

Die Spiele

Volume 2

The constructions

Die Spiele

The official report
of the Organizing
Committee
for the Games
of the XXth Olympiad
Munich
1972

Volume 2

The constructions

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Federal Minister for Regional Planning,
Construction, and Urban Development;
Lord Mayor of the Bavarian Capital City
of Munich from 1960 to 1972

Helsinki - Rome - Tokyo - Mexico City:
When one recalls the Olympic Games in
these cities, one recalls not only brilliant
sporting performances and thrilling
competitions, but also the outstanding
Olympic buildings. One thinks of the grace-
ful stadium of Lindegren Jäntti, of the
daring sport palaces of Nervi, of Kenzo
Tange's suspended roofs for the swim-
ming and basketball halls, and finally of
the marvelous dome of Candila/Castañeda/
Peyri for basketball competitions. These
buildings stand out as examples of new
architecture, as valid contemporary ex-
pressions of form, as symbols of the mas-
tery of new technical problems.

All these cases, however, concern pree-
minent single structures; the other sports
facilities are scattered around the entire
cities involved. The applicants for the
1972 Games, on the other hand, had a
different conception in mind from the very
beginning. In competing with Detroit,
Madrid and Montreal at the IOC meeting
in Rome in April, 1966, Munich submitted
a proposal whereby stadium, sports hall,
swimming hall, cycling stadium and
Olympic Village were concentrated in a
single complex, within the city and only
four kilometers from downtown.

After the Games of the XXth Olympiad
were awarded to the Bavarian capital, the
organizers decided to set aside the hastily
developed building plans for the former
military training ground and airport at
Oberwiesenfeld in favor of a plan which
better captured the mood of the Munich
Games. This resulted in a layout which
provided the "Verdant Games" with a
worthy, but airy and graceful "park of short
paths". The architecture contrasts clearly
with the monumental structures of the
1930's and at the same time corresponds
to the character and personality of the city
of Munich.

One hundred teams of architects, engineers,
landscaping and traffic planners took part
in the 1967 planning competition. The
judges who met in two extended deliberat-
ing periods under the chairmanship of the
talented late Egon Eiermann of Karlsruhe,
awarded the first prize to Günter Behnisch
and Associates, Stuttgart. This design
offered an extraordinary solution. Along
with the outstanding arrangement and
spatial ordering of the buildings, the plan
possessed particular landscaping merits. It
also foresaw an unusually daring tent roof
to unite the stadium, sport hall and swim-
ming hall. The Chronicle contained in this
volume documents the realization of this
concept up to the most mature stages of
planning. The design itself is described and
illustrated in the main body of the work.

Along with the facilities at Oberwiesen-
feld and in the direct vicinity (they were
complemented by the Central University
Sports Facility, the Press Complex and the
Press Center), structures arose in other
places, such as the regatta course for
rowing and canoeing, the shooting range,
the riding facilities, the wrestling hall and the
basketball hall. The planners here were also
chosen partially by competition. Other
winners of the large contest were com-
missioned directly with these projects.

As early as 1912, Baron Pierre de Coubertin
drew attention in the "Revue Olympique"

to the importance of Olympic sports struc-
tures as essential elements in urban con-
struction. He demanded high creative
quality from planners and called for the
integration of the buildings into the city in
such a way as to assure their use after the
great sporting events. This concept of
Coubertin's has been realized in Munich.
In addition, the city's infrastructure has
also been improved. As was already shown
by the experience in Rome, Tokyo and
Mexico City, the Olympic preparations in-
fluenced urban planning and development.

Within the framework of Olympic prepara-
tions, Munich gained 4.2 km. of additional
subway lines, 275,000 sq. m. of streets,
over 1000 units of low-cost housing, about
5000 privately financed apartments,
1800 student rooms, and three schools
for about 5000 pupils. Over and above
this, work on Munich's rail rapid transit
system, on the radial arterial access road
system, and on the pedestrian zone down-
town was so accelerated that these projects
could be completed years earlier than
normal investment would have allowed.

Without the Games, there would probably
be even now only a conventional soccer
and track and field stadium at Oberwiesen-
feld. Instead Munich has acquired a
marvelous large recreation park which has
enriched the individuality of the city, has
provided a new center of varied community
life, and has given new value to northern
Munich.

The Editors:
Frieder Roskam, Franz Gramling,
Heinz-Willi Hallmann

For the first time, a volume in the series of
Official Reports has been devoted ex-
clusively to the buildings for the Olympic
Games. This volume provides an inde-
pendent survey of the planning and con-
struction phases, the results of this work,
the technical data and the spatial utilization
of the facilities. It emphasizes the special
characteristics of the sport facilities, their
functional relationships to one or more
types of sport, but also their possibilities
for those seeking recreation and sporting
opportunities.

When the results of the Olympic competi-
tions will have been long since forgotten,
the buildings should still convey to the
visitor the basic concept of the planning;
that is, the human scale of the facilities,
despite the large dimensions necessitated
by the number of sports, athletes and
spectators. The judgment of the success
of this venture is left to the reader as he
studies this volume. He should keep in
mind, however, that many of the functional
demands had already been established in
advance and that the time for planning
and construction was extraordinarily short.

The volume on buildings should simul-
taneously depict the tasks of the Organiz-
ing Committee (OC) which, together with
the International Olympic Committee and
the international sports associations, made
the holding of the Olympic Games possible.
In relation to the structures, the OC had to

- hold to international regulations and
- coordinate the demands of the participat-
ing sports associations;
- construct the buildings with due regard
for functionally correct installations for
training and competition, and furnish
these with the most modern sporting
equipment;
- provide sufficient facilities and equip-
ment for spectators, press, radio and
television;
- guarantee punctual completion, and
- keep in mind the optimal post-Olympic
use. In numerous individual negotiations
(future organizers would do well to find
another method), the demands of the inter-
national associations had to be established,
solutions had to be provided by the plan-
ners, and results had to be ratified by the
participating groups. Especially proble-
matic in this process were demands for
maximum spectator space, which could not
always be fulfilled, or could only be effected
by means of temporary installations
during the Games.

Such requirements as the following are
subsumed under the heading of "func-
tionally correct facilities":
clear spatial separation of athletes, organi-
zation, VIPs and spectators;
the shortest and clearest possible access
routes for athletes into and within the
sports facilities;
sufficient space within every place of
competition for athletes, organization,
VIPs, press, radio and television;
optimal facilities for the athletes and opti-
mal viewing conditions for the spectators.

The thorough concentration of all facili-
ties must be mentioned in this connection.
The demand for optimal training conditions
included the number and types of training
facilities proportional to the expected
number of athletes, as well as the short
distances between the training areas and
the Olympic Village.

These tasks were bound up with the problems of communication as well as with the general problems caused by the pressure of deadlines on the various associates. The actual realization of the goals and structures, with the exception of the yachting installation in Kiel, was in the hands of the Olympic Construction Company which was independent of the OC and which supervised all work, from the choosing and commissioning of architects to the letting of construction contracts and to the financing.

The OC finally asserted the basic demand for most intensive post-Olympic use. The problem-spawning circumstance for such maximal use after the Games was the simultaneous occurrence of many and various sports. Therefore the number of spectator places in the stadium was reduced from 90,000 to 80,000. The sports hall was conceived not in terms of one type of sport, but rather for all-purpose, even non-sports use. Of the 9000 places in the swimming hall, 7500 were only temporary. The Central University Sports Facility, a regional installation of the Bavarian Free State, was incorporated into the Olympic Park in order to provide, in the immediate part of the training areas and a few of the competition areas which were not originally planned for the Olympic Park itself.

The southern section of the Olympic Park with the stadium, swimming and sports halls was conceived for public use. Many of the other sports facilities have been used since the Olympics as regional performance centers, for example, the training pool of the swimming hall, the warm-up hall by the stadium, the bicycle track, the shooting range, the riding grounds, the regatta course and the canoe slalom course in Augsburg.

The Olympic Village today offers student apartments, condominiums and rental apartments with the advantage of nearness to the city, all equipped with recreational areas for play and sport. The cafeterias, the communication center for the athletes, and the medical areas were so planned that they could be used after the Olympics partly for the same functions. Other parts could be converted into schools and shopping centers. For volleyball, two gymnasiums which were needed anyway as components of the Central University Sports Facility, were combined into one large hall and were partially equipped with temporary stands, since the need of Munich's population for a sports hall and a basketball hall had already been covered. Similar considerations were involved in planning the hockey fields. At the beginning these were planned for the southern section of the Olympic Park. Reasonable arguments, however, led to their location in the northern section and to their provision with temporary stands which would not raise the permanent spectator seating capacity in Munich. In this way, the goal of "Olympic Games involving a minimum of travel" was fulfilled for hockey players and spectators. Many of the decisions bearing on the task group for Olympic buildings had to be first worked out in theory, because of the lack of experience. Fortunately most of the solutions chosen were sustained by practical experience made in the execution. All personnel involved in the building projects managed to keep a critical distance from their work in

spite of their enthusiasm for the great task, and continued to acquire experience. This volume on buildings is intended to make available this experience to all those who find themselves confronted with similar assignments.

President
Dipl.-Ing. Carl Mertz
Chief Business Manager of the
Olympic Construction Company
from 1969 to 1973

For well-considered reasons, the three consortiums responsible for the financing of the Olympic Games, i.e. the Federal Republic of Germany, the Bavarian Free State, and the State Capital City of Munich, decided to establish, alongside the Organizing Committee (OC), an independent building organization for the preparations for the Games. This Olympic Construction Company (OBG) was charged with the practical realization of the spatial and functional design programs which had been worked out by the OC and had been approved by the national and international sports organizations. In other words, the OBG commissioned the architects for the 60-odd projects of various scopes. These projects were chosen partly by architectural competition (for example, for the stadium, sports hall, swimming hall, the total conception for Oberwiesefeld, the regatta course and the shooting range), or by direct commission based on special expertise or particular suitability (for example, the riding facility at Riem and the wrestling hall on the fair grounds).

The OBG also provided the majority of the expert engineers and project consultants, directed the real estate purchases, financed the work necessary for the infrastructure around the Olympic area, oversaw the design work and the competitions, let the contracts to commercial firms, and bore responsibility for the punctual completion of all projects as well as for financial arrangements. Independent of the Men's Olympic Village, for which the OBG, in cooperation with the OC, only supervised the construction schedule, and with the exception of the buildings in Kiel, which were constructed for the sailing competitions under the sole responsibility of the City of Kiel, a total of about 60 architectural firms with around 550 persons were involved. As for the special engineers, statics experts, firm consultants and builders, another 950 persons were active in the 4½ years of planning. The total building costs administered by the OBG amounted to 1.35 billion DM.

The coordination of this "collective mass of intelligence" was an extremely comprehensive and, of course, unique task. Attempting to add this burden to the immense workload of actual OC duties would surely have led to serious complications. It was thought, and later proved in practice, that the organization of the Games and the construction of the buildings could be carried out without mutual hindrance. This was accomplished through mutual trust in the competence and zeal of both organizations and through the excellent cooperation of all involved.

Another reason for the independent status of the OBG lay in the fact that, as was the case for the Olympic Games in Mexico, Tokyo, Rome, etc., a project was selected which was to provide that "essential element of urban construction" — a landmark that was to keep alive the memory of the Games in Munich; that is, the great tent roof. Here totally unknown problems had to be solved. New technical ground had to be explored. Only a dynamic organization, having a tightly disciplined leadership and the necessary jurisdiction, could master the task. Endless discussions, fierce criticism and high praise were the musical accompaniment for the planning

and construction of the roof. But in the end, this experiment also succeeded. The roof stands, was completed on time, and remained during the Games, as it will in the future, the architectonic calling card of the Games of the XXth Olympiad in Munich 1972.

This success was only possible because the large number of team workers were prepared to accept responsibility for this new construction. It is to them that thanks are due — thanks that must also be extended to all those who worked at and contributed to the Olympic structures at Munich and Augsburg.



A view over the city of Munich from the north toward the south; in the background the Alpine chain. In the foreground Oberwiesenfeld before construction; the light colored area in front of the rubble hill, which to a great extent has not yet been landscaped, is the grounds of "BAUMA" (Munich Exhibition of Construction Machinery). On the southern edge of the exhibition area; the television tower and Ice Stadium. Munich's center is only 3.8 km. from the future Olympic Park.

October 28, 1965

Willi Daume, President of the German Sports Federation and of the National Olympic Committee for Germany (NOC), suggested to Lord Mayor Dr. Hans-Jochen Vogel that Munich should offer its candidature as the site for the Games of the XXth Olympiad. Dr. Vogel agreed that serious consideration should be given to this question.

December 8, 1965

The Bundestag welcomed Munich's application and decided that the Federal Government would bear one third of the resulting costs. The City of Kiel, capital of Schleswig-Holstein, applied for the staging of the Olympic yachting events in case the 1972 Olympic Games are awarded to a German city.

December 14, 1965

The Bavarian Parliament welcomed Munich's application and decided that the Bavarian Free State would also bear one third of the resulting costs.

December 18, 1965

The NOC unanimously approved Munich's application.

December 20, 1965

The Munich City Council unanimously approved Munich's application for the Games of the XXth Olympiad.

December 30, 1965

The documents in support of Munich's candidature were submitted to the Treasurer of the International Olympic Committee (IOC), Marc Hodler, in Lausanne. In addition to Munich, Detroit, Madrid and Montreal had also submitted their applications. This application was preceded by negotiations and agreements between the Federal Government, represented by Federal Chancellor Professor Dr. Ludwig Erhard, and the Bavarian Free State, represented by Minister President Dr. h.c. Alfons Goppel. All parties assured Munich of their support in the event of a favorable decision by the IOC. In the application it was stated that (summarized extract):

"Munich already has a large number of sports facilities, some of which can be expanded:

The football stadium on Grunwalder Strasse (44,000 capacity).

The athletics stadium on Dante Strasse (22,000 capacity - can be increased to 35,000).

Football stadium at Pullacher Platz (25,000 capacity).

Twenty municipal sports installations, each with several playing fields. These grounds include fifteen 400-m. -tracks and other facilities for athletics, in addition to accommodations for up to 3,000 spectators.

Sports arenas in the Munich exhibition park:

Hall 7 (6,000 to 7,000 capacity), Bavaria Hall (4,500 capacity).

Five other halls (each for up to 2,500 spectators) and up to nine courts for indoor handball and basketball. Circus Krone Building (3,100 capacity).

Another 257 gymnasiums and sports halls. Swimming stadium on Dante Strasse (3,000 capacity which can be increased to 10,000) with a 21 m. x 50 m. swimming-pool and a diving pool with a 10 m.



The conception of the Olympic facilities at Oberwiesenfeld which was presented at the IOC-Congress in Rome in connection with the application of the State Capital City of Munich. The model shows the stadium in the north on a platform which spans the Middle Ring (city expressway), with the swimming hall and the sports hall adjoining. The Olympic Village is in the northeast. In the southeast is the ice stadium, while the stadium is located in the southwest.

Dr. Hans-Jochen Vogel, Lord Mayor, and Willi Daume, the later President of the Organizing Committee, accept the congratulations of IOC-President Avery Brundage after the selection of Munich as the location for the Games of the XXth Olympiad of 1972.



diving installation. Additional training facilities are provided by several other indoor and open-air (heated) swimming-pools within the city boundaries.

Amor Cycle Track (9,000 capacity, length of track: 333 $\frac{1}{3}$ m.).

Equestrian sports facilities in Munich-Riem. Several shooting ranges within the city boundaries, suitable for the modern pentathlon and training. During the next few years, but by 1971 at the latest, these existing facilities will be supplemented by the following sports installations to be constructed at Oberwiesenfeld, located only 3.8 km. from the center of the city:

Olympic Stadium:

Plans are nearing completion for the construction of a large stadium with accommodation for 90,000 to 100,000 spectators, 50,000 of whom will be under cover, with seats for 70,000. This stadium, the future sports center of Munich, will be equipped with facilities for almost all sports. It is therefore eminently suitable for important international sports events.

Sports Hall:

Another center at Oberwiesenfeld will be the proposed multi-purpose sports hall with a total area of almost six hectares and providing accommodation for 12,000 spectators, all of whom will have un-hindered view. It will contain facilities for gymnastics, boxing, wrestling and fencing events, indoor athletics and handball, basketball, tennis and equestrian tournaments.

Smaller Sports Hall:

As early as 1966 a sports installation will be completed at Oberwiesenfeld which will include a hall for 8,000 spectators. The central floor space will measure 60 m. x 30 m. and can be used for indoor events (boxing, wrestling, fencing).

Swimming Hall:

A swimming stadium with capacity for 10,000 spectators will be built in the immediate vicinity of the Olympic Village. It will contain a swimming-pool (25 m. x 50 m.) and a diving-pool measuring 20 m. x 20 m.

Cycling Stadium:

A new cycling stadium accommodating 10,000 spectators will be built adjacent to Oberwiesenfeld for the Olympic track cycling events.

A rowing and canoeing course will be constructed either in Munich or on one of the Bavarian lakes.

Summing up it can be stated that Munich, with its existing and planned sports installations, offers optimum conditions for holding the Olympic Games. The principal existing and planned sports installations, together with the Olympic Village and the associated facilities and training areas, will all be situated on the 3 million square meter "Oberwiesenfeld" in the north of the city. Easy access to this terrain will be provided by highways, the subway, the Federal Railway System, trams and buses, and it will have parking space for 10,000 cars.

Installations for those Olympic sports that cannot be accommodated here will be newly constructed, together with training facilities, in so far as they do not already exist. With few exceptions they will be in the immediate vicinity of the Olympic Center or will be situated within the city boundaries at a maximum distance of 10 to 15 km. and will be easily accessible by convenient means of transportation.

The Olympic Village:

The Village will be built in close proximity to the main sports installations and, with all its facilities, will occupy an area of about eighty hectares. When the Games are over it will become a select residential quarter, well situated in relation to the city and providing accommodation for 7,000 persons. This housing development has exceptionally good communications. Its situation is such that all sports and cultural events which take place outside the main installations during the Olympic Games can be reached quickly and conveniently. Completion dates will be scheduled so that the first occupants will be the participants in the 1972 Olympic Games. The Olympic Village will contain a community center with all necessary organizational and cultural conveniences. The center will form a connecting link between the quarters of the men and women athletes and will be equipped to satisfy the different requirements of the competing nations.

The training and practice grounds of the Olympic Village will be located in a park-land area of about 27 hectares separating the Village from the main sports sites.

This green zone will provide ample opportunity for training for the contests and also for relaxation."

February 10, 1966

The City of Munich sent its final application documents to the 71 members of the IOC, the 132 National Olympic Committees and the 40 International Sports Federations.

April 25, 1966

Lord Mayor Dr. Vogel stated at the presentation of the application to the IOC in Rome, "Munich offers Olympic Games with short distances and would like to give the Games a special cultural character."

An exhibit on the theme "Olympic Games in Green" demonstrated the existing and planned facilities and installations. The information sheet carried the following statement: "Munich — a city with its own distinctive atmosphere — has the best property within the city at its disposal. It does not wish to stage 'gargantuan', but rather sporting and human Olympic Games."

April 26, 1966

At the 64th meeting of the IOC in Rome, Detroit, Montreal, Madrid and Munich, represented by their mayors and the presidents of the respective National Olympic Committees, presented their applications for holding the 1972 Olympic Games. The IOC awarded the Games of the XXth Olympiad 1972 to Munich.

May 31, 1966

First meeting of the preparatory committee for founding the Organizing Committee

for the Games of the XXth Olympiad 1972 in Munich.

In accordance with the resolution passed by the NOC on May 19, 1966 in Kassel, it was stated that the construction of new buildings was to be the responsibility of the public authorities, i.e. the Federal Government, the Bavarian Free State and the City of Munich. For this reason a building and financing corporation would be founded, with the territorial corporations as its members. The representatives of sports would receive a qualified right of co-determination.

June 15, 1966

The Munich City Council decided to add a Munich-Schwabing-Oberwiesenfeld line to the subway system.

July 3, 1966

The Organizing Committee for the Games of the XXth Olympiad Munich 1972 (OC) was constituted in the Town Hall (see Vol. 1).

The founding of the holding company, which was expected to take place at the same meeting, was postponed.

September 28, 1966

The City of Munich set up the "Investment, Planning and Olympic Office". Its function was to arrive quickly at decisions and to secure coordination with the other territorial corporations.

September 30, 1966

A third meeting of the Executive Board of the OC the members of the Sports and Architecture and Construction Commissions were appointed (see Vol. 1). These commissions were to give precedence to working out area and space programs in agreement with the international sports federations.

November 12, 1966

First meeting of the Sports Commission of the OC under the chairmanship of Bernhard Baier. The competition sites for the 21 different kinds of sports were determined on the basis of the requirements known at that time. Halls were required for eleven sports. The basic lines were the measurements included in the competition circular.

November 29, 1966

First meeting of the Commission for Architecture and Construction of the OC under the chairmanship of Heinz Noris. With regard to the suggestions submitted by the Sports Commission, the Commission for Architecture and Construction advocated the organization of an architectural competition for Oberwiesenfeld, open to all German architects resident in the Federal Republic of Germany and West Berlin.

December 2, 1966

At its fourth meeting the Executive Board of the OC passed the following resolutions: "1.

The territorial authorities are requested to establish a construction corporation as soon as possible.

2.

A national competition shall be organized in which due consideration will be given to the requirements stipulated by the Sports Commission.

3.

The Commission for Architecture and Construction shall determine the details of the competition and forward them to the City of Munich.

4.

The City of Munich is requested to assume the functions of the construction corporation until the latter is legally constituted and to complete the arrangements for the competition in the course of January, 1967."

December 31, 1966

In the general assembly of the Munich City Council Mayor Dr. Vogel stated:

"The basic intentions of the city are promoted by the decision in Rome:

1.

The planning and construction of a subway system.

2.

The determination of a site for the large South Bavaria Airport.

3.

The progress of preparatory measures has made it clear that the construction at Oberwiesenfeld will benefit the north-western part of Munich. At the junction of two green zones dividing the city a preferential residential and recreational area will develop in connection with the centralized sports facilities."

January 1, 1967

Herbert Kunze, who was unanimously elected Secretary General of the OC on September 30, 1966, assumed his office.

February 1, 1967

The City of Munich announced a city-planning and architectural competition for Oberwiesenfeld. The jury for the assessment of the entries consisted of ten technical judges and nine other judges with the corresponding number of deputies in each group, one expert each for traffic problems, sport, statics, landscaping and building organization respectively, and three preliminary examiners.

Prizes and Purchases:

1st prize	DM 100,000.—
2nd prize	DM 80,000.—
3rd prize	DM 60,000.—
4th prize	DM 40,000.—
5th prize	DM 20,000.—

also the purchase of ten entries at DM 10,000 — each . . . DM 100,000.—
Total DM 400,000.—

Closing date:

The competition entries must be submitted by 11 P.M., July 8, 1967.

The object of the competition was outlined as follows:

"The purpose of the competition is to obtain proposals for a worthy setting, from the city-planning and architectural point of view, for the XXth Olympic Games to be held in Munich in 1972, and also to find best functional and economic solution for the later utilization of the various installations. The competition, therefore, calls for ideas for the overall arrangement of the structures for the Olympic Games at Oberwiesenfeld on one hand, and for architectural designs for the competition sites and other installations on the other hand.

All entries must take account of the general traffic plan dated July 10, 1963 and must also maintain the green parkland character of Oberwiesenfeld, as laid down in the property utilization plan of the City of Munich. The site that is the subject of the competition is Oberwiesenfeld, situated about 4 km. north-west of the center of the city. The area of the site is approximately 280 hectares. The plans submitted for the competition must in a satisfactory way incorporate the existing television tower and ice stadium with their ancillary installations.

The candidature of the City featured the idea of "Olympic Games in a green setting and with a minimum of travel". Competition entries must take these concepts into account. All the specified buildings must be located at Oberwiesenfeld in such a way as not to detract from its parkland character.

General Transportation

Rail traffic:

German Federal Railway: A station for long-distance and suburban trains will be built on the "Nordring" section of the Federal railway system, about 300 m. north of Oberwiesenfeld.

Subway: A station will be built as the provisional terminus of the Olympic line at the eastern boundary of the Olympic area. It will connect with a terminal for bus lines servicing the northern and north-western suburbs.

Trams: A tram terminal will be provided in the southern part of Oberwiesenfeld.

Roads: Oberwiesenfeld will be traversed from east to west by the "Mittlerer Ring" circular road and flanked at its western boundary by the "B 11 North" highway which runs from north to south.

Parking lots: A total of about 10,000 parking places will be required for visitors during the Olympic Games. About half this number can be provided outside the Olympic area. The remaining 5,000 parking places may be open or covered, depending on the overall cost of the plan. Of these parking places, 650 must be in the immediate vicinity of the television tower.

Staff and service vehicles (such as gardeners' vehicles, refuse removal trucks, delivery vans, fire engines and ambulances) will also make use of the wide footpaths that will be necessary for major events.

Oberwiesenfeld is intersected by the "Mittlerer Ring" road. It is an essential part of the purpose of the competition to compensate for this drawback by a suitable overall arrangement of the competition sites and their subsidiary installations in a manner that will be acceptable from the city-planning and economic aspects.

The "Mittlerer Ring" will be flanked on each side by sidewalks and on its north side also by a bicycle path. Oberwiesenfeld is situated at the intersection of green zones which link different parts of the city. The competition calls for bold planning of these zones including their footpaths and bicycle paths.

The estimated distribution of traffic during the Olympic Games (assuming a maximum of 130,000 spectators at any one time) is as follows:

Subway	25,000 persons
Federal railways	25,000 persons
Trams, buses	10,000 persons
Coaches	10,000 persons
Private cars	40,000 persons
Pedestrians	20,000 persons

Overall planning competition

Requirements:

The following installations must be accommodated within the area of Oberwiesenfeld:

Stadium:

Total spectator capacity 90,000 (50,000 seats, standing room for 40,000).

Sports Hall:

Spectator capacity depends on the kind of event, with a variable number of seats (maximum numbers of spectators: Boxing 12,000, handball 10,000, gymnastics or riding 10,000, other events 11,500).

Swimming Stadium:

Capacity for 8,000 spectators. After the Games the swimming stadium and its facilities will be used for university contests, by the general public and by swimming clubs. Then accommodations for only about 1,500 spectators will be required. It is a part of the competition to find a particularly economical solution to maintenance and operation problems.

Cycling Stadium:

The total spectator capacity comprises standing room for 8,500 persons and seats for 1,500. After the Games standing room for only 3,500 and seats for 1,500 will be needed.

Olympic Village:

The competition entries for the Village should present only the basic conception, including housing for 8,200 athletes, which will later be used as a residential quarter with 1,800 apartments. Another section of the Olympic Village must be planned to provide accommodations for 1,800 women athletes: this will afterwards be used as a student residence. An area must be provided between these two residential quarters for the location of the central facilities of the Olympic Village — two churches, shops, post office, bank, etc. Most of these buildings will later serve as a center for the permanent residential settlement; in particular, a primary school will be needed after the Games.

Architectural competition

The architectural competition comprises the various competition sites required for the Games, the Press Center, the Central University Sports Facility, the parking lots, and plans for spectator access to all these installations. The restaurants specified in the building program will be supplemented during the Olympic Games by provisional restaurants.

These do not come within the scope of the competition. The same applies to the provisional buildings for the post office, the police, information and other services."

March 4, 1967

A commission appointed by the Executive Board of the OC examined the candidatures of the cities of Lübeck and Kiel for the organization of the Olympic yachting events. The members of the commission (Bernhard Baier, Berthold Beitz, Dr. Cornelius von Hovora, Dietrich Fischer, Herbert Kunze) recommended Kiel as the site by a majority of three votes to two.

March 16, 1967

The three government bodies (the Federal Republic of Germany, the Free State of Bavaria, and the City of Munich) negotiated the consortial contract and agreed on the list of investment measures for the buildings in Munich.

March 18, 1967

The General Assembly of the OC decided upon Kiel as the site for the yachting events.

May 10, 1967

Commencement of work on the subway line from Munich—Schwabing to the Olympic Center at Oberwiesenfeld.

May 26, 1967

The City of Kiel set up a department for the coordination of the municipal Olympic arrangements.

June 17, 1967

The Commission for the Olympic Yachting Events 1972 met in Kiel under the chairmanship of Berthold Beitz.

July 10, 1967

Federal Finance Minister Dr. h.c. Franz-Josef Strauss, Bavarian Finance Minister Dr. Konrad Pöhner and Lord Mayor Dr. Hans-Jochen Vogel signed the consortial agreement for the construction and financing of the sports installations and facilities for the Games of the XXth Olympiad in Munich. At the same time an agreement was concluded for the constitution of the Olympic Construction Company (OBG) which has the responsibility of:

a) constructing the necessary sports installations and facilities at Oberwiesenfeld for the celebration of the Games of the XXth Olympiad in Munich,

b) constructing the Olympic Village and its ancillary buildings and facilities at Oberwiesenfeld,

c) planning and constructing or arranging for the planning and construction of the urbanization works required at Oberwiesenfeld in connection with all buildings, installations and facilities thereon and for the financing and maintenance of all these works until their final transfer to the responsible authority or authorities. In so far as individual works are not constructed and financed by the Company, the latter must coordinate the planning of these with the builders concerned and supervise the building time and financing.

The bodies of the Company are:

a) The Management whose functions will be regulated by a business arrangement.

b) The Supervisory Board. Its twenty members are appointed (four each) or recalled by the three territorial corporations, the OC and the states which organize the Olympic Lottery. The members select from among their own ranks a Chairman and a Deputy Chairman, and the Chairmen of the Committees and their Deputies. The Board appoints a Construction Committee and a Finance and Administration Committee.

c) The General Assembly.

A resolution passed by the General Assembly is required, among other things, for reading and approval of the annual report, of the annual balance sheet and profit and loss account, for approval of the employment of any profits and the covering of any losses, for the ratification of the acts of the Supervisory Board and the Management, and for liquidation of the Company. The Company is ended after the completion of the Olympic Games in Munich 1972, not later than December 31, 1973.

July 31, 1967

Preparatory meeting of the jury for the architectural competition in Munich. Professor Egon Eiermann, Karlsruhe, was elected as Chairman.

A group of jury members traveled to Tokyo, Rome, Los Angeles and Mexico City in order to study the facilities there.

August 3, 1967

First session of the Supervisory Board and the General Assembly of the OBG. Federal Minister of Finance Dr. h.c. Franz-Josef Strauss was elected as Chairman, Bavarian State Minister of Finance Dr. Konrad Pöhner and Lord Mayor Dr. Hans-Jochen Vogel as his deputies. A business manager, Werner Göhner, and a technical manager, Paul Löwenhauser, were appointed. The Construction Committee and the Finance and Administration Committee were set up, the Chairmen being Dr. Konrad Pöhner and Dr. Hans-Jochen Vogel respectively.

The Supervisory Board passed the following resolutions:

"The rights and obligations arising out of the architectural competition will be transferred from the City of Munich to the Olympic Construction Company. The road construction program submitted by the City of Munich (special Olympic program) is approved. It is understood that the streets are to be planned and constructed by the City of Munich and financed by the company according to the financial plan to be proposed by the City of Munich."

"The acquisition of property for the OBG will be handled by the Community Council of the City of Munich."

An organization plan and schedule was presented which was developed by the Chair for Construction Business Management at Munich Technical College, Professor Burkhardt, on the basis of a large network plan.

August 30, 1967

The report on the preliminary examination of the entries for the competition was completed for the meeting of the jury. One hundred plans and one written proposal were submitted. The plans were

spread out in separate booths over an area of 10,000 sq. m. on two floors of Hall 20 in the Exhibition Park. 1,600 details in each entry were checked for agreement with the conditions of the competition. The three preliminary judges (K. Wolfgang Boresch, Julius Melzer, Herbert Weidenschlager) were assisted by 52 engineers and a team of expert advisors delegated by the Institute for the Construction of Sports Installations of the German Sports Federation.

September 7, 1967

The OBG was entered in the Commercial Register of Munich.

The consortium associates transferred equal parts of the 21,000,— DM stock capital.

September 4 to 8, 1967

First judging session of the jury in Munich.

Technical Judges:

1. Prof. Dr.-Ing. Gerd Albers, Munich
2. Prof. Dr.-Ing. E. h. Egon Eiermann, Karlsruhe (chairman)
3. Prof. Herbert Jensen, Braunschweig
4. Prof. Dr.-Ing. F.W. Kraemer, Braunschweig
5. Dipl.-Ing. Architect Ernst Maria Lang, Munich
6. City Surveyor Edgar Luther, Munich
7. Prof. Roland Rainer, Vienna
8. Ministerial Director Hans Rossig, Bad Godesberg
9. City Surveyor (retired) Walter Schmidt, Augsburg
10. Assistant Ministerial Director Prof. Clemens Weber, Munich

Other Judges:

1. Mayor Georg Brauchle, Munich
2. President Willi Daume, Dortmund
3. State Minister of Education Dr. Ludwig Huber, Munich
4. Ministerial Counsellor Dr. Cornelius von Hovora, Winterscheid, deputy for the Federal Minister of the Interior, Paul Lücke, Bensberg
5. Certified Sports Instructor and Architect Frieder Roskam, Junkersdorf, deputy for Heinz Noris, Munich
6. Secretary of State Anton Jaumann, Munich, deputy for State Minister of Finance Dr. Konrad Pöhner, Munich
7. Ministerial Director Ludwig Spörl, Munich
8. Assistant Ministerial Director Dr. Hans Stumm, Munich, deputy for Federal Minister of Finance Dr. h. c. Franz-Josef Strauss, Bonn
9. Lord Mayor Dr. Hans-Jochen Vogel, Munich.

Deputy Technical Judges:

1. Ministerial Counsellor Gerhard Rothenfusser, Munich
2. Dipl.-Ing. Architect Reinhard Riemerschmid, Munich
3. Dipl.-Ing. Architect Georg A. Roemmich, Munich.

Expert advisors for transport: Prof. Karl-Heinz Schaechterle, Munich, and his assistant Dipl.-Ing. Kurzak, Munich

Expert advisor for sport: Assistant Ministerial Director Bernhard Baier, Hannover

Expert advisor for landscaping: Prof. Ludwig Roemer, Söcking

Expert advisors for building organization: Prof. Georg Burkhardt, Munich, and his assistant Dipl.-Ing. Hruschka, Munich

Expert advisor for statics: Prof. Dr.-Ing. Hubert Ruesch, Munich, and his assistant Dipl.-Ing. Berg, Munich.

Special advisor: Government Building Director Paul Lowenhauser, technical business manager of the Olympic Construction Company.

Consultants:

City Director Dr. Hubert Apress, administrator of the Olympic Directory-Investment-Planning Office of the City of Munich. Legal Advisor Werner Göhner, commercial business manager of the Olympic Construction Company.

Preliminary judges:

1. Government Building Director Julius Melzer, Munich
2. Government Building Advisor K. Wolfgang Boresch, Munich
3. City Building Counsellor Herbert Weidenschlager, Munich.

Ninety-one of the one hundred entries received were completed and submitted in time. Two other entries which deviated only slightly from the conditions were admitted; thus 93 entries were eligible. The jury eliminated 70 entries in three rounds leaving a total of 23 entries for final selection. Re-examination of the remaining entries, particularly from the economic standpoint, was to be carried out before the second meeting of the jury.

October 11 to 13, 1967

Second judging session of the jury in Munich. The jury decided to change the distribution of prizes announced at the opening of the competition. The first three prizes were to be awarded as announced; these were to be followed by three 4th prizes of 30,000.— DM each and seven purchases of entries at 10,000.— DM each.

October 13, 1967

The decision of the jury:

- 1st prize
Behnisch & Associates, Stuttgart
Günther Behnisch, Fritz Auer, Winfried Büxel, Erhard Tränker, Karlheinz Weber, Jürgen Joedecke.
- 2nd prize
Klaus Nickels, Timm Ohrt, Anke Marg, Hamburg
- 3rd prize
Erwin Heinle, Robert Wischer, Stuttgart
- 4th prize
G. Ludwig and F. Raab with G. Wiegand and W. Zuleger, Munich
- 4th prize
Architects Partnership Holstein and Frowein
J. & E. Kiefner, P. Müller, Dr. Zabel, Stuttgart
- 4th prize
Engineering and Architects Partnership Beier, Grube, Dahms, Harden, Laskowski, Braunschweig
- The following seven entries were purchased:
Curt Siegel, Rudolf Wonneberg, Stuttgart
Wilhelm Deiss, Munich



From the final meeting of the judges' panel for the architectural competition for the structures at Oberwiesefeld: the chairman of the jury, Prof. Dr. Engineer Egon Eiermann, converses with Dr. Vogel, Mayor, and Willi Daume. (Behind him, Deputy Mayor Georg Brauchle, who was the first to suggest holding the Olympic Games in Munich.)



The prize-winning design of architects Behnisch & Associates, Stuttgart (first prize). The designers of this work gave form to the "rubble hill", conceived a free-form lake as a connecting element to the "Olympic Landscape", and the main sports facilities clustered around a center with coordinated light roofs which they also introduced into the northern grounds of Oberwiesefeld beyond the Middle Ring.

Hubert Schraud, Josef Karg, Munich
K.H. Bayer, F. E. Maron, Munich
Meinhard von Gerkan, Folkwin Marg,
Hamburg
Dansard, Hellenkamp, Kalenborn,
Dusseldorf
Fritz Novotny, Arthur Mähner, Offenbach.

The reasons for the decision of the jury (extracts):
1st prize: Behnisch & Associates, Stuttgart
Opinion:

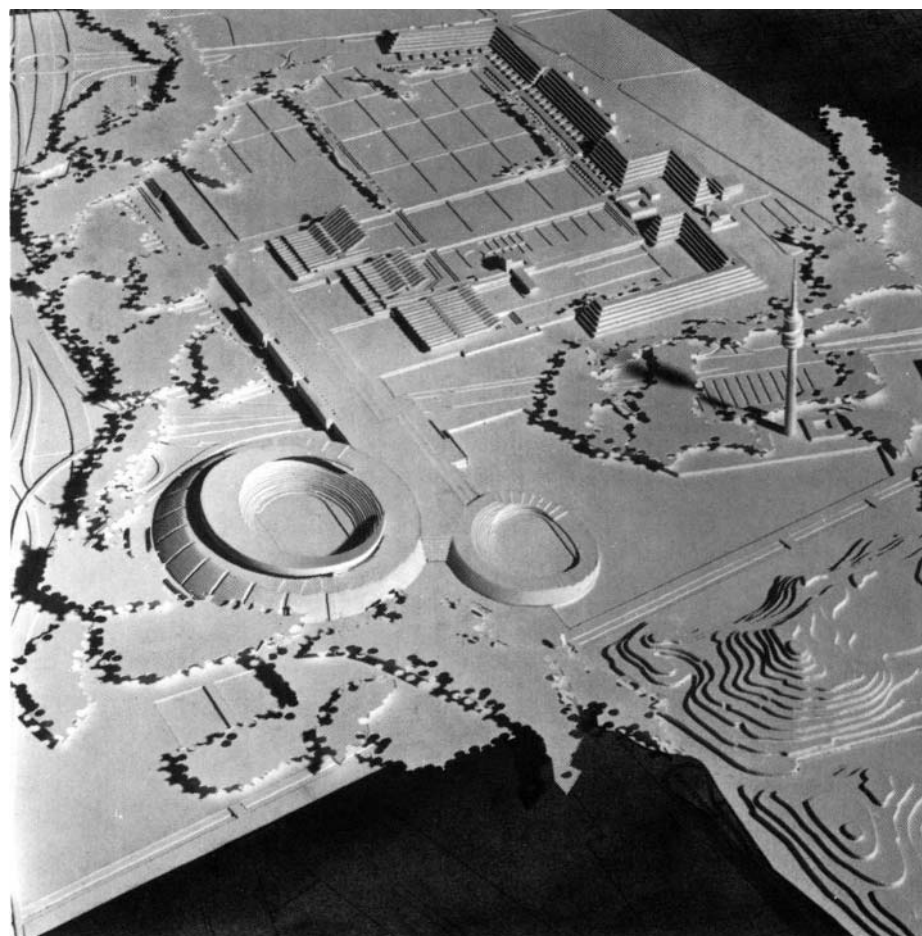
"The efforts of the authors to facilitate the solution of the problem through artificial alterations of the terrain deserve recognition. The site is enlivened by the inclusion of the hill, formed by an old rubble dump, in the configuration of the Olympic complex. The modelling of the terrain as proposed in the plans forms a basis for solving the problem of accommodating the complex of Olympic installations on a site which is not endowed with natural features, and is laudable not only from the economic but also from the city-planning viewpoint.

The jury welcomes the fact that a special part is played by water in this connection. The artificial lake is visually pleasing and is also of practical advantage, since it not only enhances the landscape but the earth that will be excavated to create it can be used for setting up elevations that are required elsewhere. The heightening of the north-to-south connections from the suburban railway station embellishes the landscaping of the site. This vantage point offers of fine view of the various sectors such as the residential quarters and the Sports Academy with its playing fields. It also breaks up otherwise undefined areas into distinguishable and well arranged parts.

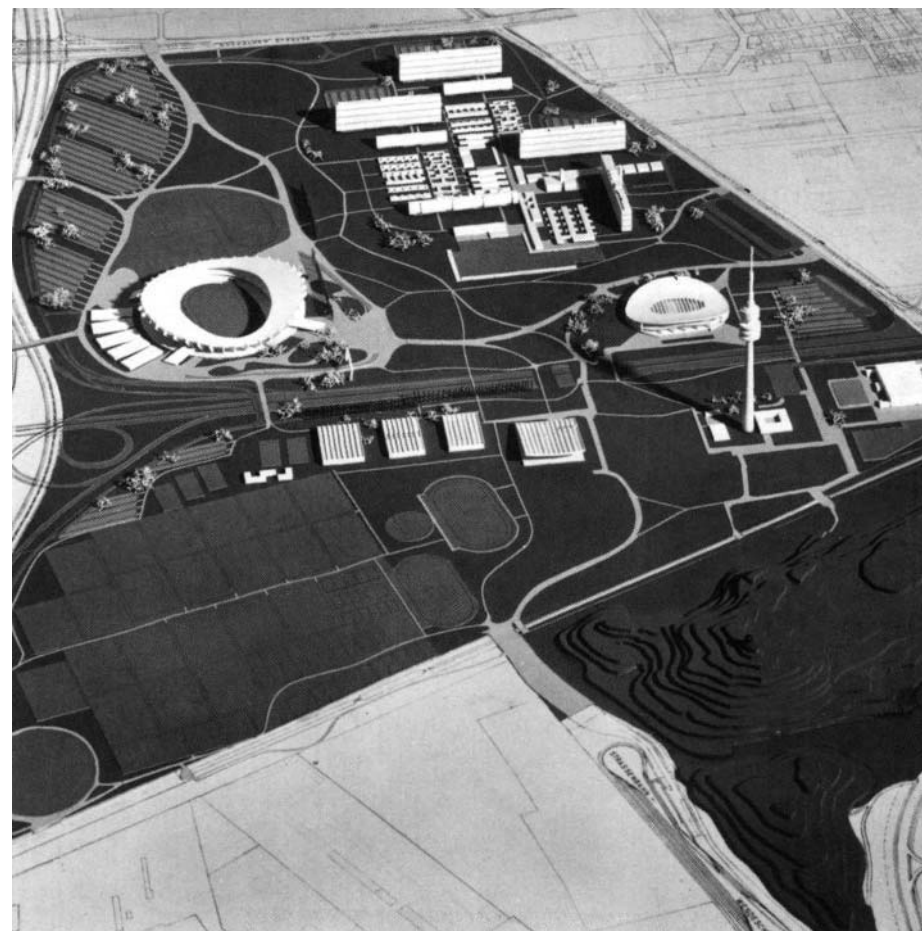
"Careful attention has been paid to the problem of connections with public transport services. The access paths to the Stadium are laid out charmingly. Unfortunately they are not wide enough for the heavy traffic that is expected. In view of the dimensions of the sports installations they are too remote from the subway station. The proposed provision of an electric railway here would certainly animate the scene as a whole, although during peak periods a railway of this kind would not suffice as a means of transport for large crowds. The parking facilities for cars, buses and coaches are well planned. Careful consideration has been given to the access of service vehicles to the principal sports sites and groups of buildings independently of visitor traffic.

"In view of the clear and economical disposition of the parking areas, no objections are raised against the expenditures on the approaches to the "Mittlerer Ring" and adjoining roads. The location of the Central University Sports Facility is good, both for the period of the Games and for its utilization afterwards. There is, however, no close coherence between this installation and the swimming stadium. The internal layout of all sports buildings is excellent, including the routing of spectators, guests of honor and athletes. The service rooms, and the training grounds and training hall are conveniently situated with respect to the stadium. The use of embankments

The second prize design of architects Nickels, Ohrt, and Marg, Hamburg.



Model photo of the work of the third prize winner: Architects Heinle & Wischer, Stuttgart.



in the erection of the sports installations is well planned, especially since these embankments are not high and no special tunnels are needed.

"The main problem in this entry is presented by the tent roof design. Even though the jury supports the view that the further employment of any form, once it has actually been built and used, thanks to certain technical and constructional developments and the availability of suitable materials, is the logical continuation of these developments, it is questionable whether the prototype tent design used in Montreal can be adopted for the construction of a permanent roof of these dimensions.

The jury finds itself unable to make a definite statement regarding the practicability of this proposal and regrets that, in view of its doubts concerning the proposed roofing with reference to the specified conditions of durability and reliability, it must make reservations in regard to this entry, outstanding though it is in all other respects.

Similar doubts are entertained regarding the effectiveness of the roof drainage and the possibility of closing off the open-air areas. Drafts in the stadium will be unavoidable.

The plans reveal astonishing vision and vitality, even though no proposals are made regarding the design of the Olympic Village. With the exception of the tent roof, concerning which insufficient experience is available, the experts consider that the project can be regarded as very economical."

2nd prize: Nickels, Ohrt, Marg, Hamburg. Opinion:

"By dividing the site into large areas, and by concentrating the constructional works in large entities and interlocking them through vigorous modelling of the terrain, the authors have arrived at a general conception with a commanding effect. A bold architectural arrangement has been imposed on the existing conditions, its orientation being governed by the necessary position of the stadium. On the basis of the integrating traffic system (in which the Mittlerer Ring road is skilfully rendered inconspicuous), a composition of structures and green areas which form a tangible, coherent spatial system has been created. Architectural and spatial components combine to produce a dynamic layout with its focus on the principal building, the stadium.

The strong general effect is achieved by the fact that the strict architectural forms of the project offer a conscious contrast to the contours of the landscape. This effect is produced not only by the dominating character of the large terrace but also by the architectural treatment of the artificial lake, the graded arrangement of the sports installations, the sunken playing fields and, last but not least, the vigorous vertical line of the television tower.

"The exterior aspect of the stadium which is designed as an earth construction, fits extremely well into the overall plan, and the architectural effect of the interior

is impressive. The design of the subsidiary installations is impractical and expensive.

"The sports installations are clearly arranged; their roofing is unsuitable, even though the cross-section employed offers certain general advantages. The homogeneity of the design of these structures results in an impressive overall architectural pattern. The Central University Sports Facility and the swimming stadium together form a functional unit.

Through the well conceived general arrangement and architectural design, consistently maintained in both the functional and aesthetic aspects, an overall project of a high order has been produced which worthily gives expression to the concept of Olympic Games in a green setting and also creates a splendid sports and re-creation area for the City of Munich."

3rd prize: Heinle, Wischer, Stuttgart Opinion:

"The motif 'Olympic Games in a green setting' has been very well interpreted. The idea of a rather loose arrangement of the sports venues in a kind of park, like the 'English Garden', represents a quite feasible solution. Despite the relatively long distances and the proposed intensive planting, the authors have succeeded in creating a perceptible coherence between the various structures. The design of the Olympic Village also merges well into the general composition. A problem arises with the large pool which cuts deeply into the free green area.

"The Olympic Village is well situated; its design is disciplined and the buildings are grouped in an interesting way.

"The clear-cut design of the stadium gives it the simple appearance which is typical of a stadium. The drainage of the roofing above the stands gives rise to serious misgivings. The functional problems with respect to the sports hall, the swimming stadium, and the Central University Sports Facility have been well solved. The design of the sports hall is risky and may cause time and technical problems in its execution because, in view of the proposed dimensions, technical difficulties may arise which would be hard to overcome and would, moreover, call for a lengthy construction time.

A good solution has been found for the temporary spectator stands in the swimming stadium. The idea of constructing the Central University Sports Facility out of uniform elements is interesting. The project is cultivated and imaginative, and displays a high level of ability in all details. From the economic standpoint only the sports hall is subject to criticism; all other buildings can be constructed very economically. The draft plans ensure rapid progress of the work of construction."

October 13, 1967

Jury Recommendation:
"The Jury recommended that the organizers of the competition adopt the

plans of the entry which received the 1st prize and use these as the basis for further work on the project. The Jury was of the opinion that the proposed tent roof could be replaced by another design without affecting the other merits of the entry which were responsible for the decision of the Jury." The Jury also recommended that another (single-stage) architectural competition for the Olympic Village be organized.

October 17, 1967

Site investigations at Oberwiesefeld were commenced on the basis of the concept which won the first prize. Geoelectric examinations of the soil strata were made and test borings were carried out.

November 3, 1967

Work on the approaches to Oberwiesefeld was begun. The OBG assigned this work which had been planned by the City of Munich.

November 11, 1967

The City of Kiel, after consultation with the Federal Government, the Land Schleswig-Holstein and the Organizing Committee, announced an architectural competition for the center for yachting events in Kiel-Schilksee. Extracts from the conditions of the competition:
"All buildings are intended to form an Olympic Center as an architectural setting for the yachting events and will later be used as a center of attraction for competitive sports and as a residential settlement for the general public.

1. Yachting Center
Building with massage rooms, sauna, swimming-pool, showers, changing-rooms, recreation center (lounges with a restaurant); boat-houses (multi-purpose buildings).

2. Organization and Press Building
Regatta officials, jury, press center, administration, information.

3. Arrangements for Spectators
Promenades, Red Cross building on the camping site, police station, etc. with sanitary facilities, waiting-room at bus terminal.

4. Olympic Quarters
Apartments with shopping center and restaurants, flats in multi-storied buildings and individual houses, hotel with coffee bar.

5. Special Installations
Olympic Flame, flagpoles, etc."

January 1, 1968

The OC set up a branch office in Kiel for the Olympic yachting events.

February 22, 1968

The Television tower at Oberwiesefeld in Munich was opened.

In the interests of rapid progress in the planning of the future students' quarters, for which plans had already been submitted before the competition by architects Eckert and Wirsing, the Executive Board passed the following resolution:
"The Executive Board of the OC recommends that the OBG does not arrange

an architectural competition for the Olympic Village.

The Board suggests on the contrary that a team be formed of the architects who were prize-winners or whose plans were bought in the competition for the overall projects, and that this team draw up plans for the Olympic Village. In preparing these plans care must be taken that the Olympic Village, as regards both its landscaping and architectural aspects, fits into the overall concept of architects Behnisch & Associates. In addition, the question should be examined as to how far the existing plans of architects Eckert & Wirsing can be put into effect."

February 24, 1968

The Executive Board and the General Assembly of the OC recommended that the firm of architects Behnisch & Associates be commissioned to execute their prize-winning entry. The final decision regarding the design of the roof was postponed.

March 1, 1968

The Supervisory Board of the OBG passed the following resolutions:

"In accordance with the decision of the jury for the architectural competition for the Games of the XXth Olympiad in Munich, 1972 and the recommendation of the OC for the preparation for the Olympic Games the first prize design by architects Behnisch & Associates and Professor Joedicke, Stuttgart, will be the overall concept for the Olympic grounds at Oberwiesefeld. Because the Supervisory Board, in agreement with the OC, is presently not able to come to a final decision for one of the two roof-solutions under discussion; namely
a) a stretched hanging roof with shell-like wood construction
b) a peripherally or radially supported hanging roof

both solutions are to be developed so that a comparable and final estimation can be possible in regard to the following points:

1. functional suitability for sports events
2. architectural and aesthetic effect
3. technical safety and durability
4. building and maintenance costs.

The Supervisory Board commissions the Management to give a contract to the first prize winner for the corresponding research work on both alternatives. This is to be carried out so that the result can be presented to the Supervisory Board by June 1, 1968.

The Supervisory Board notes with approval that the contracted architect will incorporate the constructive considerations of the third prize winner Professor Heinle & Wischer, Stuttgart into his examination of alternative b."

Architects Behnisch & Associates and Prof. Joedicke received a contract to

- a) set up the design of the overall construction plans for Oberwiesefeld as the basis of the construction planning procedure.
- b) to finish the architectural design for the stadium, the sports hall, the swimming hall as well as the corresponding outdoor facilities south of the Mittlerer Ring.



In the architectural competition for the yachting facility at Kiel-Schilksee, the first prize was won by Architects Storch & Ehlers, Hannover.

The model of the Olympic Village and the Central University Sports Facility, according to the designs of Heinle, Wischer & Associates, Stuttgart.



Architects Prof. Heinle & Wischer shared the contract under condition 'a' for the architectural design for the Central University Sports Facility (ZHS) and its corresponding installations south of the Mittlerer Ring.

"In accordance with the recommendation of the OC, the Supervisory Board has decided not to hold a competition for the Olympic Village. The Board requests the Management to entrust the planning of the Olympic Village to the third prize-winner, architects Heinle & Wischer. Care must be taken that the Olympic Village fits into the overall concept of the first prize-winner in regard to economics and architectural form. Architects Eckert & Wirsing are to take part in the planning in so far as the later use of part of the Olympic Village as a student residence is concerned." On the same day the Management assigned the designing of the Olympic Village to architects Heinle & Wischer. A joint planning team was formed by architects Heinle & Wischer and Eckert & Wirsing. Earthwork began for landscaping the artificial hill and clearing Oberwiesenfeld.

April 1, 1968

The top-soil was removed from 2 million sq.m. of Oberwiesenfeld and stockpiled in the southern sector for later use. About ten tons of unexploded bombs were discovered and removed.

April 23, 1968

Deputy Mayor Georg Brauchle, member of the Supervisory Board of the OBG, passed away. Many years earlier Georg Brauchle had been the first to advocate in public that the Olympic Games be held in Munich.

May 2, 1968

Work started in Kiel on lengthening the Hindenburg Promenade. After its completion, Kiel's sea promenade would extend all the way from the visitor's harbor to the city, via the Oslo quay.

May 6, 1968

The Executive Board of the OC agreed to a project submitted by the firm Gewerbebauträger GmbH, Munich, for building a press center on the east side of Oberwiesenfeld to accommodate 4,000 journalists during the Games. The OBG moved into offices for 350 persons at Melcher Strasse, now renamed Willi Gebhardt Ufer. 75% of this office space was to be used by drafting architects and various experts outside of the OBG.

May 8 to 10, 1968

The jury for the architectural competition for the yachting installations in Kiel met under the chairmanship of City Architect Dr.-Ing. Müller-Ibold. The project submitted by architects Hinrich Storch & Walter Ehlers, Hannover, won the first prize out of 65 entries which complied with the conditions of the competition. The other three prizes were awarded to architects Neveling, Kiel; Morgenroth, Essen; and Siegel & Wonneberg, Stuttgart. In addition to the simplicity of its conception, the entry which won the first prize was noteworthy, above all, for the skilful arrangement of spaces and paths, which, without disturbing the com-

petitors, brings the spectator close to the activities in the harbor and to the scene of preparation for the events. By constructing a wide promenade through the entire Olympic Center, this plan brings the spectator into proximity with a sport which, due to the distance at which it takes place, offers little contact with the competitor. At the same time this consistent horizontal separation between yachting and the spectators is of considerable advantage from the organizational standpoint. The plans have been conceived so well both functionally and aesthetically that there is no need for major alterations, which will make it possible to execute them quickly. The jury unanimously recommended that the entry which gained the first prize should be adopted.

June 14, 1968

Work was commenced on the construction of the embankments in the northern part of Oberwiesenfeld, precedence being given to the embankment for the subway.

June 15, 1968

The Executive Board of the OC recognized the high aesthetic and cultural merits of the "point-supported suspension roof" developed from the original tent roof design which was to be used as the roofing form for the Olympic sports facilities at Oberwiesenfeld. The Board felt that now in the further considerations among the bodies of the Olympic Construction Company the question should be seriously considered whether the merits of this architecture would not justify the additional costs resulting from its execution.

The OBG was, however, instructed to ensure optimum flood lighting, good grading of the grandstands, the installation of screens at the sides as protection against the wind, as well as adequate sound-proofing of the sports hall and the swimming stadium against external noise.

June 18, 1968

Work was begun on the traffic intersection of the Mittlerer Ring road in the Oberwiesenfeld area.

June 21, 1968

After expert opinions were submitted to the Supervisory Board of the OBG, the Board decided definitely on the point-supported suspension roof proposed by architects Behnisch & Associates. The commencement of its construction at Oberwiesenfeld was scheduled for spring, 1969 and work was to be finished by the end of 1971.

The Supervisory Board accepted the preliminary report from the panel appointed to examine the possibility for economy and requested that the work panel complete its task. Among other things the capacity of the stadium was reduced by 10,000 spectators to 80,000.

July 16, 1968

The contract between the OBG and architect Prof. Behnisch were signed in Munich.

July 17, 1968

Upon conclusion of the optimization procedure in connection with the Olympic





Village an advisory commission composed of the following experts was set up: Prof. Candilis, Paris; Prof. Ling, Nottingham; Prof. Bakema, Rotterdam; Dr. Ervi, Helsinki; Prof. Lutz, Munich; Dipl.-Ing. Billinger, Munich; Prof. Gosele, Munich; Dipl.-Ing. Tonne, Stuttgart; Government Architect Boesch, Munich; Prof. Eyer and Dr. Beckert, Munich; Landscaping Architect Miller, Stuttgart.

July 31, 1968

The contracts between the OBG and architects Prof. Heinle & Wischer were signed in Munich.

August 6, 1968

At its fifth meeting the Supervisory Board of the OBG passed the following resolution: *"The report and the draft plans submitted by architects Heinle & Wischer for the Olympic Village for men and women, including the center, are approved as the basis for further architectural planning."*

August 14, 1968

The former airport building at Oberwiesenfeld was demolished.

August 30, 1968

The Supervisory Board of the OBG decided that the resolution regarding the holding company for the Men's Olympic Village and center was incumbent on the property owners. The criteria for a decision set up by the Board were especially fulfilled by two purchasing groups according to the formulation of the Supervisory Board: The Independent Housing Construction Group "Olympic Village", Munich, and a similar group "Olympic Village", Munich.

September 9, 1968

The members of the Executive Board of the OC decided that the Schliersee Lake, due to its unsuitable wind conditions, and the Sylvenstein reservoir on account of its distance of 73 km. from the Olympic Village, could not be considered as possible regatta courses for the rowing and canoeing events. No other natural waters suitable for a regatta course were available. It was decided to investigate the potentialities of Schleissheim, Zenger Moos and other places as sites for an artificial course.

Concerning the site of a cycling stadium, the Executive Board passed the following resolution:

"1. The Board is in favor of constructing a new cycling stadium at Oberwiesenfeld.

2. It is advisable that the cycling stadium be roofed over in order that the Olympic cycling events can be held under proper conditions. A roof is also highly desirable for the post-Olympic utilization of the stadium."

September 30, 1968

At its seventh meeting the Supervisory Board of the OBG approved the layout and construction plans for the stadium and swimming stadium projects.

October 12 to 27, 1968

During the XIXth Olympic Games in Mexico City a study group of the OC gathered material in the sports, organiza-

tional and cultural fields. At a meeting of the IOC Congress in Mexico City Willi Daume and Dr. Hans-Jochen Vogel reported on the progress of the preparations for the Munich Olympic Games. The OC exhibited plans and models of the Olympic installations at Oberwiesenfeld.

October 14, 1968

Work was started in Kiel-Schilksee, clearing the Marine Depot to make room for the Olympic Center.

October 28, 1968

Earthworks in the central area between the stadium, sports hall and swimming stadium were commenced at Oberwiesenfeld.

October 30, 1968

The landscaping of the "Schuttberg" was completed and the sowing of grass and the planting of trees and shrubs began.

November 20, 1968

Work started south of Oberwiesenfeld on the by-pass canal of the Nymphenburg-Biederstein canal. This was the first stage in the creation of the "Olympic Lake".

December 9, 1968

The Supervisory Board of the OBG decided on the construction of the last of a total of 21 bridges and tunnels to ensure a smooth flow of traffic at Oberwiesenfeld. The construction and functional plans and the project for the sports hall were approved after a review of its multi-purpose utilization after the Olympic Games. Afterwards equestrian, cycling, gymnastics and other indoor sports events would be possible here.

The construction and functional plans and the project for the Central University Sports Facility were also approved. The agreement with the Cultural Ministry of the State of Bavaria as the post-Olympic user was concluded beforehand.

January 16, 1969

At the thirteenth meeting of the Executive Board of the OC the following resolutions were passed: The OBG is advised to locate the artificial course for the rowing and canoeing regattas at Königsdorf, a village south of Munich.

The two halls in the Central University Sports Facility shall temporarily be integrated into one large hall and be used for all Olympic volleyball events for men and women. The remaining part of the installation shall be at the disposal of the German Olympic Center (DOZ). A permanent warm-up hall shall be provided next to the large stadium. It is estimated that the Olympic Village will have to accommodate 12,000 persons, 9,000 of whom will be athletes.

January 17, 1969

The OBG and the OC signed an agreement, retroactively effective as of July 1, 1968, with the Institute for the Construction of Sports Installations of the German Sports Federation DSB/IFS in Cologne. According to the agreement the DSB/IFS was to advise the OC and the OBG, together with any planning offices commissioned by the OBG, concerning the installations to be con-

structed by the OBG for the Games of the XXth Olympiad. This advice was to embrace all technical matters with respect to sport such as the working out of proposals for building and layout programs and the coordination of buildings and spaces from the organizational aspect. This advice was to be given with a view to the suitability of the installations both for the Olympic Games and for their future use.

March 4, 1969

The first 44 linden trees were planted on the "Schuttberg" and the northern embankments at Oberwiesenfeld.

March 11, 1969

At its fourteenth meeting the Executive Board of the OC passed the following resolutions:
A new stadium with a capacity for 5,000 spectators will be built for the basketball contests.
The construction and functional plans for the volleyball and basketball halls, the cycling stadium and the Olympic Village are approved.
The equestrian events will be held at the following locations:
Dressage: Nymphenburg
Three-Day-Event: Riem
Individual and Three-Day-Event Jumping Competition: Southern part of Oberwiesenfeld

Jumping Grand Prix Team Competition: Olympic Stadium

The inclusion of canoe slalom as an Olympic event is recommended. Proposed sites are Munich or Augsburg.

March 24, 1969

In agreement with the OC, the Supervisory Board of the OBG decided on Feldmoching-Oberschleissheim as the site for the rowing and canoeing regattas. The main factor responsible for this decision was the short distance of 8 km. from Oberwiesenfeld.

April 15, 1969

The construction of a second harbor basin was begun in Kiel-Schilksee.

April 16, 1969

A consortium agreement was made between the Federal Government, the Land Schleswig-Holstein and the City of Kiel for the construction and financing of the installations for the Olympic yachting events. A special Olympic construction company was not founded in Kiel. The City of Kiel was entrusted with the responsibility for planning and constructing the buildings required for the Olympic events. A commission was set up, composed of representatives of the three consortium partners and of the OC. The chairman of this commission was Secretary of State Professor Dr. Ekkehard Geib. The purpose of the consortium commission was to establish agreement between the consortium partners in all questions of fundamental importance. The commission held a meeting at its constitutive session.

April 18, 1969

The Supervisory Board of the OBG approved the construction and functional designs for the volleyball hall.

Captions for pages 12 and 13

The rough landscaping of the Olympic Park has begun. From the television tower one already recognizes the large depression of the future stadium, the center and the lake shore included in the center. While the earth moving operations are still in progress, the first large trees (approximately 40-year-old lindens from the suburbs of Munich) are transplanted. The "rubble hill" is converted into an unusually appealing hill landscape.

The shaping of the stadium depression progresses quickly with the help of efficient earth moving machines.

page 15

The concentration of three important sports facilities in the southern area of Oberwiesenfeld gives rise to a large construction site that requires the best possible coordination. Tamperers pack down the ground for the eastern grandstands of the Stadium.

The following operation: 20 cm. thick concrete panels with ground anchorage are applied. Their upper surfaces form the steps for seating and standing room. The reinforcement of the steel and concrete foundations for the pylons of the acrylic glass tent roof.

The building site of the swimming hall during rough construction: the technical level and the pool have their forms removed, the western grandstand is under construction. In the background one sees the northern grandstand of the sports hall.



April 22,1969

The OBG signed an agreement with the firm "Olympisches Dorf Maßnahmeträger GmbH & Co.", Munich, as contractors for the construction of the men's Olympic Village and the nonpublic part of the center. This company was formed by a group of independent and public utility contractors.

April 29,1969

The Executive Board of the OC decided on the site adjoining the Siegenburger Strasse athletic grounds, northwest of the Exhibition Park, as the location for the basketball hall.

The members of the Board approved the construction and functional plans for the Olympic Center in Kiel and the plans of architects Storch & Ehlers.

The construction and functional plans for the regatta course Feldmoching-Oberschleissheim were approved with the provision that the capacity of a total of 25,000 persons should not be exceeded. Places for 1,000 active participants were included in this figure.

May 20,1969

The President of the Federal Construction Authority in Berlin, Dipl.-Ing. Carl Mertz, was appointed General Manager of the OBG. He took office on June 10, 1969.

May 30,1969

At the seventh meeting of the OBG it was decided to make a change in the statutes regarding the management. In the future the Company was to be represented by only one General Manager, who would be vested with special and extensive powers.

June 9,1969

The shell construction of the stadium, the sports hall and the swimming stadium was begun at Oberwiesefeld.

June 27,1969

The OBG invited fourteen architects to participate in a restricted competition for the design of the regatta installations in Feldmoching-Oberschleissheim. The main object of the competition was to find a design for the rowing and canoeing courses which would be satisfactory both from the architectural and the economic points of view.

The Executive Board of the OBG approved the construction and functional plans for the competition sites for boxing, fencing, weight-lifting, judo and wrestling. All these sports were to take place in halls situated in the Munich Exhibition Grounds - the second Olympic Center - with the exception of the hall for boxing.

June 30,1969

In Kiel the earth was broken for the construction of the Olympic Center.

July 1,1969

In Munich the construction of the Women's Olympic Village began.

July 14,1969

"Foundation stone of the buildings for the Games of the XXth Olympiad 1972 in Munich, July 14, 1969"

These words were engraved on a 90 cm. x 90 cm. symbolic corner stone laid at a

celebration at Oberwiesefeld for the Olympic Stadium, sports hall, swimming hall, cycling stadium, volleyball hall, Olympic Village, boxing hall and riding facilities.

July 15,1969

The Supervisory Board of the OBG cancelled the invitation to tender for the construction of the roof over the Olympic installations, since the offers considerably exceeded the estimated costs. The Board instructed the General Manager to find a satisfactory solution by means of individual negotiations based on the cost estimate.

The statutes of the OBG were changed together with the order of business of its Supervisory Board and its commissions.

The Supervisory Board accepted the functional and construction plans for the regatta course proposed by the OC.

It has decided to build the warm-up hall next to the stadium as a permanent structure as it had been previously considered to set up a temporary building.

August 5,1969

In Kiel-Schilksee the clearing of sea sand for the foundations of the Olympic Center began.

August 18,1969

At its twelfth meeting the Supervisory Board of the OBG passed the following resolution:

The erection of the tent roof shall be carried out by three specialist groups, corresponding to the three main elements of the work, namely, structure, foundations and covering. The Management is empowered to:

1. negotiate a cost-price contract with the firm Stahlbau Arbeitsgemeinschaft,
2. award the contract for the foundations to the lowest bidder,
3. award the contract for covering the roof to the lowest bidder.

August 20, 1969

Work started on the buildings for the Central University Sports Facility at Oberwiesefeld.

September 4,1969

Excavations for the channel of the regatta course in Feldmoching-Oberschleissheim were begun.

September 9, 1969

Work on the approaches and the buildings for the Men's Olympic Village began.

October 13,1969

The foundation stone for constructions in the Olympic Center in Kiel-Schilksee was laid by Lord Mayor Bantzer of Kiel.

October 17, 1969

The jury for the competition for the regatta course in Feldmoching-Oberschleissheim unanimously awarded the first prize to architects Michael Eberl & Associates and recommended that the OBG entrust the prize-winner with the execution of the project.

November 15, 1969 to March 17, 1970

Despite the harsh winter of 1969/1970 the basic work at Oberwiesefeld and Kiel was

completed by appropriate winter construction methods.

November 16, 1969

Work was begun on the last section of the outer approaches to Oberwiesefeld and on the traffic junction at Hanauer Strasse. The first foundations for the tent roof structure were laid at Oberwiesefeld.

November 21, 1969

At its seventeenth meeting the Executive Board of the OC passed the following resolution:
Architect Walter Ruhnau, Essen, is entrusted with the planning of artistic displays and entertainment projects at Oberwiesefeld.

The Werneckwiese in the "English Garden" was chosen as the provisional site for the archery contests, and the corresponding construction and functional plans were approved. The construction and functional plans for the shooting range at Hochbrück were approved.

December 7,1969

An experimental section of the roof with an area of 200 sq. meters and on a scale of 1:1 was erected at the Olympic Building Center for the purpose of studying all roofing material and drainage problems. This roof was covered with three different translucent materials: Polyester sheets reinforced with fibreglass, a fabric coated with PVC, and acrylic glass. A translucent roof for the stadium was required to meet the requirements of color television. It was necessary to avoid the heavy shadows which would be cast by strong sunlight on the playing ground and athletics arena, since it would otherwise be impossible to obtain a color television picture of good quality.

December 17, 1969

At a top level meeting of the consortium members representing the governments of the Federal Republic of Germany, the State of Bavaria and the City of Munich an agreement was reached on the following points:

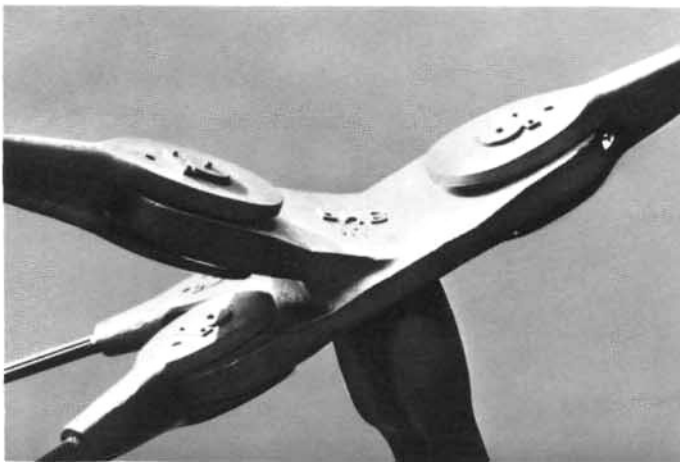
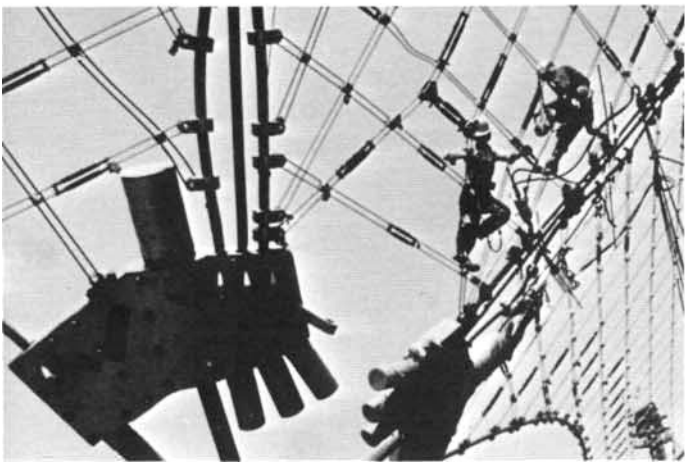
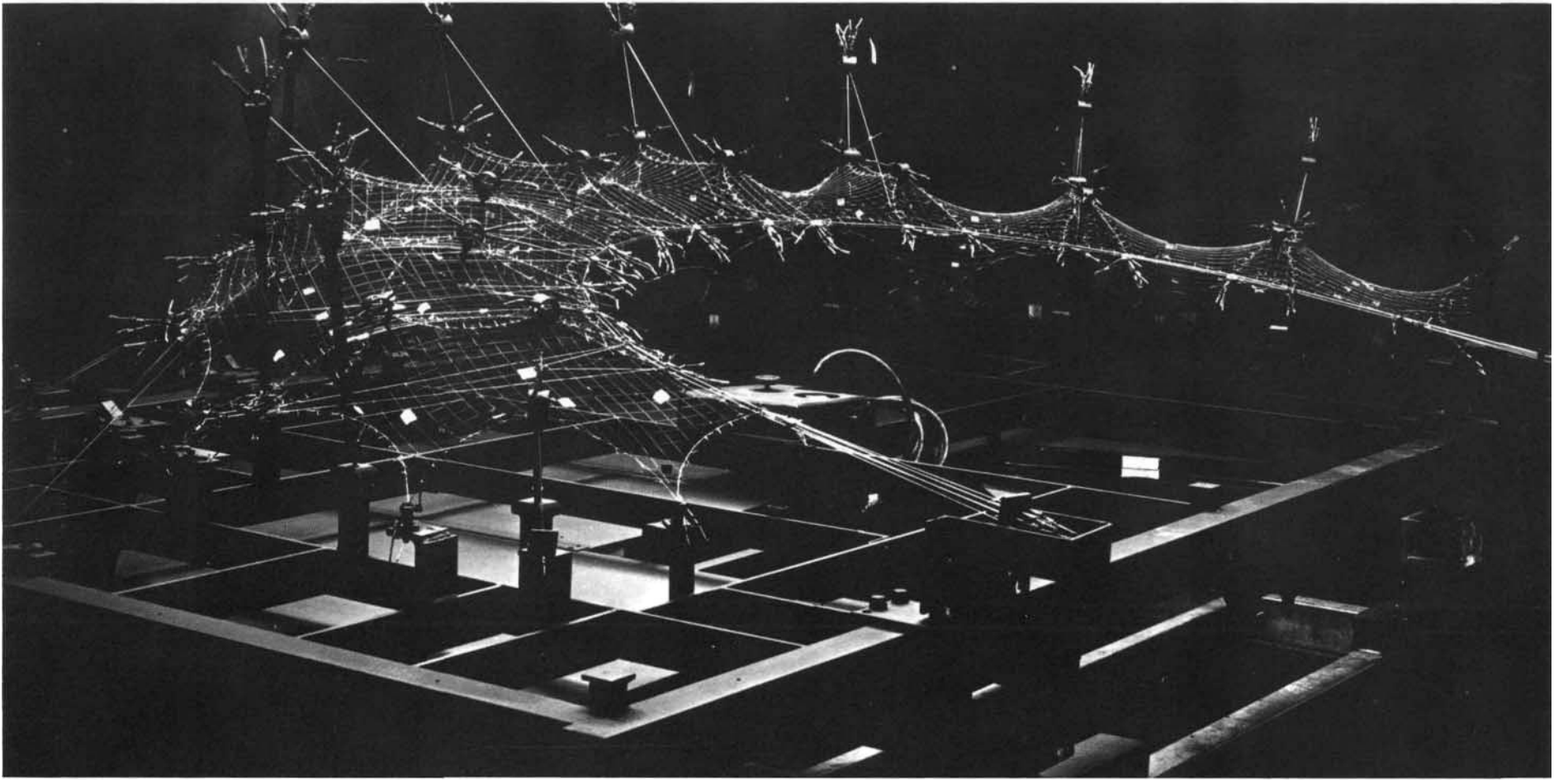
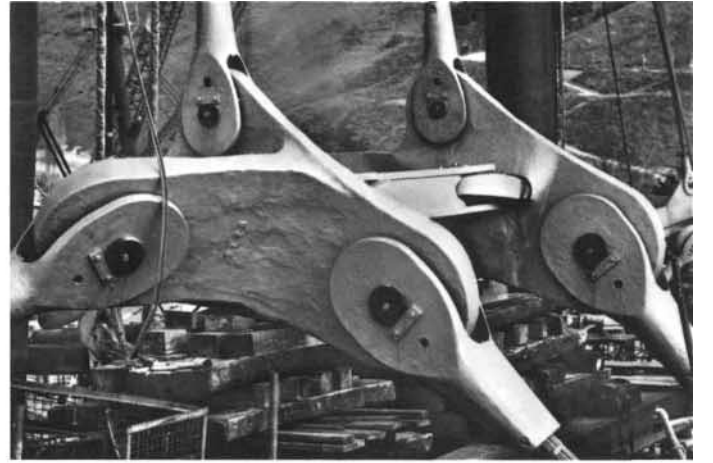
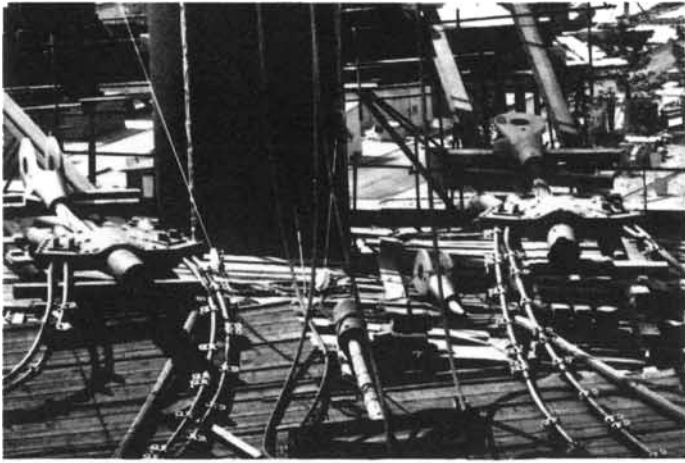
1. The previous share of costs resulting from the Olympic buildings would be altered so that the Federal Government would bear 50 % and the other two members 25 % each of the expenses which could not be covered by special financing.

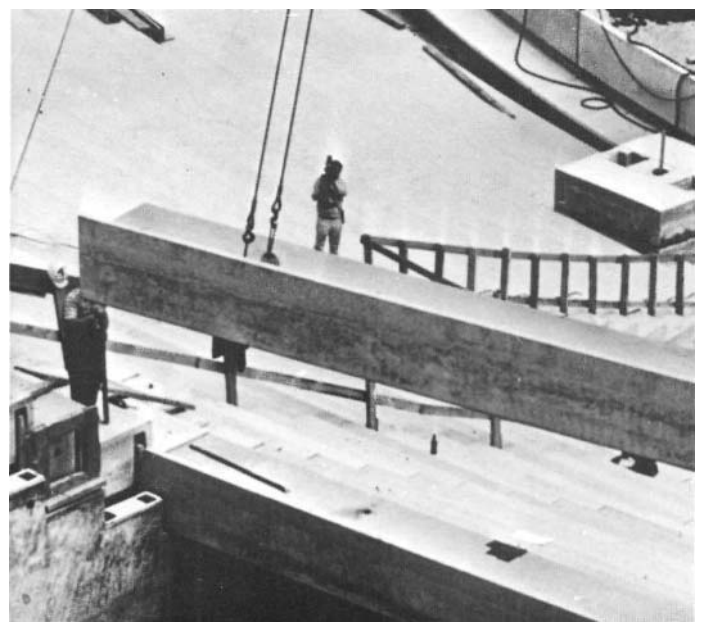
2. The subsequent expenses resulting from the sports facilities constructed at Oberwiesefeld will be borne by the City of Munich in so far as they are required by local needs according to type, size, furnishings and architectural form. The Federal Government is prepared to cover its portion in one payment.

3. The City of Munich assumes the juridical responsibility for the sports facilities at Oberwiesefeld. The State of Bavaria takes over the Central University Sports Facility. This ruling requires the agreement of the responsible decision — making boards of the consortium members.

Page 17

The development and execution of the roof. The model photo in the middle of the page shows the stadium roof in a wind tunnel test. The other illustrations show some of the various phases of the construction: preparation of the cable network on the ground; various connecting points of the primary cable network construction; erection of the cable network; application of the acrylic glass (the sheets are secured to the cable network with neoprene buffers).





Page 18

The concrete diagonal frames of the west grandstand, which serve as supports for the grandstand girders, are surrounded by scaffolding and covered with a shell. The prefabricated steps (form profile 80 cm x 60 cm) are lifted into place and mounted. They were produced in six West German concrete plants according to a unified process which was developed for the stadium and the sports hall.

The new representative of the Federal Government on the Supervisory Board of the OBG, Federal Minister of Finance Alex Möller, was elected deputy chairman of the Supervisory Board. Dr. Konrad Pöhner was elected Chairman of the Supervisory Board, succeeding Federal Minister of Finances Dr. h. c. Franz-Josef Strauss.

The basketball hall project as approved, the execution of which was given to the firm Dörken & Fröhlich, Gevelsberg, in accordance with the plans of architect Flinkerbusch, Hagen.

The project for the regatta course in Feldmoching-Oberschleissheim was also approved.

The Supervisory Board also recognized that the interests of the future holders of the sports facilities at Oberwiesenfeld were to be taken over by the Munich Stadium Company, Ltd. as of January 1, 1970.

January 1, 1970

Otto Hermann Grüneberg and Johannes Galandi assumed their duties as Business Manager and Technical Manager, respectively, of the OBG.

January 23, 1970

At its eighteenth meeting the Executive Board of the OC approved the extended construction and functional plans for the canoe slalom course in Augsburg. The Board confirmed Augsburg as the site with the provision that the buildings for the course would be constructed according to the ideas of the international federation, and that the intended test with models should turn out satisfactorily.

The hockey tournament was scheduled to be played on a provisional field north of the grounds of the Central University Sports Facility. In agreement with the Munich Exhibition Company, a new hall with capacity for 5,000 spectators was to be built in the exhibition grounds to serve as the site for the wrestling and judo contests during the Games.

March 15, 1970

To the west of the Olympic Stadium work was begun on the warm-up hall which was to contain a banked circular track 200 m. in length, a sprinting track and facilities for practising all jumping disciplines and shot put.

March 16, 1970

An agreement was signed making the Munich Student Organization the building authority for the construction of the Women's Olympic Village.

March 18, 1970

Work was begun on extending the yachting harbor at Kiel-Wik.

April 17, 1970

At the nineteenth meeting of the Executive Board of the OC the following resolutions were passed:

The Board recommends that the OBG install Recortan artificial tracks at the competition sites and training grounds. The decision for the type of paving is the result of a year-long research by the Otto Graf Institute of the University of Stuttgart and the Institute for Sport Site Construction of the German Sport Federation.

The firms Longines, Switzerland, and Junghans, Germany, were charged with the timing of the Olympic events. Junghans was to time track and field, riding, rowing, canoeing, football, archery, hockey, volleyball, shooting and yachting. Longines was to time swimming, cycling, handball, gymnastics, wrestling, judo, weight-lifting, fencing, boxing and basketball.

The Board confirmed Augsburg as the site for the canoe slalom.

May 12, 1970

Work commenced on preparing the grass playing field in the Olympic Stadium. For the first time in Germany a warm-water heating system was installed beneath a playing field. Topsoil for the turf was spread consisting of sand with soil improvement additives and fertilizer.

May 13, 1970

The construction committee of the OBG approved extensions of the projects and construction and functional plans for the shooting range at Hochbruck and the equestrian installations at Riem as well as for the Dantebad in Munich.

June 1, 1970

The shell constructions for the Olympic Center in Kiel began with the erection of the main building, 400 meters in length. During the Olympic yachting events the building was to accommodate and cater to the members of the jury and the regatta officials, and to house part of the press center.

At the same time work commenced on the high rise buildings with 120 apartments and the 32 detached houses for the competitors.

June 15, 1970

Construction of the basketball hall in Munich was begun.

June 30, 1970

The General Manager of the OBG issued a report on the stage reached in the planning and construction work for the Olympic buildings. State of completion of shell construction:

Stadium	80 %
Sports hall	80 %
Swimming stadium	67 %
Central University Sports Facility	85 %
The foundations for the roof between 50 and 60 %	
Olympic Village Center	25 %
Living quarters in the Village	18 %
Women's Village	80 %

Three thousand workers were employed at Oberwiesenfeld at the time of the report.

The regatta basin was 2/3 finished. The Dante Stadium was to be finished for the "Hans Braun Sport Festival" on July 12, 1970.

Work on the Post Stadium was also to have been finished on July 12. December 31, 1971 was the date named as the deadline for the completion of all buildings.

July 1, 1970

The Executive Board of the OC approved the plans for the entertainment street in the southern section of Oberwiesenfeld.

July 2, 1970

In Feldmoching-Oberschleissheim construction of the spectators' stands began with roofed accommodations for 8,000 and uncovered accommodations for 16,000. Work began also on the boathouses and other buildings.

July 3, 1970

Work was begun at the shooting range at Hochbruck, 7 km. north of the Olympic grounds. This installation was designed by the architects' team Wolfgang Kleibömer, Hamburg, Erich Stein and Michael Eberl, Munich. They were a team formed from participants chosen in a limited architectural competition.

July 7, 1970

Pre-stressed acrylic glass was chosen for covering the tent roof over the stadium, swimming hall and sports hall after the advice and suggestion of the technical consultants of the OBG against the suggestion proposed by the business management-sheeting — on account of its translucence and fireproof qualities.

July 13, 1970

Federal Minister Lauritz Lauritzen was elected chairman of the OBG building commission by a decision of the Supervisory Board.

July 15, 1970

The shell construction of the stands on the west side of the Olympic Stadium was finished on time by the application of modern methods, such as the utilization of minutely detailed concrete castings on location for the main structure and the use of prefabricated building elements for the grandstand steps.

July 20, 1970

The earthworks started on the canoe slalom course in Augsburg which was planned by the team of architects R. Bockel and E. K. Müller of Augsburg. The free areas and spectator facilities were designed by G. Hansjakob, Munich.

July 23, 1970

The shell construction of the large buildings at Oberwiesenfeld having been terminated, the topping-off ceremony was celebrated with 4,000 workmen.

August 1, 1970

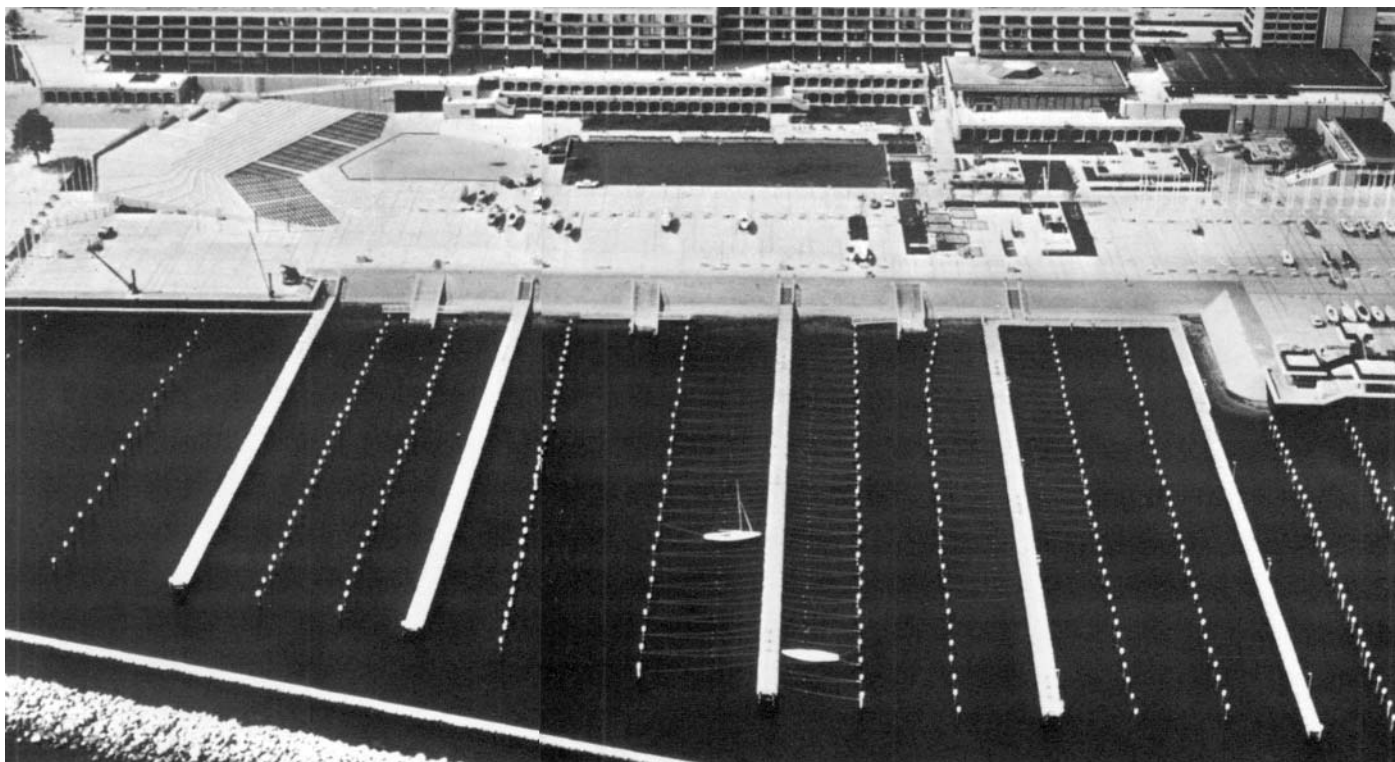
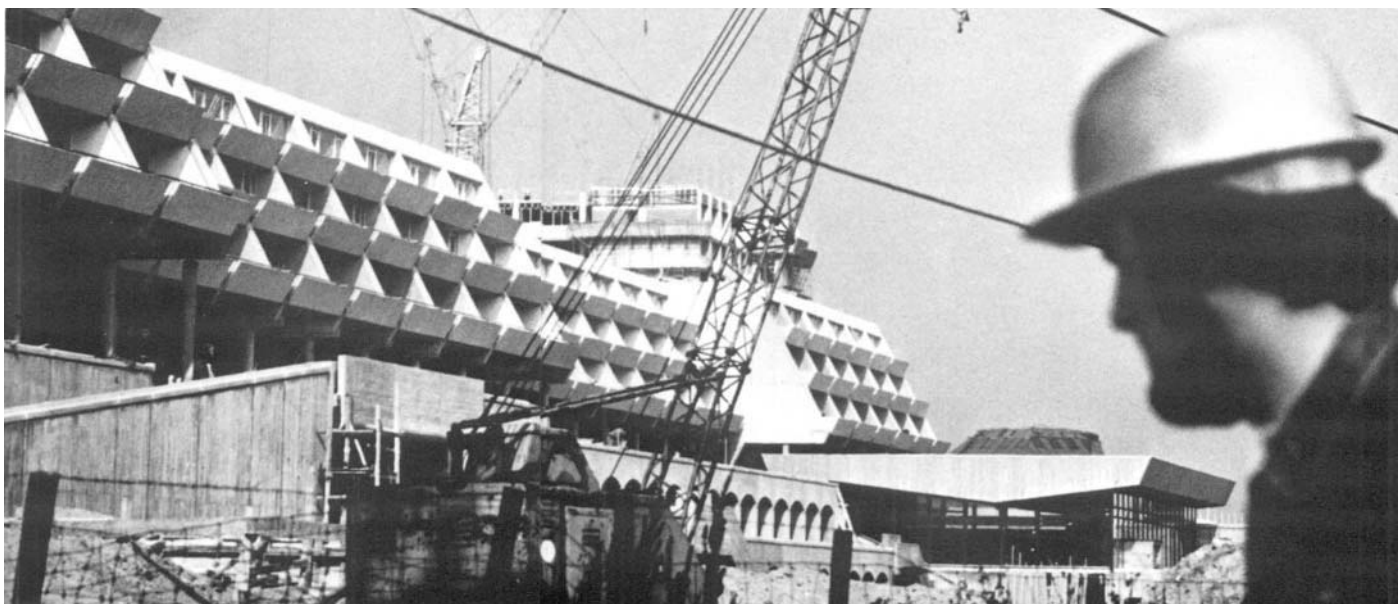
The construction of the cycling stadium at Oberwiesenfeld was begun. This stadium was designed by architects Beier, Dahms, Grube, Harden, Kaiser and Laskowski, Braunschweig, in cooperation with architect Schürmann from Münster. The preparatory work consisted in demolishing the Federal Railway Locomotive Repair Shop North.

August 6, 1970

The playing field in the Olympic Stadium was sown with grass after the installation of the heating system and the replacement of the topsoil.

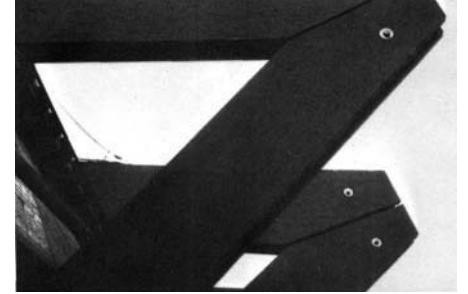
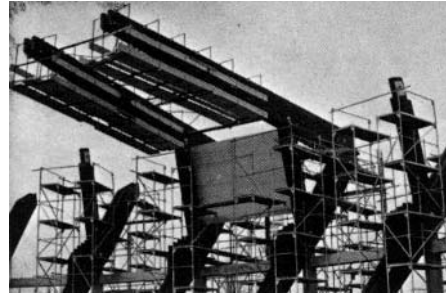


*Construction progress in Kiel:
Pile foundation at the sandy shore area of
the Kiel inlet; the terrace has been com-
pleted, the rough construction of the
swimming hall — in the background, with
the pool — is almost finished; unbroken
progress of the rough construction on the
main tract running from north to south
with the boat house and swimming hall
in the foreground, apartment houses in the
background. One year after the laying of
the cornerstone all the rough construction
of the buildings of the Olympic Yachting
Center was finished.*





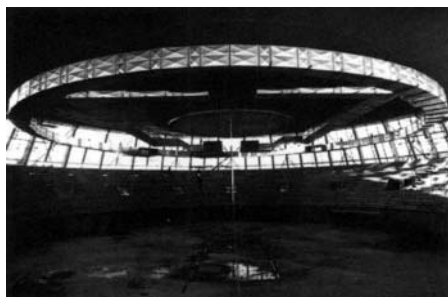
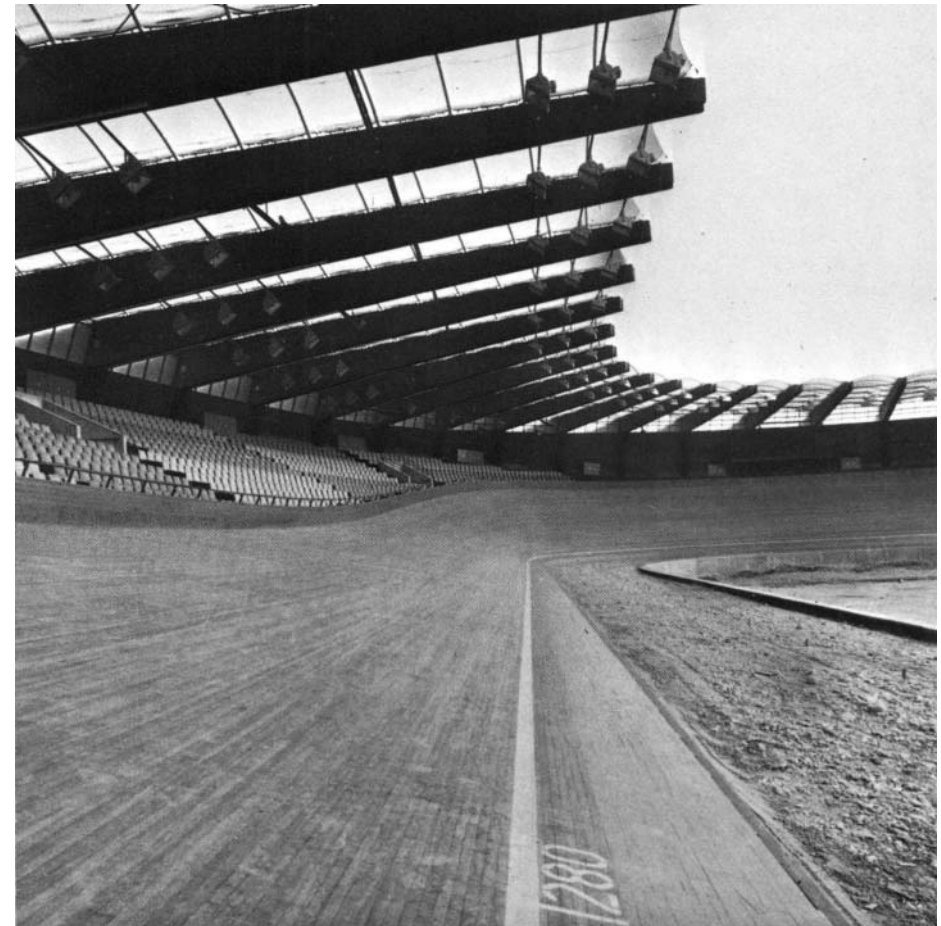
After the erection of the supports and the completion of the ring rafters, the circular basketball hall receives its conical roof of welded 4 mm thick sheet metal panels. A 90 ton slab of concrete in the center of the hall holds taut the radial cables from which the sheet metal was circularly suspended and welded. The rough construction of the hall was completed thirteen months after the beginning of the building.



The cycling stadium takes shape: the inclined wooden joists lean against an encircling girder. The rafters are put into place. The following illustration shows the tie point of the V-shaped wooden construction.

Supporting elements and connecting arches for the translucent roofing are mounted on the support pillars.

The cycling race track of African hardwood is finished: the grandstands are finished together with their seats.





Page 22

The swimming hall and sports hall receive a transparent, heat conserving addition made of polyester coated material with middle layers of polyvinyl-chloride material which is suspended at least 50 cm below the cable network for construction reasons.

August 20, 1970

The erection of the pylons for the tent roof began.

August 27, 1970

Construction of the riding installation in Munich-Riem began with the demolition of the old riding hall.

September 18, 1970

The number of spectators to be admitted to the opening and closing ceremonies at the Olympic Center in Kiel-Schilksee was fixed at 8,000 of which 2,500 would be seated.

October 29, 1970

The topping-off ceremony for the sports buildings in the Olympic Center at Kiel-Schilksee was celebrated.

December 7, 1970

After two years of planning and the investigation of numerous alternatives, the Executive Board of the OC decided that the original plan calling for accommodating the Press Center in a rented building built by independent construction companies had to be abandoned for financial reasons and instead contracted the OBG with the construction of the Press Center. The design was conceived so that the building could be used as a school after the Olympics. On about 16,000 sq. meters of usable space the four-story building would contain accreditation offices, a post office, a printing press for results, offices for news agencies and a self-service restaurant.

Work commenced on the Olympic Youth Camp at Kiel-Falkenstein.

December 9, 1970

The section of the "Mittlerer Ring" road which connects with the approaches to the northern and southern areas of Oberwiesenfeld was opened to traffic.

December 11, 1970

The construction of the new wrestling hall, designed by architect Peter Lanz, Munich, was begun.

December 14, 1970

The shell construction of the installations for the regatta course at Feldmoching-Oberschleißheim having been completed, the topping-off ceremony for these buildings was celebrated.

December 18, 1970

At its fifteenth meeting the Supervisory Board of the OBG approved a series of additional measures in the cycling stadium, the sports hall, and the swimming hall in view of their post-Olympic use.

The Supervisory Board agreed to the suggestion of the OC that the Press Center should be built on Riess Strasse by the OBG.

The Supervisory Board acknowledged and approved the artistic measures for the sports sites and the erection of a peace monument (Belin Sculpture) on the "rubble heap" by the OBG.

January 8 to 9, 1971

At its 21st meeting the Executive Board of the OC passed the following resolutions: The Olympic boxing competitions will take place in the already existing ice skating rink at Oberwiesenfeld. Extensive alterations will be required.

Cancelling the previous resolution, the Grand Prix jumping competition individual event and the jumping competitions in the three-day-event and modern pentathlon will be held in a riding stadium at Riem which will be a permanent building.

After investigating the feasibility of the conversion of one of Munich's sports facilities to an Olympic land hockey installation (with seven plying fields and space for 20,000 to 30,000 spectators, 10,000 of these for the main field), the Executive Board of the OC decided to reject the solution and accommodate the hockey installation in the north part of the ZHS.

January 15, 1971

The heaviest mast-head for the tent roof was fitted into place above the swimming stadium. The laying out of the cable network for the tent roof was begun.

January 26, 1971

A test lighting of the Olympic flame was carried out on the eastern grandstand of the stadium.

February 16, 1971

The turning loop for trams at the southern section of Oberwiesenfeld was completed.

February 25, 1971

The topping-off ceremony was celebrated for the suburban railway station at the western boundary of the Olympic grounds.

March 2, 1971

The athletic warm-up hall with a 200 m. long track was completed in the rough. Constructed below ground level for half of its height, the hall measured 90 m. by 48 m. and connected with the Olympic Stadium by a tunnel 50 meters in length.

March 11, 1971

Construction of a 3.5 km. pipeline from the planned gasturbine heating plant at Freimann, which was to heat all buildings at Oberwiesenfeld, began.

March 15, 1971

Construction of the Press Center designed by the Architekturbüro Plan GmbH was begun.

March 16, 1971

Awards were made for the first art competition for the Olympic grounds. Artist Otto Piene, Düsseldorf, received the 1st prize for his "Light Satellite" design which was later erected in the quadrangle of the Central University Sports Facility. Piene's "Light Satellite" is an artificial star which shines by day and by night. It is composed of pieces of glass and is suspended in a steel framework 20 m. high. During the day it reflects the sunlight, while at night it is illuminated by sharply focused beams of light or by three-color laser rays. A second "star" is fixed to the ground centrally below the supporting steel structure.

March 20, 1971

With the exception of the volleyball hall, the Central University Sports Facility was put at the disposal of the German Olympic Center (DOZ) for further equipment. This Center, established by the German Radio and Television networks ARD and ZDF, is responsible for all broadcasts and TV transmission concerning the Olympic Games.

April 1, 1971

The construction of the basketball hall reached an important stage. A concrete slab 14 meters in diameter and weighing 90 tons was raised to a height of 12 meters and supported by scaffolding. This slab formed the middle and focal point of the cone-shaped suspended roof. Afterwards began the installation of the 4 mm. thick sheet-metal roof. The hall was to be roofed before the middle of July.

April 7, 1971

The topping-off ceremony for the two highrise apartment houses in the Olympic Village was celebrated.

April 29, 1971

Construction of the riding stadium in Riem began.

May 1, 1971

The installation of the electronic computer center at the Olympic stadium was completed. Results from all competition sites were to be fed into this center. Trial runs were made with the computers to check their functioning.

May 10, 1971

The construction of the provisional refreshment stations in the southern area of Oberwiesenfeld was begun.

Workers started raising the completed cable network for the tent roof above the swimming stadium.

May 13, 1971

Erection of the two floodlight masts on the east side of the Olympic Stadium started.

May 14, 1971

At its 22nd meeting the Executive Board of the OC agreed on provisions for catering facilities at Oberwiesenfeld. The OBG was commissioned to design and build the temporary refreshment stands. The site for archery in the "English Garden" was approved together with its final construction and functional plans.

May 15, 1971

650 lamps were mounted on 23 masts along the section of the Mittlerer Ring which separates the northern and southern parts of Oberwiesenfeld. The lamps were installed according to a new system which keeps the lighting from blinding the motorists.

May 22, 1971

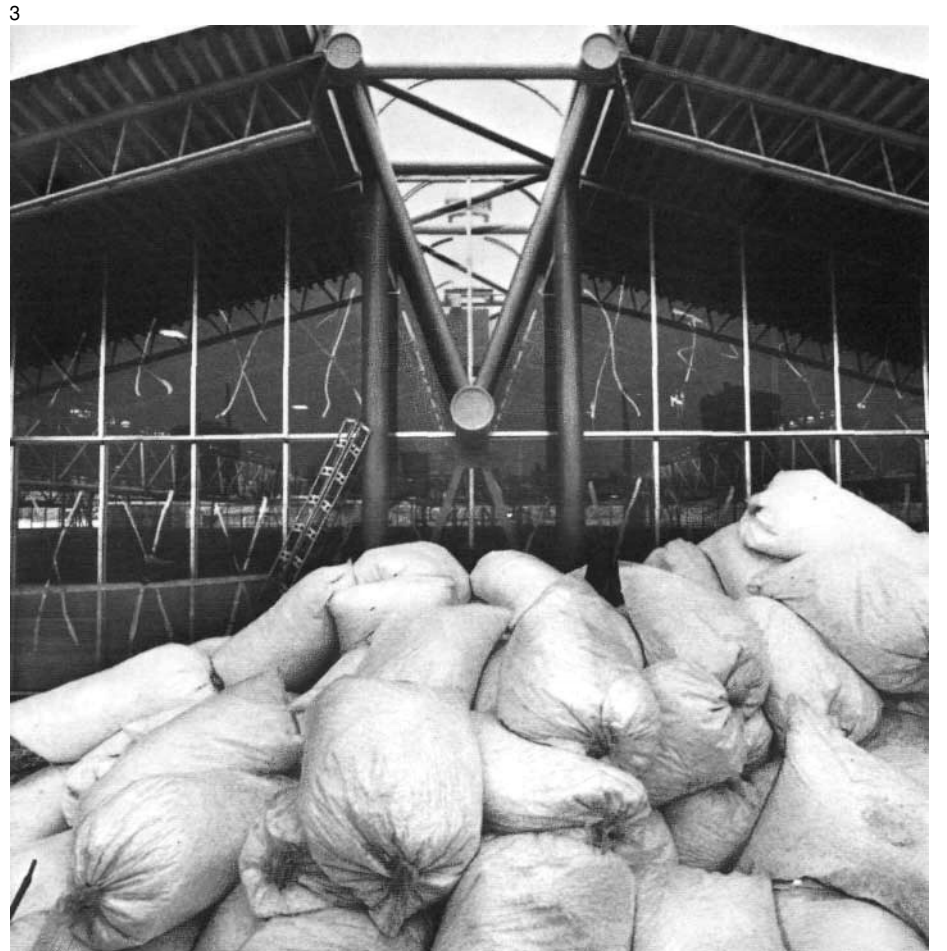
Water was let into the canoe slalom course at Augsburg for the first time. Work was begun on the stands along the course, the rooms for competitors, the administrative building and the boathouses.

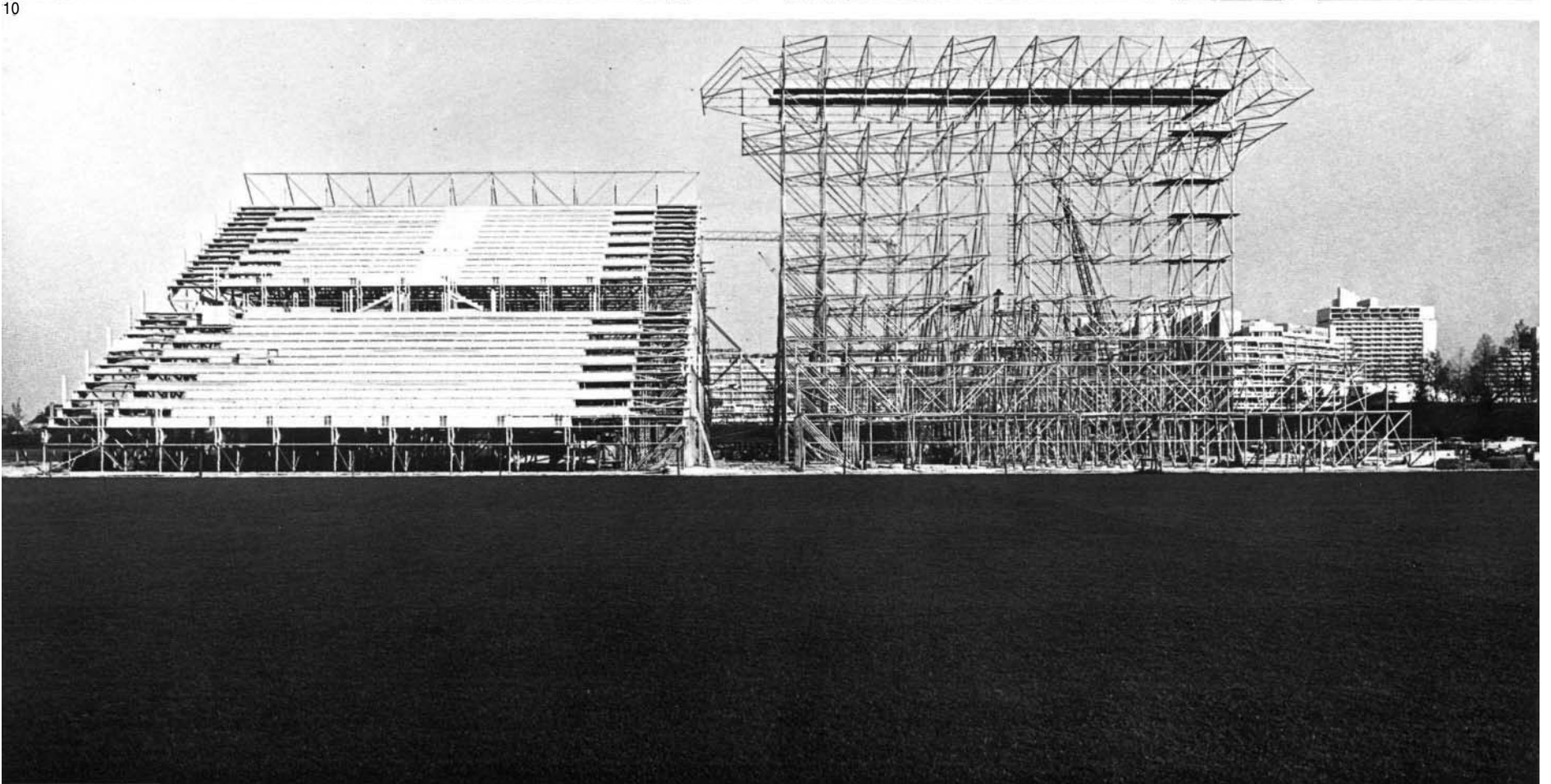
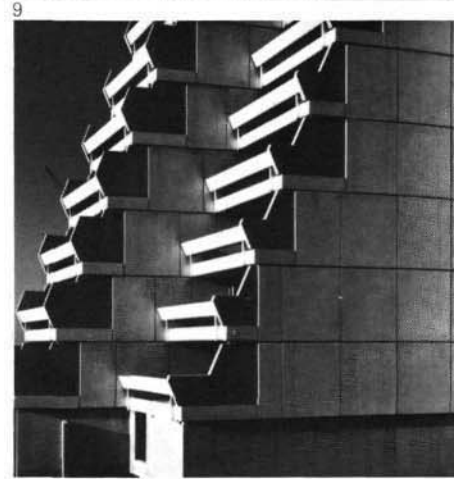
June 9, 1971

The yachting harbor for visitors' boats at Kiel-Wik was completed.

June 14, 1971

In the course of assembling the tent roof the heads were fitted to the two 80 m. high main masts for the sports hall. The ten smaller supports and the two flying supports, together with the assembly cables, were erected around the stadium permitting the entire steel cable network with the standard mesh dimension of 75 cm. by 75 cm. to be raised on to the main supports. This phase had to be carried out centimeter by centimeter with the aid of pulley blocks.





Captions for pages 24/25

No. 1:
The artificial lake is filled. View of a part of the Olympic Center with the sports hall and swimming hall seen from the southern shore of the lake at the foot of the "rubble hill".

No. 2:
Grandstands with seats and the finish line referee's turret at the northeast of the regatta course.

No. 3:
Rough construction is finished in the warm-up hall for track and field athletes, to the west of the Stadium.

Nos. 4 and 5:
Every day the construction site attracts a large number of interested people up to the "rubble hill" which is equipped with footpaths and a viewing platform.

No. 6:
The construction schedule of the Olympic Village can be kept by extensive use of prefabricated elements.

No. 7:
In the equestrian stadium at Riem the essential rough construction has also been completed.

No. 8:
The Lecture Hall Building of the Central University Sports Facility during the interior work.

No. 9:
Terraced buildings of the Olympic Village.

No. 10:
The temporary bleachers of the hockey stadium are erected at the north of the Central University Sports Facility.

June 20, 1971

In the Olympic Stadium work commenced on the installation of a telephone exchange with 396 post office lines and 4,000 extensions.

June 29, 1971

The shell construction of the cycling stadium was completed. The track surface made of Doussie Afzelia hardwood was almost finished after six weeks of work.

June 30, 1971

A floating stage was installed on the lake in the southern part of Oberwiesenfeld. The area of this lake is 80,000 sq. meters.

July 1, 1971

Construction of the provisional refreshment room in the northern section of Oberwiesenfeld commenced.

July 2, 1971

The shell construction of the basketball hall was completed and the topping-off ceremony was held.

July 16, 1971

The topping-off ceremony for the Munich Press City was celebrated.

July 20, 1971

The suburban railroad station to the west of Oberwiesenfeld was finished.

August 1, 1971

The last section of the second high bridge across the Kiel Canal at Holtenau was placed in position.

August 2, 1971

The OBG reported on the stage of completion of the Olympic buildings:

Stadium	70%
Sportshall	70%
Swimming stadium	65%
Roof: Stadium	50%
Roof: Sports hall	70%
Roof: Swimming stadium	80%
Central University Sports Facility with volleyball hall	75%
Regatta course at Feldmoching-Oberschleissheim	80%
Shooting range at Hochbruck	80%
Equestrian installation, Riem	65%
Basketball hall	60%
Wrestling hall	35%
Canoe slalom course, Augsburg	70%
Olympic Village:	
Women's Village	70%
Men's Village (high-rise buildings)	70%
Men's Village (low buildings)	40%
Dining hall	65%
Press City	70%
Press Center	45%
Road constructions	70%
Dante swimming-pool	60%
Dante stadium	100%

August 6, 1971

The topping-off ceremony for the riding stadium and equestrian installations was celebrated in Munich-Riem.

August 16, 1971

Work was begun on covering the tent roof. The cable network above the sports hall and the swimming stadium had already been linked up and tensioned. Under the network of the swimming stadium an insulation layer of translucent sheeting was fitted.

3 m. x 3 m. panels of transparent acrylic glass were screwed to the upper side of the network.

August 20, 1971

The basin of the rowing and canoeing regatta course at Feldmoching-Oberschleissheim was stocked with 20,000 mountain and rainbow trout. The fish keep the water clean and hinder the water plants from growing too thick.

August 26, 1971

The topping-off ceremony was celebrated for the Press Center.

At this time 6,050 workmen were employed on the Olympic grounds:

2,000 in the Olympic Village
1,350 in the competition installations
1,500 on underground construction
1,200 in the Press City and the Press Center.
In addition 1,440 workmen were engaged in construction work outside Olympic Park.

October 7, 1971

The shell construction of the high-rise buildings at the canoe slalom course in Augsburg were finished. The topping-off ceremony was celebrated with great solemnity.

November 4, 1971

The topping-off ceremony for the entire tent roof was celebrated earlier than planned and before ice and snow could seriously hinder construction work. This was the one of the most significant events at Oberwiesenfeld. The roof was lifted in position and was partly covered.

November 16, 1971

Federal Minister Prof. Dr. Karl Schiller was elected deputy chairman of the Supervisory Board to succeed Dr. Alex Möller.

December 15, 1971

The planting of trees and shrubs at the Olympic Center in Kiel-Schilksee was completed.

The lake at Oberwiesenfeld was filled by opening the gates of the supply channel near the cycling stadium.

December 16, 1971

The sports facilities were inspected by the budget committee of the Bundestag and consultations were held with leading figures of the OC and OBG.

January 10, 1972

The conversion of the ice sport hall near the television tower to a boxing hall commenced.

The first student apartment blocks between Winzerer and Lerchenauer Streets were handed over to the OC.

January 12, 1972

The warm-up hall next to the Olympic Stadium was finished.

January 24, 1972

The sea-water pool in the swimming stadium at the Olympic Center in Kiel-Schilksee was filled for the first time.

February 4, 1972

Work on the tent roof had to be temporarily suspended on account of wintry weather.

February 16, 1972

The first houses of the Olympic Village were ready for use and were handed over to the OC.

March 9, 1972

Testing of the scoreboards began in the Olympic Stadium.

March 15, 1972

Five months before the commencement of the Olympic Games, the government bill dealing with the costs of the Olympic buildings was submitted to the Sport and Budget Committees of the Bundestag. The bill stipulated that the Federal Government make a single lump-sum payment of 130 million DM to the City of Munich.

In an official ceremony the keys of the Olympic Village were handed over to its Mayor, Walther Tröger, by the "Olympisches Dorf Massnahmeträger Gesellschaft mbH & Co.", Munich. The Town Hall of the Village, a sixteen-story building, provided accommodation for the 100 officials who looked after the athletes and their 3,000 assistants, for the direction center of the OC and the 200 security officers of the Olympic Village. The Town Hall also contained weighing and medical examination rooms for wrestlers, boxers, judokas and weight-lifters, and the stores for the medical center.

March 23, 1972

A fitness center with about fifty athletic appliances was opened in the administrative building of the Olympic Village.

April 1, 1972

The Secretariat General of the OC submitted a report on the preparations for the Games to the Executive Board. Here are some extracts from the most important items:

The Stadium in Olympic Park is finished and the work on the interior, including the heating and ventilation is completed. At the beginning of 1972 the installation of the scoreboards reached the stage where testing could begin.

The warm-up hall was finished at the end of the year and completely laid out with Recortan. The Olympic Stadium will be officially opened on May 26, 1972 with the international football match between Germany and the U. S. S. R.

The shell construction of the sports hall in Olympic Park is finished. At the present time the landing areas in the interior are under construction. Hitherto it has been possible to adhere to all completion dates for the installation of the control room, control desks and the scoreboards, and for the work in the warm-up hall, the gymnasium and conditioning room. The roofing of the sports hall was finished on January 31, 1972.

Rental agreements have been concluded with the proprietors of the competition sites for handball (Augsburg, Göppingen, Böblingen, Ulm) situated outside Munich. Every hall concerned will be provided with new lighting equipment with an illuminating power of 1,875 lux (new value) as demanded by the German Olympic Center.

The competition pools in the swimming stadium have been tiled. The changing-

rooms, showers and sanitary cabins in front of them are nearly completed; the rooms for the competition management on the pool floor level, the offices of the International Swimming Federation (FINA), the German Swimming Federation, the OC and the stadium management, the massage and rest rooms need only technical equipment and furniture.

The completion dates involved in the construction of the cycling stadium were kept. The competitors' quarters and the covered store in the interior are completed, the lighting equipment has been installed. The conversion of the ice stadium into a boxing stadium was started on January 10, 1972. The improved lighting installation is 80% completed, the construction of the tubular steel grandstands is finished. The referees' changing rooms and lounges are in course of reconstruction.

Work on the volleyball hall is proceeding according to schedule. The shell construction was finished at the end of 1970 and now the work on the interior is 80% completed. The elastic floor with a PVC surface has already been laid in the warm-up hall. The supporting structure for the elastic floor has been installed in the competition arena. Work will be continued after a further series of tests for the choice of color and the determination of the slip resistance of the PVC surface. The seating in the grandstands is completely finished.

The Executive Board of the OC has accepted badminton and water skiing as demonstration sports.

The demonstration competitions in badminton will be divided into three sections and held in the volleyball hall on September 4, 1972.

There will be a water-skiing demonstration on September 1 and 2, 1972 at the Hindenburgufer in Kiel.

All six hockey competition fields are ready for play. Additional grandstands providing standing room for 2,000 spectators have been erected between fields 4 and 5. All roads to the hockey grounds, together with the parking lots, will be completed by April, 1972. The basin of the regatta course channel in Feldmoching-Oberschleissheim was completed in August, 1971. The technical equipment is installed. The whole course will be ready for use in April, 1972; it will be available for training as of August 1, 1972. The technical equipment will then be adjusted for rowing, since the Olympic rowing events will start on August 27, 1972. Two of the six lanes will be reserved for canoeists, the two fields of activity being separated from each other by a wave-breaking barrier.

The shell construction of the wrestling and judo hall at the Exhibition Grounds was completed and the topping-off ceremony celebrated on November 25, 1971. The date for starting the reconstruction of the training hall for judo, Hall 18 at the Exhibition Ground has been fixed by the OBG for April 26, 1972. Interior work in the fencing halls 1 and 2 in these grounds will begin at the end of April, 1972. The competition course for canoe slalom at Augsburg is completed. Interior work on the building has begun. In the riding stadium at Munich-Riem

the shell construction of the covered grandstands has advanced to the stage where interior work can start. The administrative area which will be used only for the contests during the Olympic Games will, for reasons of economy, be a provisional installation incorporated with the grandstands. The turf was laid in the autumn. Three of the new Olympia-type stables have been completed; the interior work on the other two is now in progress. The grass seed for the turf on the training grounds was sown in autumn, 1971. The sand areas will be finished in the spring of 1972.

The planning of the building work for the dressage events in Nymphenburg Park is completed; building will begin in April, 1972.

The shooting range at Hochbrück is 90% completed and work has now begun on the interior of the administrative building and the restaurant. The technical equipment for shooting is being tested at the present time.

The section of the Munich-Lindau motorway intended for the 100 km. team road race has been completed as far as Schäftlarn. The overpasses for pedestrians have been prepared and can be put in place shortly before the event.

Structural alternations to the course for the individual road race, with start and finish in Grünwald, were made in accordance with the suggestions of the International Amateur Cyclists Federation.

The earth work for the archery competition site in the "English Garden" is finished. The competitions in riding, fencing, shooting and swimming for the modern pentathlon will take place on sites suited to these special disciplines. An area must still be found, however, for the 4,000 meter cross-country running contest. Since the Olympic hill best meets the requirements for this event, the Olympic Stadium was chosen as the starting and finishing point.

April 21, 1972

The last of the acrylic glass panels, each 9 sq. m. in size, was attached to the roof of the Olympic Stadium.

April 22, 1972

The installation of the electrical equipment in the interior of the Olympic Stadium for the information of spectators and athletes was completed.

A cluster of 80 loudspeakers situated under the roof above the western grandstand was arranged so that all grandstands received a uniform level of sound. The spectators sitting directly below this cluster were served by an additional row of loudspeakers located at the edge of the arena. Sixteen rows of loudspeakers placed around the track were reserved exclusively for musical entertainments.

The loudspeaker cluster, which weighs 500 kg., is composed of 26 pressure chambers and 54 cone loudspeakers, operated from the control room situated above the grandstands. This room contains 15 amplifiers of 100 watts output each, two tape recorders and two record players.

A total of 20 microphones are distributed between the announcer's cubicle, the

competition management office, the presidential box, the sound and technical room and the sport direction room. Ten additional microphone connections are located in the reporters' dug-out between the track and the grandstands. They enable official announcements to be made directly from the arena.

April 25, 1972

The memorial stone from the ruins of Olympia, which was taken from the 2,700 year-old Echo Hall, was placed in its position in the Forum of the Olympic Men's Village.

May 2, 1972

The basketball hall was completed after about two years' building time.

The building company "Neue Heimat", Hamburg, completed the principal building of the Olympic Center in Kiel containing administrative offices and apartments, together with a promenade. The Company handed over the building to the City of Kiel, and some departments of the OC moved in.

May 8, 1972

The Munich municipal transport organization opened subway line No. 3 running from Goetheplatz to the Olympic Center.

Work was started on laying the Recortan track over a total area of 6,900 sq.m. For putting down this surfacing material the outdoor temperature must be over 12° centigrade and the atmospheric humidity less than 70%.

May 13, 1972

An agreement was signed between the OC and an electrical manufacturer for the supply of 8,636 television sets. These were used for live transmissions in the Olympic Village and at various competition sites.

May 26, 1972

The Olympic Stadium was inaugurated with an international football championship match between Germany and the U.S.S.R. All administrative and security arrangements for the filling and emptying of the stadium and for the transportation of the spectators after the match proved satisfactory.

The illumination by the 550 high-efficiency lamps on the floodlighting masts satisfied the requirements of sport and of television. Halogen metal-vapor lamps were used. They provided an illumination similar to daylight and received special praise from the players.

During this game wind velocities of 6 and 10 were recorded at Oberwiesefeld but the wind force was considerably less at the playing level. Practical experience thus agreed with the tests carried out on models in a wind tunnel.

June 22, 1972

Europe's first pneumatic refuse disposal installation was put into operation in the Olympic Village.

June 25, 1972

The official acceptance of the Olympic buildings and their transfer from the OBG to the OC was begun and continued until July 31. In the case of certain provisional installations, such as at Nymphenburg and the exhibition ground the transfers did not take place until August 25.

June 29, 1972

In the Pavilion of the Olympic Building Center, Federal Minister of the Interior Hans-Dietrich Genscher, State Minister of Finance Dr. Ludwig Huber and Lord Mayor Dr. Hans-Jochen Vogel, signed a new consortium agreement concerning the construction, financing, responsibility for and costs of the buildings and equipment for the Olympic Games. According to this agreement, the Federal Government undertook to finance 50% of the total cost that was not covered by funds from outside sources, while the Bavarian Free State and the City of Munich each contributed 25% of this sum (See Vol. 1). On the same day, in the presence of Federal Chancellor Dr. h.c. Willy Brandt and many guests of honor, a symbolic ceremony took place in the sports hall at which all completed sports installations for the Olympic Games were formally handed over by the General Manager of the OBG, Dipl.-Ing. Carl Mertz to the President of the OC, Herr Willi Daume.

July 2, 1972

The Olympic Center in Kiel-Schilksee was officially handed over to the OC. Mayor Gunther Bantzer symbolically presented a key to the Chairman of the Committee for the Olympic Yachting Events Kiel 1972, Berthold Beitz.

July 12, 1972

The park paths in Munich which would be used for the Olympic walking and marathon events, were sprayed with a plastic substance to bind the fine loose gravel.

July 12, 1972

The Olympic flame was lighted in a try-out on top of the three-step structure in the harbor of the Olympic Center at Kiel-Schilksee.

July 14, 1972

After a construction period of two years the South Restaurant was opened as the first of four restaurants for visitors to the Olympic Park.

July 21, 1972

The buildings for the Olympic Youth Camp in Munich were completed.

August 1, 1972

The Olympic Village and the Press City were opened for Olympic use.

August 10, 1972

The Press Center in Kiel was opened.

August 26, 1972

The Games of the XXth Olympiad were opened in the Olympic Stadium.

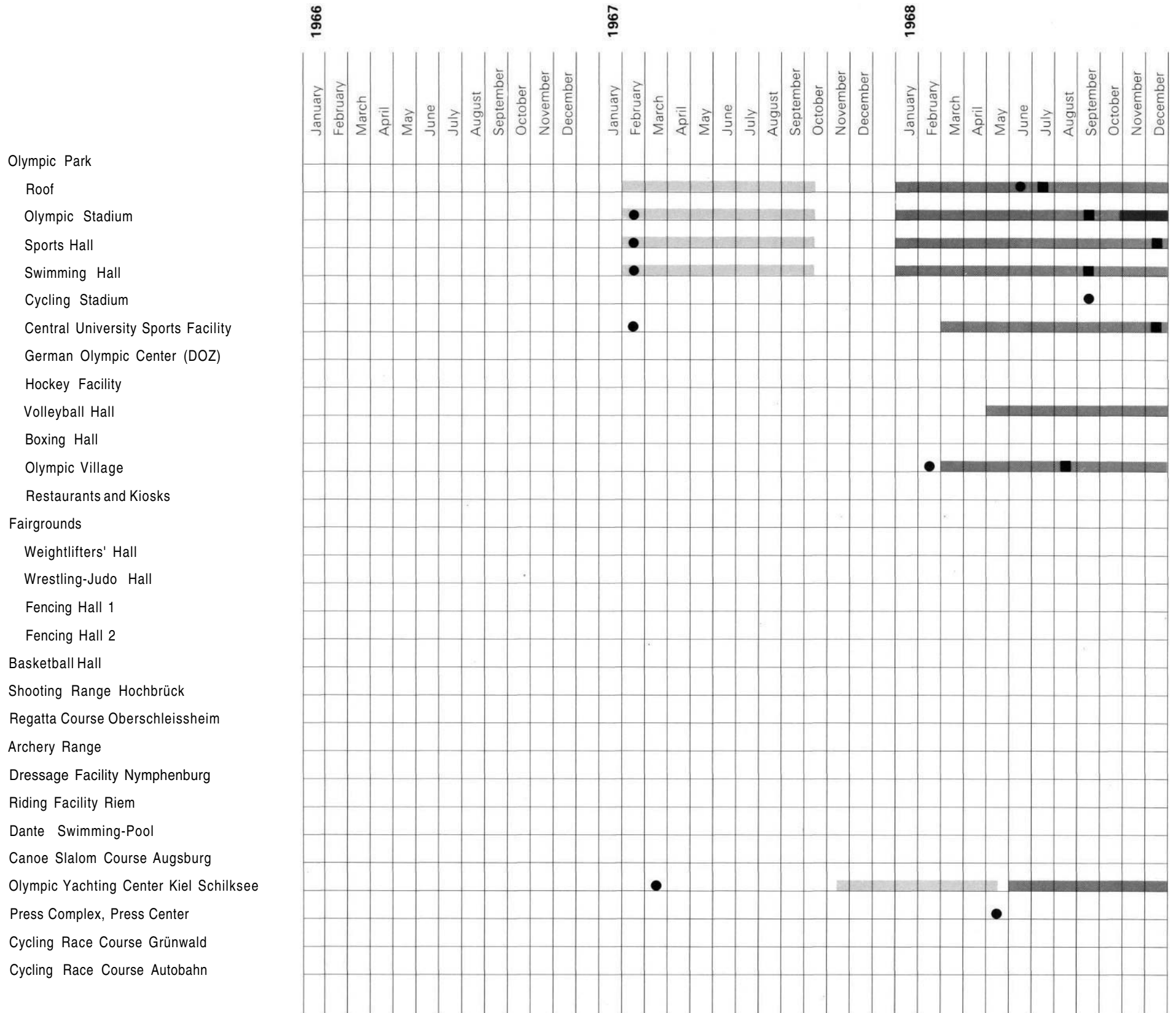
August 28, 1972

The opening ceremony for the Olympic yachting events took place in the Olympic Center at Kiel-Schilksee.

September 16, 1972

The OBG handed the Olympic hall as the first sport site over to its future holders, the Munich Olympia Park Co. Ltd. The greater part of the sports facilities were transferred before October 1, 1972. The final transfer followed the completion of the cafeteria at the end of November, 1973.

**Schedule of the
planning and construction**



Organizing
Committee
Board
Decision

Competition

Planning

Project Approval
by either
the OBG or
the Organizing
Committee

Basic
Construction

Completion

1969

January
February
March
April
May
June
July
August
September
October
November
December

1970

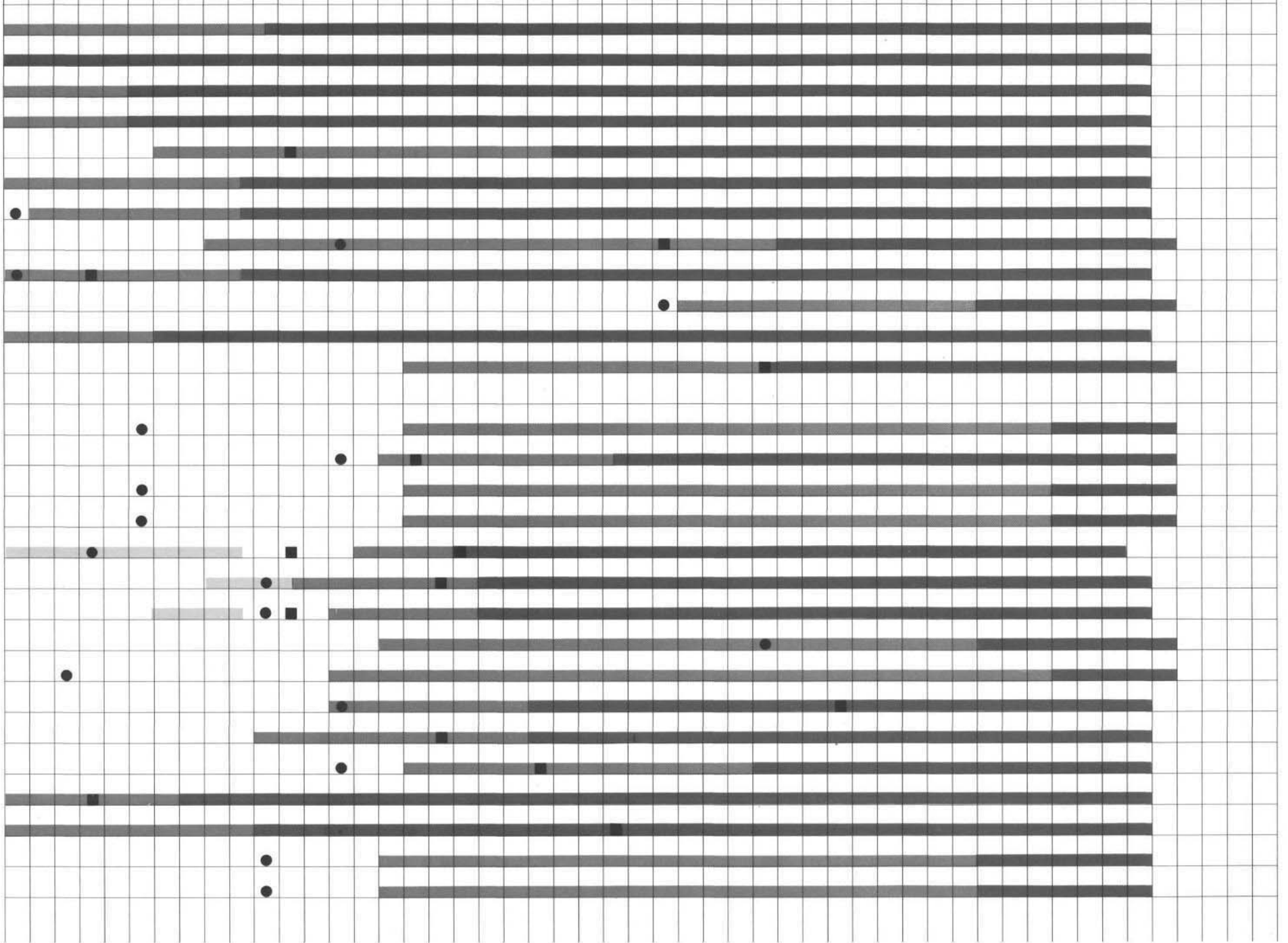
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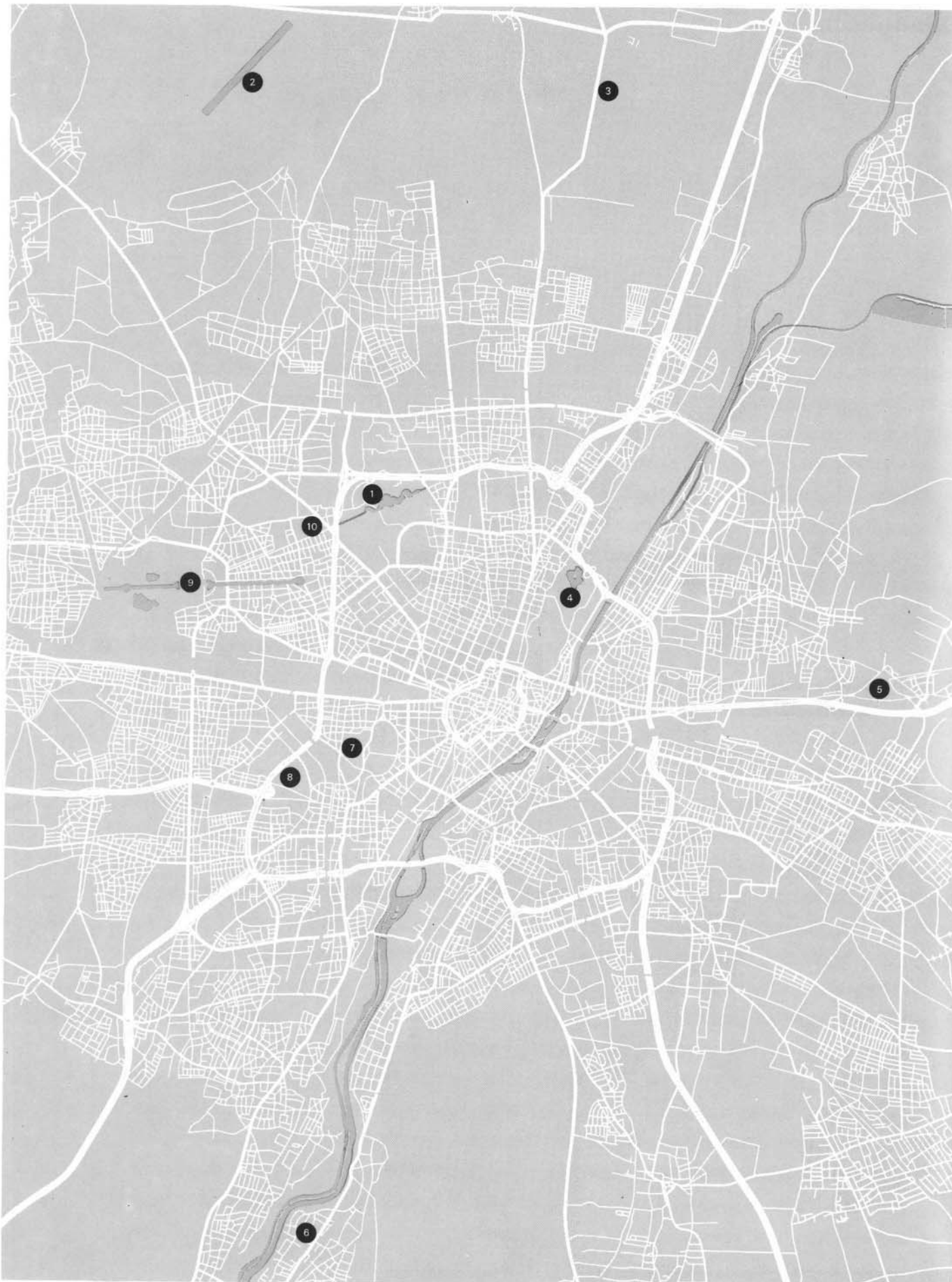
1971

January
February
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1972

January
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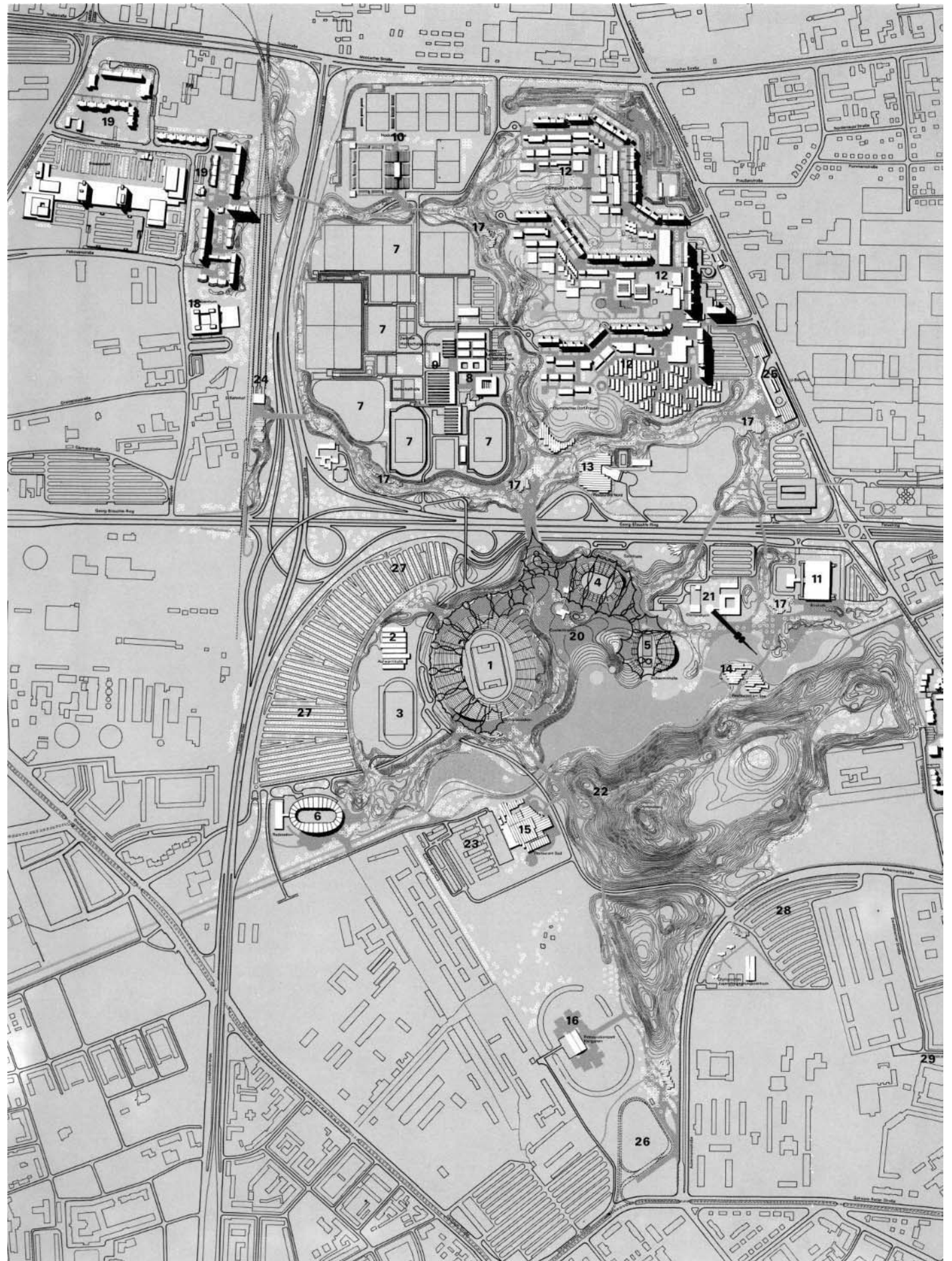
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23 Olympic Construction Company (OBG)		
24 Rapid Transit Station (S-Bahn) Olympic Center		
25 Subway Station (U-Bahn) Olympic Center		
26 Streetcar Loop Ackermann Strasse		
27 Private Parking Lot		
28 Parking Area for Visitors' Buses		
29 Organizing Committee (OC)		



Olympic Park
Architects:
Behnisch and Associates,
Munich/Stuttgart
Günter Behnisch, Fritz Auer, Winfried

Büxel, Erhard Tränkner, Karlheinz Weber,
Jürgen Joedicke
Landscaping
Günter Grzimek, Kassel



The themes proposed in connection with Munich's application to sponsor the games of the XXth Olympiad of 1972, i.e. "Olympia, Festival of Muses and Sports" "Averdant Olympia" "Olympia of short paths" were important factors for the IOC in comparing the candidates. They had a considerable influence on the positive decision for Munich. These themes were realized on a broad scale by the first prize winner in the architectural competition for the structures at Oberwiesenthal. Despite the huge dimensions of the competition facilities intended for large numbers of spectators, the multiple training facilities for the participants, the installations for handling traffic, and a city for athletes that can only be called a "village" because of the historical development of the term, the design was dominated, nevertheless, by a human scale. The idea was to provide facilities which could provide the setting for a cheerful, relaxed atmosphere. This atmosphere was intended to prevail not only during the relatively short period of the Games, but also during the long period of usage after the Olympics. This plan was supposed to be just as significant for the citizens of Munich in regard to culture and city planning as are the English Garden or Nymphenburg Park.

Out of these considerations arose a form for the facility that excluded every pretension to monumentality. It is most accurately described by the terms "molded landscape" and "architectural landscape." The program of the competition, which involved extensive areas and volumes, and in which the sports structures were dominant — as indeed they had to be — was transformed into a conception that made the congestion and concentration, which were to be expected according to the program as inevitable, no longer noticeable at all. This was accomplished by locating the main sports facilities in the south of Oberwiesenthal, by making the elements already present (i.e., the "Rubble Hill," Nymphenburg Canal and the television tower) a part of the conception, and by grouping the competition facilities together to form a central area.

The stadium, the sports hall and the swimming hall were turned into important components of the grounds by landscaping a totally flat area. The character of the "Rubble Hill," the formation of the artificial lake, the relation of the main sports facilities to the elevated center, the common roof covering all main sports structures and extending to the northern part of the grounds, as well as the extension of the spectators' plateau in the north of Oberwiesenthal are all elements of an impressive design, a harmony of hill, dams, plateaus and water with open-air and indoor sports facilities.

The stadium, sports hall and swimming hall are located at the crucial point of the traffic flow. By their relative orientation, they form a center which serves as an assembly and meeting point for spectators and provides access to the competition facilities. This forum is open to the south, toward the lake and toward the "Rubble Hill," while the sports facilities in the north, east and west shield it from the traffic. The competition program required the clear separation of the access roads for the spectators, athletes, VIPs, officials and





reporters. This was best realized in Olympic Park. A system of order that judged the traffic patterns correctly, and hence made the optimal solution possible, contributed greatly to this accomplishment, even though the streets and paths were seemingly layed out only according to considerations of design.

Prior to its modification into an Olympic facility, Oberwiesenfeld, only four km. from the center of Munich, had served as a parade ground, airfield, a dumping site for rubble, and in part as fairgrounds. In the city development plan, it was identified as a green area which was to be conceived of as a juncture point of a radial green wedge, running in a north-south direction, and the park system running in an east-west direction along the Isar. This wedge will connect the heart of the city with the green region of northern Munich, the Lerchenauer Lake and the adjoining wooded areas. The second diagonal green strip, at a right angle to the latter, is the canal running from Nymphenburg to the English Garden. Viewed in this direction, Oberwiesenfeld is located midway between the Nymphenburger Lake and the Kleinhesseloher Lake.

The area of approximately 280 hectares is surrounded by main thoroughfares in the north, east and west, and is bisected by the Middle Ring Expressway at about the middle of its longest stretch. One of the essential jobs of planning, therefore, was to provide the right tie-ins and access to the whole complex, to overcome the obstacle of the Middle Ring and to separate the streams of pedestrians from motor traffic within Oberwiesenfeld.

Most important for public transport were the subway in the northeast (connected with a bus station for the lines serving north Munich) and the rapid transit station (S-Bahn) in the northwest of Oberwiesenfeld. Finally, the streetcar station in the south brought this mode of transportation also into consideration. Spectators walked from these installations to Olympic Park along causeways 8 to 9 meters high and across pedestrian bridges.

A pedestrian path, running more or less in an east-west direction, connects the subway station with the rapid transit station. The main overpass that leads over the Middle Ring into the center of the main sports facilities is located at the point where the east-west path intersects the causeway coming from the north. An additional causeway running in a northeast to southwest direction connects the subway station to the sports hall-swimming hall complex, also via an overpass across the expressway. The most important pedestrian access paths in the southern area of Olympic Park are the approach that runs about parallel to the lake and passes the television tower and the ice stadium, and the connecting path from the streetcar stop, that runs along the "Rubble Hill."

The elevation of the paths gives visitors to Olympic Park a good view over it. This view allows them to catch glimpses of the various zones of activity, of life and action by the lake, the show place, the center, of the athletes' training facilities and of the green areas between the dwellings of the Olympic Village. Pedestrians thus reach the competition facilities through

a landscape with constantly changing scenes. Without having to overcome great differences in elevation, they approach the center on this common access level which leads from the forum into the foyers of the sports hall and swimming hall and up to the east edge of the stadium. Pedestrians can also go around the western area of the stadium at about half the height of the stands.

The solution of using the approaches and embankments as elements of the landscaping is especially pleasing in a case where a conflict situation arises for the planners: such as when a recreation area is involved, in which large sections have to fulfill certain technical or safety requirements. During the Olympic Games, the planners had to take into consideration the crowd turnover between the afternoon and evening activities, as well as the normal spectator capacities of the seven competition facilities in Olympic Park (bicycle stadium, boxing hall, hockey field and volleyball hall in addition to the three main competition sites). At that time, more than 250,000 visitors were expected to be in the complex simultaneously. The results of these calculations required arrival and departure footpaths up to 40 meters wide. Despite their significance during such events as the Olympic Games, these paths were not given the character of parade streets. The planners also considered the situation that would prevail most of the time, when only a small number of people seeking recreation would be present in the entire open area of approximately 140 hectares. They also had to be provided with paths of appropriate width. The paths for this individual usage had to be pleasant to walk on, and had to lead to interesting views or activity areas, play areas, camping grounds, etc. The division of the broad connecting paths into a network of paths of varying widths developed primarily from these considerations. It proved to be advantageous to lay out the paths on embankments. This clearly determined the direction of the paths. The green islands of grass lying in the network of paths were made so that people walk on them during times of heavy traffic without causing any permanent damage. Thus, the demands of the traffic experts could be met, while a variety of pathways for normal use were created at the same time.

Individual transportation was of only slight significance in comparison to travel by public transit. Only one, large, radial parking lot was located at the west side of the Olympic Stadium. During the Olympic Games, it was reserved for guests of honor, administrators and the press, as were two smaller parking lots and a parking deck in the eastern area.

The job to be done was clearly formulated in the competition: the Olympic Games were to take up their original constitutive elements, and also to be the "verdant Olympic Games" and the "Games of the short paths." In view of the quantitative prerequisites of accommodating 12,000 athletes, offering adequate competition facilities and providing for the spectators, this was an extraordinarily difficult undertaking.

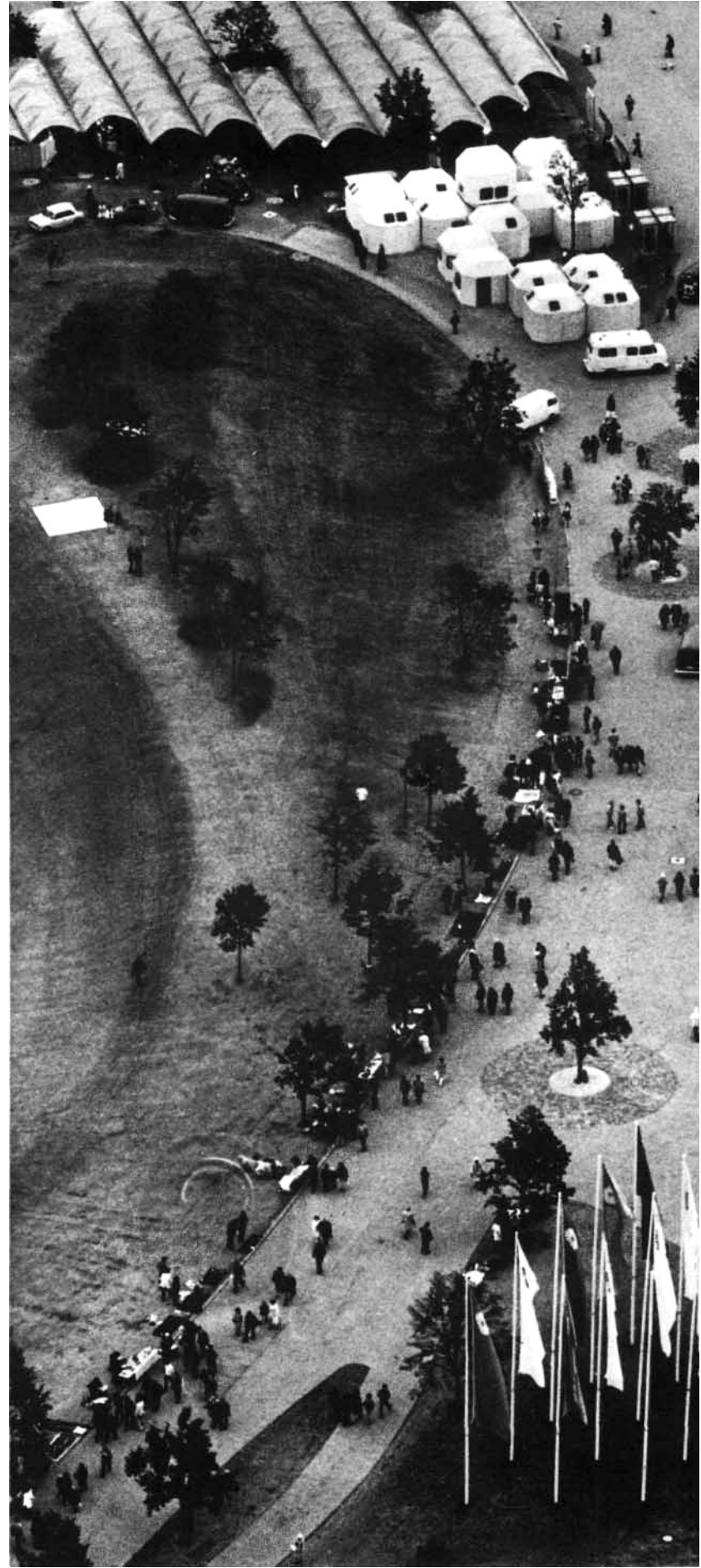


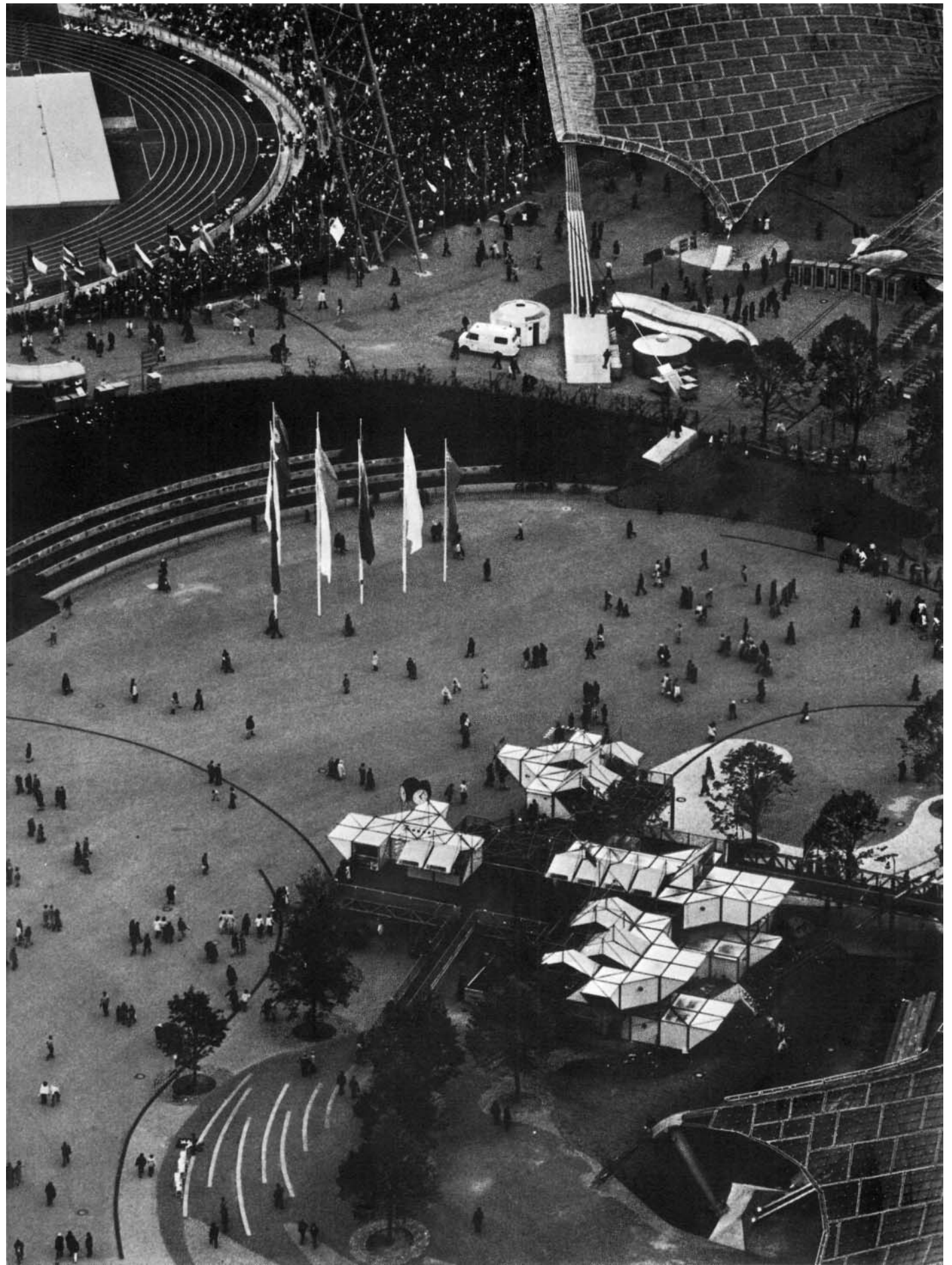


The planners, therefore, established an opposing qualitative pole: openness, simplicity and comprehensibility. This synthesis was created by linking the "Rubble Hill," the lake, the forum, the sports sites and the embankments, and by constructing the main sports facilities with the major part of their spectator facilities below ground. Instead of monumental sports architecture, the result was an interesting, markedly subdivided sports and recreation landscape that is always offering a variety of new aspects. That the intended goal has been realized is due, in the southern part, to having superimposed two systems of configuration. Abstractly considered, these are, first of all, the system of ground configuration with sports sites partially embedded in the ground, and secondly, the system of the roof form that extends over the main sports sites. It is not merely the sum of the individual roofs of the stadium, sports hall and swimming hall; rather it is one roofing structure that lets the area be seen in relation to the landscape. The spatial divisions of the individual parts thus fade into the background.













A hill, a lake, paths, trees, meadows, lawns, activities — these are the essential elements of the landscaping architecture which characterizes Olympic Park. Who can still picture, behind all these images of lively or contemplative activity, the flat and bleak Oberwiesenfeld described in the "Construction Chronicle" the way it presented itself just four years before the Olympic Games?

The "Rubble Hill" had indeed already been developed as a green landscape before Olympic planning started, but the shape of the hill was later altered and the possibilities of its usage were thereby increased. Depressions and knolls were formed on the steep slopes to provide shelter from the wind, places to lean against, privacy and viewing points. The planting of the hill was reduced to just a few different varieties.

The lake is an artificial basin sealed with asphalt concrete. It lies three meters above the level of the playing field of the Olympic Stadium. Reed-mace, water iris, water lilies and a marshy area on the south shore give it the character of a natural lake. Wooden bridges and platforms lead down to the water; old trees stand on an island; and the water falls over a spillway down into the lower lake.

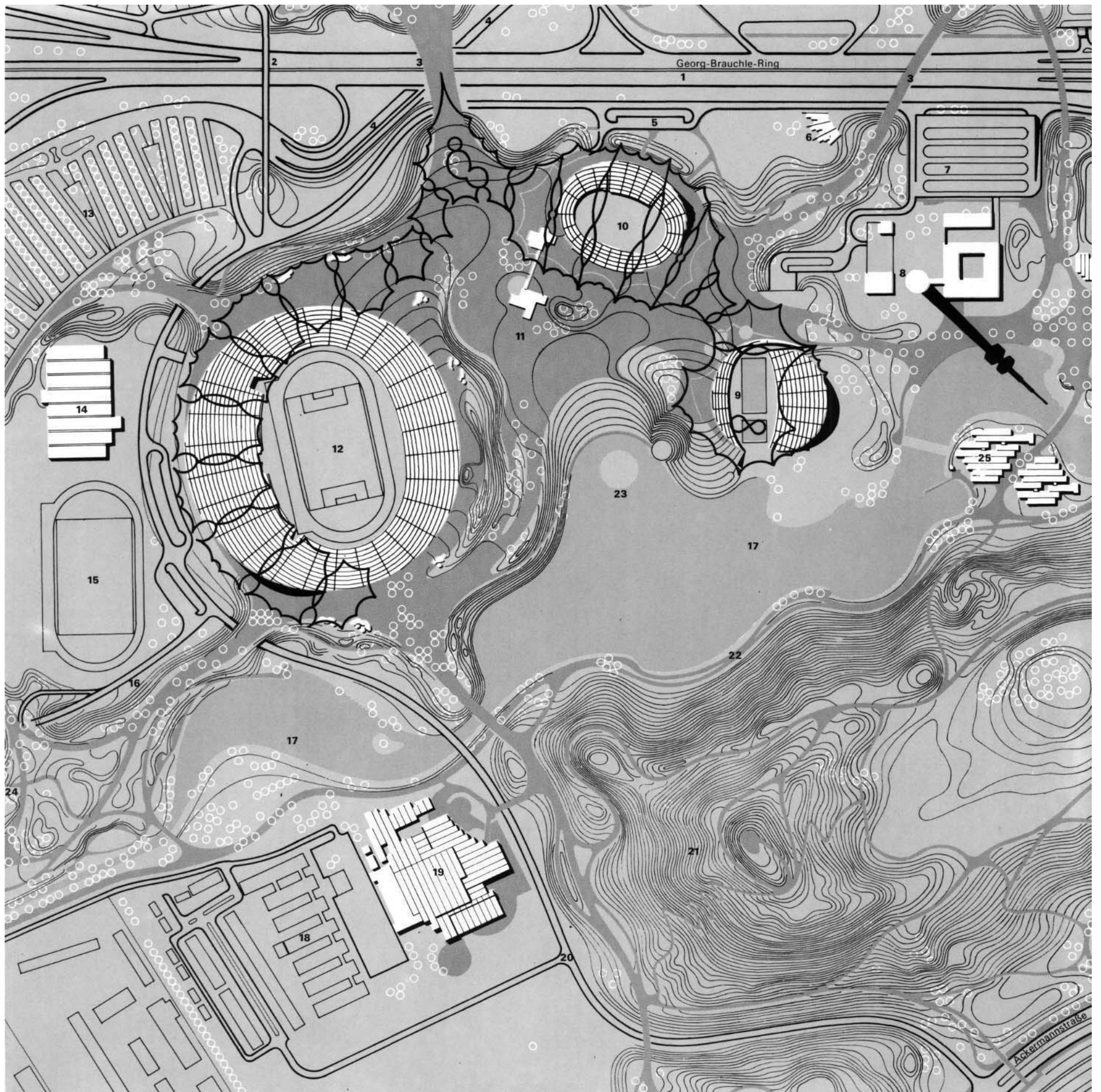
The shoreline is lined with white willows. Linden were chosen as the principal trees for the approach paths. They were planted in such a way as to create axes of view that direct the eye towards points within the grounds that are especially worth seeing, and towards the cultivated area around the edges. More than 3,000 trees were planted. These previously stood in Munich's parks and avenues, or they came from nurseries. They were up to 16 meters high at the time of planting, and some trees were as much as 60 years old. Besides the lindens, prominent individual trees were planted, such as oaks, pines and others. These also served as additional aids to orientation.

In Olympic Park, on the "Rubble Hill" and on both sides of the pedestrian causeways bloom sage, chrysanthemum, kidney vetch, mullein and many other varieties of flowers. This was in accordance with the planners' desire to integrate the landscape into the city by creating flower meadows with many different species instead of conventional, well ordered flower beds.

Ultimately, it is man who gives life to the greens and recreation areas by his activities. In the park area, which is always freely accessible, summer activities worthy of mention are hiking, strolling, chess and boccie games, picnics, flying model planes, boating and flying kites. There are also playgrounds, playing fields and water sports facilities for children and youths.

In the winter, park visitors may hike, ski cross-country and downhill, toboggan, ice skate and curl.

The Roof
Architects
Behnisch and Associates:
Munich/Stuttgart
Günter Behnisch, Fritz Auer, Winfried
Büxel, Erhard Tränkner, Karlheinz Weber



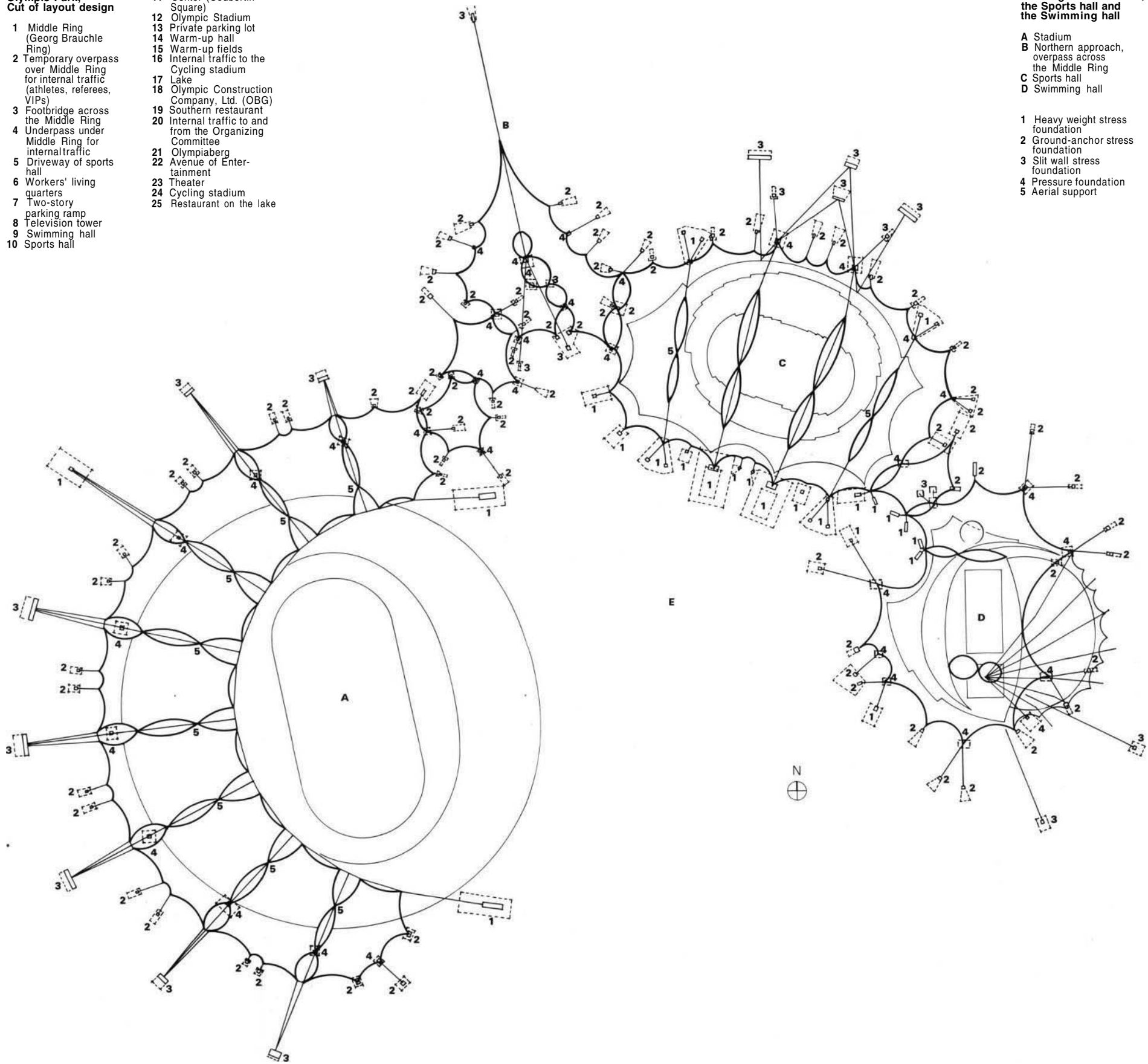
**Olympic Park,
Cut of layout design**

- 1 Middle Ring (Georg Brauchle Ring)
- 2 Temporary overpass over Middle Ring for internal traffic (athletes, referees, VIPs)
- 3 Footbridge across the Middle Ring
- 4 Underpass under Middle Ring for internal traffic
- 5 Driveway of sports hall
- 6 Workers' living quarters
- 7 Two-story parking ramp
- 8 Television tower
- 9 Swimming hall
- 10 Sports hall
- 11 Center (Coubertin Square)
- 12 Olympic Stadium
- 13 Private parking lot
- 14 Warm-up hall
- 15 Warm-up fields
- 16 Internal traffic to the Cycling stadium
- 17 Lake
- 18 Olympic Construction Company, Ltd. (OBG)
- 19 Southern restaurant
- 20 Internal traffic to and from the Organizing Committee
- 21 Olympiaberg
- 22 Avenue of Entertainment
- 23 Theater
- 24 Cycling stadium
- 25 Restaurant on the lake

**Roofing of the Stadium,
the Sports hall and
the Swimming hall**

- A Stadium
- B Northern approach, overpass across the Middle Ring
- C Sports hall
- D Swimming hall

- 1 Heavy weight stress foundation
- 2 Ground-anchor stress foundation
- 3 Slit wall stress foundation
- 4 Pressure foundation
- 5 Aerial support





The formal and functional significance of the roof for the total concept of the Olympic Park has been treated in the previous section. The basic principle of construction will be handled here.

The reader of the "Construction Chronicle" will remember that the jury for the architectural competition for Oberwiesefeld was not in a position to comment on the feasibility of the roof.

The doubts which arose in the first discussions multiplied. Comparative studies with other roof forms were made. Experts were asked about their views in regard to characteristics of technique and materials and functionality for sports. Opinions for and against the roof were collected, discussed, weighed, rejected. Finally deadlines forced a decision. Despite all the technical difficulties, this decision was prepared by the planners, made by the authorities, and singlemindedly carried out by the construction engineers.

At the beginning of the actual planning work, after the acceptance of the tent idea, a cantilever roof was considered.

This would have necessitated a heavy roof covering as a permanent support to prevent distortion from snow and wind.

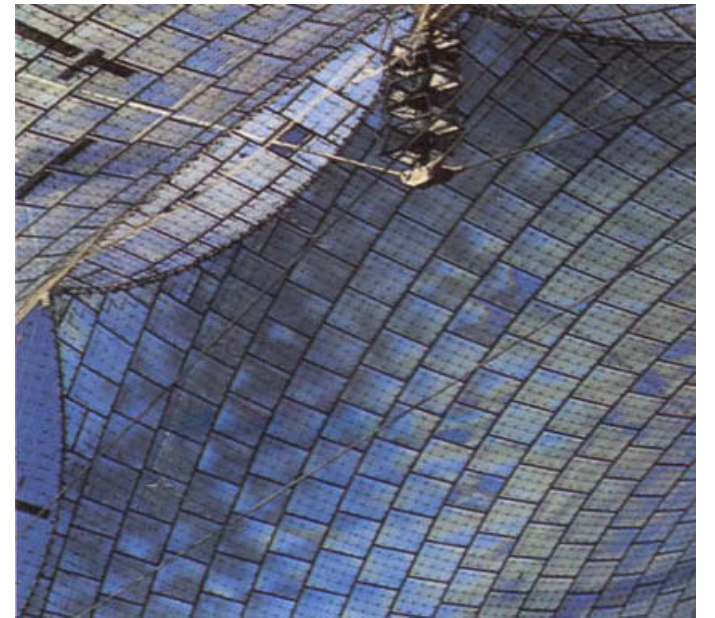
The requirement of color television that the covering of the west stadium stands be as free from shadows as possible, ruled out this conception. The basic idea of the planners, namely, to provide a roof surface that would give a light and airy impression despite its 75,000 sq.m. could be realized only in the form of a pre-stressed cable network construction. Professor Leonhardt said on the occasion of the "topping off" ceremony for the roof on November 12, 1971: "The competition idea had to be further developed into a workable form, by no means a simple task, considering the large areas which had to be covered without supports. The father of modern cantilever and tent roofs, Professor Frei Otto, made a considerable contribution to the solution, in that he showed how the necessary curvature of the large cable network surface could be achieved by the incorporation of so-called air supports, which are supported by main

or primary cables from the high masts and which swing in the air on these cables. Thus a good solution for the stadium and the sports hall was born. For the smaller swimming hall it was sufficient to suspend the network from a high mast and stretch it to the edges.

The cable network surfaces had to be curved in saddle-shape in two directions in order to render them with a workable amount of pre-stressing stiff enough to prevent flapping in the wind and sagging from snow."

The Engineering Office of Leonhardt and Andrä, Stuttgart, found in a study that a comparison between pre-stressed cable network roofs and pure hanging roofs hardly showed any economic advantage of one over the other, any more than "one can generally say that one can build more economically with cable network construction than with rigid materials or with shells. On the other hand, cable network construction can hardly be excelled for its versatility and ability to span large areas.

Any desired roof form can be produced. No other method could have achieved such a complete adaption of the roof forms to the diversity of the landscape or buildings as was possible with the Olympic roof." The stress carrying steel cable, which was of very solid composition became the basis of construction. A pre-stressed cable network construction, which consists of cable groups curved and spanned in two directions, conducts the load of the roof surface — that is, its own weight plus snow and wind—together with the pre-stressing load to the edge cables. These again collect the forces of the network and conduct them to the junction knots, which are either stretched with cables directly to stress foundations or are supported by masts standing on pressure foundations. The network is provided with the necessary pre-stressing and stability by the balance of forces, which are transmitted to pressure and stress foundations in the ground via pylons 12 to 81 meters high as well as via the edge cable. The stadium roof has nine continuous sections. The sports hall has five. Each of





these sections is framed by an edge cable, which in the case of the stadium edge cable is anchored directly in the foundation. Otherwise they are suspended from mast-heads or end in corner points, high points or low points. The roof surface of the swimming hall, on the other hand, is supported chiefly by one 81 meter mast.

A roof of this type and size is without precedent and the engineers stood before unexplored territory. It is relatively easy, as Professor Leonhardt emphasized in his "topping off" speech, to calculate the forces for the measurement of the cables and the net. It is much more difficult, however, to determine the exact lengths of the cables. Only the correct proportions could guarantee that the cable network would assume its predetermined form and tensions. Several groups of engineers, therefore, worked in the planning phase. Some examined blueprint data from models, with geodetic error-balancing calculations, others chose the way of purely mathematical treatment using the finite element methods. The roofs for the stadium

and swimming hall were built with blueprints which resulted from the measurement of models. In the case of the sports hall, calculations were accomplished with the help of high performance calculators. Around 2,000 blueprint plans were electronically drawn.

New paths were trod in the construction phase too. Cables had to be developed which had greater tensile strength than previously available. The great forces demanded newly designed extruded steel components and new welding methods. Three types of foundations were used to conduct the forces to the ground:

- "slit wall" foundations working on the principle of a tent peg,
 - heavy duty foundations which counteract stress by its own weight and that of the earth above it,
 - ground anchor foundations, by which a heavy ground component was attached to the stress cable by means of drilled and pre-stressed anchors.
- The construction components were pre-fabricated by a group of steel companies and

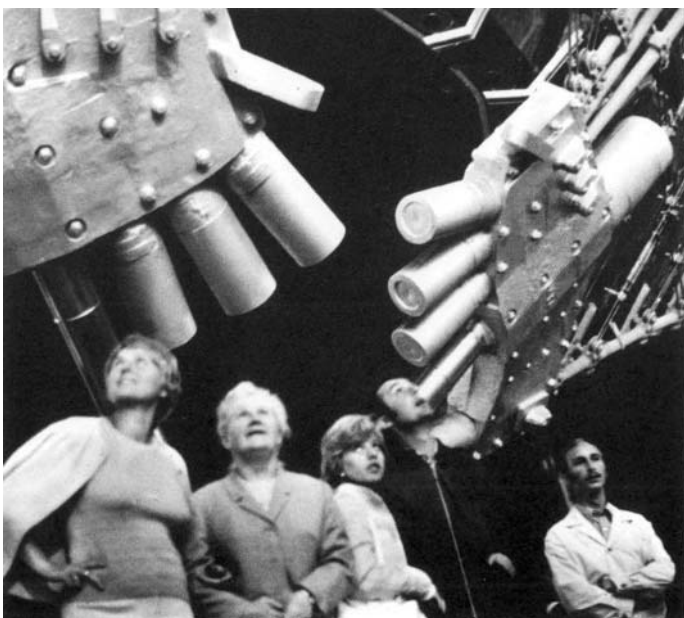
mounted. Except for the edge cable of the stadium, which was assembled on a bridge, all the cables and networks of the roof surfaces were laid out and mounted on the ground. 500,000 knots and 4,000 tiles had to be mounted in their proper positions on the grid. No unplanned snags could be tolerated during the raising of the roof.

The cable network has square segments with a distance of 75 m. between knots. The edge cables have a diameter of 80 mm. and a maximum tensile strength of 300 mp. Cables were coupled together in cases of greater loads. The main cables had to be highly stretch-resistant to prevent any misshaping of the roof, which would otherwise have been probable. Therefore parallel strands were bundled to form stronger cables.

The masts have diameters up to 3.5 meters and are up to 70 mm. thick. They can bear loads of up to 5,000 mp. and stand on rubber grommets which can shift in any direction, and on concrete foundations. Ball bearings were installed under the

bearings to provide for the necessary turning of the masts during the erection of the roof (up to 30°). These were enclosed in concrete after the pylons assumed their permanent positions.

Stretched acrylic glass in the sheets measuring 3 m. x 3 m. was chosen for the roof covering. The plates transmit pressure and suction forces which result from wind, from snow, from the weight of persons on it, and from its own weight, to the fastening points at 75 cm. intervals. For this purpose so-called metal swing buffers were developed, which ensure enough play for the plates. Their return pressure always pushes the plates back to their original positions. The joints between the plates are kept flexible, so that expansion and contraction due to temperature changes can be absorbed without damage. The plates are connected to each other by flexible chloroprene strips. Each joint forms a trough about 5 cm. deep and 1.4 cm. wide. This simultaneously prevents rain water from running all over the roof and overflowing the gutters along the roof edge.



For physical reasons (outside the responsibility of the builders), the sports hall and the swimming hall were provided with inner roofs of overlapping transparent PVC sheets. An air space for cross ventilation was left between the acrylic glass roof and heat retarding, yet moisture proof layer. That the roof has been damaged by excessive heat, however, showed that the inner roof has not lived up to expectations. Even before the Olympic Games there were areas that were discoloring, a fact which led to considerations of replacing the entire ceiling. However, this is the only serious constructional error which has cropped up in the Olympic buildings despite their not inconsiderable dimensions, deadline pressures, and the multitude of new developments.

Olympic Stadium

Architects:

Behnisch and Associates,

Munich/Stuttgart

Günter Behnisch, Fritz Auer, Winfried

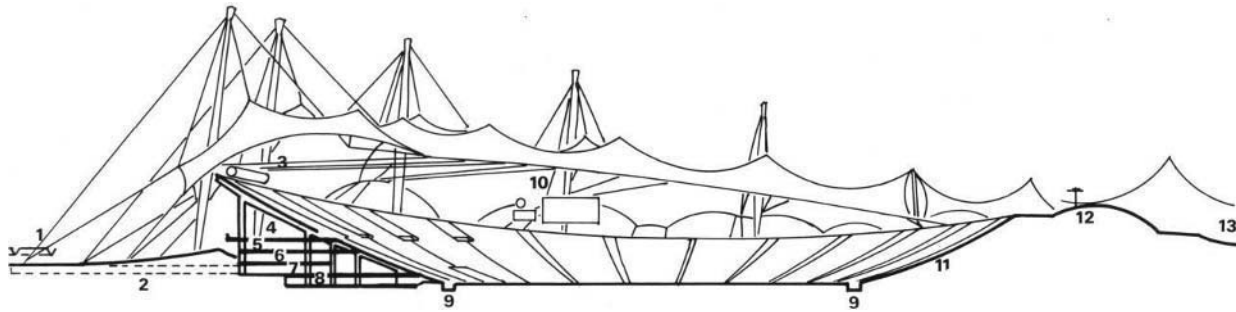
Büxel, Erhard Tränkner, Karlheinz Weber



The arena was sold out for almost every occasion, whether it was for the opening ceremony, the athletic events, the football games, the Grand Prix Team Competition or the closing ceremony.

On the training ground opposite the west grandstands the athletes are making their final preparations for the forthcoming contests. Spectators are filling the last of the 80,000 places in the stadium.





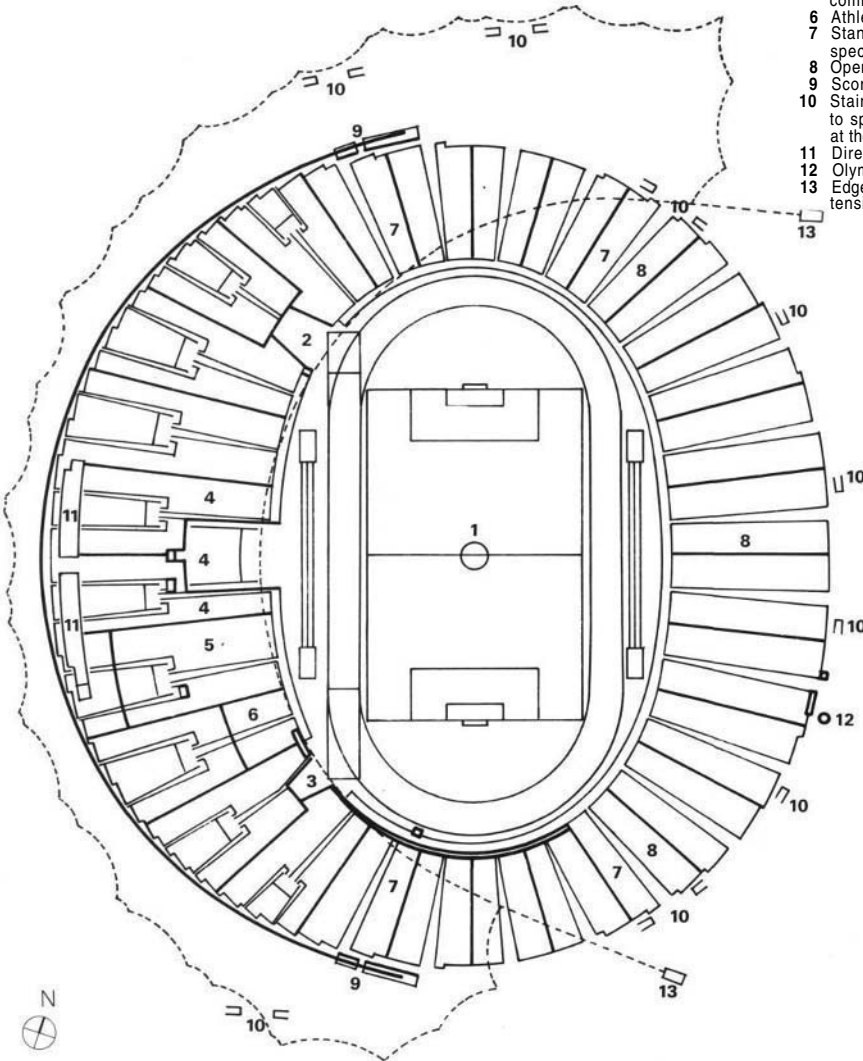
Stadium cross section

- 1 Athletics warm-up hall
- 2 Corridor from warm-up hall to stadium
- 3 Directors' center
- 4 Elevation O-spectators' entrance

- 5 Floor plan level No. 1
- 6 Floor plan level No. 2
- 7 Floor plan level No. 3
- 8 Floor plan level No. 4
- 9 Reporters' pit
- 10 Score board
- 11 Eastern stand
- 12 Olympic flame
- 13 Olympic Center

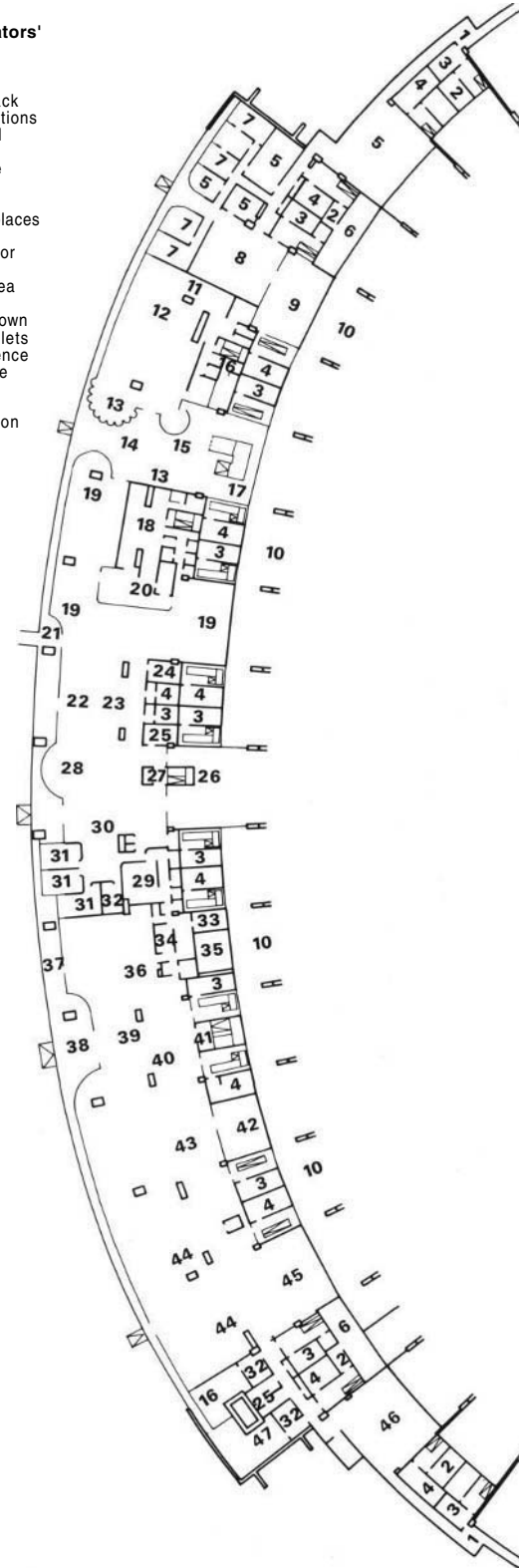
Cross section, Floor plan, spectators' level

- 1 Interior of the Stadium with track and field installations and playing field
- 2 Marathon gate
- 3 Service entrance
- 4 VIP grandstand
- 5 Press and commentators' places
- 6 Athletes' seats
- 7 Standing room for spectators
- 8 Open seating area
- 9 Scoreboard
- 10 Stairs leading down to spectators' toilets at the circumference
- 11 Director's cubicle
- 12 Olympic flame
- 13 Edge cable with tension foundation



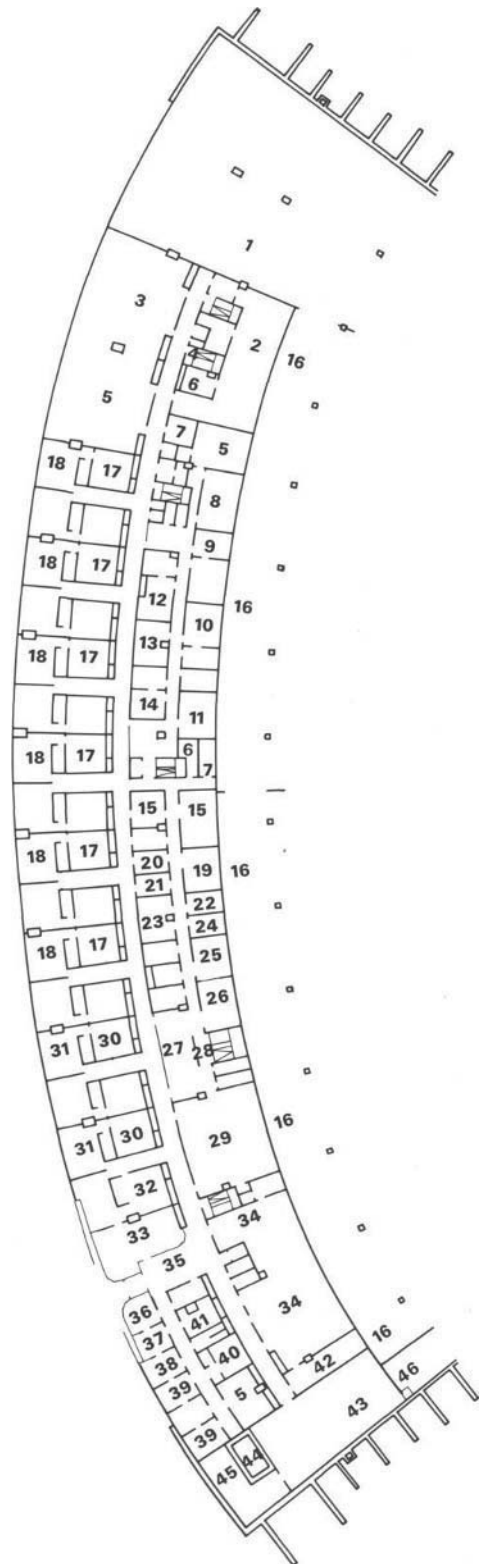
Western stands, Diagram elevation No. 1

- 1 (Installation) hallway to the toilet facilities
- 2 Beverage store room
- 3 Women's toilets
- 4 Men's toilets
- 5 Lounge for short term personnel
- 6 Store room
- 7 Office OC technical
- 8 Canteen for short term personnel
- 9 Inner courtyard
- 10 Air space service access level
- 11 Post office side room
- 12 Special post office
- 13 Telephone exchange and booths for spectators
- 14 Hall special post office
- 15 Information
- 16 Lounge for Post office employees
- 17 Connecting stairway spectators level/post office
- 18 Restaurant-kitchen
- 19 Restaurant
- 20 Food distribution and waiters' passage
- 21 Entrance to the terrace
- 22 VIP Lounge
- 23 Bar
- 24 Supply control
- 25 Hygiene room
- 26 Entry to the VIP area in the stadium
- 27 Stairwell and elevator for VIPs
- 28 Conference room
- 29 Hostesses' lounge
- 30 Information
- 31 Stadium-administration
- 32 Hat and coat check
- 33 Store room for daily supply kitchen
- 34 Kitchen
- 35 Air space studio
- 36 Snack bar for the press
- 37 Terrace
- 38 Entrance to press area
- 39 Press area hall
- 40 Information center
- 41 Entry up to the press seats
- 42 Hostesses' lounge
- 43 Press writing room
- 44 Telephone exchange and booths for the press
- 45 Teletype room
- 46 Print shop
- 47 Press personnel room



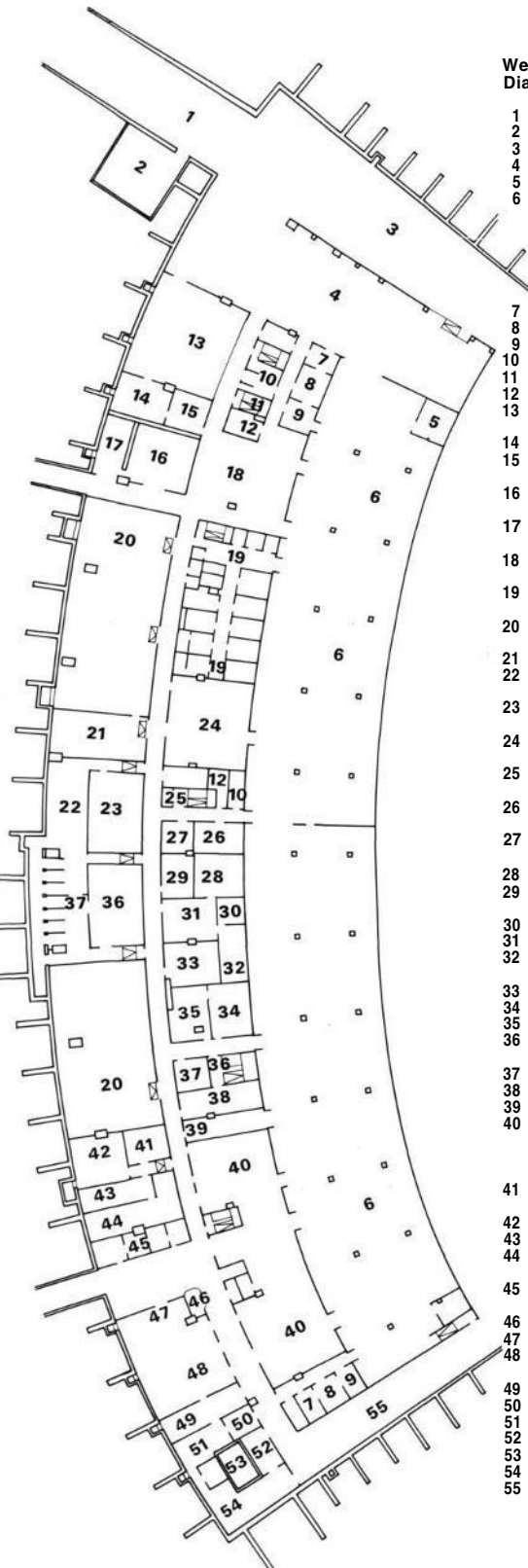
The ground covered by the eastern part of the stadium was excavated in such a way that on this side the stadium is embedded in a hollow for about $\frac{2}{3}$ of its area. The superstructure on the west side of the oval consists of grandstands for the spectators. The service facilities,

situated mainly on three levels, are only partly above the original level of Oberwiesenfeld. Level 1 is above the approach roads to the full extent of its height. Level 2 is a basement with daylight illumination from the west. Level 3 is completely below street level.



**Western stand,
Diagram elevation No. 2**

- 1 Air space Marathon gate
- 2 Security stand-by room
- 3 Coat room for employees
- 4 Stairway for athletes
- 5 Massage and lounge
- 6 Toilets
- 7 Copying room
- 8 Conference room
- 9 Office of the International Amateur Athletic Federation (IAAF)
- 10 Office of the German Athletics Association (DLV)
- 11 Hostesses' lounge
- 12 Office of the German Football Association (DFB)
- 13 Lounge
- 14 Office of the International Football Association (FIFA)
- 15 Subcenter of the American Broadcasting Company (ABC)
- 16 Air space service access level
- 17 Athletes' shower and wash room
- 18 Athletes' locker and massage rooms
- 19 Subcenter of the German Olympia Center (DOZ)
- 20 Radio recording studio
- 21 Equipment room
- 22 Radio receiving room
- 23 Personnel lounge
- 24 Control room
- 25 Studio
- 26 Directors' room
- 27 Athletes' waiting room
- 28 Stairway connecting the press seats
- 29 Interview room
- 30 Referees' shower and wash room
- 31 Referees' locker room
- 32 Referees' lounge
- 33 Referees' stand-by room
- 34 Central telephone exchange
- 35 Athletes' entrance
- 36 Waiting room
- 37 Reception room
- 38 Doctors' room
- 39 Treatment room
- 40 X-ray room
- 41 Laboratory
- 42 Main dispensary station
- 43 Telephone exchange-Olympia Information
- 44 Pylon foundation
- 45 Coat check room
- 46 Air space of smaller Marathon gate

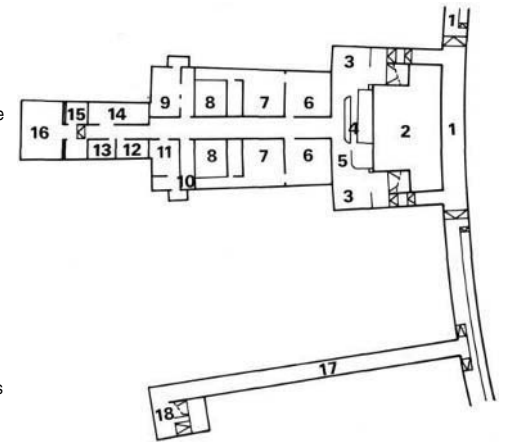


**Western Stand,
Diagram elevation No. 3**

- 1 Entry
- 2 Rubbish storage area
- 3 Marathon gate
- 4 Entry to service level
- 5 Air exhaust equipment
- 6 Service level
- 7 Hygiene room
- 8 Doctors' office
- 9 Sick bay
- 10 Women's toilet
- 11 Athletes' stairway
- 12 Men's toilet
- 13 Data processing installation
- 14 Technicians' room
- 15 Visitors' room-data processing
- 16 Side room-data processing
- 17 Air conditioning equipment
- 18 Athletes' readying room
- 19 Side rooms of the restaurant
- 20 Heating and ventilation center
- 21 Cleaning rooms
- 22 High voltage installation-power plant
- 23 High voltage installation pickup
- 24 Central electronic data processing
- 25 VIP stairway and elevator
- 26 Equipment to increase water pressure
- 27 Connection room main water pipe
- 28 Relay station
- 29 Mail office storage room
- 30 Oil storage room
- 31 Equipment room
- 32 Emergency current generator
- 33 Battery room
- 34 Police
- 35 Fire department
- 36 Stairway for press and reporters
- 37 Post office employees
- 38 Lounge, medical staff
- 39 Fertilizer storage
- 40 Storage space for large sport equipment and grounds maintenance equipment
- 41 Radio interference elimination room
- 42 Mail transfer room
- 43 Coupling room
- 44 Mechanical and control room
- 45 Employees' locker and shower/wash room
- 46 Doorman
- 47 Work hall
- 48 Room for technical equipment store board
- 49 Masons
- 50 Timing device storage
- 51 Painters' storage
- 52 Electricians' storage
- 53 Pylon foundation
- 54 Lumber storage
- 55 Small Marathon gate

**Western stand,
Diagram elevation No. 4**

- 1 Sunken reporters' dug-out
- 2 Readyling area at field level
- 3 Foyer
- 4 Contest Office
- 5 Lottery and lineup room
- 6 Locker and massage room
- 7 Shower and washroom
- 8 Relaxing pool
- 9 Physicians' office and treatment room (During the Olympics, it served as the winners' preparation room.)
- 10 Timing
- 11 Judges' locker room
- 12 Women's toilet
- 13 Men's toilet
- 14 Elevator
- 15 Machinery room
- 16 Rain water cistern
- 17 Entry to reporters' pits
- 18 Press and reporters' stairway



Olympic Stadium

Interval between the morning and afternoon events. At the apex of the northern curve of the arena the bandstand for the musicians who play at the prize-giving ceremonies is still unoccupied. A number of spectators are enjoying a peaceful rest during the lunch-hour after the exciting events of the morning. The open-air seats for spectators on the east grandstand are opposite those for athletes, the press and guests of honor in the south-west and west. Standing room segments have been inserted in the north and south curves. The reporters' dug-out separates the arena from the spectators' stands for the greater part of its circumference. Access to it can only be gained through the Marathon Gate, the stand for guests of honor and a service entrance. A single layer of solid polyurethane plastic material was used to surface the eight-lane track, the long-jump runways situated in front of the west and east grandstands, the segments of the curves with the installations for the high jump, the javelin, discus and hammer throw, and the water jumps for the hurdle race. This surface ensures equal chances on all tracks. The playing field in the stadium is equipped with a fully automatic watering system. A warm-water heating installation, with plastic pipes laid 25 cm. below the surface of the field, guarantees that it will be free of snow and ice even under the worst weather conditions.





The athletic events are sold out; there is nobody in attendance at the ticket-offices situated at the spectators' main entrances. At this time they are rarely in use, thanks to the extraordinarily large demand for advance tickets for all the events of the Olympic Games. The number of ticket offices was determined primarily in view of the requirements after the Olympics.

Under the west grandstand, on level 1 a special post office is accessible from the spectators' area. Apart from providing normal postal services, it meets the large demand for the special Olympic stamps and postmarks.

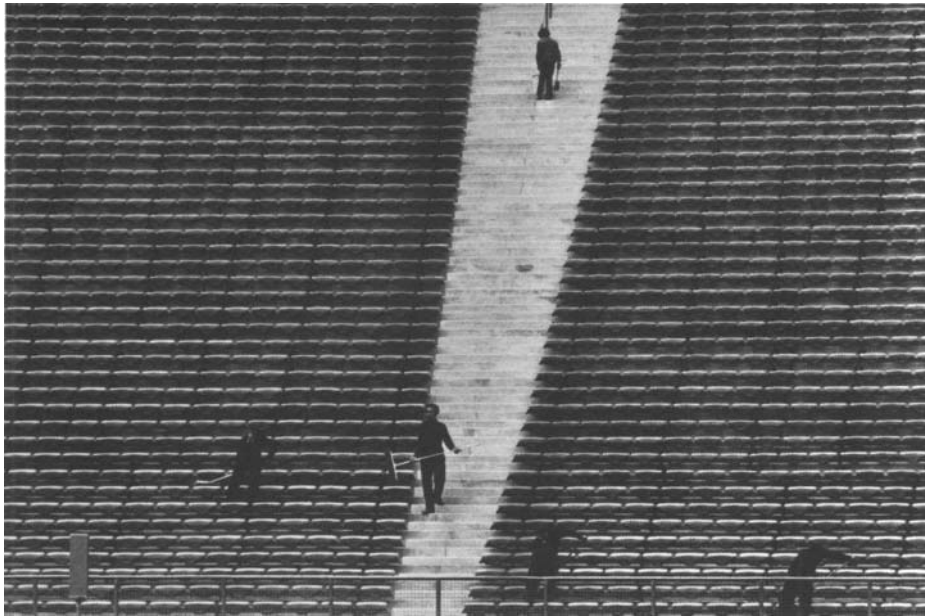
In the Press Center, from which there is direct access to the seats for the press on the west grandstand. One hundred desks, together with telephone and telex connections and television programs from the various competition sites, ensure excellent working conditions and the necessary flow of information.

Each of the 1,700 places for the press in the stadium is equipped with a monitor and a telephone. The schedule for the places of work was drawn up in conjunction with the International Sports Press Association (AIPS) and is identical in all competition sites.

The interviewing rooms, the lounges for guests of honor, athletes and judges, the changing-rooms and sanitary facilities, the rooms for the press and the competition organization are all air-conditioned. Ventilation units provide an unvarying air temperature and humidity, thus ensuring good and pleasant working and resting conditions.

Located immediately behind the grandstand for guests of honor with its 300 seats, are a restaurant, a bar, lounges and offices for the International Olympic Committee, the Organizing Committee and for guests of honor from all over the world.





The east grandstand: The planning of all Olympic competition sites was guided by the principle of offering the spectator a good view from every seat and providing an adequate area of movement for the filling and emptying of the grandstands, thus providing comfort and fulfilling the demands of security. The determination of the line of sight—which directs the eyes of each spectator in the stadium to a point 8.80 m. in front of the first row of the grandstand (about the middle of the long jump from the straight sections, or the middle of the 6th lane from the curves)—resulted in a parabolically sloped grandstand. The tiers have a seat depth of 80 cm., their height is 21 cm. in the lower part and 48 cm. in the upper part of the grandstands. The highest point above the level of the playing field is 29 m. in the east; the lowest points, 14 m. above the field level, are in the north and south.

Spectators enter the embankment grandstand from a gallery which extends around the top. The west grandstand has ten

gates half way up the tiers. From the gates the spectators can proceed upwards or downwards to their seats. The dimensions of the stairs, openings, passages, and doors are large enough that the stadium can be emptied within 10 minutes.

After modeling the terrain of the embankment grandstand, the concrete work for the seating and standing areas was completed on the spot. The area is made up of 10 m. x 10 m. slabs, separated by expansion joints. They are anchored to the ground by plugged steel piling, 3 m. in length, in order to prevent them from sliding as a result of movements caused by material or temperature changes. The slabs carry the step-like terraces for seats and standing-room. In the seating area the seats are attached to uprights. The seats are anatomically designed and are made of flame-resistant plastic. Their supports are of metal, and are bolted to a continuous metal tube.

The oblique concrete frames with fixed ends, cast on location, carry pre-cast concrete steps in the form of box girders with a span of up to 15 m. The ceilings of the four floors (levels), also cast on location, are suspended between these frames.

The area above level 1, the top floor, is reserved for spectators, who arrive at the stadium from the parking places and the terminals of the public transport services by way of bridges, embankments and the plateau of Olympic Park. After passing the ticket offices and a ticket control, they enter the gallery in the north and south of the stadium at the top level of the grandstands. Besides giving access to the spectators' seats, the gallery in the west grandstand also serves as a foyer and contains kiosks for the sale of fruit, drinks, food and souvenirs. The toilet facilities are situated at the west side on the next floor down, level 1. In the case of the embankment grandstand they are located underground, under the gallery.





Guests of honor, reporters, organizers and assistants enter the west side of the stadium through lower passages to which spectators have no access. On level 1, they find a floor which lies approximately at the original level of Oberwiesenfeld and is well illuminated by windows to the west. Here, in a spacious and integrated arrangement, are a special post office, the lounge and restaurant for guests of honor, offices and a snack bar for the press, and offices and rest rooms for members of the Organizing Committee and the sport federations participating in the Games.

Level 2 can also be entered directly from the street. It contains the rooms for athletes and judges, as well as the corresponding service rooms (changing, medical, massage and rest rooms). On the side facing the arena there are studios and interviewing rooms and also the telephone exchange for all Olympic sports sites in Munich and the Olympic Village. Level 3, bounded by the Marathon Gate in the north-west and the arena's

service entrance in the south-west, contains the heating, ventilation and electrical installations. Cool or warm air is distributed from here to the four floors of the stadium. The extensive store-room for sports equipment, the workshops, and the central data processing equipment for the Olympic Games are also situated on this level. The remaining space is used for parking the mobile television units, fire engines and ambulances.

A small annex housing additional changing and medical rooms for football teams, is situated approximately on the level of the playing field at the center point of the west grandstand. The competition organization office facing the arena extends in front of these changing rooms below the parapet of the VIP stand.



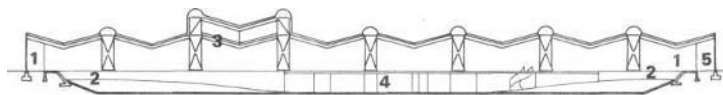
A steel cabin mounted on supports on top of the west grandstand, contains the center for controlling the entire organization of events. This cabin gives the impression of being a piece of technical apparatus rather than a building.

The northern section contains rooms for preparing the release of results, for the control of the scoreboards, for making announcements over the public address system, for the electronic measuring equipment employed for the throwing events and, in a gondola suspended underneath the cabin at the south end, rooms for electronic and photographic timing instruments. The southern part accommodates twenty commentators' cabins with the corresponding technical control rooms.

The floodlighting installation consists of a four-point system with a vertical illumination power of 1,800 lux. There are two batteries of floodlights mounted on inclined lattice masts on the east grandstand, two batteries attached to the

peripheral cable of the roof, and supplementary lighting platforms below the roof for illuminating the west grandstand and the home stretch of the track.

The two systems for indicating the results of the competitions are situated above the north and south curves. Each consists of an score board measuring 18 m. x 8 m., a 7 m. x 3 m. timer and a clock. The indicator boards carry a grid of light bulbs with which letters of different sizes and types can be formed. By feeding in the appropriate control card, symbols and horizontally or vertically moving lines of words can be displayed. This written information is supplemented by announcements made over a public address system, consisting of a cluster of loud-speakers suspended at a height of 35 m. from the front edge of the roof in conjunction with other loudspeakers located along the reporters' dug-out which encircles the arena.



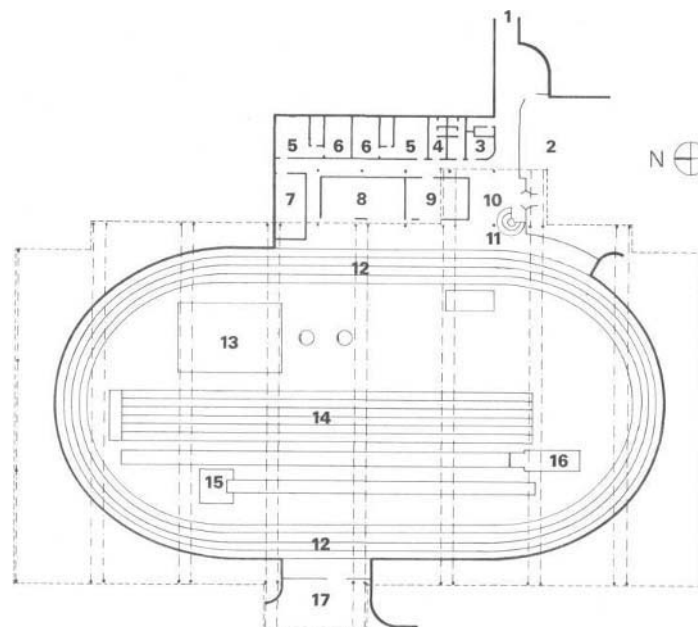
Longitudinal section

- 1 Upper passageway
- 2 Banked curve
- 3 Vertical extension of hall in pole vaulting area
- 4 Warm-up hall, in background the auxiliary wing
- 5 Level of the warm-up field

A warm-up gymnasium with a 200 m. track is situated west of the stadium, adjacent to the open-air training ground. It is built below ground level for half of its height.

The curves of the track are banked. Jumping installations, a short track and a pitch for shot put are accommodated in the inner area in such a way that the athletes can practise for various athletic events under undisturbed conditions. The floor of this gymnasium, like the other training and competition sites, is surfaced with a solid plastic material. Thus all locations have the same conditions for training and competition.

The gymnasium and the open-air training ground are connected to the stadium by a tunnel. This leads to the stand-by room from which the athletes go through the Marathon Gate into the arena. After their participation in an event they return to their changing-rooms through the south service entrance.



Lower level diagram

- 1 Tunnel leading to western grandstand
- 2 Entrance and lobby for warm-up area
- 3 First-aid room
- 4 Trainers' room
- 5 Dressing room
- 6 Showers and washroom
- 7 Technical apparatus
- 8 Equipment room
- 9 Conditioning and exercise room
- 10 Entrance hall
- 11 Stairway to gallery
- 12 200 m. track with banked curves
- 13 Shotput trench
- 14 60 m. sprinting track
- 15 Pole vaulting area
- 16 Broadjump area
- 17 Emergency exit

Sports Hall Olympic Park

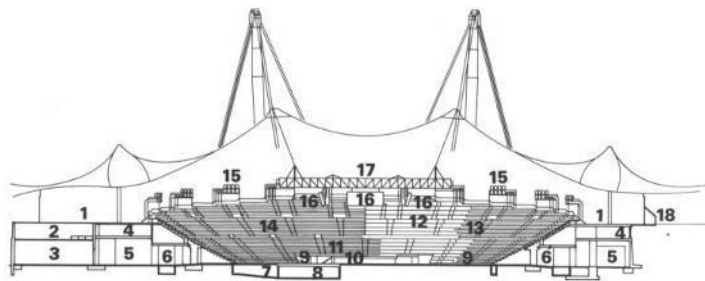
Architects:

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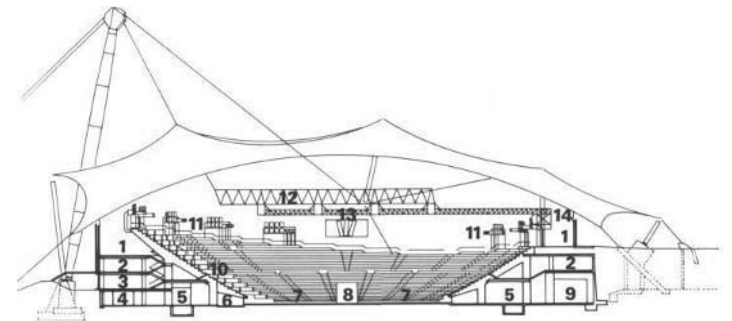
Günter Behnisch, Fritz Auer, Winfried

Büxel, Erhard Tränkner, Karlheinz Weber



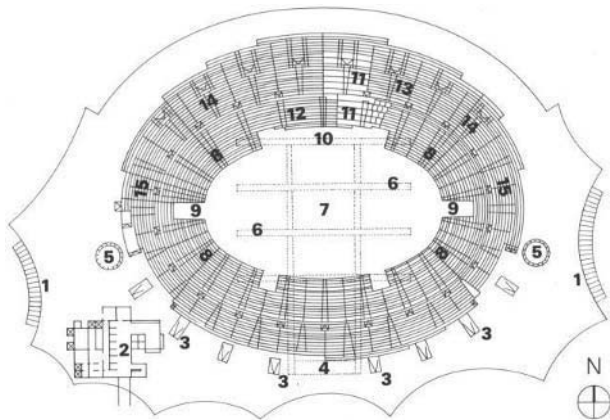
Longitudinal section

- 1 Entrance floor
- 2 Bowling alley and restaurant
- 3 Warm-up hall (small gym)
- 4 Foyer level
- 5 Drive and entrance into the arena or storeroom
- 6 Ring Strasse-service road
- 7 Spectator tunnel
- 8 Pit under the shot put area
- 9 Collapsible grandstands
- 10 Direction
- 11 Seats for guests of honor
- 12 Seats for television commentators
- 13 Seats for the press
- 14 Seats for spectators
- 15 Floodlight batteries, heating and ventilation installations
- 16 Score board
- 17 Lighting platform
- 18 Vestibule and ticket inspection



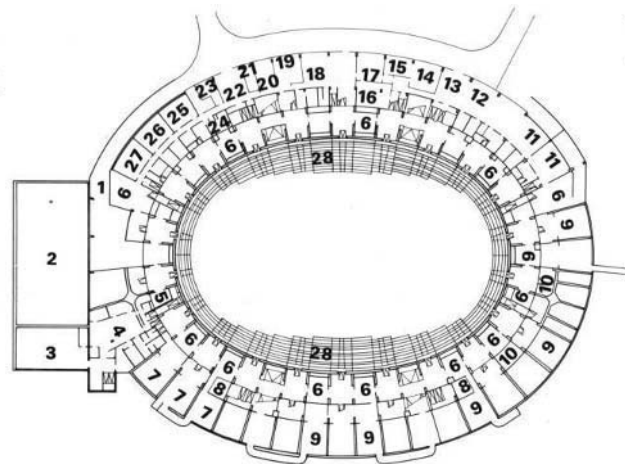
Cross section

- 1 Entrance level
- 2 Foyer level
- 3 Administration level
- 4 Arena level
- 5 Ring Strasse-service road
- 6 Central direction booth
- 7 Collapsible grandstands
- 8 Ramp to the arena
- 9 Storeroom
- 10 Seats for the television commentators
- 11 Floodlight batteries, heating and ventilation
- 12 Lighting platform
- 13 Score board
- 14 Direction booth



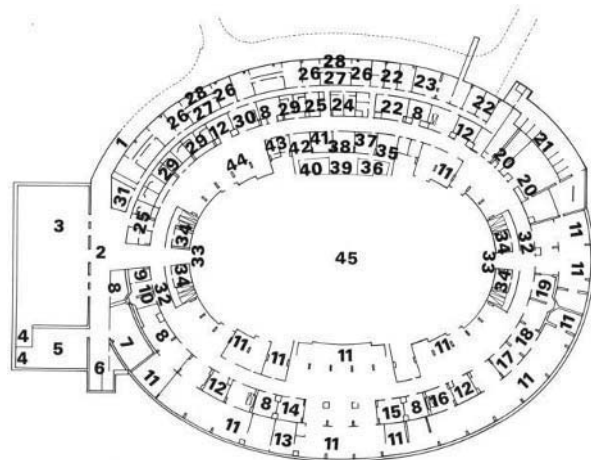
Floor plan level 1 Grandstand level

- 1 Vestibule and ticket inspection
- 2 Branch post office
- 3 Stairway down to foyer level
- 4 Stairs up to direction booth and to the lighting platform
- 5 Lowest point of the roof
- 6 Lighting platform
- 7 Air space over the arena
- 8 Collapsible grandstand in the area of the Cycling track and athletics track
- 9 Connection ramp to Ring Strasse
- 10 Landing, direction center
- 11 Places for TV commentators
- 12 Places for guests of honor
- 13 Press
- 14 Seats for spectators
- 15 Standing room for spectators



Floor plan level 3 Administration level

- 1 Service driveway
- 2 Air space of warm-up hall (small gym)
- 3 Pantry of restaurant
- 4 Kitchen of restaurant
- 5 Technical workshop
- 6 Ventilation
- 7 Air space, technical room
- 8 Air space, garbage room
- 9 Air space, storeroom
- 10 Workshop storeroom
- 11 Teletype and telephone
- 12 Writing room
- 13 Entrance hall for the press
- 14 Cafeteria
- 15 Office for the architect, OBG (Olympic Construction Co.) and engineers
- 16 Television subcenter
- 17 Office of Organizing Committee
- 18 Entrance hall for guests of honor
- 19 Office of sports hall supervisor
- 20 Office of technical supervisor
- 21 Information
- 22 Entrance for athletes, service personnel and security units
- 23 Traffic supervisor
- 24 Stand-by room for police
- 25 Locker room for ticket takers
- 26 Locker room for female personnel
- 27 Locker room for male personnel
- 28 Permanent grandstands



Floor plan level 4 Arena

- 1 Service driveway
- 2 Approach and entrance into the arena
- 3 Warm-up hall (small gym)
- 4 Apparatus
- 5 Calisthenics hall
- 6 Freight elevator and stairs up to the kitchen, pantry, bowling alley and foyer
- 7 Work out room
- 8 Ventilation facilities
- 9 Control room
- 10 Waiting room
- 11 Storeroom
- 12 Garbage room
- 13 Cold storage
- 14 Painters' workshop
- 15 Workshop for PA system
- 16 Stairs for personnel
- 17 Metal working shop
- 18 Carpentry workshop
- 19 Electrical workshop
- 20 Energy transfer station
- 21 Transformer station
- 22 Television studios
- 23 Interview room
- 24 Referees' room
- 25 Health room
- 26 Locker room
- 27 Showers and washroom
- 28 Massage room
- 29 Performers' cloak room
- 30 Stairs for athletes
- 31 Boiler room
- 32 Ring Strasse - service road
- 33 Ramp to the arena
- 34 Toilets
- 35 Waiting room for interviews
- 36 Statistics analysis
- 37 Printing and mimeographing
- 38 Competitions office
- 39 Direction
- 40 Referees' room
- 41 Low voltage equipment
- 42 Waiting room for ceremonies honoring winners
- 43 Doping control
- 44 Storeroom for sports equipment
- 45 Arena

The sports hall is the connecting link between the Olympic Stadium to the west and the swimming stadium to the east. It borders the Olympic Center in the north and at the same time shields it from the "Mittlerer Ring" road. As in the case of the Olympic Stadium and the swimming stadium, it was not desired that the sports hall appear grandiose. It is therefore embedded in a hollow of the terrain. Viewed from the access level for spectators, the interior appears as an arena; on the other hand, the purpose of modelling it in this way was to reduce the visual impression of the expansion of the arena necessitated by the variety of its uses — after all, a volume of 427,300 cubic meters is enclosed. This gives the entire structure an acceptable dimension.

The longitudinal axis of the arena runs approximately from east to west. The entrances for spectators are located at the eastern end (accessible from the subway) and western end (accessible from the suburban railway, tramway and the stadium). Near the west entrance there is a platform with a post office, a cafeteria and kiosks. It is connected by a footbridge with another platform inside the Olympic Center, on which there are information kiosks and a carillon.

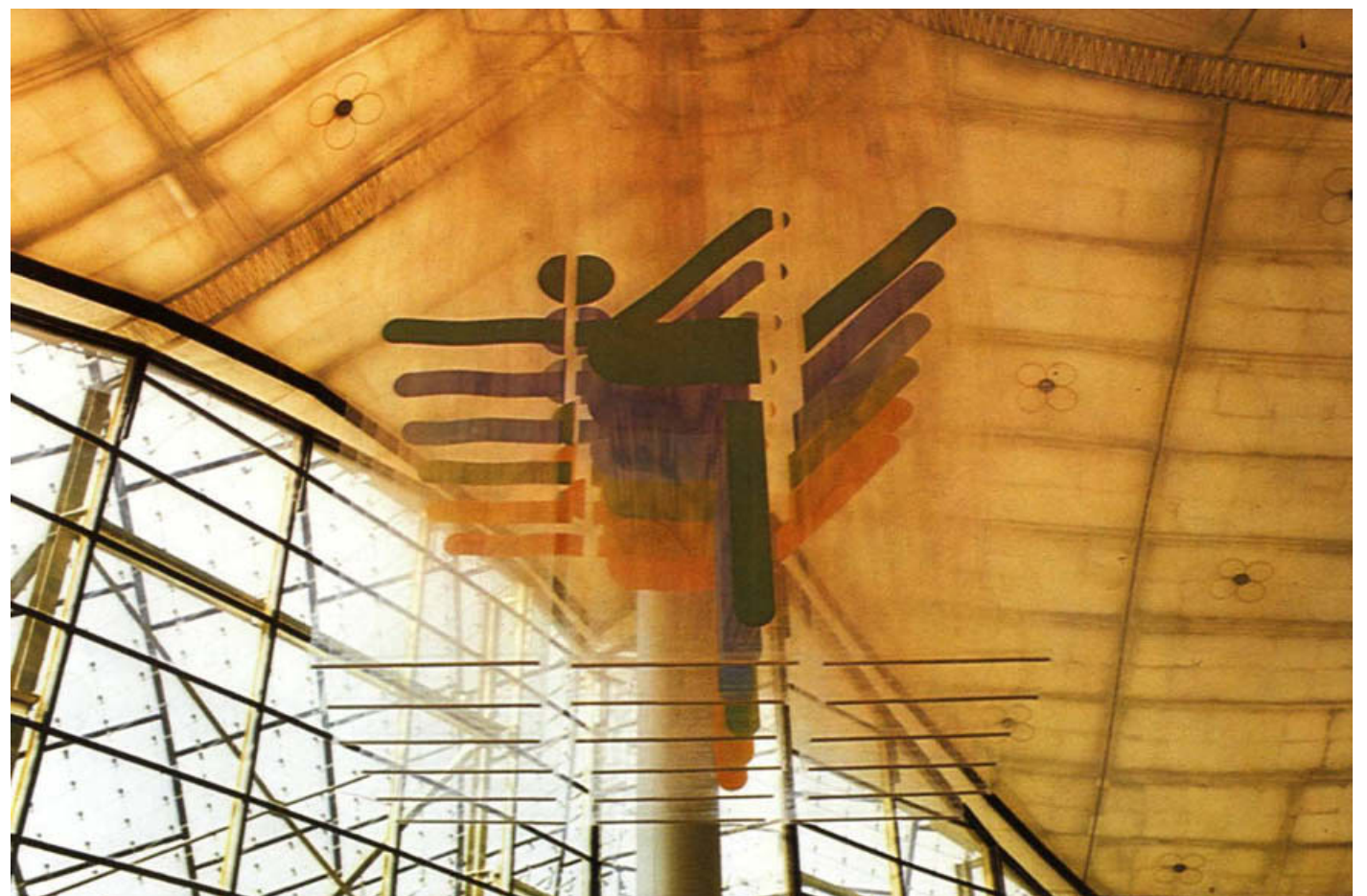
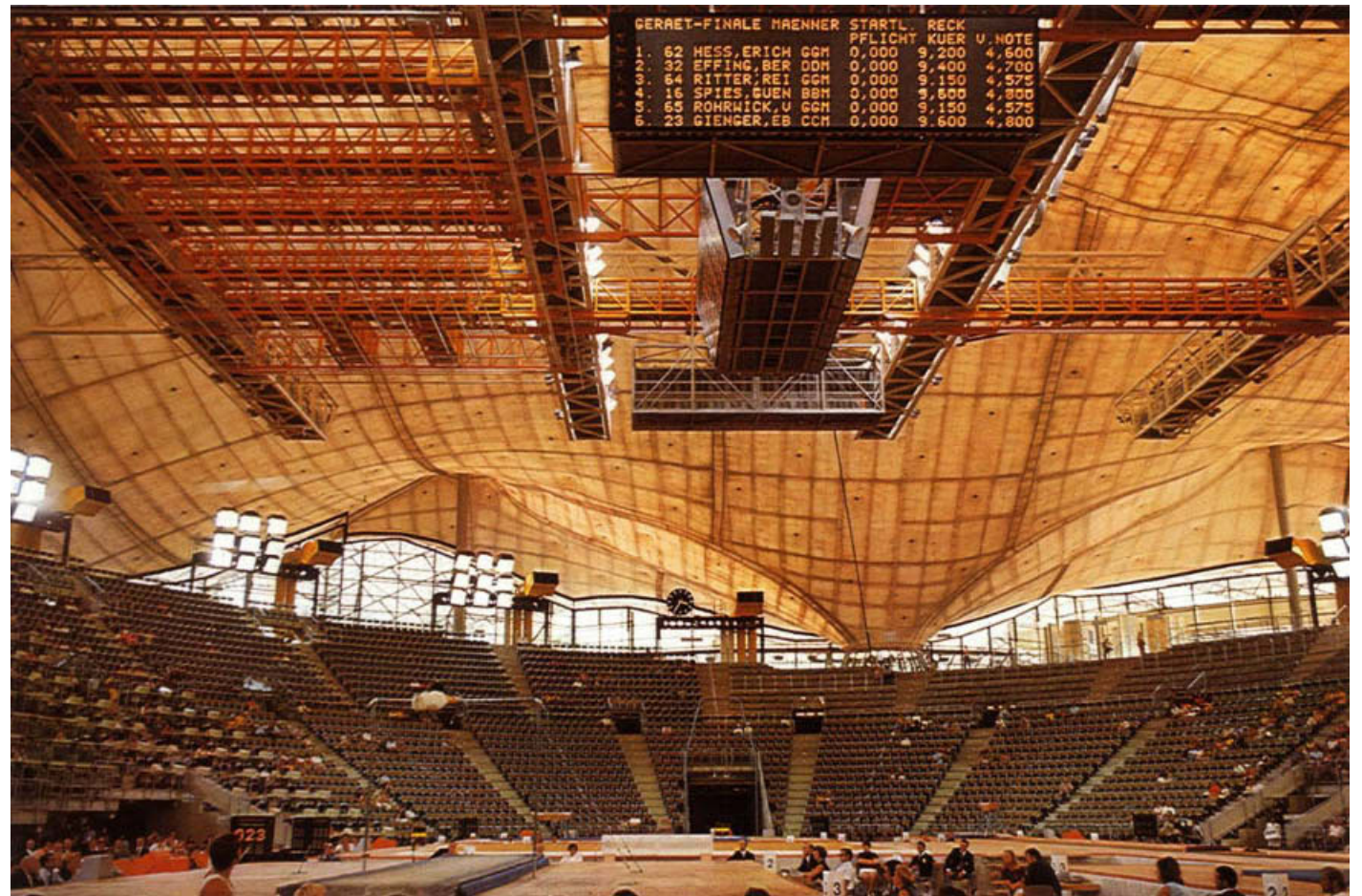
During the Olympic Games the hall was used for gymnastics and handball. It was, however, designed as a multi-purpose building in which many other kinds of sports and exhibitions, meetings and shows can also be held. The layout of the grandstands is determined by the shape of a 200 meter cycling track and an athletics track of equal length. The interior area available for sports events measures 100 m. at its greatest length and 50 m. at its greatest width. The hall itself is 200 m. long and 120 m. wide along its two axes. Its maximum height is 35 m.

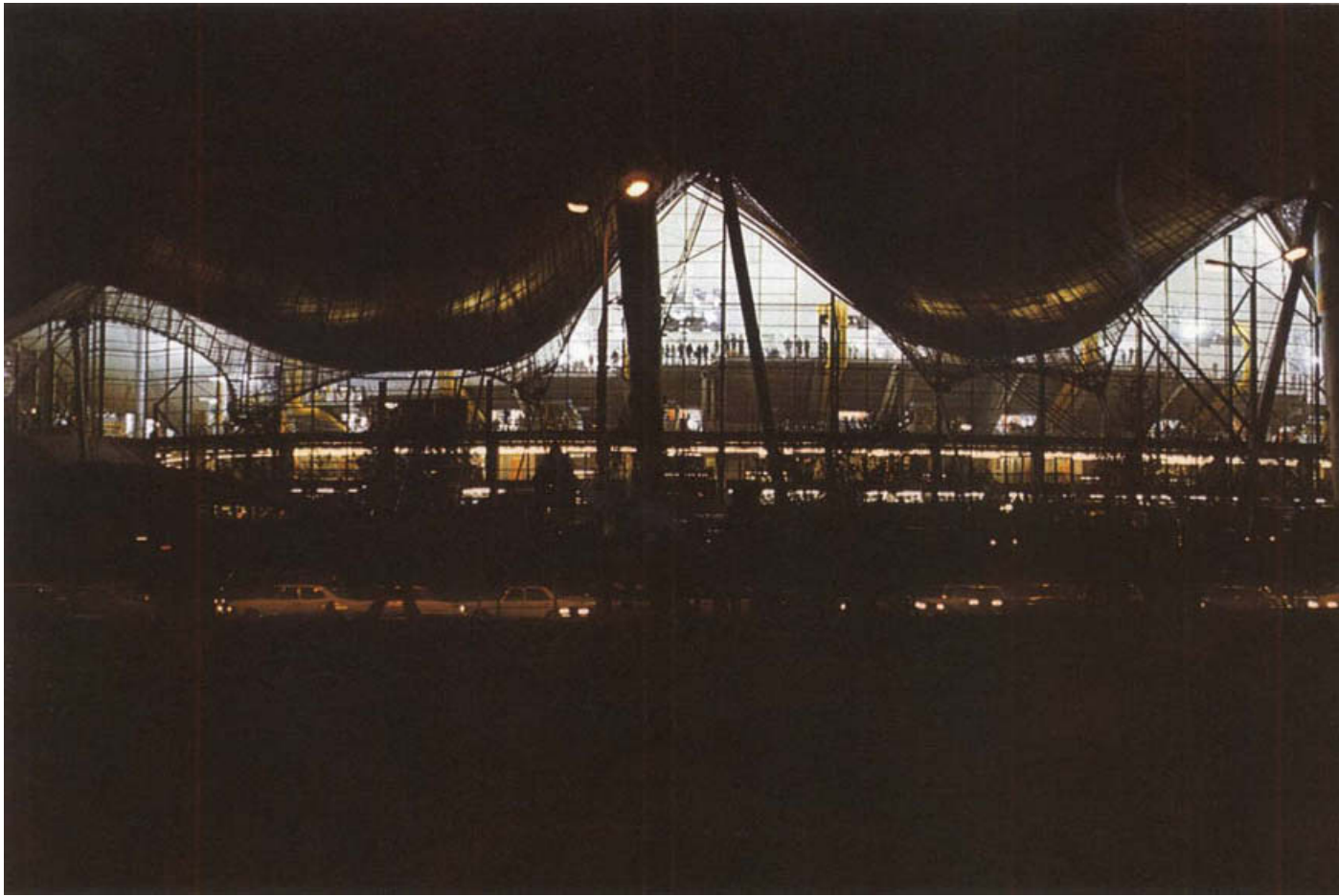


The service rooms are located on three floors below the access corridor for spectators. The amphitheatrical arrangement of the tiers in the form of a continuously terraced stadium with a parabolic slope ensures optimum viewing conditions. The grandstands were planned in accordance with the same considerations that determined the design of those in the Olympic Stadium. All seats are of the tip-up type, permitting a depth of 90 cm. for the tiers. The height of the tiers varies between 38 and 62 cm. The bowl of the arena is formed by pre-cast concrete box girders supported on 44 oblique concrete frames cast on location. The floors are constructed of hollow sections with a thickness of 60 cm.

The form of the facade, the choice of material, and the shaping of the ground in the access area combine to give smooth transitions between the interior and the exterior. The interior of the hall has thus become an integral part of the "Olympic landscape".

The foyer is on the same level as the central forum and encircles the whole arena. It gives direct access to the seats in the upper half of the grandstands. The seats in the lower half are reached by flights of stairs which also lead to the floor below the foyer, where check-rooms and toilets are located. To comply with security requirements, this level also serves the emergency exits. All emergency exits, with a total width of 106 m. lead from here directly into the open. There are also a six-lane bowling alley, a restaurant seating about 300 persons, and a bar on this level. They are built on the roof of the warm-up hall and gymnasium and are reached from the arena level.





The second level provides accommodation for the hall maintenance staff, the fire department, police, guests of honor and offices for radio, television and press reporters. They all reach their rooms without using the passages reserved for the public.

Finally, there are the athletes' changing-rooms, the technical installations, workshops and storage accommodation on the arena level. The latter will be needed particularly after the Olympic Games for the material and equipment required in connection with cycling, equestrian and athletic events. Access to all these rooms is provided by a circular service road.

Spectators enter the arena from this level. During cycle racing or athletic events, when the corresponding tracks are in place, spectators and participants will enter through tunnels under the tracks.

Athletes can prepare for contests in underground exercise halls below the central plateau, near the western curve of the arena. These consist of a warm-up hall 22 m. x 44 m. x 7 m., a gymnasium 12 m. x 16 m. x 7 m. and a conditioning room with an area of about 140 sq.m. On the same level at the north of the arena, with a view of the interior, the rooms for the central control of lighting, the public address system and the scoreboards are located. A duplicate control desk for the same functions is suspended from the lighting platform above the south foyer.

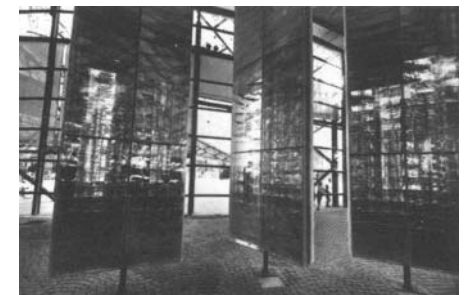
To meet the demand for a vertical illumination power of 1,875 lux for the arena, batteries of floodlights were installed around the top edge of the grandstands. Further floodlights were mounted on a large lighting platform to provide supplementary illumination for the spectators' area, the cycling track, the athletics track, and for stage lighting when required. Four lattice girders are suspended from the roof network in the direction of the longitudinal axis of the hall with cross connections at two points. The loudspeakers and four scoreboards are also mounted on this platform. One grillage carries the machinery for shifting scenes in theatrical performances. Eighteen sets of machinery can move the curtains, cyclorama, wings and other pieces of scenery.



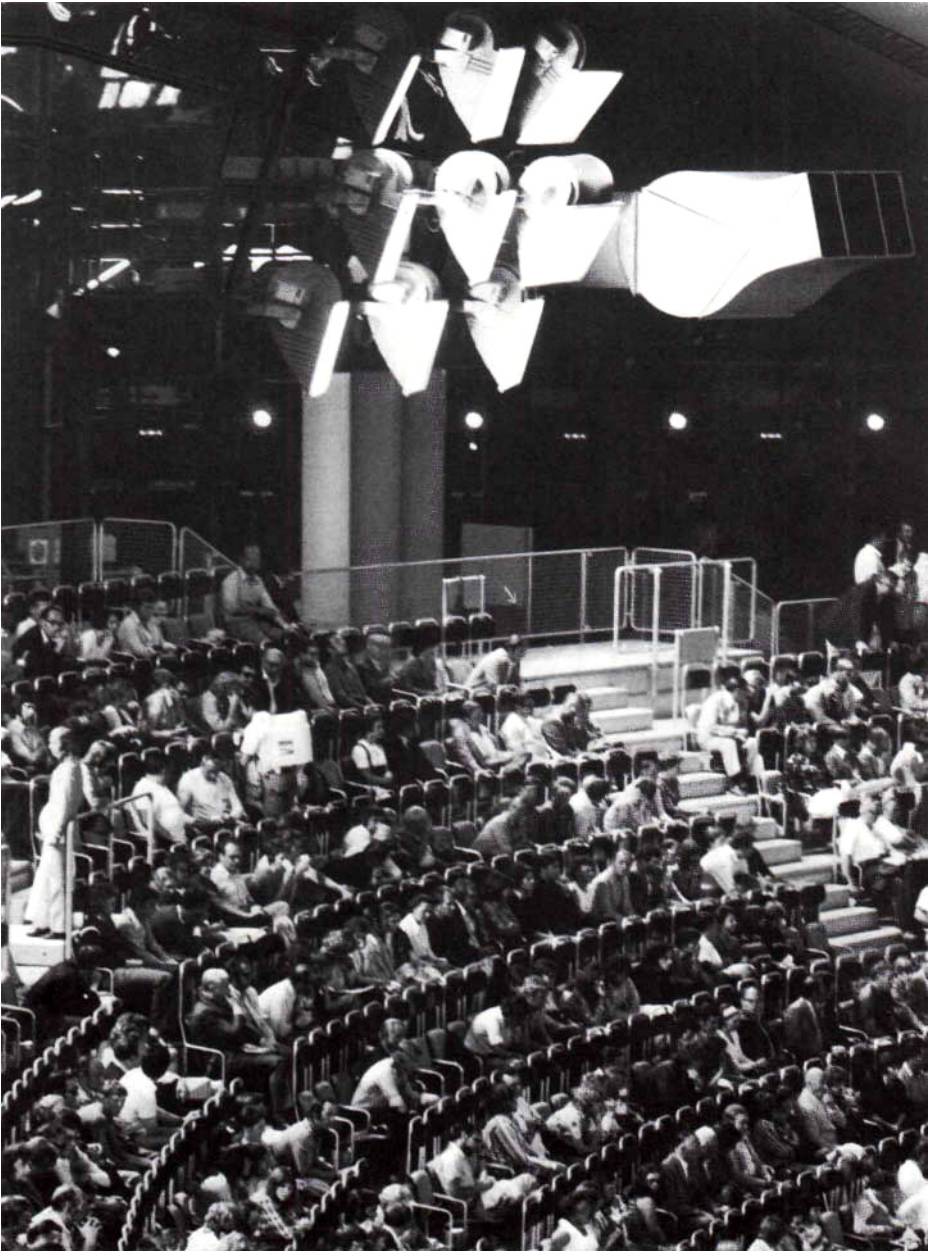


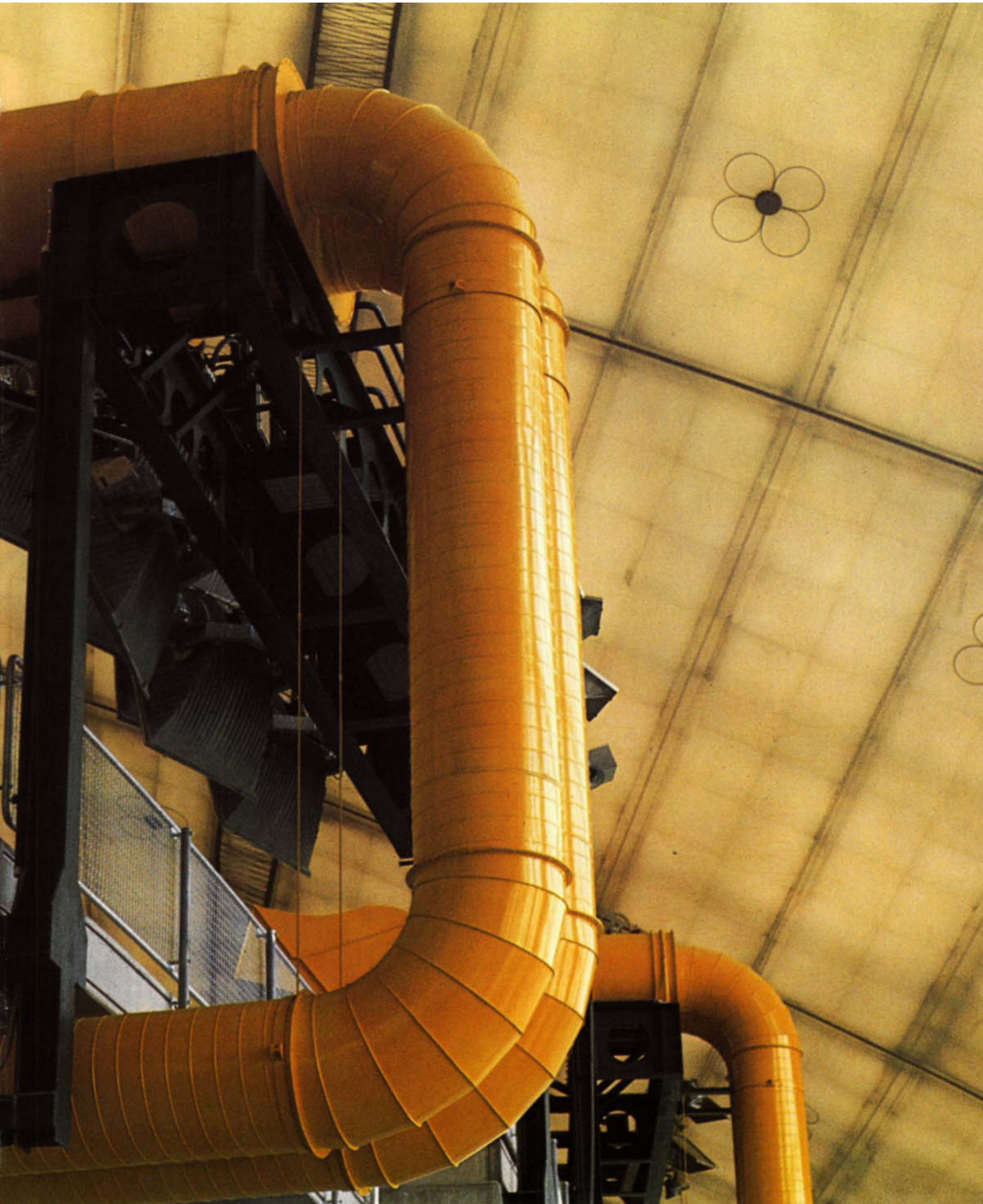
The steel and glass facade is anchored into the ground. It is a statically independent structure without any rigid connection to the roof. It can join up with the roof by means of a telescopic part that extends in all directions. The struts for reinforcing the facade are on the outside, in order not to obstruct movement in the foyer.

During the Olympic Games the hall could accommodate 10,500 ticket-holders, 200 guests of honor, 100 radio and television reporters, 300 press reporters and 400 participants. The lower rows of spectators' seats have been constructed in such a way that they can be quickly dismantled, so that the seating capacity and size of the arena can be changed. For boxing events the capacity can be enlarged to accommodate 14,000 spectators, partly by transforming seating-room for 2,000 persons into standing-room for 4,000. The spectator capacity for cycling, equestrian or athletic events is 8,000, while stage shows can play to an audience of 5,000.









Structural considerations and the requirements of lighting, heating and ventilation cause a large part of the technical installations to be visible to the public. The upper rim of the arena is lined with batteries of lights and exhaust air ducts which surround the spectators' area.

Fresh warm or cold air is forced into the interior of the arena through a system of visible ducts which have sound conditioned movable vents. Stale air is removed from under the seats and the floor of the arena. This system is supplemented by additional ventilators suspended from the highest points of the roof. Fresh air is drawn in through intakes along the facade and then filtered. Hotwater heaters warm the incoming air to temperatures between 26° and 30°C. Water air coolers can reduce the temperature in the hall to 17°C. The stale air is collected into a circular duct and forced out into the open at two points in the northern part of the hall.

Swimming Hall Olympic Park

Architects:

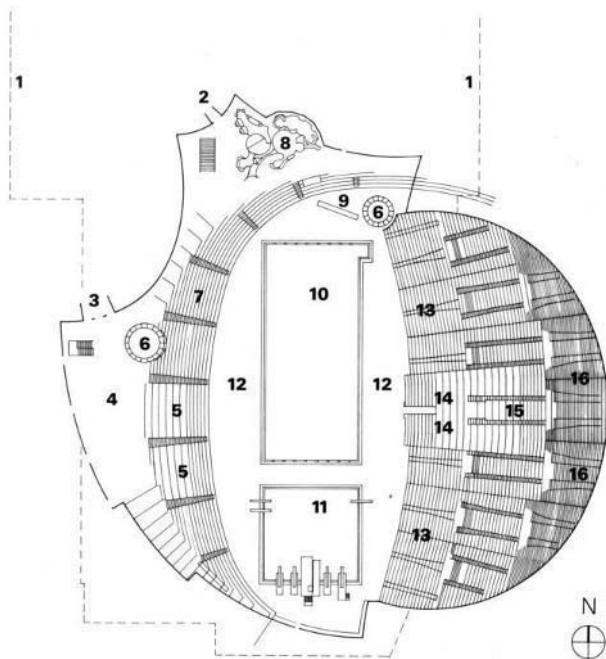
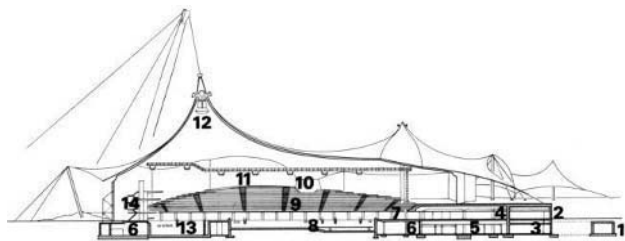
Behnisch and Associates,

Munich/Stuttgart

Günter Behnisch, Fritz Auer, Winfried

Büxel, Erhard Tränkner, Karlheinz Weber,

Jörg Bauer



Floor plan of the visitors' level

- 1 Basement foundation
- 2 Entrance for swimmers
- 3 Entrance for visitors, permanent stands
- 4 Foyer
- 5 Commentators' places
- 6 Lowest point of roof
- 7 Seats, permanent stands
- 8 Pavilion
- 9 Scoreboard
- 10 Swimming pool
- 11 Diving pool
- 12 Passage around pools
- 13 Seats, temporary stands
- 14 VIP stands
- 15 Press stands
- 16 Standing room, temporary stands

Longitudinal section

- 1 Ramp
- 2 Press, radio, TV, sauna
- 3 Electrical center
- 4 Changing room, showers and toilets
- 5 Lounges and massage rooms, work areas for the Organizing Committee
- 6 Utilities
- 7 Passage around pool
- 8 Swimming pool with partially adjustable bottom
- 9 Permanent stands
- 10 Lowest point of roof
- 11 Lighting platform
- 12 Ventilator
- 13 Diving pool
- 14 Diving tower

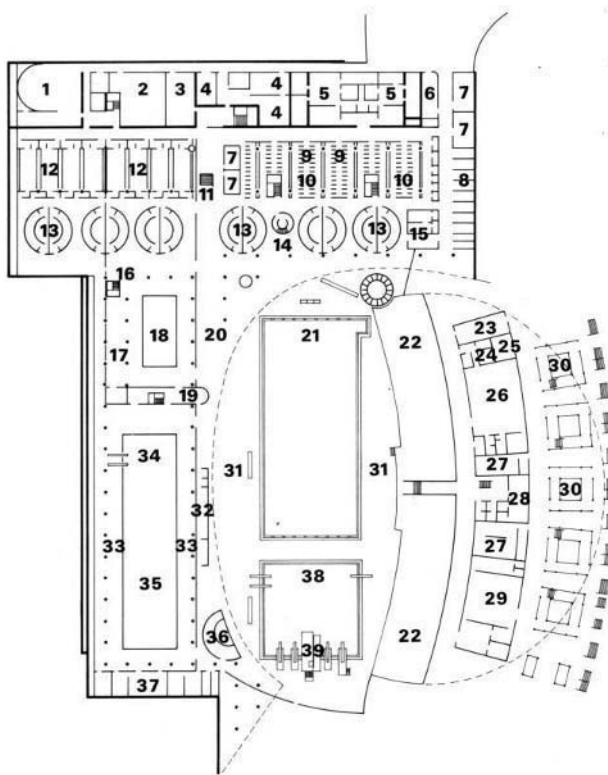


Diagram of the swimming hall and locker rooms

- 1 DOZ telephone and teletype room
- 2 Press writing room
- 3 Press interview room
- 4 Teletype areas
- 5 Double sauna
- 6 Information
- 7 Business areas
- 8 Transformer areas
- 9 Changing cubicles and lockers
- 10 Exit to technical level
- 11 Entry to entrance level
- 12 General changing room and lockers
- 13 Showers and toilets
- 14 Passage connecting kitchen and pantries
- 15 Doping control

In London, Helsinki and Rome the Olympic swimming competitions took place in outdoor swimming-pools. Since Tokyo (1964) swimming, diving and some of the water polo events have moved indoors. Kenzo Tang's building in Tokyo set a high standard of construction. The swimming stadium in Mexico was also a landmark from a functional standpoint.

The fact that seating has to be provided for such large numbers of spectators at the Olympic Games — 10,000 places were provided in Mexico — was responsible for a lot of hard thinking in Munich. Swimming as a sport attracts comparatively little interest among spectators in Germany, so that a stadium planned to accommodate 9,000 was not possible as a permanent installation.

As happened with the Olympic stadium at Helsinki where a distinction was made between the capacity during the Games

and subsequent use by the Finnish capital (the upper rows of seats all around the stadium were erected as a provisional structure). In announcing the architectural competition for the building at Oberwiesefeld it was stipulated as early as 1967 that the stands for spectators should be constructed in such a way that 7,500 of the 9,000 seats could be dismantled after the Games.

Thanks to the overall plan of the Olympic Center, allowing spectators to gain access to stadium, sports hall and swimming stadium from a common central plateau, the architect was able to find a neat solution to his problems. Ancillary installations and rooms belonging to the stadium are built into the earth mound of the Center, and are not visible to the spectator, either from outside as he is approaching, or from inside the stadium. It is only the swimmer from the surface of the water who gets an impression of part of this additional space.

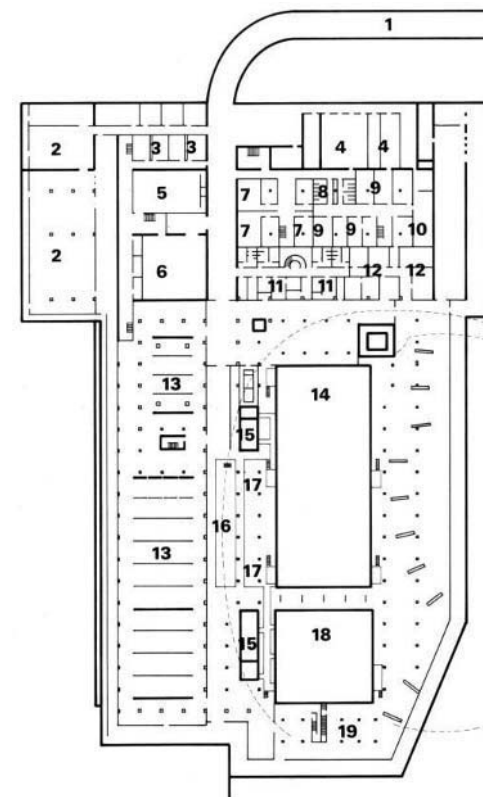
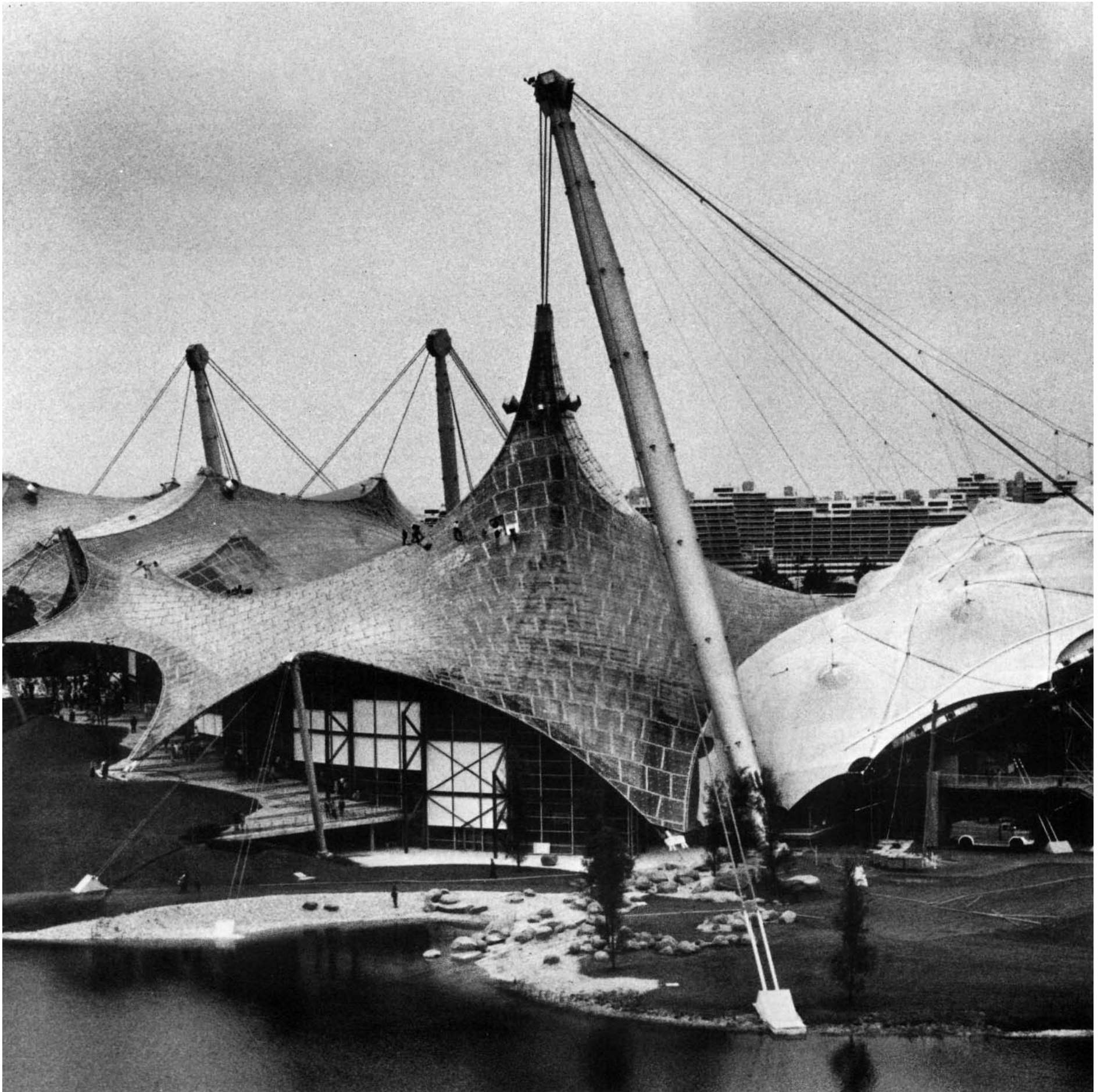
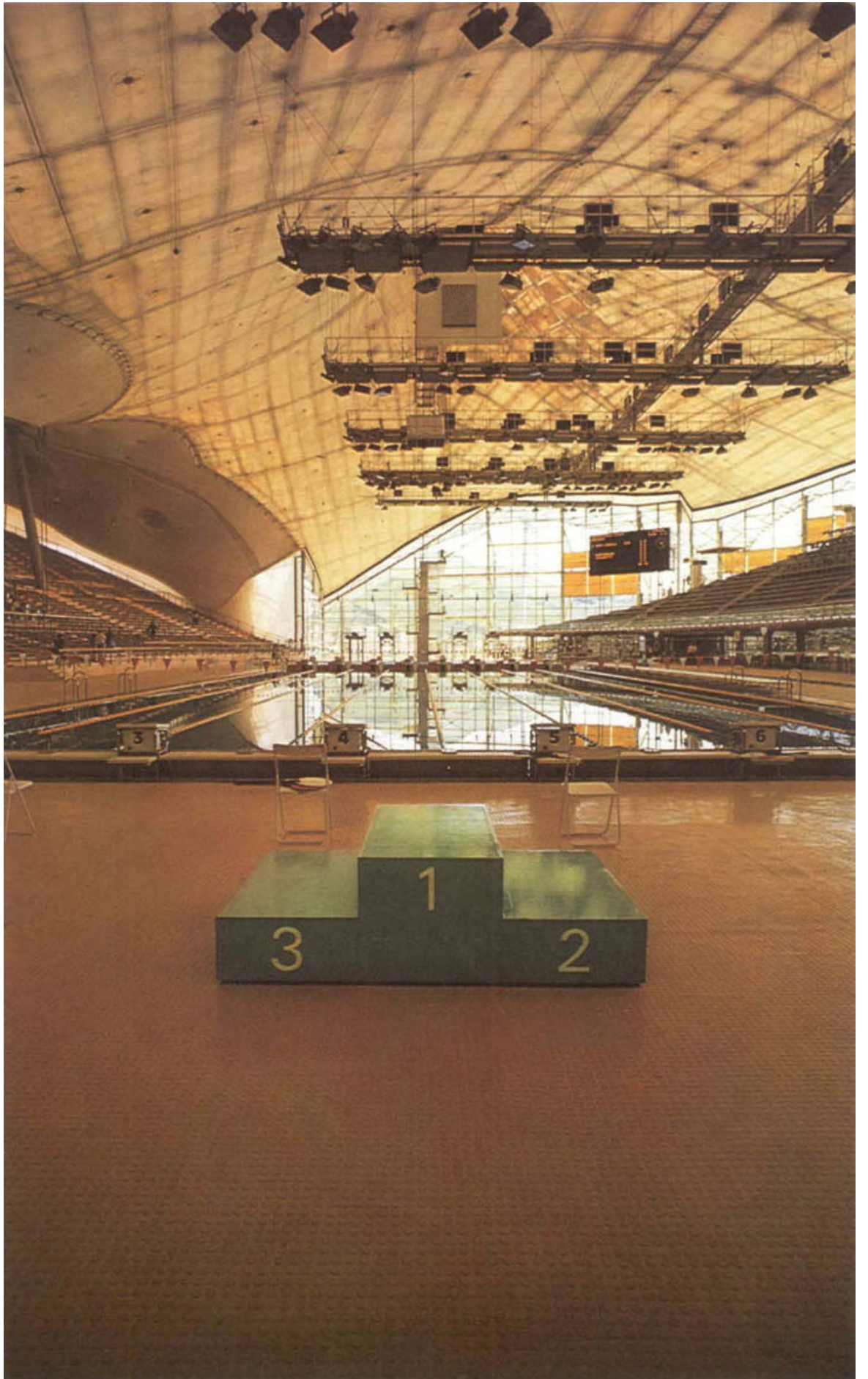


Diagram of the technical level

- 1 Entry to technical level
- 2 Ventilation center
- 3 Massage
- 4 ELT-Station
- 5 Conditioning room
- 6 Calisthenics room
- 7 Rest and massage areas
- 8 Toilets
- 9 Studios FINA
- 10 Studios DSV
- 11 Pantries
- 12 Studios Organizing Committee
- 13 GWA-Center
- 14 Swimming pool with partially adjustable bottom
- 15 Reservoir hot water pool

- 16 Filtering system
- 17 Underwater window and camera platform
- 18 Diving pool
- 19 Diving tower foundation with elevator





Here fourteen swimming competitions for women and fifteen for men took place as well as some of the water polo, the spring-board and platform diving. These events, the preceding heats, the preparations for the competitions and some of the training were fixed according to a rigid timetable which was the basis for the calculations of areas and space. The solution found to these planning problems fulfilled all demands of the athletes and the expectations of the organizers, as the outstanding performances and the numerous world and Olympic records bore witness. The shape chosen for the pool, the special rim formation which minimized wash, and a new type of lane marking contributed to the success. The diving and swimming pools enclosed on both sides by giant curving tiers of seats during the Olympic Games. By the time this volume goes to press, spectators and swimmers will have the impression, after the dismantling of the great eastern stand, of a swimming pool merging with the lake. The flowing transition between architecture and landscape is expressed equally in the design of the spectators' foyer. The vertical walls of glass, aluminum and steel are suffused by the reflections of the floor coverings which are identical inside and out.

Under one roof are three swimming pools, each functioning separately:

1. The swimming stadium where the competitions are held: a pool for contests 50 m. x 21 m. and 2.5 m. deep (which is provided, for use after the Olympic Games, with a hydraulic intermediate floor that can be raised or lowered to give suitable depths for non-swimmers);

The diving pool, 20 m. x 21.5 m. and 5 m. deep, and the warm-up pool for divers under the permanent west stands for 1,600 spectators;

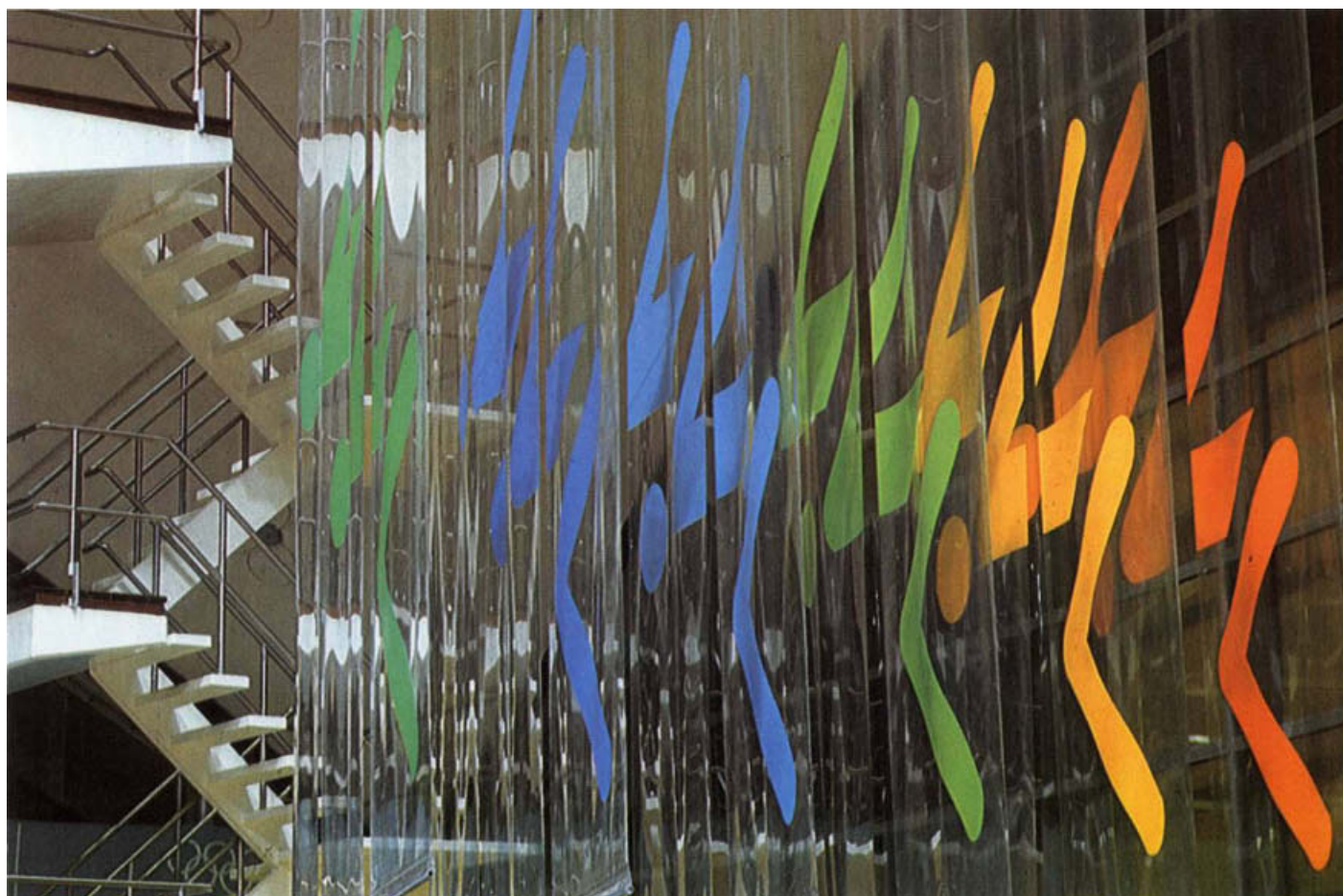
The temporary east stands with seating accommodation for 4,600 and standing room for 2,800. To this part of the swimming stadium belong 120 cabins with 400 lockers and an additional central changing-room for use in summer by 1,600 visitors.

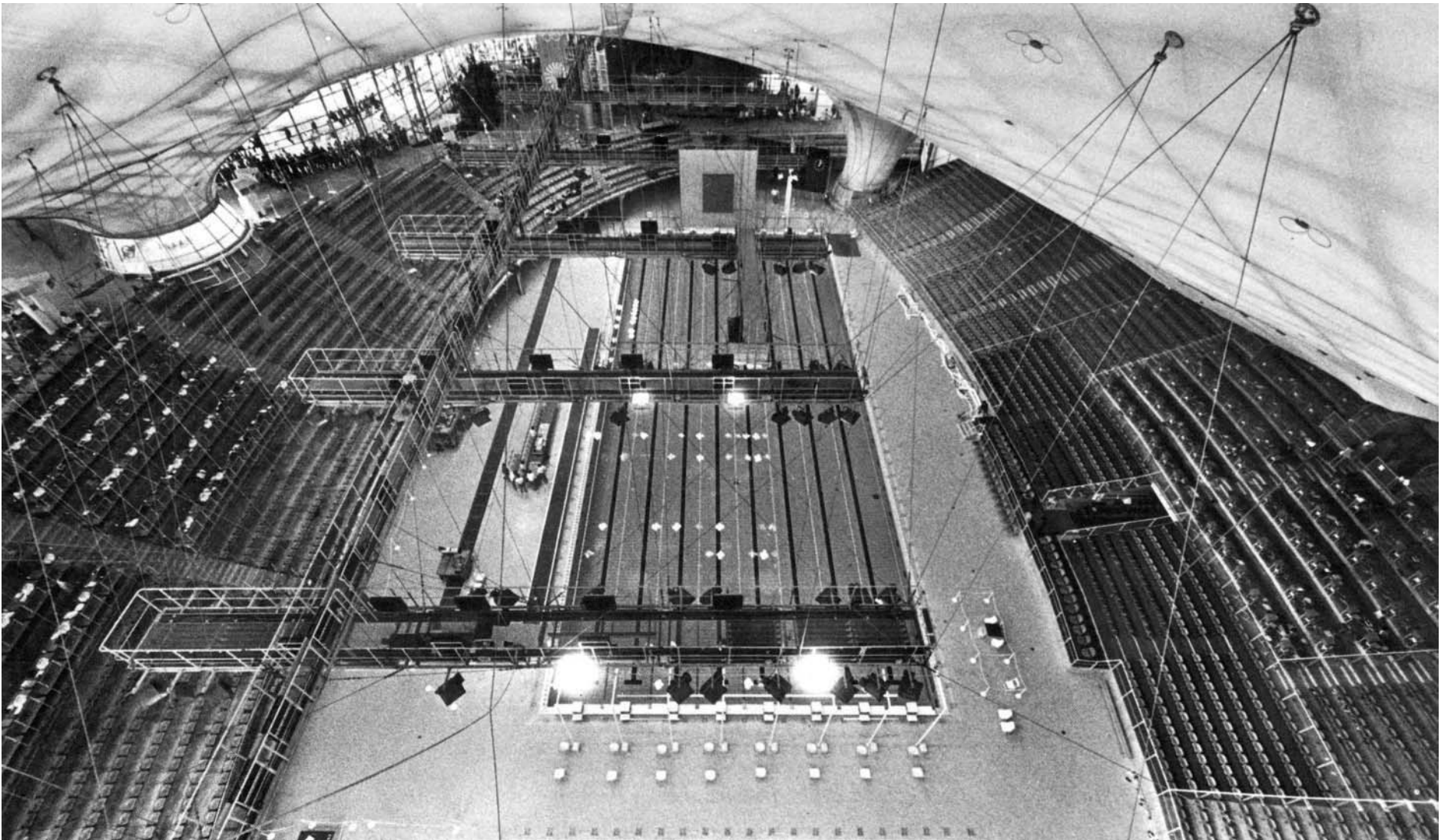
2. The training pool, measuring 50 m. x 12 m. and 2 to 3 m. deep (four changing rooms where 200 visitors can check their clothes).

3. The instruction pool, measuring $16\frac{2}{3}$ m. x 8 m. with a depth varying from 0.30 m. to 1.80 m. (four changing rooms where 200 visitors can check their clothes). In addition there is a restaurant to seat eighty guests, two saunas, each for forty people, press rooms, radio and television rooms as well as 5,000 sq. m. surface space for technical installations.

At the foyer level are the spectators' and swimmers' entrances, the restaurant, kiosks providing for spectators' needs, and separate entrances to the training pool and the instruction pool. At the pool level are the changing rooms, rooms for the press, radio and television, and also the entrance for journalists, guests of honor and officials.

The main plants for power supply, heating, ventilation and water treatment are housed, as well as a gymnasium and training room at a third level for technical installations.

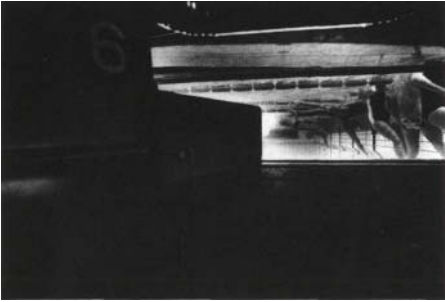
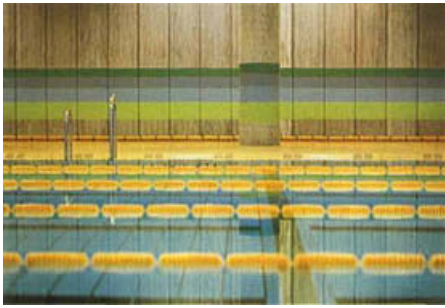




Halogen metal vapor lamps produce 4,800 lux horizontal and 1,900 lux vertical light intensity in the competition area. The permanent spectator area is illuminated at 400 lux, whereas the temporary stands were illuminated at 1,600 to 850 lux. For ordinary use and for competitions without color TV, fluorescent lamps produce 400/250 lux horizontal illumination. To supply electricity for the entire area of the swimming stadium, a whole gallery of transformers, and switchboards and distribution points on a corresponding scale to deal with a load of 2,200 kW had to be installed on the pool level. Similarly the visitor sees only a fraction of the heating and ventilation system. Heat comes from the district heating plant, which supplies a load of 6.2 million kcal/h.



The restaurant has been set in the stadium like a vast walk-in sculpture. It has two levels: area for swimmers with a selfservice counter at foyer level, and an area for guests in normal dress accessible directly from outside.



The competitor who, along with guests of honor and journalists, can enter the stadium unhindered by the streams of spectators and is able to enjoy the highest degree of hygiene and comfort. From the changing cabins, made of enamelled safety glass, he can follow the track for the barefooted, rather than the separate track for people wearing shoes, to a circle of showers built around an inner core of toilet installations. These novel sanitary arrangements serve to integrate the pool and changing room levels.

For warming up he can use either of the two pools under the stands in the west of the stadium. The 50 m. pool can be divided by a hydraulically operated separating wall creating a 25 m. swimming pool and a diving pool with two 1 m. springboards.

The divers can watch the other competitors from a warm-up pool situated immediately next to the diving pool. In this way they remain constantly in touch with both training and contests even during the waiting period.

In the story below the level of the pools there are a gymnasium and a training room which may be used by all swimmers and which are equipped with all the training apparatus necessary for their particular kind of sport. Adjoining massage and rest rooms provide for rest and relaxation in the intervals between training or competitions.

In order to ensure in the stadium, whatever the weather or time of day, a temperature that is comfortable both for athletes and spectators, water that is hygienically con-

trolled and always between 25 and 28°C, as well as to ensure adequate lighting, a great technical effort is required, of which only a minute part is apparent to the visitor.

What will strike him most are the lights which, from the foyer, he will see "hovering" over the main pool, 16 m. above the surface of the water. Mounted on a 92 m. bridge with seven transversals, each 20 m. long, are the floodlights which provide adequate illumination for color TV transmission. The loudspeakers and color TV cameras are mounted here as well. Three lighting stages have been installed to cater for different purposes: for normal use of the pool, for competitions both with and without color TV transmission.

The stadium and all the ancillary rooms are air-heated. This means that warm air is blown into the stadium through ventilation columns above the west stand and extracted through the steps. In addition, there is an air duct at the foot of the stand from which an air curtain rises and separates the spectator area with its lower temperature from the warmer area of the pool. From this duct too, air is blown over the surface of the water and the chlorine-saturated air is extracted at the edges of the pool. At the front of the building cold air is sucked in at ground level and a warm current of air is blown upwards. A cooling system was installed in the temporary stand.

The visitor sees nothing of the complexity of inward and outward air ducts, the heat exchangers for warming and cooling the air, the distribution center serving the showers and pools with cold and warm water.

The purification of the water - and with a pool content of 7,200 cu. m. every hour 1,400 of water are treated - is effected with the aid of a salt/chlorine electrolysis installation and seven sand filters.

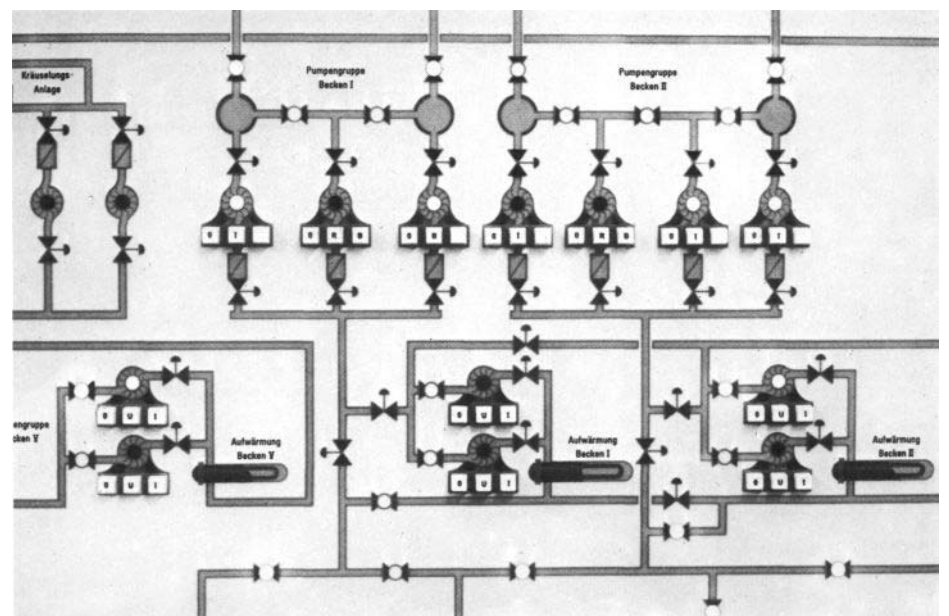
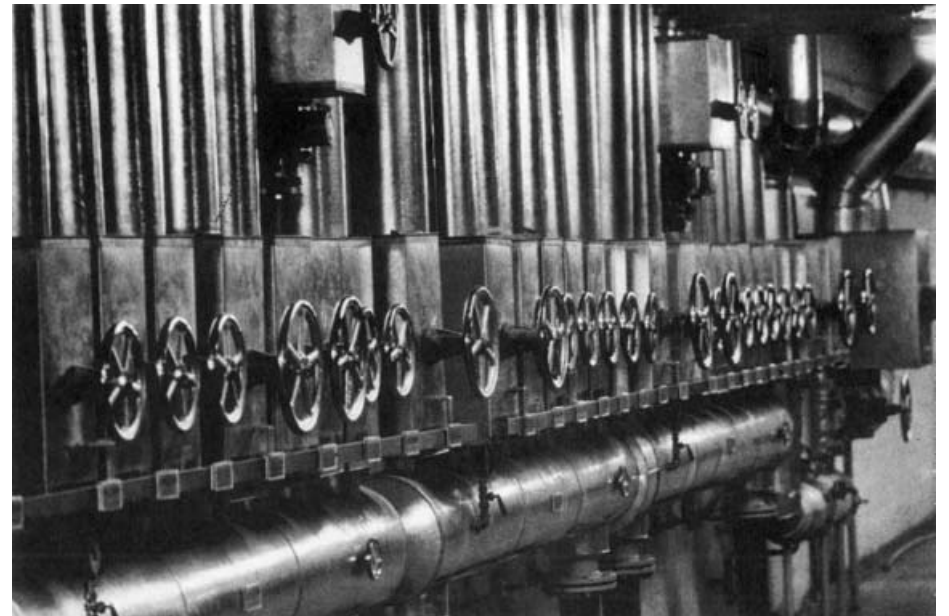
The roof, protecting the stadium from the weather, is provided, for constructional reasons, with a suspended ceiling which also serves to protect the whole network construction against the chlorine-laden air. This ceiling consists of a supporting foil, a heat insulating layer made of clear transparent hard PVC sheets of 1 cm. thickness and a protecting foil made of PVC-coated polyester fabric. Outer layer and ceiling form a fully insulated cold roof.

As supporting structure for the facade, pillars were erected at nine m. intervals, fixed into the foundations and connected with each other by horizontal bolts. According to the height of the pillars and the weight they have to support, these were either I beams or trusses. The actual glass

wall is constructed of steel pillars and girders on the outside, with aluminum sections inside, and sheets of double-pane insulating glass about 3 m. x 1.5 m. in area.

Timing for the swimming competitions was done by two systems functioning simultaneously: electronic contact pads at the finish end of the pool and television cameras, hung 4 m. above every starting block, which recorded the swimmer's touch and the time registered by the clock. These systems worked independently of each other. Times were fed into a computer on the spot, processed, shown on the scoreboard and passed on to the central data storage system in the stadium for later evaluation.

Control of the two scoreboards, evaluation of the times recorded, direction of the competitions and announcement of results were effected from the control room under the west stand.

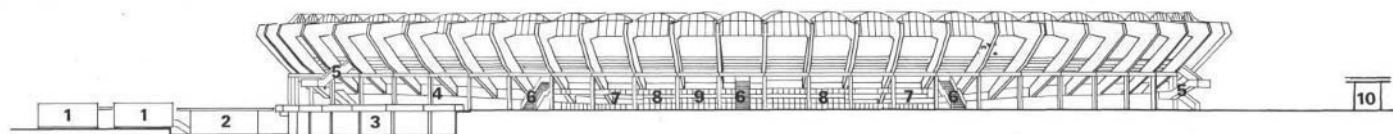


Cycling Stadium Olympic Park
Architects:
Beier, Dahms, Grube, Harden, Kaiser,
Laskowski, Braunschweig



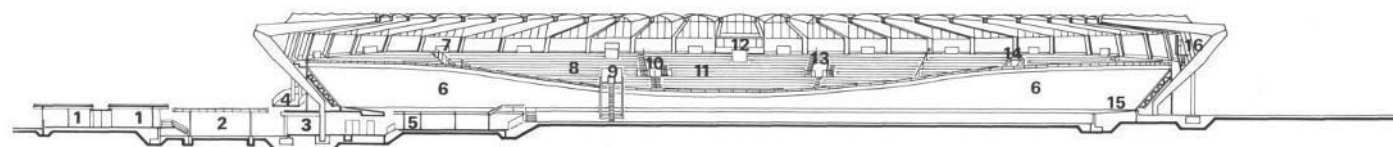
View from the south

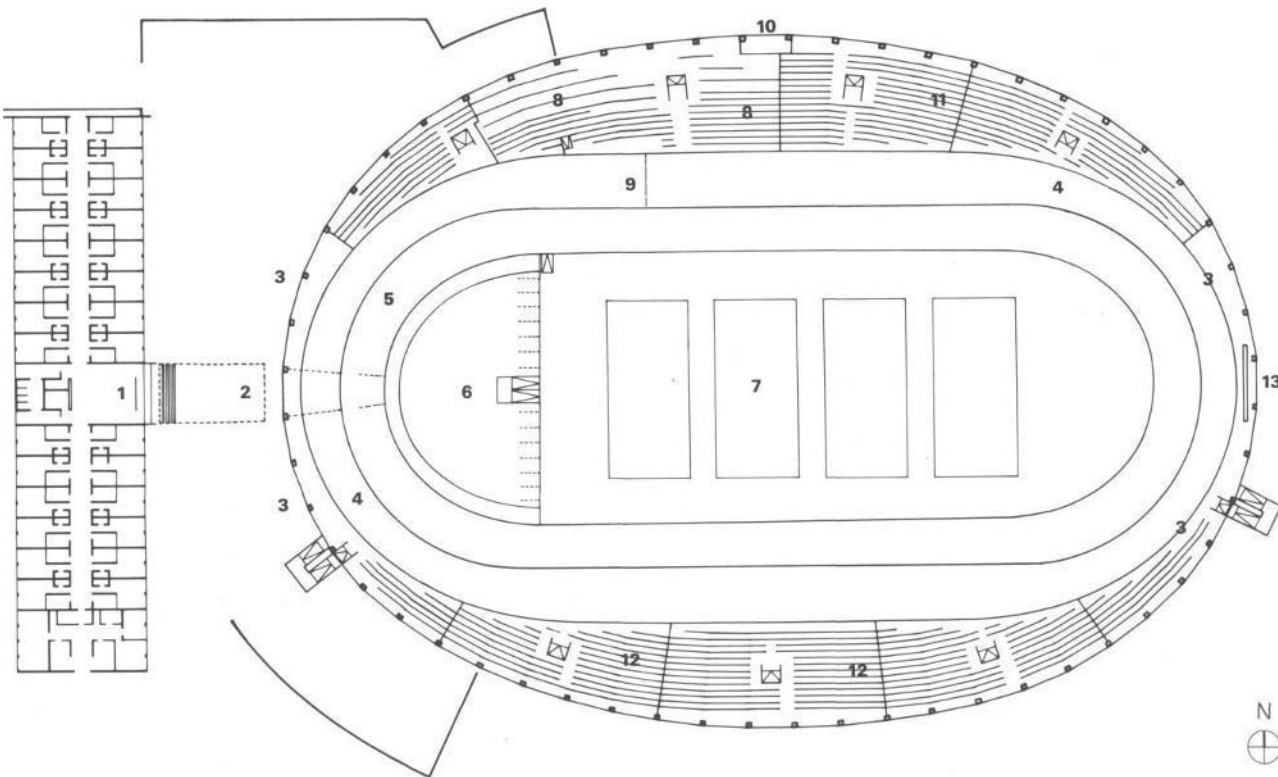
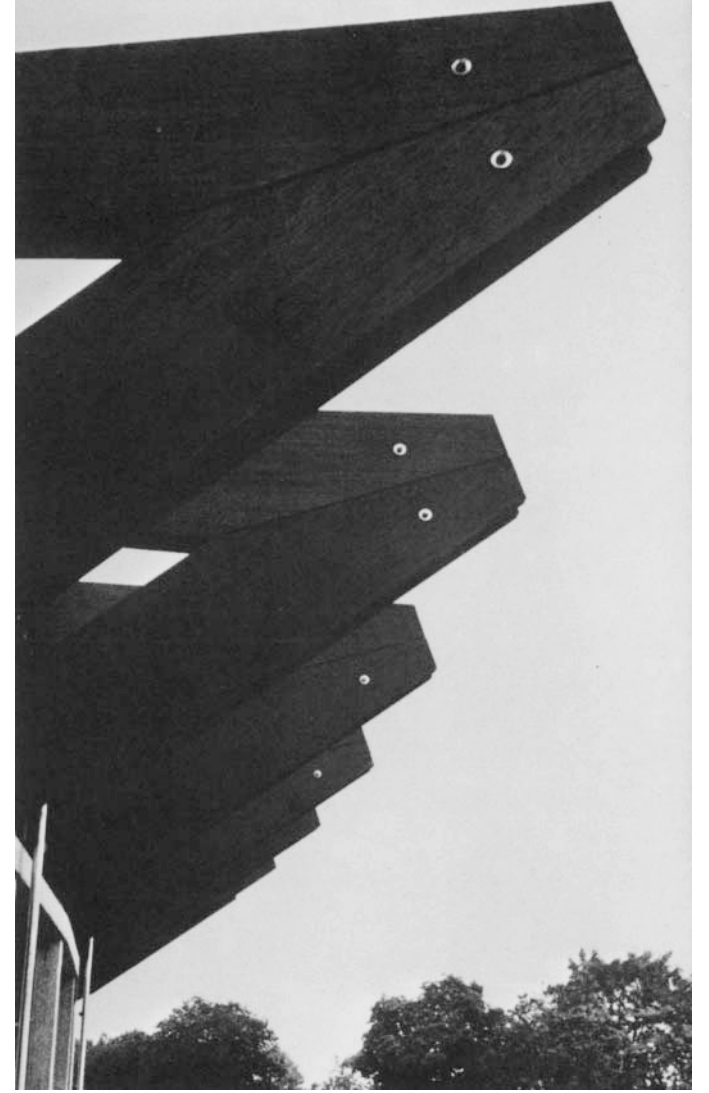
- 1 Racers' quarters
- 2 Courtyard
- 3 Outside view of workshops
- 4 Dividing level for spectators
- 5 Entry to the standing room area
- 6 Entry to the seats of the southern stand
- 7 Kiosks
- 8 Toilets
- 9 Driveway to the track's inner area
- 10 Ticket windows



**Cross section
(west to east)**

- 1 Racers' quarters
- 2 Courtyard
- 3 Tunnel
- 4 Ramp
- 5 Roofed riders' waiting area and view into the workshops underneath the track
- 6 Race track
- 7 Entrance to Block L
- 8 Press and commentators' seats
- 9 Start and finish with jury and mobile platform for timing
- 10 Entry to Block A
- 11 VIP area
- 12 Director's cubicle
- 13 Entry to Block B
- 14 Entry to Block C
- 15 Grass strips
- 16 Scoreboard





Floorplan of the grandstand level

- 1 Racers' quarters
- 2 Tunnel to the center area
- 3 Standing room
- 4 Cycling race track
- 5 Lawn strips
- 6 Covered racers' area
- 7 Open racers' area
- 8 Seats for VIPs, press and commentators
- 9 Start and finish line
- 10 Director's room
- 11 Seats, north stand
- 12 Seats, south stand
- 13 Scoreboard



A structure that can be taken in at a glance the design reveals a sure hand in the relating of a building with its occupants. Its specifications furthered this relationship; accommodation for 5,000 spectators had to be provided round the scene of action, a track about 286 m. in length.

The impression from outside is of an oval which only emphasizes horizontal lines. The view inside the stadium then surprises the observer with the unison of the sweeping lines of the track and the harmoniously arranged spectators' stands.

The specifications called for an open-air construction, but one which should be unaffected by weather conditions as far as possible. The accommodation for spectators and the track was therefore roofed over. The grandstands and the roof are made of laminated wood. In the lower part, V-shaped frames form the slopes for the stands. In the upper part they support the roof, which projects 27 m. These frames rest on a circular beam of reinforced concrete and reinforced concrete pedestals.





Diolen of high tensional strength and coated with PVC was used as roofing material. It offered the advantages of high light transmittance, soft shadow contours and the prevention of heavy shadows being cast by the tie-beams on the track. The roof skin was stretched parabolically over tubular steel hoops.

In the first Olympic installations, the tracks were first 500 m. and later 400 m. in length. In some cases they were built around the running track in the main stadium and were made of asphalt or concrete.

The open-air tracks are made of wood and are 285 m. to 333 $\frac{1}{3}$ m. long.

Both the athletes and the spectators benefit from the advantages of a shorter track. The entire circuit is in better view, the competitors and the public are in closer contact, and the whole atmosphere of the event becomes better and more exciting through the more compact dimensions.

The employment of wood led to "faster tracks" and better results. Whereas a soft-wood track that was not weatherproof was provided for the Olympic Games in Berlin, 1936 (the track was only a provisional construction) today, tracks with a long life are made of African hardwood.

High speeds are determined by the shape of the track, the ratio between the straight and the curved sections, and the banking of the curves.

The length of the Munich track is 285.71 m. Fourteen circuits are 4,000 m. The track is 7.50 m. wide, banked at 48° in the curves and at 9° in the straight sections. It permits maximum speeds of around 90 km./h.

The best shape for the track was determined by calculation, and the concentration of the majority of the spectators along the straightaways formed the basis for the general conception of the interior. The line of sight for the spectators was determined by the inclination of the track.

**Central University Sports Facility
- ZHS - in Olympic Park
including its outdoor facilities
(Volleyball Hall excluded)**

Architects:
Heinle, Wischer and Associates,
Stuttgart/Munich



**Olympic Use of the
Complete Complex
Layout diagram**

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Hockey facilities 2 Kosoczkisdamm 3 Men's Olympic Village 4 Water-permeable playing fields 5 Playing fields for hockey 6 Playing fields for lawn games 7 Handball courts 8 All-weather area 9 Basketball courts 10 Small game fields for hockey and handball | <ul style="list-style-type: none"> 11 Practice field with rocks for scaling 12 Volleyball courts 13 Throwing field and circuit training area 14 Competition tracktype C 15 Training facility for high jump, broad jump, polevault, and shotput 16 Competition tracktype B 17 Women's Olympic Village 18 Gardner's area |
|---|--|





The whole northern part of Olympic Park is divided into two large areas by embankments up to 8 m. high. The eastern area is occupied by the Olympic Village, the western by the Central University Sports Facility (ZHS). The embankment which runs from south to north, branches to the west in its northern part, thus forming an enclosed area in the north which contained provisional hockey fields during the Games. The southern part was used during the Games for training and as an assembling point for the athletes before the opening and closing ceremonies.

The buildings of the ZHS are situated adjacent to the embankment which separates them from the Village. During the Games, these buildings, designed for sports instruction and practice, were utilized as the radio and television center, with the exception of two sports halls, each with an area measuring 28 m. x 56 m. and capacity for 600 spectators. For the Olympic Games, these two halls were converted for use as the volleyball hall.

The outdoor facilities, covering an area of about 25 hectares, comprise two tracks for athletic and field events, one multi-purpose field and a pitch for throwing sports, eleven large playing fields, ten small playing fields, one circuit installation, one fitness track, and an artificial rock for climbing practice. One of the tracks is incorporated into a small stadium with grandstands and floodlighting, located south of the ZHS buildings and bounded at the east and south by embankments, which also provide paths for spectators to the center in the south of Olympic Park.

In addition to the outdoor facilities mentioned above, the grounds in the north which were used as provisional hockey fields during the Games, and the tennis courts south of the Women's Village will belong to the ZHS.



The embankments which divide these areas follow a natural course. They are planted at intervals with single large trees.

The strictly formal and geometrical shape of the games and sports areas themselves is in sharp contrast to this landscape. Straight banks at right angles to each other separate the individual playing fields and training areas. Tapering or crooked banks are given additional emphasis with paving stones; at other points, they are separated by log steps. Where the banks form pyramidal plateaus they are used as assembly and outlook points. The paths are laid partly inside and partly on top of the banks. The geometrical impression is further reinforced by round-topped maples and acacias.

The grounds for athletics and the large playing fields presented a scene of animated training activity during the Olympic Games. The sport-loving public, standing on the large outer embankments, and the trainers, coaches and athletes from other sports inside the training grounds watched the progress of training with great interest. The small playing fields near the ZHS buildings were comparatively neglected. This is explained by the fact that sports such as handball, basketball and volleyball, which require only a small field, were played in indoor stadia during the Olympic Games and therefore the teams trained indoors instead of in the open. But the concrete rock for climbing practice in the center of the small playing field area soon became a landmark and focal point for the athletes. Some of them learned climbing for the first time on this artificial rock, while others mistook these clumps of concrete for a huge piece of modern sculpture.



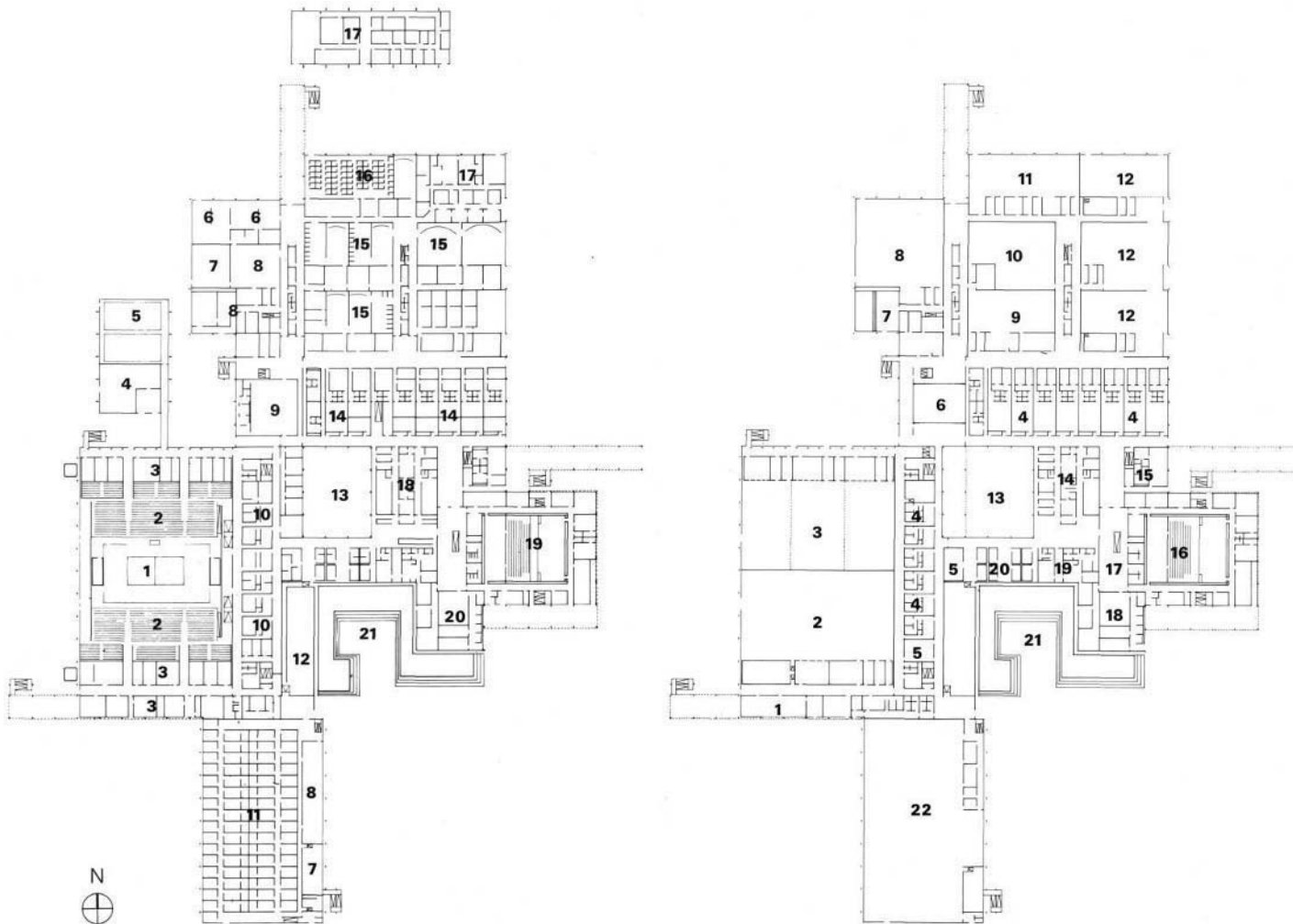
**German Olympic Center, —DOZ—
Radio and Television Institute
for the Games
of the XXth Olympiad in Munich**

*Architects:
Heinle, Wischer and Associates,
Stuttgart/Munich
Project Director:
Arnold Schink*



**Olympic Use of the
Buildings Cross section
(east-west axis)**

- 1 Volleyball hall
- 2 Athletes' dressing rooms
- 3 Entrance hall for spectators
- 4 Forum
- 5 View of the house of studies (during the Olympics: offices)
- 6 Center for information and conferences
- 7 Connecting bridge to Kosoczinskidamm



**Olympic Use of the
Buildings Ground
floor plan**

- 1 Volleyball hall, playing fields
- 2 Temporary stands
- 3 Auxiliary rooms for organizers, the press, sports associations
- 4 Temporary air conditioning
- 5 Temporary volleyball warm-up hall
- 6 Central installation of the MAZ
- 7 Post office, picture and sound transmission
- 8 Central technical installation
- 9 Film developing
- 10 Athletes' dressing rooms
- 11 Radio studios
- 12 Ventilation facilities
- 13 Inner courtyard
- 14 Film cutting room
- 15 Television studios
- 16 Off-the-air commentators
- 17 Working rooms of the American Broadcasting Corporation (partially temporary)
- 18 First aid station
- 19 Center for information and conferences
- 20 Central electrotechnical installation
- 21 Forum

**Post-Olympic Use
of the Buildings
Ground floor plan**

- 1 Workshops, maintenance and storage wing
- 2 Sports hall
- 3 Sports hall (divisible into three parts)
- 4 Athletes' dressing rooms
- 5 Distribution of sports equipment and workshop
- 6 Central clothing depot
- 7 Music room
- 8 Gymnastics hall
- 9 Table tennis hall
- 10 Fencing hall
- 11 Hall for boxing, wrestling, judo
- 12 Gymnasium
- 13 Inner courtyard
- 14 Central infirmary
- 15 Rooms for personnel
- 16 Lecture hall
- 17 Lower distribution hall
- 18 Central electrotechnical installation
- 19 Sauna
- 20 Music studios
- 21 Forum
- 22 Track and field hall

During the Olympic Games the buildings of the Central University Sports Facility provided accommodation, in addition to the volleyball hall, for the German Olympic Center for Radio and Television (DOZ). A completely successful installation of radio and television equipment was carried out in these buildings, although they had been designed and constructed expressly for use as the Institute for Physical Education and Sports of the University and Technical University of Munich.

The constructional principle - a steel frame building partitioned with light-colored metal panels—was already mentioned in connection with the volleyball hall. Cor-Ten steel was used for the supporting elements. This steel does not have to be painted or galvanized to prevent it from rusting. It undergoes an external corrosion process and after two to three years it develops a protective dark-brown finish and needs no further care or maintenance.

The buildings are graded in height and are grouped around a forum, from which the small stadium in the south east with its 3,000 seats, the tent roof, and the television tower in the south of Olympic Park can be seen.





Television engineers, in what seemed like a labyrinth of rooms and passages, constructed a technical system in the future gymnasiums and athletics halls in the northern section, which enabled all events during the Games to be transmitted to television viewers in every part of the world. Eight studios of different sizes, a recording center, an off-screen room, four projection rooms, a directional radio transmitting and receiving station, fifty editing rooms and the central switchboard room were installed by the two German radio and television organisations, ARD (Association of German Broadcasting Stations) and ZDF (Second German Television Programm) in the northern section of the ZHS.

Further to the north, a temporary building was constructed along the same lines for ABC (American Broadcasting Corporation) for their sole use. It was dismantled after the Games.

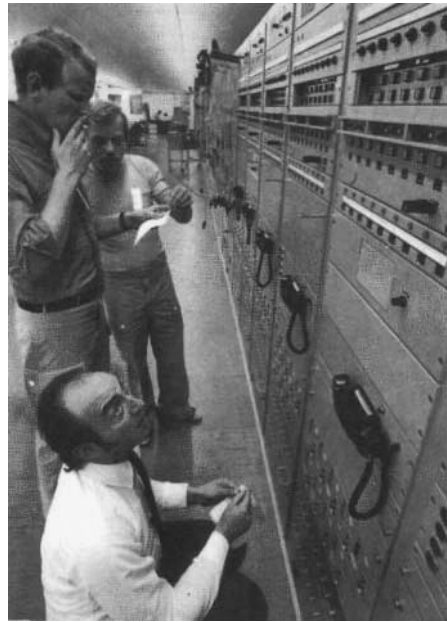
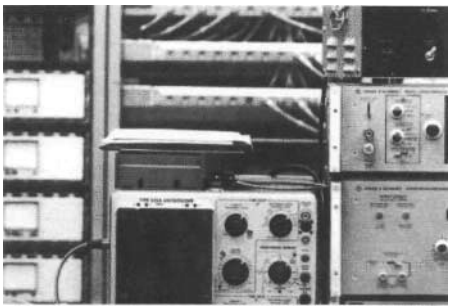
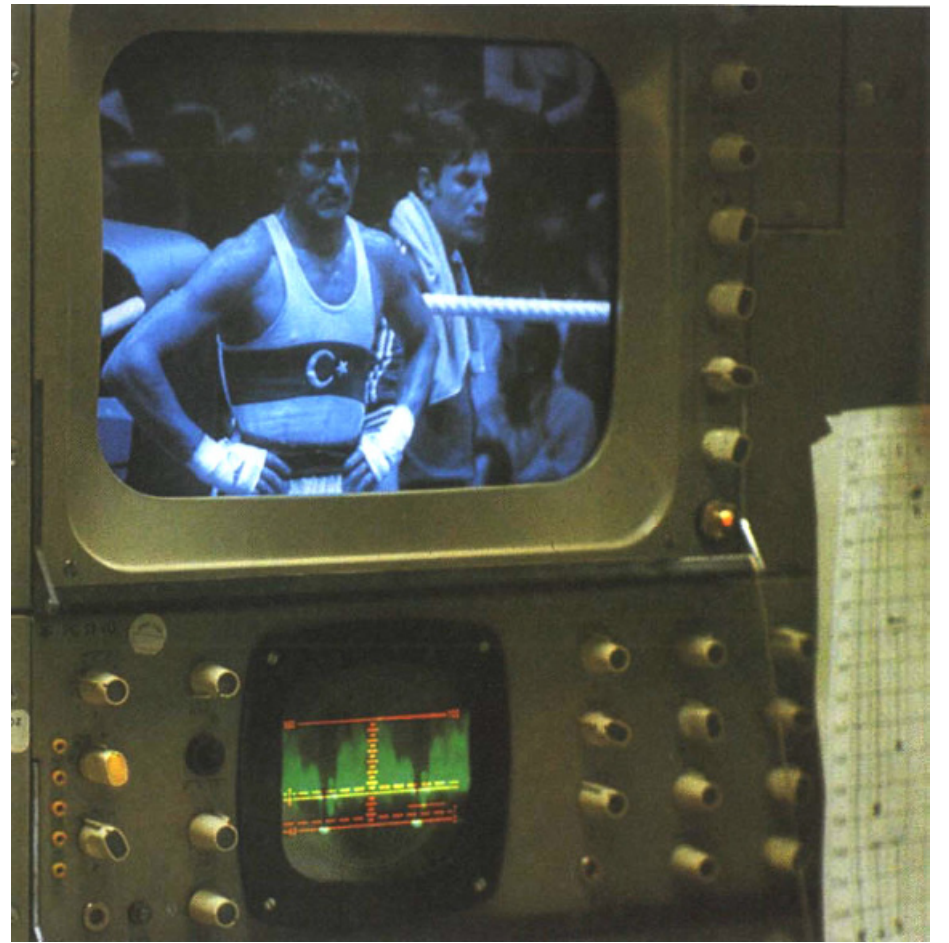
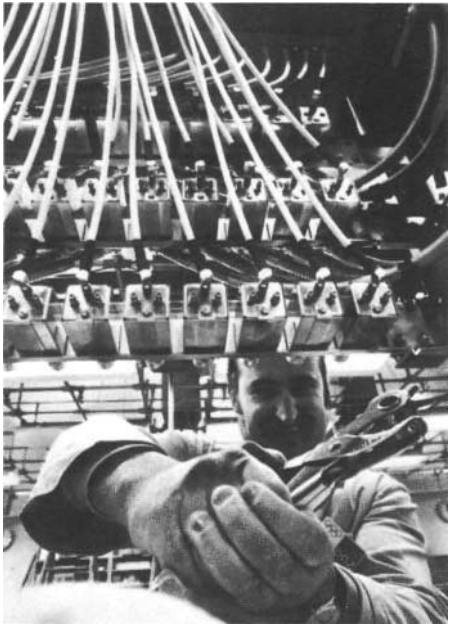
In the future athletics hall, situated in the southern section, an intermediate floor was built in order to accommodate seventy studios, each with one announcer's and one technician's room, fifty editing rooms, and the central broadcasting switchboard.

At first sight it might appear that a very elaborate space utilization program would not be required for the extensive operations of television and broadcasting. But the decisive factor in this matter was the vast amount of electronic equipment and everything connected with the technicalities of transmission which had to be included in this program. In this interim period of use as the radio and television center, moreover, the buildings had to be equipped with expensive but indispensable heating, ventilation and cooling units. As a safety measure, all cables were laid within double walls, and switches and sockets were mounted in shielded cabinets.

Naturally, this complex of electronic equipment was not required in the case of films of sports events which were not televised. Facilities for the processing, projection and storage rooms for these films were erected in the area which later would be used for the changing-rooms for students.

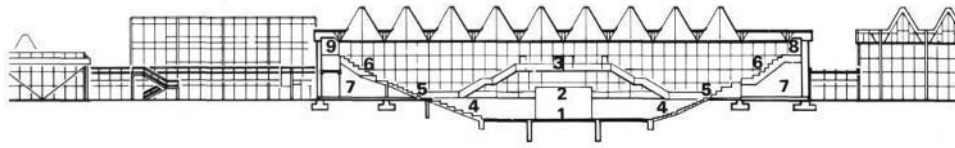
The only parts of the German Olympic Center which were put to the same kind of use both during and after the Olympic Games were the central administration building and the classroom building for sports students at the ZHS. Offices for accounting, information and interpreters, a cloak room, the telephone and telex exchanges, and a restaurant were installed in the administration building. The lecture hall encompassed by these rooms, seating 500 persons, was used for press conferences. The classroom building was used for the offices of television and radio technicians, producers, and editors.





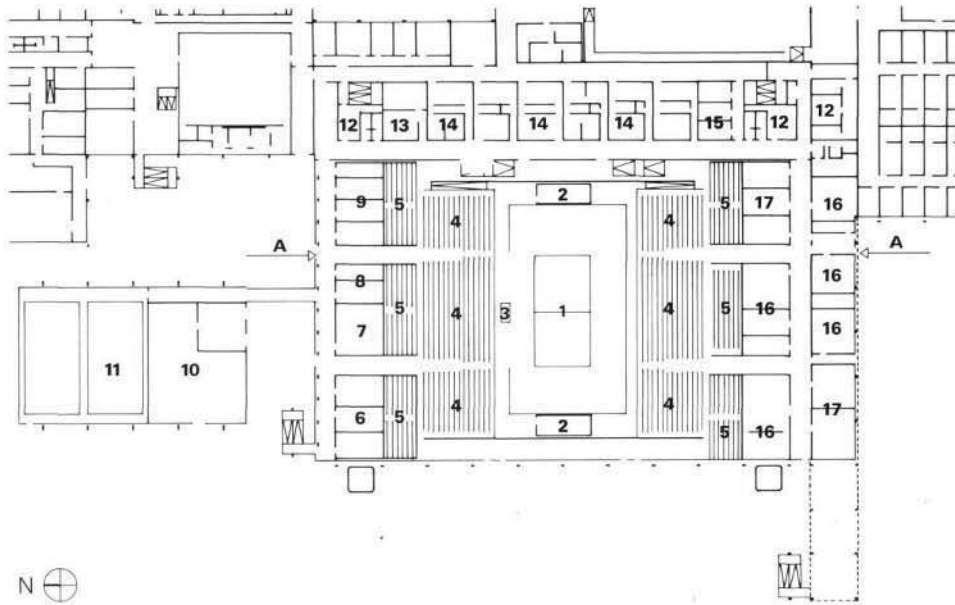
Volleyball Hall Olympic Park

Architects:
Heinle, Wischer and Associates,
Stuttgart/Munich
Project Director:
Arnold Schink



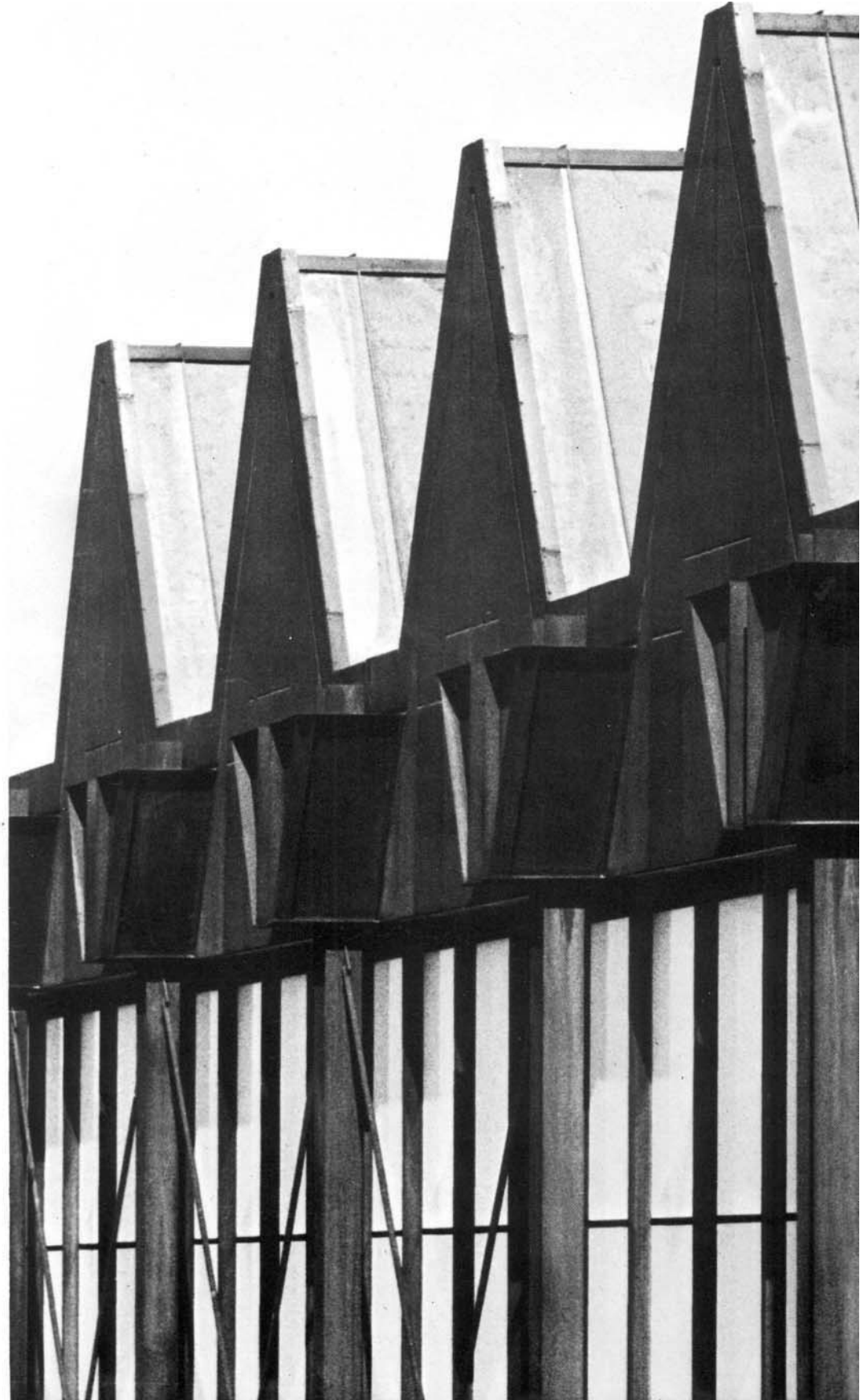
Cross section A-A

- 1 Plane of the playing area
- 2 Warm-up room
- 3 Spectators' entrance from the entry hall
- 4 Temporary sunken grandstands
- 5 Temporary grandstand on the level of the future ZHS gymnasiums
- 6 Permanent grandstand of the ZHS gymnasiums
- 7 Gymnastic apparatus rooms of the ZHS gymnasiums (during the Olympics, temporary rooms for organization and the press subcenter)
- 8 Announcers' booths
- 9 Direction booth



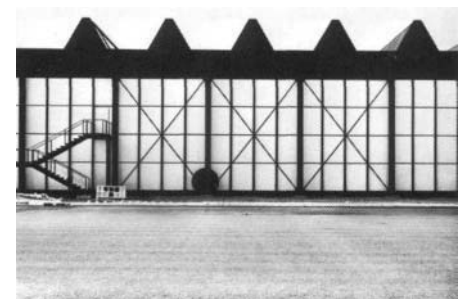
Floor plan

- 1 Playing area
- 2 Warm-up room
- 3 Scorers' table
- 4 Temporary sunken grandstands
- 5 Temporary grandstand on the level of the future ZHS gymnasiums
- 6 Offices of the International Volleyball Federation (FIVB) and of the German Volleyball Federation (DVV)
- 7 Meeting room
- 8 Hall director
- 9 Offices of the OC
- 10 Temporary air-conditioning plant
- 11 Warm-up hall
- 12 Toilets
- 13 Referees' room
- 14 Locker rooms for athletes
- 15 Security guards
- 16 Press subcenter
- 17 Doctor's office

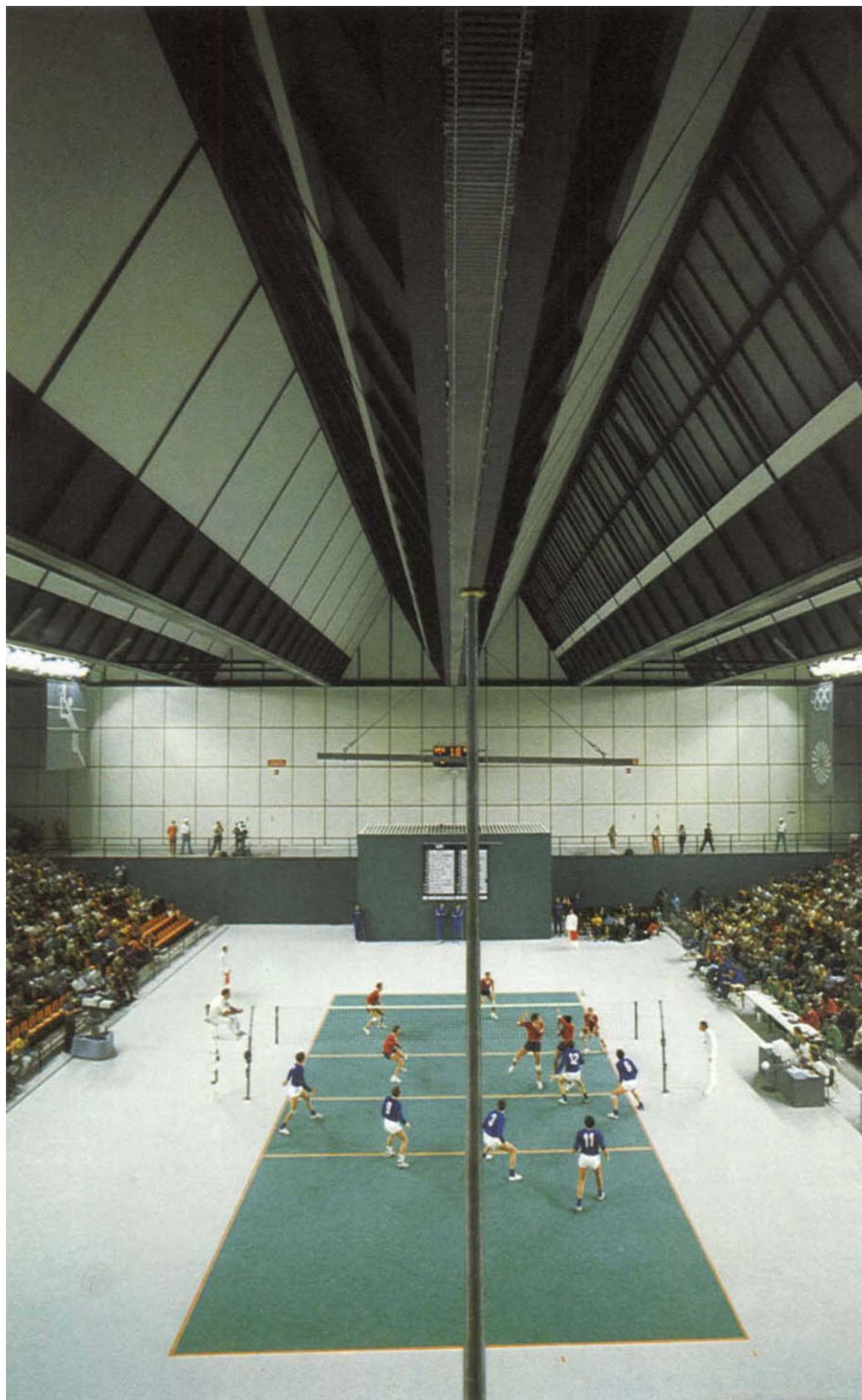




Situated to the west of the forum, the volleyball hall terminates the group of buildings comprised by the Central ZHS. The original plans provided for two halls, each 28 m. x 50 m. in area and 9 m. high, and each with seats for 600 spectators on gallery grandstands. These two halls were provisionally combined into one large hall measuring 56 m. x 50 m. The decision to adopt this solution was motivated by the recognition of the fact that a further large stadium with a capacity of about 4,000 spectators, in addition to the neighboring sports hall and the basketball hall, could not be justified on economic grounds by the number of sports events which would be held in Munich.



Like the other buildings of the ZHS, the volleyball hall is a steel frame structure. Seen from the west, it looks very impressive. The girders, with a span of 50 m., rest on steel pillars which appear slender in comparison. The spaces between the pillars are filled with flat-white metal panels.



The principles of construction used for the whole ZHS are also apparent in the interior of the volleyball hall. The symmetrical arrangement along both sides of the playing field of the grandstands, which ascend from the floor almost to the saw-tooth roof, was particularly suited to the character of this sport. Whereas in post-Olympic utilization, daylight will enter through the north lights of the roof, they were obscured for the period of the Games when the stadium was artificially illuminated with an intensity of 1,875 lux. Rows of lamps mounted along the steel girders provided dazzle-free illumination of the playing field. The lighting emphasised the color contrast between the athletes in their bright jerseys and the light-green surface of the playing field, and between the enthusiastic spectators on their orange-colored seats and the dark brown of the heavy roof girders.

To meet the demand for a clear inside height of 12.5 m. above the playing field, a part of the floor of the combined hall was sunk by about 3.5 m. This provided room for provisional grandstands on both sides of the length of the playing field. Together with the permanent grandstands for post-Olympic utilization, the stadium then had a capacity for 3,700 spectators, including the commentators, the press, guests of honor and athletes. After the Games, the floor was raised again to the originally planned level for post-Olympic use.

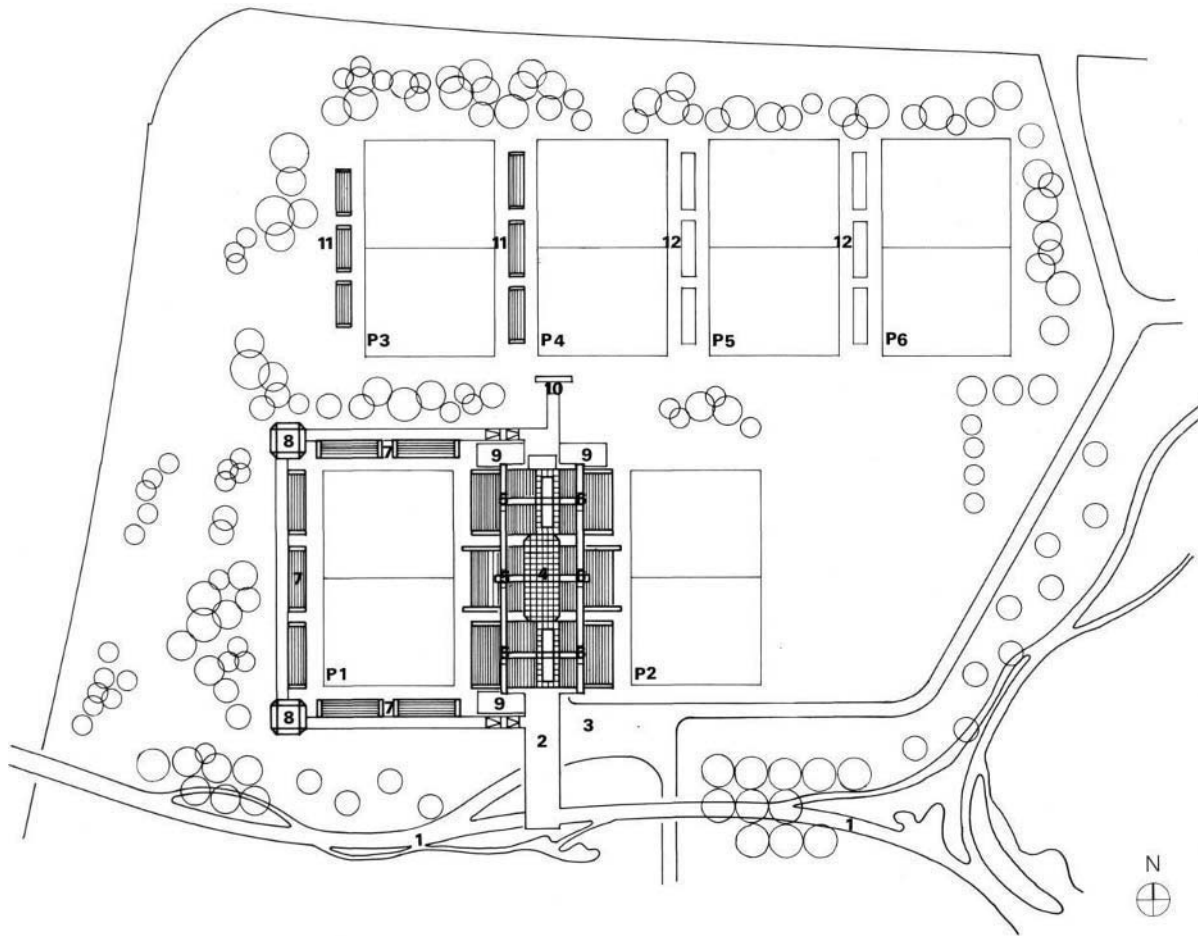
Despite the provisional character of this hall, it was possible to arrange complete separation of the areas used by different groups of visitors such as spectators, guests of honor, reporters and the participating athletes.

A warm-up hall, also a provisional structure, with two playing fields and direct access to the competition area, was erected in the northern part of the volleyball hall.



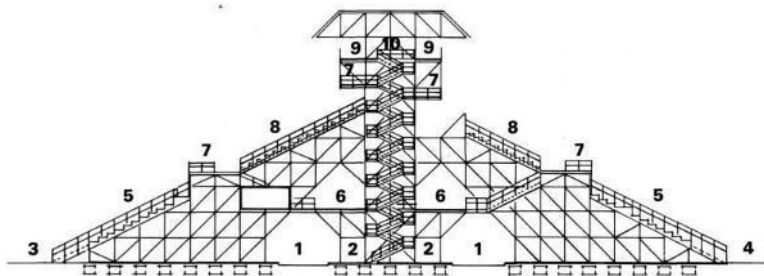
Hockey Facility Olympic Park

Architects:
Schraud and Karg, Munich



Layout diagram

- 1 Kusoczinskidamm
- 2 Spectators' entrance
- 3 Entrance for athletes and organizational personnel
- 4 Grandstand structure
- 5 Main grandstand for Field 1
- 6 Main grandstand for Field 2
- 7 Grandstand for standing room
- 8 Toilets
- 9 Parking place for mobile transmission unit
- 10 Spectators' entrance to Fields 3-6
- 11 Multi-use collapsible grandstands
- 12 Area for the collapsible grandstands
- P Field



Grandstands in cross section

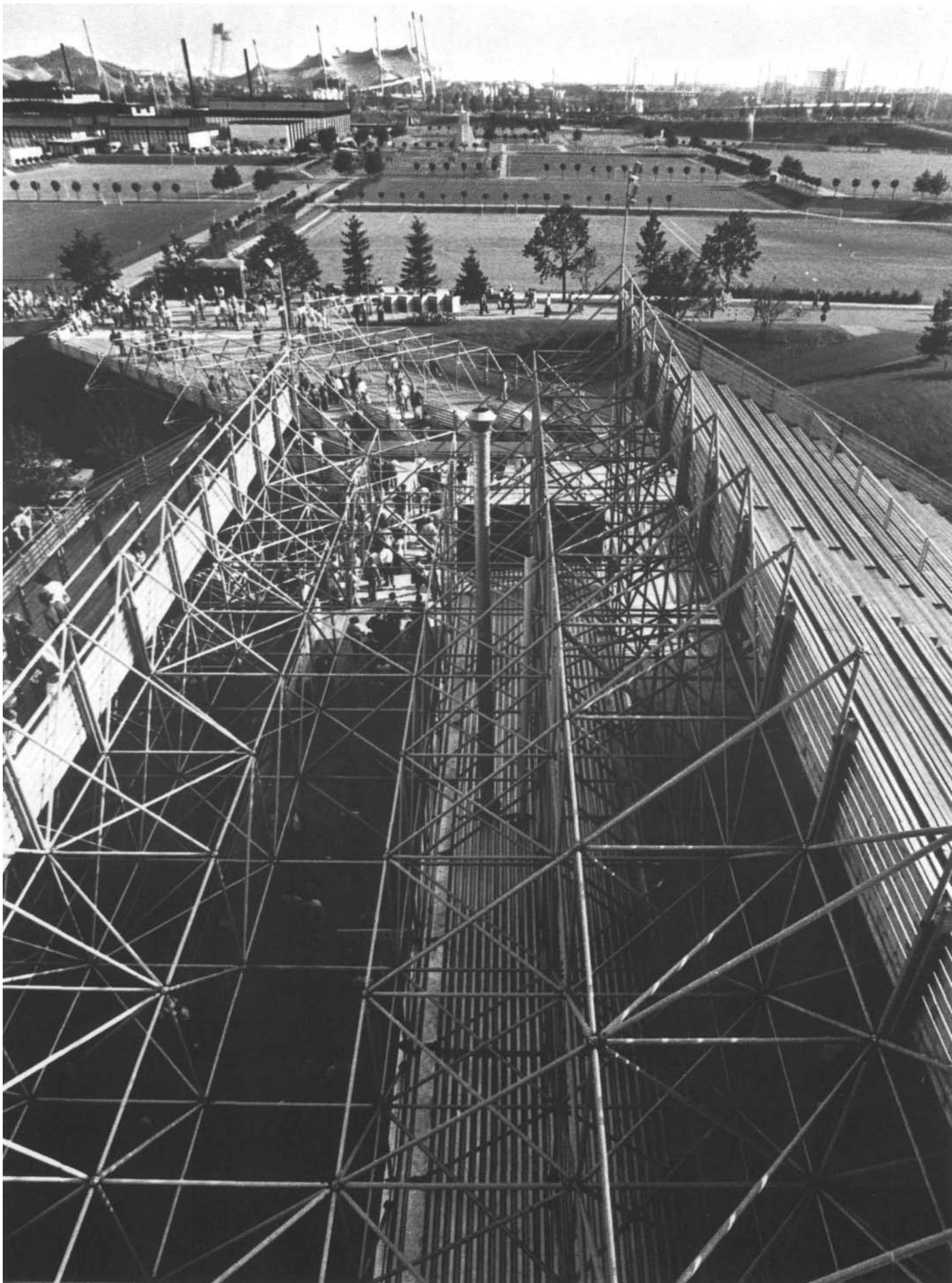
- 1 Driveway
- 2 Athletes' and organizational area
- 3 Field 1
- 4 Field 2
- 5 Grandstand with seats
- 6 Level of spectator dispersion, toilets and press information
- 7 Camera stand
- 8 Grandstand for standing room
- 9 Places for commentators
- 10 Central direction booth

At first it was intended to convert one of the existing Munich sports grounds to meet the requirements of the hockey tournament, but after due consideration, and in agreement with the sport federations concerned, the Organizing Committee decided on a solution more in keeping with the slogan: "The Olympics with short distances". Provision had been made for seven grass playing fields in the north-western part of the grounds of the ZHS. This site offered an ideal situation for the erection of temporary grandstands and the service rooms for the organizers. This also meant that the accommodations for sports spectators in Munich after the Games, already too large, could be reduced by about 20,000 seats. The site was also ideal in the way it is subdivided; the terrain is enclosed by natural high embankments and plantings so that games are not disturbed by noise from the environment.

Six of these fields were sufficient to ensure the smooth functioning of the Olympic hockey tournament. The capacity of the grandstands varied. The stand on the main field accommodated 10,000 spectators, that on the second field 5,000, that on the third field 3,000, while those on the fourth, fifth and sixth fields each had a capacity of 2,000 spectators.

The area is bounded at the south by the Kusoczinskidamm, which runs from west to east and connects the Press Complex to Olympic Park. The main grandstand, situated between fields 1 and 2, was built at right angles to this embankment. Spectators entered it at its second level from the pathway along the top of the embankment. The lower level was reserved for players and officials. Low stands constructed of steel tubing were erected in blocks along the western side and at both ends of the main playing field (field 1), while on the eastern side, the main stand rose to a height of 25 m. Its rear tiers provided the spectator accommodation for field 2.







Spectator accesses, platforms, stairs, steps in the seating and standing room areas as well as the barriers at the edges of the grandstands, were made of wood. This did not, however, detract from the general impression of transparency caused by the steel tube structure.

The main grandstand was constructed of light steel tubing and its trapezoidal roof was covered with metal foil. Thus the stand could be immediately recognized by every visitor as a temporary installation in the open landscape.

The principle of construction used for the framework of the grandstand made it possible to leave spaces open for the accommodation of offices for the organizers, changing-rooms and rooms for the press, radio and television reporters and technical services, and also enabled large areas to be spanned. Steel tubes of uniform length were assembled with the use of 16-faced screw couplings, to form cubes of the same size, and these cubes were put together to make larger units. The sup-

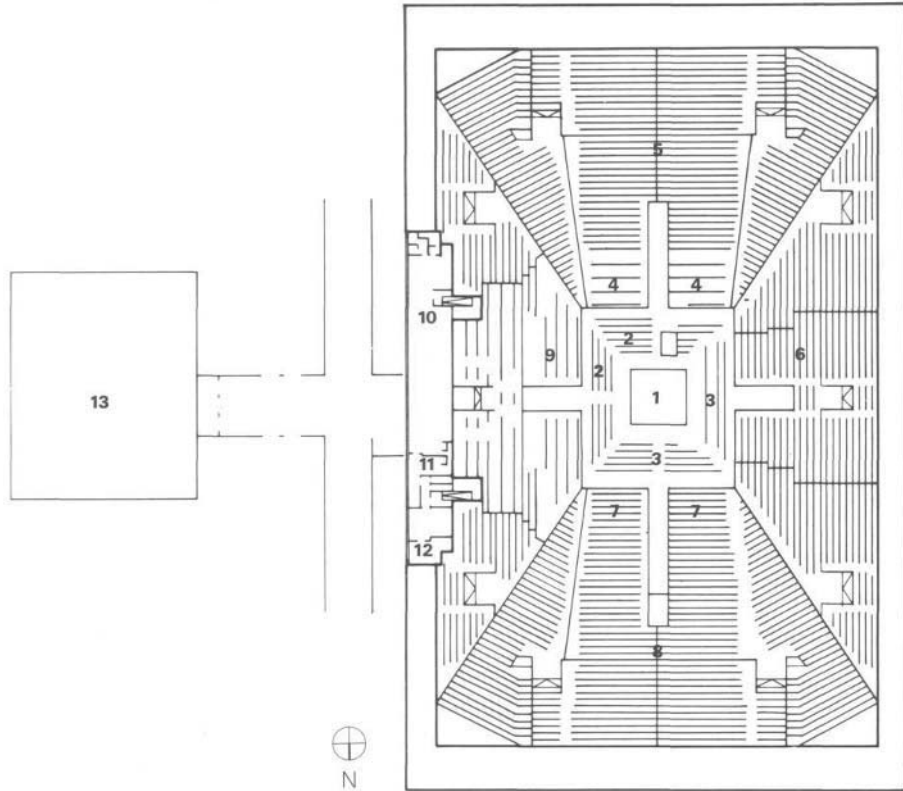
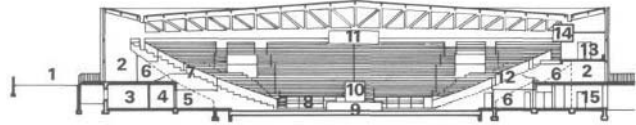
porting elements could easily be picked out through the larger number of bracing cross members.

The tiers of the grandstand were not constructed in the same way. Although the principle employed was similar to that described above, this quick assembly system used, instead of steel tubing, steel U-sections which were bolted directly together at intersecting points.

Boxing Hall Olympic Park

Architect:

Rolf Schütze, Munich

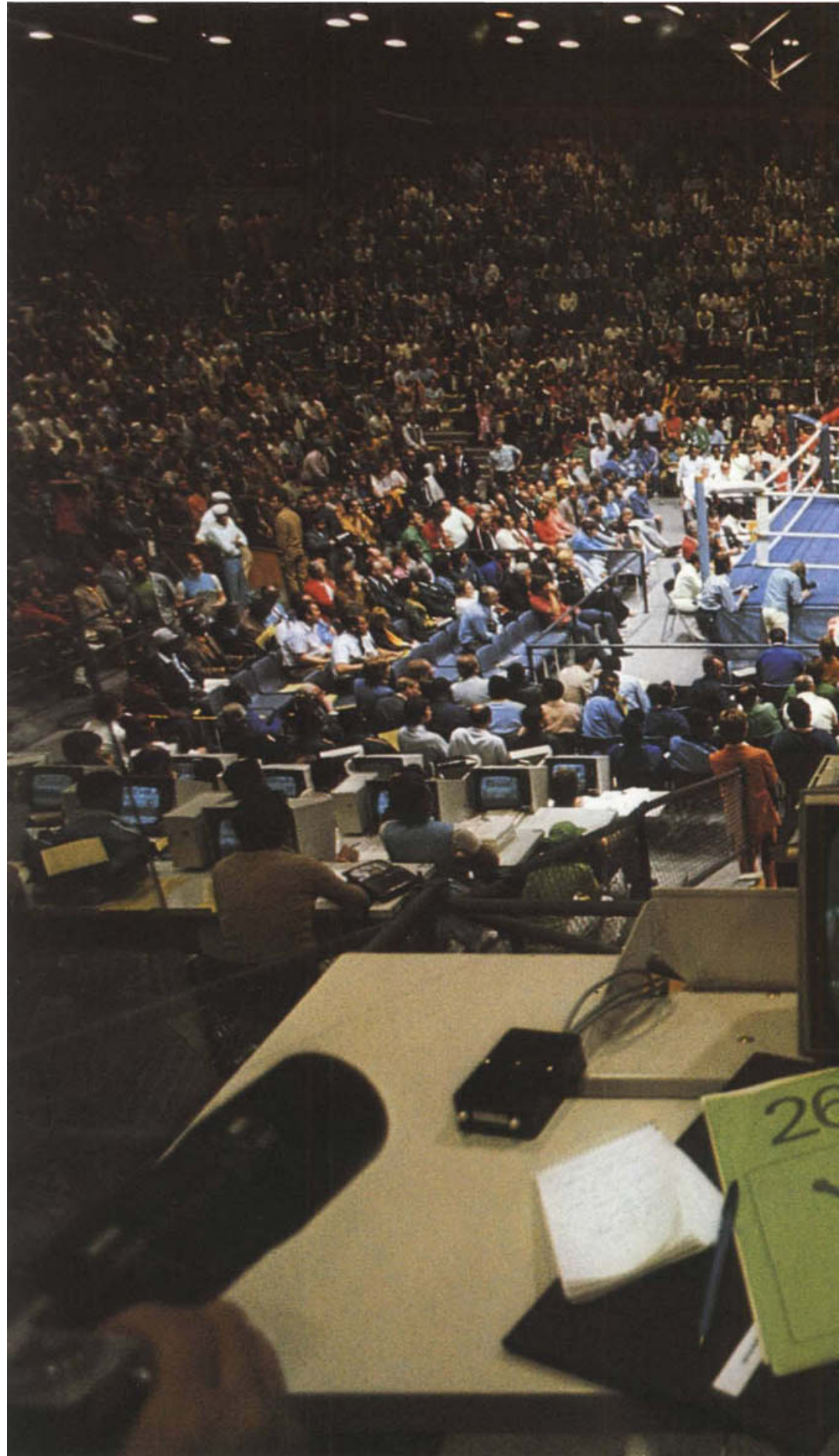


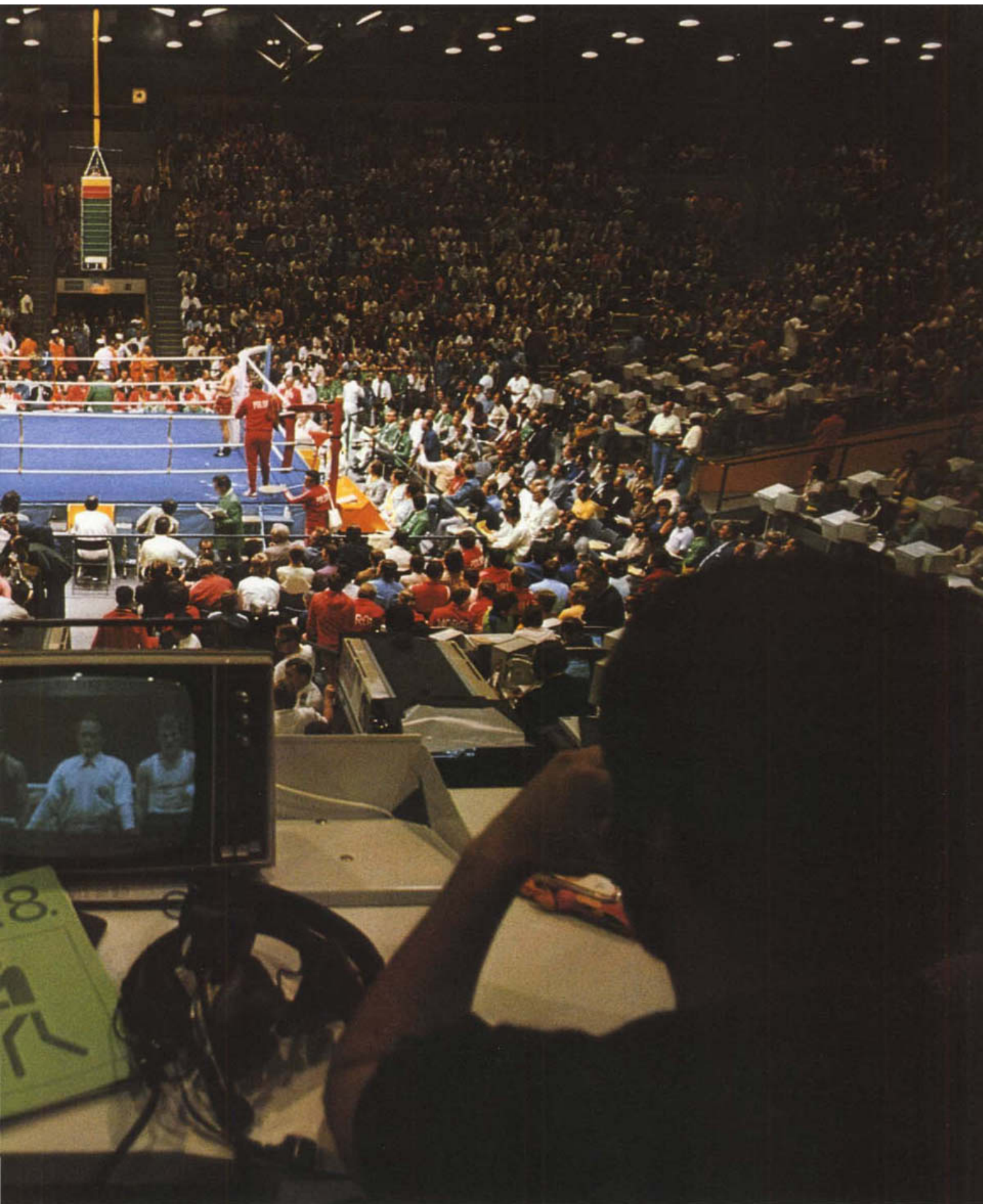
Cross section (East to West)

- 1 Ramp to the spectators' entrance
- 2 Passage around stands
- 3 Athletes' locker room
- 4 Distributing passage
- 5 Store room
- 6 Permanent stand (built-over) stands
- 7 Eastern temporary stand
- 8 Chairs near the ring
- 9 Boxing ring
- 10 Camera stand
- 11 Scoreboard
- 12 Western temporary stand with press and commentators' seats
- 13 Restaurant
- 14 Director's cubicle
- 15 Organization offices
- 16 Garage

Diagram of the grandstand floor

- 1 Boxing ring
- 2 Ringside seats for the press
- 3 Ringside seats for the jury, doctor, judges and sport league functionaries
- 4 Press seats
- 5 South stand with seats
- 6 East stand with seats
- 7 VIP seats
- 8 North stand with seats
- 9 Seats for the press and radio announcers
- 10 Restaurant
- 11 Kitchen
- 12 Director's areas
- 13 Press subcenter





One of the assets which Munich could include in its candidature documents for the Games of the XXth Olympiad which it submitted to the International Olympic Committee, was the ice stadium at Oberwiesenfeld at the foot of the television tower. It was also listed as "an item in stock" in the architectural competition for the creation of the Olympic complex. It was earmarked for the Olympic boxing event, but was also used one day for the judo finals after the exact timetable of events and the schedule for their allocation to the competition sites had been completed.

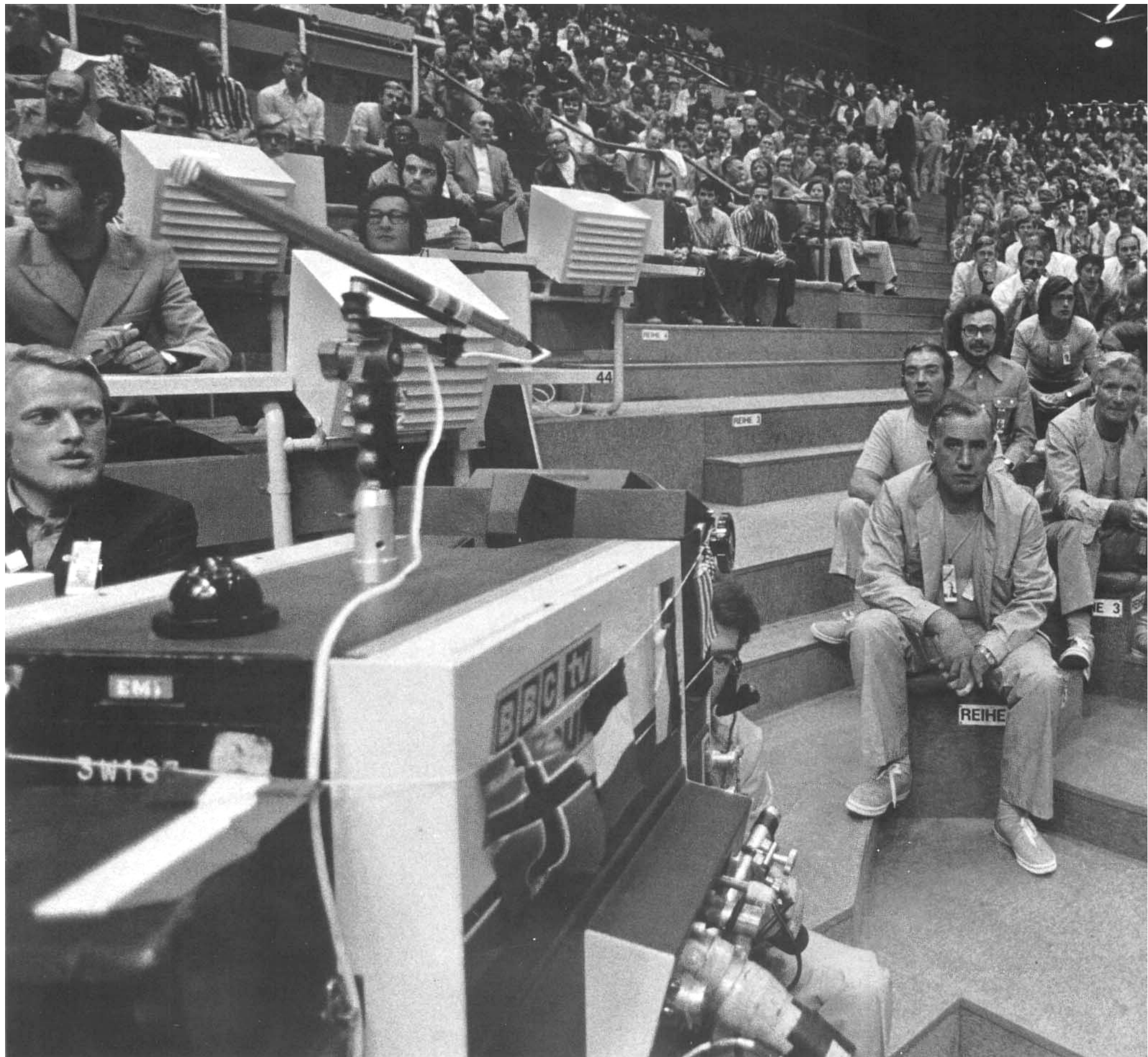
The ice stadium, comprised of an open-air skating rink 45 m. x 60 m. in size adjacent to a covered rink measuring 30 m. x 60 m., was opened in the winter of 1966/67. The hall has seating accommodation for about 2,100 spectators and standing room for 5,100.

The interior had to be completely rebuilt for the Olympic Games because the scene of action viewed by spectators at boxing-matches is fifty times smaller than at skating events. After detailed studies the Organizing Committee decided to follow the recommendations of the Institute for the Construction of Sports Installations of the German Sport Federation and to provide the provisional installation with a range of view for the spectators equally as good as in the other Olympic sites. The structure therefore had to be altered in order to give the required range of view and also to conform with the security regulations for the filling and emptying of the grandstands. This meant the erection of removable grandstands over the existing ones.

The only permanent structure was the restaurant on the west side above the covered and open-air rinks. On this side the seats for the press (260) and radio and television commentators (120) ascend from the ringside seats. Eighteen cubicles for reporters are situated above the restaurant.

Seating accommodation was provided for 6,000 spectators in addition to the seats for guests of honor, referees, sports officials and participants.

Indicator boards measuring 2 m. x 6 m. stood at each end of the hall, giving spectators and the press clearly visible information about the program and the results. A clock suspended above the ring showed the duration of the rounds and the intervals.





The foundations, the base of the hall, and the fixed grandstands are made of reinforced concrete. The hall itself is constructed of steel uprights and tubular steel lattice beams with a span of 53 m. The roof consists of steel purlins carrying trapezoid aluminum sheets on sound and heat insulating material.

Honeycombed concrete blocks are positioned in front of the foundation base. The facade above this floor is a steel construction with grey, pretensioned safety-glass. The upper horizontals are formed by the ventilation louver which encircles the building.

The existing service rooms below the grandstands in the ice stadium did not need much structural alteration in order to be used as changing rooms, referees' rooms, and offices for the international and national sport federations. A press subcenter — also a provisional structure — was built on a section of the open-air rink.

The adaptation of this building for its Olympic utilization was conducted from the realistic standpoint of making as small an investment as possible in a building that would be used for ice sports again after the Games, while at the same time fulfilling the requirements of boxing and judo to the maximum extent.

Through the establishment of close contact between the contestants and the spectators, reinforced by the insertion of wedge-shaped intermediate grandstands and enhanced by the creative adaptation measures of the Organizing Committee's department of "Visual Design", it was possible to transform the ice stadium into a real boxing arena.

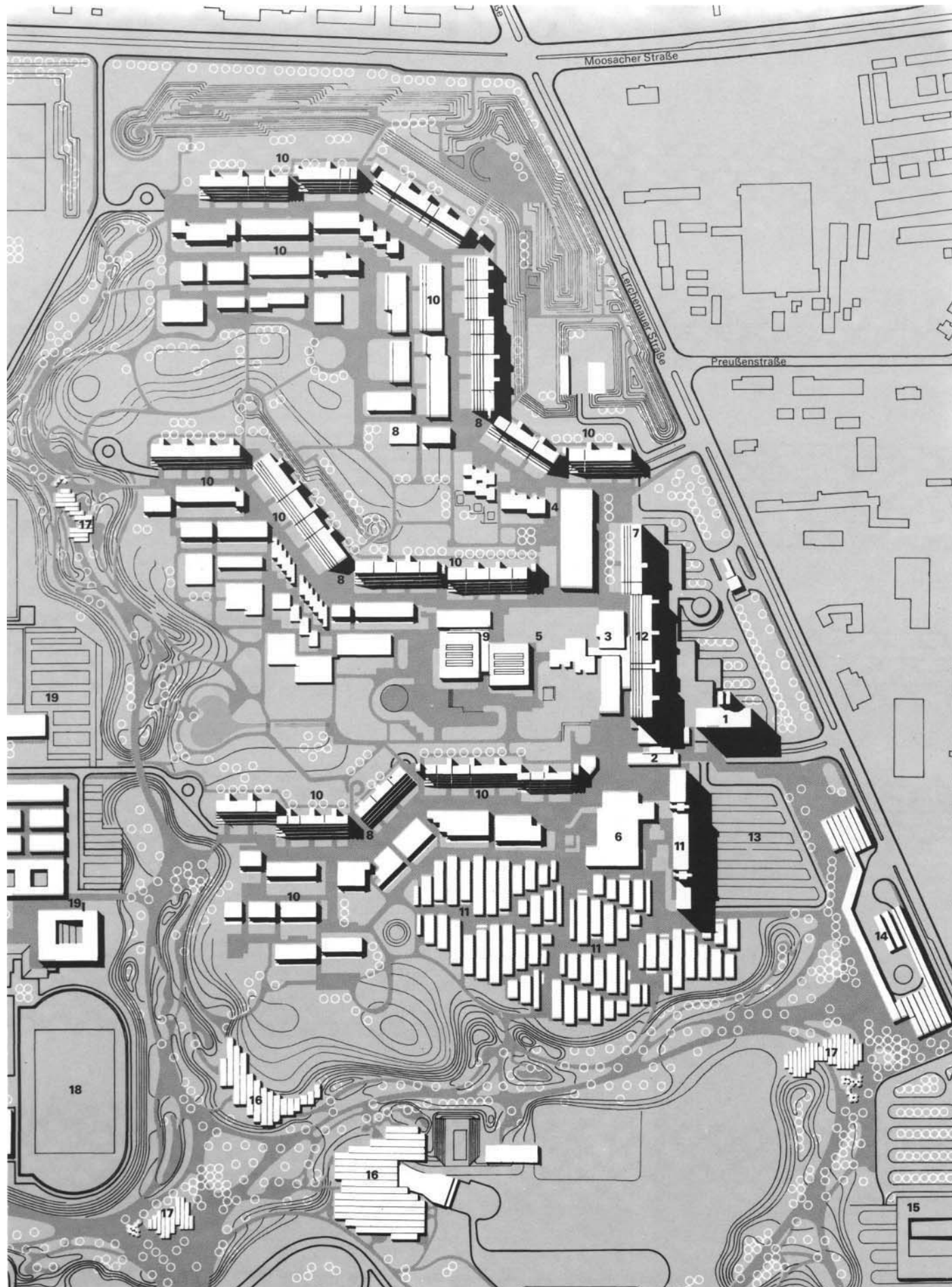


Olympic Village

Architects:
Heinle, Wischer and Associates,
Stuttgart/Munich
(Total Planning)
Ludwig, Wiegand, Zuleger, Munich

(Men's Olympic Village)
Eckert, and Wirsing, Munich
(Women's Olympic Village)
Heinle, Wischer and Associates

(Olympic Village Center, the School
and the Childrens' Day Care)
Christ and Karg, Munich
(Church and Community Center)
(Outdoor Facilities)
Miller and Luz, Stuttgart



Layout diagram

- 1 Administration Building
- 2 Contact Zone
- 3 Shopping Center
- 4 Church Center
- 5 Amusement Center
- 6 Cafeteria
- 7 Medical Center
- 8 Swimming pool and Sauna
- 9 Post Office
- 10 Men's Village
- 11 Women's Village
- 12 Hotel
- 13 Bus Station
- 14 Subway Station
- 15 BMW Parking Garage and Parking Lot
- 16 Restaurant
- 17 Kiosks
- 18 Athletics Training Camp
- 19 German Olympic Center (DOZ)