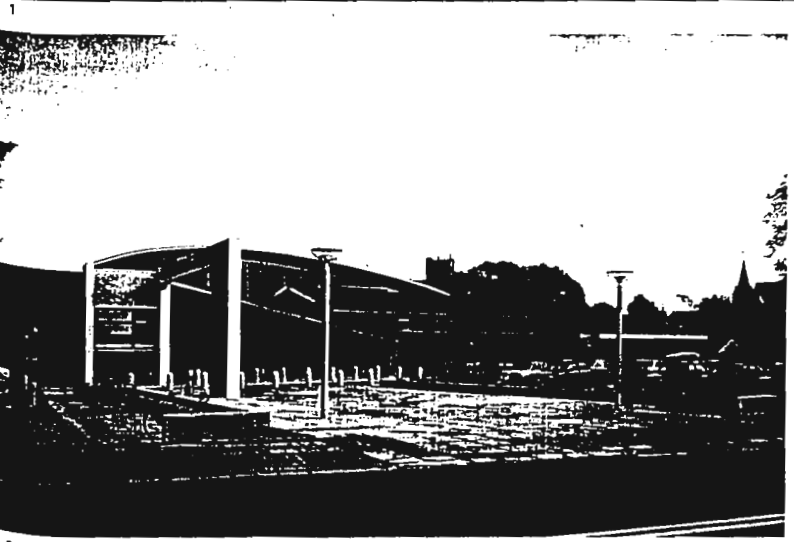

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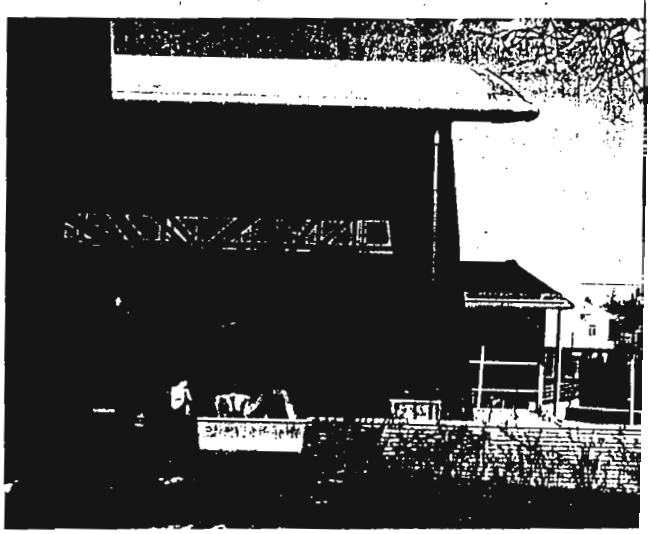
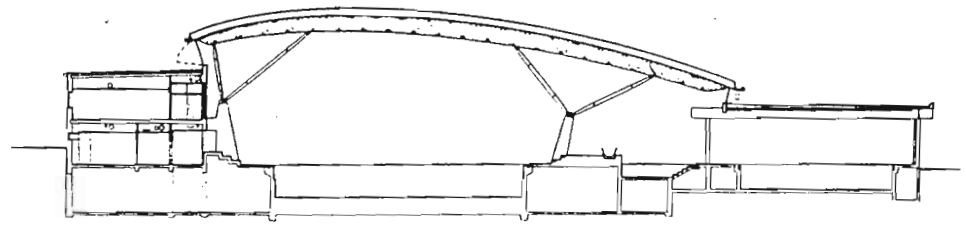


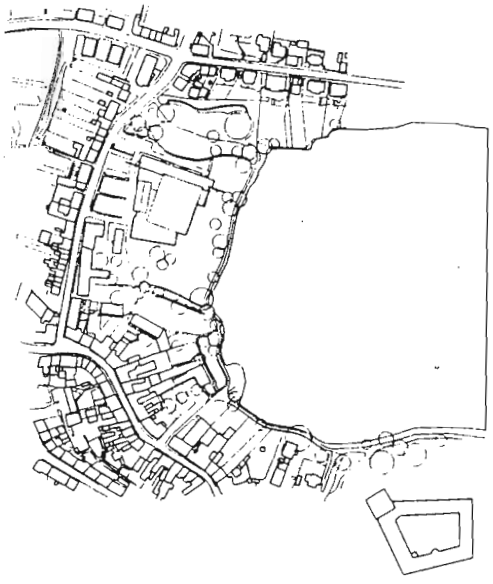
3

1
The great glazed east wall that allows bathers magnificent views of the park, lake and castle, while making their activities part of the life of the town.
2
Entrance in north-west corner. To right is the blue-painted original changing block, now used for school parties.
3
South-east corner of new pool hall, with wall of old hall left.
4
The spine terminates in two portals. Eastern one stretches into park.
5
From the lake (Slotssø) showing how the spine relates to the town.

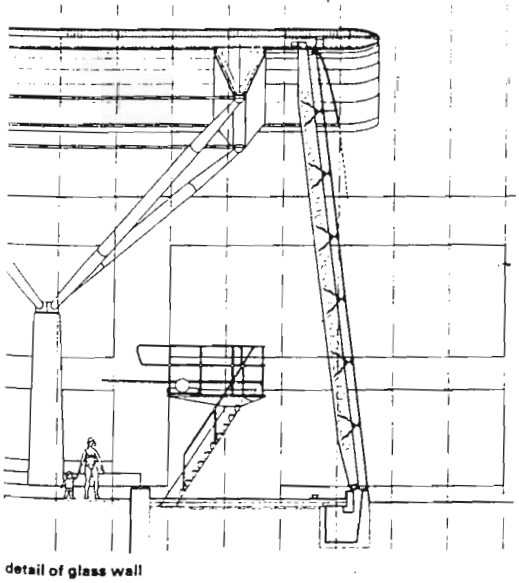
Swimming baths, Kolding, Denmark
Architect
Nøhr & Sigsgaard



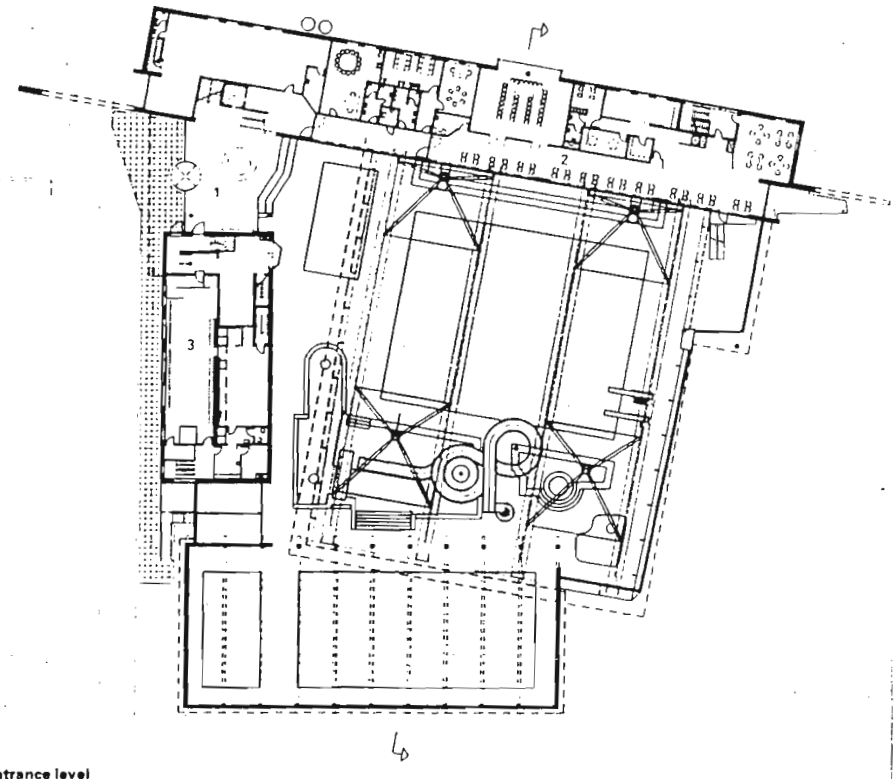
north-south section



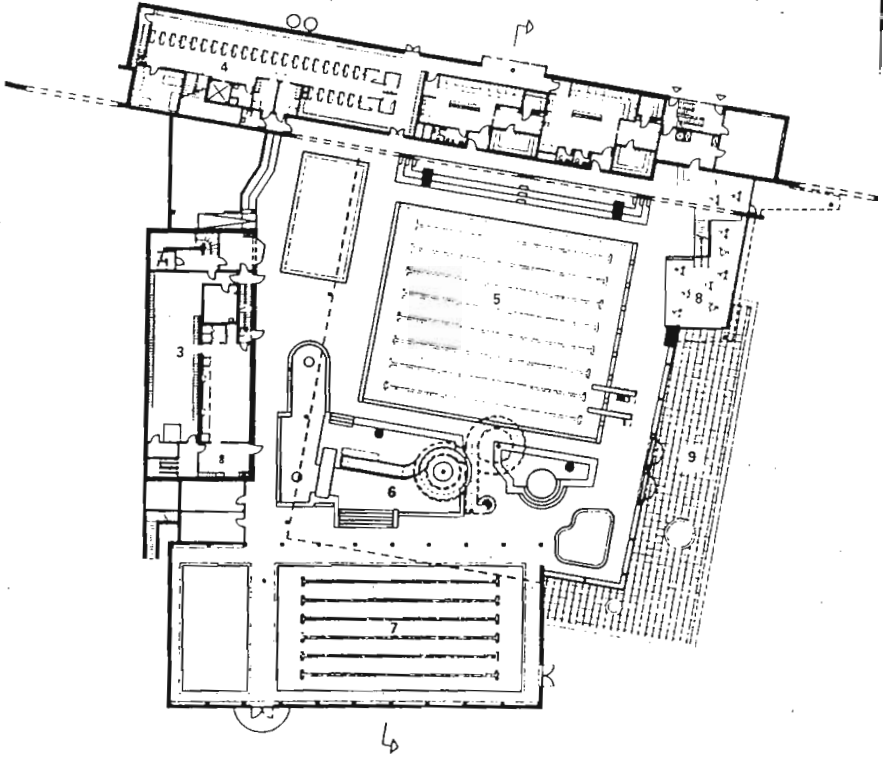
site plan (castle bottom right)



detail of glass wall

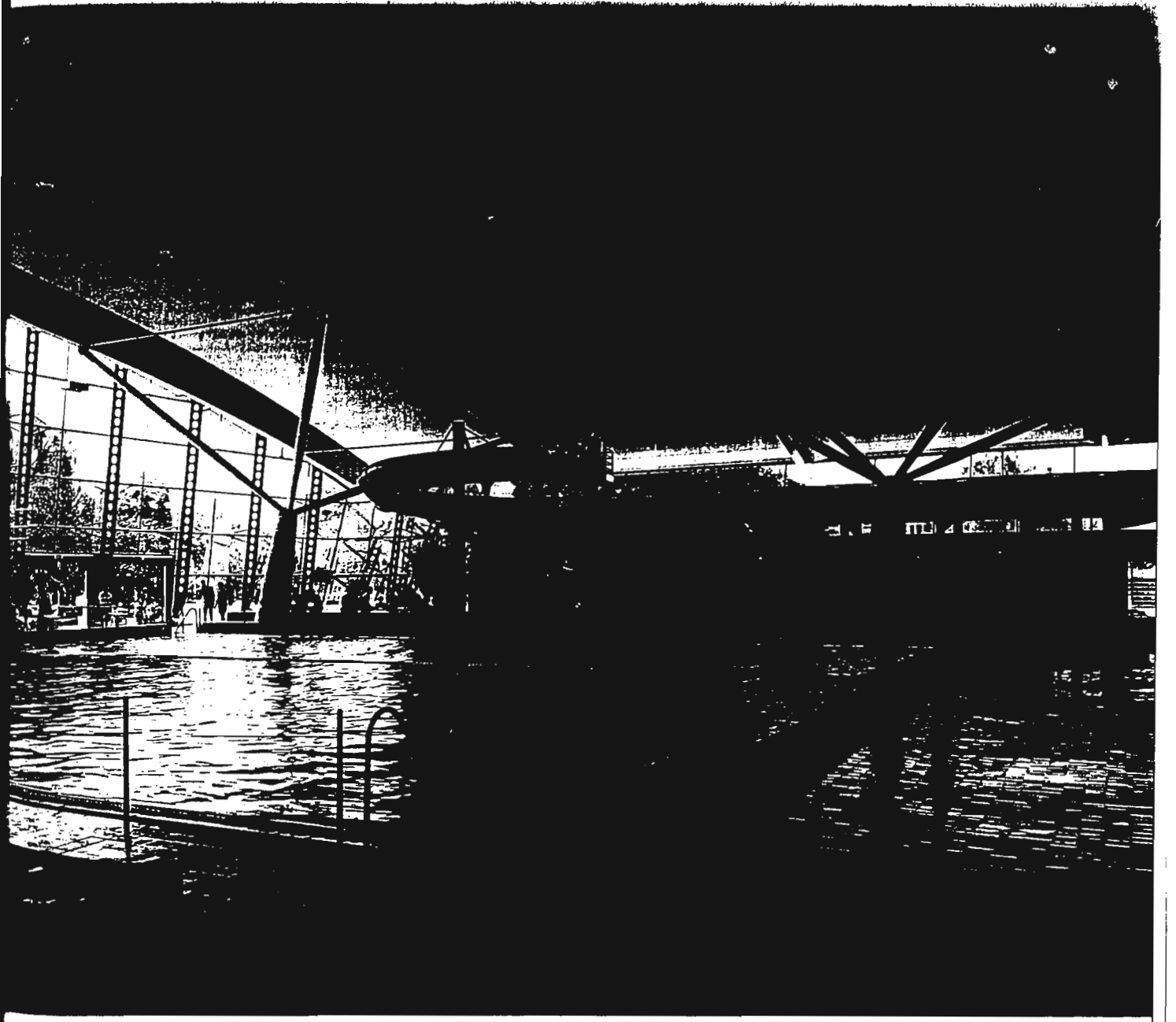


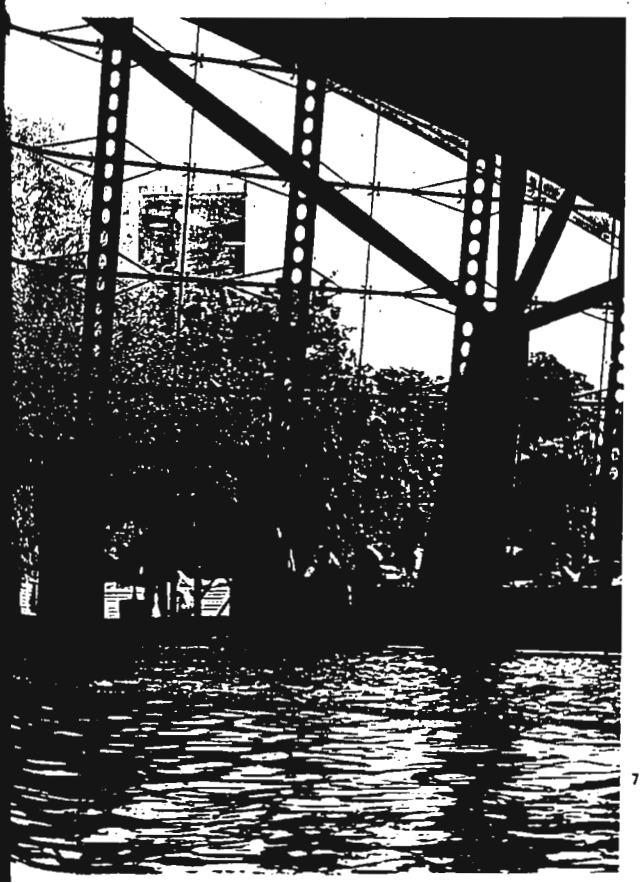
entrance level

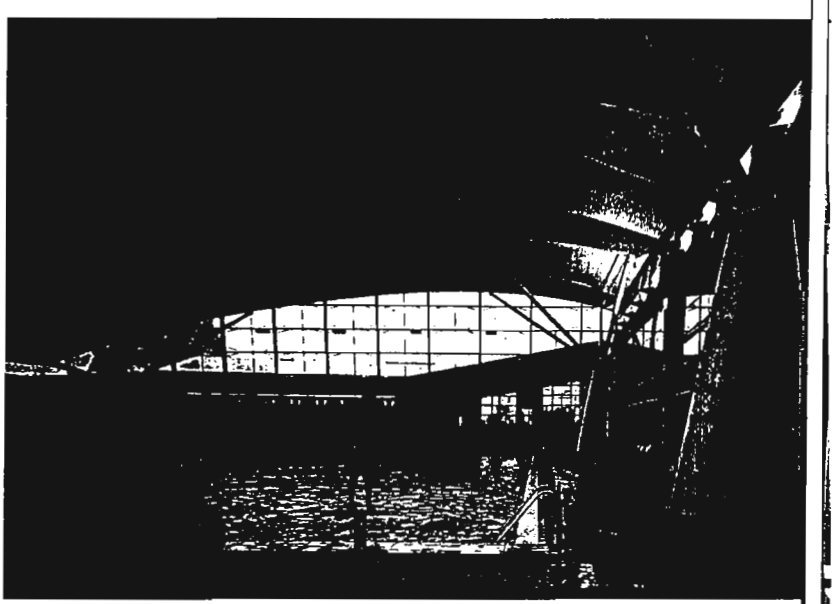


pool level (scale approx. 1:800)

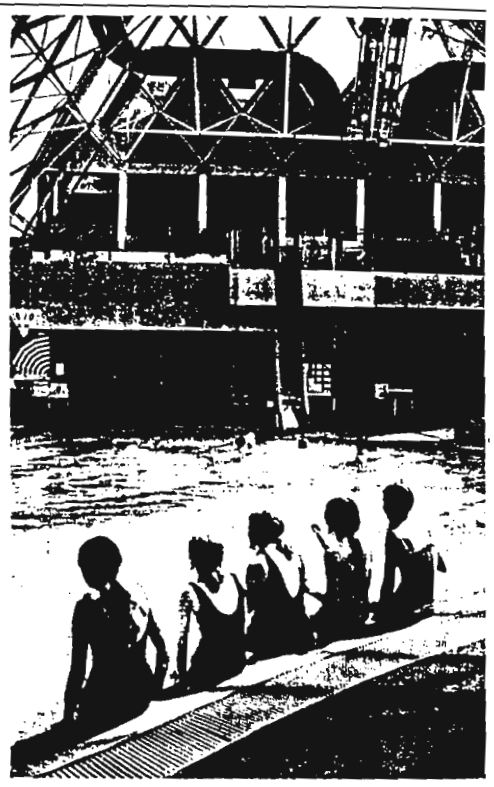
1 foyer
2 cafeteria
3 school changing (old building)
4 adult changing
5 new competition pool
6 fun complex
7 old pool
8 bathers' café
9 terrace

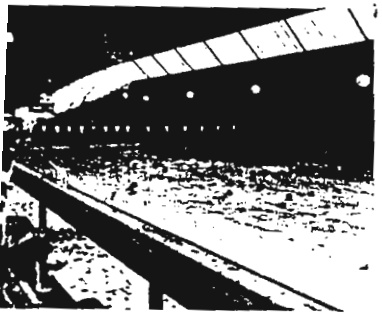






6
The new hall looking south to the old one beyond the water slide. Old structure is exposed as pergola.
7
The great east window frames views of park and castle.
8
Looking west towards the foyer, which is half a level above the pools.





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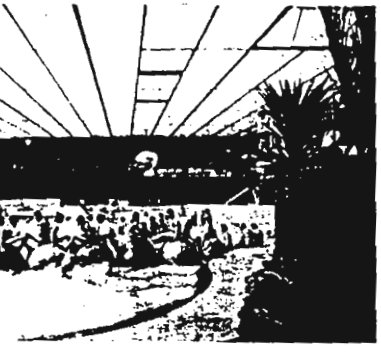

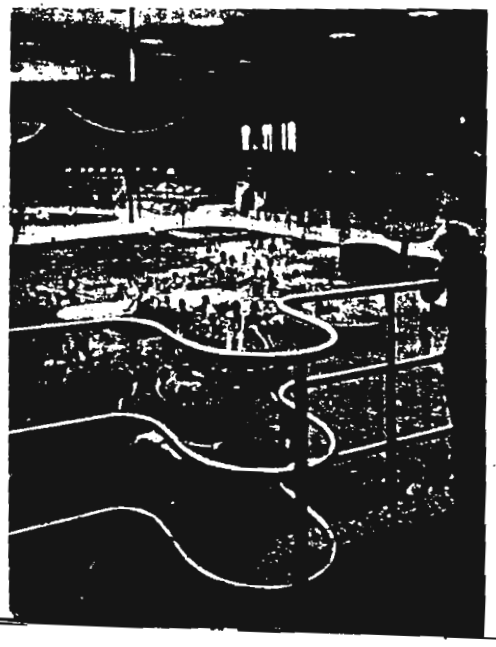

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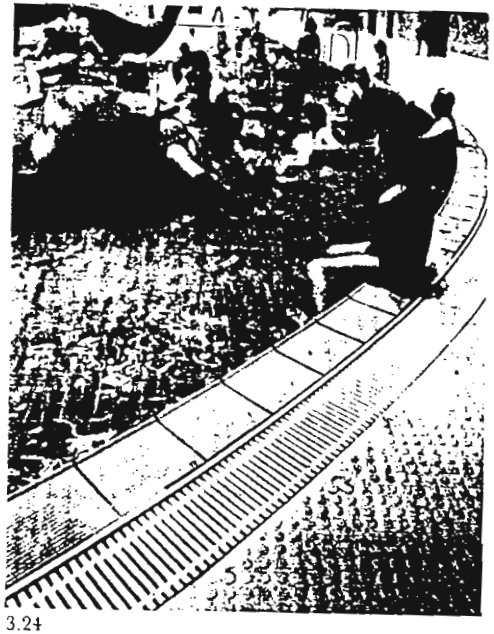

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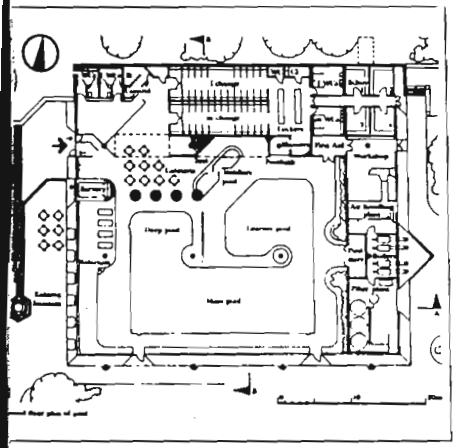

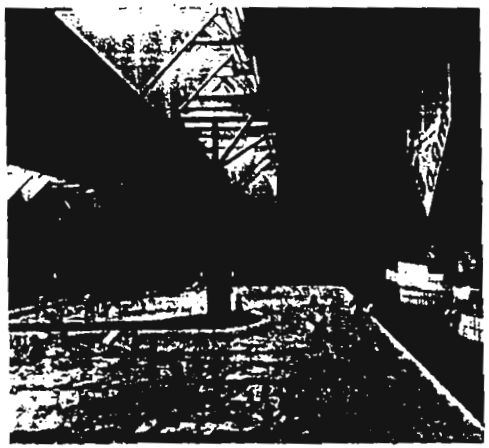

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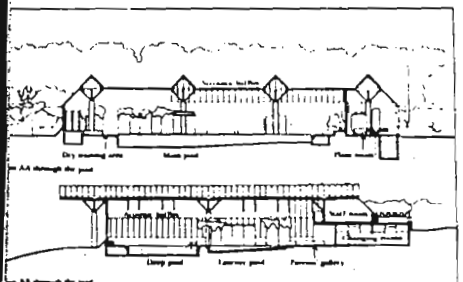

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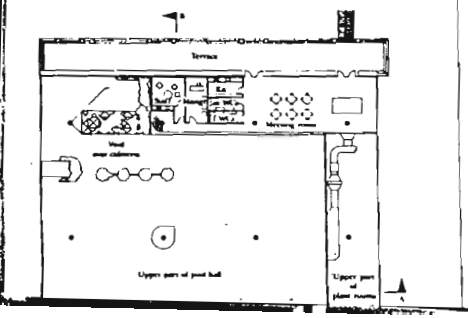

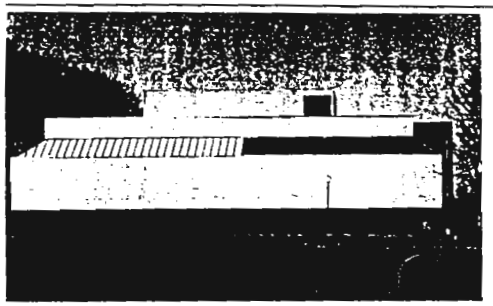

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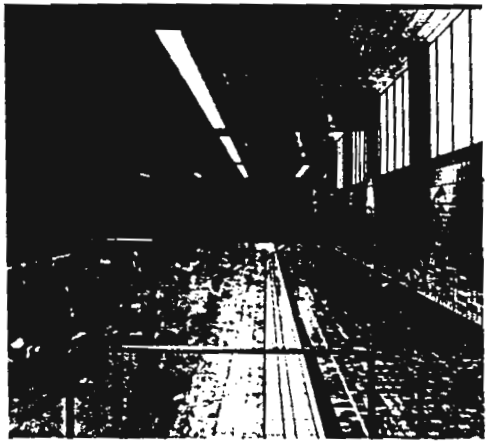

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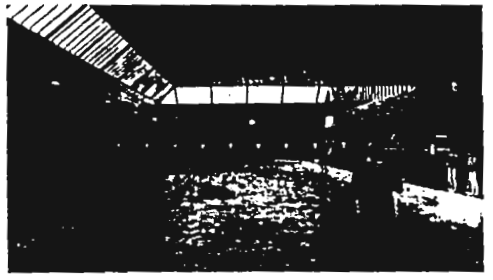

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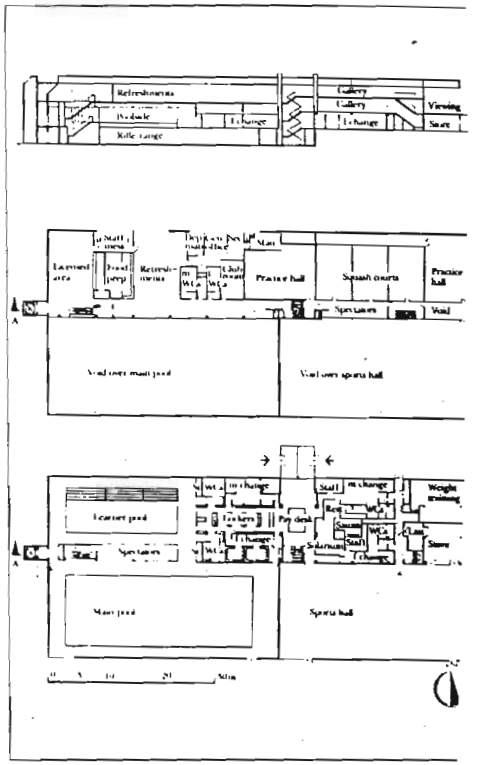

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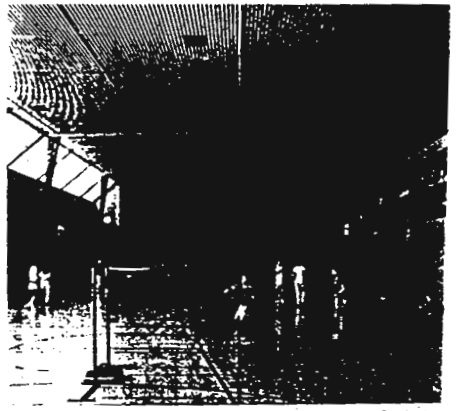

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