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Summary

Swimming Stadium in Rome
(pages 232—233)

The new stadium described here is situated near the old swimming pool of the Foro Italico. The competition pool, where water polo can also be played, measures 25 x 50 meters and has a depth of 1.60—2.00 meters. The diving pool has a surface area of 18 x 20 meters and a depth of 5 meters. The walls of both these pools are accessible under ground; from these underground passages it is possible to take shots from beneath for television. The two ramps have a total spectator capacity of 7,500. During the Olympic Games, supplementary galleries will be installed, permitting a grand total of 20,000 spectators. Beneath the ramps are: toilet facilities, offices, storerooms, rooms for referees and newspapermen, etc. A two-storey building, containing a sports arena, a restaurant and a purifying plant, separates the stadium from a large sports ground (open-air swimming pools and fields) for school children and small children. Engineer in charge: R. Morandi.

The Flaminio Stadium in Rome
(pages 234—236)

The stadium in question replaces the old "Stadio Nazionale" constructed in 1911. Although the area of the complex remains the same, the new stadium accommodates twice as many spectators, 55,000 in all. 8,500 spectators are accommodated in the grandstands, 9,800 on the ramps facing the grandstands, 30,700 on the sides. The seats are 48 cm. wide, some seats for the press and other officials are 60 cm. wide. The total area of each standing place is 40 x 50 cm. only. The approach roads for motor-cars, on the north side, lead visitors into a parking site, planned to accommodate 6,000 cars. A few other parking places are reserved for buses and private cars of athletes. Several floodlights mounted on metal towers in the vicinity of the stadium produce an average luminosity of 300 lux. The space beneath the ramps for the spectators is occupied by the cloakrooms, restaurants and bars, as well as 6 halls: a gymnasium measuring 30 x 14 m., a fencing hall 35 x 40 m., a field sports arena 18 x 16 m., a weight-lifting room 12 x 8 m. and finally a boxing arena measuring 18 x 16 meters. Each of these rooms has its own cloakrooms, waiting-rooms, toilet facilities, massaging rooms, offices, equipment rooms and others. The indoor swimming pool, 34 x 16 m., has an actual pool area of 25 x 10 meters. Along the sides are situated, here too, different secondary rooms (cloakrooms, showers, etc.). Underground passages permit observation of swimmers from underneath, through windows 50 x 50 cm. A gallery placed 3 meters above the surface of the water (with a width of 1.75 m.) permits spectators to watch the training of swimmers. Reinforced concrete frames (92) form the skeleton of the building. These frames are perfectly adapted to the different functions of the building, including the various rooms under the spectators' ramps. Most of the structural elements, e.g., the roof of the grandstands, the ramp terraces and others, are prefabricated.

Football Stadium in Barcelona
(pages 237—243)

It seems that football is more popular in Spain at the present time than bullfighting. Barcelona already possesses two huge football stadiums: Las Corts, with its 33,000 spectators on an area measuring 9,350 sq.m. and Chamartin with its 85,000 spectators on an area of 24,000 sq.m. And yet these two stadiums are already too small to meet the demand!

The new football stadium of the Barcelona Club has a capacity of more than 90,000; in the final stage it will accommodate more than 150,000 persons on an area of 42,000 sq.m. With these extraordinary dimensions the limits of the possible have been reached in the domain of football stadiums; if capacity were increased still more, the event would cease to be visible to the naked eye! Total length is 260 m., total width 225 m. The playing field measures 110 x 75 m. The distance between spectator and event varies between 53 m. and 200 m.! The field is sunken in relation to the entrance level (around 11.5 m. lower) so that the players are never distracted by the late-afternoon sun. The longitudinal axis of the field is at an angle of 29° with the north-south axis. Exact studies yielded the figure 24°, but the general character of the site does not permit this optimum angle.

Three different galleries are superimposed one on the other; a fourth will be added later on! The lower gallery, placed lower than the entrances is partly covered by the intermediate gallery. The covered part accommodates the seats, the open part space for standees. The second and third galleries are separated from each other by a wide lane. The second, i.e., intermediate, gallery contains seats, the third, or upper gallery has seats and space for standees. The seats and standing places are distributed as follows:

	Seats	Standees	Total
1st gallery	20,704	5,624	26,328
2nd gallery	33,449	—	33,449
3rd gallery	8,332	22,292	30,624
			90,401

The "banks" of seats are 80 cm. wide; of standing spaces 60 cm. In the lower parts of the galleries, places are arranged in blocks of from 25 to 27 seats. Every 8.5—11 m. a passage around 1 m. wide gives access to emergency exits. The seats have a width of 50 cm.

The stairways, corridors and exits of the lower galleries have a running width of around 1.5 m.; for each entrance approximately 350 persons. In the upper parts the exits have a width of 2 m. and 1.8 m.; for each exit approximately 555 persons.

There has been installed 1 WC for around 1,1000 spectators: in all, 92 toilets, ⅓ of which for ladies. In the last stage there will be in all, 257 toilets. The building contains in all 340 urinals and 275 toilets. The building contains, in addition to cloakrooms, several first aid posts, a gymnasium, an indoor swimming pool, a press conference room, rooms for radio, television, etc.

Aside from the roof of the grandstands, all parts of the building are constructed of reinforced concrete. The galleries constitute "beams" and possess expansion joints. The grandstand roof has an average length of 148 m. and a running width of 52 m. The trellis beams rest on reinforced pillars and are maintained by cables and jointed pillars.

Sports Arena at Ube (pages 244—249)

The arena in question has not been built for sports purposes alone; it serves also as a theatre, concert hall, cinema and for other similar functions.

The galleries contain around 3,000 fixed seats. By setting up a stage on the playing ground it is possible to add 5,000 movable seats, so that the arena finally has a seating capacity of 8,000. The acoustics are most favourable when the hall is full, i.e., when there are 8,000 seats. With 3,000 people only the echo effects are considerably increased. This is why tests are being conducted in which the ceiling is insulated with movable acoustic panels, according to need.

Air renewal (6 times per hour) is effected by visible ducts, placed on the ceiling. Air exhaust takes place beneath stage level. The combination of electric light pearswitches and tubular lamps has proved ideal for dramatic productions and concerts, but athletes find this type of lighting insufficient.

The metal construction in its general aspects relies on the traditional wood construction methods of Japan. The pillars, beams and parapets are very massive and create an effect of heaviness with their dimensions. It has to be admitted that this effect of heaviness is even more intense for the Japanese, who are generally of short stature. It would be interesting to know the motives underlying this "aesthetic crudeness" in a country like Japan. Only the prevalence of earthquakes can account for this interest in massive weight.

A stringer 70 m. long and 1.7 m. high frames the roof. For all construction details cf. the design sheet in this issue.

Palais de Glaces in Geneva
(pages 250—254)

This stadium is the principal building of the future sports centre of the City of Geneva. An open-air rink and an indoor swimming pool also form part of this sports centre, but they will be erected only later. The stadium in question will serve as an ice hockey rink and for other sporting events.

The dimensions of the utility surface are 40 m. by 70 m.; the stadium can accommodate 10,000 spectators (6,000 standees and 4,000 seats). The hall is constructed with one single span using steel beams. The latter are placed in part on steel pillars, in part on concrete pillars. This metal construction, which is most interesting, is described in detail on the design sheet in this issue. The other principal construction elements of this building are of reinforced concrete.

The hall is completely air-conditioned. Installations, construction and passageways are simple and very neatly worked out. The skaters have access to the ice via the basement level where the cloakrooms are located. The cloakrooms for the hockey players are placed on the other side and exactly at the same level as the rink, whereas the skaters' cloakrooms are situated on a slightly higher level. Above the latter are situated the public entrances, distributed all along the hall.

The general functional principle underlying this stadium accounts for the varying widths of the spectators' galleries: on the entrance side, wider, on the other sides, narrower, hence the asymmetrical section of the whole complex.

Sports Arena and National Youth Centre in London (pages 255—258)

This centre is dedicated to the promotion of English amateur sports. It is on the same site as Paxton's Crystal Palace, destroyed by fire in 1936. This centre will be the focus of sport in England. Coaches, athletes and trainers will find here everything they need. The centre will also serve private athletic associations, special events, public functions, exhibitions, and will provide facilities for foreign teams, etc. The grounds have a total area of 14.5 ha. There are located in one single hall the following: gymnasium, sports arena, training halls, swimming pool with cloakrooms and galleries for 1.700 spectators. Pool for swimming meets and a training pool are planned.

Movable galleries in the large sports arena permit the installation of 1,320 seats. The building also contains training rooms for cricket and tennis, a meeting room, a first aid post, various cloakrooms for inside and outside as well as a bar and a press conference room.

The public access is via a bridge leading over the playing area (high jump, 140 yd. dash, etc.).

The arena is surrounded on the outside by different playing fields. The stadium with cinder track and the rugby and football field constitute the focus of these various fields. The galleries and ramps permit an attendance of 12,000. The cinder track has 7 different lanes. The track in front of the grandstands for dashes and obstacle races has 9 different lanes. Note also the cricket grounds, hockey field, basketball courts, rugby and football fields and tennis courts.

A point-house, 11 stories high, on the north-west side, contains 46 single rooms and 46 double rooms and thus furnishes accommodations for visiting teams. A 2-storey annex houses the community centre, dining-rooms, kitchens, etc. Personnel flats are situated in 5 additional buildings of varying heights.

Hubert Bennett and his associates Leslie Martin, F. G. West, D. C. Jenkin, M. Kenchington, N. Engleback, M. G. Attenborough and B. G. Jones are the creators of this sports centre. Client: the London County Council.

Primary School in a Neighbourhood Centre (pages 259—264)

This school of the Municipality of Solothurn, intended for the lower grades (classes 1—4), is likewise intended to serve various neighbourhood functions. Thus, e.g., the gymnasium, which can also be used as an assembly hall, etc. The classrooms and recess yards are used every year for holding a neighbourhood fair. The recess yards are particularly practical from this point of view, for they are partly covered by the roofs of the classrooms. The north part of the recess yard is separated from the south part by a part of the ground floor. But, thanks to the completely glassed partitions, an optical unity of the two yards has been achieved. Only the walls of the WC, on the ground floor, are not transparent. The difference of level between the road on the north and the road on the south is 2.7 m. The recreation area is located between the two. This surface is enclosed on the side of the street by a ramp (with seats), on the west side by the gymnasium and on the east side by an old building and large trees. This arrangement creates a very agreeable area. On the south side it is open throughout its width to the light.

This spatial variety permits the child the maximum movement. Four possibilities are given him of reaching the same destination, the school. Two different ways lead to the recreation area by different stairways and doors; the child can choose. The building imposes no set patterns on internal movements. Thus, the boys' and the girls' WCs can be reached either from one hall or from the other; between these two types of WC are arranged the teachers' rooms and equipment rooms. The teachers can also reach their room either by the south side or the north. Supervision of the recreation area is rendered practically superfluous, since the teachers, from their room, command a view over the whole yard without for all that being observed by the pupils, thanks to a fine-mesh curtain.

A stairway leading to the upper floor brings us up to a concrete partition decorated with a mural composition of tiles by Heinz Schwarz, Geneva. This partition conceals the cupboards and equipment room.

Four classrooms are situated on the south side, four others on the north. All the rooms are glassed, the panes being more than 1 m. high. The lighting conditions are much better on the north than on the south, although it has been sought to improve the latter by means of special blinds. Moreover, the classrooms on the north side are clearly less heated by the sun than the classrooms on the south. All the teachers of this school, too, prefer the north rooms. Nevertheless, one condition is absolutely necessary for such an exposure: the higher windows on the south side!

The classrooms are glassed down to floor level over the exterior elevation. Therefore there are no parapets, and adults find this state of affairs most unusual. The children of this school, however, have taken it in their stride from the very first day!

The method of construction of this school is very clearly conceived and logical. Likewise for the gymnasium. The separating partitions of the classrooms are supporting elements, thus shifting the thrust from above on to the pillars of the ground floor. The floors and ceilings are ribbed and carried by the separating partitions. The floor and the ceiling of the upper corridor are of solid reinforced concrete and form a unit with the separating partitions. The horizontal forces are taken up by the stairwells and the WC partitions on the ground floor.

A stringer of one single span covers the gymnasium. The front partitions of the hall complete the static system. Ceiling: ribbed slab 45 cm. high.

All the ducts are sealed into the slabs and partitions with concrete. Heating: coils in the ceilings. Supplementary coils in the floor of the classrooms to avoid losses of heat toward the ground floor. The gymnasium also has floor heating. Supplementary heating is possible in connection with the ventilation system.

Between the classrooms and the corridor there are located cupboards and upper windows. Various highly interesting construction details are illustrated on the design sheets in this issue. Note finally the exceptional acoustic quality of this primary school in Solothurn.