Montréal 1976

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Games of the XXI Olympiad **Montréal 1976**

Official Report

Volume II
Facilities

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Introduction

The Olympic Games in Athens in 1896 marked the revival of a tradition that had lain in obscurity for more than 1,500 years. But these Games of the First Olympiad of the Modern Era saw not only the rebirth of the Olympic ideal, but also of architecture which aspired to that ideal. Since that time, the Games have left a proud and visible legacy in cities all over the world, in the form of dynamic new structures and multi-faceted civic improvements occasioned by the Games.

Montréal was no exception. Lacking a facility capable of meeting the criteria required of the Olympic Stadium, Montréal created a structure that may be the most striking and innovative of all the Olympic stadiums to date, incorporating as it does the Olympic Pool and uniting with the Olympic Velodrome in one sweeping, stunning unit.

Besides the pride of new architecture, the Games traditionally leave the host city — and often surrounding cities — with a rich inheritance in terms of increased sports facilities and related improvements. Thus the benefit of hosting the Olympic Games lies not only in heightened awareness of the value of amateur sport and physical achievement, but in considerably increased facilities for the practice and enjoyment of sports by the general public and the youth of the country.

For, as was the case in Montréal, it is not only the youth of the host city who benefit from this material aftermath. The recent trend toward a certain decentralization of Olympic effort and impact was particularly beneficial to Canada, where large distances between major points are commonplace. After the closing ceremony of the 1976 Games, not only the people of Montréal but also of Joliette, Sherbrooke, Kingston, Toronto, and a number of smaller centres, all benefited from either new or vastly improved sports facilities.

The 1976 Olympic Games took place along an axis some 800 km in length, skirting Lake Ontario and running eastward along the shore of the St. Lawrence River. Exemplifying the dual culture of Canada, this axis has at its western end Toronto, Canada's largest English-speaking city and the capital of the Province of Ontario. At the eastern extremity lies Québec, capital of the province of that name and the cradle of French civilization in North America.

In the centre lies Montréal, the metropolis of Canada and the vibrant meeting place of both cultures. Montréal is situated on an island at the confluence of the St. Lawrence and Ottawa Rivers, in the centre of a vast plain stretching from the Laurentian foothills to the north and the Notre Dame Mountains to the south.

Although over 1,000 km inland from the Atlantic Ocean, Montréal is one of the largest ports in Canada and, situated at the mouth of the St. Lawrence Seaway, serves as the gateway to the northern part of the continent.

Thanks to the farsightedness of various civic administrations, Montréal is well served with sports and athletic installations, including some 50 public swimming pools, a variety of recreational centres and fields for athletics and team sports, without counting the many sports centres belonging to colleges and universities. In addition to these sports facilities, work undertaken for the 1967 World Exhibition (Expo 67) left a vastly improved network of expressways as well as new hotels and residences to accommodate Olympic visitors.

As with other cities that have hosted the Games, preparations for the event influenced urban planning and development throughout the preceding years. The metro (subway) system was extended by 20 kilometres, including a direct service to the Olympic Park; new roads, hotels, and residences were constructed, parking lots were improved, an Olympic road sign system installed and much of the city decorated and landscaped.

Without the Games, it is unlikely that Maisonneuve Park would consist of much more than its two previously existing structures, the Maisonneuve Sports Centre (which was later renamed the Pierre Charbonneau Centre) and the Maurice Richard Arena. Instead, it is known today as Olympic Park, the site of a vast, sophisticated complex that meets a variety of social needs in the area, both related and unrelated to sports.

Similarly, the Olympic Village today is a striking conglomeration of modern apartment buildings, located next to the Botanical Garden and the Municipal Golf Course and rapidly accessible from downtown thanks to the new metro stations nearby.

Elsewhere in Montréal, three major new sports installations were created on the occasion of the Olympics. Two of them, the Claude Robillard and Étienne Desmarteau Centres, contain facilities for the practice of a wide variety of sports and have been enthusiastically welcomed in their respective communities where they fill many needs. The third, the Olympic Basin, located on the site of the Expo 67 islands in the St. Lawrence River, is minutes from downtown by metro, and gives Montrealers an outstanding canoeing and rowing facility in summer and a place for cross country skiing and skating in winter.

Furthermore, following a municipal policy to make the most of existing, facilities, many universities, colleges, high schools, public swimming pools, sports centres, and parks were improved by renovation and the installation of modern equipment. Many surrounding communities benefited equally by means of this policy.

One trend of recent Olympics was observed with interest by Montréal organizers: that of scheduling certain sports in centres other than the host city. Bearing in mind the geography of Canada (Vancouver is as far away from Montréal as is Paris), organizers welcomed the opportunity to spread Olympic activity among as large a section of the Canadian public as possible. This would help to spread the Olympic ideal among Canadians, in turn fostering an increased awareness of the value of amateur sports. It also made possible a greater use of existing facilities in the other cities, in turn leaving them with these facilities vastly improved.

The vast scope and complexity of the Olympic installations called for planning and conceptual skills of the highest order to ensure that they be satisfactorily integrated with each urban or natural setting. To this end, teams of urban planners, architects, landscape architects, engineers, and consultants were retained to conceive and execute the construction or renovation of the necessary structures, calling in turn upon developers, subcontractors, builders and suppliers of all types.

This huge undertaking necessitated intricate coordination in order to meet the diverse requirements of each site and to accommodate a wide variety of restrictions. First, the competition requirements of each sport imposed varying physical restrictions at each site. Second, the non-competition requirements — such as the provision of standard lighting and communication facilities, services for spectators, VIPs, and the press — imposed further limitations and, finally, all had to be accomplished to a severe and inflexible schedule. (In the case of the Olympic Village, for example, only 14 months passed between the start of work and the handing over of the completed structure to COJO).

The complexity of the work is summarized in the objectives which guided the host city. They were:

a) to accommodate the requirements of the individual sports federations and the International Olympic Committee (IOC) with regard to the competitions;

b) through construction of new facilities and modification of existing ones, to accommodate the needs of the twenty-one sports on the program, including maintenance services and the provision of modern equipment;

c) to accommodate the needs of athletes, spectators, journalists, broadcast commentators and technicians, film cameramen, and still photographers; and

d) to ensure maximum utilization of Olympic facilities both during the Games and after.

The Construction Directorate of COJO also had to organize management of operations at each site for both training and competition. This called for a system of operations that brought together both Construction and Technological Services. The team concerned had to ensure the maintenance and perfect operation of all equipment and was also responsible for adapting sites to different sports when required, as in the case of the Forum where competition was held in five sports in rapid succession.

Throughout the development of the Olympic facilities, planners and builders, who faced unprecedented obstacles, resorted to the most modern technology in order to overcome them. In several instances, the construction or improvement of facilities was marked by technical innovation: new materials were used and methods of fabrication and assembly were frequently revolutionary, as in the case of the Olympic Stadium-Pool-Velodrome complex.

Throughout this period of planning and construction for the Games, and particularly in connection with the Olympic Stadium, there were many lengthy debates, often bitter criticism, but also encouraging praise. Despite a negative attitude in some quarters, the organization of the Games was nonetheless completed in time.

It almost goes without saying that the many services of COJO were called upon to analyze a wide variety of problems before a plan of action could be established. And it is a source of great satisfaction that time and experience ultimately vindicated the many points of view put forward then.

Those outside COJO who contributed to the construction program also maintained a constantly critical attitude to their work. It is hoped that this volume, dealing with the construction and renovation of facilities, will help to make this experience available to all interested parties, particularly those who, in the future, will take up the Olympic challenge.

This volume, therefore, the second of three comprising the Official Report of the Games of the XXI Olympiad, will serve as a documentary reference concerning all technical and functional aspects of the Olympic facilities. Illustrations consist not only of plans and technical drawings but also of photographs recreating the environment and atmosphere of the Games.

The volume consists of four chapters.

The first chapter presents a general summary indicating the scope of the work involved. It also lists the division of responsibilities and ends with a complete chronology of Olympic construction.

The following three chapters describe in detail the work undertaken at each site, whether for training or actual competition, for lodging or for general administration. This information is presented in successive chapters which group installations as follows: the Olympic City; Montréal area installations; outside Montréal installations.

An appendix lists all companies participating in the construction of the facilities.

As in the case of other Olympic host cities, the construction and improvements undertaken for the Games will bear witness to the Olympic ideal in Montréal for many generations to come. Throughout the city, these new or renovated structures continually recall the summer of 1976.

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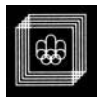
Abbreviations and Symbols

	AT	Athletics
	AV	Rowing
	BB	Basketball
	BO	Boxing
	CA	Canoeing
	CY	Cycling
	ES	Fencing
	FB	Football
	GY	Gymnastics
	HA	Weightlifting

	HB	Handball
	HO	Hockey
	JU	Judo
	LU	Wrestling
	NA	Swimming
	PM	Modern pentathlon
	SE	Equestrian sports
	TI	Shooting
	TA	Archery
	VB	Volleyball
	YA	Yachting

	CO	Opening ceremony
	CC	Closing ceremony
	VO	Olympic Village

The Project in General

1

Scope of Installations

From the initial submission of its candidacy to host the Games of the XXI Olympiad, the City of Montréal was determined to make the maximum use of existing facilities for the Olympics, through a program of improvements, and to limit the construction of new buildings and structures.

Faithful to the initial concept put forward by the Montréal authorities to the IOC, the Olympic City grouped together in one location the majority of new construction for the Games. This consisted notably of the Olympic Stadium, the Olympic Pool and the Olympic Velodrome — all three of which were architecturally integrated into one stunning unit — and the Olympic Village. The concept was indeed to prove worthy of the Games, featuring the imaginative use of green space and a type of architecture in harmony with the character of Montréal.

The site of the Olympic City was Maisonneuve Park, an area northeast of the downtown core which had been earmarked for recreational use as early as 1912. For many years, Montréal had envisaged the construction of a large stadium there to serve, among other things, the pressing needs of the major North American professional sports clubs in the city. Prior to the 1976 Games, a number of sports facilities already existed on the 46-hectare site, including the Maurice Richard Arena, the Maisonneuve Sports Centre (renamed Pierre Charbonneau Centre in 1976), and an outdoor field for athletics and team sports.

After a complete inventory of facilities available throughout greater Montréal for the Games, municipal authorities decided to expend the majority of its budget for new construction on the Olympic City site.

Located five kilometres from the downtown business section, the Olympic City is readily accessible by roads and public bus lines, and, for the 1976 Games, the city accelerated extension of the east-west metro (subway) line to serve the site with two stations. The complex is separated from the neighboring residential areas by the Montréal Botanical Garden and the Municipal Golf Course.

More than five years of work, from the spring of 1971 to the summer of 1976, were needed to plan and construct the stadium, pool, velodrome and the Olympic Village. Construction actually started in the summer of 1973, and the huge project was completed in remarkably short time, despite the unprecedented nature and scope of the operation and the rigors of Canadian winter.

The Olympic Park became the centrepiece of the Montréal Games. At the heart of it lay the Olympic Stadium, a colossal, shell-like, cantilevered structure, the most striking feature of which was a column-free, elliptical roof. All around it, the park was distinguished principally by the judicious use of space and landscaping which linked the stadium, the pool, the velodrome and the two previously existing structures with walkways and playing fields in one homogeneous entity.

The Village, located just at the north end of the Olympic City in an almost country-like setting, consists of two 19-story buildings in the shape of pyramids, offering a total of 980 apartments surrounded by terraces.

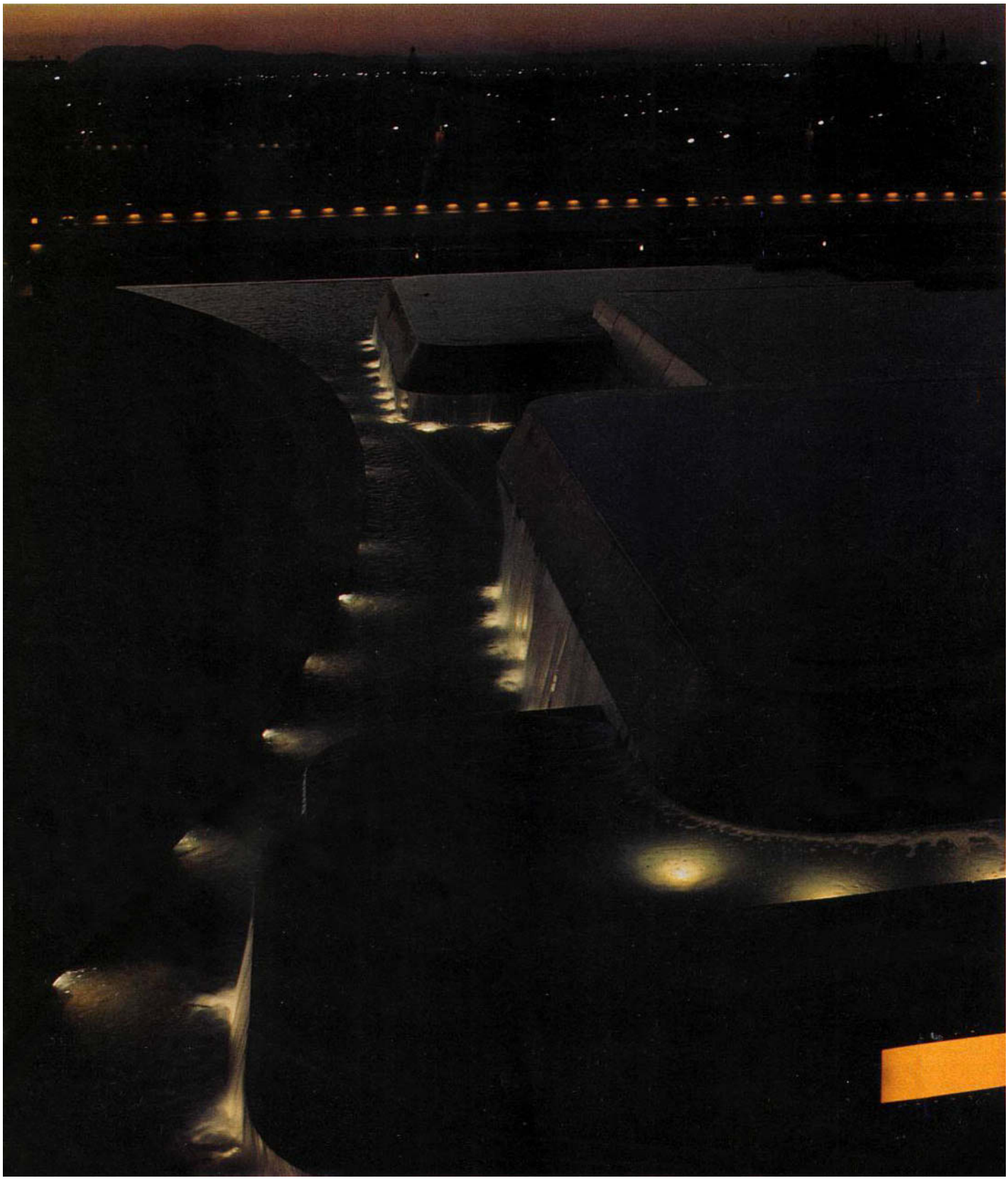
All athletes were housed in the Olympic Village, with the exception of those participating in yachting and equestrian events.

New construction included three major new facilities outside of the Olympic Park.

Of these, the Étienne Desmarteau Centre was already in the planning process and work was accelerated so that it would also serve as an Olympic competition and training site. The Claude Robillard Centre similarly was located in an area which had needed such a facility for some time. The third new installation, the Olympic Basin, countered the almost total lack of competition facilities for rowing and canoeing within the city. Located on one of the 1967 World Exhibition islands in the St. Lawrence River just minutes from downtown, the basin is one of the most complete and accessible centres of its type in the world.

Following the policy of making the utmost use of existing facilities, COJO selected numerous sports centres, stadiums, playing fields, gymnasiums and buildings throughout greater Montréal as competition and training sites, or for administration and communications services. Some belonged to the City of Montréal, others were privately owned, and still others belonged to educational institutions.

The majority were located within a 10-kilometre radius of the Olympic Park. At each location COJO made renovations, transformed them, if necessary, to meet the needs of the



international sports federations and the dictates of modern technology, and installed the required equipment.

Because most of these buildings had been originally designed for the practice of sports rather than accommodation of spectators, they were often equipped with minimal seating and related facilities. Much of the renovation work at such sites, therefore, centered around the provision of temporary stands and services such as improved air conditioning.

The finals of most events were scheduled for sites which could accommodate a variety of events as well as large numbers of spectators.

Another modification common to virtually all sites was the improvement of lighting systems to meet the color broadcast requirements of the Olympics Radio and Television Organization (ORTO) as well as the dictates of the sports federations concerned.

Accommodation of spectators was not a major consideration in the selection of training sites for the Games. Such sites were chosen largely because of the nature of the facility, its availability, and its location vis-a-vis the Olympic City.

Other major planning and renovation centered around the provision of administration and technical services to ensure the smooth running of the athletic facilities.

In its search for a head office, COJO settled upon the Old Court House in the old sector of Montréal, a provincially-owned building that was bought by the city and totally renovated for the Games. Other quarters nearby were rented to handle essential services during the period of greatest activity since the Old Court House could accommodate only about 500 people.

Because of their ephemeral nature, the main press centre and ORTO headquarters were located in office buildings in which suitable space was rented and modifications made. Communication links between the various competition sites and the press and ORTO centres required an enormous amount of cable installation, work unperceived by the public but representing yet another aspect of the vast amount of construction and installations required for trouble-free staging of the Games.

Eight cities and towns outside Montréal hosted Olympic events. In each case, existing facilities were improved or renovated to meet Olympic needs.

In the case of shooting, competitions were held at a private club in L'Acadie, 45 km southeast of Montréal. Though originally equipped mostly for American-style trap shooting, the site was easily modified and offered outstanding conditions for competitive shooting, such as shelter from wind, ranges facing north against a wooded backdrop and ample space for the installation of temporary facilities.

The Joliette Archery Club, 62 km north of Montréal, was similarly chosen for its expansion potential and also for the popularity of this sport in the area. The club benefited greatly from the Olympic installations which turned it into one of the best equipped and most attractive archery sites in the country.

The City of Bromont, situated 72 km east of Montréal along a high-speed autoroute and well known as an equestrian, golf, and skiing centre, became the site of all equestrian sports events with the exception of the Grand Prix team jumping finals which took place in the Olympic Stadium. At Bromont, fields for dressage and jumping were installed in a large, natural amphitheatre, and the Three-Day Event jumping courses laid out on existing trails which were modified to provide uniform footing. Stables and other related facilities were erected close to the main competition fields and temporary stands built. Living quarters for competitors were constructed nearby and transformed after the Games into low-cost housing units.

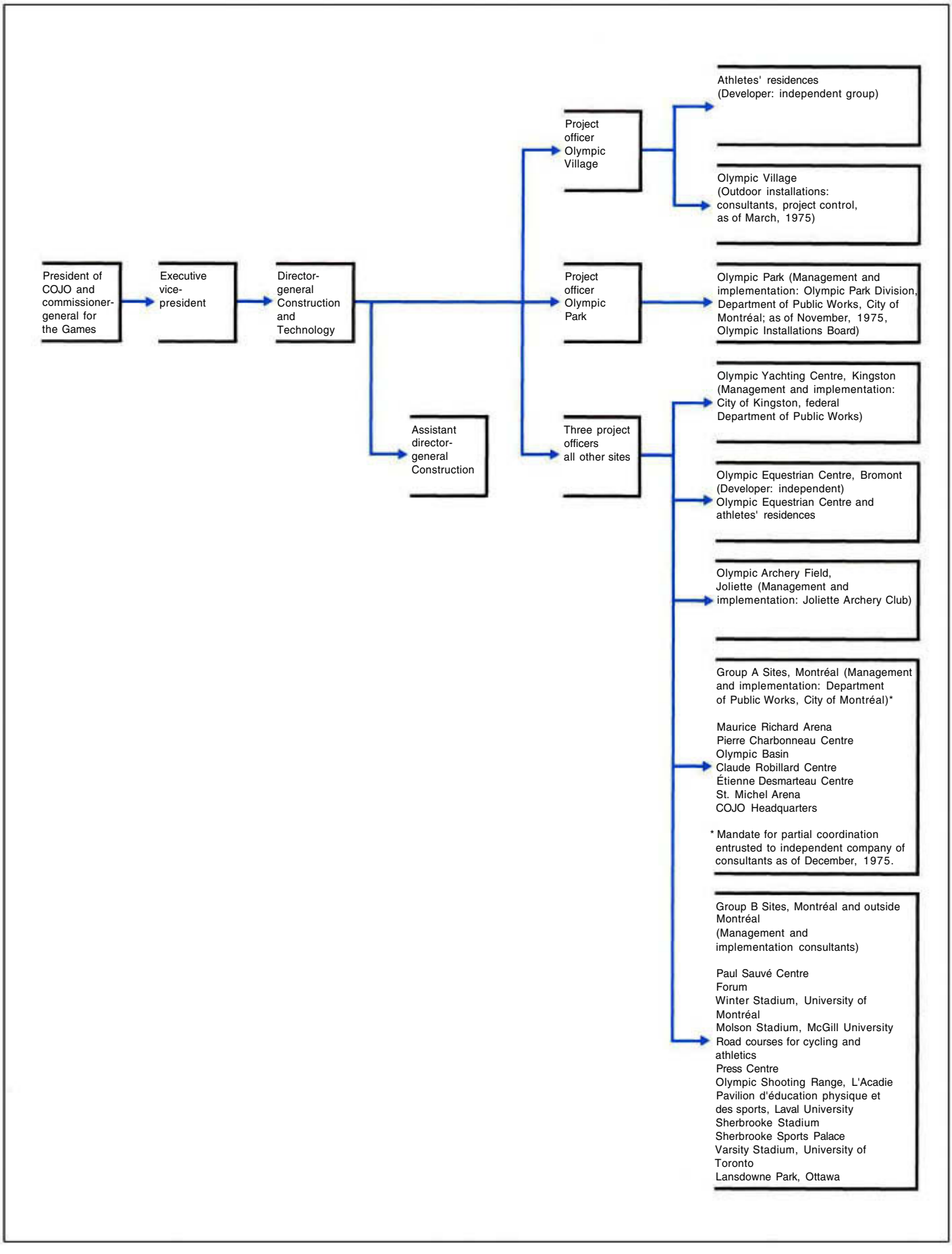
Football and handball preliminaries were both spread out over a relatively large area of the country. Football competitions were held in the principal stadiums of Toronto and Ottawa and in a newly-created stadium at Sherbrooke, 110 km east of Montréal. Handball competitions were also held in Sherbrooke, at the municipal Sports Palace, and in Québec at the University of Laval.

At nearly all sites, construction consisted of improving playing fields, modernizing services and circulation routes, and improving lighting and sound systems.

Yachting events, which took place at Kingston, some 290 km west of Montréal, called for the additional provision of residences and services for the athletes. Despite the distance from the host city, however, Kingston provides some of the best wind and water conditions for Olympic sailing. Portsmouth Harbour, a partially disused commercial port, was transformed into a modern sailing centre for the Games, with the aid of the federal and Ontario governments, and remains as one of Canada's most popular and best equipped centres of its kind.

In summary, the huge undertaking by COJO, which started in 1970 and came to a climax in July, 1976, put a large number of first class sports facilities at the disposal of young Canadians. Amateur sport today in Canada is more active and promising than at any previous time and the provision of these new sports fields and centres, along with the many renovations to existing facilities, has been a major contributing factor.

Organization chart of the Construction Directorate
Stages I and II: planning and implementation



Chronology of construction activity

December 4, 1969

Mayor Jean Drapeau makes an official bid to stage the 1976 Olympic Games in the City of Montréal. The city undertakes to construct all facilities needed for the Games.

May 12, 1970

Avery Brundage, president of the International Olympic Committee (IOC), announces at the committee's 69th general assembly in Amsterdam that the honor and responsibility of staging the Games of the XXI Olympiad, between July 17 and August 1, 1976, goes to the City of Montréal. This signals the start of a massive construction program, which includes the Olympic Stadium, the Olympic Pool, the Olympic Velodrome, the Olympic Basin, the Claude Robillard Centre, the Étienne Desmarteau Centre and the Olympic Village.

Model of the Olympic Park unveiled to the public on July 17, 1974.

April 6, 1972

At an international press conference, the City of Montréal presents a film showing plans, sketches and the first models of the Olympic Stadium, the Olympic Pool and the Olympic Velodrome, as prepared by Roger Taillibert, France's chief architect of public buildings and national monuments. Taillibert had been engaged to design and supervise construction of these facilities in Olympic Park.

February 3, 1973

COJO produces the first master schedule for the construction of Olympic facilities.

March, 1973

The City of Montréal undertakes renovations to the Old Court House, which is to become administrative headquarters for COJO.

March 16, 1973

The executive committee of the City of Montréal approves the creation of a new Olympic Park division within the Department of Public Works, to deal exclusively with all Olympic construction and installations in Maisonneuve Park.

April 28, 1973

Excavations begin at Olympic Park.

June 14, 1973

Montréal City Council confirms that a single Olympic Village will be constructed on the grounds of the Municipal Golf Course in Maisonneuve Park, the location proposed by the city in its presentation to the IOC in 1969.

August 24, 1973

The executive committee of the City of Montréal authorizes the budget for the installation of facilities in the Jacques Viger building, to serve as offices for the Olympic Park Division and the Control Committee of the Olympic Games (CCJO).

August 27, 1973

Construction of the Olympic Velodrome begins.

August 31, 1973

Formal agreement is reached between the City of Montréal and COJO outlining the responsibilities of both parties concerning construction of Olympic facilities. COJO informs the city of its needs for the Games. The city undertakes to provide all essential facilities as set out in its submission, to rent administrative premises that lie within its jurisdiction for use by COJO and to rent or construct all sports facilities needed for the Games.

September 15, 1973

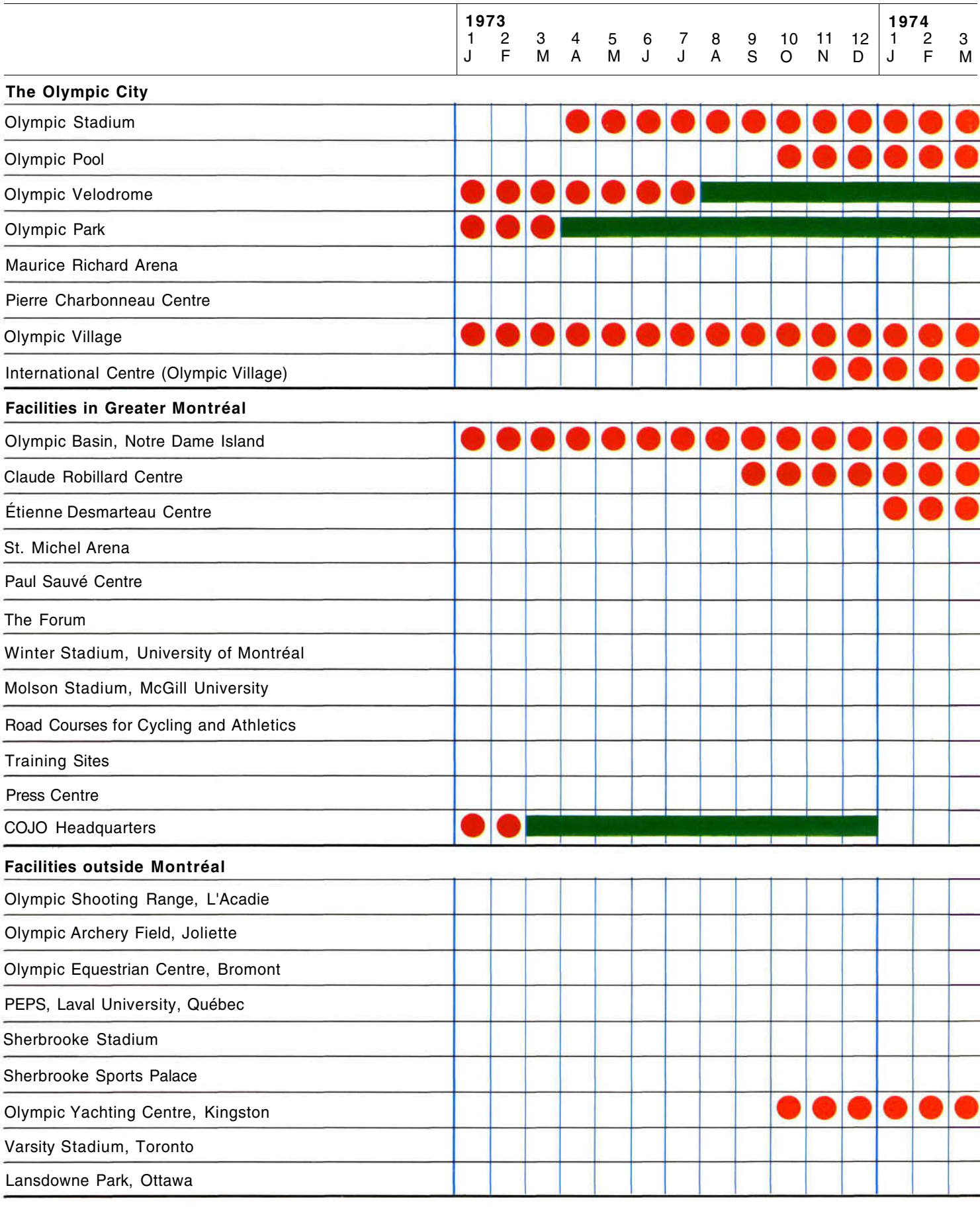
Preliminary excavation work at Olympic Park is progressing well. The task of removing 2.1 million cubic metres of earth is more than half completed.

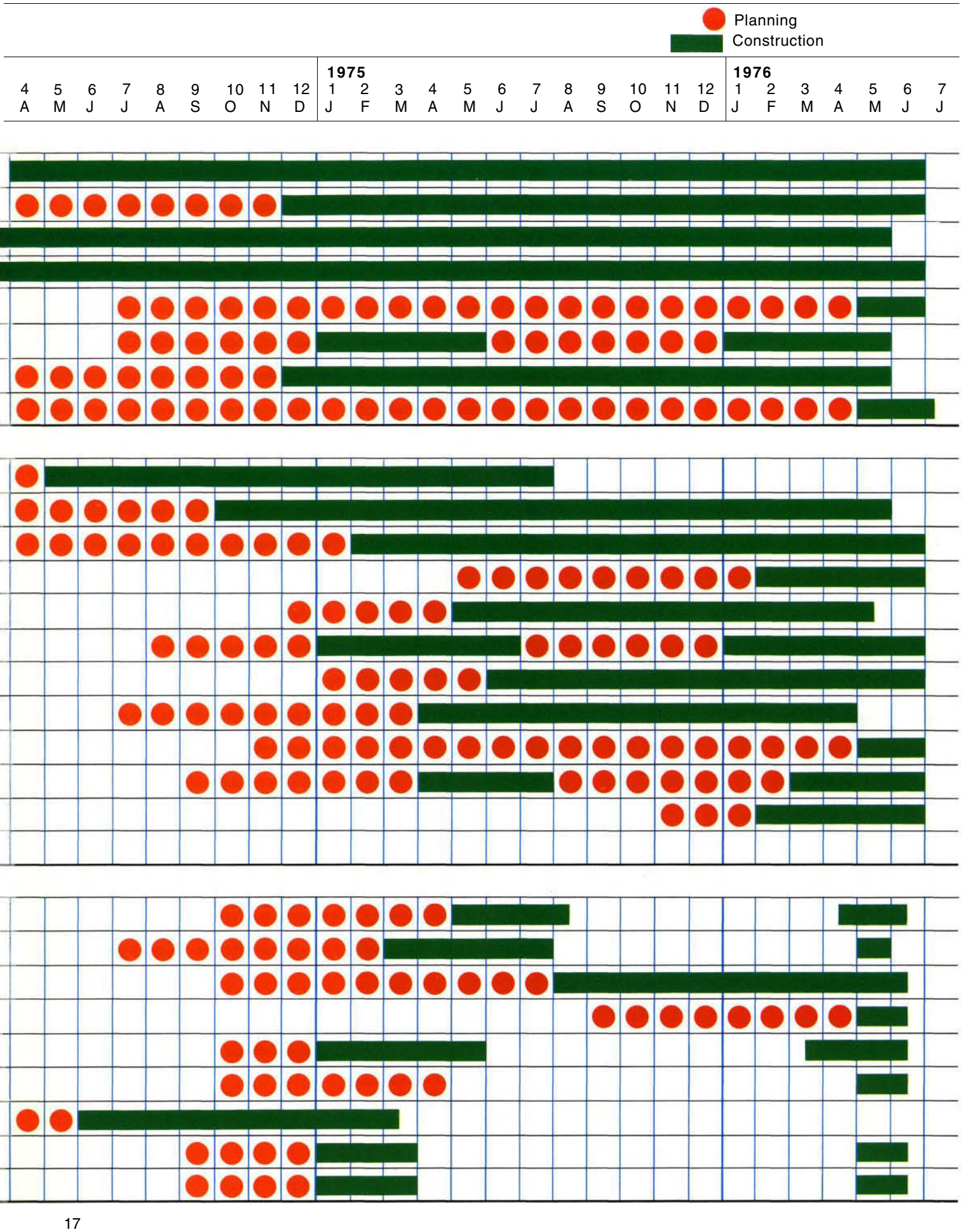
October 5, 1973

His Excellency Roger Rousseau, president of COJO and commissioner-general of the 1976 Olympic Games, reports progress on construction and organization for the Games at the 74th IOC congress at Varna.

The Olympic Park, six months after the start of excavation work. In the background are the Maisonneuve Sports Centre (left), which was to be renamed the Pierre Charbonneau Centre just before the Games, and the Maurice Richard Arena.

Construction Calendar

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November 10, 1973

COJO's Construction Directorate is formed.

March 1, 1974

Final date for submission of tenders for construction of the Olympic Village.

April 3, 1974

Contracts are awarded for the construction of the main sewer and water conduits at Olympic Park.

April 30, 1974

Montréal Public Works Department reports to COJO concerning progress on the stadium-pool complex as follows:

stadium

general excavation	98%
individual sounding and support studies	95%

pool

general excavation	100%
individual sounding and support studies	90%

tower

general excavation	98%
individual sounding and support studies	90%

May 7, 1974

The executive committee of the City of Montréal authorizes the *division Technique de l'architecture* of the Department of Public Works to proceed with working drawings and cost accounts for construction of the Étienne Desmarteau Centre.

May 21, 1974

Construction of the Olympic Basin on Notre Dame Island begins.

May 29, 1974

The first task force combining representatives of COJO and the City of Montréal is formed to coordinate construction programs.

June 10, 1974

Dredging and construction of harbor facilities in Kingston, Ontario, for the Olympic Yachting Centre, is undertaken by the federal Ministry of Public Works.

The Olympic Velodrome in June, 1974. Approximately 60 percent of the prefabricated voussoirs are in place on the scaffolding.

June 28, 1974

The "pyramid" proposal for the Olympic Village is approved.

June 29, 1974

The executive committee of the City of Montréal authorizes the Technical Division — Parks Development of the Department of Public Works to proceed with working drawings and cost accounts for construction of buildings at the Olympic Basin.

July 9, 1974

Joliette is selected as the official site for Olympic archery competitions; the existing archery field is to be used as a training area and a new permanent competition field to be installed adjacent to the old one.

July 17, 1974

James Worrall, IOC member in Canada and member of COJO's board of directors, unveils the final model of Olympic Park.

July 24, 1974

The executive committee of the City of Montréal authorizes the *division Technique de l'architecture* of the Department of Public Works to proceed with working drawings and cost accounts for construction of the Claude Robillard Centre.

July 26, 1974

At a meeting of COJO's board of directors, changes are made to the formal agreement between the City of Montréal and COJO.

According to the revised agreement, COJO officially assumes responsibility for the preparation of all competition and training sites not belonging to the City of Montréal: the Olympic Archery Field in Joliette, the Olympic Shooting Range in L'Acadie, the Sports Palace in Sherbrooke, the *Pavilion d'éducation physique et des sports* at Laval University in Québec, Lansdowne Park in Ottawa, Varsity Stadium in Toronto, the Olympic Equestrian Centre in Bromont, the Fairview Circuit, the Forum, the Paul Sauvé Centre, the Winter Stadium of the University of Montréal, Molson Stadium at McGill University, and sections of the marathon route located in the Town of Mount Royal, Montréal North and Outremont.

The City of Montréal continues to assume responsibility for the following competition sites: the Maurice Richard Arena, the St. Michel Arena, the Claude Robillard Centre, the Maisonneuve Sports Centre, the Étienne Desmarteau Centre, the Olympic Basin, the Mount Royal Circuit, the Olympic Pool, the Olympic Stadium, the Olympic Velodrome and Olympic Village, as well as sections of the marathon route located within the city limits.

The Olympic Yachting Centre in Kingston remains the responsibility of the City of Kingston. The Olympic Archery Field in Joliette and the Olympic Equestrian Centre in Bromont are to be the joint responsibility of the respective municipalities and organizations.

July 27, 1974

COJO engages a firm of consultants to take charge of management, cost and quality control, and work schedules for construction of all facilities formerly under the jurisdiction of the City of Montréal and now the responsibility of COJO.

August 5, 1 974

Construction work starts on foundations for the Olympic Stadium.

September 13, 1974

The contract is ratified between COJO and the Canadian Broadcasting Corporation (CBC), for the establishment of the Olympics Radio and Television Organization (ORTO). Among other things, this contract calls for the laying of 1.5 million metres of cable for the broadcasting of Olympic events.

October 1, 1974

A formal agreement is reached between the City of Montréal and a private company for the prefabrication of structural elements for the Olympic Stadium. To ensure that production will keep pace with construction work at the site, the company agrees to enlarge its plant by some 6,700 square metres.

October 22, 1974

The COJO report delivered at the IOC's 75th congress in Vienna is given unanimous approval. This 700-page document details the latest developments in the construction and renovation of sports facilities for the 1976 Games, in keeping with the requirements of the IOC and the international sports federations.

According to this report, all competition sites are to be ready by April, 1976, and all technical equipment is to be installed, tested and synchronized by the beginning of June, 1976.

Appendices to the report, containing graphs, photographs and charts, give a detailed analysis of the construction and organization program for the Olympic Games.

October 25, 1974

Construction of the Claude Robillard Centre begins.

November 19, 1974

Construction of buildings at the Olympic Basin begins.

November 22, 1974

COJO officially assumes responsibility for construction of the Olympic Village.

November 24, 1974

Construction of the 34 consoles for the Olympic Stadium is at the following stage:

excavation and protective lining of juncture chambers	100%
concreting of juncture chambers	94%
console footing	50%
console grid slabbing	40%
console posting	38%

November 25, 1974

Structural steel workers at the Olympic Stadium go out on strike.

November 30, 1974

Sod is turned to mark the start of excavation for the Olympic Village.

December 17, 1974

A formal agreement is reached between COJO and the City of Sherbrooke regarding the preparation of facilities for preliminary football and handball competitions: work on the aqueduct and drainage systems is to begin in January, 1975; the levelling and sodding of the football field is to be undertaken during the summer of 1975 and work on the Sports Palace is to get underway on May 1, 1976.

Sod-turning ceremony at the Olympic Village on November 30, 1974. From left to right: Yvan Dubois, director-general of the Olympic Village; Jean Drapeau, mayor of Montréal; Roger Rousseau, president of COJO; Simon St. Pierre, executive vice-president of COJO.

Work progress at the Olympic Park. From top to bottom: October 4, 1974; March 14, 1975; July 22, 1975.

January 20, 1975

The strike of reinforced concrete workers, which has interrupted work at Olympic sites for two months, comes to an end. Construction of the Olympic Stadium is now COJO's number one priority.

January 31, 1975

Negotiations begun in June 1974 culminate in the signing of a formal agreement between COJO and Montréal Anglers and Hunters Inc., for the use of its L'Acadie shooting range as the site of Olympic shooting competitions.

February 16, 1975

Roof construction on the Olympic Velodrome is completed with a brief ceremony attended by the media.

March 13, 1975

Construction begins on the pyramidal structures at the Olympic Village site.

March 26, 1975

The acquisition of two scoreboards for the Olympic Stadium poses problems of balance for the structure, since each weighs close to 40 tons and is to be suspended from the consoles.

March 27, 1975

Contracts are signed for the surfacing of four athletic tracks (Olympic Stadium, Olympic Park, Claude Robillard Centre, Kent Park) and three artificial grass surfaces (Molson Stadium, University of Montréal Stadium, Claude Robillard Centre).

May 5, 1975

The first prefabricated concrete elements are delivered to the Olympic Stadium site.

May 13, 1975

A detailed account of Olympic construction work is given by COJO officials at an executive meeting of representatives of the national Olympic committees.

May 14, 1975

Renovation work is well underway at ORTO headquarters in the old CBC building in downtown Montréal.

May 15, 1975

Some 3,000 construction workers are employed day and night at various sites in Olympic Park. The stadium, centrepiece of the Olympic Park complex, begins to take shape. Five separate prefabrication contracts have been granted to companies in the province of Québec, ranging from St. Eustache, 41 km from the Olympic Park, to Ste. Foy, 240 km away.

May 21, 1975

At its 76th plenary session in Lausanne, the IOC is assured by COJO that all Olympic installations will be ready in time for the official opening of the Games on July 17, 1976. This report includes a detailed outline of progress at each Olympic site.

June 4, 1975

As a result of a work slow-down in May, construction of the Olympic Stadium is behind schedule. Only 1,600 men are at work on the site now compared with 3,000 in mid-May.

Excavation work at the Olympic Basin in September, 1974.

In May, 1975, the Olympic Basin is almost complete.

Some 800 men are employed at the Olympic Village, 360 at the Claude Robillard Centre, 350 at the Olympic Basin and 125 at the Sherbrooke Street viaduct. The work slow-down did not affect all sites equally: six days at the Olympic Village compared with nine at Olympic Park.

June 30, 1975

Work on aqueducts and drainage systems and drainage of competition and training fields at the archery range, Joliette, is complete.

July 9, 1975

A consulting firm is engaged by COJO for exterior installations at the Olympic Village.

July 25, 1975

Construction of the Olympic Basin on Notre Dame Island is almost complete. It will be the site of the VI World Junior Rowing Championships, August 5-10, 1975.

July 28, 1975

The Olympic Basin is officially handed over to COJO by the City of Montréal.

August 7, 1975

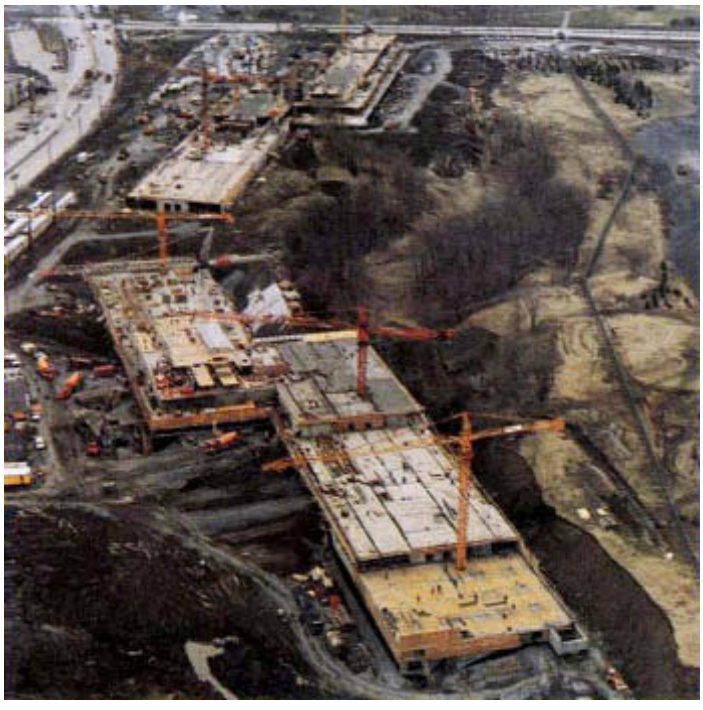
A formal agreement is reached between COJO and Laval University of Québec, by which the latter agrees to place its *Pavillion d'éducation physique et des sports* (PEPS) at the disposal of COJO, which will schedule several preliminary handball matches there during the Games.

August 14, 1975

In a record time of 184 days, the exterior shell of the Olympic Village is completed — six months ahead of schedule.

August 15, 1975

The installation of subterranean telephone lines for Bell Canada between the Maisonneuve Sports Centre and the Olympic Velodrome is completed.



Construction of the Olympic Village moves along impressively. From left to right: April 25, 1975; June 10, 1975; August 7, 1975.

October 6, 1975

Construction work on five new facilities is well underway: Olympic Basin, Olympic Yachting Centre (Kingston), Olympic Archery Field (Joliette), Olympic Equestrian Centre (Bromont) and Olympic Shooting Range (L'Acadie). Only finishing touches remain on each site.

Principal efforts are now concentrated upon the Olympic Stadium, the Olympic Pool, the Olympic Velodrome, the Olympic Village and the Claude Robillard and Étienne Desmarteau Centres.

October 20, 1975

More than 3,500 workers at the Olympic Stadium walk off the job.

October 25, 1975

The City of Montréal obtains a court order to force strikers at Olympic Park back to work. Only 600 men obey the injunction; the majority are awaiting the result of negotiations between their union and the city.

October 26, 1975

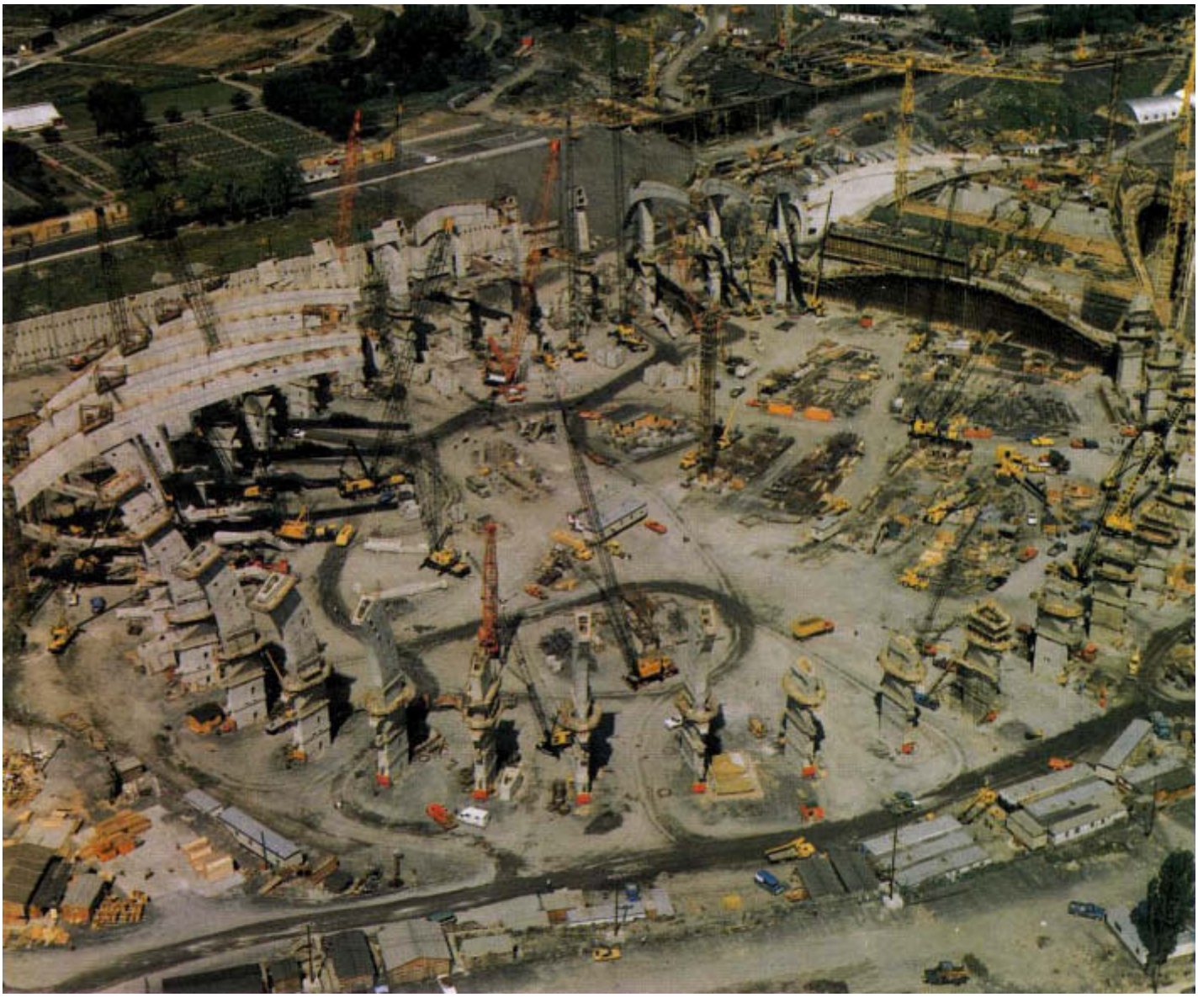
An agreement is reached between the City of Montréal and the Québec Federation of Labor, marking the return to work of all the men who walked off the job October 20.

October 31, 1975

Several hundred kilometres of cables have already been laid between ORTO headquarters and the various Olympic sites.

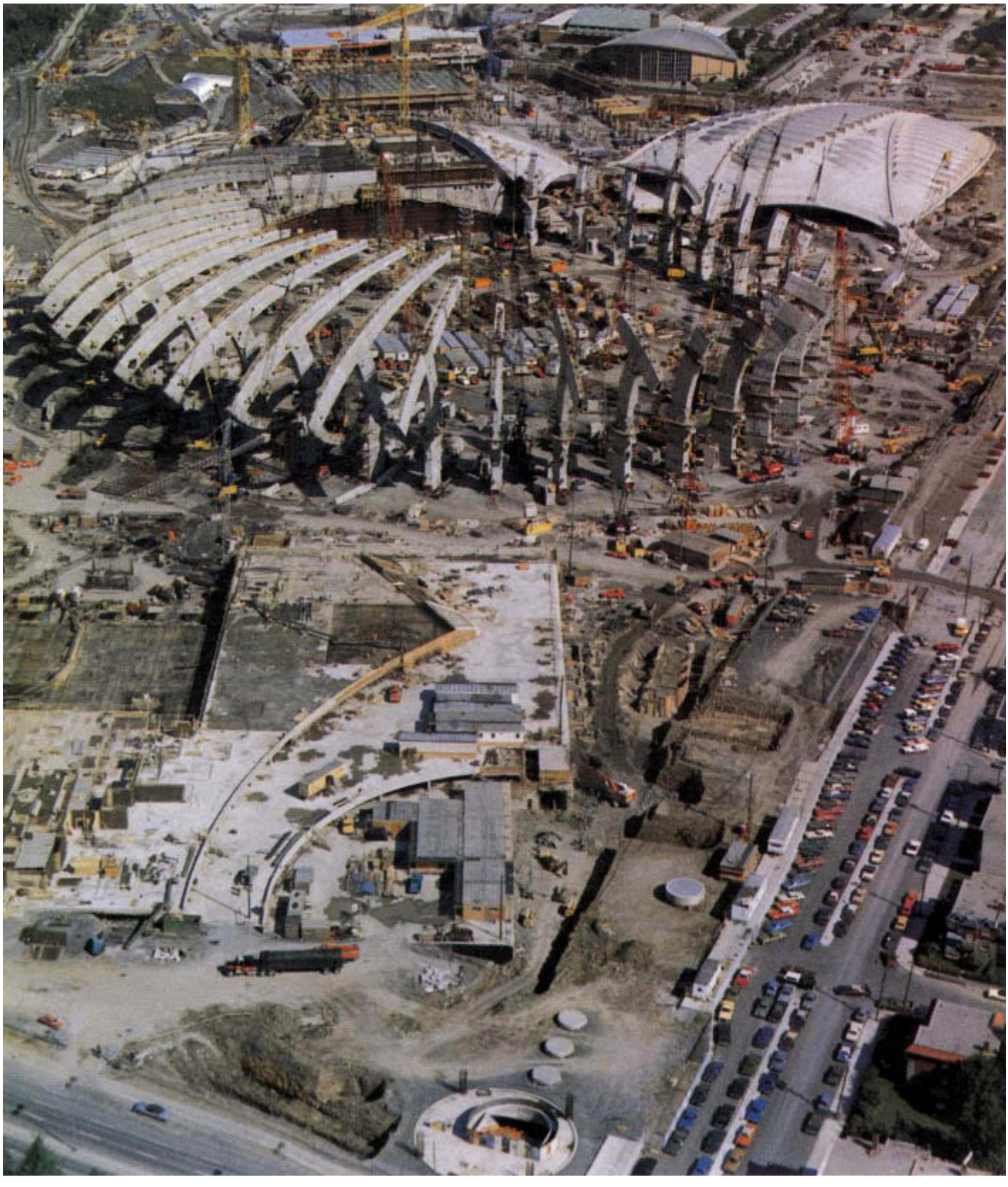
a

b



Stages of construction at the Olympic Park in July (a), August (b) and September (c) 1975.

c



November 4, 1975

The first element of the technical ring is installed in the Olympic Stadium.

November 10, 1975

Work on the extension of the east line of the Montréal metro and on the Pie IX station, giving direct access to the Olympic Stadium, is 80 percent completed by the Montréal Urban Community Transit Commission (MUCTC).

November 20, 1975

Bill 81 setting up the Olympic Installations Board (OIB) is adopted on third reading by the Québec National Assembly; the OIB is to assume full responsibility for the completion of the Olympic Stadium, the Olympic Pool and the Olympic Velodrome, as well as parking garages, plazas, and the central power plant, in time for the Games.

December 5, 1975

Nine elements of the technical ring in the Olympic Stadium are in place; installation is rapidly reaching the rate of one element per day.

The first sections of the spectator stands are installed between the sixteenth and seventeenth consoles on the north end of the stadium, in the vicinity of the mast.

Concrete pouring and post-tensioning of cables proceeds at a feverish rate to the 42.16-m level of the tower, to allow the removal of props and the start of work on the Olympic Pool.

December 24, 1975

Construction of athletes' quarters at the Olympic Equestrian Centre, Bromont, is completed.

January 1, 1976

Major construction work on the Olympic Velodrome is completed. Efforts are now concentrated on the interior of the building: the installation of glass partition walls, spectator stands and the cycling track; the removal of all equipment from the centre area to allow for the laying of the synthetic rubber safety strip. The installation of electrical and sound systems is completed.

In the Olympic Stadium, the tenth section of the technical ring is waiting to be raised to the top of its console. The majority of the radial beams (two per console) are now in place. Areas between the consoles, containing double T's, corbels, spectator stands and sheets of metal roofing, are rapidly filling up. The stadium is beginning to take shape.

January 29, 1976

At an IOC executive board meeting in Innsbruck, COJO officials deliver a report on the progress of construction work for the Games. They announce that the main press centre for the Games is to be located in *Complexe Desjardins* in the heart of Montréal.

February 2, 1976

In Innsbruck, COJO officials announce that all essential services in the Olympic Stadium and the Olympic Pool will be ready for the 1976 Games.

The Olympic Stadium on November 4, 1 975: the first section of the technical ring is raised into place.

February 8, 1976

Erection of the 34 full consoles in the Olympic Stadium is completed.

February 16, 1976

Journalists comment on the remarkable progress being made at the stadium since their first official visit January 5, 1976, particularly in the installation of the technical ring. To date, 31 of the 38 sections of this ring are in place.

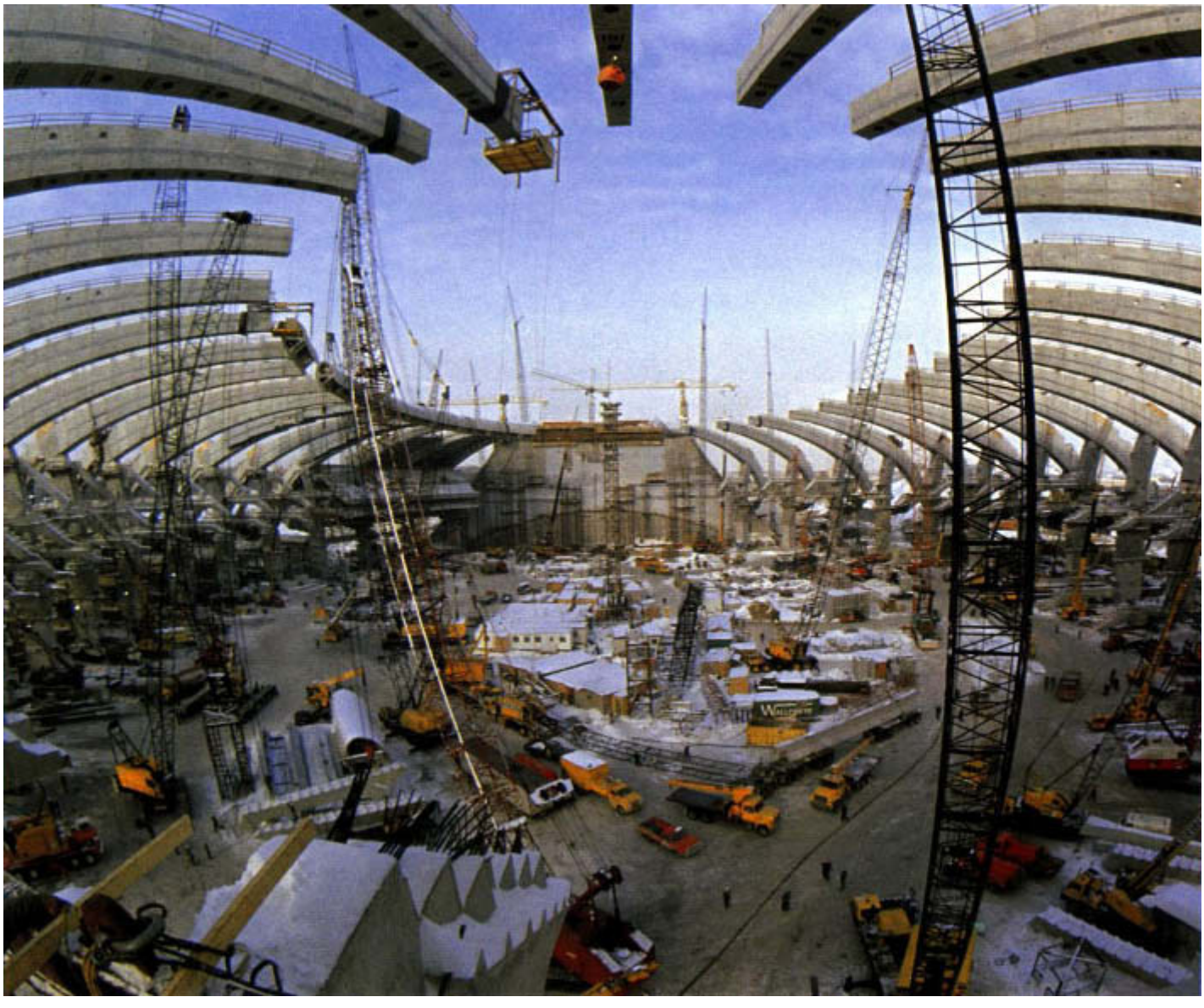
The first voussoirs of the four truncated consoles attached to the tower are also installed. Seven of the gaps between the consoles are filled to the 400 level. To accelerate work on these installations, there are now four teams of workers at the site, two by day and two by night.

February 17, 1976

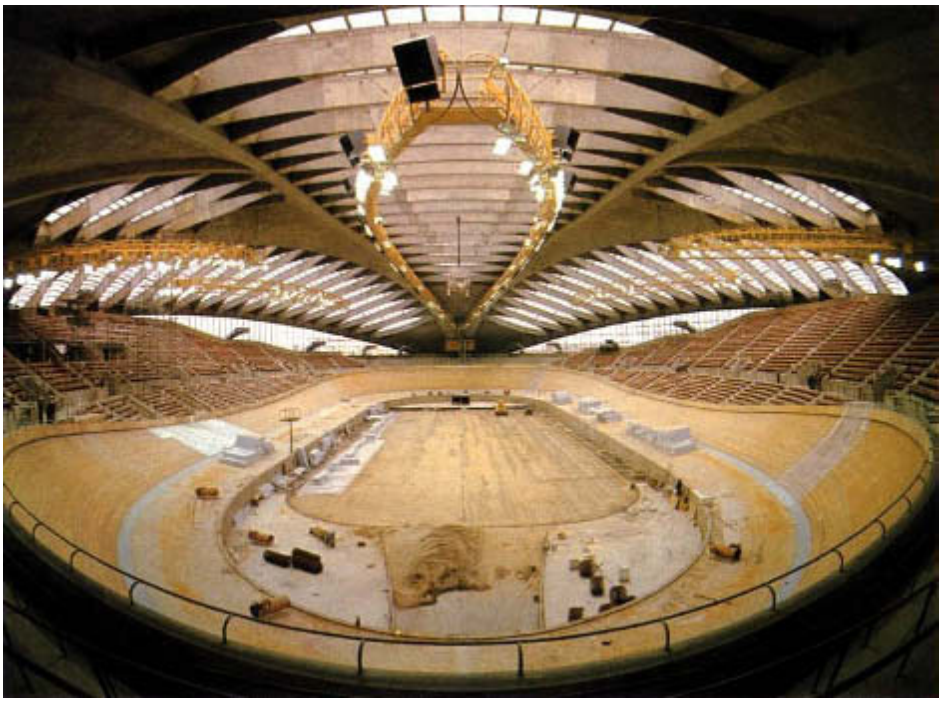
Scaffolding beneath the roof of the Olympic Pool, located under the base of the stadium tower, is completely removed, allowing work to proceed on the pools.

March 4, 1976

COJO appoints construction managers to the operations units (UNOPs). The construction manager is responsible for the completion and operation of all services related to the construction of facilities at each site under COJO jurisdiction.



The Olympic Stadium in December, 1975: almost all of the consoles are in place.



March, 1976: work on the Olympic Pool is proceeding on schedule.

March, 1976: the interior of the Olympic Velodrome is practically completed.

March 15, 1976

Metal roofing has been installed in 14 of the 33 gaps, or open areas, between the consoles in the Olympic Stadium. The reinforcing concrete shell forming the lower roof has been suspended over 29 of these areas. Filling between the 300 and 400 levels is completed in a quarter of the stadium. Cages for three elevators are in place and the base of a fourth is completed; escalators have been installed in two locations in the building.

Four radial beams for the tower have been installed at the 500 level and two at the 600 level; casings are being inserted in consoles 14, 15, and 16; concrete caps are being poured on the double T-bars on floors at the 500 and 600 levels.

In the swimming centre, lining of the diving pool is completed, construction of the competition pool is underway, and waterproofing of the cupola at the base of the tower is two-thirds completed. Six hundred seats have been installed in spectator stands at the first level.

March 23, 1976

The City of Montréal rededicates the Maisonneuve Sports Centre as the Pierre Charbonneau Centre.

March 29, 1976

The final element of the technical ring in the Olympic Stadium is installed.

March 31, 1976

Construction of the Claude Robillard Centre is completed.

April 6, 1976

Responsibility for the Olympic Village is officially assumed by the OIB.

April 7, 1976

Cranes and all heavy equipment are removed from the centrefield of the Olympic Stadium to permit the laying of sod and the installation of the running track.

April 12, 1976

Construction work at the Olympic Equestrian Centre in Bromont is nearly complete. In the dressage and jumping stadium, there remains only the installation of seats, the laying of sod and the erection of special platforms for officials of the *Fédération équestre internationale* (FEI) and members of the press.

The final section of the technical ring is put into place on March 29, 1976.

In April, 1976, work starts on laying turf inside the Olympic Stadium while preparations are made to remove the heavy equipment.

April 15, 1976

Concreting of basins in the Olympic Pool is completed.

April 19, 1976

The last of the prefabricated concrete elements are delivered to the Olympic Stadium site.

April 30, 1976

Work starts on renovations to the Maurice Richard Arena.

May 1, 1976

Renovations to Molson Stadium, McGill University are completed.

Work starts on installations at PEPS, Laval University.

May 6, 1976

Renovations to the Pierre Charbonneau Centre are completed.

May 7, 1976

Work is completed on ORTO headquarters in downtown Montréal.

May 10, 1976

Sod laying is completed in the Olympic Stadium and work starts on the running track. Twenty thousand seats have been installed in the stands and the two scoreboards are in place.

May 11, 1976

Work by plumbers and electricians at Olympic Park is back to normal after six days marked by work slowdowns.

May 14, 1976

A total of 155 work days have been lost at the Olympic Stadium because of strikes and adverse weather conditions. As a result, much construction work scheduled for completion in the summer of 1975 had stretched into the following winter, necessitating the erection of temporary shelters and the installation of heating systems.

The installation of facilities in the Claude Robillard Centre is completed.

May 15, 1976

Construction of the Olympic Village is completed.

May 17, 1976

Due to the construction slowdowns at the Olympic Stadium, it had been feared that many original facilities would have to be constructed on a temporary basis. Now, thanks to the efforts of builders and contractors over the past four months, most of these facilities are permanently built after all. There still remains the task of cleaning the site at Olympic Park, an enormous undertaking which is to occupy thousands of men 24 hours a day, seven days a week for several weeks.

May 19, 1976

COJO takes possession of 11 schools from the Montréal Catholic School Commission (MCSC), to be used as training sites for Olympic competitors.

May 22, 1976

Construction work at the Étienne Desmarteau Centre is completed.

Technicians install tables for broadcast commentators in the Olympic Stadium in June, 1976.

May 24, 1976

Renovations to the St. Michel Arena are completed.

May 25, 1976

Renovations to pavilions on Notre Dame Island for rowing and canoeing competitions are completed.

June 1, 1976

Renovations begin at the Forum for competitions in gymnastics, handball, basketball, volleyball and boxing.

June 2, 1976

Renovations to the Joliette Archery Field and the Sherbrooke Sports Palace are completed.

June 3, 1976

Construction of the Olympic Shooting Range at L'Acadie is completed.

June 4, 1976

Outer walls, floors and access ramps at the Olympic Stadium are completed.

June 5, 1976

Seat installations in the Olympic Pool are completed.

June 6, 1976

Work is completed in the Pie IX metro station.

June 11, 1976

50,000 of 60,000 permanent seats in the Olympic Stadium are installed.

June 13, 1976

The Olympic Stadium is officially handed over to COJO. Though most major work has been completed, 1,500 men are still engaged in putting finishing touches on the stadium. Nearly 1,000 cubic metres of waste material are being removed daily from the site. There still remains the enormous task of testing all electronic equipment for the Games: scoreboards, timing devices and television equipment.

June 15, 1976

The installation of all special Olympic Games route signs by the Québec government and municipalities hosting Olympic events is completed.

Sealing of the permanent section of the roof of the Olympic Stadium is completed.

June 18, 1976

All construction work at the 12 parks, three pools and one arena in the Montréal area allocated for use during the Games as training centres is completed.

June 21, 1976

The main press centre in *Complexe Desjardins* is officially opened.

June 23, 1976

The first commentator tables and technical outlets for broadcasters is installed in the Olympic Stadium.

The Olympic Village is officially opened.

Renovation work at the Forum is completed.

June 26-29, 1976

A general rehearsal involving athletes, officials and judges is held exactly three weeks before the opening of the Games. It marks the official inauguration of the Olympic Stadium and the Claude Robillard Centre.

June 30, 1976

Work on the installation of escalators in the Olympic Stadium is completed.

July 4, 1976

The metro line leading to Olympic Park is officially opened.

July 5, 1976

A thousand workmen are engaged in putting the finishing touches on the Olympic Stadium: installing doors, glass partitions and protective railings on the upper promenade. Work also continues on the three waterfalls in International Plaza above the Pie IX parking garage.

July 8, 1976

The installation of commentator tables and ducts and mechanisms for lighting and sound consoles in the Olympic Stadium is completed.

July 9, 1976

All interior construction work in the Olympic Stadium is completed.

July 14, 1976

ORTO personnel test technical equipment at competition sites in a full dress rehearsal.

July 16, 1976

Landscaping at Olympic Park is completed.

August 2, 1976

The first Olympic sites are returned to their original or eventual owners by COJO; the majority will be restored by August 15, 1976.

August 11, 1976

COJO hands back the schools to the MCSC.

February 10, 1978

Québec Premier René Levesque announces that his government will complete installations at Olympic Park according to Taillibert's original plan, namely the stadium mast and the retractable roof.

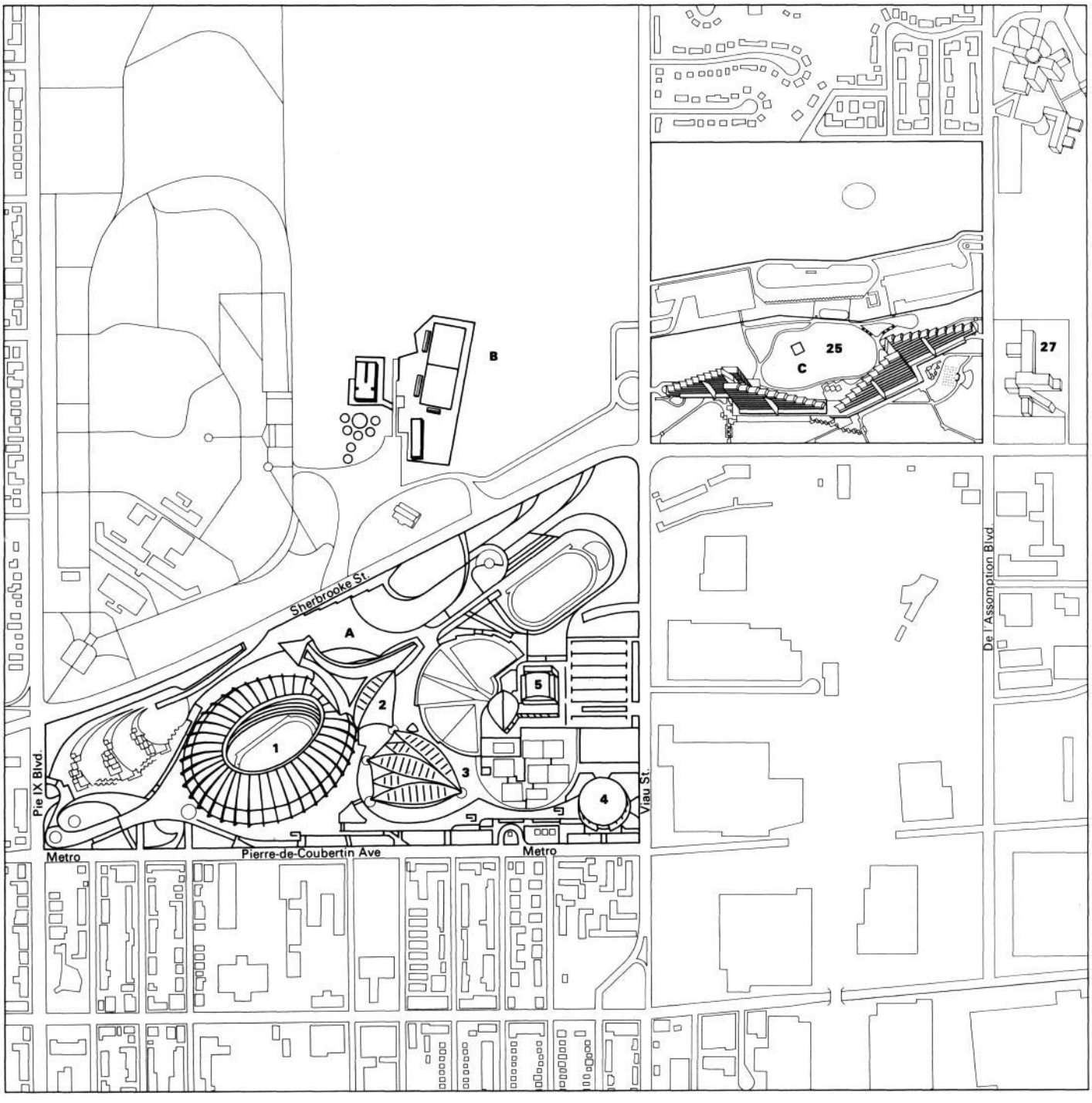
The Olympic City

2

The Olympic City, cynosure of the Games of the XXI Olympiad, is made up of two parts: the Olympic Park (A, B) and the Olympic Village (C).

The Olympic Park in turn is divided into two by Sherbrooke Street. On one side lies the stadium (1), the pool (2), the velodrome (3), the Maurice Richard Arena (4) and the Pierre Charbonneau Centre (5); on the other side lies park-land consisting of the municipal golf course, part of which was landscaped for the occasion.

The Olympic Village contains the athletes' residences (25) and the International Centre (27).

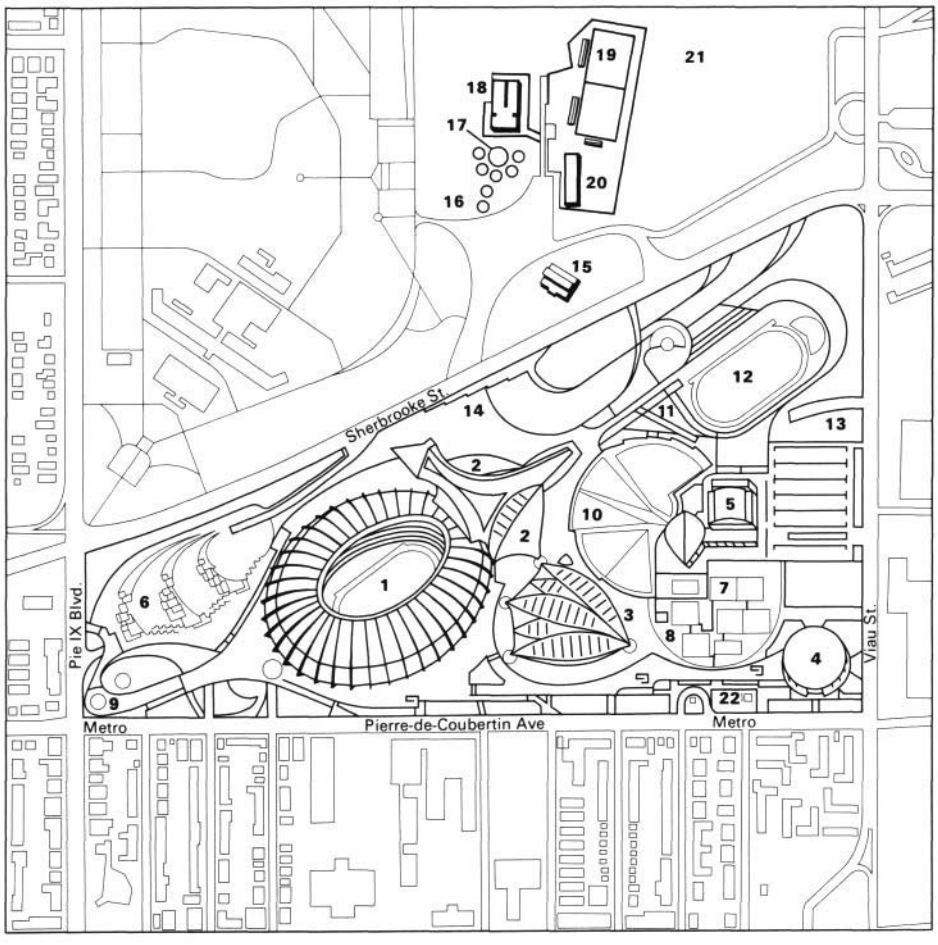

B
25
C
27
Sherbrooke St.
A
1
2
3
4
5
Pie IX Blvd.
Viau St.
De l'Assomption Blvd.
Metro
Pierre-de-Coubertin Ave
Metro

The Olympic Park

When Montréal was awarded the Games of the XXI Olympiad in the spring of 1970, organizers had already chosen as a location for the Olympic Park an area which had been earmarked for recreational facilities as long ago as 1912.

In that year, the City of Maisonneuve, then a suburb of Montréal, had set aside 204 hectares of land for development of a sports and recreation area to be known as Maisonneuve Park. Twenty years later, a little more than half of this was appropriated for construction of a municipal golf course, and, in the late 1930's, Montréal's Botanical Garden was opened, leaving some 46 hectares in the park for future development as a major sports complex.

The course of this development was established by a tentative master plan drawn up in 1954 (see illustration below). Out of this grew the construction of the Maisonneuve Sports Centre (later the Pierre Charbonneau Centre) and the Maurice Richard Arena, the first two elements of what would become, by 1976, one of the most advanced Olympic sports centres in existence.



Site plan

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre
6 International Plaza and Pie IX parking garage
7 Site of future tennis courts
8 Brasseries and service booths
9 Pie IX subway station
10 Practice fields
11 Underground energy plant
12 Track (400-metre) and football field
13 Viau parking garage entrance
14 Sherbrooke Street Viaduct
15 Golf clubhouse
16 Vendors' depot and booths
17 Brasserie
18 Press photo lab
19 Equestrian warm-up field and spectator stands
20 Temporary stables
21 Municipal golf course
22 Viau subway station

Located in the eastern part of the city, only five kilometres from the downtown business and shopping area, the Olympic Park is dominated by two daring new structures, the Olympic Stadium-Pool complex, and the velodrome. These integrate architecturally into a single, breathtaking unit.

The Central Core

Between the ground breaking ceremony on April 28, 1973, and the completion of excavation work in December of that year, some 2,120,000 cubic metres of clay and limestone were removed from the site. Meanwhile, the city was working on a major extension of the east-west line of the metro (subway) system to the Olympic Park and points further east.

The Olympic Park is served by two specially-designed metro stations integrated with the site itself. Only 15 minutes from the heart of the city, the Pie IX station is constructed on four levels to facilitate access to the Olympic Stadium. Further east, the Viau station serves the other end of the site, including the velodrome and the Maurice Richard Arena, both of which are connected to the stadium by an elevated, concrete walkway. Designed to accommodate up to 60,000 people per hour, these stations actually had to handle more than 75,000 people per hour at peak periods during the Games. As a result, special bus lines were set up and taxi stands installed to relieve pressure on the metro.

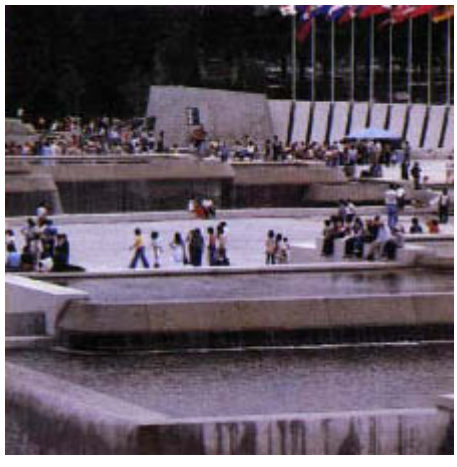
The Olympic Park was also served by two subterranean parking garages with space for close to 4,500 automobiles and 200 buses, each with direct access to the stadium and other installations.

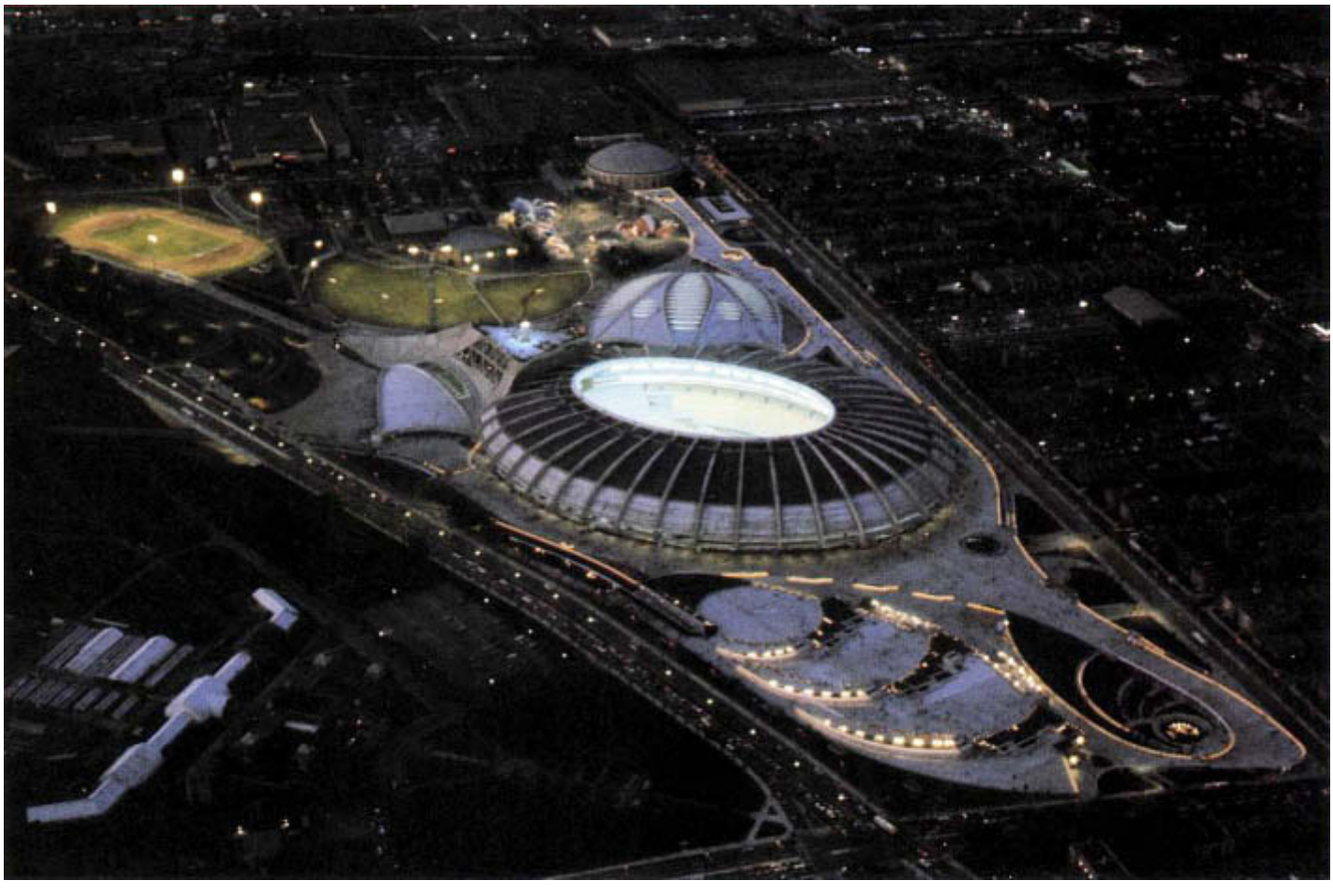
Adjacent to the stadium and the velodrome, the Viau parking garage was constructed on two levels; the lower to accommodate all the buses and the upper some 500 automobiles. The ground surface above this garage was prepared as training areas for the athletes. Three of these areas were for athletics and would later be converted into tennis courts; other areas included a 400-metre artificial track and a football practice field with spectator stands.

The Pie IX parking garage formed part of the southern end of the Olympic Park and was built on four staggered levels with room for close to 4,000 automobiles. The ground surface above this garage was transformed into a landscaped plaza. Known as International Plaza, it featured a series of 21 water basins constructed on three levels, each emptying into the other to form a spectacular cascade. These long, low waterfalls together with flower-bordered walkways made this area popular with strollers during the Games. A further attraction was the cluster of masts installed here for the flags of participating nations.

Although not fully operational during the Games, an underground automatic temperature control centre and energy plant was constructed to serve all installations at the site, ensuring an even distribution of light, humidity and heat. All Olympic Park facilities operated on a combination of natural gas, oil and electricity, except the velodrome, which was entirely heated by electricity.

Designed to detect and localize instantaneously any mechanical or electrical breakdown, this unique system will eventually allow the site to be serviced efficiently and economically in the face of Montréal's extreme climate.





The Surrounding Area

For the duration of the Games, the boundaries of the Olympic Park were extended to include part of the municipal golf course. Facilities temporarily located here were a press photo lab, a brasserie and service areas, temporary stables for the final equestrian event, and installations for the 4,000-metre run in the modern pentathlon.

A large section of this area had already been appropriated for the Olympic Village, which was connected to the remainder of the site by a landscaped walkway.

The photo lab was located within walking distance of the stadium and had a large parking area of its own. Installed in a mere three and a half months, the lab consisted of 40 prefabricated units assembled around a central tent. Special plumbing and air-conditioning systems were installed to service the main accreditated agency labs, the minor agency darkrooms and the common labs used by freelance photographers.

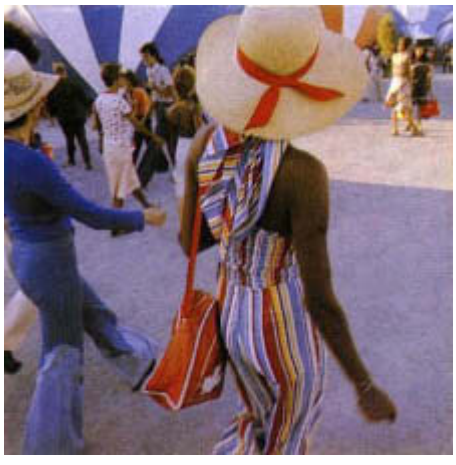
The brasserie and service areas located beside the photo lab were installed beneath huge, colorful, parachute-like tents, similar to others erected beside the Olympic Stadium. These service areas provided food, beverages and souvenirs for the multitude of press delegates and invited guests. They also served as storage depots for strolling vendors in the park.

Since the finals of the Olympic Grand Prix team jumping event were scheduled for the Olympic Stadium, stables had to be erected for the horses. Two large tents, one 15 x 15 m and the other 18 x 60 m, were transported from Bromont, where the earlier equestrian events had been held. The smaller of these served as a storage area, the larger as a temporary stable.

Because most work could not be carried out until the completion of the modern pentathlon, it was necessary to erect these tents and to connect water and power outlets in a matter of hours. The sprinkler system of the Botanical Garden, which serviced part of this area, had to be temporarily dismantled to avoid injuries to horses, and a practice and exercise area with spectator stands was constructed. Finally, the entire area was surrounded by fencing, and a doping control station for horses and a firetruck were installed on the site.

A broad walkway under the 200-metre viaduct bearing Sherbrooke Street connected this area with the main part of the site. Its landscaped look-out, with rest areas for strollers, commanded an impressive view of the entire Olympic Park.

Because of its size, Maisonneuve Park proved an ideal setting for the colossal complex which was constructed there as the focal point of the 1976 Games. As a result, Montrealers now have one of the largest and most sophisticated sports centres in the world, with facilities for an almost unlimited variety of events.



Olympic Stadium

When Montréal first made its bid to the International Olympic Committee (IOC) for the 1976 Games, it already possessed a large number of sports facilities capable of hosting a variety of Olympic events. There did not exist, however, a structure large enough to serve as the Olympic Stadium.

IOC requirements stipulate that the city hosting the Olympic Games possess a stadium capable of handling such events as the opening and closing ceremonies, the majority of track and field competitions, the football finals and the equestrian Grand Prix team jumping event. Because such activities traditionally draw the largest crowds, the stadium is the centrepiece of the entire Olympic complex.

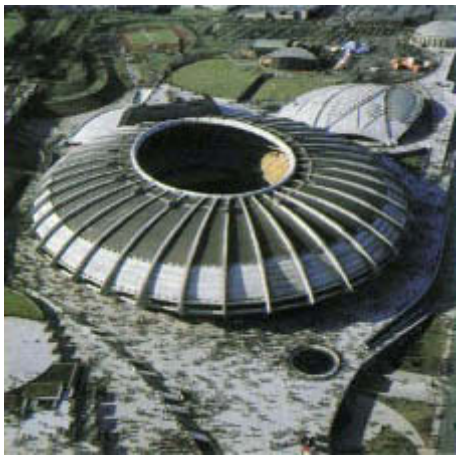
Although Montréal possessed numerous ice hockey, baseball and football stadiums, none had the required facilities or seating capacity to meet the Olympic criteria. The city consequently set out to construct a new stadium which could "accommodate at least 70,000 spectators and meet the requirements of the various sports which would be presented during the Games."

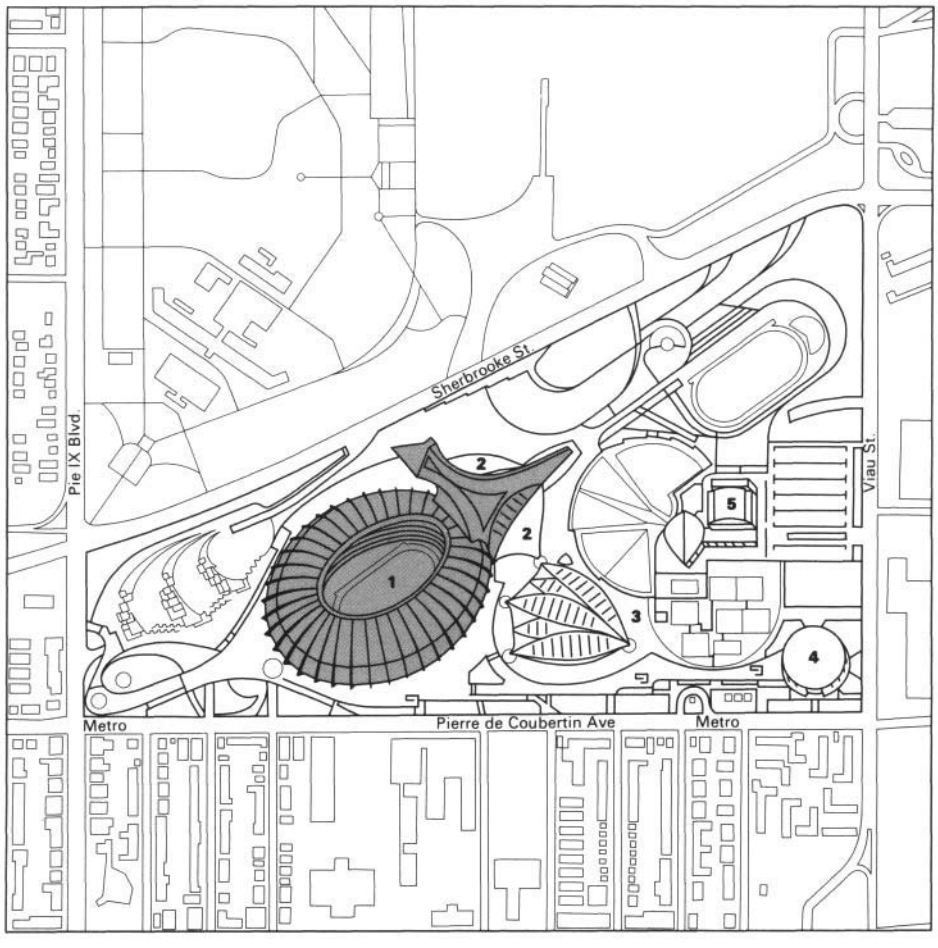
The design of this enormous sports centre had to satisfy a multitude of needs. While the IOC specifies the exact dimensions of the playing fields and tracks, the International Amateur Athletic Federation (IAAF), for example, also requires that track and field events take place in the open air. In addition, the stadium has to possess all essential athletes' facilities — dressing rooms, showers, medical services, massage rooms, warm-up areas — as well as facilities for technical personnel, Games' officials, maintenance workers, and representatives of the press and broadcast media.

On the other hand, the host city is given a free rein regarding the shape of the building and the design of its interior installations.

Needless to say, city officials wanted to provide the citizens of Montréal with a stadium that would be of the utmost use after the Games were over. In order to ensure maximum use and economic operation of this vast stadium, designers were faced with the challenge of accommodating both North American football and baseball games, as well as various Olympic events scheduled for the site.

Numerous discussions, exchanges of opinion and preparatory studies preceded a precise plan of operation. In the end, the architectural design of the stadium gave an indication of the unusual nature and scope of the project. The architect, a renowned specialist in prestressed concrete structures, presented a plan for a concrete stadium with permanent seating for 60,000 spectators and space for an additional 10,000 during the Games.





Site location

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre

General Description of the Project

An audiovisual presentation of the future Olympic Stadium was unveiled at an international press conference in April 1972. It showed an elliptical structure resembling a giant shell, open in the centre, with a 168-metre tower rising obliquely above it. A sheet of sturdy synthetic textile, attached to cables suspended from the summit of the tower, would cover the open centre of the structure and was designed to fold away quickly and easily when necessary. In this way, Olympic track and field events could take place in the open air while the stadium could be covered after the Games to protect the playing field from the elements.

The basic structural element in the stadium was a prefabricated concrete console designed to be self-stabilizing. Hollow like a bone and resting on a specially designed base, its shape resembled that of a set of scales. The framework of the stadium was constructed of 34 such consoles, as well as four truncated consoles at the base of the tower. These consoles were arranged on an ellipse and determined the geometrical design of the completed building.

Once in place, they supported all secondary elements, such as the fixed sections of the roof, spectator stands, stairways and corridors, and the 480-metre technical ring; the latter, suspended from the overhanging sections of the consoles, which reached out as far as 50 m, acted as a sort of technical catwalk in the stadium. When completed, the stadium was 305 m long and 250 m wide and rose 55 m above the ground, with an open span of some 280 m on the longitudinal axis at the upper level of the stands.

Construction of the Olympic Stadium commenced with excavation work at the Olympic Park. This was completed on schedule by early November 1973, but it was not until the following August that the first console bases began to be poured on the site.

There remained less than two years to complete all work on the stadium. There were unforeseen delays in the preparation of working drawings, but construction of the building continued on a "design-build" basis, where drawings were completed as work progressed.

The finished structure consisted of some 12,000 prefabricated concrete elements fitted together like the pieces of a meccano set. The size of the order was such that the company holding the contract for the production of these elements was obliged to construct a special fabrication plant for their production. The erection of this plant and the installation of equipment took approximately six months.

The size and complexity of the project resulted in unexpected delays in delivery of the prefabricated elements. Strikes by concrete and steel suppliers complicated the situation still further.

The Consoles and Roof

Once the console bases were poured and the moulds removed, the prefabricated voussoirs were transported by truck to the Olympic site, where they were erected and attached to each other with post-stressed cables. Once the head voussoirs were in place, the fore and aft beam-arms began to take shape; these were constructed entirely of voussoirs joined by cables.

Construction of the console components — bases, beam-arms, radial beams, cross beams — followed a sequence determined by the need to keep all elements in complete equilibrium. The final element to be installed was the technical ring.

These prefabricated elements were transported by truck to the Olympic site, where they were raised into place and bolted together until the required tension could be applied to the cables holding them together. Finally, grout was injected into the casing through which these cables passed, thus ensuring the stability of all elements in the structure.

The permanent part of the stadium roof was divided into two sections: the lower, a thin concrete shell laid between the upper and lower water chutes designed to channel rain water off the roof; and the upper, a metal shield enclosing the technical ring.

The metal beams of the upper section of the roof were constructed by cold bending a single sheet of metal 1.2 m wide. The same sheet was used to produce beams of varying dimensions. Before installation, two channel beams were bolted together to form a standard H-beam.

The remaining elements in the structure — spectator stands, ramps, access areas beneath stands — were then installed. With the exception of some slabs in the interior parking garages, which were poured on the site, these were all constructed of prefabricated concrete. Since some of the concrete in the parking garages had to be poured during the winter season, electrical heating cables were inserted in the forms to prevent the concrete from freezing. The method normally used in Canada, the construction of a temporary heated shelter covering all the concreting work, was out of the question because of the size of the project, although certain sections were covered in this manner.

Figure A

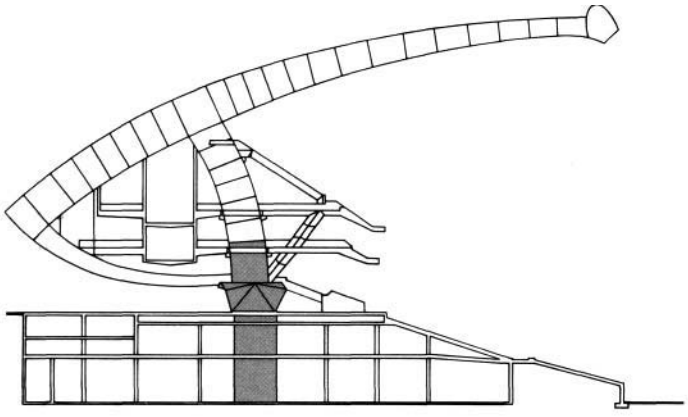


Figure B

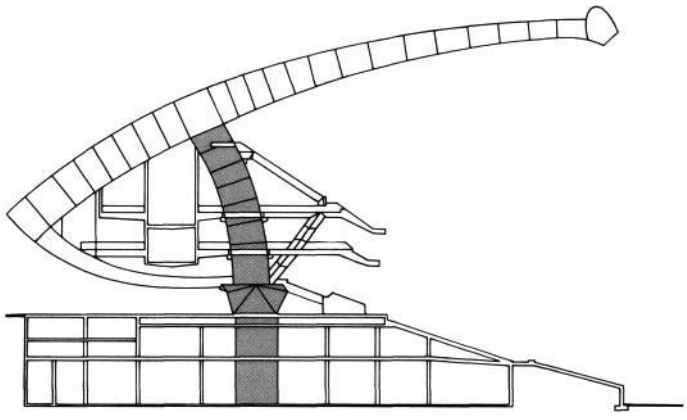


Figure C

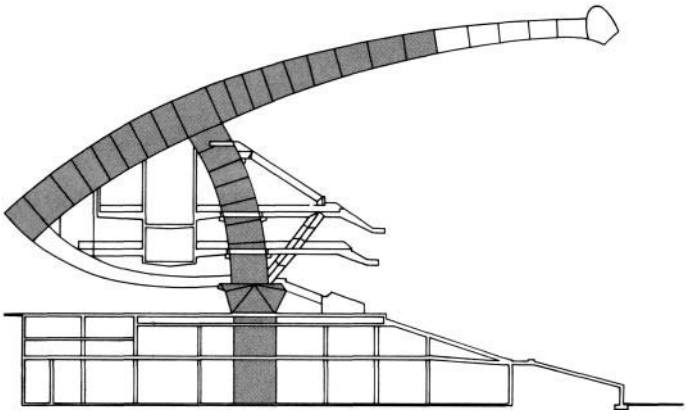


Figure D

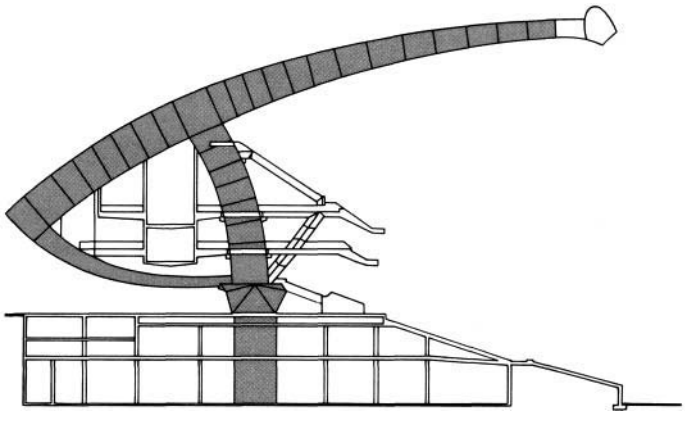


Figure E

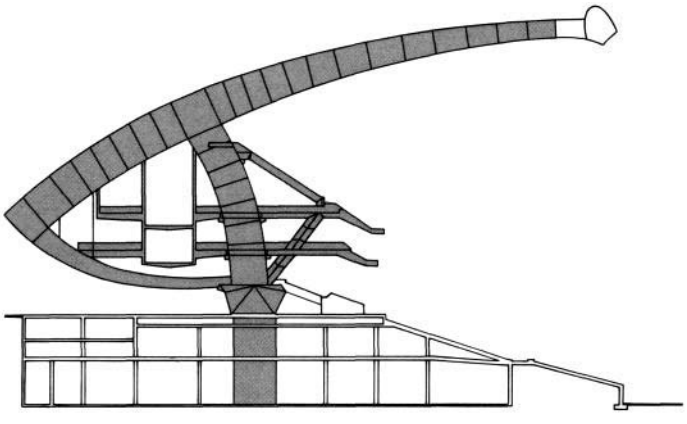
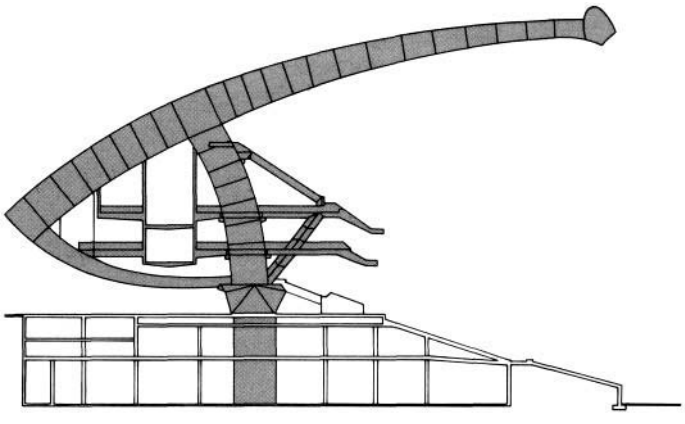


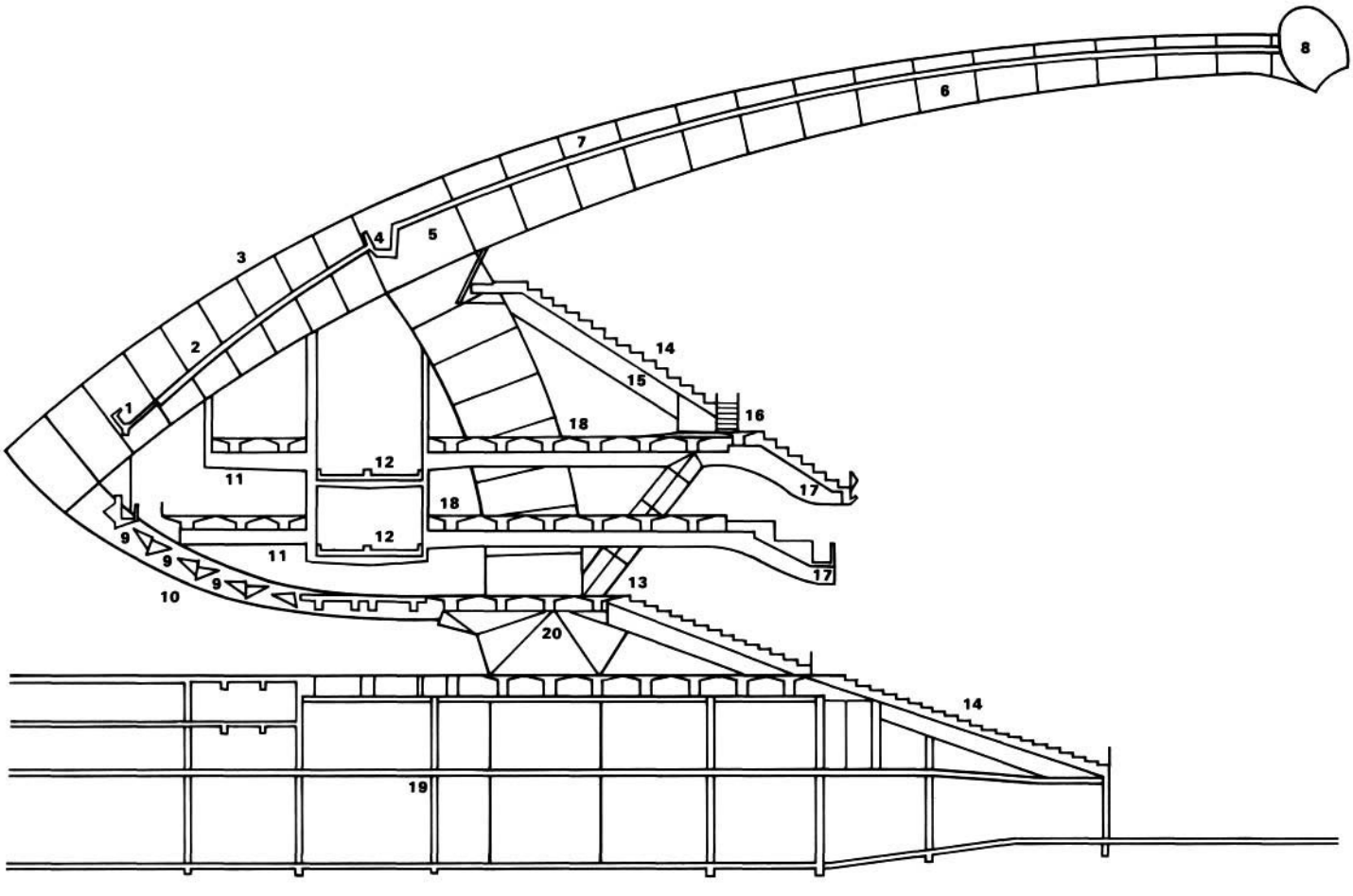
Figure F



Console assembly sequence

Each console was composed of a base, the lower part of which was poured on the site (fig. A) and the upper part of which consisted of six prefabricated voussoirs (fig. B). After the "head" voussoir was in place, the other voussoirs constituting the cantilever beams were suspended two-by-two on either side of the base to balance the structure (fig. C). The bottom cantilever beam arm was installed as a stabilizing device (fig. D) before raising the remaining voussoirs. Finally, all secondary components in the console — sloping beams, radial beams, brackets — were installed (fig. E) before the erection of the technical ring (fig. F).

1 Small gutter
2 Thin concrete shell
3 Rear cantilever beam
4 Large gutter
5 Head voussoir
6 Front cantilever beam
7 Metallic roof
8 Technical ring
9 Triangular beam
10 Bottom cantilever beam
11 Rear radial beam
12 Ramp
13 Bracket
14 Stands
15 Sloping beam
16 Stairway
17 Front radial beam
18 Double Tees cross-beam
19 Hollow slab
20 Plinth



The console
The basic structural element in the stadium was the console. The finished structure consisted of 34 such consoles, as well as four truncated consoles at the base of the tower.

Prefabrication Techniques

The plant built to produce the principal structural elements in the Olympic Stadium was located 41 km from the stadium site. Adjacent to it was a concrete-making plant and a second plant, both semi-enclosed.

The production of these enormous elements was accomplished in stages. The preassembled reinforcing bar cages, which resembled giant abstract sculptures, were first raised by crane and inserted into the moulds provided for them. Since these elements were all of varied dimensions, each mould had to be designed to correspond to a particular element in the structure. Concrete of a compressive strength of more than 50 Newton per square millimetre was then pumped into the moulds. Less than six hours later, it had reached more than 50 percent of its strength. For practical reasons, this concrete mix had to be of high quality and fast setting: in view of the short amount of time allowed for erection of the structures, it was necessary to make the maximum use of a limited number of moulds and to shorten the hardening period of the concrete.

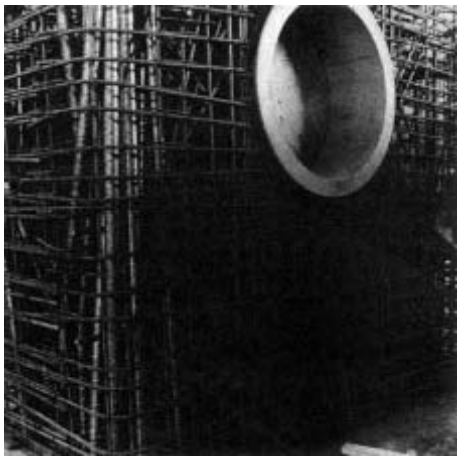
In the main plant, the voussoirs were poured in pairs in a vertical mould, the top of one voussoir acting as the base of the next, thus ensuring a perfect matching of components.

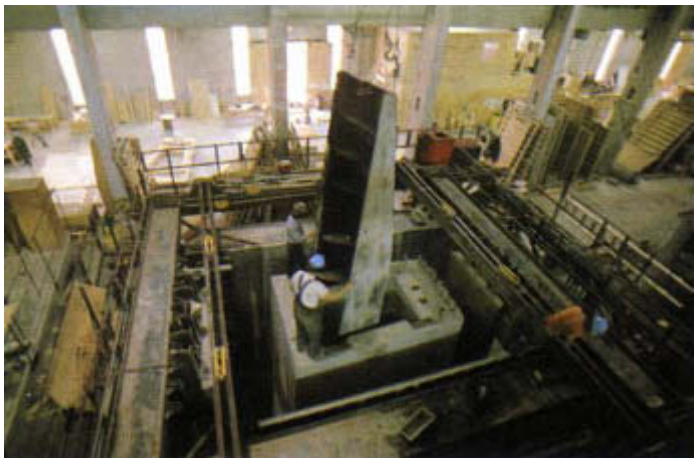
This continuous method of production was also used for the segments of the technical ring, which were manufactured in one of the two semi-enclosed plants. These buildings were constructed with moveable roofs and walls to allow protection from the elements, as well as quick and easy removal of the finished product.

The other semi-enclosed plant was used for the construction of the lower beam-arms. As their sizes varied with the consoles for which they were designed, these beam-arms were poured in pairs in a mould of variable dimensions.

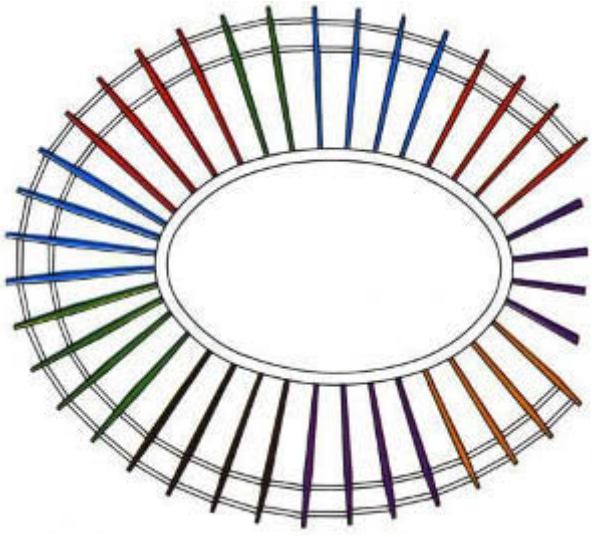
The same procedure was followed for the manufacture of the voussoirs of the upper beam-arms. These varied in dimension within a single console but were identical from one console to the next.

The 12,000 prefabricated elements required for completion of the stadium represented 71,500 cubic metres of concrete held together by about 1,000 km of posttensioned cables.

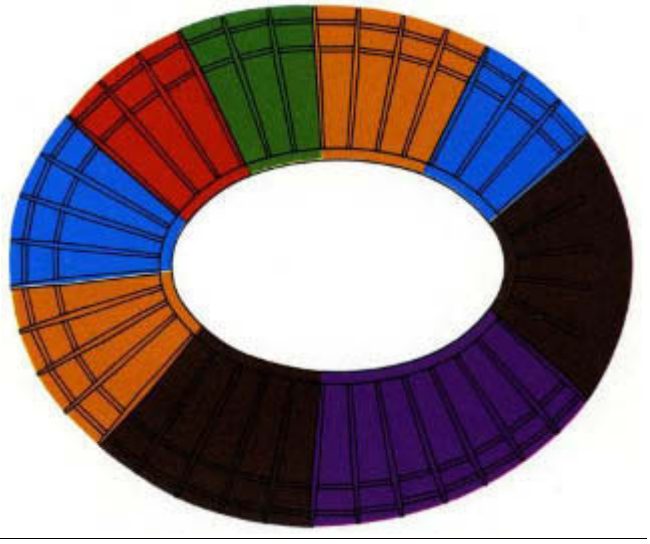




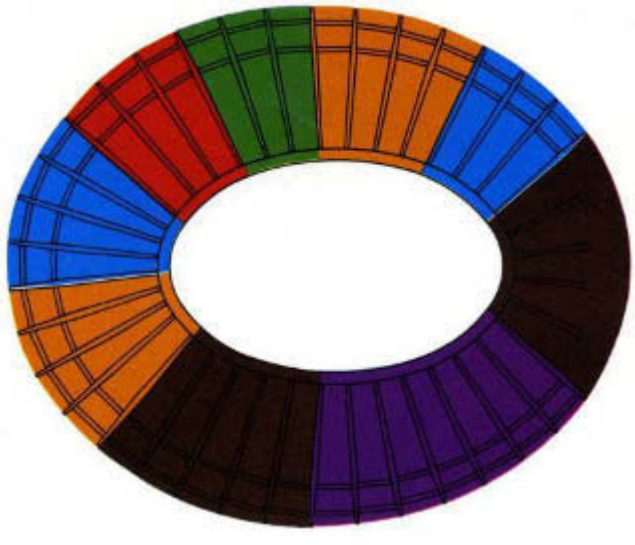
Installation schedule of stadium consoles



Sectional construction schedule of stadium



Schedule of finishing work



Progress of work
(according to May 1975
schedule)

	Dates		No. Consoles	No. Elements	Percentage	
	May	75	8	400		22.2%
	June	75	8	800		44.4%
	July	75	6	1100		61.1%
	August	75	4	1300		72.2%
	September	75	8	1600		88.9%
	October	75	4	1800		100%

	Dates		Sections	No. Elements	Percentage	
	September	75	1	420		9%
	October	75	2.3	1400		29%
	November	75	4	1960		41%
	December	75	5.6	2940		61%
	January	76	7.8	3920		81%
	February	76	9.10	4820		100%

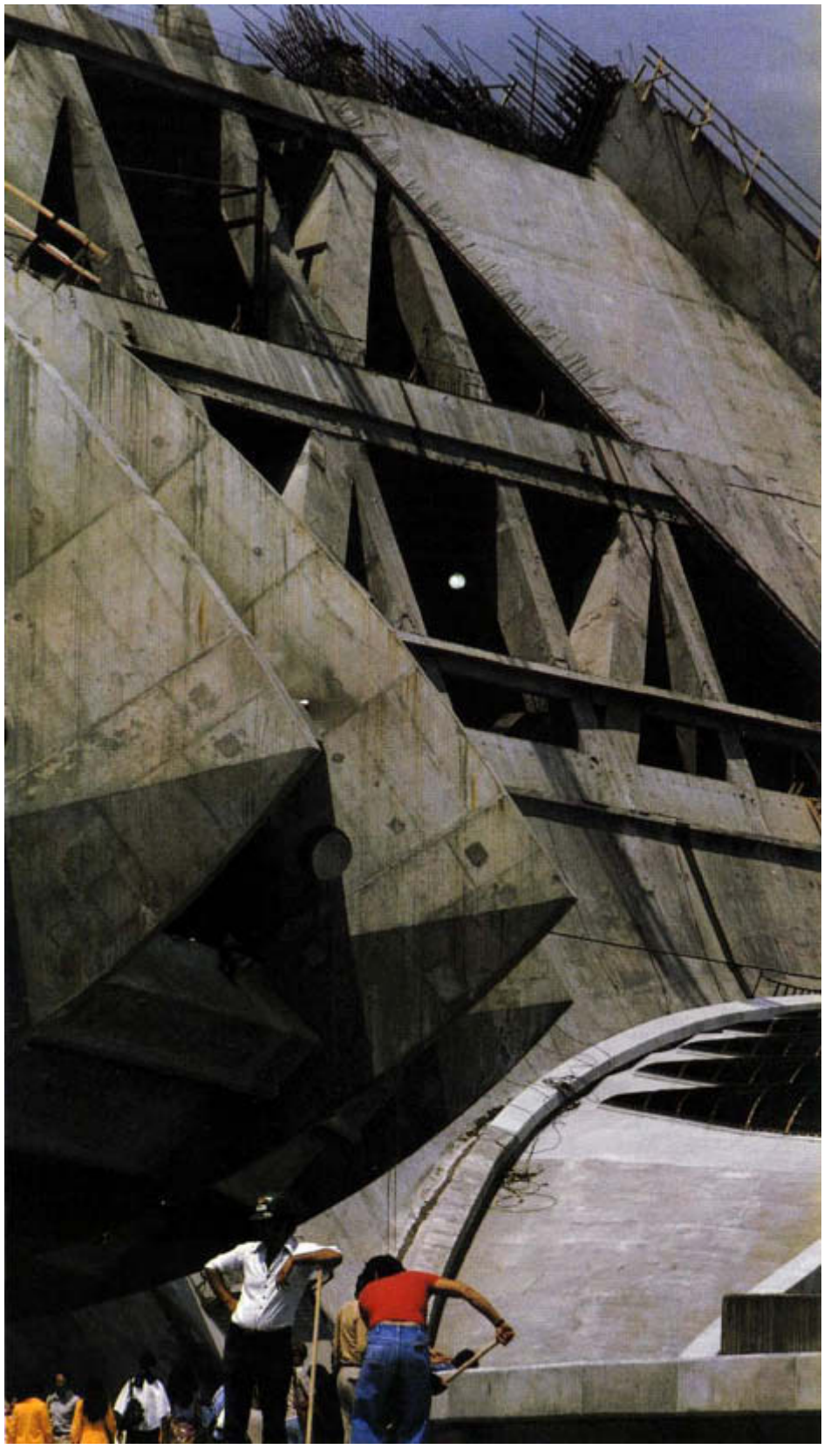
	Dates		Sections	Percentage	
	December	75	1		100%
	January	76	2.3		100%
	February	76	4		100%
	March	76	5.6		100%
	April	76	7.8		100%
	May	76	9.10		100%

The Retractable Roof and Tower

The original concept called for the stadium tower to rise 168 metres obliquely over the playing field with an overhang of some 60 metres. Little more than a quarter was completed for the Games.

The tower is designed to serve three primary purposes: it partially covers the Olympic Pool, it will act as a storage area for the stadium's retractable roof and it will also contain 18 floors (27,000 square metres) of facilities for volleyball, basketball, handball, fencing, gymnastics and table tennis, as well as dressing rooms, technical services and sports administration offices.

Once installed, the membrane of the roof will cover an open space of some 18,000 square metres. Highly durable and resistant to strain, it will be able to be raised or lowered in less than 20 minutes, thus allowing the stadium to be used at all times of the year in all weather conditions.



Mechanical Systems

Because the retractable roof had not yet been installed, the mechanical systems in the Olympic Stadium were not in operation during the Games. Plans call for the building eventually to be entirely ventilated and air-conditioned.

When completed, ventilation, air-conditioning and heating systems will be two-fold in nature. On the one hand, the separate levels of the spectator stands will be fed air absorbed by ventilation apertures at ground level and treated during its passage from the field to the stands; on the other hand, a system located in the technical ring will blow air down on the playing field at some eight kilometres per hour. This system, with its fresh air intakes located in the area of the technical ring, will control air replacement and movement when the stadium is covered.

The precooled water or steam for the air-conditioning and heating systems will be produced by the central energy plant in the heart of Olympic Park.

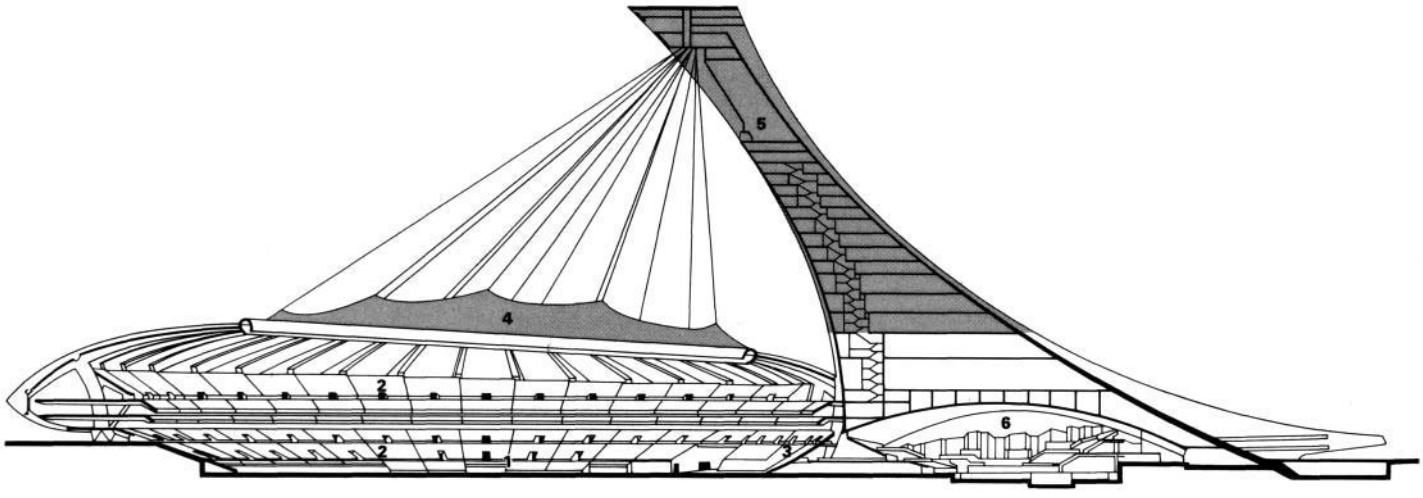
To illuminate the playing field during the Games, more than a thousand 2,000-watt bulbs were installed beneath the technical ring.

The Playing Field

For the period of the Games, the playing area inside the stadium was covered with natural turf, with the exception of artificial surfaces for the 400-metre track and the jumping areas. The natural grass, some 67,000 square metres, was installed by draining the terrain in the traditional manner and laying the turf on a bed of sand. This last operation was particularly critical, since the grass had to be given sufficient time to take root and, once laid, greatly restricted the movement of machinery in the stadium.

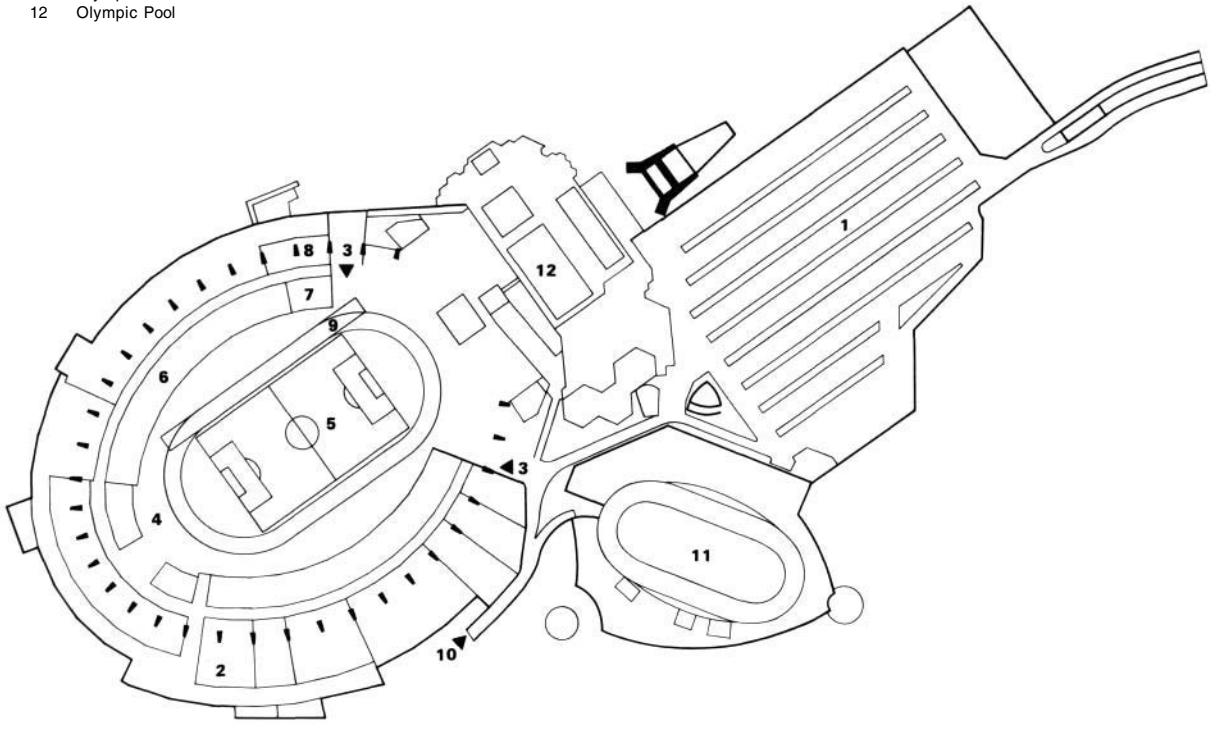
Longitudinal section

1 Playing field
2 Permanent stands
3 Temporary stands (standing room only —SRO)
4 Projected retractable roof
5 Projected mast
6 Olympic Pool



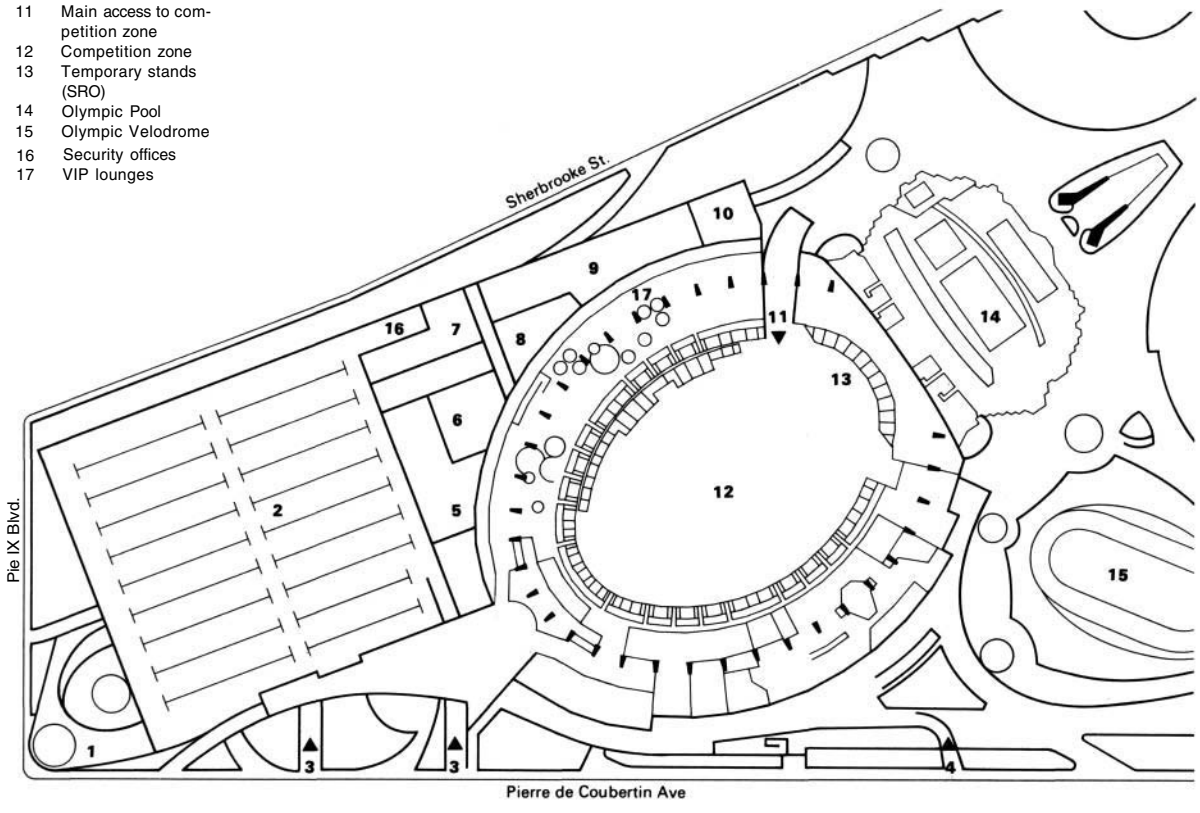
Level 100 (competition zone level)

1 Viau parking garage: (maintenance personnel)
2 Ambulance parking zone
3 Main access to competition zone
4 Permanent urn and protocol flagpoles
5 Competition zones
6 Sports administration offices
7 Lineup rooms
8 Warm-up area
9 Athletics track
10 Service entrance
11 Olympic Velodrome
12 Olympic Pool



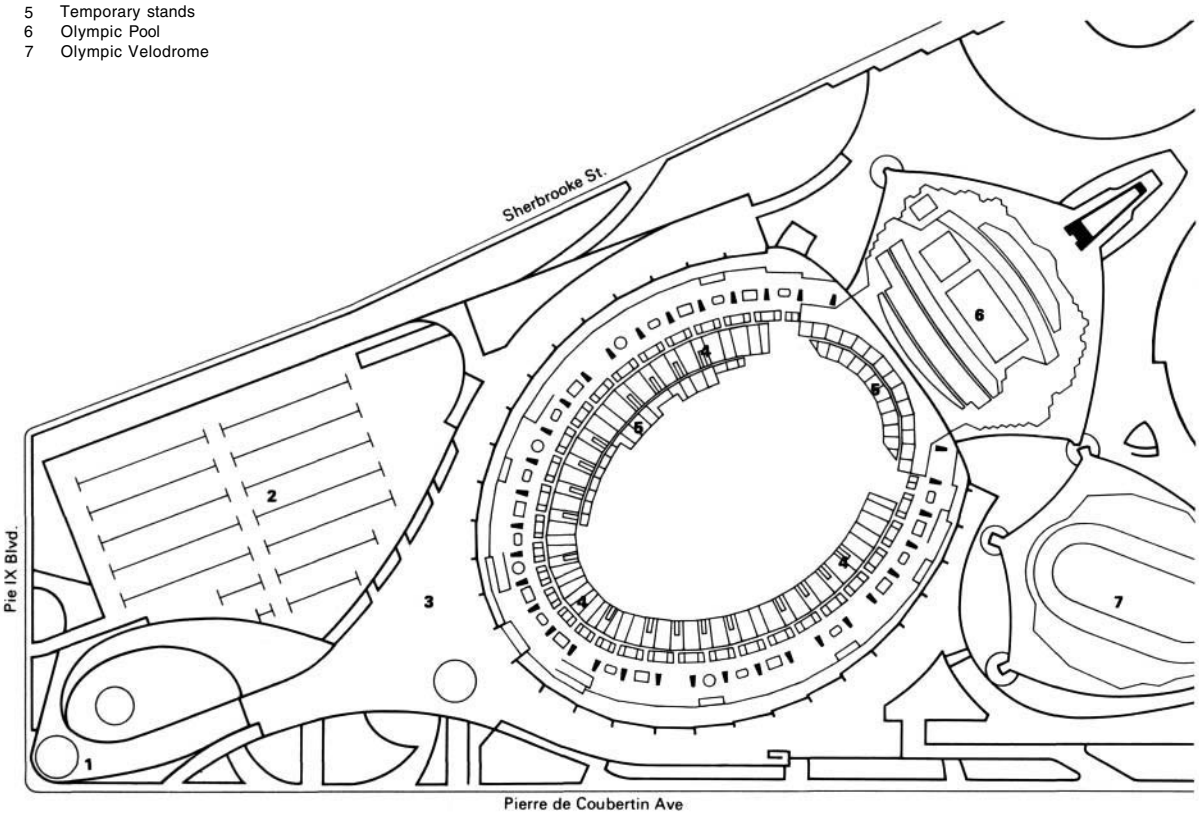
Level 200 (service access level)

1 Pie IX metro station
2 Pie IX parking garage
3 Access to Pie IX parking garage
4 Service access
5 Press subcentre
6 Official's offices
7 Olympic Installations Board (OIB) offices
8 Operations Unit (UNOP) offices
9 Athletes dressing rooms
10 ORTO quarters and mobile facilities
11 Main access to competition zone
12 Competition zone
13 Temporary stands (SRO)
14 Olympic Pool
15 Olympic Velodrome
16 Security offices
17 VIP lounges



Level 300 (spectator entrance level)

1 Pie IX metro station
2 Pie IX parking garage
3 Promenade to main spectator entrances
4 Permanent stands
5 Temporary stands
6 Olympic Pool
7 Olympic Velodrome



Temporary Olympic Installations

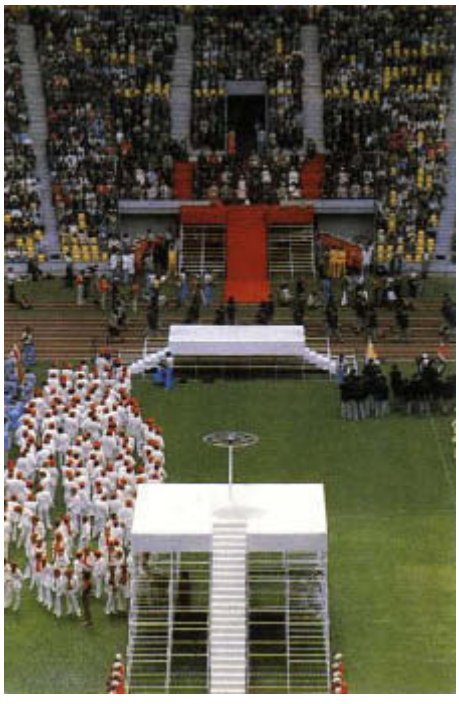
Offices for Games' organizers, officials and security personnel, as well as a press subcentre and VIP lounges, were located at level 200 of the Pie IX parking garage. Since these facilities would be dismantled after the Games, they were equipped simply and economically.

Dressing rooms and washrooms for athletes were installed in 76 prefabricated mobile units, each 3.5 x 6 m in size; two units comprised a dressing room, one a washroom.

All other services were located at level 100 of the Viau parking garage. Prefabricated structures were erected to accommodate food caterers and site officials, and dressing rooms were installed for building maintenance personnel.

All permanent services in the stadium, such as dressing rooms, washrooms and offices, will eventually be located beneath the stands, within easy reach of the playing field. However, only a few of these were completed for the Games, located at level 100 on the west side. They included rooms for senior personnel, quarters for the IAAF president and competition directors, a meeting room for the jury of appeal, a warm-up room for athletes, a medical clinic, and dressing rooms and conference rooms for Games' officials.

The royal box, a large semi-enclosed section of the permanent stands reserved for dignitaries and special guests, was also installed on the west side.

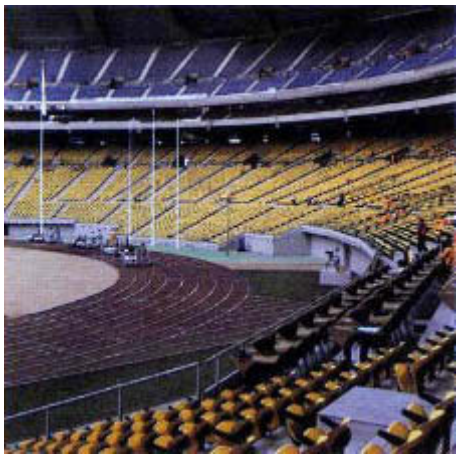


Most temporary stands installed for the Games were located at the extreme north end of the stadium, beneath one of the two gigantic scoreboards. Designed to provide standing room for some 12,000 spectators, they were to be replaced after the Games by a 250-metre running track, leaving the Olympic Pool in view behind a huge wall of glass.

The press stand at level 200, just south of the royal box, was equipped with platforms, each 1.5 m wide, to hold 500 commentator tables and closed-circuit television outlets. The area also contained 600 seats reserved for journalists.

Film and television cameras were located behind the commentators' tables at level 500. A number of cameras were also placed at field level, and a giant crane on the base of the unfinished tower was used by television cameramen to obtain a bird's eye view of proceedings.

During the opening ceremony, the urn for the Olympic Flame was installed on a light-weight aluminium structure temporarily erected in the centre of the playing field. For the remainder of the Games, the flame burned continuously at the extreme south end of the stadium. The simple, unpolished aluminium urn was flanked by four flagpoles: one for the Olympic flag, the other three for flags of victorious nations during official medal ceremonies. Meanwhile, the flags of all participating nations were suspended around the edge of the roof behind the technical ring.



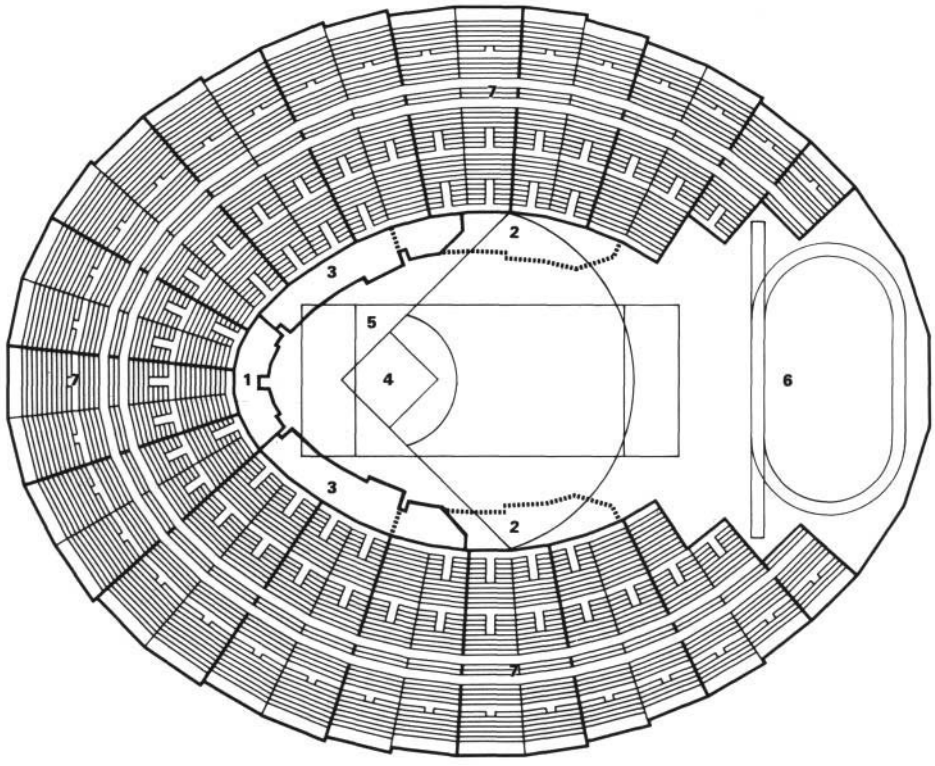
Technical Innovations

In constructing the hollow, self-stabilizing consoles, builders made maximum use of prestressed concrete to achieve a freestanding span unique in this sort of structure. Almost all the elements of this giant jigsaw puzzle were prefabricated, a process which was greatly facilitated by casting the separate components in pairs in vertical moulds, — an innovation in North America. When completed, the retractable roof of the structure, made of a supple, resilient fabric, will also be unique in design.

The two large electronic scoreboards were part of the permanent equipment in the stadium. One of these, measuring 10.5 x 35 m, was attached to the ends of cross-beams beneath the projected tower at the north end of the building. The other, longer by about 15 m, was installed at a higher level between two consoles at the south end of the stadium. These scoreboards were illuminated by some 19,200 forty-watt bulbs.

Post-Olympic configuration

1 Permanent stands at field level
2 Disposition of mobile stands for football
3 Disposition of mobile stands for baseball
4 Baseball field
5 Football field (North American style)
6 250-metre track
7 Permanent stands



Post-Olympic Use of the Stadium

After the Games were over, the natural grass was replaced by a synthetic surface laid over an asphalt base connected with the existing drainage system. Most of the terrain is now permanently covered with synthetic grass, though certain areas like the 400-metre track can be easily uncovered by means of a system of "zip fasteners."

Two sections of mobile stands, specially designed for American football and baseball games, were installed on the longitudinal axis on either side of a section of some 1,400 permanent seats at the end of the stadium. Constructed of steel and resting on rails, they provide seating space for 4,250 spectators and are designed to be easily adaptable for both baseball and football games. With minor modifications to barriers, players' shelters and playing field markings, the stadium is now equipped to host both football and baseball games.

Shortly before press time, the Québec government announced that the mast, retractable roof, and accompanying facilities would be completed as originally envisaged by the architect. The Olympic Stadium — already an international class arena — will, therefore, fulfill a long-standing need for a year-round sports complex in Canada's metropolis, sufficiently protected to withstand Montréal winters.

Olympic Pool

Since the 1896 Games in Athens, swimming has been one of the chief attractions of the modern Olympics. The Olympic Pool has consequently become one of the major installations in any city hosting the Games, both from an architectural and functional point of view.

The Olympic swimming centre, an indoor facility since the 1964 Tokyo Games, must conform to the strict requirements of the *Fédération Internationale de natation amateur* (FINA). These include the construction of two competition pools, one for swimming and one for diving, and accommodation for 10,000 spectators, as well as warm-up pools and all essential athletes' services. Within the space of only 10 days, the centre must be equipped to host heats and finals in twenty-six swimming events, competitions in springboard and platform diving, water polo matches and the swimming sections of the modern pentathlon event.

Since Montréal did not possess a single facility that met all of these requirements, Games organizers decided to build one. The new centre would provide Montrealers with a fully equipped aquatic facility once the Games were over but would be adaptable to meet the Olympic criteria during that period.

For example, 7,500 of the 10,000 seats were temporary, the balance being considered sufficient for post-Olympic usage.

Designed as an integral part of the Olympic Stadium, the pool was situated in the area beneath the stadium's main tower, adding a further dimension to the already diversified, multi-sports nature of the Olympic Park.

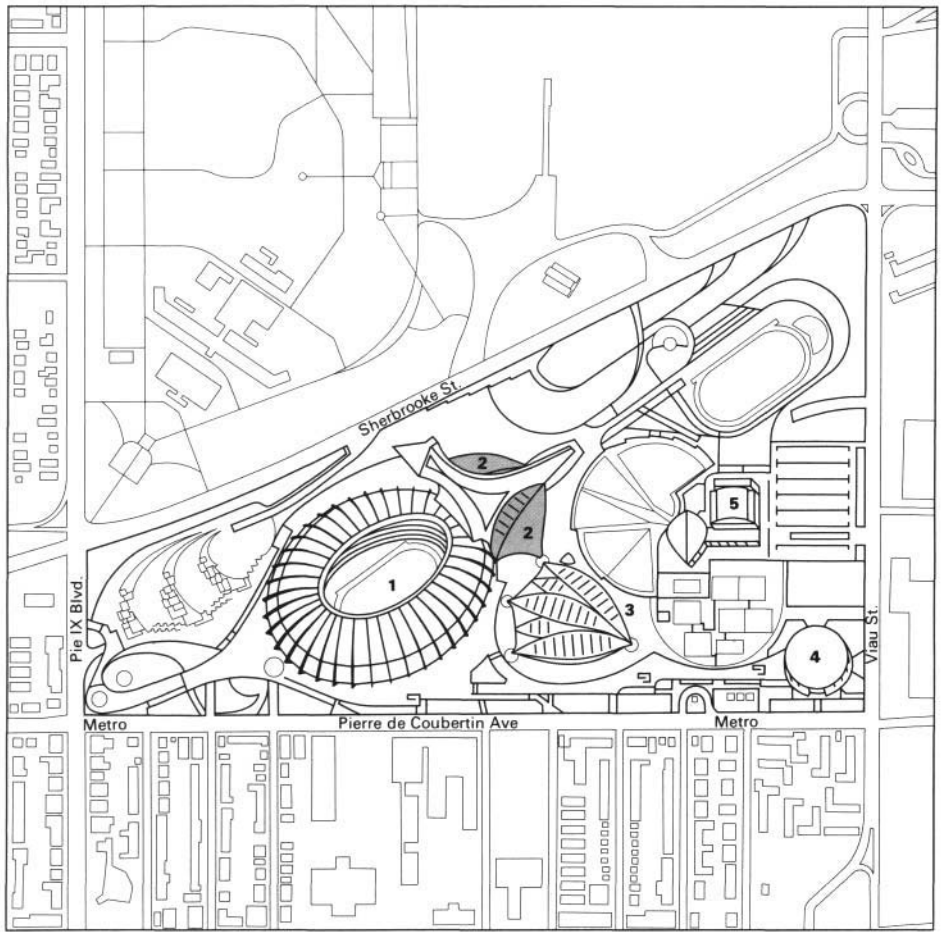
The outer shell of the swimming centre was constructed in three sections, the principal of which was the tripod formed by the base of the tower. The two adjoining sections were linked by a transparent trellis, creating a large, open vault beneath which were located all sports installations and spectator services. Sheets of tinted glass attached to metal poles and laid over an hexagonal screen formed the walls of the centre, lending it a quality of openness and spaciousness, particularly at the access level. The wall separating the swimming centre and the stadium was designed to be removed after the Games were over and replaced by another wall of glass.

The interior of the centre contained a total of some 10,000 square metres of space on three principal levels. All athletes' services, such as pools, dressing rooms, warm-up areas and rest areas, were located on the same level. Of these, only the two competition pools were visible to spectators seated in the curved stands during the Games, an arrangement which lent the interior of the building, as well as the exterior, an impression of great spaciousness.

All sports facilities in the building were installed only after the structure itself was completed and were independent of it. The first section of the building to take shape was the main arch formed by the tripod at the base of the tower. This was completed in late 1974 and was quickly followed by the construction of the two outer shells, both of which were erected in the same manner as those of the velodrome. The three arches supporting each of these shells were constructed of voussoirs of prefabricated, post-stressed concrete and were separated by the base of the tower and other common supports. The resulting triangles were covered with a thin concrete shell. Transparent skylights were later installed in prefabricated frames fitted into the open spaces between the tower and the two outer shells.

Not until all this work was completed at the end of 1975, and the thousands of temporary supports beneath the structure removed, was it possible to begin construction of the pools themselves. First, the basins were poured and the underground equipment rooms created. Then, facilities for services at pool level were constructed, along with staircases, service ducts and outlets and the frames of all inner walls. Finally, foundations for the permanent spectator stands were installed on the east side.

Major work on the site was completed by March 1976. There remained only the testing and synchronization of all equipment, and the installation of temporary facilities and services for the Games.

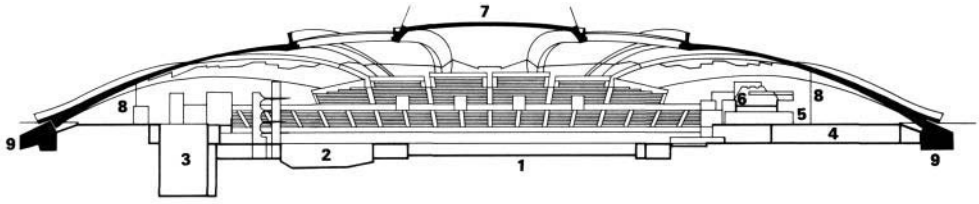


Site location plan

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre

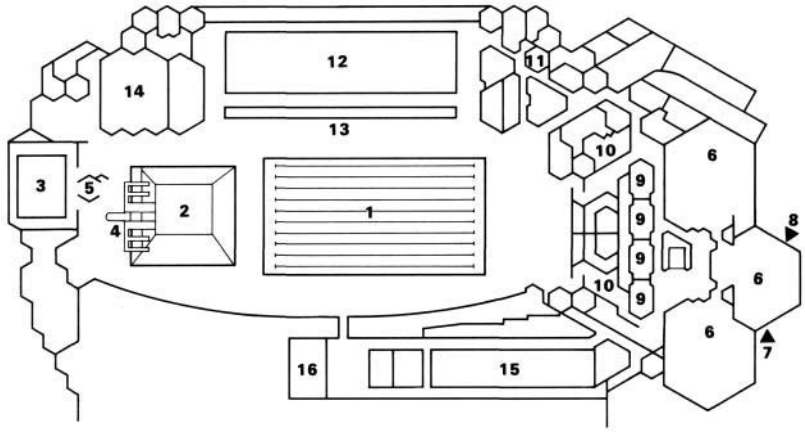
Longitudinal section

1 50-metre pool
2 Diving pool
3 Scuba diving pool
4 Athletes' quarters
5 Public lobby
6 Restaurant
7 Base of stadium tower
8 Exterior wall
9 Roof support



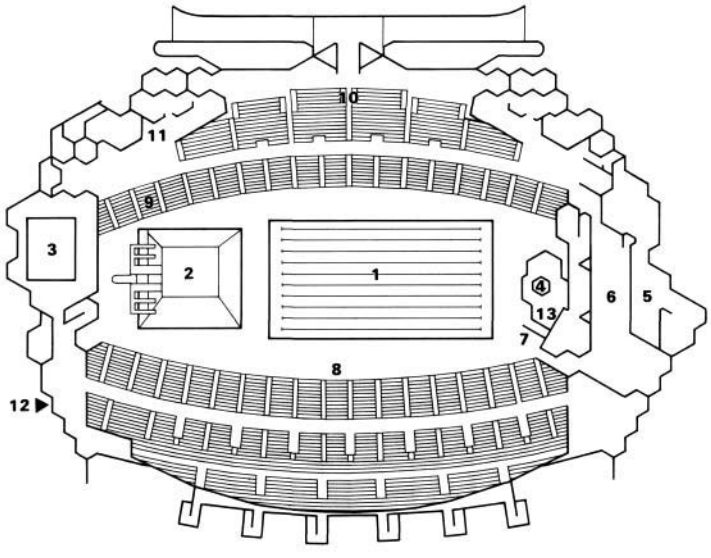
Main floor plan

1 50-metre pool
2 Diving pool
3 Scuba diving pool
4 Platform diving tower
5 Diving warm-up pool
6 Communal dressing rooms
7 Female athletes' entrance
8 Male athletes' entrance
9 Team dressing rooms
10 Washrooms and showers
11 Athletes' services
12 50-metre training pool
13 Technical gallery
14 Officials' quarters
15 Sports administration and federation offices
16 VIP lounge



Stands level plan

1 50-metre pool
2 Diving pool
3 Scuba diving pool
4 Medal ceremonies podium — wading pool
5 Public lobby
6 Restaurant
7 Temporary scoreboard
8 VIP stands
9 Athletes' stands
10 Press stands
11 Press subcentre
12 Access to temporary stands
13 Permanent scoreboard



One of these tasks was the installation of the 7,500 temporary seats occupying the entire south side of the building in an area designed eventually to hold a five-lane, 250-metre running track. After the Games, a glass wall would separate the pools from the track and the stadium without severing visual contact between the three areas.

A temporary wall was constructed for the period of the Games between these stands and the temporary spectator stands on the stadium side. All essential public services, including restaurants and washrooms, were located beneath these stands; sports administration and federation offices and a VIP lounge were installed at pool level.

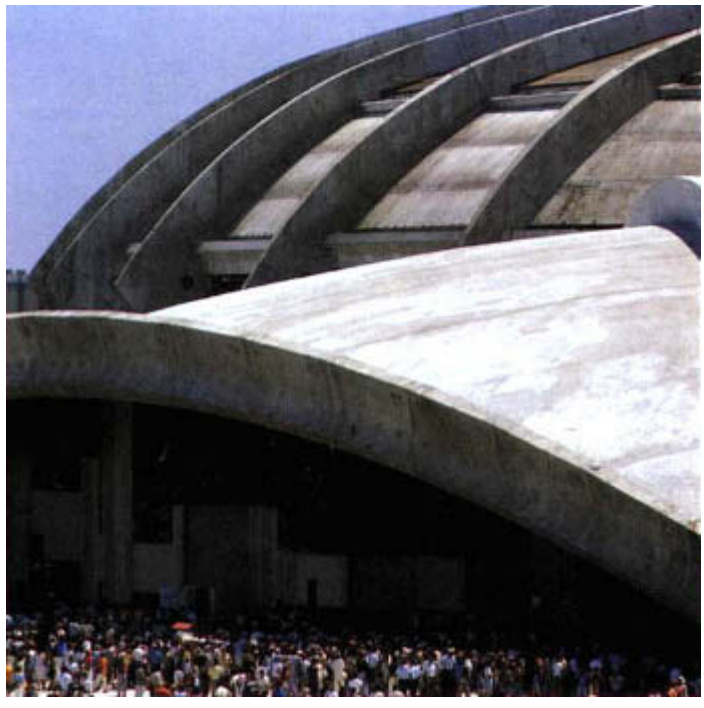
Members of the press occupied the upper sections of the permanent stands, where a press subcentre was also temporarily installed. Working space for the Olympics Radio and Television Organization (ORTO) and other broadcast units was located above this area.

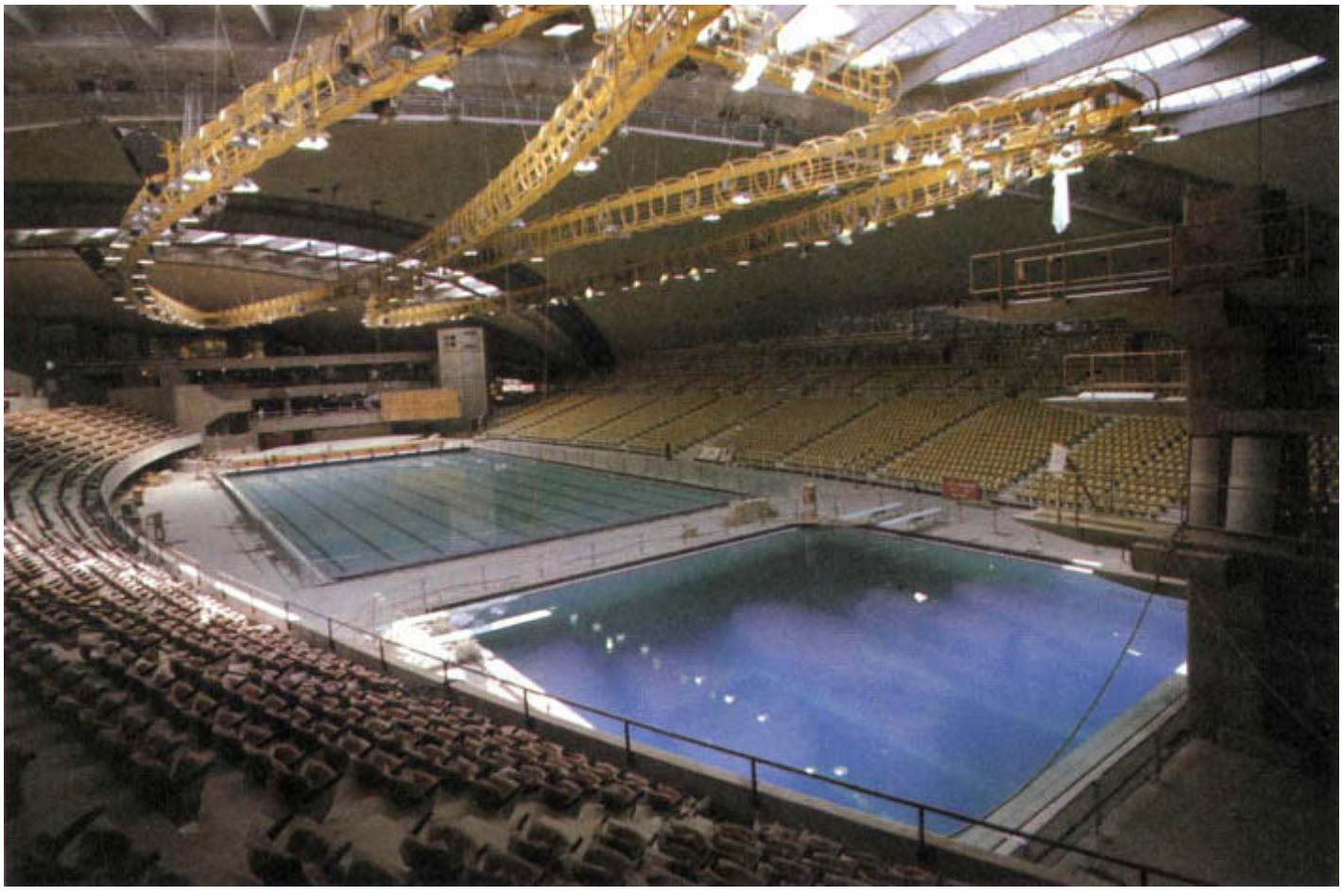
Athletes, dignitaries and members of the press were able to reach the areas reserved for them without having to pass through public areas. These reserved areas were designed to meet future needs as well as those of Games' organizers. Athletes were provided with three communal dressing rooms and four team dressing rooms, as well as a number of interconnected, hexagonal washrooms and shower rooms. From here, they could proceed directly to the competition pools or to the warm-up pool located beneath the east stands. The latter had five 50-metre lanes and could be divided in two by means of a hydraulically-operated barrier. In the same area, massage rooms, exercise rooms and saunas were available to athletes during the Games.

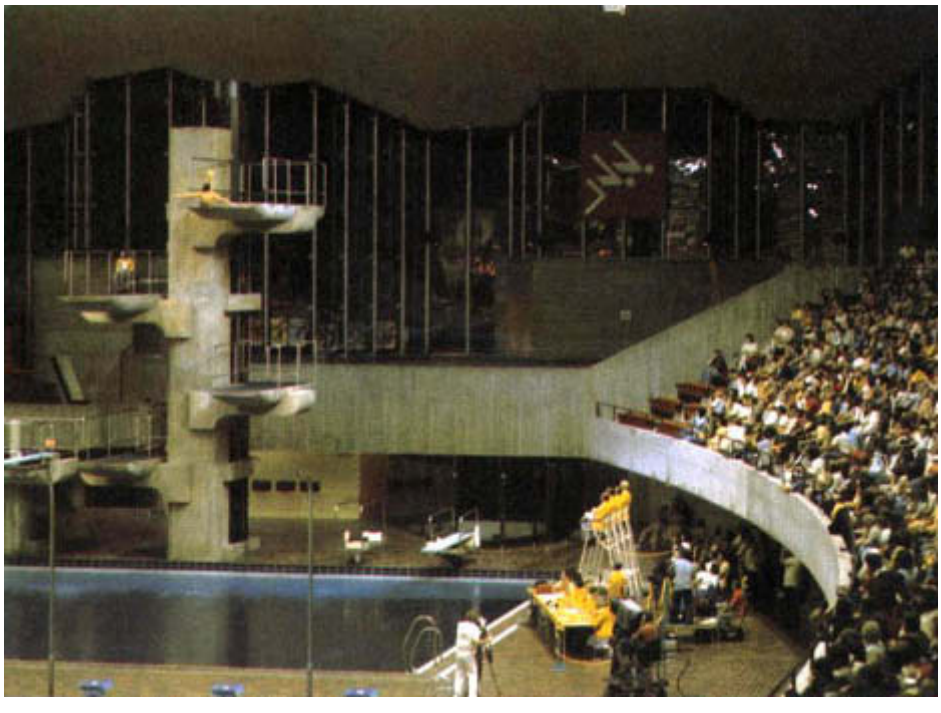
In the middle of the hall lay the brightly-lit swimming and diving pools, the centrepieces of the complex. The success of the diving competitions and the many Olympic and world swimming records set during the Games testified to the skill of designers and contractors in constructing these two magnificent pools.

Only eight of the ten 50-metre lanes in the swimming pool were used during the Games. The two outer lanes served to complement gutters specially designed to keep wave action in the pool at a minimum, allowing all swimmers to compete in identical water conditions. Two metres in depth, the pool contained all basic equipment for swim trials and water polo matches. Windows installed below water level allowed observation of the swimmers from the adjoining mechanical room, as well as underwater illumination through the use of special reflectors. Water quality and filter regeneration in the pools were controlled at all times automatically.

An air-conditioned elevator carried divers to the various platforms above the diving pool, located at 3, 5, 7.5 and 10 metres above the water surface. The pool measured 20 x 21 m and 5 metres in depth, and was also equipped with six springboards from one to three metres in height, some of which







were mounted on adjustable pistons. A system to inject air into the water created a sort of pneumatic cushion at water level to absorb the shock of the diver's impact. Nearby, a small glassed-in warm-up pool allowed divers to follow the performances of their fellow competitors while waiting.

Behind the high-dive platforms there was another pool, 15 metres in depth, designed eventually to serve as a training area for deep water divers. Access to this pool was at a higher level.

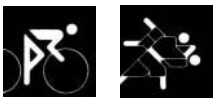
On the opposite side, a wading pool for children was used during the Games as the base of the medal winners' podium. The terrace restaurant which overhung it, as well as the scoreboard and the flags of the participating nations, all created a colorful background for the medal ceremonies staged in the centre.

Because the permanent scoreboard in the centre faced the east stands, a second temporary scoreboard was installed at an angle to the first to serve spectators in the temporary stands. Control posts for scoreboards, timing devices and sound systems were located in a glassed-in gallery at pool side beneath the permanent stands.

Catwalks were installed in the building to hold lighting projectors for color telecasts. Suspended from the vault, these rings resembled large interlaced metallic hoops. They permitted easy access to the lighting system and other elevated equipment such as flagpoles. Designed primarily to be functional, they also added a decorative note to the site.

When COJO took possession of the Olympic pool in mid-June, 1976, many were surprised that all facilities were ready for use, since it had been only five months earlier that interior work was started under the completed roof. In the final analysis, Montrealers can take pride in the fact that swimming competitions of the 1976 Games took place in a brilliant centre, the design of which does full justice to the spirit of Olympic architecture.

Olympic Velodrome



Lacking competition cycling facilities in Montréal, COJO was faced with the need to construct a velodrome for the 1976 Olympic Games. Considering the restrictions of the climate and the limited popularity of cycling in the area, COJO decided to build an indoor facility within the Olympic Park that would contain a velodrome and provision for other sports as well.

The plans for the Olympic Park were submitted to the IOC in 1970 and the covered velodrome was approved by the *Fédération Internationale amateur de cyclisme* (FIAC) in the autumn of 1972. As a result, cycling competitions at Montréal were staged indoors for the first time in Olympic history.

In an attempt to make the fullest possible use of the site, COJO also decided to stage judo events in the velodrome during the Games. Training areas for both sports were to be installed within the same building.

After the Games, the sunken area enclosed by the track was to be used for a number of indoor sports, including figure skating. It could also be equipped to accommodate cultural events, fairs, exhibitions and conferences.

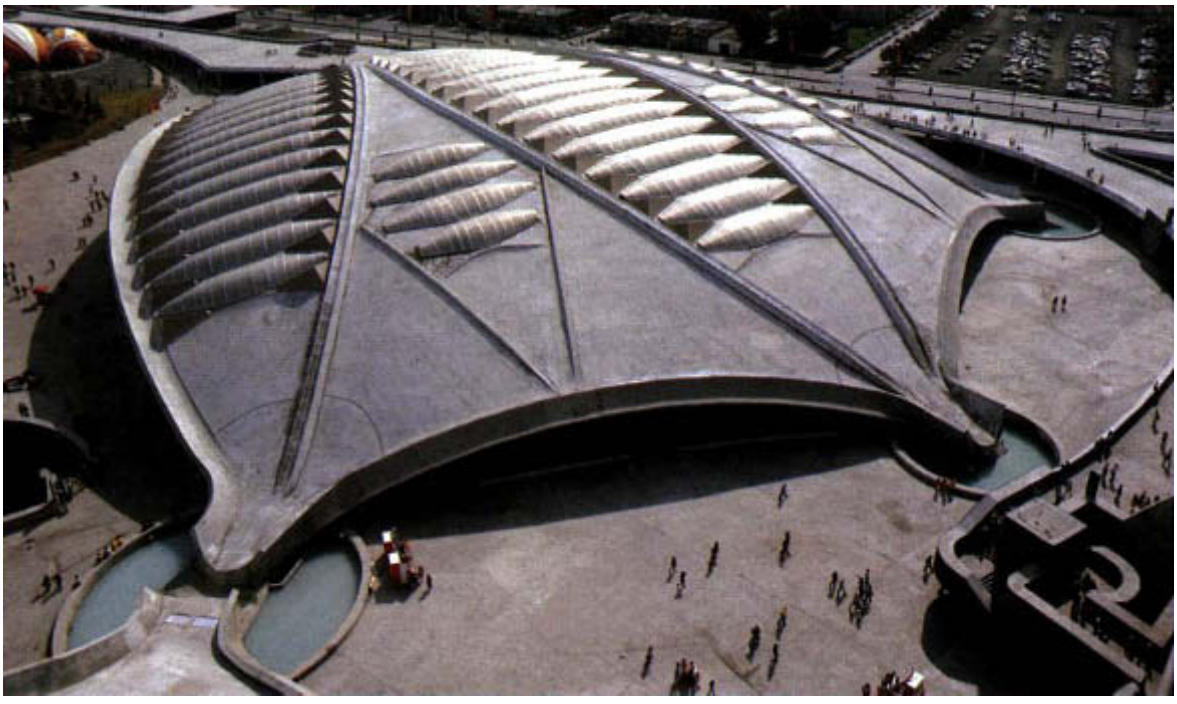
In planning the new velodrome, architects were faced with the problem of designing a building that would harmonize with the Olympic Stadium and the Olympic Pool and that would at the same time accommodate a cycling track, 7.5 m wide by 285.175 m long, and 7,500 spectator seats. The result is an intricate structure of prestressed and post-stressed prefabricated concrete, enclosing an area of 16,200 square metres and completely free of all interior supports.

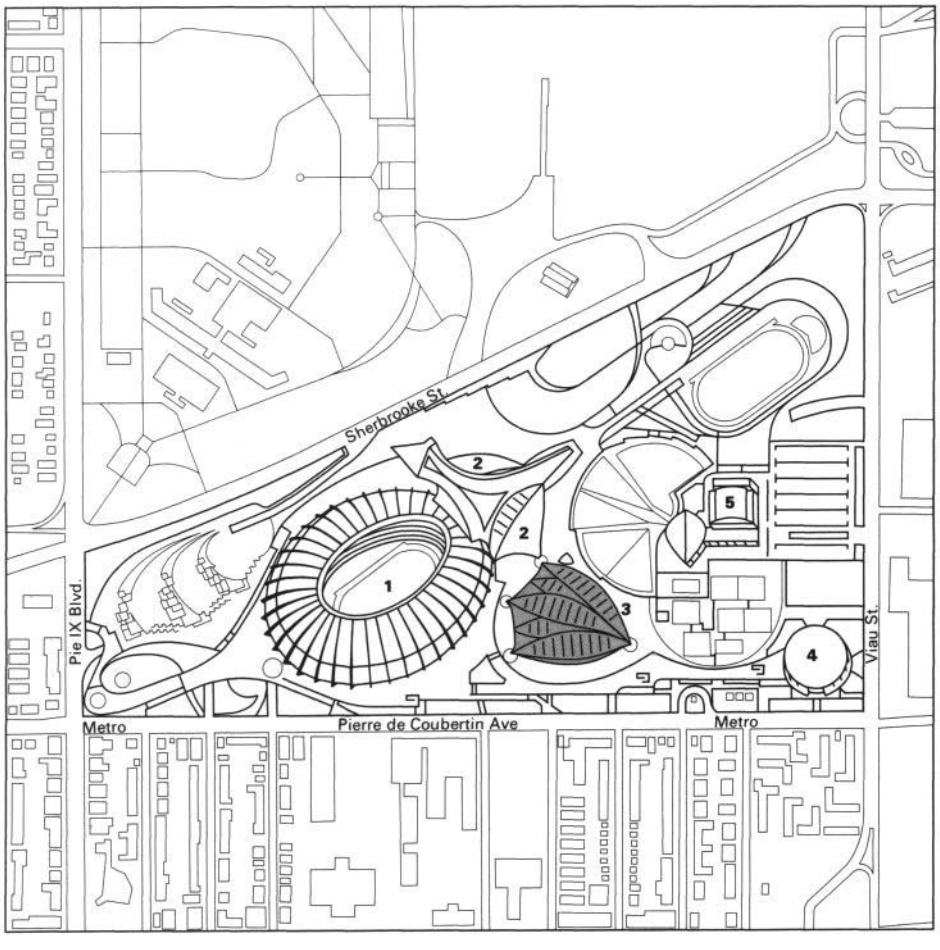
The roof, the most original feature of the building, is a sort of scalloped, perforated dome built on the arc of a sphere with a radius of 160 metres. The four supports of this roof are installed on the circumference of a circle 172 metres in diameter. Three of these are located on the southwest side of the building, each supporting two of the six principal depressed arches of the roof; these main arches, or ribs, then sweep across the amphitheatre and converge on the fourth support on the northeast side of the structure. All sports and administrative facilities and spectator stands are located beneath this large, freestanding shell.

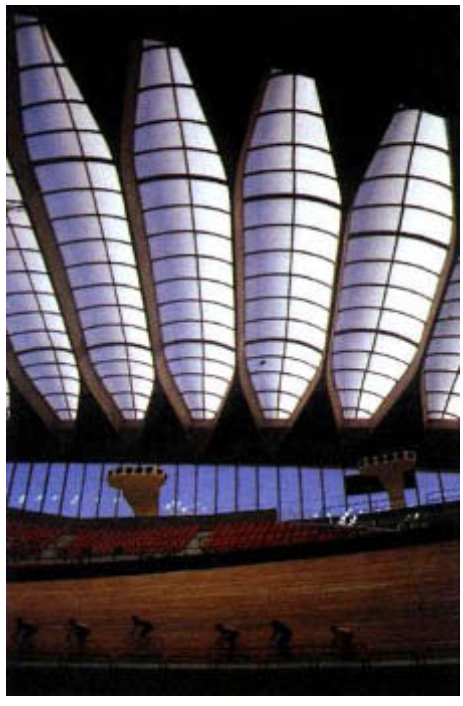
Construction work on the site began in August, 1973. However, as excavations progressed, it became evident that the rocky subsoil in the area was not solid enough to support the 41,000-ton roof of the velodrome in the manner originally planned, a problem which had not been foreseen in preliminary soundings and soil tests. It became necessary, therefore, to draw up new seismic projections and modify the operation: the concrete buttresses and the slabs of the roof were reinforced; consolidating braces were installed about the four supports of the building; and the subsoil itself was fortified with streams of mortar injected under high pressure into holes drilled in the rock. The resulting stability and uniformity of the terrain was intended to forestall any possible displacement of supports under the extreme weight of the roof.

Once excavations were completed, the scaffolding for the roof was erected. The ribs of the roof, constructed of prefabricated concrete voussoirs, rested temporarily upon 144 metal towers, while the concrete slabs between them were erected on other metal supports. This scaffolding remained in place throughout the entire construction of the roof. The voussoirs and their braces were prefabricated in an area adjacent to the velodrome, while the building's four supports of reinforced concrete were poured right on the spot.

The 144 voussoirs with their balance-beams, each weighing between 50 and 100 tons, were raised into place sequentially by giant cranes. After they were sealed, cables were passed through pre-cast holes and tensioned to stabilize them. Once finally installed, they formed a single wide-span arch connected to the neighboring arch by means of hexagonal crossbeams. Terminating at either end







Site location plan

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre

in Y-shaped forks, these crossbeams formed a sort of lattice-work in which skylights were later installed.

When the entire network of depressed arches was in place, a final series of supporting cables was passed through casings in the voussoirs and was carefully tightened to ensure equal tension and resistance at all points in the structure. On the west side of the building, hyperstatic stress was absorbed by the prestressed reinforced concrete slabs installed between the three principal supports. The uniformity of the construction and the balance of structural elements in the shell of the building were also clearly determined at this point.

The perforated structure of the roof was designed to allow a light penetration factor of approximately 70 percent. The skylights were installed above the framework of crossbeams, permitting a uniform diffusion of light throughout the entire building. They also acted as thermal insulators. Constructed of a translucent, plastic-like material — a layer of polyurethane pressed between two sheets of acrylic — these light, resilient, vault-like skylights underscored the spacious effect created in the building by the stark quality of the architecture.

However, right from the time tenders were called for their construction the skylights caused a great deal of controversy. Critics of the project insisted that they were inflammable, and designers had to conduct tests on a number of plastic materials before these fears were set to rest. Nevertheless, COJO decided to increase the security measures already taken at the site, adding water pipes and standpipes and providing for a team of firemen to be on duty at all times during the Games.

Labor union conflicts, as well as the difficulties encountered in laying the foundation of the building, delayed work on the site. Contractors remained optimistic, however, and work on the building continued.

Early in 1975, the roof of the velodrome was completed. The next step was to remove all the scaffolding supporting it. This delicate operation was accomplished by placing 226 hydraulic jacks beneath the four supports of the building and raising the roof some 10 cm, then dismantling the scaffolding beneath it. A system of flexometres, extensometres, and manometres was used to record the degree of stress and displacement at all points in the structure, including the four supports. Throughout the operation, this information was continually checked by engineers against the original computer projections of the exact amount of pressure required for each jack. A system of wedges attached to the supports prevented them from slipping in the event of a breakdown in the hydraulic circuit.

The jacks were installed in three layers, one on top of the other, beneath the four supports of the building. Each stage of the raising operation was determined by the maximum extension of one layer of jacks (54 mm), at which point the oil in those hydraulic jacks was replaced with cement and the next layer activated. When the entire operation was over, about a week later, more cement was poured around the jacks and the entire free-standing roof with its span of 172 metres was finally in place. Then it was a relatively simple matter to remove the scaffolding to make way for work on the interior installations in the building, all of which were designed to be structurally independent of the roof.

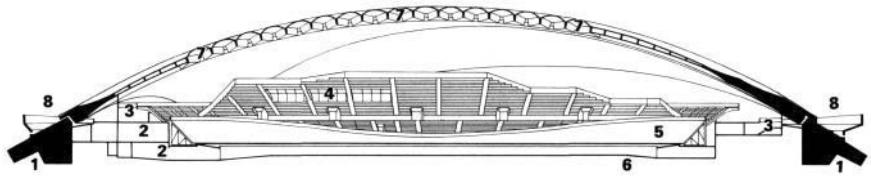
After pouring the foundation, erection of the prefabricated spectator stands was started. These were made of prestressed concrete consoles. These stands were reached by ten interior passageways strategically located to allow complete evacuation of the building in less than five minutes. The stands were then equipped with seats, with the exception of standing-room-only areas at each end for some 1,500 spectators.

In the northwest corner of the building, where all essential services were located, some 550 seats were set aside for athletes, members of the press, officials and judges. A part of this area also contained commentators' tables. In the uppermost regions of the stands, television and timekeeping booths offered an unrestricted view of the competition zone below.

In the autumn of 1975, work began on the cycling track. Laid over a framework of white wood resting on a

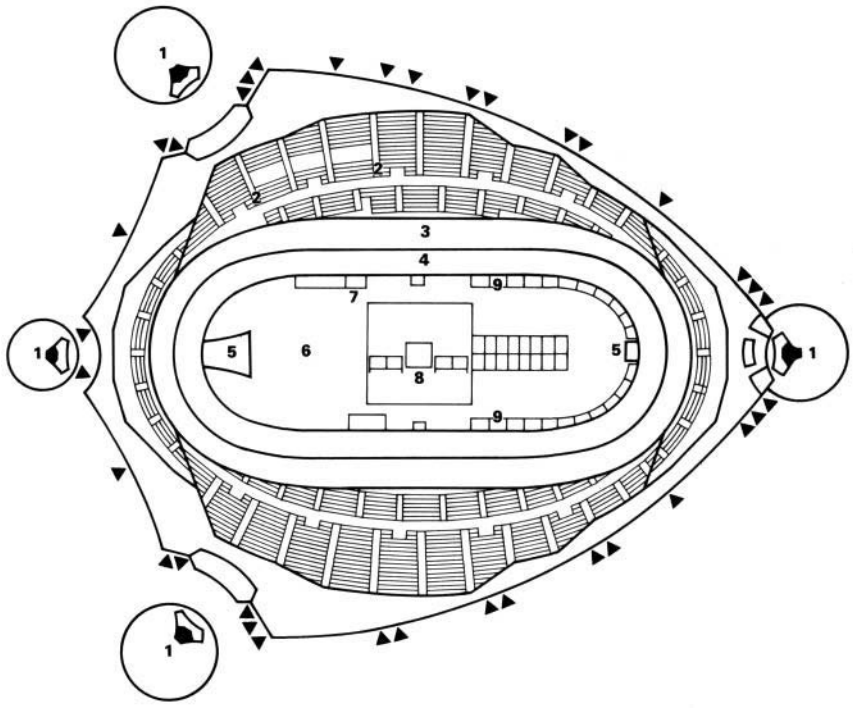
Longitudinal section

1 Roof supports
2 Athletes' dressing rooms
3 Public circulation
4 Restaurant
5 Cycling track
6 Waiting area
7 Skylights
8 Water drain-off basins



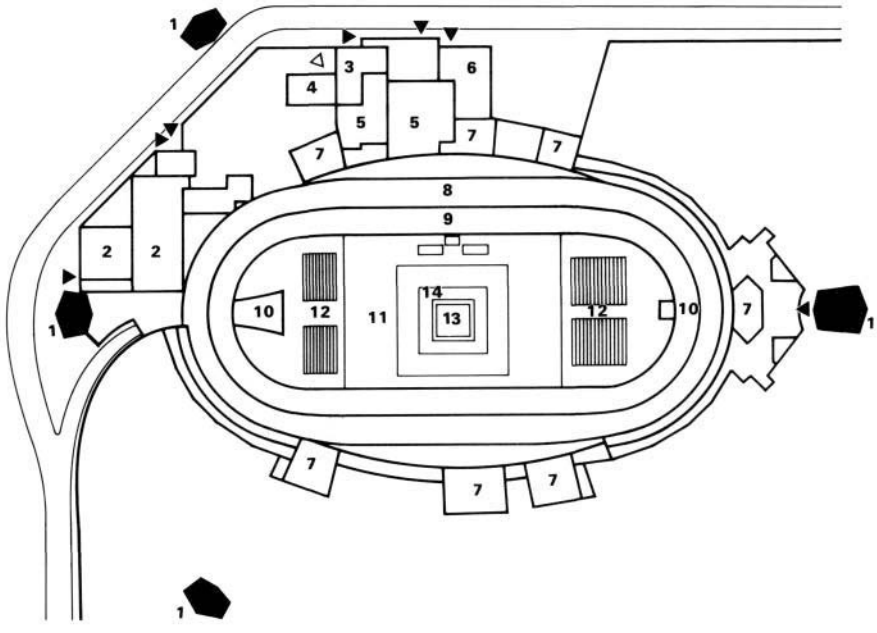
Upper level plan (cycling configuration)

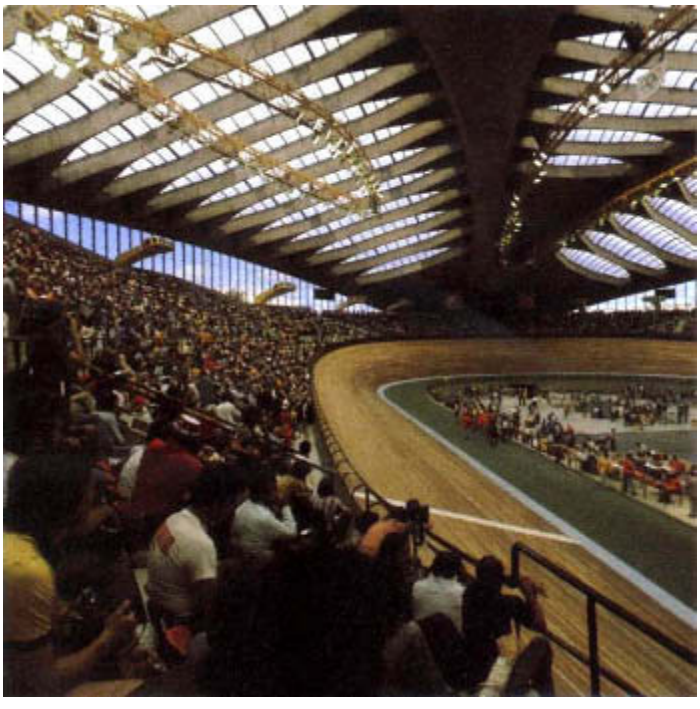
1 Roof supports and water drain-off basins
2 Reserved stands (athletes, officials and press)
3 Cycling track
4 Safety strip
5 Access tunnel to waiting area
6 Waiting area equipped for cycling
7 Timekeeping and photo-finish tower
8 Starter's podium
9 Athletes' stalls

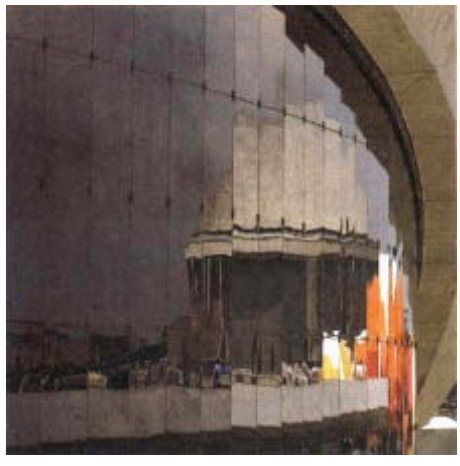


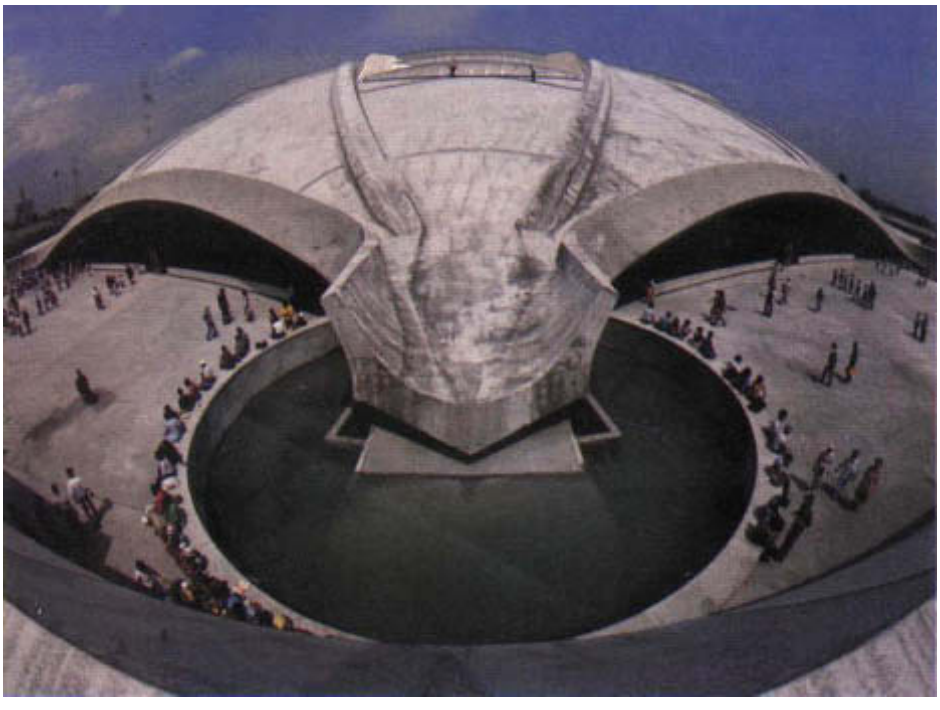
Lower level plan (judo configuration)

1 Roof supports
2 Athletes' dressing rooms
3 Restaurant
4 Press quarters
5 Officials' quarters
6 Sports administration and federation offices
7 Public washrooms
8 Cycling track
9 Safety strip
10 Access tunnel to waiting area
11 Waiting area equipped for judo
12 Temporary stands
13 Judo mats
14 Competition platform









concrete bed, with an angle of inclination varying from 13 to 48 degrees, it was constructed of afzelia, a rare hard wood imported from the Cameroons and assembled like a parquet, then polished to a high finish. The inner rim of the track was surrounded by a regulation safety strip of synthetic rubber.

A safety barrier on the inside of the track separated it from the centre area, which was depressed some 2.80 m to allow cyclists an unrestricted view at all times of all parts of the track. The concrete floor of this inner area was equipped with refrigeration pipes for the making of artificial ice, allowing the velodrome to be transformed at any time into a skating rink. Access to this area was via two tunnels passing beneath the track, one on the east side and one on the west. During the Games, the east tunnel was reserved for athletes, while the north west was used by service personnel.

Eighteen evenly distributed air-conditioning vents projected over the stands. Operating entirely on electricity, these units were designed to allow use of the velodrome under any climatic conditions. Metal footbridges were suspended beneath the roof to hold lighting and sound systems.

The lower walls of the velodrome, under the overhang of the vast roof, were made of large panes of glass installed on rubberized joints. This ensured tightness and absorbed expansion and contraction of the shell due to temperature changes and shifting of the concrete.

The velodrome was officially opened in April 1976, at which time some of the best cyclists in the world were invited to test the track. Their verdict was a positive one: it offered ideal conditions for competitive cycling, permitting speeds of up to 110 km per hour on test runs conducted behind a motorcycle.

The weeks preceding the opening of the Games were devoted to the installation of all essential facilities in the building. Offices for security personnel, organizers and Games' officials, as well as athletes' dressing rooms, were located in the northwest section of the building.

Inside the track, towers were erected for timing equipment and photo-finish cameras as well as judges' platforms, from which race positions and results were fed to the results centre and to the scoreboards.

Temporary stalls were erected in a standby area where competitors could make final adjustments to their machines before proceeding to the starting line.

Collapsible guard-rails were erected about the centre area in such a way that access ramps and stairways could be installed at any point around the track.

Outside the velodrome, brightly colored banners and flower gardens lent an atmosphere of gaiety to the site. A comprehensive sign system, augmented by guides, directed the public to one or other of the 35 entrances located about the building. Upon entering the velodrome, visitors found themselves in a long, glassed-in hall that skirted the perimeter of the amphitheatre beneath the stands. From here, they proceeded directly to their seats through the ten passageways which exited one-third of the way up the stands.

Immediately the cycling events were over, the entire area inside the track had to be made ready for judo competitions. A regulation-size mat was installed on a 26 x 26-m platform, and two other warm-up mats were laid nearby. Portable stands placed at either end of the oval increased spectator capacity in the velodrome by some 600 seats, and judges' platforms were placed on either side of the competition zone. Athletes, officials, organizers and security personnel were assigned to the same offices, dressing rooms and seats used by their counterparts during cycling competitions.

This rapid transformation of the site to accommodate two very dissimilar events confirmed the versatility of the velodrome. Moreover, the bold design of the building is a testimony to the inventive and creative spirit that characterized the Games of the XXI Olympiad.

Maurice Richard Arena

The Maurice Richard Arena bears the name of a legendary figure in Canadian sports history. A star with the Montréal *Canadiens* ice hockey team, Richard's professional career spanned almost a quarter of a century and was climaxed with the inauguration, in 1961, of a major sports facility in his name.

Primarily a centre for ice hockey tournaments, the Maurice Richard Arena has become a significant part of the public life of Montrealers, serving also as a site for political gatherings, automobile shows, concerts, circuses and agricultural exhibitions. For the 1976 Olympic Games, it was selected for preliminary rounds in boxing and the finals in freestyle wrestling, two sports to which the design and dimensions of the arena are particularly suited.

The arena is located in the south-east corner of the Olympic Park, adjacent to a subway station and served by city bus lines. An elevated walkway surrounding the entire Olympic complex connects the arena with other installations.

Constructed for the Montréal Parks Department, the building is circular, 93 m in diameter, and surmounted by a reinforced concrete dome, covered with aluminium, rising 31 m above the ground. There are four main entrances, corresponding to the cardinal points.

The building is constructed on three levels. The basement houses a maintenance shop, a warehouse and a boiler room, as well as a complex system for the manufacture of artificial ice. Most of the ground floor is occupied by the ice rink, which is surrounded by dressing rooms, warm-up areas, showers, conference rooms, offices and storerooms. The level above this contains the public seating, cafeterias and washrooms.

For the Games, a temporary metal structure was assembled in the centre of the ice rink and covered, creating a solid floor of 450 square metres. This floor rose gently back on all sides of the competition area and accommodated 90 commentators' tables and temporary seating for 1,410. These seats, in sections reserved for officials, athletes, dignitaries, the media and the public, were reached by means of 11 staircases installed about the perimeter of the new floor.

The permanent stands surrounding the rink on the upper level contained a further 5,660 seats for the general public. These were repainted, as were the various stairways and passages.

Above the rink, lighting projectors were installed on a temporary, circular metal walkway suspended from the roof. These illuminated the competition area and stands to the required standards of the international sports federations and to those of the Olympics Radio and Television Organization (ORTO).

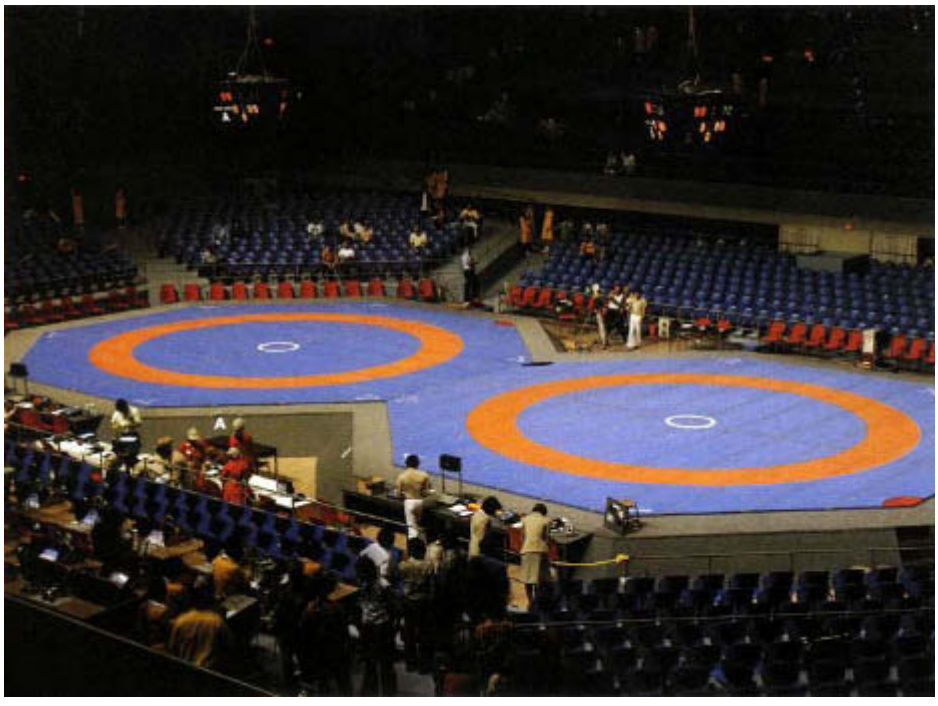
Existing dressing rooms located on the ground floor on the east side of the building were modified for the use of the Olympic athletes, creating 12 dressing rooms and 6 shower rooms. Provision was also made for warm-up areas, rest areas and massage rooms.

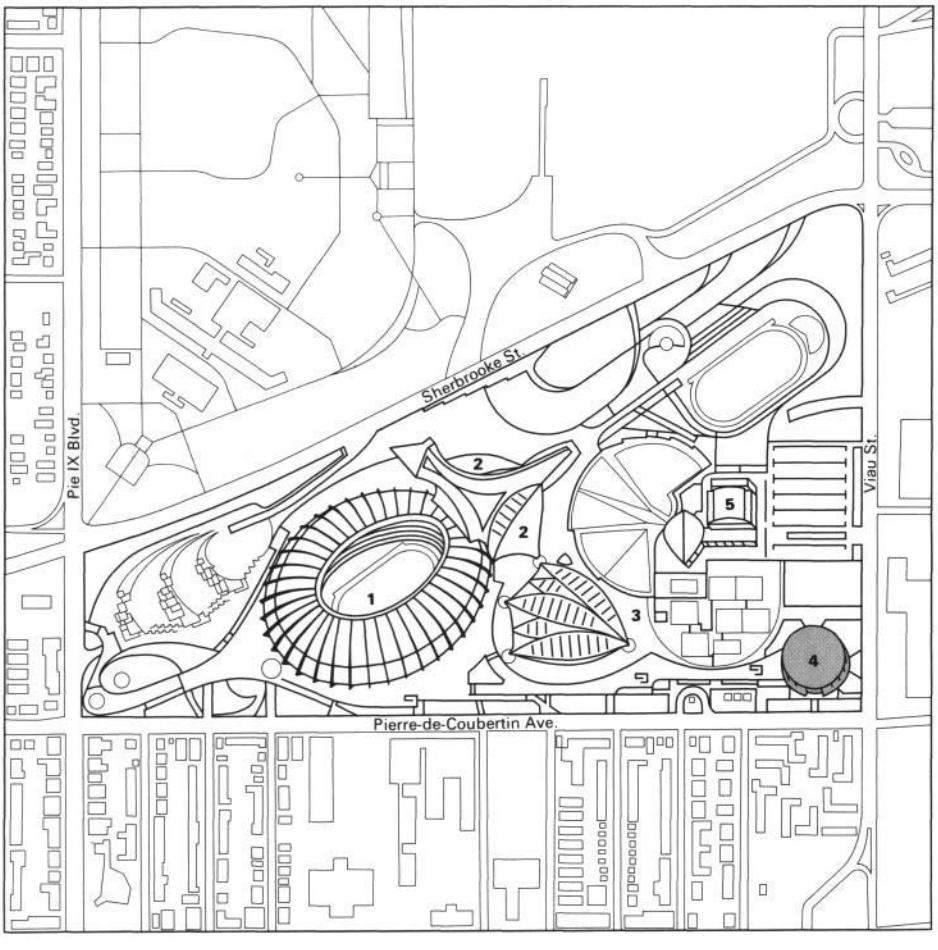
Administration and federation offices, conference rooms and jury rooms were located on the opposite side of the amphitheatre. Entering the arena by the west entrance, dignitaries and members of the press had direct access to a reserved lounge, equipped with a bar and closed-circuit television. A working area, service facilities, and additional offices equipped with color television monitors, were also provided for the media.

Finally, facilities for COJO employees, technicians and support personnel were located on the basement level.

The schedule of events at the Maurice Richard Arena imposed a critical design consideration with regard to the temporary flooring and stands in the rink area: they would have to be partially dismantled and reassembled overnight. Following the last boxing semi-final on the evening of Thursday, July 29, some 100 workers and technicians would have to move the boxing ring and accessory equipment to the Montréal Forum (where the finals would be fought), and modify the arena for the closing rounds of freestyle wrestling, scheduled the following afternoon.

In 13 hours, a team of specialists removed the ring and lightweight boxing equipment, partially dismantled



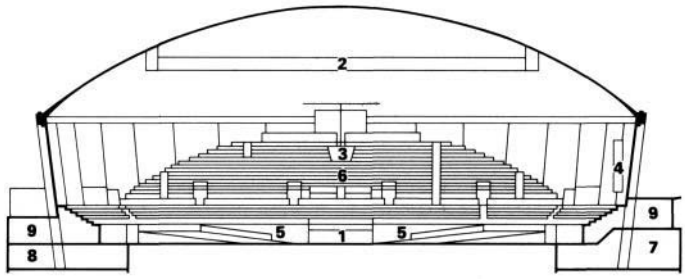


Site plan

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre

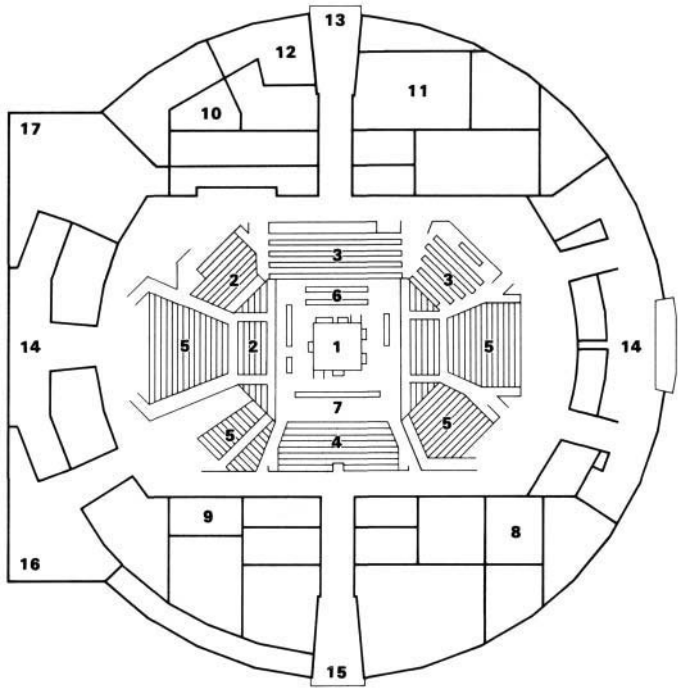
Cross section

1 Boxing ring
2 Lighting catwalk
3 Sound system
4 Scoreboard
5 Temporary stands
6 Permanent stands
7 Equipment room
8 COJO personnel room
9 Public entrance



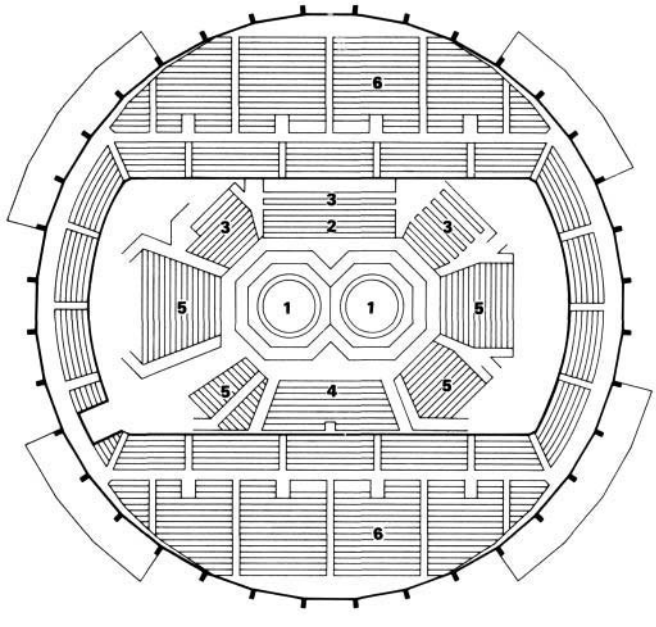
Main floor plan

1 Boxing ring
2 VIP stands
3 Press stands
4 Athletes' stands
5 Public stands (temporary)
6 Judges' and officials' tables
7 COJO personnel tables
8 Sport secretariat
9 Administration offices
10 Hostesses' quarters
11 Press subcentre
12 VIP lounge
13 VIP and press entrance
14 Public entrances
15 Officials' and athletes' entrance
16 COJO personnel entrance
17 ORTO personnel entrance



Stands plan

1 Wrestling podium
2 VIP stands
3 Press stands
4 Athletes' stands
5 Public stands (temporary)
6 Public stands (permanent)



the temporary stands to make additional space, changed the timekeeping devices and made the required adjustments to scoreboards and other technical equipment.

At the same time, another team was realigning the lighting projectors, installing the wrestling equipment, reconnecting telephones, removing a number of the commentators' tables, shifting the camera platforms and installing the wrestling podiums which had been transported from the Pierre Charbonneau Centre (formerly the Maisonneuve Sports Centre).

Late that night, the work crew moved on to transforming the warm-up areas while a service team altered direction signs in the building, arranged furniture and completely cleaned the premises prior to the arrival of the first freestyle wrestling spectators.

While this particular operation was unusual, even the normal course of modern Olympic Games call for the most recent advances in technology in order to meet the specific demands of each sport. For example, during the boxing competition in the Maurice Richard Arena, technicians not only had to ensure a constant circulation of air throughout the entire arena but had to maintain a precise correlation of temperature between the warm-up areas and the ring itself. This was to ensure that an athlete could pass from his warm-up to the ring with no significant change in temperature or environment. And all this had to be accomplished without causing discomfort to officials and others seated immediately at ringside.

The Maurice Richard Arena had to accommodate 91 teams during the 1976 Games, a total of 453 athletes. Training facilities for these athletes were located in the *École secondaire Calixa-Lavallée* (equipped with 12 boxing rings), and the Père Marquette Centre (equipped with 12 mats for wrestling), as well as in various other sites within a radius of 10 km of the Olympic Village.

Following the Games, the arena once again became a centre for ice hockey, this time with considerably improved facilities including large, modern dressing rooms, a new electronic scoreboard; and the most sophisticated lighting, sound and ventilation systems.

Pierre Charbonneau Centre

Only a few metres away from the Maurice Richard Arena is the Pierre Charbonneau Centre, better known to Montrealers as the Maisonneuve Sports Centre.

Built in 1957 as a community centre, it was converted a few years later into a police training school and remained as such until a year before the opening of the Games.

On March 23, 1976, the City of Montréal rededicated the facility in memory of Pierre Charbonneau, a man who had devoted many years to the advancement of amateur sports in Canada. Mr. Charbonneau was also actively engaged in the planning and organization of the 1976 Games as vice-president, Sports, for COJO.

The centre consists of two separate structures joined by a vast entrance hall. One structure is almost square and houses a multi-sports hall with seating for around 2,000; the other is an unusual, oval-shaped swimming centre containing a 25-metre pool covered by a free-standing, concave roof made of steel suspension cables set in poured concrete. Each unit has its own dressing rooms, showers and storage areas. A three-story administration block, located behind the north stands of the multi-sports hall, completes the complex.

The location of the Pierre Charbonneau Centre inside the Olympic Park made it a key consideration in COJO's planning for the Games. It was originally intended to schedule wrestling there, but objections were raised by the *Fédération Internationale de lutte amateur* (FILA), the world amateur wrestling body, on the grounds of insufficient spectator seating.

Finally, after repeated exchanges between COJO and the federation, the following agreement was reached in the autumn of 1974: all Greco-Roman wrestling matches, and the preliminary rounds in freestyle would be held in the centre and the freestyle finals would be moved to the Maurice Richard Arena, capable of accommodating nearly three times as many spectators.

In May, 1975, the work of turning the Pierre Charbonneau Centre into a site for Olympic competition got underway.

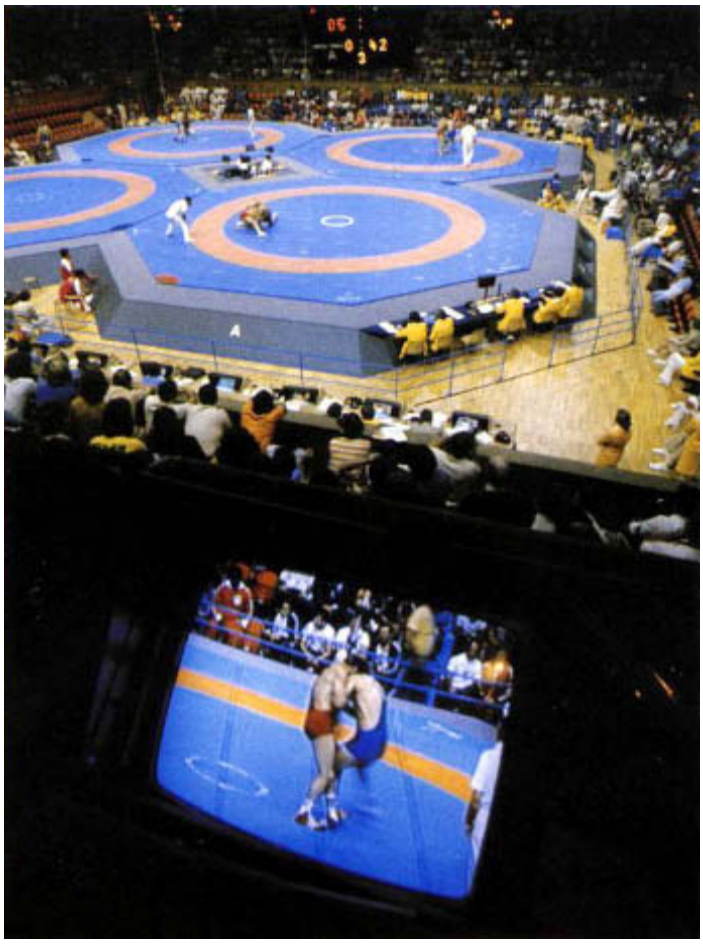
Major renovations were required to the multi-sports hall, where the wrestling events were to take place. Four octagonal wooden platforms, designed for rapid assembly in view of the subsequent move to the Maurice Richard Arena, were placed together in the centre of the floor. Each podium was 75 cm high with sides sloping 45° to lessen injury should a wrestler be thrown outside the competition zone, delineated by a regulation-size mat of polychloride vinyl placed in the centre of each podium.

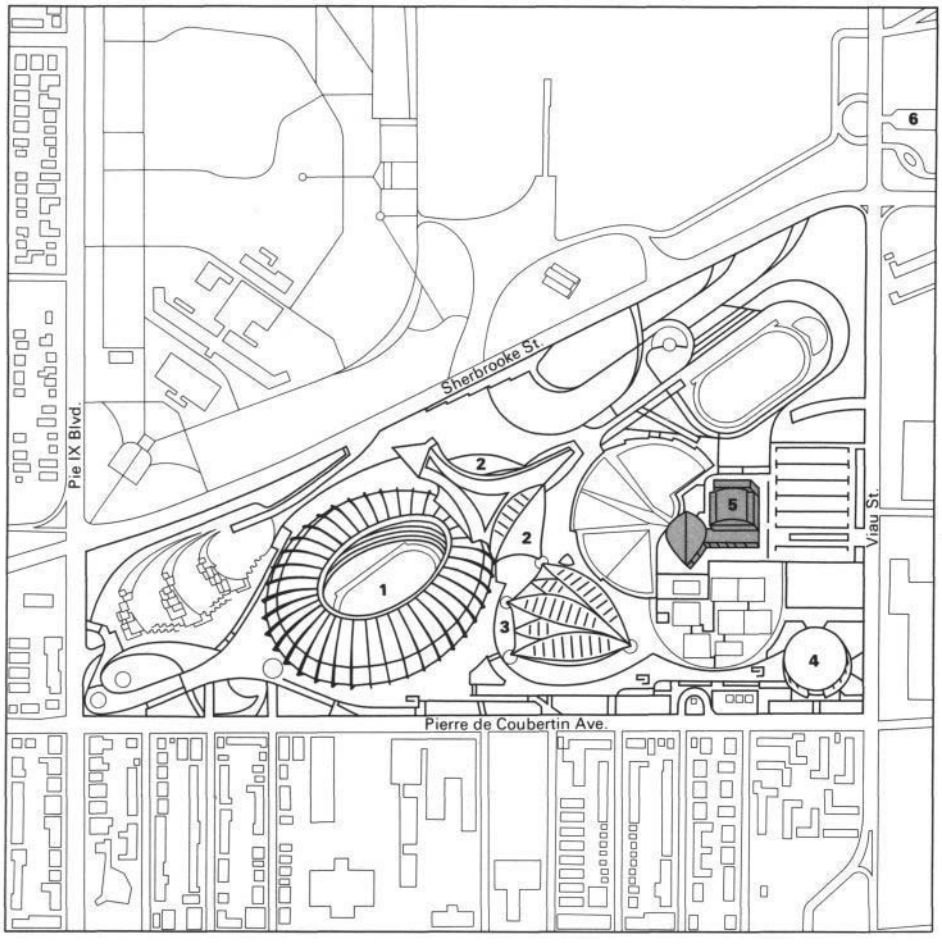
The four podiums formed a rough square with a pit in the centre to accommodate four judges and equipment. Other officials were located around the perimeter, thus giving all officials a clear view of the competitions without inconveniencing spectators.

Temporary seating was erected between the competition floor and the permanent stands on all four sides. These temporary stands were reserved for various athletes, officials and dignitaries and work tables were installed for journalists. Camera platforms and some twenty tables for broadcast commentators were located in the upper rows of the public stands on the north side.

New lighting projectors were required to meet the minimum intensity standards of the Olympics Radio and Television Organization (ORTO). A new air-conditioning system was also needed to maintain a constant temperature of 22° Celsius at mat level, dictated by the FILA.

Four timekeeping devices were suspended above the wrestling mats and the main scoreboard was suspended above the west end of the public stands. The scoreboard, which measured 9 x 3.6 m, had to be constructed in sections and assembled inside the hall since the largest entrance to the centre is only two metres square.



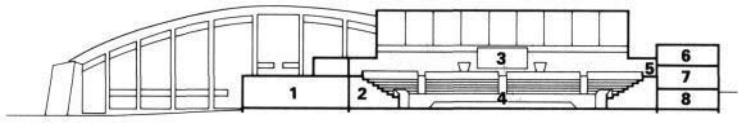


Site location plan

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre
6 Olympic Village

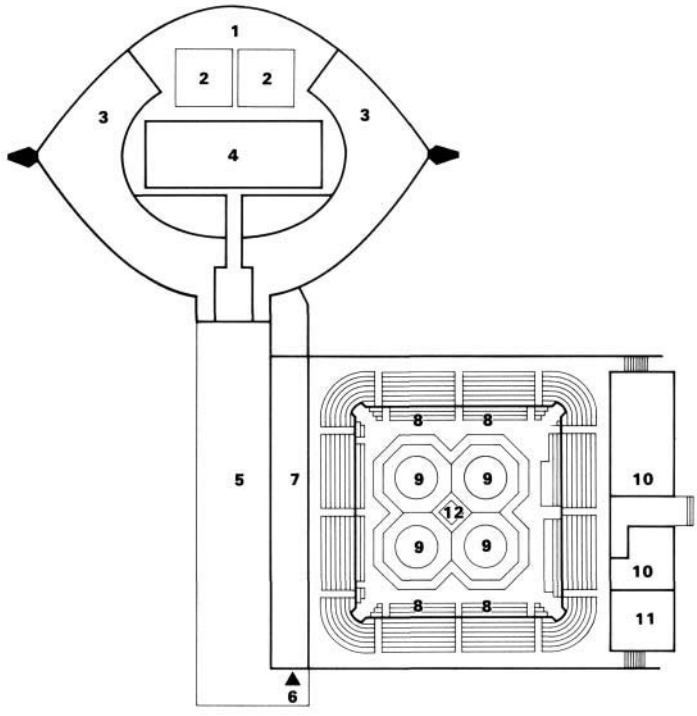
Cross section

1 Entrance lobby
2 COJO personnel dressing room
3 Scoreboard
4 Competition area
5 Camera location
6 Press subcentre
7 Federations' offices
8 Wrestling secretariat



Ground level plan

1 Official weigh-in area
2 Warm-up area
3 Washrooms, showers, saunas
4 Athletes' dressing rooms
5 Entrance lobby
6 Public entrance
7 ORTO quarters
8 Reserved stands
9 Wrestling podiums
10 Administration offices
11 Conference room
12 Judges' pit



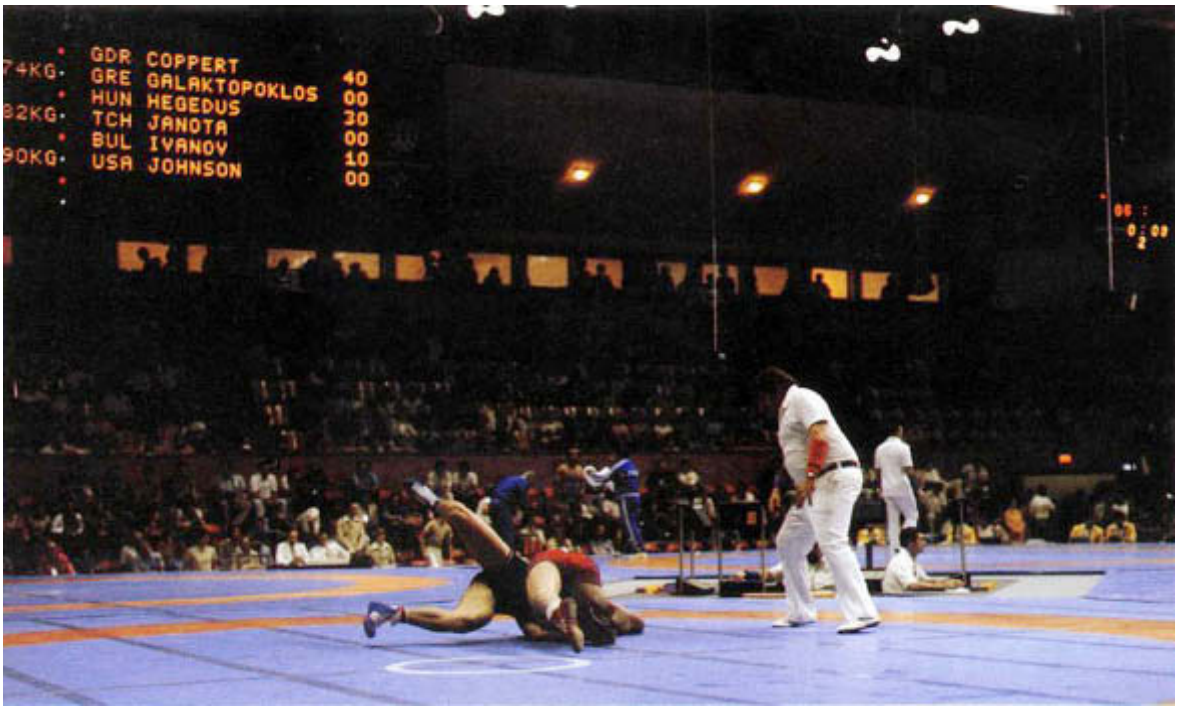
Federation requirements called for the construction of thirty dressing rooms, each nineteen square metres in size. Space was at a premium in the immediate vicinity of the competition zone and so it was decided to locate these in the adjacent hall where the swimming pool was filled with gravel and covered with a concrete floor. After the dressing rooms had been constructed, there was still sufficient space left for a warm-up area of two mats, 10 x 10 m each, and for electronic scales for the official weigh-in. A more powerful ventilation system was installed to prevent overheating arising from the use of the area formerly occupied by the pool.

Most official services relating to the competition, such as the wrestling secretariat, COJO offices and the results input centre, were located in remodelled premises surrounding the competition floor and in the administration wing at the north end. This wing also housed the press subcentre which took up the entire second floor.

On May 24, 1976, COJO officially took possession of the centre and began to put the finishing touches to the site. A great number of last-minute details remained to be completed: scoreboards and timekeeping devices had to be made operational, flags of the various competing nations assembled, directional signs posted and information and souvenir booths installed throughout the building.

The first round of Olympic competitions in the centre began on July 18 and continued until July 29. When the last event was over, two wrestling podiums, two timing devices and a major section of the scoreboard, were transferred overnight to the Maurice Richard Arena for the freestyle finals.

Thanks to its complete renovation for the Games, the Pierre Charbonneau Centre now plays an important role in the growth of amateur sports in Montréal and is used as a training centre for coaches and recreational group leaders.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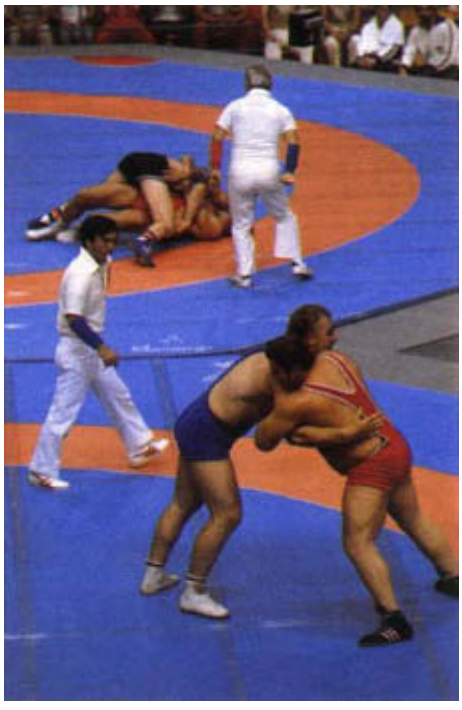


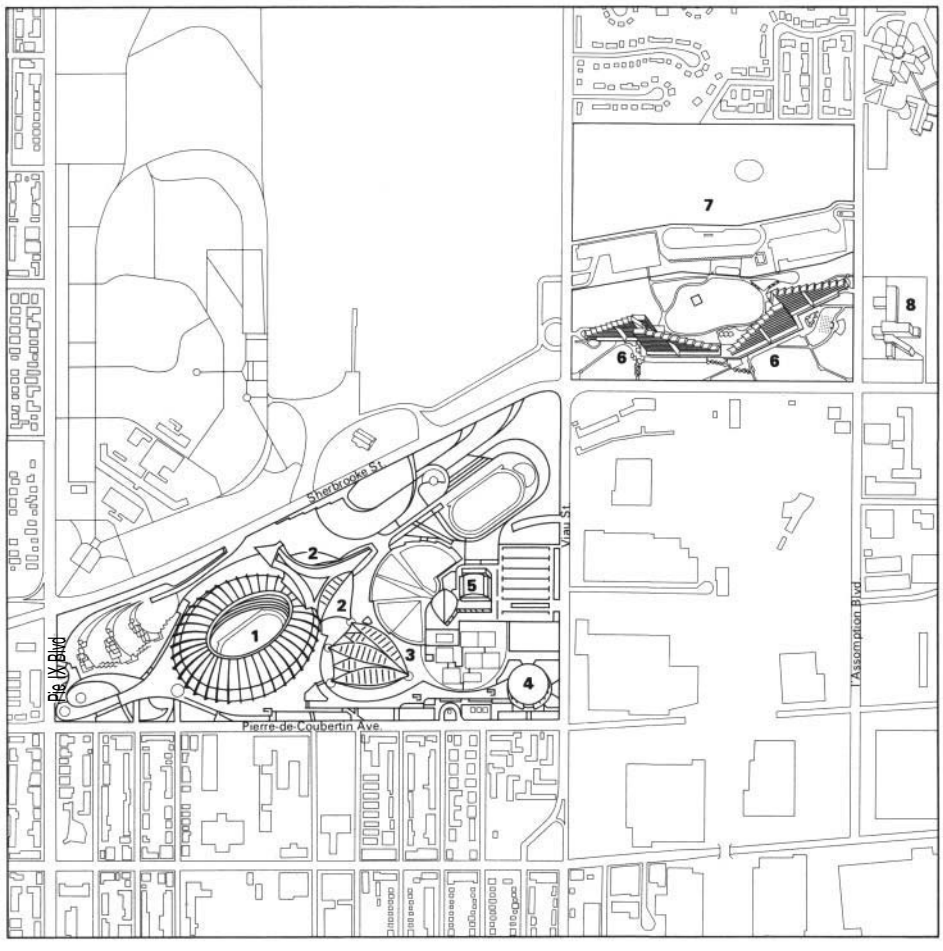
Olympic Village

In 1969, at the time of Montréal's initial bid to host the Games of the XXI Olympiad, the city had agreed to observe the long-standing tradition of locating athletes' living quarters in one location close to the main competition sites.

Accordingly, the Olympic Village was to be situated only a few hundred metres to the north of the future Olympic Stadium.

The city then had second thoughts and submitted to the International Olympic Committee (IOC) a project for a village consisting of five different buildings, spread over a radius of several kilometres from the Olympic Park. The object was to integrate Olympic living quarters as much as possible into the city's long-range public housing program.

This proposal was rejected by the IOC in June 1973. Montréal was informed that it would have to construct a village in keeping with IOC standards, which decreed that "the Organizing Committee shall provide an Olympic Village for men and one for



Site location plan

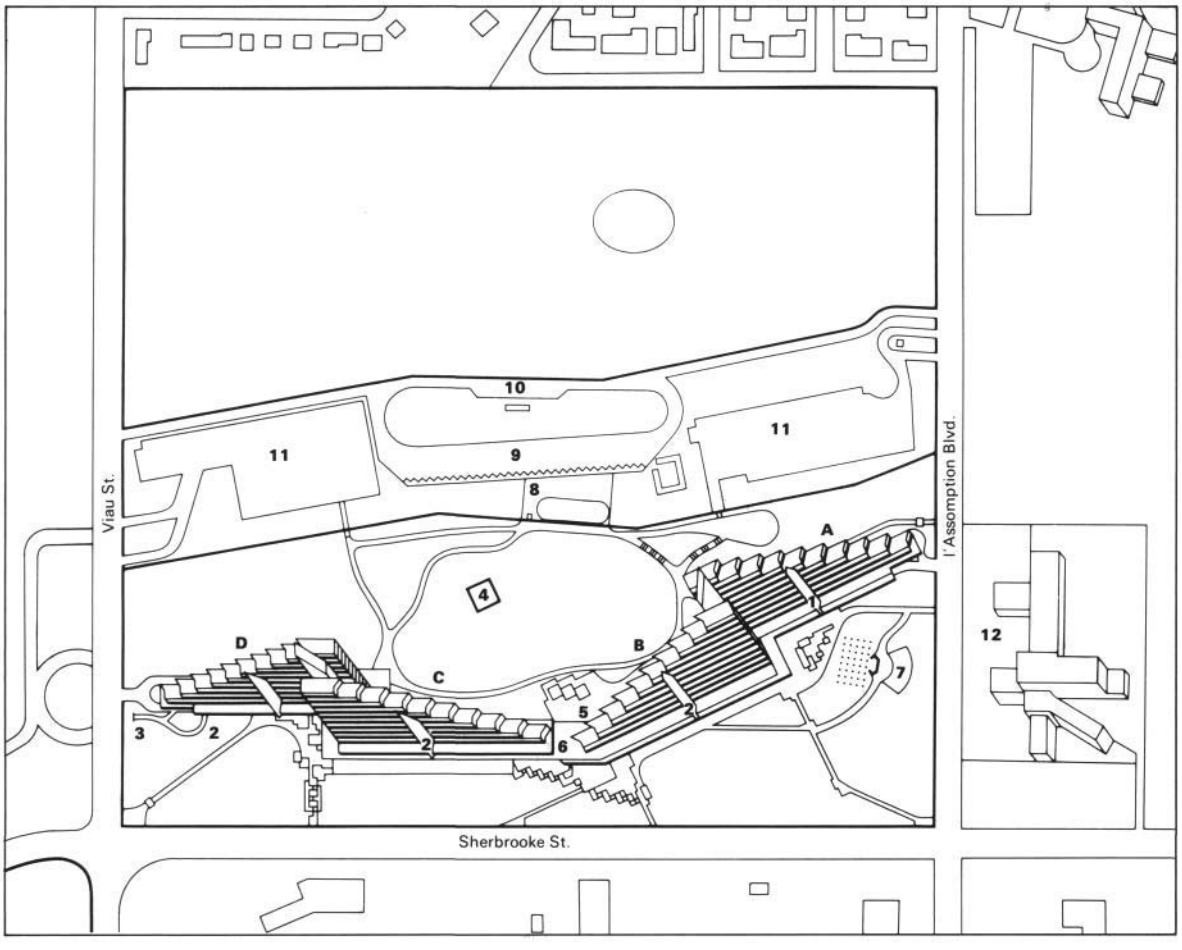
1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre
6 Olympic Village (residences)
7 Olympic Village (parkland)
8 International Centre

women so that competitors and team officials can be housed together and fed at a reasonable price. The Village shall be located as close as possible to the main stadium, practice fields and other facilities." (Olympic Rule 39).

Several possible sites were considered, but the choice finally fell to the location initially proposed, a 34-hectare plot of land on the municipal golf course about 800 m from the Olympic Stadium.

Preparatory Work

Before construction work could get underway, COJO had to clarify its needs and objectives, based largely



Site plan

1 Women's residence
2 Men's residences
3 Tunnel to Olympic Park
4 Outdoor theatre
5 Terrace café
6 Indoor pool
7 Place des Nations
8 Validation centre
9 Bus parking area
10 Bus inspection zone
11 Delegates' parking areas
12 International Centre

upon directives issued by the IOC. A questionnaire was sent to the various national Olympic committees to determine housing, food and other related services required. By the end of the summer of 1973, COJO was able to prepare a detailed list of requirements for the City of Montréal, which then called for design and construction proposals.

Two projects were submitted. The first, a design for a temporary village, was prepared by a composite team of teachers and students from the *Faculté d'aménagement* of the University of Montréal, a firm of architects and a company that specialized in the construction of prefabricated buildings. It consisted of the consolidation of hundreds of light, prefabricated components, never more than two stories high. The entire structure was designed to be dismantled after the Games.

The second design, submitted by a group of Montréal promoters, was for a permanent village, a complex of four 19-story buildings constructed of reinforced concrete and masonry. The height of these buildings would allow much of the site to be retained as exterior grounds and plans called for the complex to be turned into a permanent apartment village after the Games were over. At the beginning of the summer of 1974, after several months' study, this project was finally selected by the City of Montréal.

Two organizations were responsible for the construction and preparation of the Olympic Village: the City of Montréal, responsible for the building itself; and COJO, for all temporary facilities for the Games.

COJO's responsibilities involved housing the approximately 12,000 athletes and team members expected for the Games, providing space in the Village for administrative services and installing offices for the various national delegations. COJO also had to make arrangements for boutiques and lounges and provide facilities for social and cultural events.

The Montréal Concept

The Olympic Village consisted of four high-rise buildings grouped two by two with a slight angle between them, the resulting structures being dubbed "pyramids" because of their shape and design. This visually spectacular complex, nearly 600 m in length and rising to a height of 19 stories, acted as a sort of barrier between the noisy, bustling atmosphere of Sherbrooke Street and the Olympic Park to the southeast and the quiet, pastoral setting of the Municipal Golf Course to the west.

Olympic Village administration offices were integrated into the lower floors of the buildings, as were those for sports delegations, to allow close contact with all essential services.

The upper floors of the four buildings served as living quarters for athletes and team members, while the noisier lower floors contained all public and communal resources. Aside from its design, it was this hierarchy of spatial intimacy which gave Montréal's Olympic Village its peculiar character.

IOC directives specified that male and female quarters must be kept separate, but this barrier between the sexes was played down in Montréal. Tower A, reserved for female athletes and team members, was connected with the other three towers (B, C and D) at the lower levels and with each floor of tower B via the exterior balconies.

Restaurants, discotheques, cinemas, sports information rooms, libraries, shops and other similar services could be found in the International Centre, located in a public school near the Olympic Village and transformed for the occasion. This prevented congestion of the Village itself and ensured a quiet atmosphere in the athletes' residences.

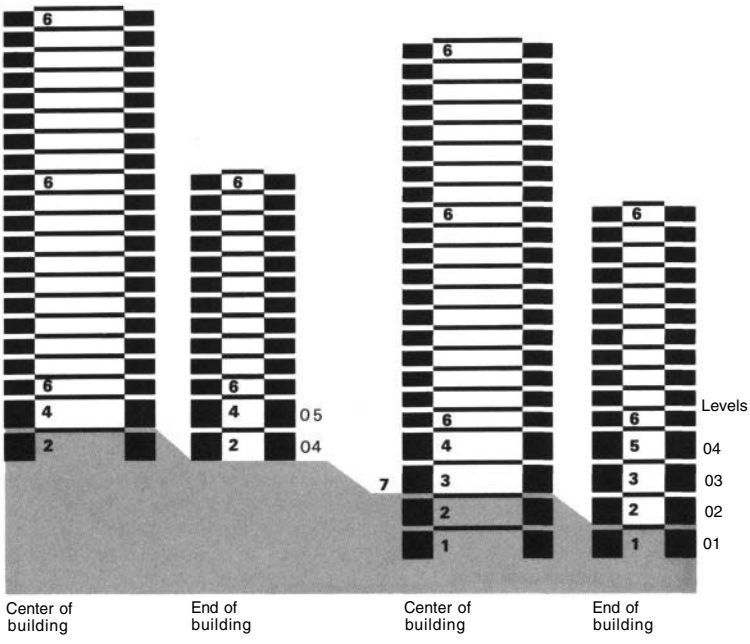
Facilities installed in the residences were of two types: permanent, such as building services designed for future use; and temporary, such as offices, cafeterias, furnishings and athletes' services provided by COJO and designed to be dismantled after the Games.

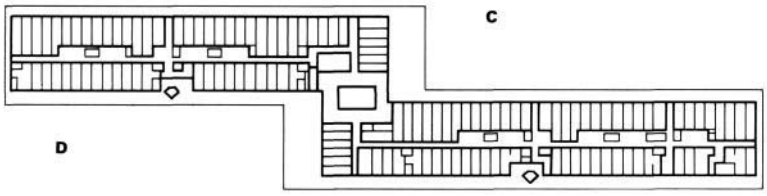
Towers C and D

Towers A and B

Occupancy scheme

1 Storage area
2 Delegates' quarters and communal services
3 Kitchen and cafeteria (Tower "A")
4 Temporary dormitories
5 Olympic Village administration offices (Tower "A")
6 Permanent apartments
7 Ground level

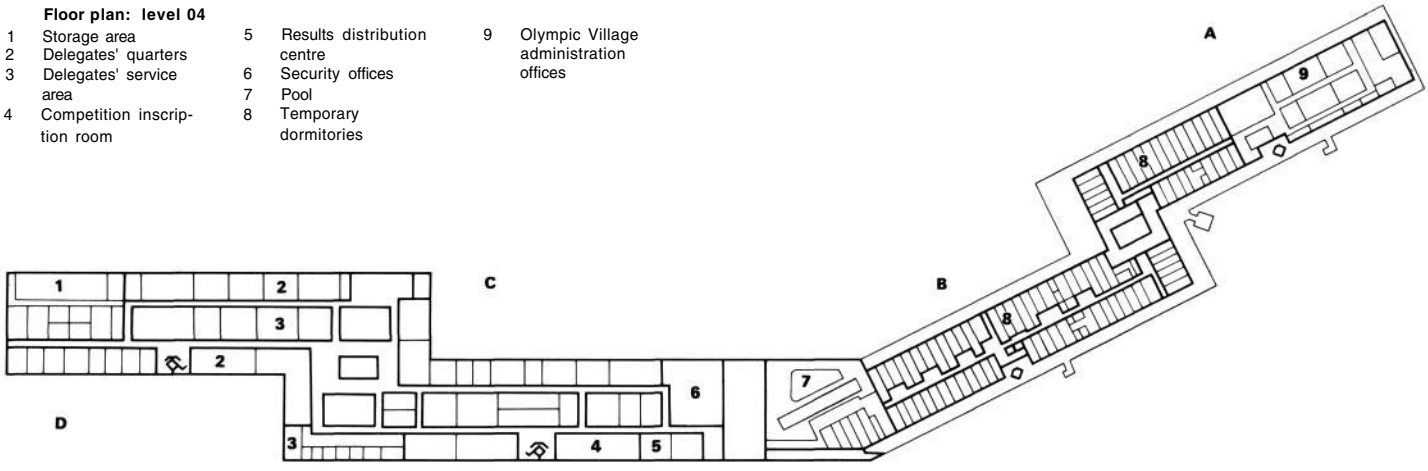




Floor plan: level 05
Towers C and D
Temporary dormitories

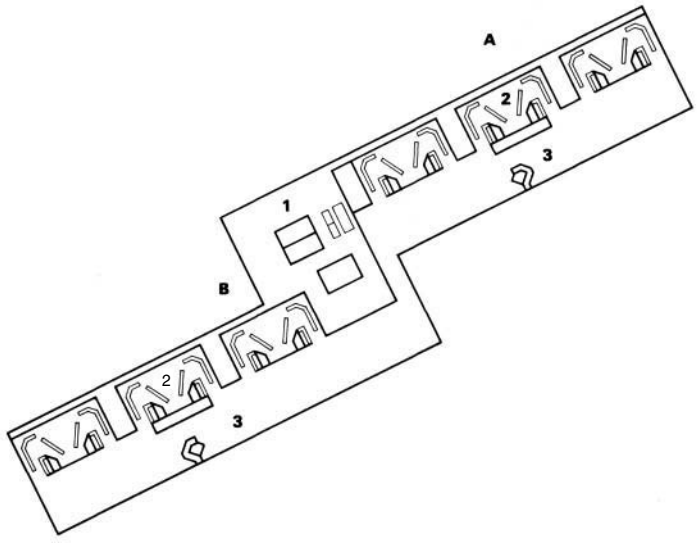
Floor plan: level 04

1 Storage area
2 Delegates' quarters
3 Delegates' service area
4 Competition inscription room
5 Results distribution centre
6 Security offices
7 Pool
8 Temporary dormitories
9 Olympic Village administration offices



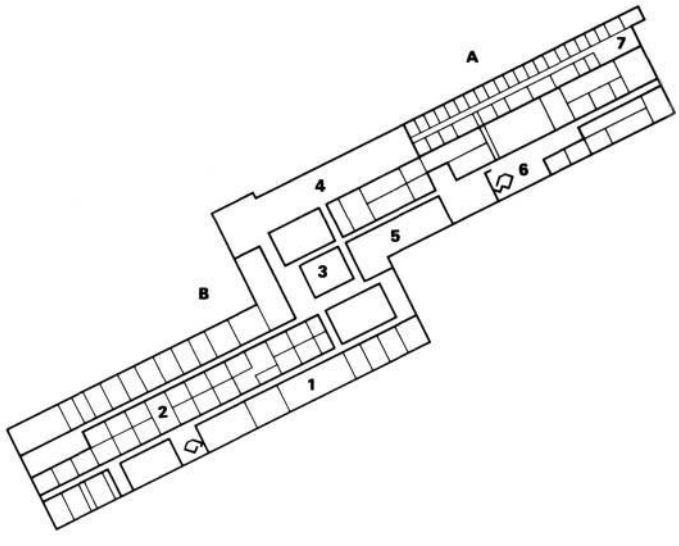
Floor plan: level 03
Towers A and B

1 Kitchen
2 Service counters
3 Dining room



Floor plan: level 02
Towers A and B

1 Delegates' quarters
2 Delegates' service area
3 Identity control point
4 Personnel dressing rooms and cafeteria
5 Cafeteria administration offices
6 Medical centre
7 Equipment storage rooms



Construction

In October, 1974, COJO found itself responsible for both permanent and temporary installations in the Olympic Village. Sod was turned at the end of November and in March 1975, a firm of management consultants was engaged to supervise work at the site.

Conventional methods of construction were used in the erection of the four residences. The structures themselves were of reinforced concrete poured on the spot; the exterior walls were of brick and the 18,300 m of parapets, balconies and terraces were of prefabricated concrete.

The structures were built in a record time of eight months. By the end of August 1975, 77,000 cubic metres of concrete had been poured and 6,000 tons of reinforcing steel had been installed.

Work proceeded so rapidly that by January, 1976, COJO was able to begin installing Olympic facilities in several sections of the buildings. All construction deadlines were met and the Village was ready for occupancy on schedule: June 23, 1976.

Exterior Installations

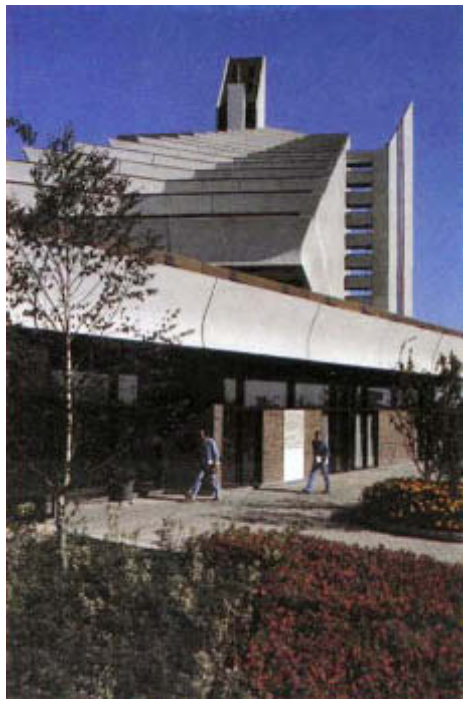
Upon arrival from the airport, members of the various delegations were directed to the validation centre located in a large red and white tent behind the Village. After their baggage was inspected and credentials verified, they were then driven to the residences in small motorized vehicles.

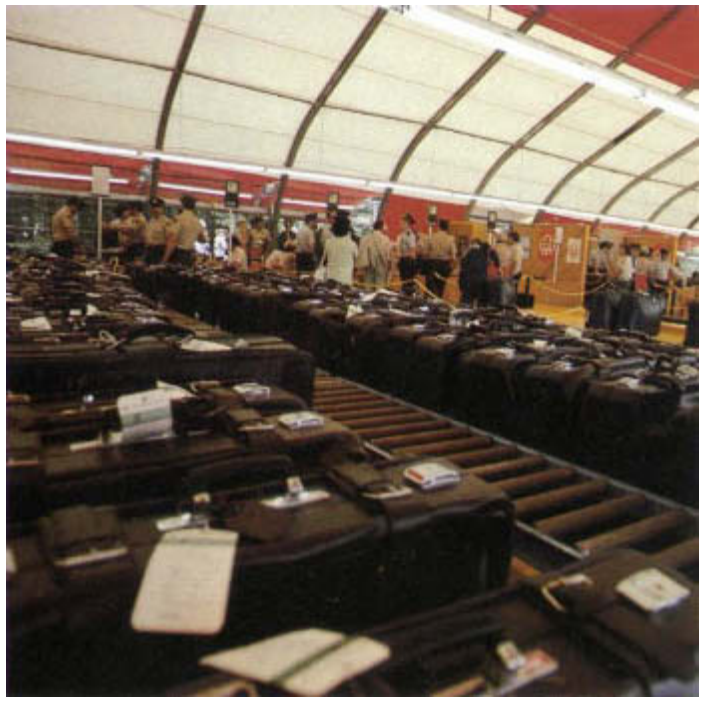
The Olympic Village was surrounded by paved walkways winding through the landscaped terrain of the old Municipal Golf Course. In a clearing, a small wooden stage covered by a red and white canvas shell was erected for theatrical performances. Lamps were installed at regular points along the walkways and in the clearings.

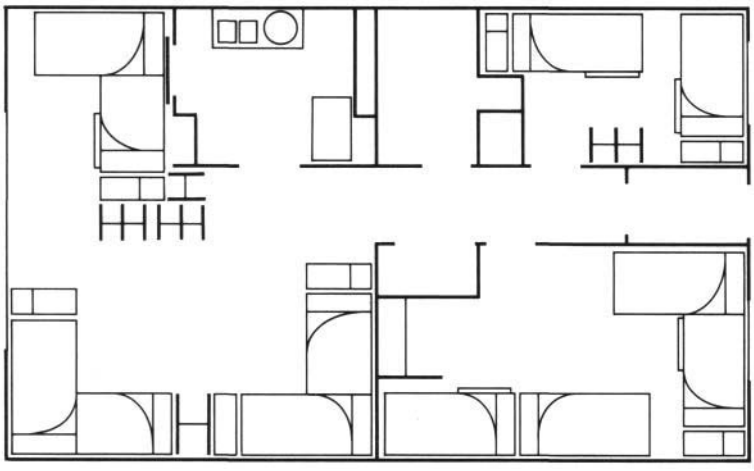
Information booths and snackbars were placed at major circulation points, and a terrace cafe with flower boxes and outdoor furniture was installed on a prefabricated concrete plaza in the heart of the complex.

The wide terraces surrounding the apartments on each level offered a commanding view of the Olympic Park, the St. Lawrence River, Mount Royal and the skyscrapers of downtown Montréal. At the foot of the pyramids on the southeast side lay *Place des Nations,* where athletes were welcomed to the site by the mayor of the Village prior to the raising of their national flag.

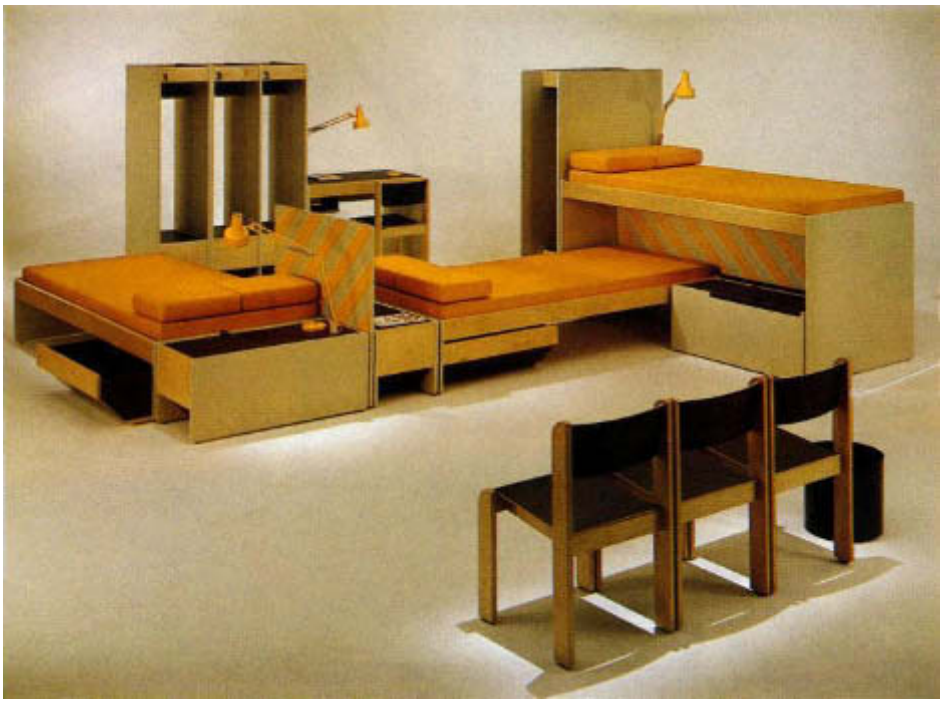
For security reasons, the entire Olympic Village was surrounded by a high wire fence. At the access points, the identities of all those entering and leaving the site were checked.







Plan of type 2 permanent apartment, equipped with 12 beds Nearly 72% of the athletes were assigned to such apartments.



Special furniture was designed and built for the athletes' apartments. This functional, compact furniture was made of maple with pressed wood panelling covered with a plastic laminate.

Olympic Installations

The upper floors of the four residential towers contained 980 permanent apartment units accounting for some 60 percent of the total interior space. During the Games, each unit was equipped to house from five to fourteen occupants; after the Games, they were to be converted into apartments of one to three bedrooms.

More than 6,500 athletes and team members, or 72 percent of the Village's entire population, were assigned to 12-person units.

Though all available space in each apartment was used to accommodate athletes during the Games, it was possible to detect provisions made for future kitchens. Washrooms, too, were installed on a semi-permanent basis. Because pipes and fittings, ventilation ducts and electrical circuits were already in place, it would be a relatively simple matter to complete these facilities once the Games were over.

During the Games, each athlete was provided with a bed, a chest for personal belongings, a clothing rack and a lamp. Sturdy and attractive, this furniture was constructed especially for the Olympics and was both functional and compact.

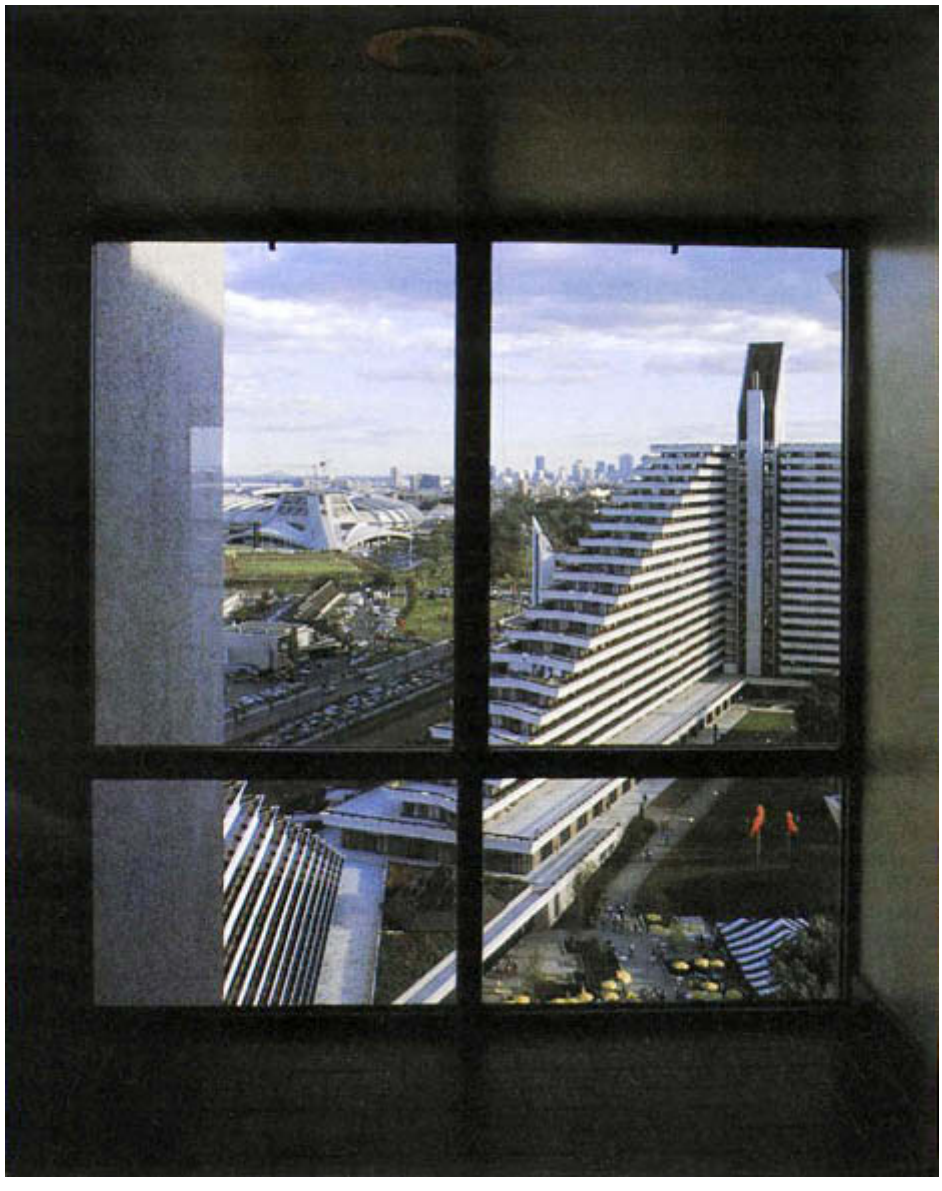
In towers A and B, the lower basement (level 01), designed as a parking garage, served as a storage area during the Games. The floor immediately above this (level 02), also destined to be a garage, contained general quarters for a number of the visiting delegations, the Olympic Village medical centre, the cafeteria administration offices, maintenance personnel dressing rooms and communal services. All temporary quarters were enclosed by half-walls equipped with mechanical and electrical conduits. Lighting fixtures were suspended from the ceilings.

The kitchens were located on the ground floor (level 03) of towers A and B, as was the cafeteria with its 12 counters and accommodations for up to 3,000 diners. Of the temporary installations in the Olympic Village, the kitchens and cafeteria were by far the most elaborate, largely because of the electrical and mechanical equipment required. A large number of stoves, sinks, ovens, deep fryers, refrigerators and other similar appliances had to be installed for the Games and removed afterwards. The space occupied by these facilities was designed to house some of the community services — shops, cinemas, common rooms, offices — for the 3,200-inhabitant apartment complex.

Part of level 04 of towers A and B was transformed into dormitories for athletes who could not be accommodated in the permanent apartment units. At the extreme north end of this level, some 1,225 square metres of space were set aside for Olympic Village administration offices.

Level 05 of towers C and D was also converted into athletes' dormitories.

For more than a month, this "city within a city," as the Olympic Village came to be known, was a veritable hive of activity. During the busiest period, around July 20, the Village accommodated nearly 9,000 people, who found there all the facilities they needed for rest, relaxation and entertainment.



International Centre, Olympic Village

As early as 1974, COJO was seeking ways to make the most use of buildings and spaces within the immediate vicinity of the Olympic Village, then already under construction.

One such building was *L 'École Marguerite-de-Lajemmerais*, a secondary school accommodating some 1,000 girls located only a few paces from the future village. In December of 1973, COJO approached the Montréal Catholic School Commission (MCSC) with a view to including the building in the main Olympic site as an International Centre, where athletes could relax or meet with journalists and visitors in an informal atmosphere.

The six-story building has a central core containing classrooms and administration offices. Four wings extend from the core, one consisting entirely of offices and the others containing various laboratories and rooms for specialized instruction, an auditorium, a small gymnasium and a cafeteria.

The building, which normally stood empty for most of the summer holiday period, was capable of housing all the services planned for the International Centre. These included a reception area and lounges for the press and other visitors to the Olympic Village. Recreational and cultural facilities for the athletes included cinemas, discotheques, boutiques, an indoor sports and tennis area, music rooms and dancing and lecture halls.

None of this was accomplished, however, without some difficulty. The school year did not officially terminate until the latter part of June, and although the MCSC agreed to vacate the premises by June 4, there still remained the problem of completing all major work in little more than a month. With this in mind, certain alterations were initiated as early as May 1, 1976, and all painting was done at night, so as not to interfere with students' schedules.

After June 4, all furniture and equipment was removed from rooms allocated for use during the Games, representing roughly half the total floor area of the building.

A company specializing in commercial exhibitions was retained for much of the work. The ground floor boutiques, however, were installed at the cost of the concessionaires.

Very few major alterations had to be made to the structure itself. The lighting and communications systems were improved, but the principal effort was devoted to decor: the conservative, pastel walls of the classrooms were repainted in a variety of bright, lively hues; carpets were laid on many of the floors; and new stylish furniture was installed in each of the redecorated rooms. Certain locations, such as the music rooms and salons, were furnished with cushions rather than chairs.

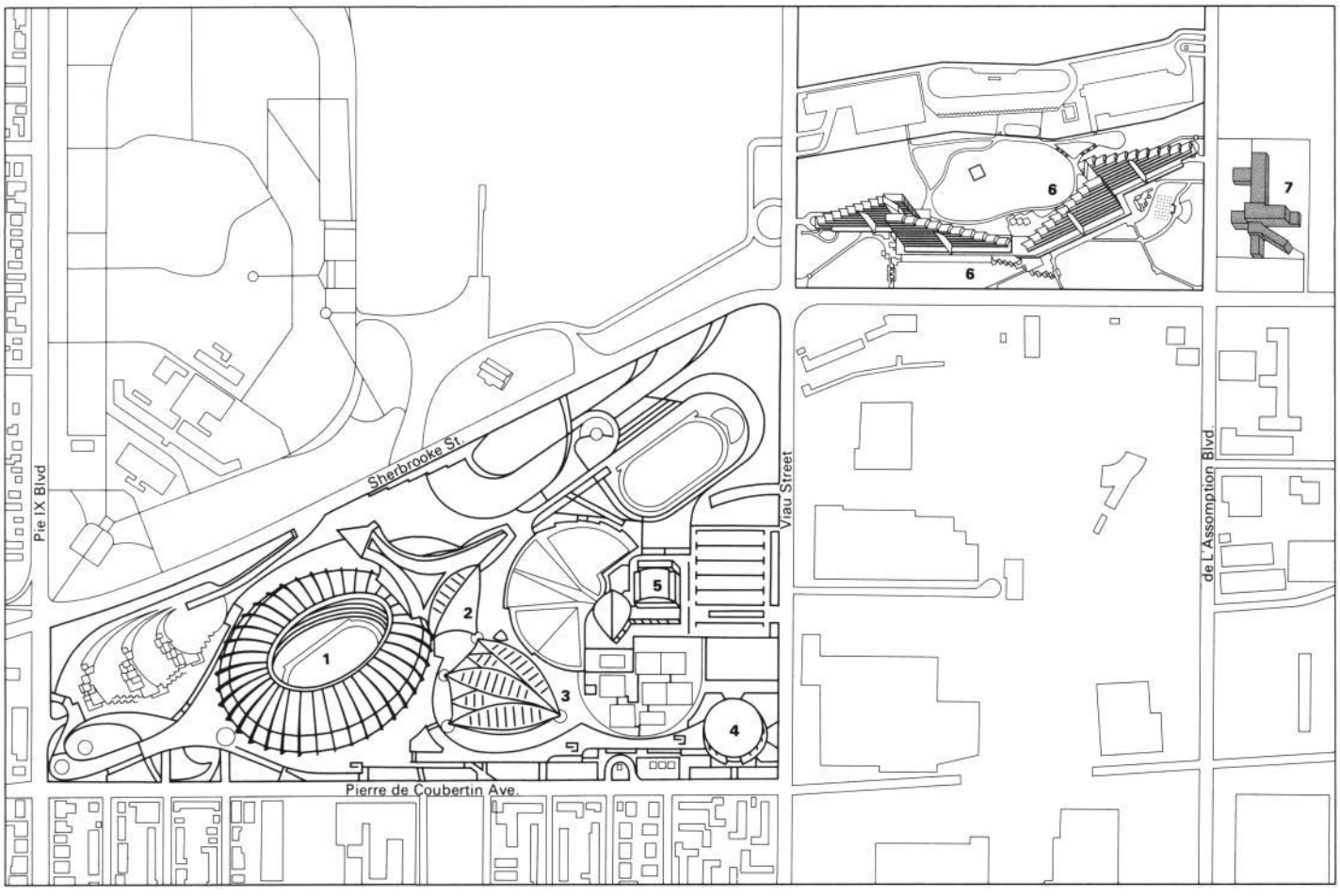
Signs were designed in bold, futuristic patterns and shapes and the walls of the school were decorated with giant graphics and drawings. On several floors, halls were converted into art galleries, and a sophisticated lighting system contributed to the effect of multi-dimensional space.

In the International Centre, a multitude of activities, ranging from transcendental meditation to table tennis, was brought together under a single roof. But the centre was intended primarily to serve as a meeting place for competitors, a place for sharing experiences and meeting new friends. An exceptional effort, therefore, was made to create a pleasant atmosphere at the site.

Outside the building, a terrace café was installed on the side facing the athletes' residence. Here, athletes daily enjoyed a variety of entertainment — folk dancing, music, mime — performed on a wooden stage erected on the lawn. From here, they had direct access to their residence and surrounding grounds, which, together with the centre, constituted the international zone of the Olympic Village.

One problem was that the zone was divided by a boulevard which ran between the centre and the residential area. At first it was felt that either a tunnel would have to be dug beneath the street or a footbridge erected over it. The problem was finally solved by simply closing the street to traffic.

By the beginning of July, 1976, the centre was ready to receive the first foreign delegations and the thousands of athletes, officials and journalists who came to Montréal for the Games of the XXI Olympiad.

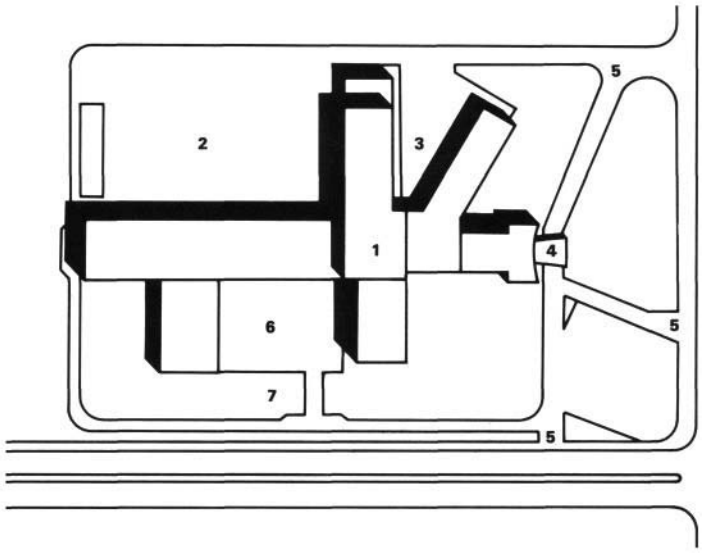


Site location

1 Olympic Stadium
2 Olympic Pool
3 Olympic Velodrome
4 Maurice Richard Arena
5 Pierre Charbonneau Centre
6 Olympic Village
7 International Centre

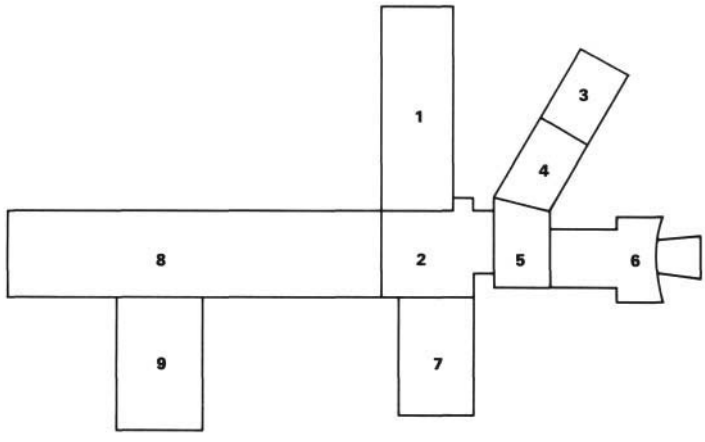
Site plan

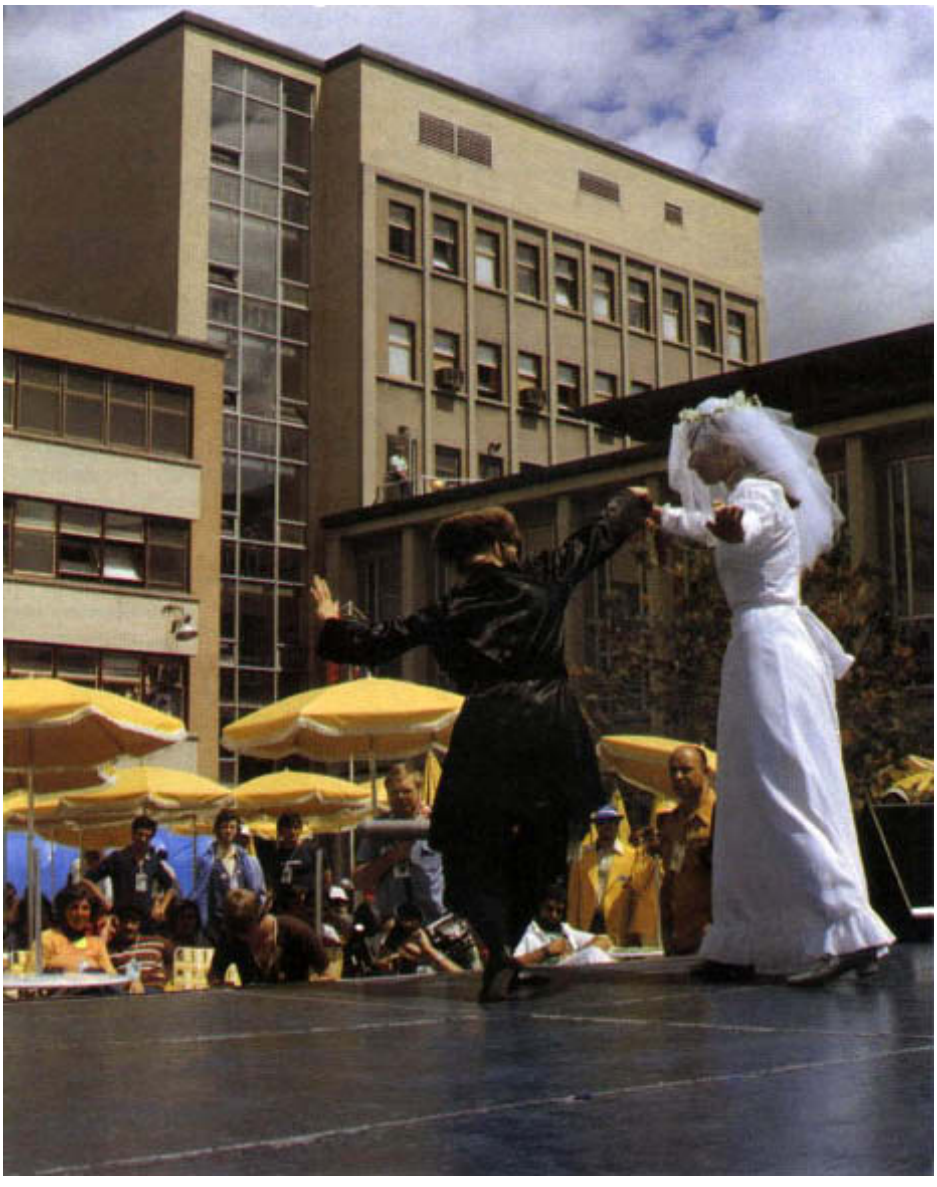
1 International Centre
2 Bus parking
3 Reserved parking
4 Reception area
5 Access control point
6 Terrace café
7 Outdoor stage

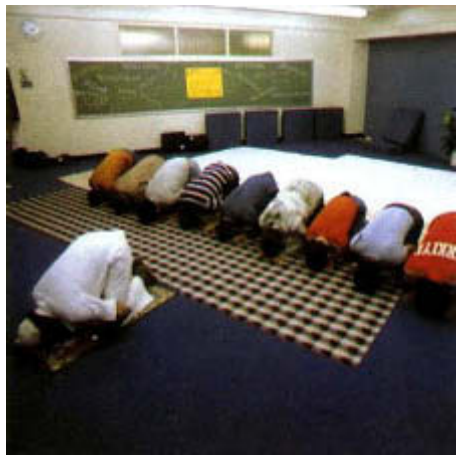


Space utilization

1 Canada Post Office
3rd floor
2 Telecommunications centre
3rd floor
3 Office of Le Village (Olympic Village daily newspaper)
3rd floor
4 Administration offices
2nd floor
5 Recording studio
3rd floor
6 Lobby
Basement
7 Restaurant
Basement
8 Boutiques
1st floor
9 Discotheque
1st floor







Facilities in Greater Montréal

3

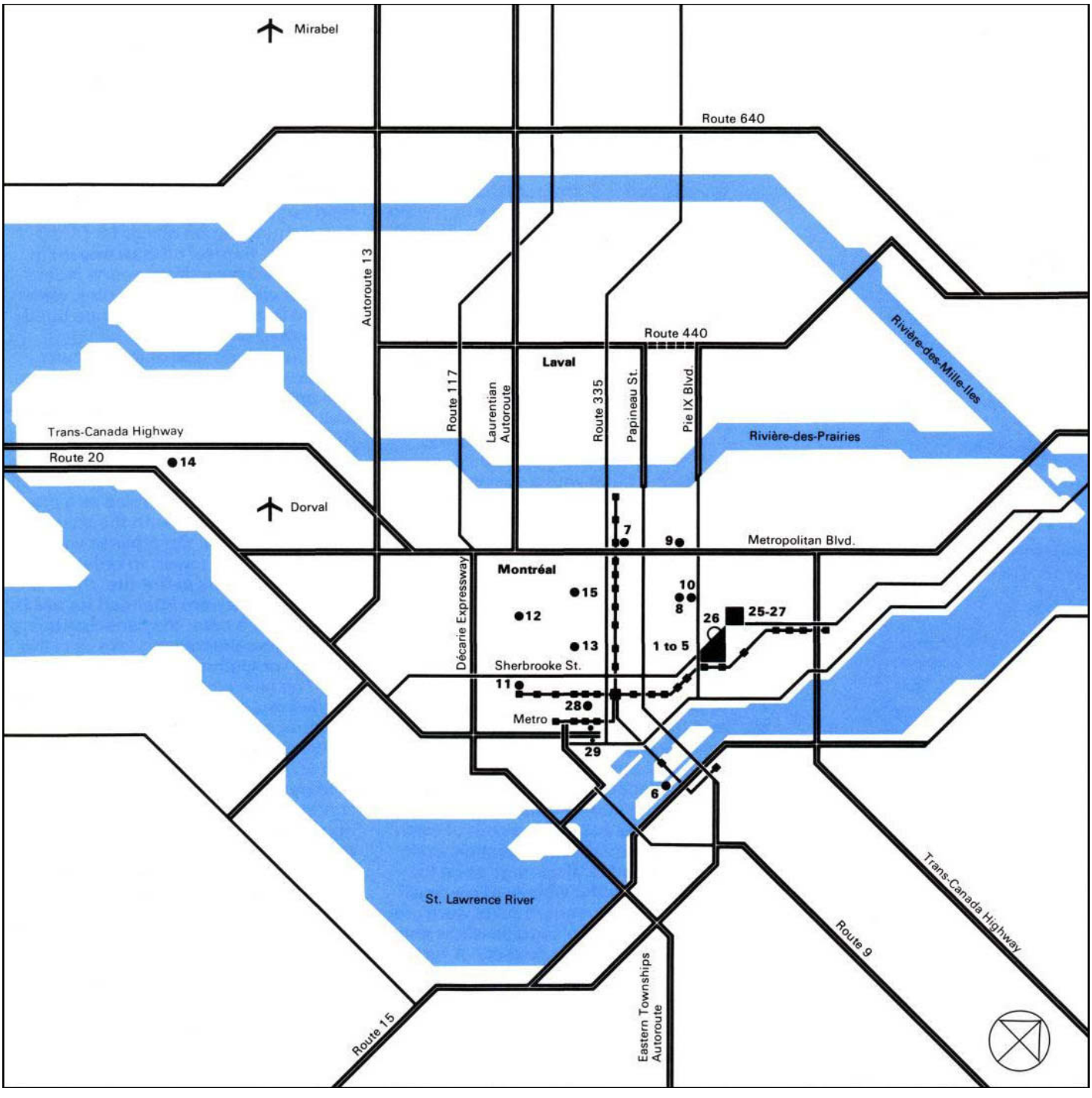
Outside of the Olympic Park (1-5), most competition sites and other Games installations in greater Montréal were located within a radius of 10 km from the Olympic Village (25-27). Three such sites were new, namely, the Olympic Basin (6), the Claude Robillard Centre (7) and the Étienne Desmarteau Centre (8); others made use of existing facilities in accordance with the stated policy of the City of Montréal.

The St. Michel Arena (9) is owned by the city. The Paul Sauvé Centre (10), the Forum (11), the University of Montréal's Winter Stadium (12) and McGill University's Molson Stadium (13) are privately owned. The Fairview cycling circuit (14), used for time trials, was the only competition site in greater Montréal located more than 10 km from the Olympic Village and consisted of a section of the Trans-Canada Highway; the road racing circuit was laid out over Mount Royal (15) in the heart of the city.

The three athletics courses (26) began and ended at the Olympic Stadium. They divided at Sherbrooke Street; the marathon course running through several urban municipalities and the courses for the 20-km walk and the 4,000-m modern pentathlon run passing through the Botanical Garden and over the Municipal Golf Course respectively, both adjacent to the Olympic Stadium.

More than 20 training sites were located at sports centres, gymnasiums, playing fields and pools belonging to educational institutions.

Various services related to the Games were located in downtown buildings, notably the main press centre (28) and COJO headquarters (29).


Mirabel
Route 640
Autoroute 13
Route 440
Laval
Route 117
Laurentian Autoroute
Route 335
Papineau St.
Pie IX Blvd.
Rivière-des-Mille-Iles
Rivière-des-Prairies
Trans-Canada Highway
Route 20
14
Dorval
7
9
Metropolitan Blvd.
Montréal
Décarie Expressway
15
12
13
10
8
26
25-27
1 to 5
Sherbrooke St.
11
28
Metro
29
6
St. Lawrence River
Route 9
Trans-Canada Highway
Route 15
Eastern Townships Autoroute

Olympic Basin, Notre Dame Island

Before the Games of the XXI Olympiad, there were no facilities in the Montréal region for competitive rowing and canoeing. COJO and the City of Montréal consequently decided to transform part of Notre Dame Island to serve as the site of the Olympic Basin.

Located in the middle of the St. Lawrence River, within easy reach of the city and 9.6 km from the Olympic Village, Notre Dame Island was the site of the 1967 World Exhibition (Expo 67) and could readily be transformed for the Games. The fact that it was an artificial island, almost entirely man-made, would greatly facilitate excavation work and, moreover, the direction of the prevailing winds would provide the best possible conditions for competitors.

The City of Montréal Public Works Department undertook the modifications to Notre Dame Island in May, 1974. Besides creating a basin 2,180 x 110 m with a constant depth of 2.3 m, the work would involve renovations to a number of buildings at the site and the erection of several new structures.

New installations on the west bank of the basin consisted of the stands, a building for administration offices, athletes' services and the finish-line tower. Boathouses and a launching dock were installed at the north end and, at the opposite end, Regatta Lake was to serve as a training area for canoeists with services to be located in former Expo 67 pavilions which would be renovated and equipped.

A long embankment running the length of the basin, made out of earth removed during the excavation work, provided a natural vantage point for spectators. In the vicinity of the finish line, 2,000 permanent seats were provided by installing concrete slabs and brightly colored plastic seats. A further 7,000 temporary seats were provided by anchoring large blocks of wood in the banking and there was also standing room for another 20,000.

COJO reserved 300 places in the permanent stands for members of the press; two-thirds of these were equipped with commentators' tables and closed-circuit television outlets. Seventy percent of the seating area was covered with a roof resting upon a metal framework and this permitted the installation of other closed-circuit television units so spectators could follow races from beginning to end.

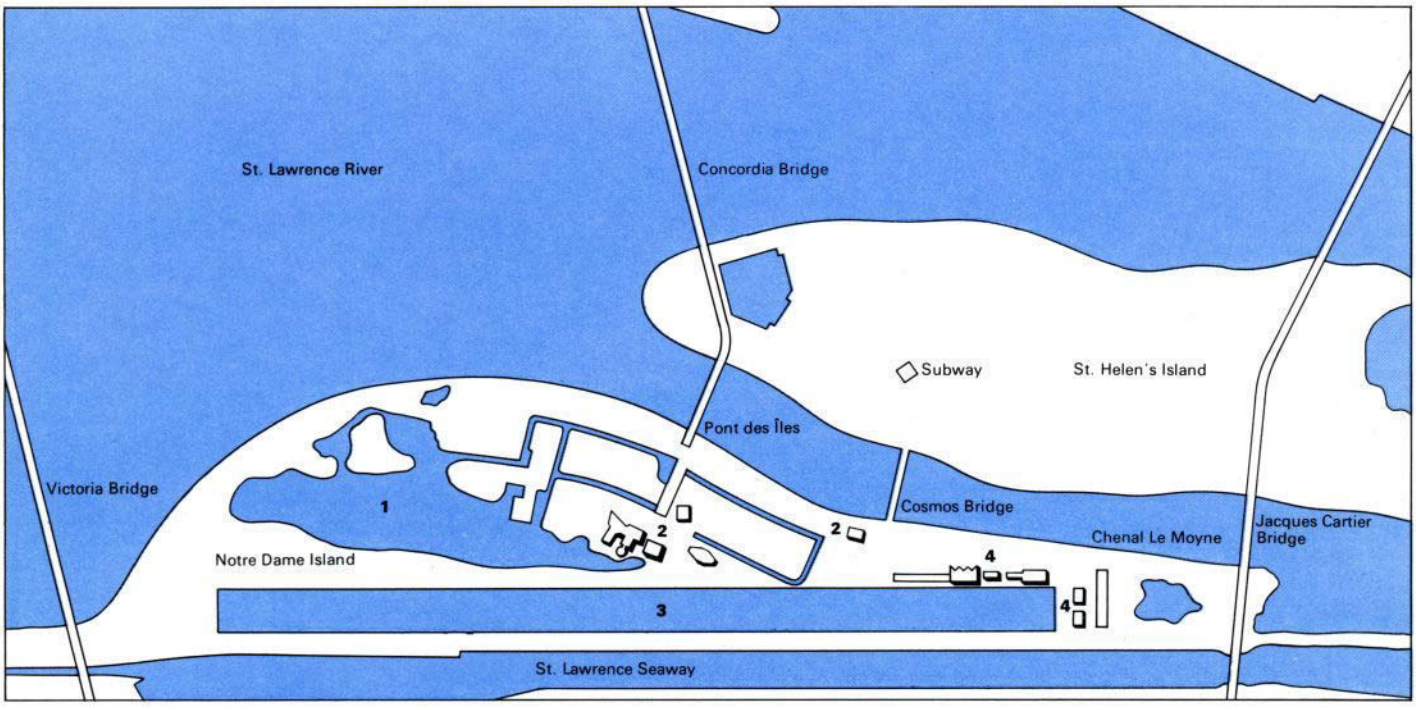
Administration offices for COJO personnel, Games' officials and members of the international sports federations, as well as a results centre, were located in a three-story concrete building erected on the site.

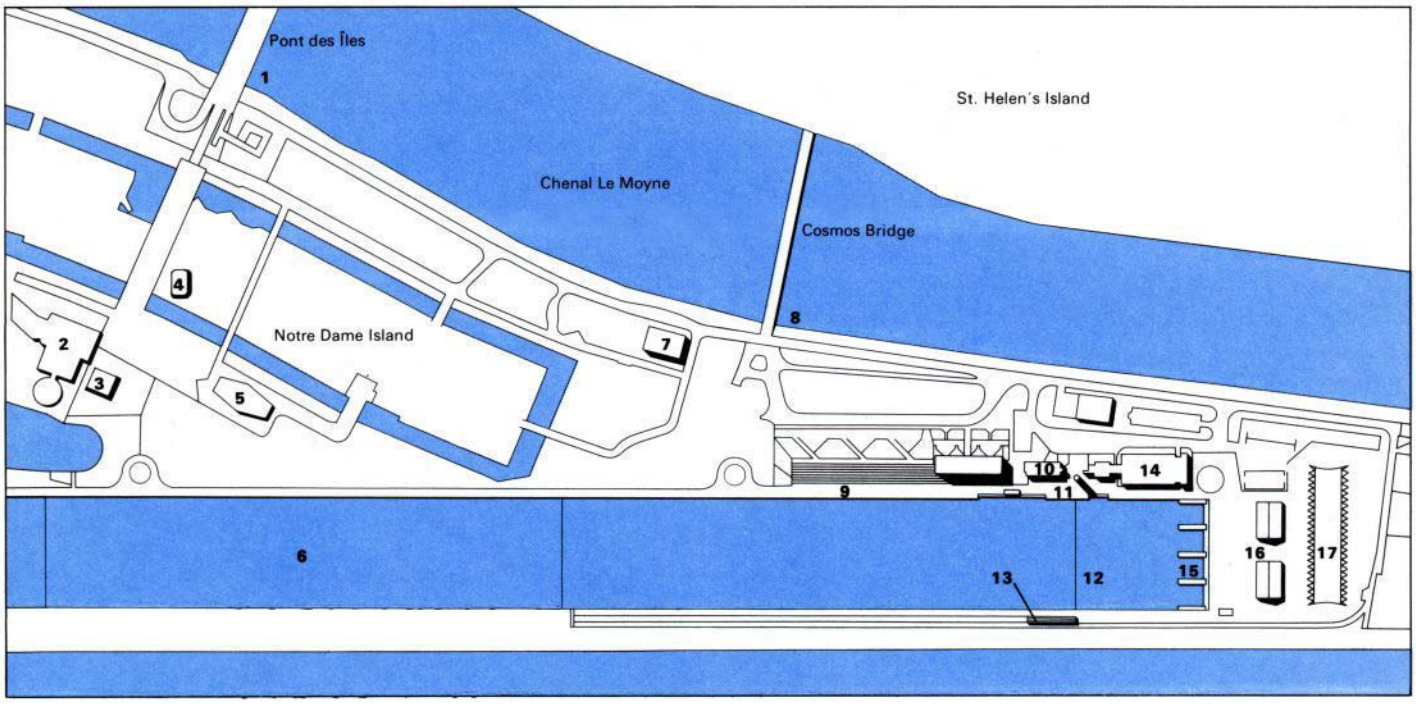
The judges' and officials' tower, located adjacent to the administration building, contained photo-finish cameras and other electronic equipment. Results were transmitted from the tower to the large electronic scoreboard on the opposite bank, facing the stands, by means of cables (doubled as a precaution) running beneath the basin.

A pavilion for the athletes was erected near the tower. In order to limit construction work at the site, these athletes' quarters were intended for use by one sport at a time, the canoeists being housed near the training lake until the rowing competition was over.

The new athletes' quarters were divided into two sections, connected by a central hall. The south section of the building, which served as a cafeteria, had windows on two sides and was covered by a pyramidal roof of monolithic concrete capped by a skylight. The north section housed athletes' dressing rooms, massage rooms, a medical centre and two training tanks, one for rowing and one for canoeing. The roof of this part of the building served as a relaxation area for the athletes; it was landscaped, with tables and chairs installed under multi-colored sunshades.

At the extreme north end of the basin, three boathouses were constructed for the storage of boats. Two of these, concrete buildings with copper-covered roofs, were permanent structures; the third, a colored canvas shell stretched over a framework of inclining poles and cables, was designed to be dismantled after the Games. Space was reserved in one of the permanent structures for a boat-repair service.





Site plan

1 Regatta Lake (canoe training)
2 Expo 67 pavilions
3 Olympic Basin
4 New structures

North Section plan

1 COJO and athletes' entrance
2 Athletes pavilion (canoe training)
3 Boat shelter (canoe training)
4 Sports administration pavilion (canoe training)
5 Service and security management pavilion
6 Olympic Basin
7 Press pavilion
8 Public entrance
9 Stands
10 Administration building
11 Finish line tower
12 Finish line
13 Scoreboard and athletes' stand
14 Athletes' quarters
15 Departure and arrival piers
16 Permanent boathouses
17 Temporary boathouse

With the exception of the judges' tower, all new structures at the site were long and low, designed to merge unobtrusively with the landscaped terraces surrounding them. Located as they were on a low island in the middle of the St. Lawrence River, with the skyscrapers of Montréal and the slopes of Mount Royal rising in the background, these buildings accentuated the peaceful atmosphere of the Olympic Basin site. Their homogeneity was further accented by the simplicity of their design and construction.

Public access to the site was via St. Helen's Island and Cosmos Bridge, which crosses an arm of the St. Lawrence River. A metro (subway) station and a bus stop were both located in the immediate area of the ticket booths at the entrance to this bridge.

COJO personnel and athletes reached Notre Dame Island by means of Concordia Bridge and *pont des Îles* which exits at the 1,000-metre mark of the Olympic Basin. Closed to the public during the Games, this bridge served the southern part of the site, where a number of the former Expo 67 pavilions had been renovated for the occasion. These included a pavilion assigned to members of the press, and another reserved for site service managers and security personnel.

Until the rowing competitions were completed, the canoeists were accommodated in what was formerly the British Pavilion at Expo 67; located on the shore of the training lake and completely renovated for the Games.

Sports administration personnel were housed in another nearby building. A tent was erected on the adjoining lawn for the storage of canoes, and a pontoon was provided for launching both in the practice lake and in the Olympic Basin itself.

When rowing competitions were over, athletes and sports personnel from canoeing moved into the quarters previously occupied by oarsmen. Because all these facilities were spread over a relatively large area, a minibus line was installed to facilitate movements about the site.

When completed, the Olympic Basin was a totally artificial lake, divided into nine lanes nine metres wide for canoeing competitions and six lanes of 13.5 m for rowing. A seven-metre lane remained empty next to the east bank of the basin, and a twenty-two metre lane on the west bank served as a return route for competitors.

To diminish wind action in the competition zone, the water in the basin was maintained at a level lower than that of the St. Lawrence River. A system of pumps was installed to limit infiltration of water from the river and to keep the water level constant. A service road running along the east bank of the basin was used to service the pumps and to increase security measures at the site. During competitions, this road was also used by vehicles carrying television cameras.

Once the Games were over, Montrealers found themselves with one of the best equipped rowing and canoeing basins in the world. During the winter season, athletes can use the training tanks permanently located at the site, while the general public can avail themselves of the facilities for skating and cross-country skiing.

Claude Robillard Centre


For the 1976 Games, COJO made the best possible use of existing sports facilities and remodelled them for the occasion. Nevertheless, several sites were brand new and among these was the Claude Robillard Centre, located in the north end of Montréal.

The need for a sports complex in this part of the city had been felt for some time. With the approach of the Games, COJO and the City of Montréal became partners in the project and serious planning got underway in January, 1974.

Both parties shared the same objective, albeit for different reasons, and that was the provision of multiple sports facilities in a single location. From the point of view of the city's Sports and Recreation Department, these were to be permanent facilities for the long-term benefit of Montrealers, in the form of a community sports complex. COJO's needs, based upon the temporary requirements of the Games, were to provide adequate competition sites for handball and water polo as well as training facilities for hockey, track and field, football, swimming, diving and water polo. To this end, COJO was bound by the standards set by the respective international sports federations which included, for the competition sites, adequate facilities for large numbers of spectators.

After a number of meetings, COJO and the city agreed to a concept for the facility which met the requirements of both parties.

Plans called for a single structure which would house both an Olympic-size pool for water polo competition and a vast, multi-sports hall which could accommodate Olympic handball competition. The precise location of the complex was established not far from a metro (subway) station, 8.7 km from the Olympic Village, and construction began in October, 1974.

The two principal areas of the complex are rectangular and connected by a central block containing dressing rooms and entrance halls. Two wings were added to this main core, one containing a firing range and a hall for martial arts and the other a double gymnasium.

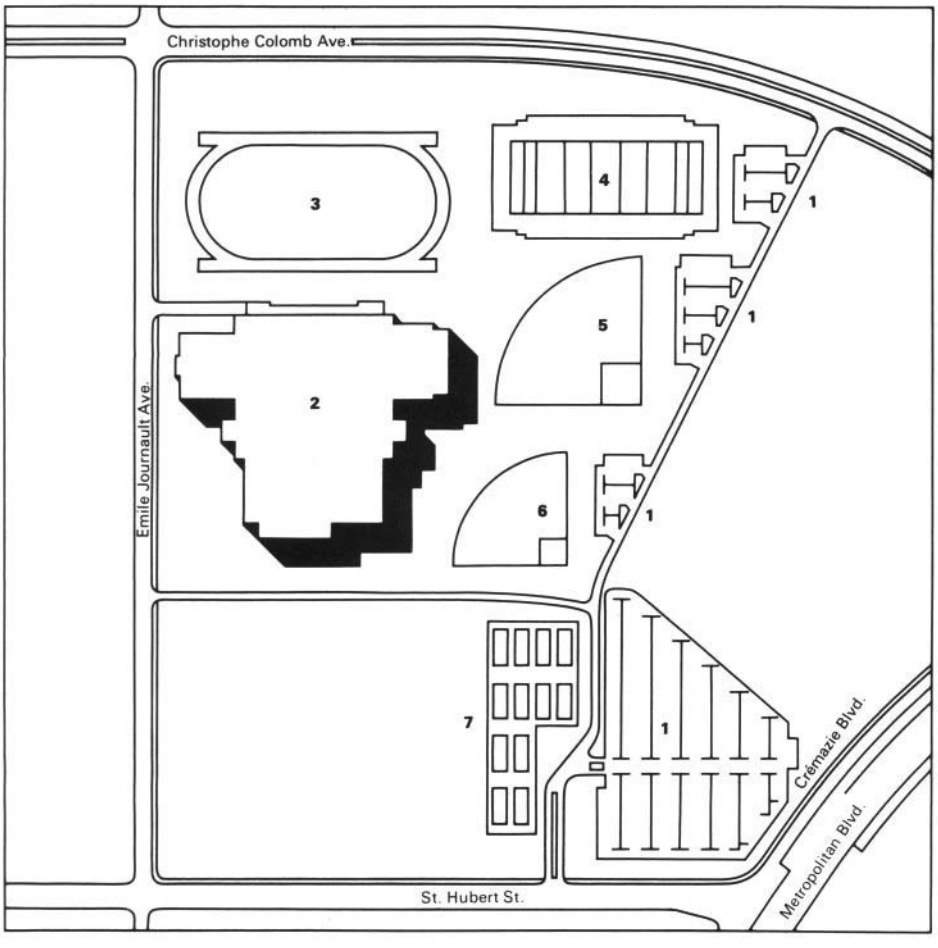
Other facilities were located outside. These included a 400-metre, eight-lane track; a field with artificial turf for hockey and football practice; and a natural grass surface for football which would be used as a baseball diamond (field) after the Games.

All installations at the centre were made to accommodate the post-Olympic requirements of Montrealers. For example, the 20 x 50-m pool, which maintains a constant depth for water polo competition, can be divided in two by means of a fiberglass wall suspended from a rolling walkway. One half of the bottom of the pool can also be raised hydraulically, thus creating a shallow swimming area for beginners.

The floor in the multi-sports hall was covered with a permanent synthetic material suitable for a wide variety of sports such as volleyball, basketball and badminton. For the Games, a temporary surface of polychloride vinyl was laid on top to conform with the requirements of the International Handball Federation (IHF).

Both handball and water polo teams used the permanent dressing rooms, showers and saunas in the building. A temporary synthetic surface was laid in the double gymnasium, which served as a warm-up area for handball, and the water polo teams trained in the main pool outside competition hours. At one end of the same hall, a practice pool for divers was constructed with diving platforms and springboards.

When it came to spectator seating, COJO, in response to the demands of the international sports federations, sought the greatest number of seats possible for the Olympic events. The city, on the other hand, viewed the centre more as a place where sports could be actively practised than as an arena for spectators. Accordingly, it would only authorize the construction of 1,500 permanent seats in the multi-sports hall and 2,275 at poolside. Additional temporary stands raised the capacity to 4,721 for the Olympic handball matches and to 2,755 for water polo.

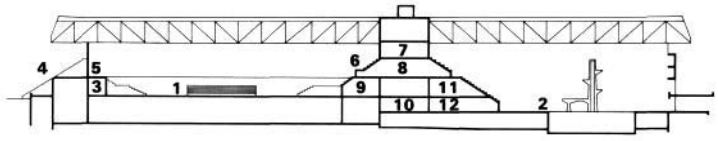


Site plan

1 Reserved parking area
2 Claude Robillard Centre
3 Track and field training area
4 Football and hockey training area
5 Baseball field
6 Softball field
7 Tennis courts

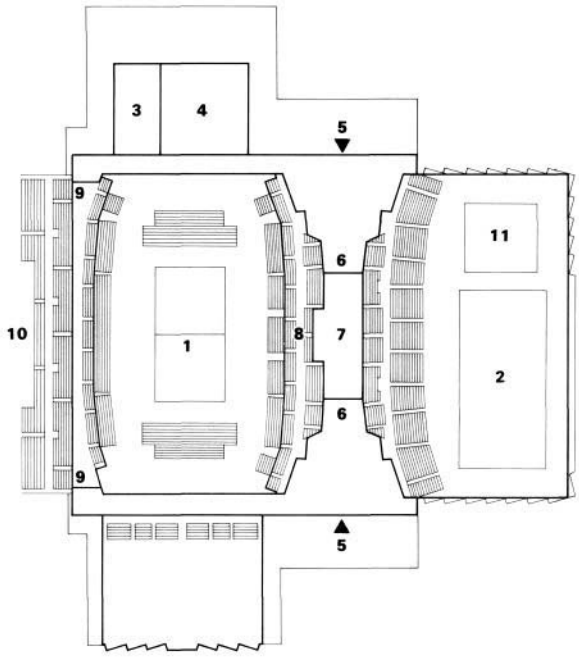
Cross section

1 Handball competition hall
2 Water polo competition hall
3 ORTO quarters
4 Outdoor spectators' stands
5 Press gallery
6 Cameras (handball)
7 VIP and press lounge
8 Public lobby
9 Handball dressing rooms
10 Swimming secretariat
11 Training dressing rooms
12 Dressing rooms for water polo



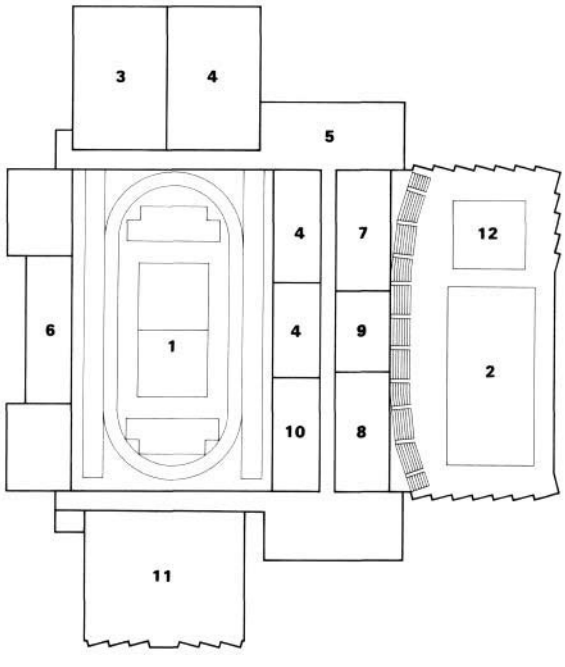
First floor plan

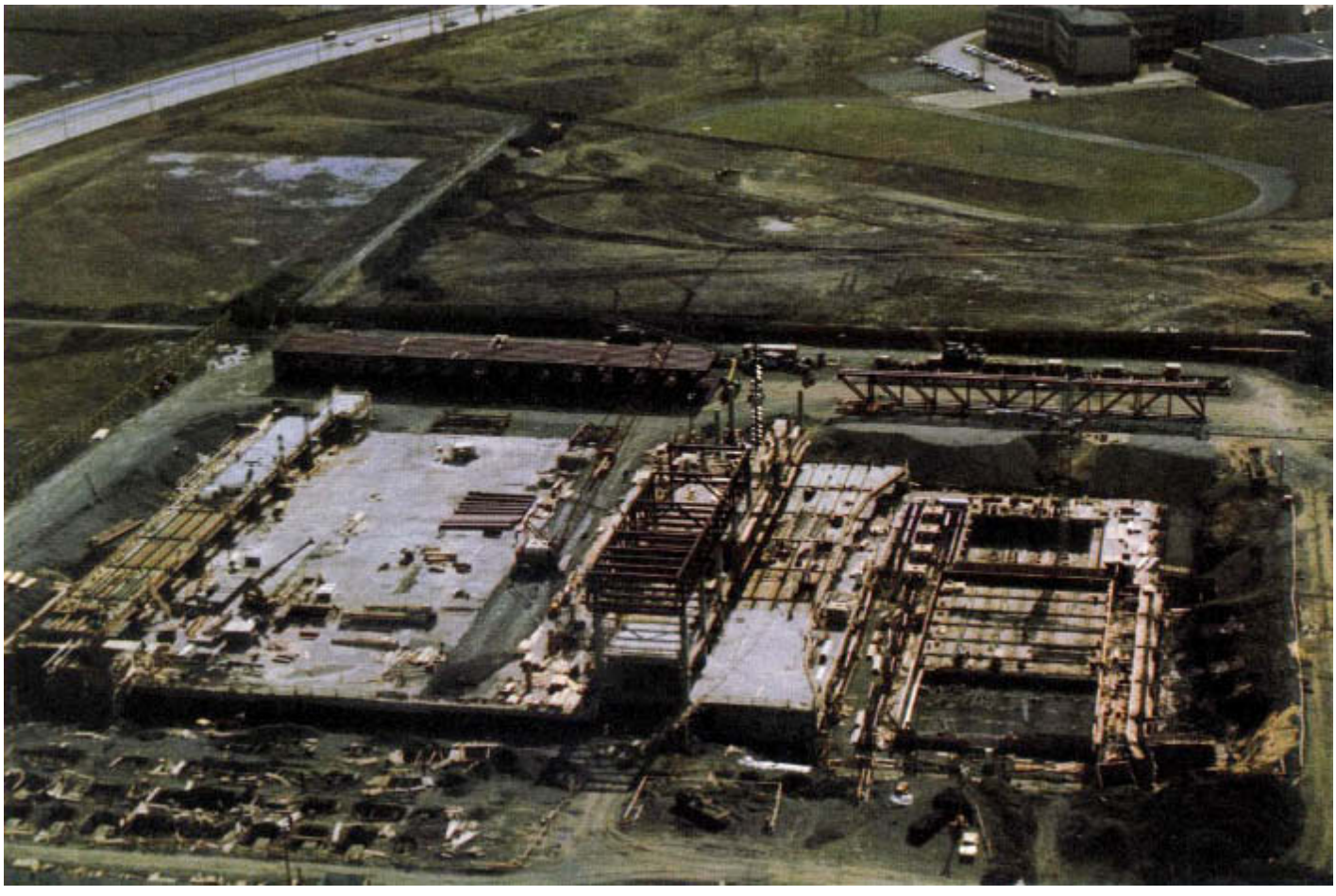
1 Handball competition area
2 Water polo competition pool
3 COJO cafeteria
4 Press subcentre
5 Spectators' entrance
6 Public lobby
7 VIP and press lounge (second floor)
8 Cameras (handball)
9 Press gallery
10 Outdoor spectator's stands
11 Diving pool

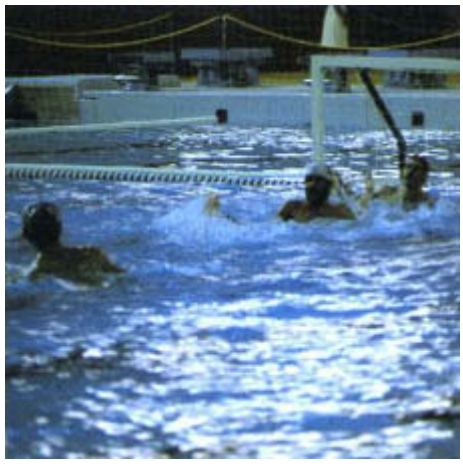


Ground floor plan

1 Multi-sports hall
2 Water polo competition pool
3 Handball administration offices
4 COJO offices
5 Athletes' entrance
6 ORTO quarters
7 Women's dressing room (training)
8 Men's dressing room (training)
9 Saunas and whirlpool baths
10 Handball dressing rooms
11 Handball warm-up area
12 Diving pool





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On the subject of lighting, the city had no choice but to bow to Olympic requirements for the competition areas which specified an intensity of 1,820 lux, far in excess of normal needs. However, this capability for color television coverage from within the centre makes it an attractive location for future national and international meets.

A greater problem concerned the installation of camera platforms and facilities for the press and for the federations. Needed only for the duration of the Games, these modifications had to be made around the permanent facilities at the centre. Accordingly, administration and federation offices for handball were located in the firing range, through the use of temporary partitions and the installation of electrical and communications systems; those for water polo were located in offices adjacent to the pool dressing rooms. The martial arts hall was converted into a press subcentre and storerooms located under the north stands of the multi-sports hall were modified for use by the Olympics Radio and Television Organization (ORTO).

Located above the spectator entrance and foyer, and overlooking the two main halls, a glassed-in lounge allowed VIPs and members of the press a view of each competition area.

On May 18, 1976, the City of Montréal inaugurated the Claude Robillard Centre and officially handed it over to COJO, which then added the final touches necessary for Olympic competition. The work of completing this vast sports complex took less than twenty-one months.

In naming the centre, the city honored the memory of an outstanding engineer, urban planner and humanist. Claude Robillard, who died in 1968, was the first director of the city Parks Department and for two decades was the driving force behind many projects which not only furthered amateur sports but contributed greatly to the dynamic growth of the city itself.

Étienne Desmarteau Centre

In 1973, even before the start of its construction, the Étienne Desmarteau Centre attracted the attention of COJO as an ideal competition site for the 1976 Games.

This community complex, whose planned construction happened to coincide with preparations for the Olympics, was to be located only three kilometres from the Olympic Village and equipped for a wide variety of sports.

After studying architects' preliminary drawings for the centre, the International Amateur Basketball Federation (FIBA) approved COJO's proposal to stage preliminary rounds of the Olympic basketball tournament there. Since the centre would be able to accommodate only 5,000 spectators, the semi-finals and finals would take place in the Forum.

Once a decision had been reached, the city, which owned the site, took steps to accelerate work on the project in order to complete it in time. At the beginning of 1974, city architects handed over preliminary designs to a firm of consultants, with instructions to complete the plans and to coordinate all work related to the project. This was done by the end of the year, and work on the site began in February, 1975.

Construction advanced at a rate in keeping with COJO's desire to take possession of the premises in April, 1976. The final weeks preceding the opening of the Games would be needed to complete interior installations.

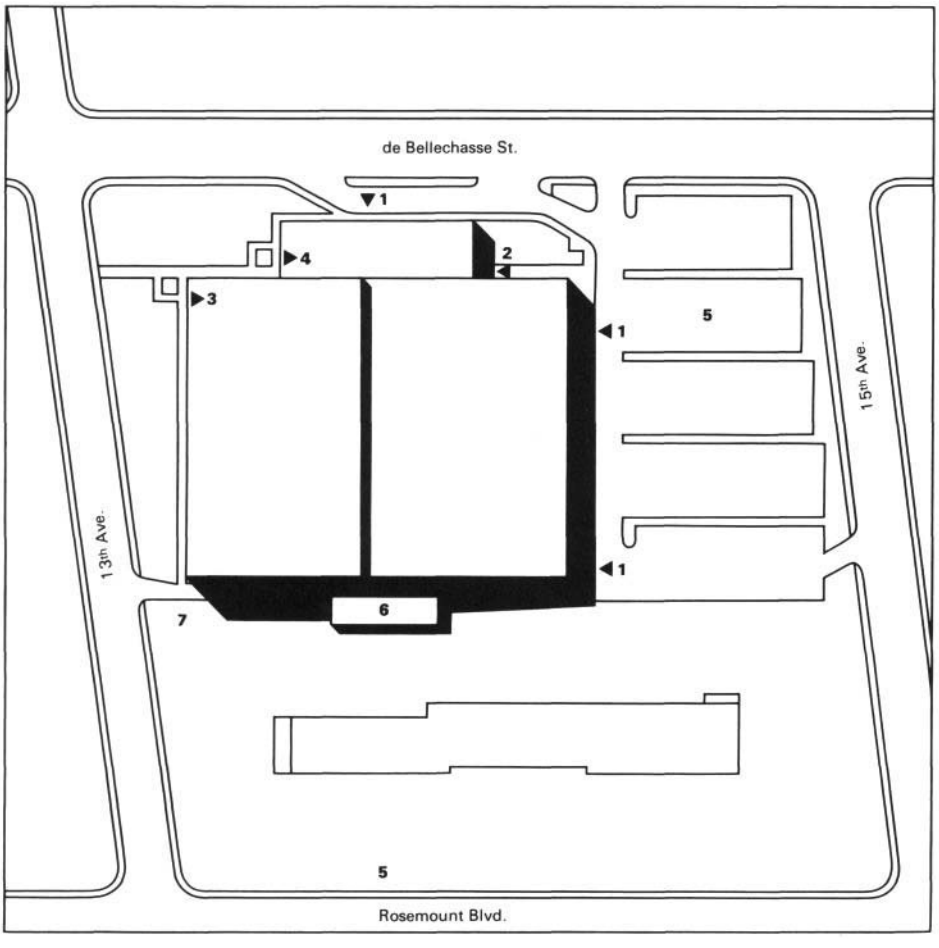
The finished structure contained two ice-hockey rinks, with seating accommodations for 2,000 and 500 spectators respectively. The floor above the smaller arena housed a multipurpose gymnasium with annexes and a fully-equipped gymnastics room. Athletes' dressing rooms, offices and a snack bar were located in the centre of the building, between the two rinks.

Because the floor space required for basketball is considerably less than that needed for hockey, it was possible to locate both the warm-up area and administration facilities within the secondary arena. Approximately one-quarter of the north end was set aside for COJO offices, which were separated from the remainder of the building by a temporary dividing wall.

The warm-up area was installed in the rink itself by laying a false plywood floor over the sunken concrete base. An opening in the centre of this floor accommodated the prefabricated playing surface of 26 x 15 m. Spectator traffic was rearranged to permit the general public access to the 500 seats overlooking the warm-up area.

A corridor was installed between the office area and the warm-up area to allow athletes direct access to the quarters reserved for them between the two rinks. Six of the permanent dressing rooms in the arena were reserved for basketball teams participating in the Games, and the remainder were converted into rooms for officials. From here, three separate accesses led directly to the competition zone, two for the competing teams and one for officials.

The main arena of the Étienne Desmarteau Centre became the competition area and underwent considerable renovation for the Games. It required a great deal of ingenuity to accommodate 5,000 people in a structure initially designed to seat only 2,000. However, as the regulation playing surface for basketball is only about one-third that for ice hockey, there was sufficient floor space within the rink itself to install temporary seats on three sides, accommodating an additional 2,000 spectators. Two provisional entrances were created in the east wall of the building to allow access to these stands. In addition, another temporary block of 1,000 seats, running the entire length of the arena, was placed above the west stands. To allow space for these new seats, the wall separating the arena and the gymnasium was moved back two metres.

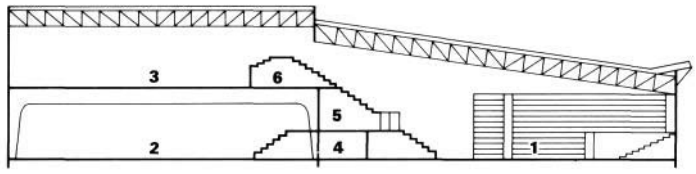


Site plan

1 Public entrance
2 VIP entrance
3 Athletes' entrance
4 COJO personnel entrance
5 Reserved parking
6 Temporary building for compressors
7 ORTO parking

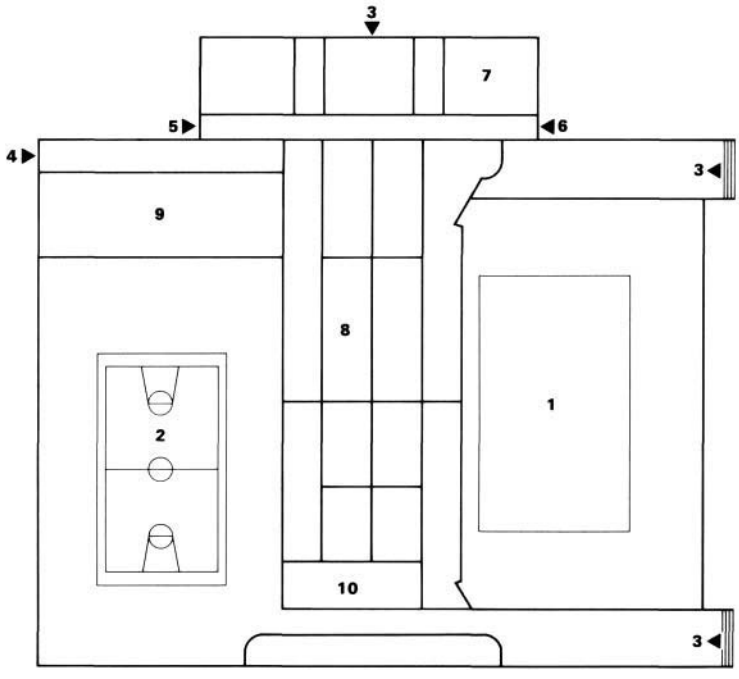
Cross section

1 Competition area
2 Warm-up area
3 Training area
4 Athletes' and officials' rooms
5 Lobby
6 Results centre



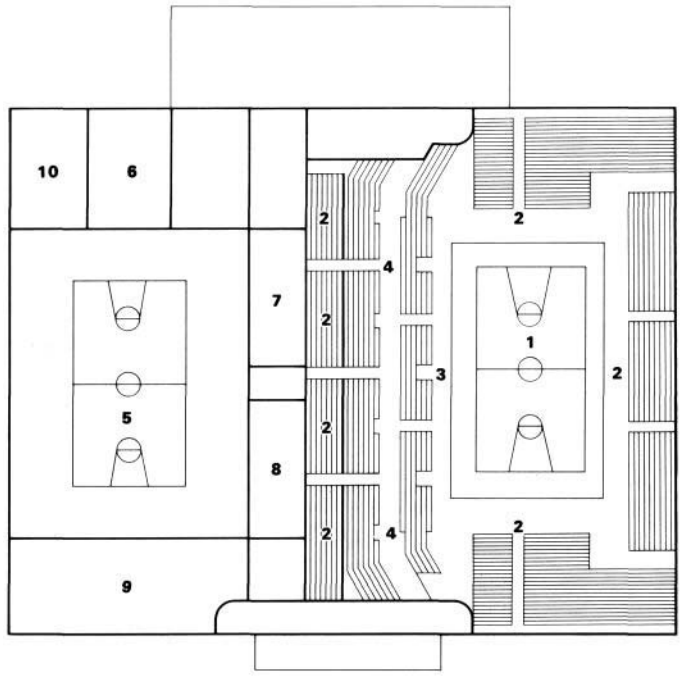
Ground floor plan

1 Competition area
2 Warm-up area
3 Public entrance
4 Athletes' entrance
5 COJO personnel entrance
6 VIP entrance
7 VIP lounge
8 Athletes' and officials' rooms
9 COJO offices
10 Mechanical room



First floor plan

1 Competition zone
2 Public stands (temporary)
3 Reserved stands (permanent)
4 Public stands (permanent)
5 Training area
6 Dressing rooms and showers
7 ORTO quarters
8 Results centre
9 Press subcentre
10 Athletes' access to training area



The prefabricated panels of the competition surface were laid over a sunken portion of the floor, which had been specifically designed for that purpose. The playing surface could be assembled and dismantled in four hours.

Electrical and mechanical alterations made for the Games were limited to an increase in lighting capacity to meet the standards set by the Olympics Radio and Television Organization (ORTO) and the installation of an air-conditioning system in the larger arena. This system was necessitated by the heat produced by the lighting projectors, as well as by the larger number of people anticipated for competitions. The ice-making compressor system in the centre was connected to service the new air-conditioning units and was supplemented by a similar system located in a small temporary building adjacent to the arena. The four giant air-conditioning units, which were suspended from the roof of the building, were removed after the Games and were reinstalled in other municipal buildings.

On the floor above the warm-up area, the basketball teams trained in the gymnasium, which was already equipped with a playing surface; the gymnastics room was converted into a press subcentre and divided into a work area, lounge and telecommunications centre; and ORTO quarters were located under the stands overlooking the training floor. From here, access was easy to both the commentators' tables and the working press area in the competition hall.

Outside in the parking lot, mobile services were installed for the use of the spectators in the temporary stands, those in the permanent stands having facilities within.

In June, 1976, shortly before the opening of the Games, the centre was officially inaugurated and dedicated to the memory of Étienne Desmarteau, a Montréal athlete who won Canada's first Olympic gold medal for the 56 lb (25 kg) weight throw, at the 1904 Games.

St. Michel Arena

The site of all weightlifting events during the 1976 Games was the St. Michel Arena, a city-owned facility located in the northeast section of Montréal, five kilometres from the Olympic Village.

Built in 1968, the arena covered a total of 4,200 square metres and contained a number of services and facilities of benefit to COJO. Besides a vast hall enclosing an ice hockey rink and dressing rooms, the site included offices, a restaurant and a large parking area, simplifying the task of meeting international sports federation standards.

In September 1975, the first phase of construction began. This largely involved renovation of existing facilities and the installation of an air-conditioning system. A second phase, the construction of temporary facilities at rink level for athletes and spectators, was initiated in May 1976, when COJO officially took possession of the site.

The rink was divided into two parts for the Games: the competition zone and the warm-up area. Facing the former, temporary stands were installed on the rink surface, raising the seating capacity of the arena from 2,000 to 2,700.

The sunken base of the rink was covered with a false floor overlaid with rubber and all electrical wiring was concealed underneath. The competition zone itself, 415 square metres, included the podium, the runway and the officials' seats.

The official scoreboard, which had been used in the Munich Games, was installed on the soundproof wall erected between the competition and warm-up zones. Soundproofing was heightened by fitting double doors between the two areas.

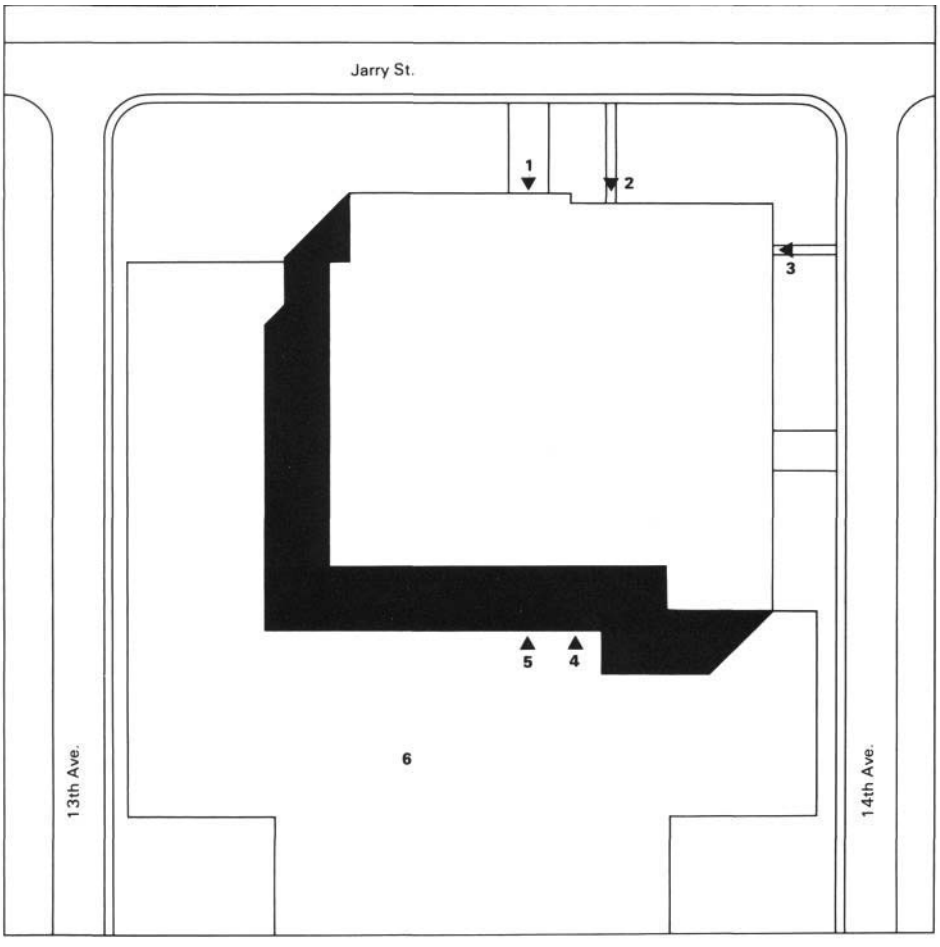
The warm-up area provided competitors with all necessary services and equipment. Four training platforms were installed here, and a closed circuit television system allowed athletes to follow events taking place in the competition zone.

The space immediately behind the warm-up area was occupied by a medical clinic, a doping control room, a weigh-in room, an athletes' lounge and a results room. On the mezzanine level above this area, COJO installed a rest area with twenty beds, which was directly accessible by stairway from the warm-up area.

The five dressing rooms normally used by ice hockey players, located in an annex behind the warm-up area, were temporarily divided into twenty massage rooms.

Administration offices, a reception centre, information and souvenir booths and snack bars were installed beneath the permanent stands adjacent to the main entrance of the arena. The space beneath the stands on the opposite side of the rink was occupied by a VIP lounge and a press subcentre. The latter included an editorial room, an interview room and translation services. Direct access was provided from this area to the reserved press seats and work tables in the stands.

Following the Games, the St. Michel Arena reverted to that favorite sport of Montrealers, ice hockey, with a new lighting and air-conditioning system and substantially improved athletes' quarters.

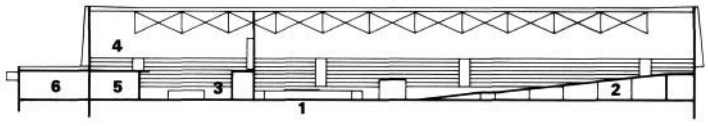


Site plan

1 Public entrance
2 COJO personnel entrance
3 Athletes' entrance
4 VIP entrance
5 Press entrance
6 Parking area

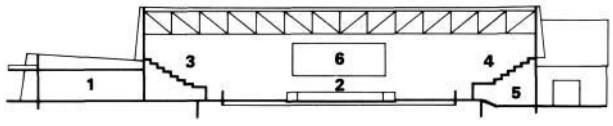
Longitudinal section

1 Competition zone
2 Temporary stands
3 Warm-up area
4 Athletes' rest area
5 Doping control station
6 Massage rooms



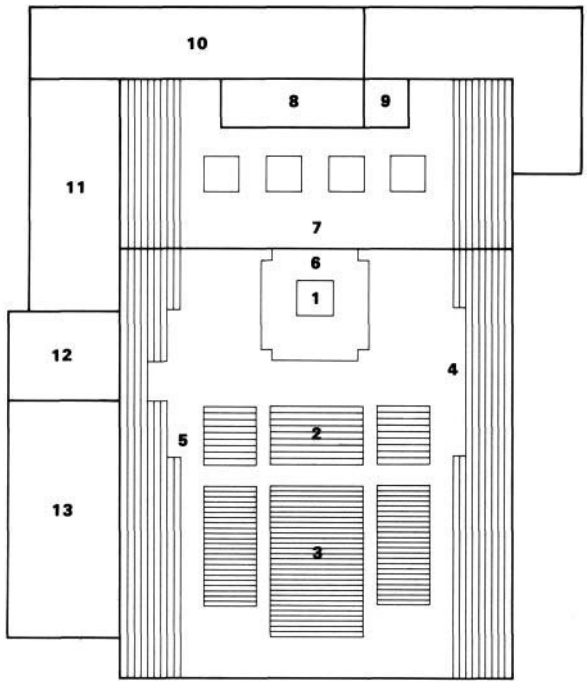
Cross section

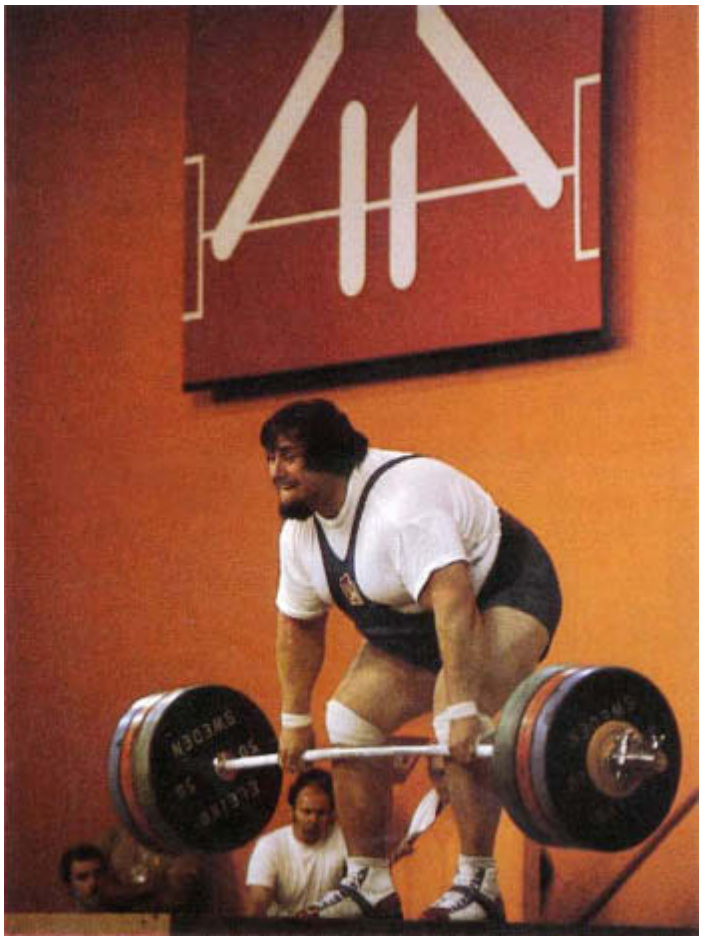
1 Lobby
2 Competition zone
3 Public stands
4 Press stands
5 Press subcentre
6 Scoreboard



Ground floor plan

1 Competition podium
2 Reserved stands (temporary)
3 Public stands (temporary)
4 Press stands
5 Public stands
6 Competition area
7 Warm-up area
8 Doping control station
9 Results centre
10 Massage rooms
11 COJO offices
12 Lobby
13 Restaurant



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Paul Sauvé Centre

Since its inauguration in 1960, the Paul Sauvé Centre has played an important role in the public life of Montréal.

Serving primarily as a popular centre for amateur sports, it has also been a long-standing location for union meetings, political rallies, and cultural exhibitions. Its multiple facilities include an ice hockey arena, a curling rink, a gymnasium, and, throughout the year, it plays host to an endless round of ice hockey tournaments, boxing matches, and other diverse indoor athletic activities.

It was here that COJO and the International Volleyball Federation (IVBF) agreed to stage the preliminary volleyball rounds for the 1976 Games (the semi-finals and finals were scheduled for the Montréal Forum). The decision, made in 1974, was based upon the popularity of the centre, the suitability of its location, and its excellent potential for adaptation to Olympic volleyball requirements.

Located in the heart of a residential area only 2.5 km from the Olympic Village, the centre is built on three hectares of land and surrounded by parking lots, gardens, and lawns. The principal structure housing the skating rink can accommodate 4,000 spectators, and the design of the building, together with its excellent facilities, lends itself admirably to the sport of volleyball. So much so that, during the Games, it was possible to house warm-up, practice, and competition areas all under one roof.

One of the prime objectives of the international federation was to locate a hall with a uniform ceiling, having no divisions or projections. The skating rink met with immediate approval, even though its indoor height fell somewhat short of the required 12.5 metres.

Work on the site began in the spring of 1975. The practice area, with its single court, was located in the second-floor gymnasium, and the curling rink on the ground floor was transformed into a warm-up area containing two regulation-size courts and space for wall exercises. After anchoring devices for the net had been firmly installed, the floors were covered with a special polychloride vinyl surface, laid down in strips soldered together.

The athletes' dressing rooms, the officials' lounge, the organizers' offices, the press subcentre, and the telecommunications centre were all installed in various annexes of the building, necessitating in each case a number of basic alterations to existing facilities.

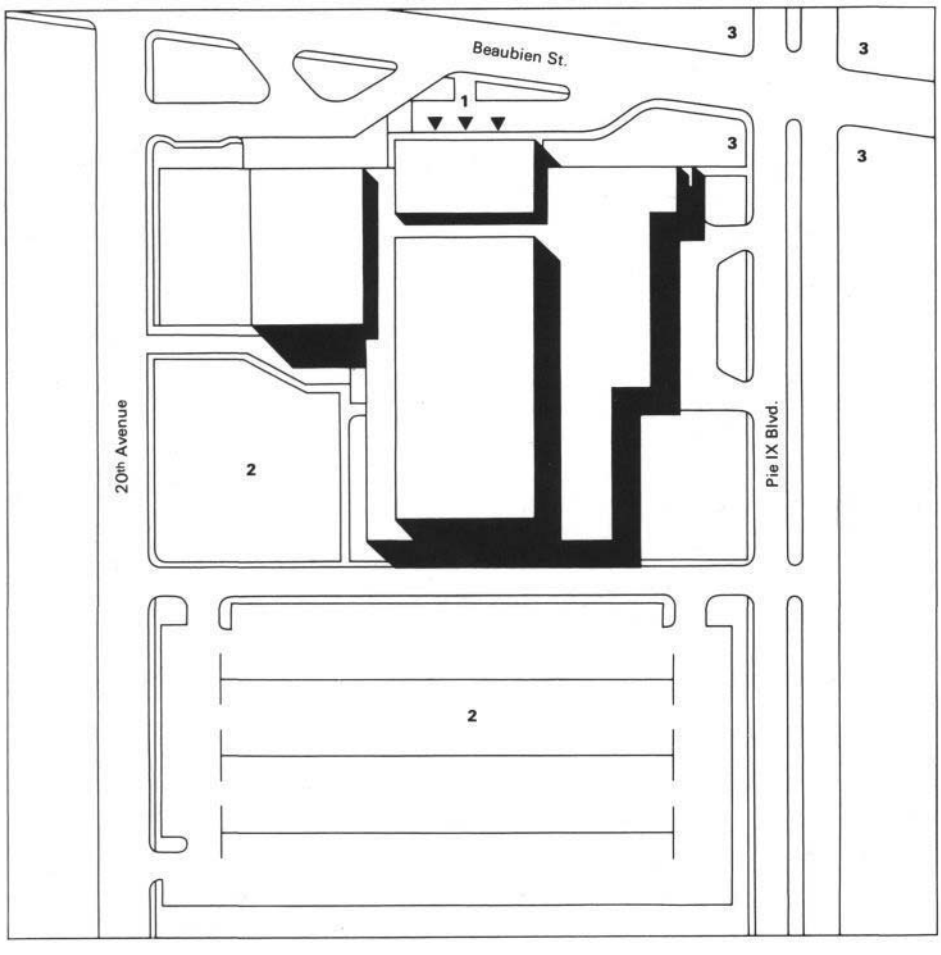
The competition zone itself was located in the centre of the skating rink and measured 19 x 36 m, including the actual court of 9 x 18 m. After the ice surface had been removed, the concrete base was covered with the same synthetic surface used in the practice and warm-up areas, and temporary stands were installed at either end of the court. This increased seating capacity in the immediate vicinity of the competition zone to 5,000.

Improvements to the ventilation system, necessitated by the unusually large number of spectators anticipated for the Games, were complicated by the intricate metallic structure of the roof. The lighting system in the building also had to be renovated.

Once the walls had been painted, everything was set for the international debut of the Paul Sauvé Centre. This took the form of the International Competitions Montréal 1975, at which time both boxing and volleyball events were staged there.

During this competition, however, it became apparent that the lighting system would have to undergo further alterations before the Olympic Games, to allow for color television broadcasting of the events. The required lighting intensity at the competition level was fixed at 1,820 lux and the angle of incidence for each projector was determined by computer in order to assure a uniform, non-glare illumination of the competition zone. Lighting of the stands would remain at its former level. It was also decided to install an ultra-modern, alphanumeric display board, suspended from the ceiling and operated by remote control.

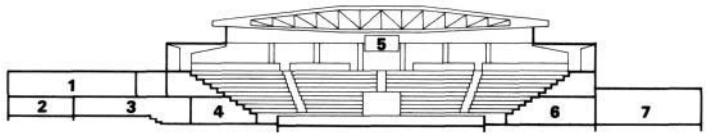
In January, 1976, an agreement was reached between the various parties to the effect that the site would be restored to its original condition after the Games, though all new technical installations would be left intact. Work on the site began once more in the spring, even as it continued to be used for its regular activities; the contractors organized their work so as not to interfere with the hockey tournaments and boxing matches previously scheduled for the centre. At the beginning of June, less than seven weeks before the opening of the Games, the entire site was placed at the disposal of COJO.



Site plan
1 Main entrance
2 Reserved parking area
3 Bus stop

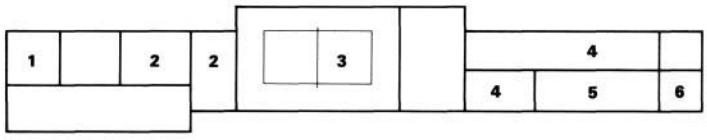
Cross section

1 Site administration offices
2 Press subcentre
3 Restaurant
4 Officials' quarters
5 Scoreboard
6 Athletes' quarters
7 Athletes' warm-up area



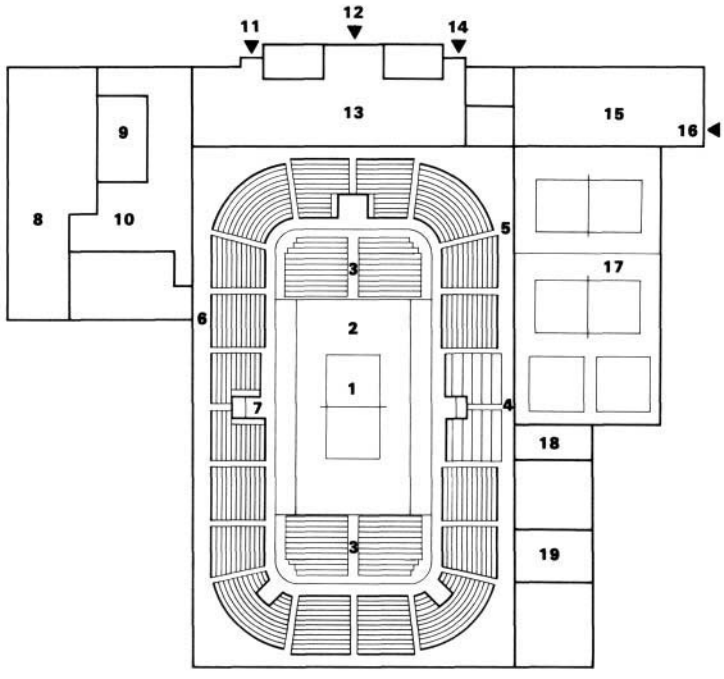
First floor plan

1 Jury office
2 Site administration offices
3 Training area
4 Federation offices
5 Sport secretariat
6 Results centre



Ground floor plan

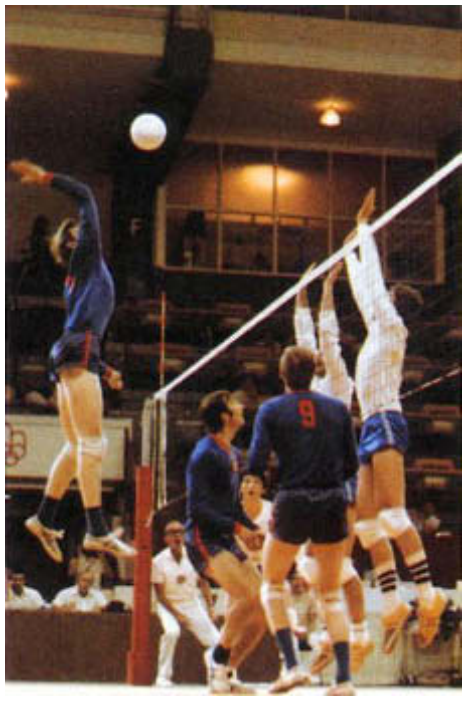
1 Playing area
2 Competition zone
3 Temporary stands
4 Press stands
5 Athletes' and officials' stands
6 Officials' and VIP stands
7 Officials' and Services personnel entrance
8 Press subcentre
9 Security offices
10 Restaurant
11 VIP and press entrance
12 Public entrance
13 Entrance lobby
14 COJO personnel entrance
15 Athletes' dressing rooms
16 Athletes' entrance
17 Athletes' warm-up area
18 First aid room
19 ORTO quarters



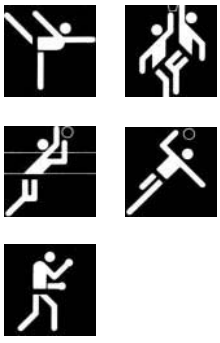
Each section of the centre which had been allocated for use during the Games — athletes' dressing rooms, telephone and television centres, the press subcentre, and the officials' offices and lounge — was cleaned, painted, and refurnished for the occasion. Accesses to the centre were livened up with brightly colored banners and flower beds to make the athletes, officials, and spectators feel welcome.

In the mid-section of the east stands, several rows of seats were removed and replaced with commentators' tables for members of the press; television cameras were installed above the stands. The judges were assigned to their traditional places on the north side of the competition zone, the bright orange surface of which made an attractive contrast with the green stands encircling it.

Less than two weeks after the end of the preliminary rounds in volleyball, the centre was restored to its original condition (albeit improved by the great variety of technical installations) and was returned to its owner, the *Association athlétique nationale de la jeunesse.*



The Forum



Every great city has one famous facility where sports legends are born. In Montréal, it is a vast auditorium located at the western foot of Mount Royal, the Montréal Forum, the mere mention of which stirs memories of epic sports achievements among Canadians throughout the country.

Since its construction in 1924, the Forum has been the home of Montréal's celebrated ice hockey club. *Les Canadiens,* whose exploits over the years have thrilled millions and whose superstars, such as Maurice Richard and Jean Béliveau, are not only a living part of Canadian history but have inspired young players all over the world.

Considering also its capacity to seat from 16,000 to 18,000 people depending upon the sport, it came as no surprise that COJO should select the Forum as the site for several of the more popular events during the Games. In fact, it was decided to stage there all the gymnastic competitions, the semi-finals and finals of both basketball and volleyball, the medal rounds of handball and all boxing finals.

On several occasions during its long history, the Forum has undergone renovation and expansion and in 1968, major modifications transformed it into its present state. At that time, the entire roof of the building was suspended from two huge bridge girders which permitted the elimination of all interior columns and the addition of balconies; the building was air-conditioned, the lighting system overhauled, the interior completely redecorated and the exterior enhanced with prefabricated concrete and metal panels.

The improvements were accomplished despite considerable limitations of both area and design; the building occupies an entire city block and its physical structure is dictated by the ice rink and surrounding stands. All ancillary services, for example, snack bars and administrative offices, were located under these stands in large, open corridors skirting the perimeter on four levels and giving access to the seating sections. Consequently, there was very little in the way of behind-the-scenes space available to COJO and the possibility of structural modifications was limited due to the primary function of the building as an ice hockey arena.

The presentation in the Forum of five Olympic sports, one after the other almost without interruption, was a major challenge. The situation was further complicated by the fact that the Forum could only be rented for a period of two months and the result was the creation of a gigantic theatrical operation — the staging over 13 days of a continuous show, continually different.

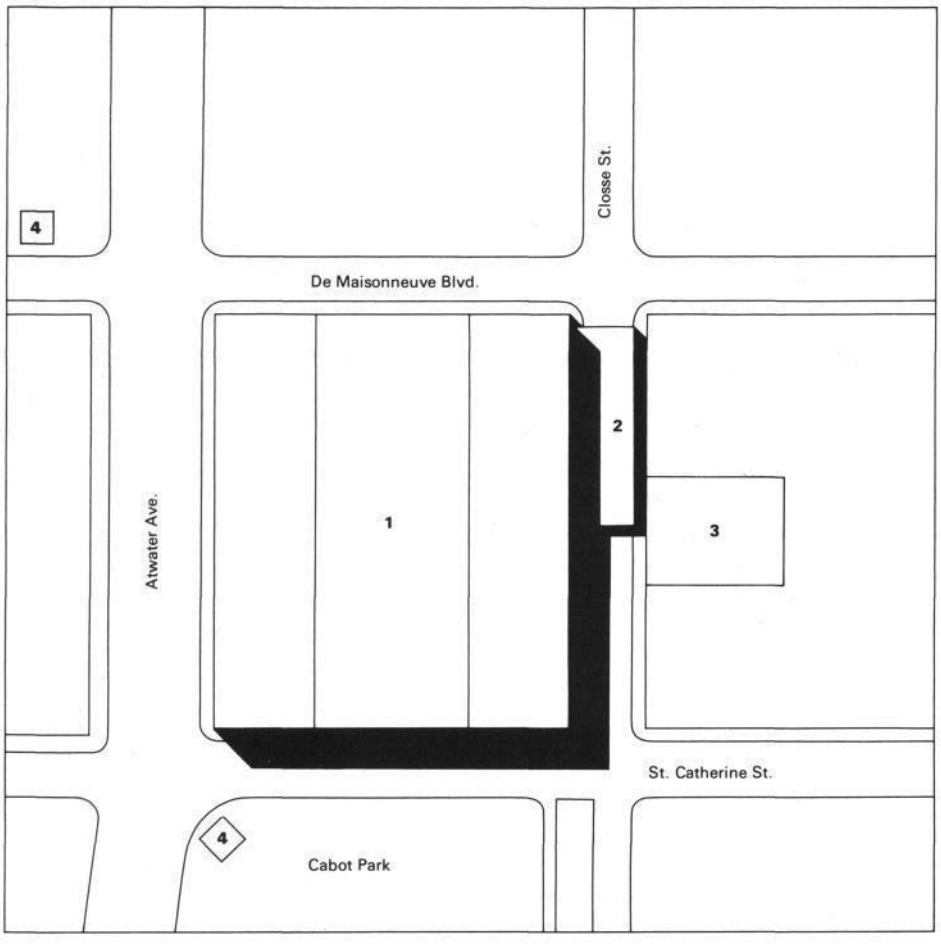
Technicians and engineers accordingly had to study and coordinate all necessary modifications. In addition to the precise requirements of each sport, they had to cope with the restrictions of security and those imposed by the timetable itself. Any plan of utilization had to be built around temporary installations of equipment that would be flexible and could be rapidly erected and dismantled. All permanent installations had to be left intact since the Forum was scheduled to resume its regular functions a mere six days following the end of the Games.

Forum Annex

Space for the athletes' warm-up area was acquired by closing the street on the east side of the Forum and constructing on it a temporary annex. Its somewhat erratic shape was dictated by the need to accommodate such physical restrictions as ventilation outlets and sewer and gas conduits, as well as public right of way and Olympic security. The framework and metallic facing of the new structure reflected the simple design of the Forum itself.

Work on the annex began in early March, 1976, and lasted about ten weeks. Everything was removed again within two weeks after the Games.

That part of the street not taken up by the annex was reserved for the arrival of VIPs and special guests, and mobile technical units for television were located on an adjacent parking lot. A mobile post office was stationed in a park facing the Forum on St. Catherine Street.

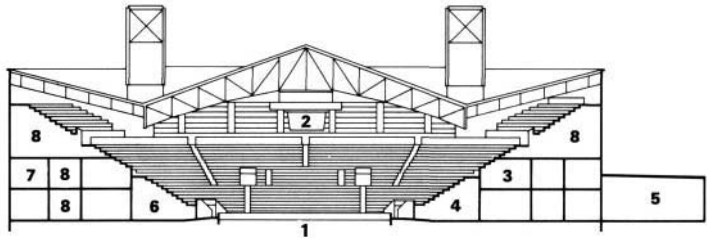


Site plan

1 Forum
2 Annex (warm-up area)
3 Parking area, ORTO mobile units
4 Metro (subway) entrance

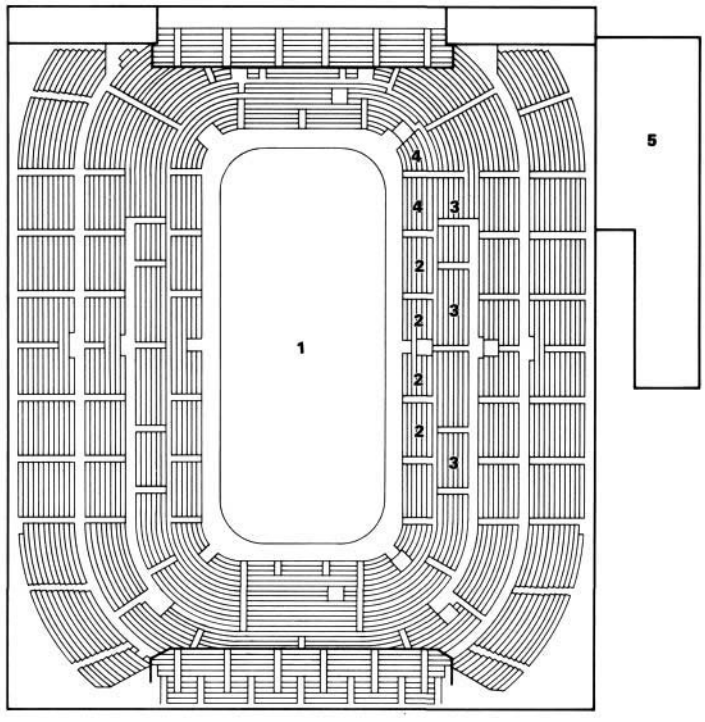
Cross section

1 Competition zone
2 Scoreboards
3 Press subcentre
4 VIP lounge
5 Warm-up area
6 Administration offices
7 Hostesses' lounge
8 Public corridors



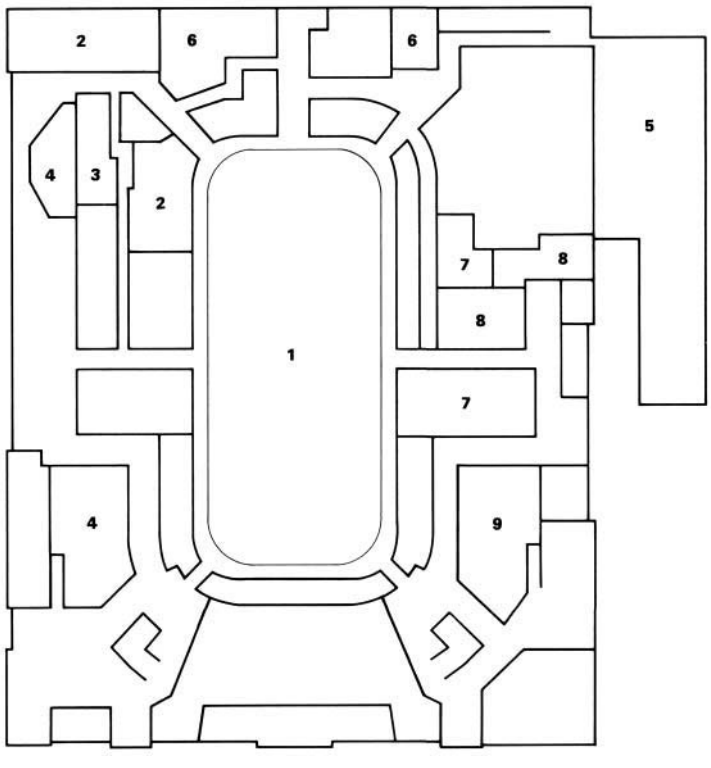
Seating plan

1 Competition area
2 VIP stands
3 Press stands
4 Athletes' stands
5 Warm-up area



Ground floor plan

1 Competition area
2 Sports secretariats' offices
3 Federations' offices
4 Site administration and security offices
5 Warm-up area
6 Athletes' dressing rooms
7 Officials' quarters
8 ORTO quarters
9 VIP lounge



Interior Modifications

Under normal conditions, the Forum is equipped to accommodate about 150 journalists in two press galleries suspended from the roof of the building. There is also a small press room for their use. Clearly, these facilities were not sufficient for the more than 600 media representatives expected during the Games and so the entire second level of the east stands was reserved for their use. Platforms laid over the permanent seats supported 71 tables for broadcast commentators and 100 tables for journalists. Platforms were also built for television and film cameras and an additional 230 seats in this section of the arena were reserved for the remaining press members.

In the area beneath these stands, approximately 500 square metres of space was transformed into a press subcentre, containing editing rooms, the telecommunications centre, interview rooms, a restaurant, and a room for the compilation and printing of results.

Dignitaries occupied the stands directly below those of the journalists. Space in the entrance hall behind these stands was transformed into a VIP lounge.

Because the permanent dressing rooms were designed only for two ice hockey teams and were inadequate for the Games, athletes' services were relocated in the only remaining space in the building. A 126-square metre equipment storage area was transformed into six separate dressing rooms, each equipped with showers and capable of accommodating an entire team. This permitted athletes direct access to both the warm-up area and the competition zone, as well as to the 225 seats reserved for them in the stands.

Games officials and the sports secretariats were assigned to existing offices on the ground floor and quarters for site administration and security officials were erected on 800 square metres of the lobby. All new partitions were constructed of modular panels of gypsum covered with vinyl and attached to a framework of metal bars.

Because large sections of the Forum had now been reserved for athletes and officials, public access to the building was restricted to the south and west entrances, from which spectators were channelled toward the stands. All signs and directions in the arena thus had to be temporarily altered and also made to conform to COJO's format. Public services, such as information and souvenir booths and restaurants, were supplied by using existing facilities.

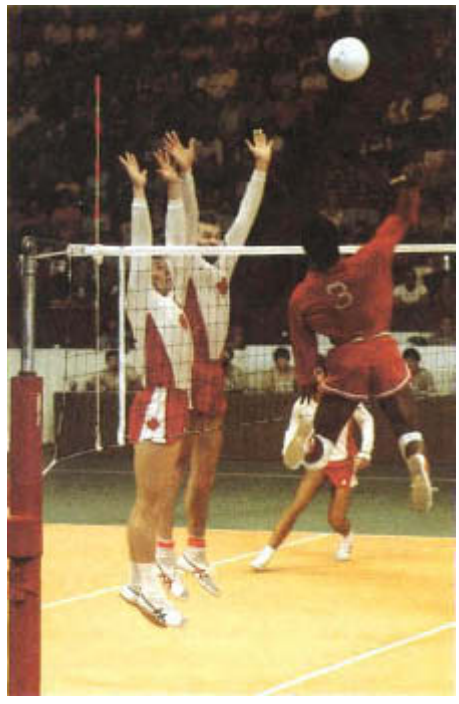
The Competition Zone

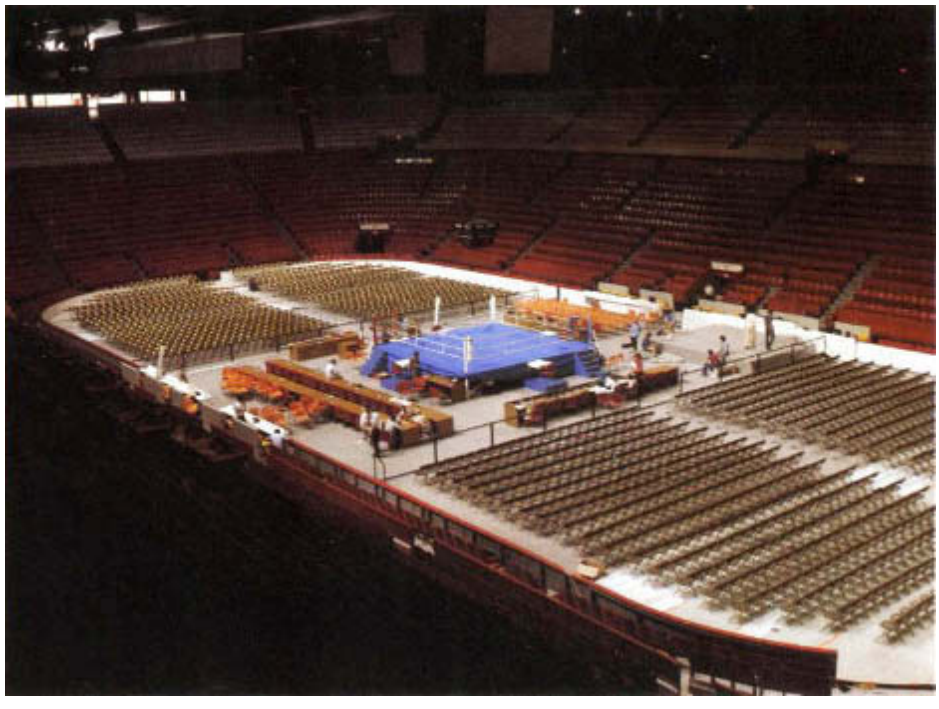
The area of the competition zone was determined by the fixed limits of the ice rink, namely 26 x 60 m, and a temporary flooring was installed to cover the network of refrigeration pipes which covered the base of the arena. This area had to accommodate, in turn, the necessary equipment for gymnastics, basketball, handball, volleyball and boxing.

Since time allowed for the changeover from one sport to another was often less than 12 hours, all installations had to be carefully checked and tested in advance. Furthermore, any equipment for any of the other sports that could be installed prior to the start of gymnastic competition was put in place.

Such installation included electric wiring and connections for scoreboards, timekeeping systems, the public address system and television coverage which were discreetly integrated into the permanent structure. The sheets of polychloride vinyl on which the handball games would be played were glued to the temporary flooring and covered by carpeting until required.

Provision also had to be made for anchoring poles to support the volleyball net. The tension exerted by this net required the poles to be set in concrete bases, but this was rendered all but impossible by the fact that the refrigeration pipes were laid only eight centimetres apart. It was necessary, therefore, to devise a metal shoe which could be bolted to a sheet of concrete resting on poles planted between the pipes in such a way as to allow for quick and easy removal. This device was installed early between the prefabricated floor and the pipes.





The three podiums for gymnastics were simply placed upon the standard carpeting which protected the handball surface. Selected for the ease and rapidity with which it could be installed, each podium was constructed of modular metallic units assembled without bolts or pins. The new floor, constructed of standard sheets of plywood covered with rubber, stood 95 cm above the main floor of the arena and the gymnastics apparatus was anchored to heavy weights suspended beneath. Curtains hanging from each side of the podiums served to camouflage hundreds of metres of electrical wiring connecting officials' tables with the office of the secretariat.

Following the gymnastic events, all this equipment was removed by trucks and replaced by a floor of polished maple for the basketball competitions. This floor was constructed of modular panels held together with screws, while the baskets were erected on mobile platforms. At the same time, all technical instruments and outlets were hooked up, the scoreboard was brought from the Étienne Desmarteau Centre, and temporary public stands were set up at either end of the court. The following day, neither spectators nor athletes could possibly have suspected that the surface of the floor also had to be refinished during the night because of a mishap.

As the handball playing surface was already in place beneath the carpet, it was a relatively simple task to remove all that covered it, including the temporary stands, in the hours preceding competition in that sport. Then the boundary nets were lowered at either end of the court and the goals were firmly attached to their anchoring posts.

The volleyball playing surface was installed in the centre of the handball court by covering the green polychloride vinyl panels with a similar surface in yellow, measuring 10 x 20 m. The lines were repainted, and the poles and the referee's chair were anchored to the concrete sheets already in place beneath the floor. Some of the stands at either end of the court, which had been removed for the handball competition, were then replaced.

Boxing events, the last at the Forum, required an entirely different setup. First, the scoreboard was erected, then the ring and all related equipment were installed on the original protective carpet in the centre of the arena. For this very popular sport, more than 1,000 seats were added to the public stands.

Meanwhile, television cameras, scoreboards, lighting systems, communication outlets and offices all had to be reoriented following each event.

Lighting and Scoring Systems

Prior to the Games, the Forum was already equipped with a lighting system sufficient for color television coverage of ice hockey games. However, once the highly reflective ice surface was covered with duller textures, the lighting intensity would be weakened. As a result, the entire system was restructured to meet the standards laid down by the Olympics Radio and Television Organization (ORTO).

This involved reorienting each of the 450 projectors, replacing their 400-watt haloid bulbs with new ones, and adding 40 new reflectors at both ends of the arena. This revised system was powerful enough to meet broadcast requirements for all the Olympic events but was not blinding to the athletes due to its location high in the building.

A new information display system, carrying results and the names of participating athletes, was also required, but the amount of information resulting from five different sports made electronic boards too complex and too costly. A system, therefore, was chosen which used four projectors to display information processed by computer onto four separate screens. The system also made possible the projection of video images.

Because space was at a premium, the entire system of projectors and screens had to be concentrated in the centre of the arena where the existing hockey scoreboard was suspended above the competition floor. The four screens were hung from an eight-ton steel platform attached to the roof and covered the four faces of the permanent scoreboard. The projectors were mounted on top of the platform and projected images onto the screens below by means of mirrors suspended from the roof.

The location, however, made the system difficult to read by athletes and officials in the competition area and so it was complemented by additional information boards at ground level, such as the basketball scoreboard which was located in the stands, clearly visible from the court. All clocks and scoreboards then had to be synchronized by complex circuitry to make certain that each screen displayed identical information.

That left still one major problem: the brightness of the information screens was only five lux, making them virtually invisible under the 1,820 lux intensity generated for the television cameras. The problem was ultimately resolved through a system of curtains which shaded the screens without interfering with the illumination of the floor below.

Finally, cables were installed from the ground to the roof by which the flags of the medal winners could be raised and, lacking space elsewhere, the flags of all competing nations were also hung from the roof.

As at many other sites for the 1976 Games, problems at the Forum, which could have seemed insurmountable, were overcome through ingenuity, planning and mobility. As a result, another glorious page was added to the illustrious history of this Montréal landmark.

Winter Stadium, University of Montréal

As early as 1970, COJO had selected the University of Montréal Winter Stadium as the site of fencing competitions at the 1976 Olympic Games.

The choice was a logical one. The site, built in 1965, had already played host to the World Fencing Championships in 1967, at which time both athletes and officials were impressed by its modern, flexible facilities. Later, in 1975, the stadium once again was the site of international fencing on the occasion of the International Competitions Montréal 1975 (CIM 75), when competition was also staged in handball, weightlifting, judo and wrestling.

Despite its somewhat misleading name, the Winter Stadium is in use all year round. Situated on the northwest flank of Mount Royal, next to the university ski jump, it houses a 61 x 26 m indoor ice rink with seating for 2,461 in stands down one side. Tucked beneath these stands are three levels containing a 14 x 42 m curling rink, dressing rooms and offices. At the back of the stadium, completing the facility, is partially covered outdoor seating for 2,000, facing the ski hill and overlooking a football field where, in 1974, a temporary velodrome was erected for the World Cycling Championships.

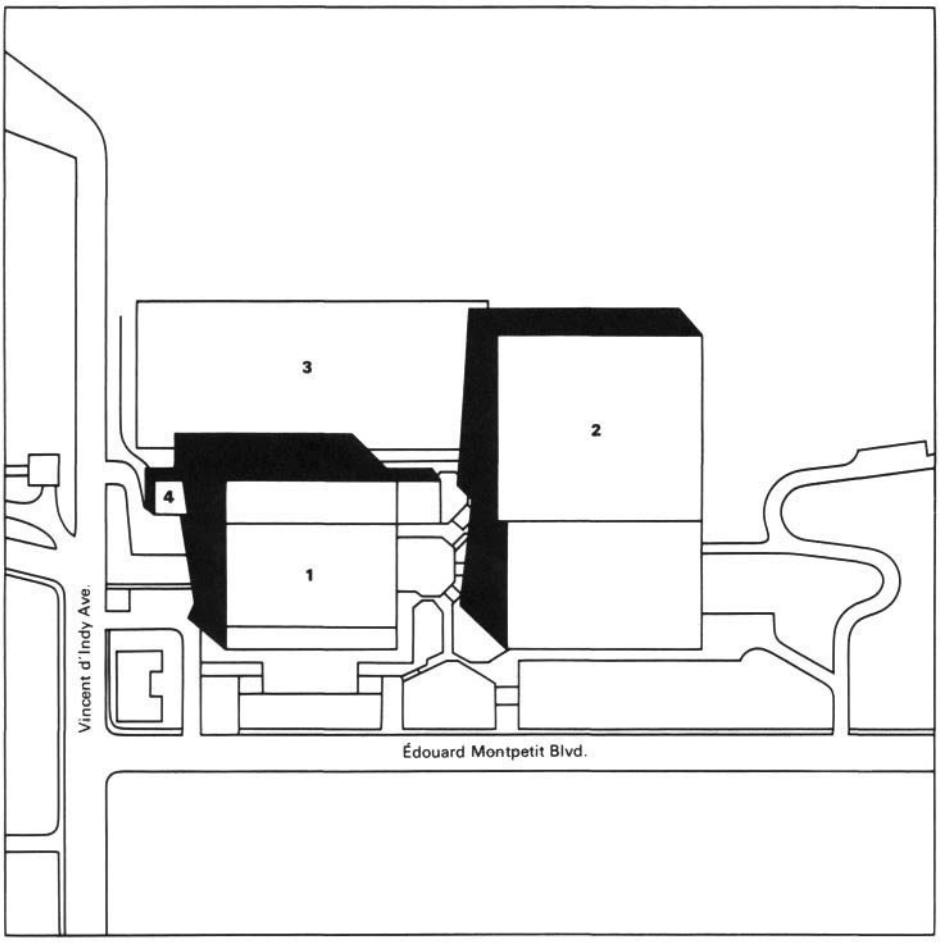
COJO took possession of the Winter Stadium in May, 1976. Protective carpets were laid over the skating rink and the curling rink, which were used respectively as the primary and secondary competition zones. Eleven fencing *pistes* were installed on the skating surface and four on the curling surface. The latter, which lacked space for spectator seating and television and film cameras, was used solely for preliminary matches. The fencing *piste* used for the finals was 2.50 x 19 m and installed on an elevated podium to allow for maximum visibility; all *other pistes* were 1.83 x 17 m in size.

Spectator flow through the building was altered and a VIP lounge was installed in the lobby at rink level. From here dignitaries could proceed directly to the two hundred and two seats reserved for them in the lower stands on the farther side of the arena. Tables for forty commentators, as well as reserved seating for some one hundred additional press members, were also located near the competition zone. Television and film cameras were installed in a zone above the public seating area, and the press subcentre, consisting of lounge, work area and interview room, was located on the main floor beneath the stands. The administration areas, also located beneath the stands, were refurbished and furnished with office equipment, telephones and acoustic partitions for the use of the federations and the fencing secretariat.

Since foil and épée fencing events were scored electronically during the Games, all contestants had to wear sensors connected to a score indicator which lighted at each *touche.* This necessitated the grounding of all fencing *pistes* and the installation of wiring for the scoring system. An electronic scoreboard posted the latest results in overall standings, and was supplemented by manual scoreboards located at each competition *piste.*

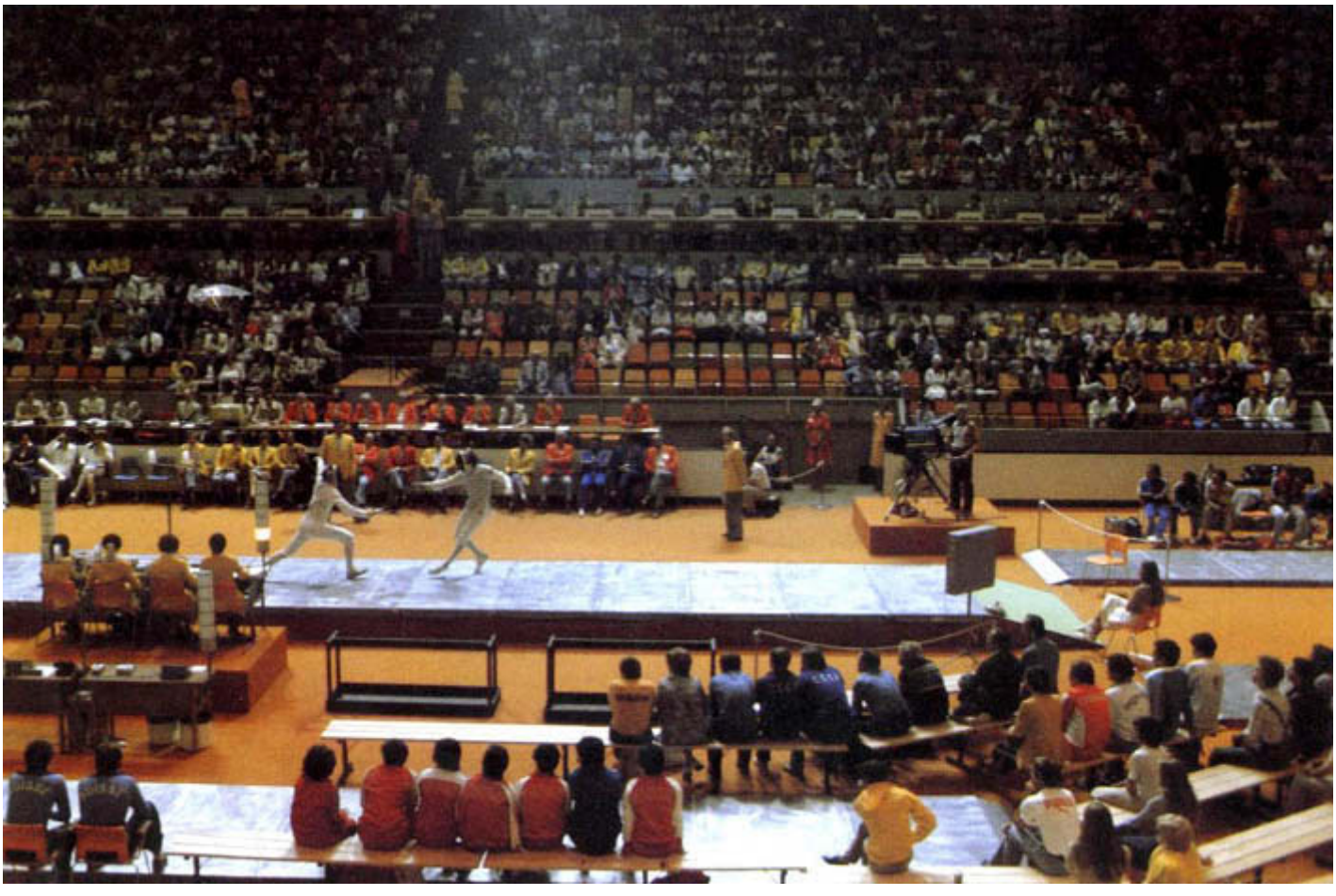
The lighting intensity level was increased by suspending 80 additional projectors from the ceiling in order to meet standards set by the international federation and by the Olympics Radio and Television Organization (ORTO). Forty of these lights were left in the Winter Stadium after the Games.

Just 40 m to the west of the stadium, and connected by an underground passageway, is the *Pavillon d'éducation physique et des sports* (PEPS) of the University of Montréal, which was only inaugurated in 1976 and which contained all necessary training facilities for the fencers. The PEPS is equipped with an indoor running track, a 50-metre swimming pool, a



Site plan

1 Winter Stadium
2 PEPS
3 Hockey training area
4 Transmission relay system (ORTO)

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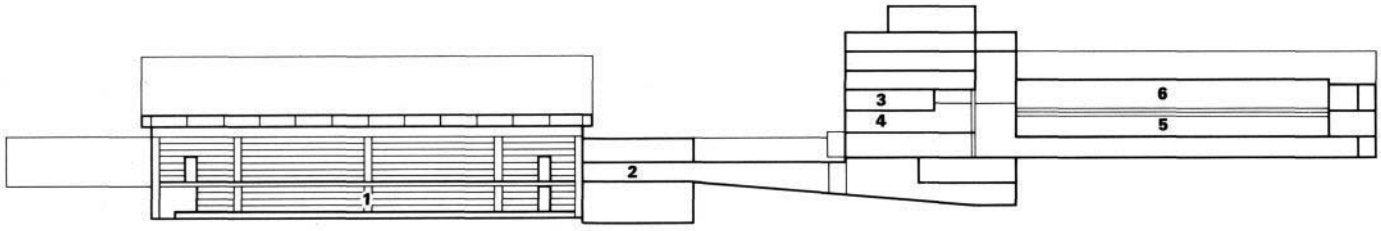
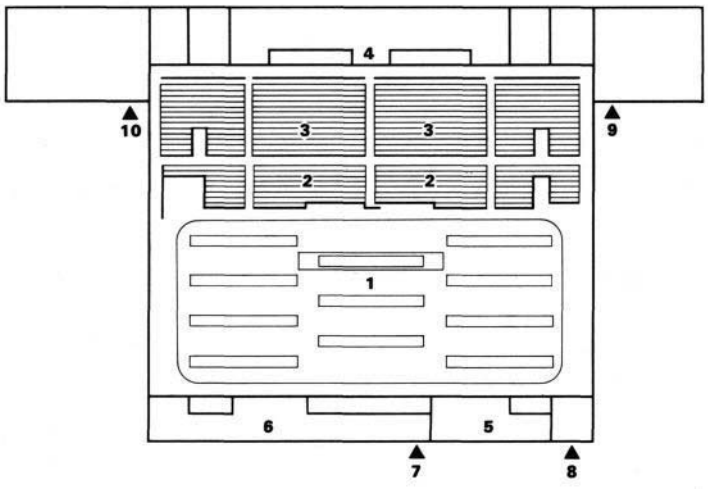


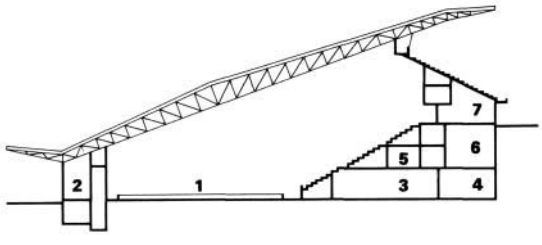
Winter Stadium and PEPS
Longitudinal section

1 Competition hall
2 Tunnel between Winter Stadium and PEPS
3 COJO lounge
4 COJO administration offices
5 Athletes' dressing rooms
6 Fencing training hall



Winter Stadium
Floor plan

1 Competition hall
2 Reserved stands
3 Public stands
4 Public services
5 VIP lounge
6 Lobby
7 Public entrance
8 VIP entrance
9 Officials' entrance
10 Press entrance



Winter Stadium
Cross section

1 Primary competition hall
2 VIP lounge
3 Secondary competition hall
4 FIE office
5 Results centre
6 Referees' dressing room
7 Public services

platform diving pool and a triple gymnasium, as well as classrooms and offices. The centre is readily available for fencing, swimming, diving, water polo or athletics training.

Few alterations were required for Olympic use. The seventy female and two hundred and twelve male fencers used dressing rooms on the first and second floors, as well as the existing massage room, sauna and infirmary. Six warm-up *pistes* were located inside the running track and another thirteen in the triple gymnasium. COJO also took over office space here for services which could not be accommodated in the Winter Stadium.

Use of these facilities, however, was not confined to fencing during the Games. The start-finish line of the cycling road race (the Mount Royal circuit) was located right outside the PEPS on Édouard Montpetit Boulevard. Temporary stands, camera platforms and an ORTO transmission control centre were set up for this event.

Cycling officials and the sport secretariat occupied office space in the centre; nearby student residences housed some two hundred journalists during the Games and a press subcentre was also located here.

While the fencing program was taking place within the Winter Stadium, yet another activity related to the Games was scheduled for the football field behind the building. A training field for hockey players was installed on the site of the 1974 temporary velodrome, though this time the installation was to be of permanent benefit to the students. The existing grass field was replaced with a 120 x 70-m synthetic surface and direct access was provided for hockey players from the practice field to the dressing rooms and showers in the Winter Stadium. The hockey training area and the fencing area were sealed off from each other.

As most students attending the university rely on public transport, there was only limited parking space which was reserved for dignitaries, athletes, and the press. Public access to the site was via bus connection to two subway stations on the north-south line about five kilometres away.

The Games of the XXI Olympiad enriched the University of Montréal far beyond the physical installations left by COJO. The students of that university will long be inspired by the knowledge that Olympic history was made in the very halls in which they play and practise.

Molson Stadium, McGill University

For the first time in history, Olympic hockey competitions were held on an artificial surface during the 1976 Games. This radical departure from tradition took place, almost ironically, in one of the oldest athletic facilities used by COJO — Molson Stadium.

Built in 1914 on the slopes of Mount Royal, Molson Stadium is the property of McGill University. It is the home playing field of the McGill *Redmen* (North American-style football team) and principal site for a variety of university outdoor athletic events.

For several years it was also the home of Montréal's professional Canadian Football League club, the *Alouettes,* which prompted major renovations and expansion in 1950 and again in 1958. In 1968, the *Alouettes* moved to a new home, and, except for a brief return in 1972 by the professional team, the stadium has since largely been used only by the McGill student body.

The stands and facilities once intended for the general public consequently fell into partial disuse. But since the stadium seats 19,500 and is located only a stone's throw from downtown Montréal and a mere seven kilometres from the Olympic Village, COJO, naturally, sought ways to realize the potential of this facility for the 1976 Games.

Although the site seemed best suited for Olympic football competition, football was already destined for three cities outside Montréal and for the Olympic Stadium.

A second option was hockey. Molson Stadium did have sufficient seating to accommodate this sport, but there remained the problem of maintaining the playing field in satisfactory condition over an extended period of use. A single, natural grass surface cannot hold up to play as frequent as that required in Olympic competition. Approximately a dozen fields would have been needed in rotation, half of which would have had to be equipped with public seating. Such a solution would have required numerous installations and the preparation of additional grounds at vast expense.

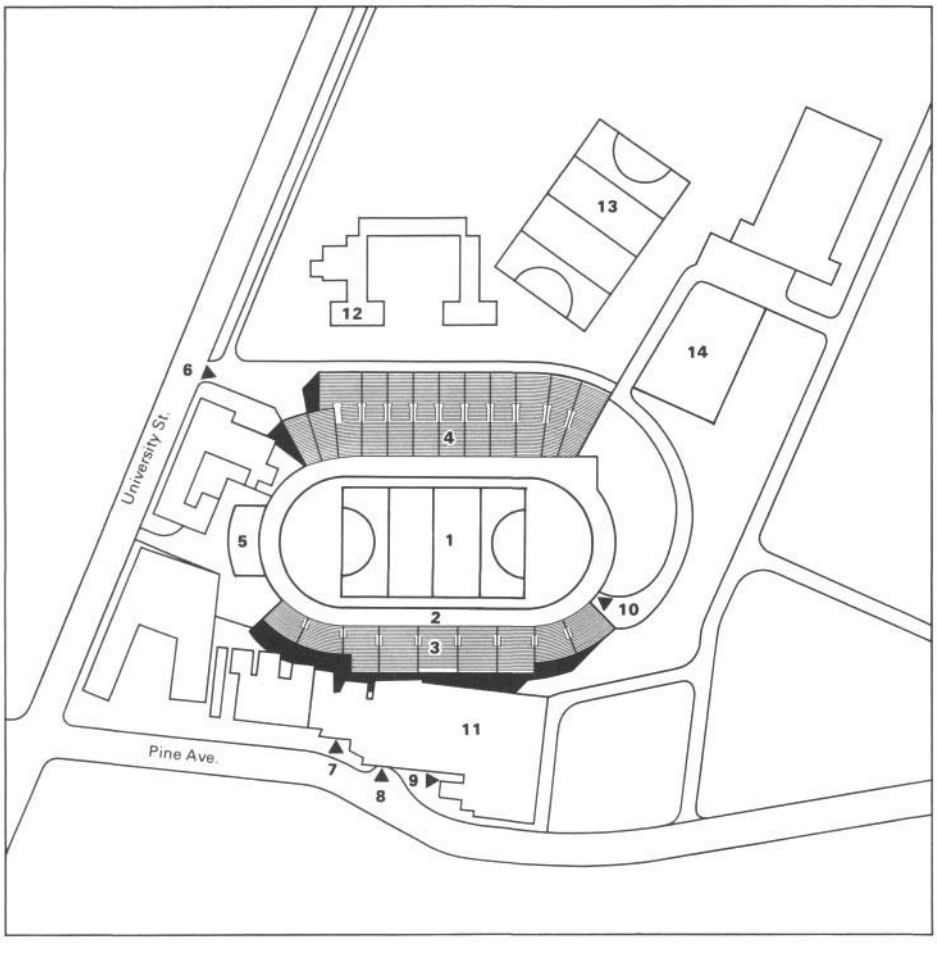
Faced with these constraints, COJO came to the conclusion that a synthetic playing surface offered the best solution. Molson Stadium could serve for all the matches; two additional artificial surfaces for training could be laid at the Claude Robillard Centre and at the University of Montréal; and a natural surface adjacent to Molson Stadium could be used for warm-up.

The International Hockey Federation (FIH) did not at first agree to COJO's plan, but artificial surfaces were subsequently tested in competition in Toronto and in Europe. Finally, after a year of negotiations, the green light was given by the federation.

In March, 1975, when the soil was still frozen and covered with snow, work began on the site. The subterranean draining system was replaced by a network of sewer conduits capable of drawing off all surface water. The excavation was then filled with crushed gravel and covered with three layers of asphalt. Finally, strips of synthetic grass were stretched onto a concrete frame and glued to the asphalt.

After some retouching work that included painting, the repair of seats and pavement, and modifications to the scoreboard, all was ready for a trial run in the form of the International Competitions Montréal 1975 held in July of that year.

In spite of its undeniable advantages, the new surface had some drawbacks. Since there was little natural evaporation, it rapidly overheated in the sun and the athletes risked friction burns when falling. It was necessary, therefore, to cool the turf on occasion with water sprayed from a mobile cistern which was towed back and forth across the field.



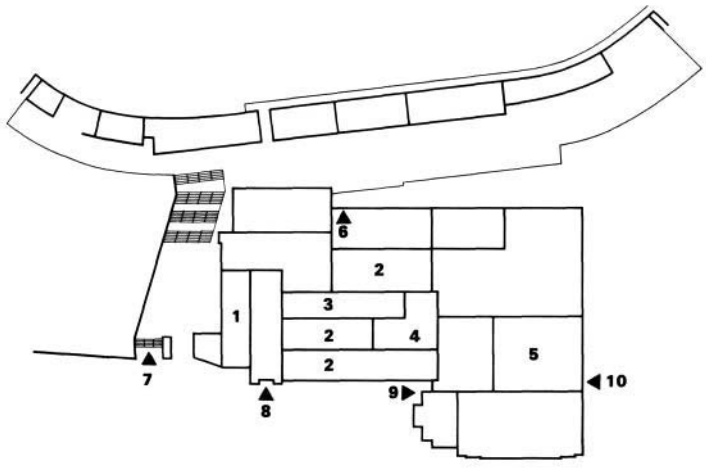
Site plan

1 Competition zone
2 Tables for officials
3 South Stands (VIPs, athletes and public)
4 North stands (press and public)
5 Scoreboard
6 Public and press entrance
7 Public entrance
8 Officials' and VIP entrance
9 COJO personnel entrance
10 Athletes' entrance
11 Sir Arthur Currie Memorial Gymnasium (administration, VIPs and basketball training)
12 Douglas Hall (press subcentre)
13 Warm-up area
14 Reserved parking

Sir Arthur Currie Memorial Gymnasium

Ground floor plan

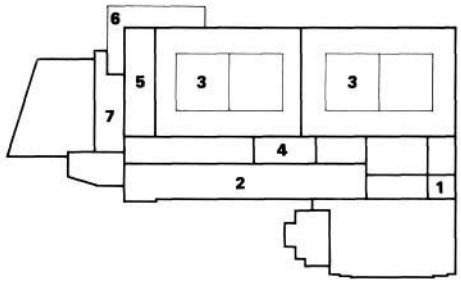
1 International Hockey Federation (FIH) offices
2 COJO administration offices
3 Security offices
4 Services Management offices
5 COJO personnel dressing rooms
6 Access to stadium
7 Public entrance to stadium
8 Officials' and VIP entrance
9 COJO personnel entrance
10 Basketball players' entrance



Sir Arthur Currie Memorial Gymnasium

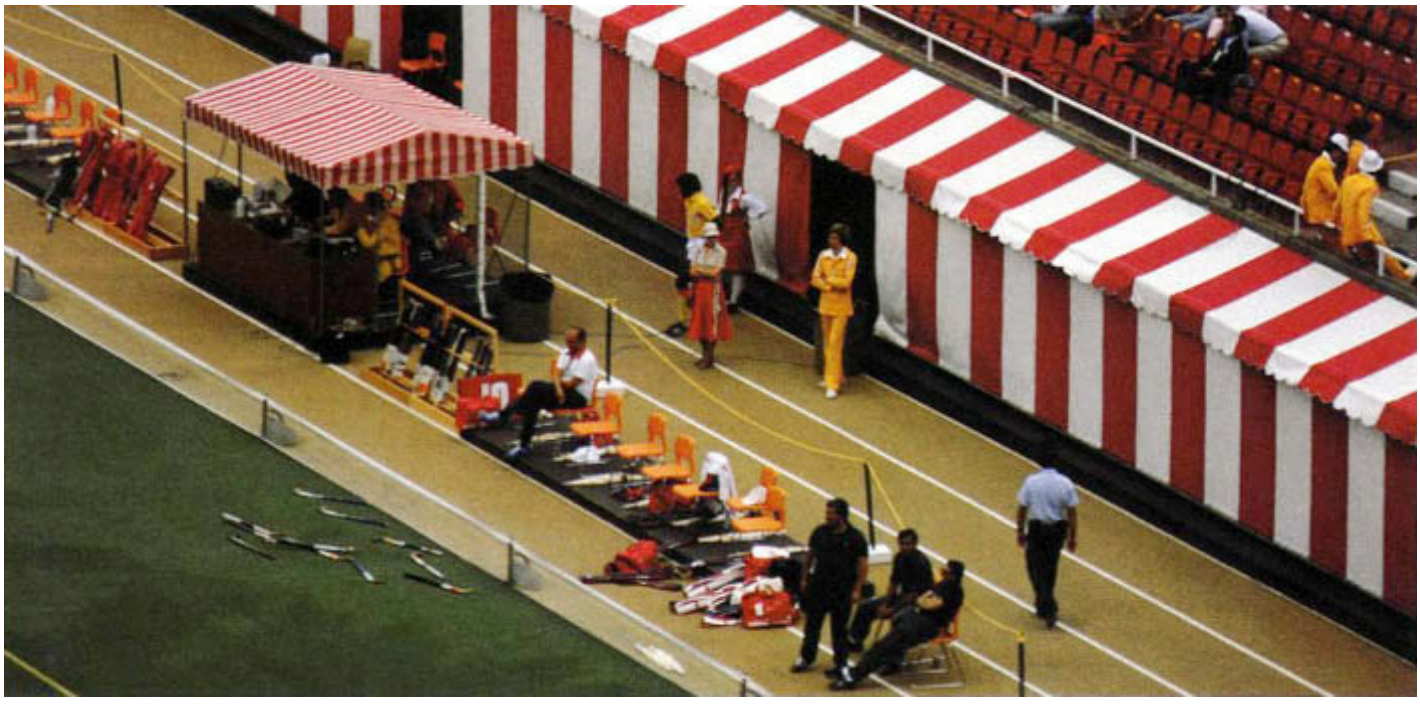
First floor plan

1 Basketball players' entrance
2 Basketball players' dressing rooms
3 Basketball training area
4 Basketball administration offices
5 VIP lounge
6 VIP access to stadium
7 Hostesses' lounge



In the spring of 1976, an artificial track was laid around the playing field to replace the old one which had been destroyed during the earlier work.

Spectator flow, dressing room size and location, and office space were projected in terms of the usual criteria. The network of fences, barriers, turnstiles and ramps in the stadium was enlarged and improved and the public was guided to entrances on either side of the playing field.



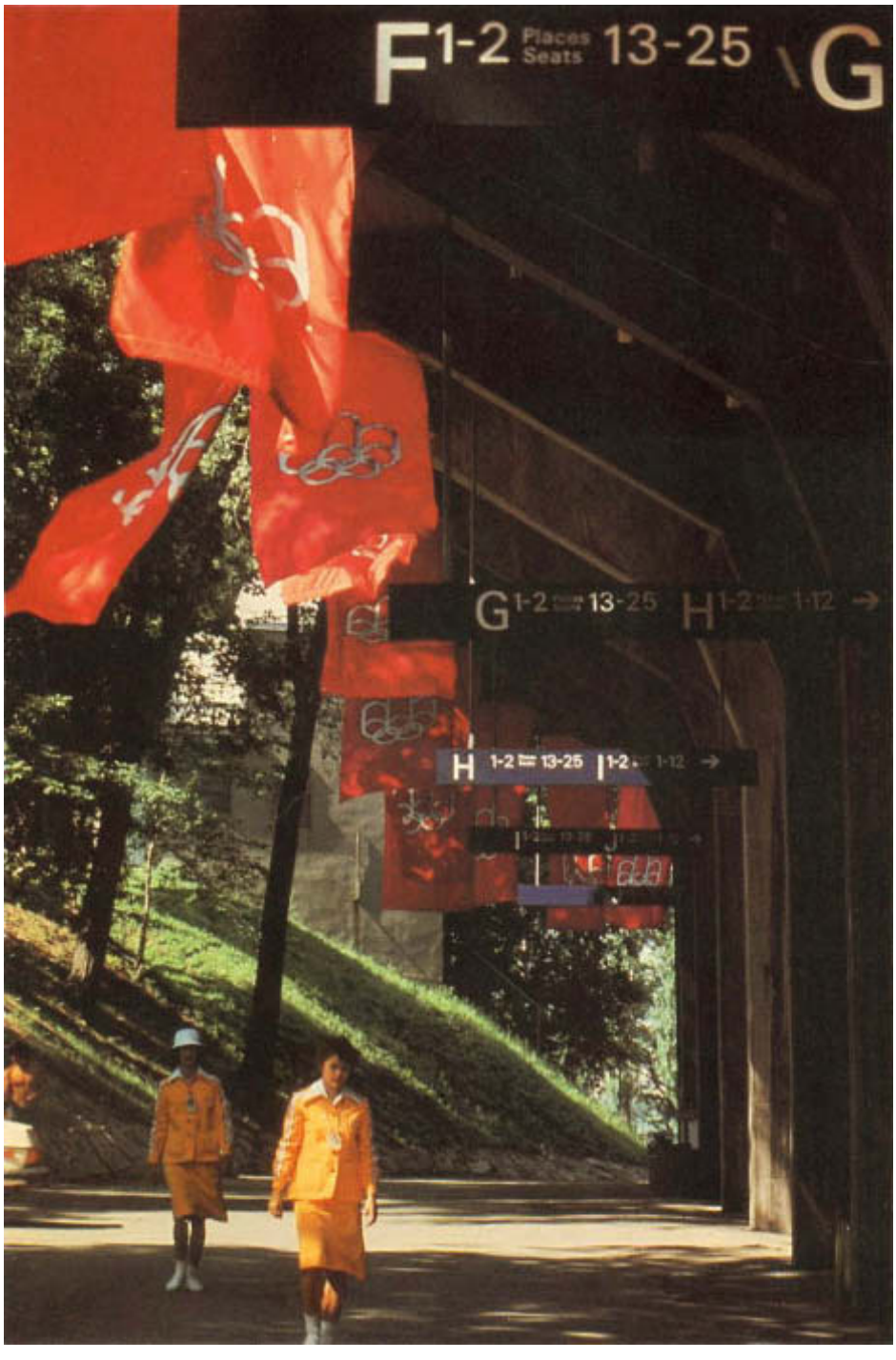
The press remained in the existing location in the upper sections of the north stands, but a few surrounding seats were needed to accommodate the 175 journalists expected during the Games. A press subcentre was located a few steps away in Douglas Hall, which also served as a residence for journalists.

Administration offices were located on the ground floor of the Sir Arthur Currie Memorial Gymnasium on the opposite side of the stadium. The two gymnasiums and dressing rooms on the second floor of this building were converted for basketball training. A section of the third floor was redecorated and set aside for special guests, who reached their seats in the stadium via a temporary footbridge.

The athletes shared dressing rooms located beneath the south stands, which had to be subdivided for the occasion. Showers and washrooms were also added. A temporary, canvas-covered corridor running along the edge of the competition zone provided athletes with direct access to their bus loading area at the far east end of the field.

Signs, and lighting and scoring systems were brought up to Olympic standards, and brightly-colored banners were strung about the stadium to decorate the premises. In May, 1976, two months before the opening ceremony, COJO officially took possession of the site.

The Games thus left a tangible legacy to the students of McGill University in the form of an extensively refitted stadium facility, and an artificial playing surface, usable for much of the year despite Montreal's extreme climate.



Road Courses for Cycling and Athletics



Cycling Courses

Included in the Olympic program since 1896, cycling proved to be one of the more popular events with Montrealers during the Games of the XXI Olympiad. In order to benefit from past experience, COJO had previously decided to stage both individual and team events on the same routes used during the World Cycling Championships held in Montréal in 1974.

Fairview Circuit

The 100-km team time trial was held on a section of the Trans-Canada Highway, a 5,000-kilometre expressway connecting the Atlantic and Pacific coasts of Canada. The 25-kilometre stretch of road selected crossed the west end of the island of Montréal and was flat, meeting the requirements of the *Fédération internationale amateur de cyclisme* (FIAC). Cyclists used both sides of the divided highway and covered the entire circuit twice.

The start-finish line was located in front of the Fairview Shopping Centre, 29 km from the Olympic Village. All essential services for the competition were installed on the grassy area separating the highway from the shopping centre's huge parking lot. Temporary stands with six hundred seats for dignitaries, members of the press, competition officials and athletes were erected at the side of the road near the start-finish line. The press stand accommodated one hundred and sixty-five and contained fifteen tables for broadcast commentators. Spectators were confined to areas outside the fences that border the Trans-Canada Highway.

Most construction and installation work at the site was completed a week before the events. Because the competition lasted only a day, all facilities were designed to be quickly erected and dismantled, so as to interfere as little as possible with the activities of the shopping centre. For the same reason, the competition was also held on a Sunday.

The proprietors of the centre placed their parking lot at COJO's disposal. Mobile units were installed to accommodate the Olympics Radio and Television Organization (ORTO), a press subcentre, a results centre and hostesses' quarters, as well as services relating to medal ceremonies.

A large tent equipped as a terrace café was provided for members of the press and VIPs, who reached their seats in the stands via two openings in the fences bordering the highway.

Mobile units for service and security personnel were located on a small grassy area some 50 m away and a tent for cyclists was erected on a similar island near the formation area for service vehicles accompanying the cycling teams.

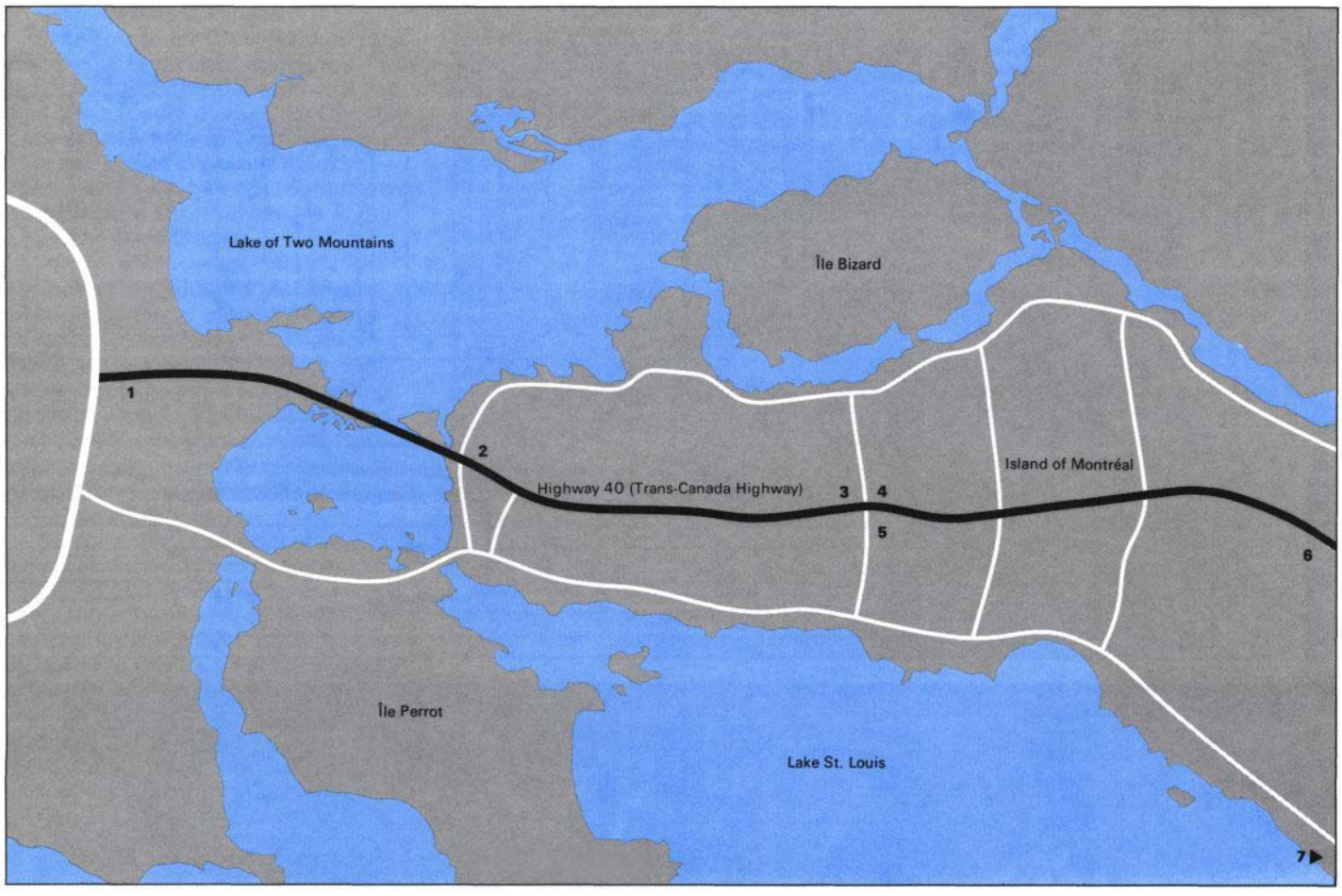
A cabin housing timing devices was located at the start-finish line and the reserved stands on either side were protected from the sun by colored canvas canopies stretched over light metal structures. A mobile unit containing the public address system was installed behind the timekeeping station.

The grassy area dividing the highway contained the scoreboard and the victory podiums where the first medals of the 1976 Olympics were awarded. On the farther side of the highway, large masts were installed to hold the flags of the participating countries.

Since the roadway of the Trans-Canada Highway was used as the cycling surface, efforts were made to render it as uniform as possible at all points, especially at both ends of the circuit. Thanks to the cooperation of Québec's Ministry of Public Works and the security services of the Montréal Urban Community, all traffic was diverted from this section of the highway several hours before the competition began. Signboards indicating the cycling route were then installed at prearranged locations.

A second timekeeping cabin, located at the 25-75 km point, was connected to the main one by radio. Positions were announced over loudspeakers at the start-finish line and were posted manually on the scoreboard.

An hour after the competition was over, the highway was reopened to traffic.

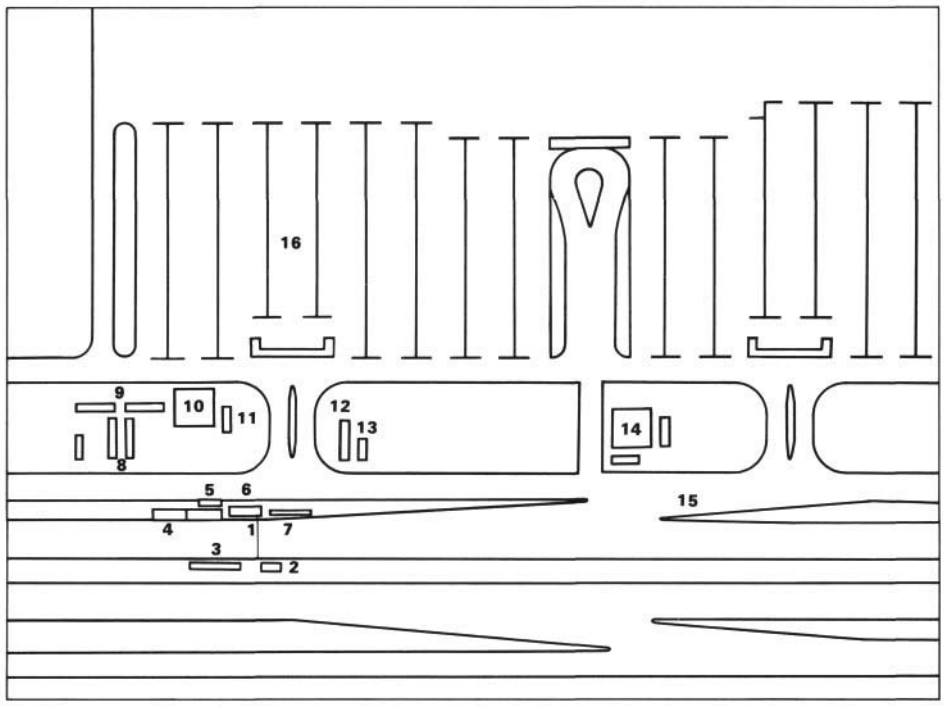


Fairview Circuit
The route

1 Western loop of circuit
2 Control point at 25 & 75 km
3 Fairview shopping centre
4 Start-finish line
5 Control point at 0 & 50 km
6 Eastern loop of circuit
7 Downtown

Fairview Circuit
Site plan

1 Start-finish line
2 Medal ceremony podium
3 Scoreboard
4 Press stands
5 Sound equipment control centre
6 Timing equipment control centre
7 VIP and athletes' stands
8 Press quarters
9 ORTO quarters
10 Terrace cafe
11 Medal ceremony quarters
12 Site management quarters
13 Security quarters
14 Athletes' tent
15 Service vehicles for cycling teams
16 Parking lot



Mount Royal Circuit

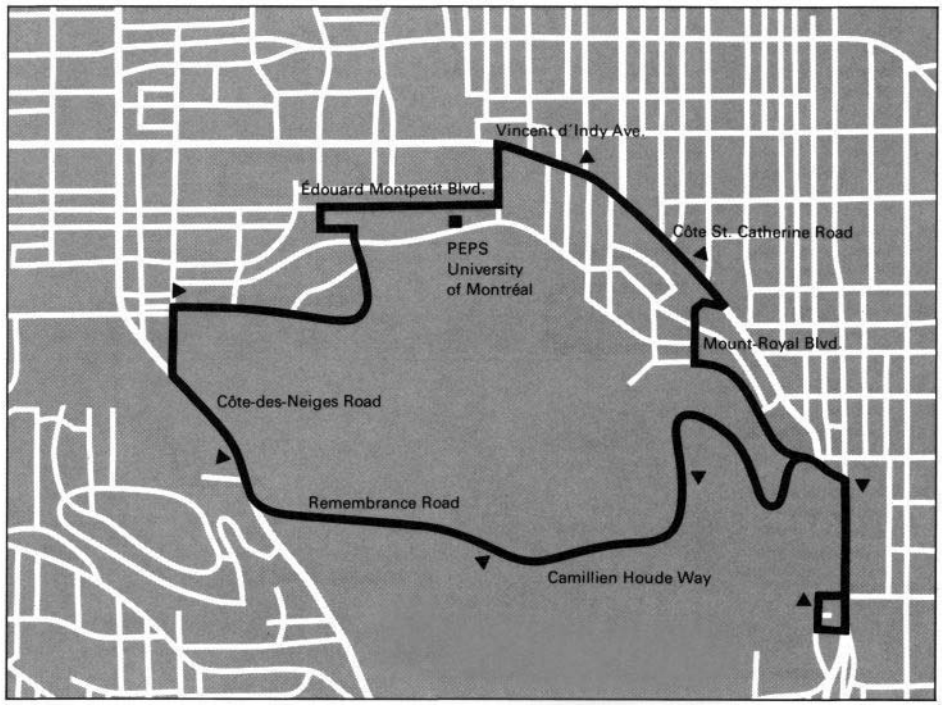
The course for the individual road race, the same as used during the 1974 world championships, was one of the most difficult ever devised for Olympic cycling competitions. The route wound along the slopes of Mount Royal, a green oasis in the heart of Montréal that commands an impressive view of the busy metropolis below.

As in 1974, the start-finish line was located on Édouard Montpetit Boulevard, in front of the *Pavillon d' éducation physique et des sports* (PEPS) of the University of Montréal, where indoor services for the cycling road race were located. To cause the least possible inconvenience to local residents, only essential facilities were installed and were located in the area of the start-finish line.

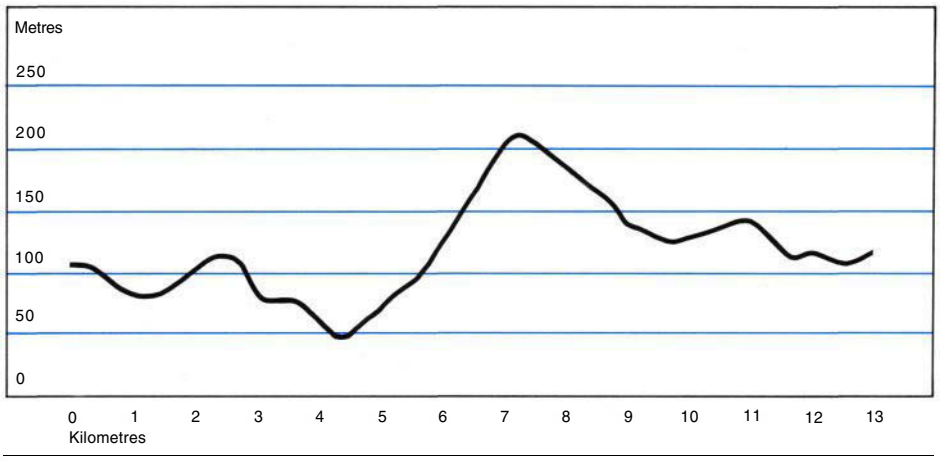
Despite this, it was necessary to use sidewalks and lawns adjacent to the route and in such cases, arrangements were made with all concerned parties prior to the Games. It was also necessary to ensure constant access to driveways and underground garages in the area.

Facilities installed on the residential side of the route included the timekeeping cabin (the same as used at the Fairview Circuit), the Scoreboard, a tent to serve as a results centre, victory podium, a tower opposite the start-finish line to hold a photo-finish camera and a crane supporting a video camera placed parallel to the route and above it (used by officials to monitor the final approach to the line).

Spectator stands with 2,400 seats were located on the university side of the street. They occupied part of the roadway and the sidewalk and stretched up onto the actual lawns of the university. These portable stands were erected shortly before the competition and were dismantled in the days following, to reduce interference with traffic on this main artery. A stand for one hundred and seventy VIPs was erected just ahead of the start-finish line and was covered with a canvas canopy stretched over a light metal framework; another covered stand containing fifty-four commentators' tables, each with a closed-circuit television set, was located behind this line as was a tower for a television camera; public stands on either side of the line accommodated up to 2,000 spectators.



Mount Royal Circuit
The route



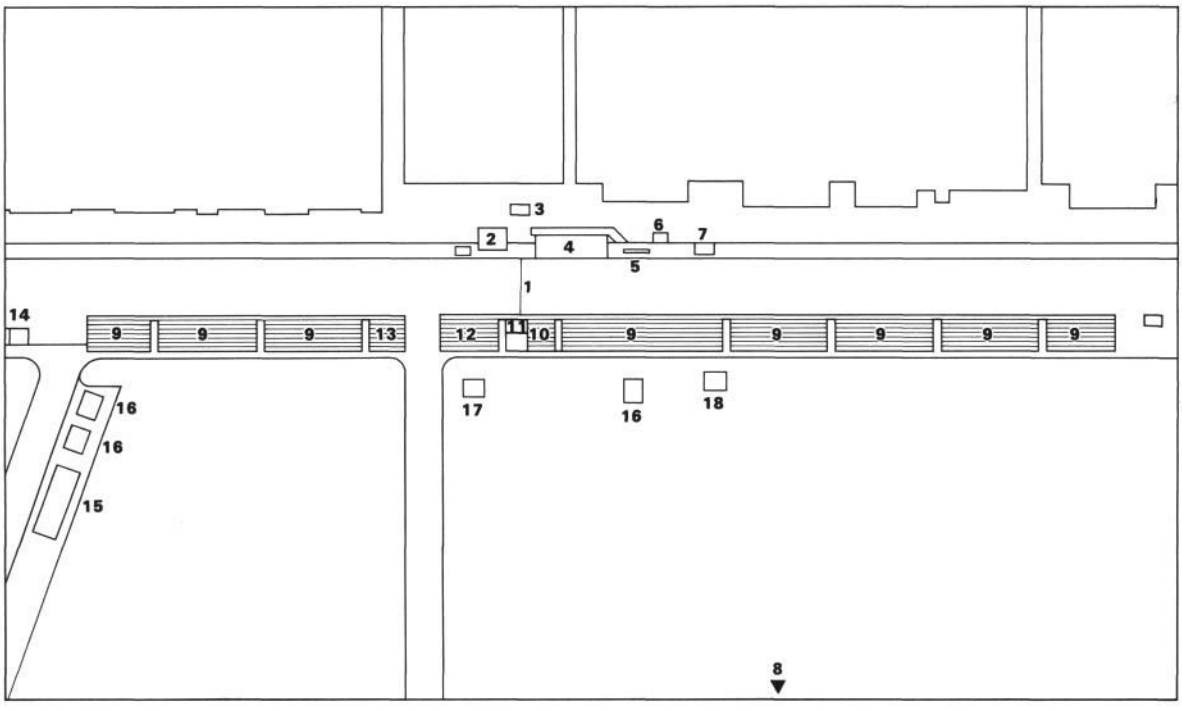
Mount Royal Circuit
Route profile

Fifty shelters for cyclists, constructed of canvas canopies stretched over metal frames, were installed at the edge of the sidewalk. Behind these, on the university lawn, a mobile unit served as the doping control station. Dressing rooms in the PEPS were transformed into administrative offices and quarters for the athletes.

The roadway was touched up prior to the competition to ensure cyclists a uniform surface throughout. At street intersections, the course was marked off by metal barriers provided by the Montréal Urban Community Police Department, and the entire circuit was decorated with banners and COJO flags.

Mount Royal Circuit
Site plan

1 Start-finish line
2 Medal ceremony podium
3 Photo-finish camera tower
4 Timing equipment control centre
5 Scoreboard
6 Results centre
7 Video camera crane
8 PEPS, University of Montréal
9 Public stands
10 Press stands
11 Television camera tower
12 VIP stands
13 Athletes' stands
14 Cyclists' shelters
15 Doping control station
16 Mobile washrooms
17 Communications equipment shelter
18 Electrical equipment shelter



Athletics Courses

Marathon

The marathon, which began and ended in the Olympic Stadium, followed a course of 42.195 km and crossed five municipalities: St. Léonard, Montréal North, Town of Mount Royal, Outremont and Montréal.

Every five kilometres along the course, tents were erected to hold timing equipment, each connected by telephone. Eight covered stands were also installed along the route to provide runners with liquid refreshment. Washrooms were placed at regular intervals, as well as four sprinkling stations specially designed for the marathon; the latter were constructed of metal arches holding shower heads to cool runners as they passed beneath them.

The entire course was patrolled by members of the Montréal Urban Community Police Department, which also provided metal barricades to close off street intersections to traffic. Wooden platforms equipped with electrical outlets were erected in five locations to hold television cameras.

20-kilometre Walk

In accordance with the requirements of the International Amateur Athletic Federation (IAAF), the 20-kilometre walk had to be held on a flat surface in the vicinity of the Olympic Stadium. The nearby Botanical Garden, with its shady walkways, proved to be an ideal setting for this event. A single sprinkling station, similar to the ones used in the marathon, was installed and flags and ropes were used to mark off the course in addition to metal barricades.

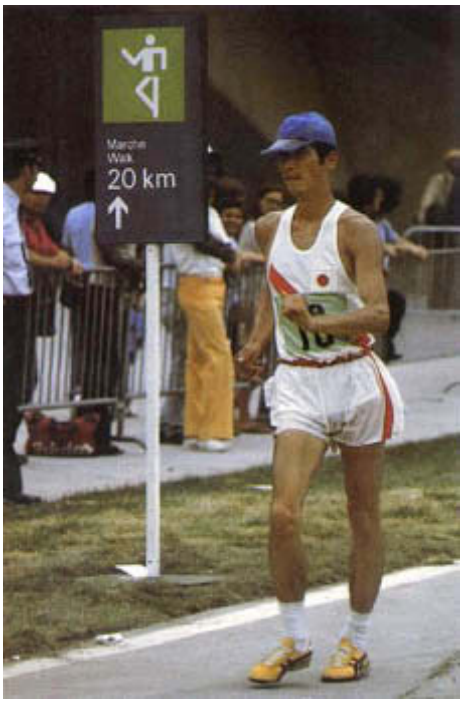
Modern Pentathlon

The course for the 4,000-metre run in the modern pentathlon extended from the Olympic Stadium across the municipal golf course next to the Botanical Garden. Because international sports federation requirements demanded a steep climb, an 88-metre slope was built into the already uneven terrain. The route itself was indicated by flags and ropes.

A common start-finish line for these three athletics events was marked out on the running track inside the Olympic Stadium. A tunnel under the northeast stands led out to Sherbrooke Street where the three courses separated, a few metres outside the stadium.

Athletics courses
The routes

1 Marathon
2 20-km walk
3 Modern pentathlon


Marche
Walk
20 km


40

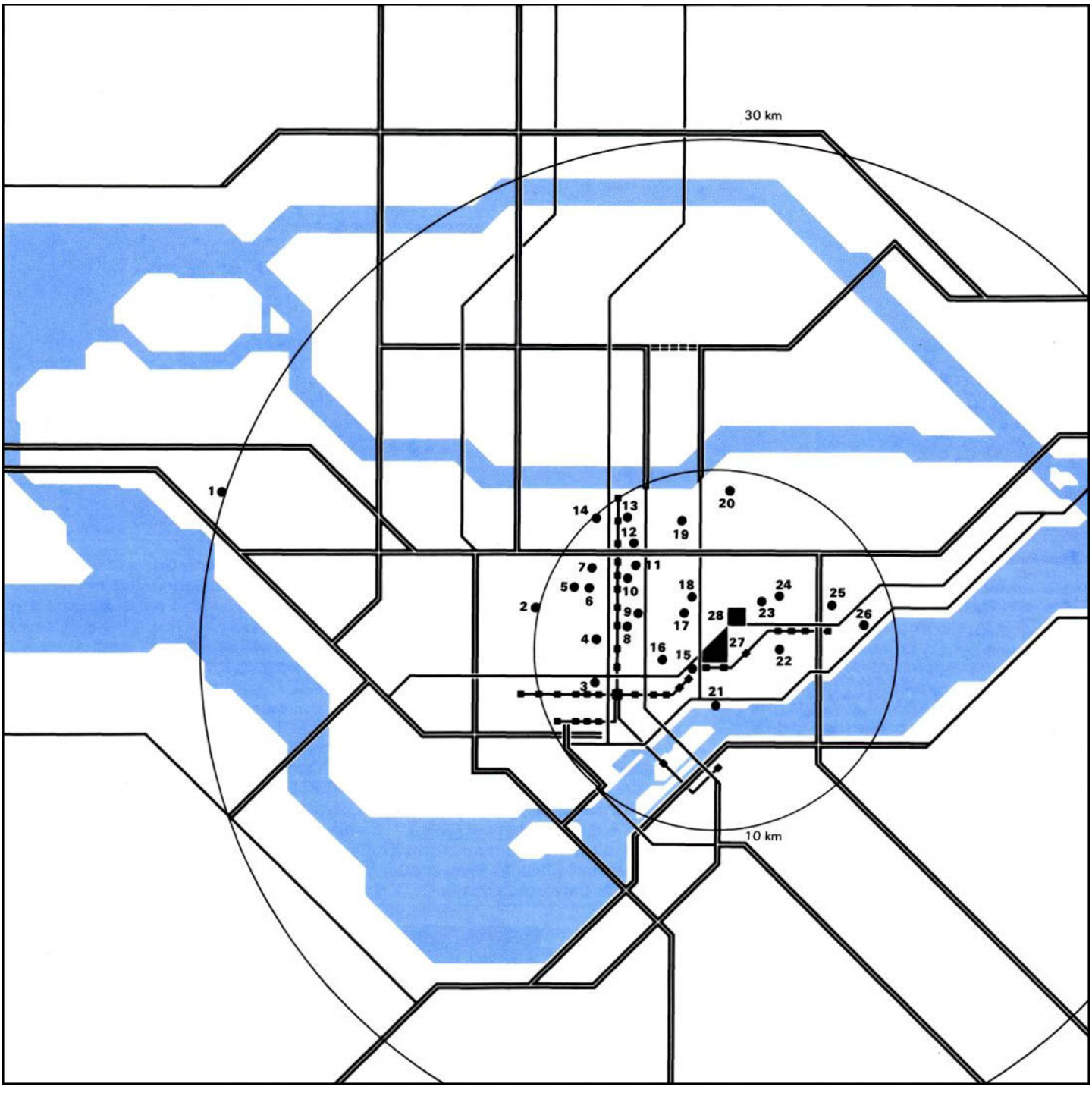
Training Sites

The importance of adequate training facilities for each event has long been recognized by previous organizing committees of the Olympic Games. COJO, in its turn, shared this traditional concern and set out to provide all competitors in 1976 with the best possible practice and training conditions.

In some cases, such as in water polo and shooting, competitors could train actually at the competition site on a pre-arranged schedule. In others, notably in equestrian sports and swimming, training facilities were located immediately adjacent to the competition area. Besides these, COJO decided to prepare 26 training sites on the island of Montréal, 25 of which were located within a 10-kilometre radius of the Olympic Village.

A number of high schools, colleges and universities possessed indoor gymnasiums and playing fields and several were also equipped with indoor pools. Moreover, the city itself possessed a large number of parks, swimming pools and covered ice rinks, run by the Department of Sports and Recreation. Together, this gave COJO ample resources with which to establish the necessary Olympic training facilities.

In 1973, COJO secured the cooperation of the City and the various school commissions and all contractual agreements were concluded by early 1976. One condition of these was that COJO would restore all sites to their original state once the Games were over, but any improvements made to them would remain.

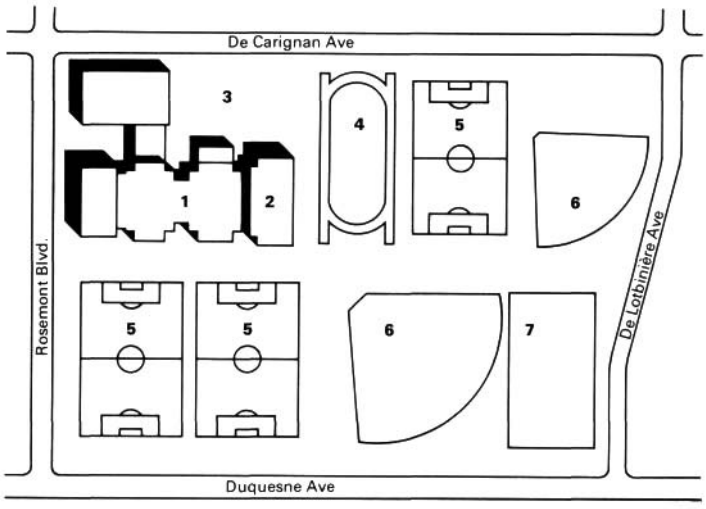


Island of Montréal
Location plan of training sites

1	Pointe Claire Pool	NA
2	Kent Park	AT
3	Collège du Vieux-Montréal	HB-NA
4	École secondaire Émile-Nelligan	BO
5	William Hingston Comprehensive School	GY
6	Jarry Park	FB
7	École secondaire Lucien-Pagé	VB
8	Sir Wilfrid Laurier Pool	NA (WP)
9	Père Marquette Centre	LU
10	Villeray Arena	HA
11	École secondaire Georges-Vanier	GY
12	Collège André-Grasset	HB
13	Collège Ahuntsic	HB
14	D'Auteuil Park	FB
15	Collège Maisonneuve	HB
16	Baldwin Pool	NA (WP)
17	Étienne Desmarteau Centre	AT
18	Rosemount High School	BB
19	École secondaire Louis-Joseph-Papineau	JU
20	École secondaire Calixa-Lavallée	BO
21	Champêtre Park	FB
22	École secondaire Édouard-Montpetit	VB
23	Pierre Bédard Park	TA
24	École secondaire Louis-Riel	GY, FB
25	École secondaire d'Anjou	VB
26	Taillon Pool	NA (WP)
27	Olympic Park	
28	Olympic Village	

École secondaire Louis-Riel Site plan

1 École secondaire Louis-Riel
2 Covered gymnasium
3 Parking area
4 Track and field area
5 Football field
6 Baseball field
7 Tennis courts

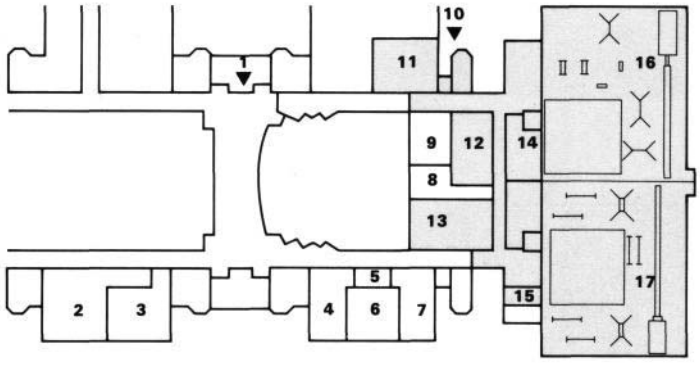


Installations plan: football

1 Main entrance
2 Site management quarters
3 Security quarters
4 Team dressing room (1)
5 First aid room
6 Sports equipment storeroom
7 Team dressing room (2)
8 Team dressing room (3)
9 Team dressing room (4)

Installations plan: gymnastics

10 Main entrance
11 Site management and security quarters
12 Men's dressing room
13 Women's dressing room
14 Sports equipment storeroom
15 First aid room
16 Men's gymnasium
17 Women's gymnasium



École secondaire Louis-Riel

The installations and renovations undertaken at the *École secondaire Louis-Riel* (high school) were typical of the work done on most training sites, both for indoor and outdoor sports.

Officially opened in May, 1974, this school offers general education and technical courses to over 1,500 students. The main building, a three-story structure, houses classrooms, recreation rooms and sports facilities, including a gymnasium equipped with showers and dressing rooms. The building takes up half of a two-hectare site and the remainder consists of access routes, parking lots and lawns. The students also have the use of an eight-hectare public park adjacent to the school containing 2 baseball diamonds (fields), 1 running track, 12 tennis courts, and 3 playing fields for North American football (hereafter referred to as "football").

Located only three kilometres from the Olympic Village, this modern school attracted the attention of COJO as an excellent training site for gymnastics and football. A formal agreement between the relevant parties was signed in January, 1976, and work began on the site that spring.

The gymnasium covered 1,700 square metres and could be divided in half by a folding wall — ideal for Olympic training which required different equipment for men and women. However, the facility could not be used in its existing state since the equipment in place did not conform to the standards of the International Gymnastic Federation (FIG). This was overcome with the installation of new anchoring posts for the rings, horizontal bars, uneven bars and vaulting horses.

Outside, the three "football" fields were modified to meet the requirements of association football and concrete bases were poured for the goalposts. One field was already equipped with a powerful lighting system and could be used for training at night.

Four weeks before the start of the Olympic training schedule, these installations were officially handed over to COJO which completed the final touches.

The indoor areas used by football and gymnastics personnel were separated by temporary partitions. Although sharing the same complex, each sport was provided with its own dressing rooms, first-aid room and offices for trainers, administrative and security personnel.

Existing dressing rooms were subdivided to create separate locker rooms and showers for four football teams as well as for trainers and ball retrievers. Similarly, separate facilities were created for male and female gymnasts.

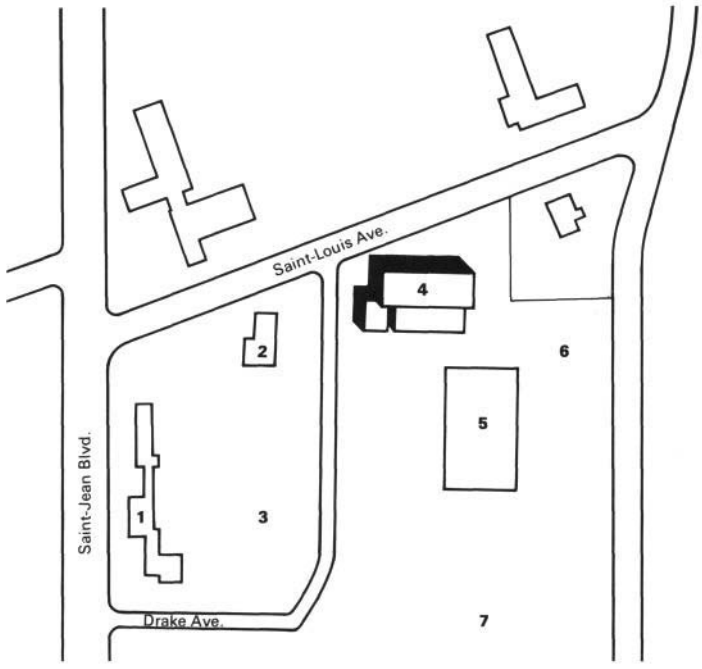
In the gymnasium, each half was equipped with the proper training equipment for men and women respectively, and fitted with a high-density, vinyl flooring for the protection of the athletes.

Outside, lines were painted on the three football fields and collapsible goalposts imbedded in their concrete bases.

While administrative and security personnel installed themselves in the building, crews finished off the painting and lighting. A complex system of directional signs was put in place and a flagpole erected for the Olympic flag, finally completing preparations for the site.

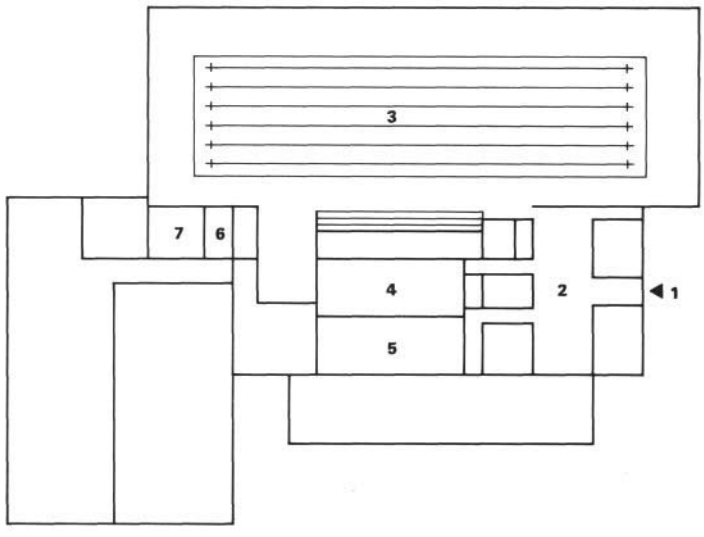
Pointe Claire Recreation Centre
Site plan

1 Pointe Claire City Hall
2 Municipal library
3 Lawns
4 Covered pool
5 Covered ice rink
6 Parking area
7 Green spaces and woodlots



Installations plan

1 Main entrance
2 Lobby
3 Pool (50 m)
4 Women's dressing room
5 Men's dressing room
6 First aid room
7 Site management and security quarters



The Pointe Claire Pool

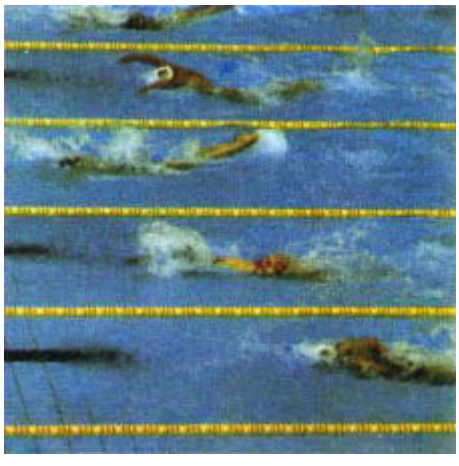
Of all the training sites chosen by COJO, the pool in the Pointe Claire Recreation Centre was the one most rapidly and easily made ready for the Olympic athletes.

Since its inauguration in 1965, this centre has been the site of most national and international swim meets held in the Montréal region. The 50-metre pool and an adjoining pool are located in a striking building, remarkable for a very high, pointed, cathedral roof. An adjacent building houses a covered ice rink and the site includes a large parking area and some six hectares of wooded land.

The design of the centre and the quality of the swimming facility is such that COJO selected it as one of several training sites for swimming, despite its location some 30 km from the Olympic Village.

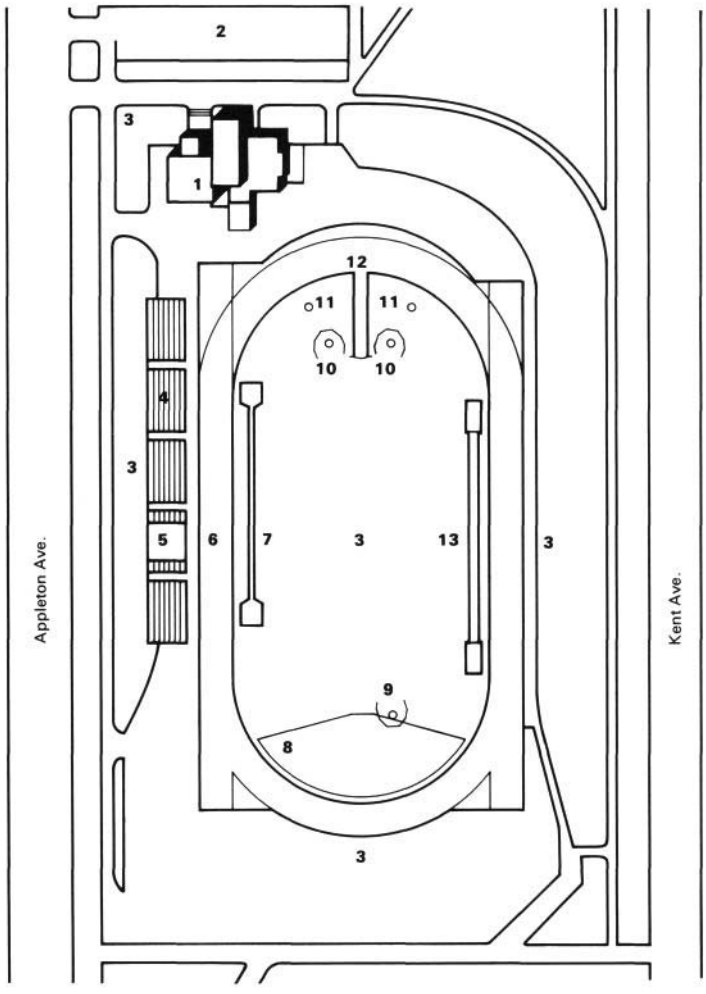
All installations and renovations were accomplished in the one week preceding the opening of training for the Olympic athletes. Temporary partitions divided the dressing rooms into areas for men and women, and offices for administration, security and first aid were located at the side of the 50-metre pool, isolated from the remainder of the building. Near the end of the pool opposite the diving boards, anchoring devices were installed for the timing control system.

Less than six days after renovations got underway, the Pointe Claire pool was ready for Olympic training.



Kent Park
Site plan

1 Kent Park chalet
2 Parking area
3 Lawns
4 Stands
5 Observation booth
6 Running track (400 m)
7 Pole vault area
8 High jump area
9 Hammer throw area
10 Discus area
11 Shot put area
12 Javelin area
13 Long jump and triple jump area



Kent Park

One of the training sites scheduled for track and field athletes was Kent Park, a large municipal recreation facility located in a residential area on the northwest side of Mount Royal, 10 km from the Olympic Village.

Used by local sports organizations and the students of neighboring schools, the park contained a large "football" field equipped with lighting for night games, ten tennis courts and an Olympic-size pool.

The park was renovated in 1975 and equipped with complete track and field facilities, including an eight-lane, 400-metre artificial running track, for the International Competitions Montréal 1975 that summer.

In the spring of 1976, with construction work at the Olympic Stadium not yet complete, COJO also designated Kent Park as the site of rehearsals for the official ceremonies, which would involve some 2,000 participants.

Additional installations required for the rehearsals included a glassed-in observation booth located above the main spectator stands, from which organizers could coordinate and synchronize movements on the field below. Platforms and temporary stands were constructed to simulate conditions for the opening and closing ceremonies and flagpoles were erected for rehearsal of the medal ceremonies.

A chalet located between the playing field and the tennis courts was used as offices for organizing personnel, and choreographers and their technical advisers were installed in trailers temporarily stationed at the site. For the duration of the Games, costumes and equipment were stored in two neighboring schools.

A cold buffet was provided for the 2,000 participants, using picnic tables set up on the lawn surrounding the track.

The finish of rehearsals left COJO less than a week to return Kent Park to a training facility for athletics, including the marking of the infield for the field disciplines and the installation of direction signs around the site.

From the moment of their arrival in the host city, all the Olympic athletes were able to undertake a training program previously established by COJO in cooperation with officials of the various teams. The quality of the preparations at the training sites, and their availability on schedule, made it possible for all competitors to begin their events in the best possible condition.

Press Centre

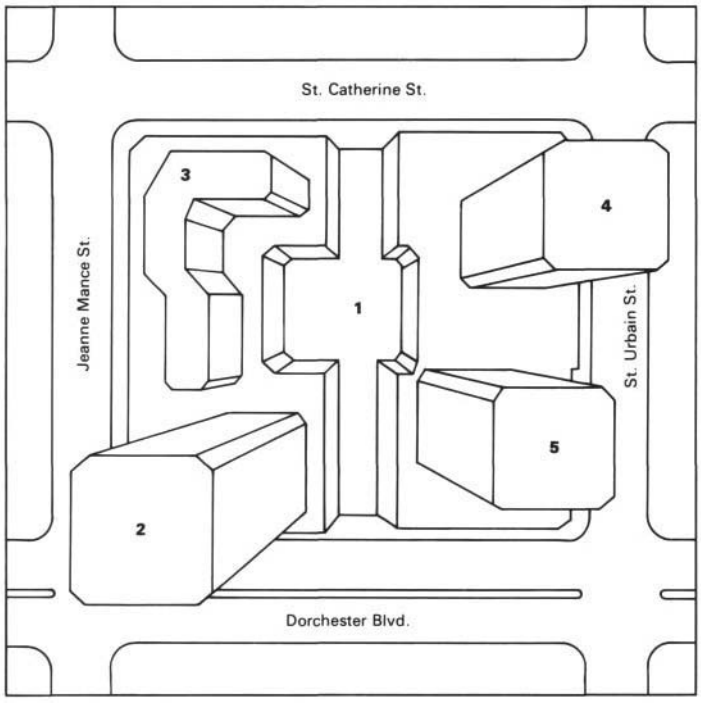
Close to 9,000 media representatives from all over the world attended the Games of the XXI Olympiad in Montréal, and COJO spared no efforts to ensure a warm welcome and the best possible working conditions for them. All facilities necessary for modern communications were to be placed at their disposal.

Originally, it was planned that these facilities would be located within the Olympic Stadium, but the area designated for the press centre could not be completed in time. Consequently, after discussions with the various national and international press organizations, COJO approved the rental of space in the new *Complexe Desjardins,* which was to be completed in June, 1976.

This vast complex in the heart of downtown Montréal consists of a shopping centre, a hotel and three office towers; the shopping centre is made up of four mezzanines overlooking a central, covered plaza and forms the base of the four towers.

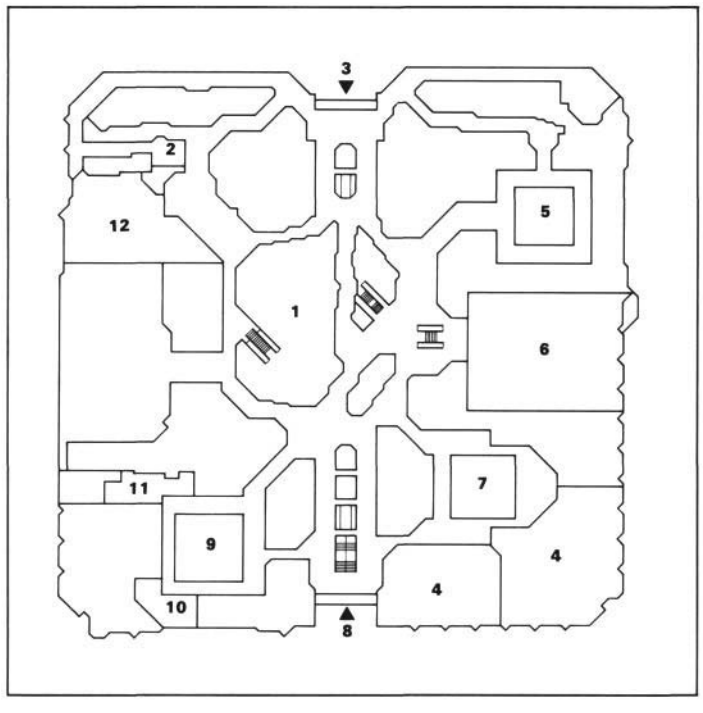
Four entire floors, the 26th to 29th, were rented in the 40-story south tower to accommodate the main press centre, a total of 11,500 square metres of air-conditioned office space served by six express elevators. In addition, COJO rented a further 400 square metres of space on the ground floor for an accreditation centre and other offices, a restaurant with a seating capacity of 350 on the first mezzanine of the plaza and a conference room on the second mezzanine.

COJO selected *Complexe Desjardins* for several reasons: its ultra-modern office space was readily adaptable, it was strategically located halfway between the headquarters of the Canadian Broadcasting Corporation



Complexe Desjardins

1 Covered plaza
2 South Tower
3 Hotel
4 North Tower
5 East Tower

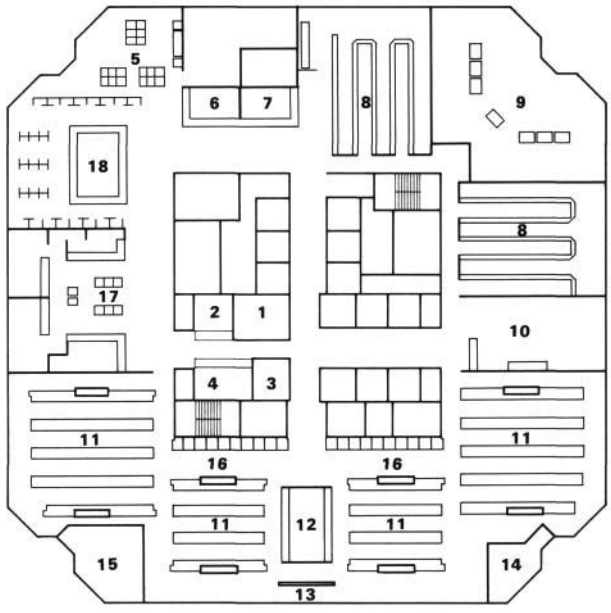


Mall plan

1 Indoor plaza
2 Hotel
3 St. Catherine St. entrance
4 Bank
5 North Tower
6 Press conference room
7 East Tower
8 Dorchester Blvd. entrance
9 South Tower (press centre)
10 Press accreditation centre (non-sports)
11 Press accreditation centre (sports)
12 Press restaurant

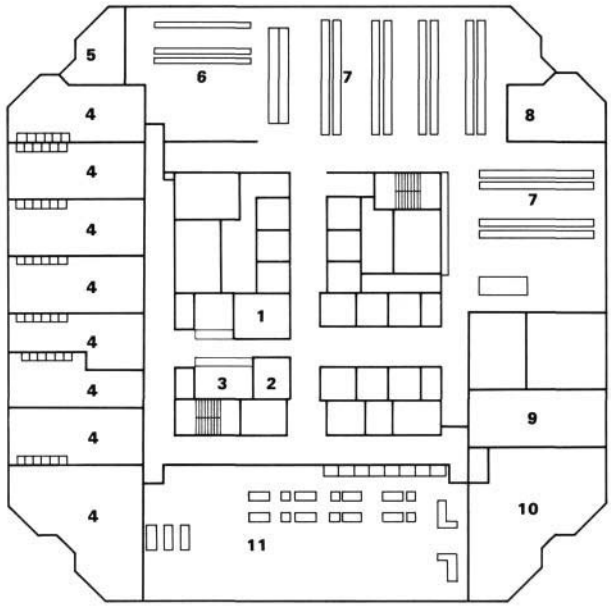
26th Floor plan

1 Storage room
2 Hostesses' quarters
3 Television maintenance room
4 Travel information counter
5 Lounge
6 Telecopier counter
7 Telecommunications counter
8 Postal boxes
9 Post office
10 Banking information counter
11 General editing areas
12 Results information centre
13 International clock panel
14 Assistant press chief's office
15 Press chief's office
16 Results boxes
17 Information and service booths
18 International telephone centre



27th Floor plan

1 First aid room
2 Storage room
3 Results counter
4 Press agencies
5 Office of telecommunications manager
6 Telecopier transceivers
7 Telex centre
8 Assistant managers' offices
9 Maintenance room
10 Personnel cafeteria
11 Results system centre



(CBC) and those of the Olympics Radio and Television Organization (ORTO), and it was close to a subway station on the east-west line which also served the Olympic Park, 5.6 km away.

A bus service was organized to shuttle journalists between the press centre, the competition sites and their hotels or residences and a huge parking lot was provided on the other side of Dorchester Boulevard, facing the complex.

The Twenty-sixth Floor

An editorial working area with 250 places was set up on the twenty-sixth floor for all media delegates except agencies with office space of their own. Typewriters were provided at each place with keyboards in a variety of languages, and a post office was installed with a mailbox for each journalist. Computer terminals linked to the central results system fed results continuously into the work area and a bank of eight closed-circuit color television monitors transmitted live coverage of most events. Finally, an international time clock panel was installed as well as a telephone centre with 34 booths, 16 of which were completely soundproof.

A buffer zone between the editorial room and the telephone switchboards was created and provided four additional services: a camera repair shop, a customs broker's office, a film and photo supply centre and a Canadian Olympic Association (COA) information centre.

Also located on the twenty-sixth floor were translation offices, booths for banking and tourist information where major overseas newspapers were available, offices for the press chief and his assistant, a counter run by the two major national airlines and a lounge for the journalists.

The Twenty-seventh Floor

The telecommunications centre was installed on the twenty-seventh floor and had to be fully operational two and a half months prior to the official opening of the Games to allow for the training of technical personnel.

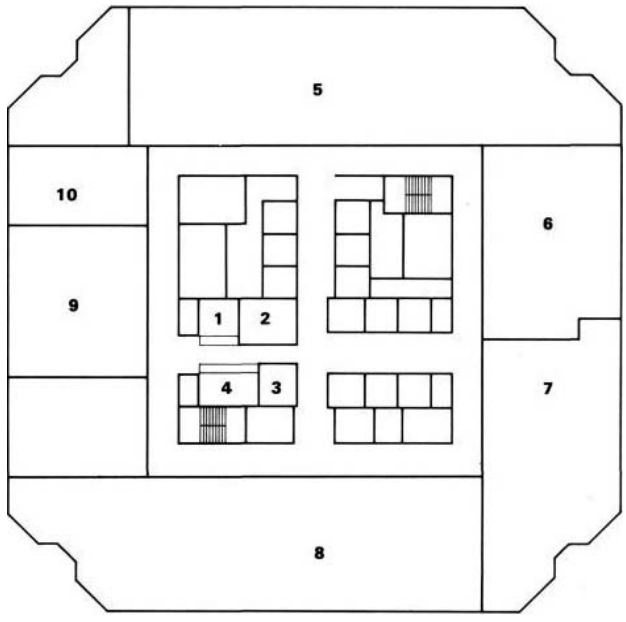
Ducts were supplied for 120 telex and telex perforator units and 50 telecopier transceivers, and wall-to-wall carpet was laid to minimize the noise from the telex equipment. In the end, as the result of an accelerated construction program, the telecommunications centre became not only the largest of its kind in the world, but also the first fully operational installation of the 1976 Games.

Photocopying and printing facilities were located nearby, as were the two computer readout terminals for results, one acting as a backup for the other. Circuitry and ducts were designed for 13 telecopiers to be on standby in the event of any unforeseen breakdown in the readout terminals.

While most of the twenty-seventh floor was reserved for telecommunications equipment and personnel, it accommodated other needs as well. Eight fully-equipped offices were located here for press agencies and offices were provided for COJO's results and telecommunications managers and their assistants. A first-aid room was installed and staffed around the clock and a maintenance room set up for the electronic equipment. Finally, the personnel cafeteria, with a seating capacity of 60, was equipped with kitchen facilities and vending machines and located in the south-east corner with a spectacular view of Old Montréal and the Expo 67 islands.

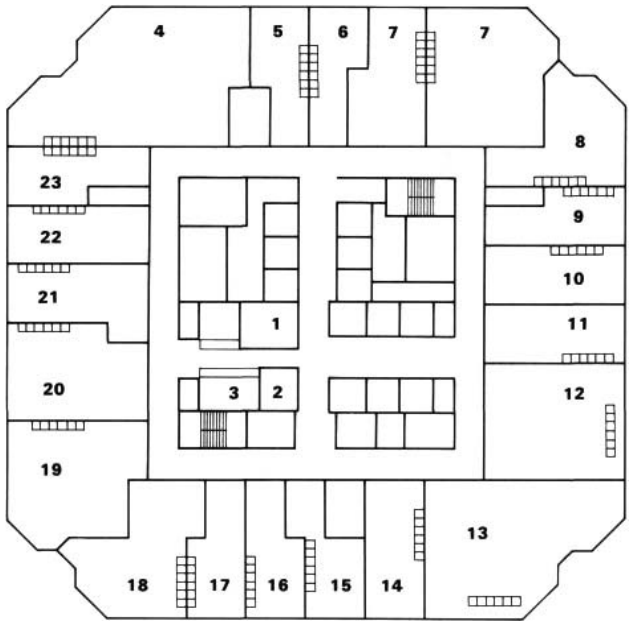
28th Floor plan

1 Information counter
2 Storage room
3 Television maintenance room
4 Results counter
5 Associated Press
6 The Canadian Press
7 Agence France Presse
8 United Press International
9 Reuters Limited
10 Australian Associated Press and New Zealand Press Agency



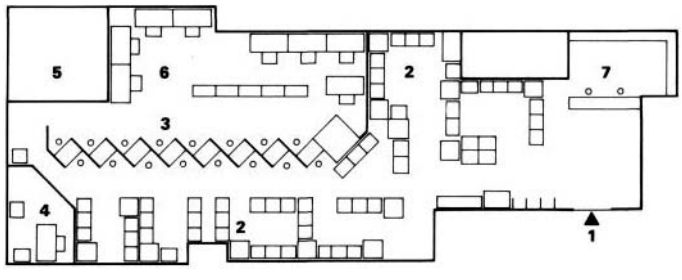
29th Floor plan

1 Hostesses' lounge
2 Storage room
3 Results counter
4 Deutsche Presse Agentur
5 Austria Presse Agentur
6 Netherlands Press Association
7 Sports Information Dienst
8 L'Équipe
9 Agenzia Nationale Stampa Associata
10 Algemeen Nederlands Presbureau
11 The Yomiuri Shimbun
12 The Jiji Press
13 The Kyodo News Service
14 The Mainichi Newspapers
15 Helsingin Sanomat
16 Dagens Nyheter Co.
17 Politikens Pressefoto, Ekstra Bladet
18 Nordic News Agency
19 Tass Agency
20 Allgemeiner Deutscher Nachrichtendienst
21 Hungarian News Agency Mti
22 Tanjug Yugoslav News Agency
23 Polska Agencja Prasowa



Sports press accreditation centre

1 Main entrance
2 Waiting area
3 Accreditation counters
4 Manager's office
5 Photograph room
6 Administration area
7 Information counter



The Twenty-eighth and Twenty-ninth Floors

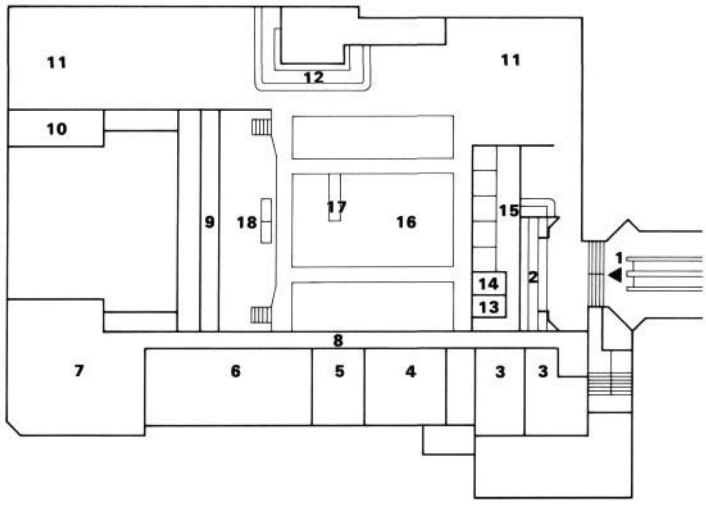
These floors were largely designed for the use of national and international press and broadcast agencies. In designing these floors, all efforts were made to group these agencies according to the time zones of their respective countries. Agency rooms were supplied with telephone and telex facilities, six television monitors connected to the special ORTO closed-circuit channels, office furniture and typewriters. Special grounding and power facilities were provided for those agencies bringing their own telex equipment, computer terminals or video editing machines. Soundproof broadcasting booths were also available on request.

Complexe Desjardins had originally been planned to house up to 200 people on each floor, but often had to house twice that many while the press centre was in operation. Special machinery had to be installed to supplement the air-conditioning and ventilation systems. In addition, maintenance crews were hired to inspect all areas at regular intervals, ensuring maximum cleanliness and enabling unforeseen electrical or mechanical failures to be dealt with immediately.

On the ground floor of the tower, the two accreditation areas, one for sports media and the other for non-sports media, were laid out in such a way as to permit maximum efficiency in a relaxed atmosphere.

Conference room

1 Entrance
2 Governments of Canada and Québec information counters
3 Washrooms
4 VIP lounge
5 VIP interview room
6 Small conference room
7 Storage area
8 Corridor
9 Projection room
10 Bar storage room
11 Bar and lounge area
12 Bar
13 Lighting control room
14 Sound control room
15 Translation booths
16 Main conference area
17 Television and camera platforms
18 Speakers' podium



The Conference Room

The conference room was located on the east side of the second mezzanine in the central plaza. Although completed in only six weeks, extra care was taken with the planning and construction of this room to provide maximum versatility, since it would be used for conferences and press briefings during the day and as a discotheque in the evening.

Two counters were installed in the lobby where information concerning each day's events was distributed as well as tourist information on Montréal and the surrounding area. Nearby, private telephone booths, similar to those on the twenty-sixth floor, were available to the press.

A bar and two lounging areas, designed to accommodate 250 people, were set up on one side of the conference room and decorated with plants. Two giant color video screens, one at each end of the room provided journalists with video summaries of the day's activities as well as coverage of ongoing events.

The actual conference area, with seating for 450 people, was located in the heart of this room. Here, designers were faced with the difficult problem of disguising a whole array of lighting, plumbing and ventilation equipment in the ceiling of the room, without interrupting the work of technicians who had to have access to these facilities up to the last minute. Their solution to this problem was simply to paint the entire ceiling black and to suspend the lights below it, thus leaving the exposed wiring and plumbing in darkness.

A raised platform for cameras was installed where it permitted a clear view of the proceedings. Particular attention was paid to the simultaneous translation facilities, designed to meet international norms. Five isolated, soundproof booths were constructed at the rear of the room, providing translation in five languages: English, French, German, Russian and Spanish. Antennae to transmit the translations were fixed to the conference room floor under a carpet which covered the entire floor area.

The speaker's podium was located along the east wall of the room and a rear-projection screen was installed in the wall, hidden by a curtain when not in use. The projector was located in a small room behind.

A special telephone system linked the podium, the press subcentres, a room housing the master lighting control panels and another controlling the sound. These last two were located at the back of the room next to the translation booths.

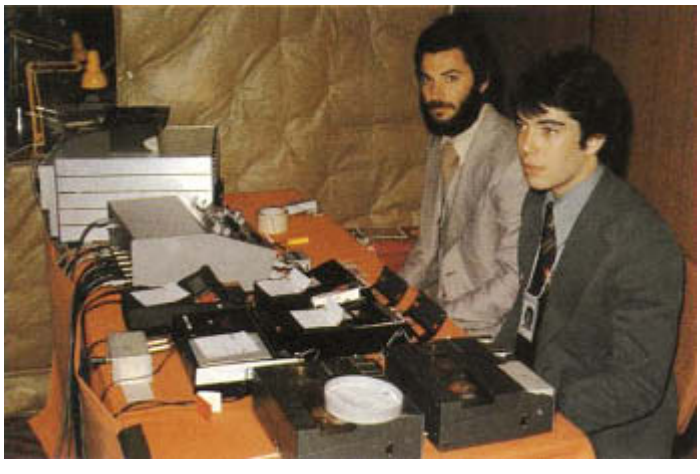
A corridor running the length of the conference room gave access to the VIP lounge, an interview room and a small conference room.

The VIP room was comfortably furnished and brightly decorated. Telephones and simultaneous translation devices, as well as a fully-equipped bar, were installed here for the use of visiting dignitaries.

Adjacent to the main VIP room was an interview room, equipped with a special lighting system for television interviews. A small conference room, seating approximately 50, was designed for private briefings. A large storeroom was constructed at the end of the corridor for the storage of valuable items and equipment.

Finally, a restaurant, on the first mezzanine, was put at COJO's disposal for use by journalists, VIPs and COJO employees between 11 a.m. and 2 a.m.

In summary, the main press centre fully realized COJO's desire to present the world press with the best possible working conditions at the 1976 Games. It will long be remembered both for the excellence of its facilities and the efficiency and friendliness of those staffing it.



COJO Headquarters

From the moment COJO undertook the task of organizing the Games of the XXI Olympiad, it realized the importance of a centralized administration with most of the departments located in one place.

The search for a suitable location ended with Mayor Jean Drapeau's suggestion that the Old Court House be purchased for the occasion by the City from the province of Québec; the building would later be used for municipal offices. Located in the heart of Old Montréal and adjacent to City Hall this building, with its splendid Georgian architecture and its large, exposed, Ionic columns, offered an attractive setting for COJO headquarters.

Inaugurated in 1858, the Old Court House is built of ashlar masonry, and originally consisted of three floors. This building was ravaged by fire in 1913 and, in restoring it, a fourth floor and a dome were added to the original structure. The building was again struck by fires in 1915 and 1921, necessitating further major renovations. The entire electrical system was later overhauled in an effort to protect the building against future fires.

Today, the Old Court House stands as a major monument to its age, in stark contrast to the newer, ultra-modern courthouse located nearby.

Though it had been unused and unattended for a few years, the structure of the building was sound. In 1972, COJO undertook the difficult task of restoring its original appearance while converting it into a modern, utilitarian office building.

The interior of the structure, the upper floors of which are constructed of terracotta and steel, is visually striking with its bearing walls, brick vaults, and wooden beams and columns. On certain levels, the massive wooden beams and floors were so well preserved that only minor repairs were necessary. However, the existence of these structural devices made it difficult to install modern electrical, heating, ventilation, and air-conditioning systems. In addition, the presence of the bearing walls limited the possibility of modifying the dimensions of rooms for office use.

Nevertheless, the entire electrical system was overhauled, the plumbing revamped, and air-conditioning units were installed throughout the building. In accordance with the standards and recommendations of the city's Fire Department, the building was also equipped with a complete fire protection system.

Special attention was paid to the woodwork, the mosaic floors and the corridors, as well as to the elevators located in the centre of the structure. The ceilings, walls, and windows were restored to their original condition, and washrooms were remodelled to meet modern standards. When removal of the old elevators revealed a large, ornate staircase, modern hydraulic elevators were installed at a different location in the building so as not to conceal its beauty.

On the second floor, the original 19th century courtroom was faithfully restored down to the smallest detail and was used by COJO for press conferences.

The main doors of the Old Court House, which had been sealed for 60 years, were restored and reopened as part of an effort to recreate the original appearance of the building. The exterior stone walls were sandblasted and the dome painted white. The dome, in fact, was the most vulnerable part of the building and had suffered from years of exposure to Montréal's extreme temperature ranges. New drains were installed on the roof to avoid the formation of ice on the dome that might further contribute to its deterioration.

Equal emphasis was placed upon landscaping. *Place Vauquelin,* a small, adjacent square, was cleaned up and the fountain repainted; flowers, shrubs and trees were planted on the grounds around the building.

Once all these renovations had been completed, the Old Court House was ready to serve as COJO headquarters, where all important decisions regarding the organization of the 1976 Games would be made.

The majority of COJO services were established here in the spring of 1974. These included top management; the Directorates of Administration, Protocol, Communications, Sports, Construction, Technology, and Graphics and Design; the Departments of Supply, Documentation, and Linguistic Services; the coordination centre, later known as the operations centre, and the telecommunications control centre.

For reasons of security, the offices of the president and his staff were situated in the east corner of the second floor. Auxiliary administrative services, such as Maintenance, Site Services Hostesses and Guides, and Transport were located in the building annex.

Location of COJO Services

1 COJO headquarters
2 Security headquarters. Tickets, lodging & official ceremonies personnel offices
3 Controllers offices
4 International telephone central
5 Arts & Culture, main press centre
6 Accreditation centre
7 Technology offices
8 Olympic City offices
9 Medical centre
10 International youth camp offices
11 Longue-Pointe warehouse

Despite some 8,000 square metres of floor space within the building, it was soon apparent that the Old Court House could not contain all the rapidly expanding COJO services. Additional space was, therefore, found in existing buildings situated close to the headquarters, where modifications were limited to decorating, electrical installations, interior subdivisions and furnishing.

Communication between all the COJO locations was facilitated by a messenger service and the installation of a Centrex telephone system. The Centrex system and the IBM computer centre required the installation of special ducts and outlets.

The hiring of some 20,000 temporary employees for the Games was an enormous task and required a lot of space. This was found in the *Palais du Commerce,* located only 1.9 km from the Old Court House, where a huge exhibition hall and offices were used for interviews and employee accreditation.

Tickets were stored in a rented bank vault in neighboring *Place d'Armes* which was already guarded by trained security personnel.

Finally, warehousing and storage of all the sports equipment and furnishings required for the Games was contributed by the federal government which put at COJO's disposal a huge military depot located at *Longue-Pointe,* 8 km east of the Old Court House. This facility contained fully equipped warehouses totalling 76,228 cubic metres with complete fire protection and under constant surveillance by Canadian Forces personnel.

Many of the offices and buildings rented by COJO were returned in a markedly improved state. Furthermore, thanks to the Games, the renovation of the Old Court House has left Montréal with one of its major historical landmarks largely restored to its original condition.

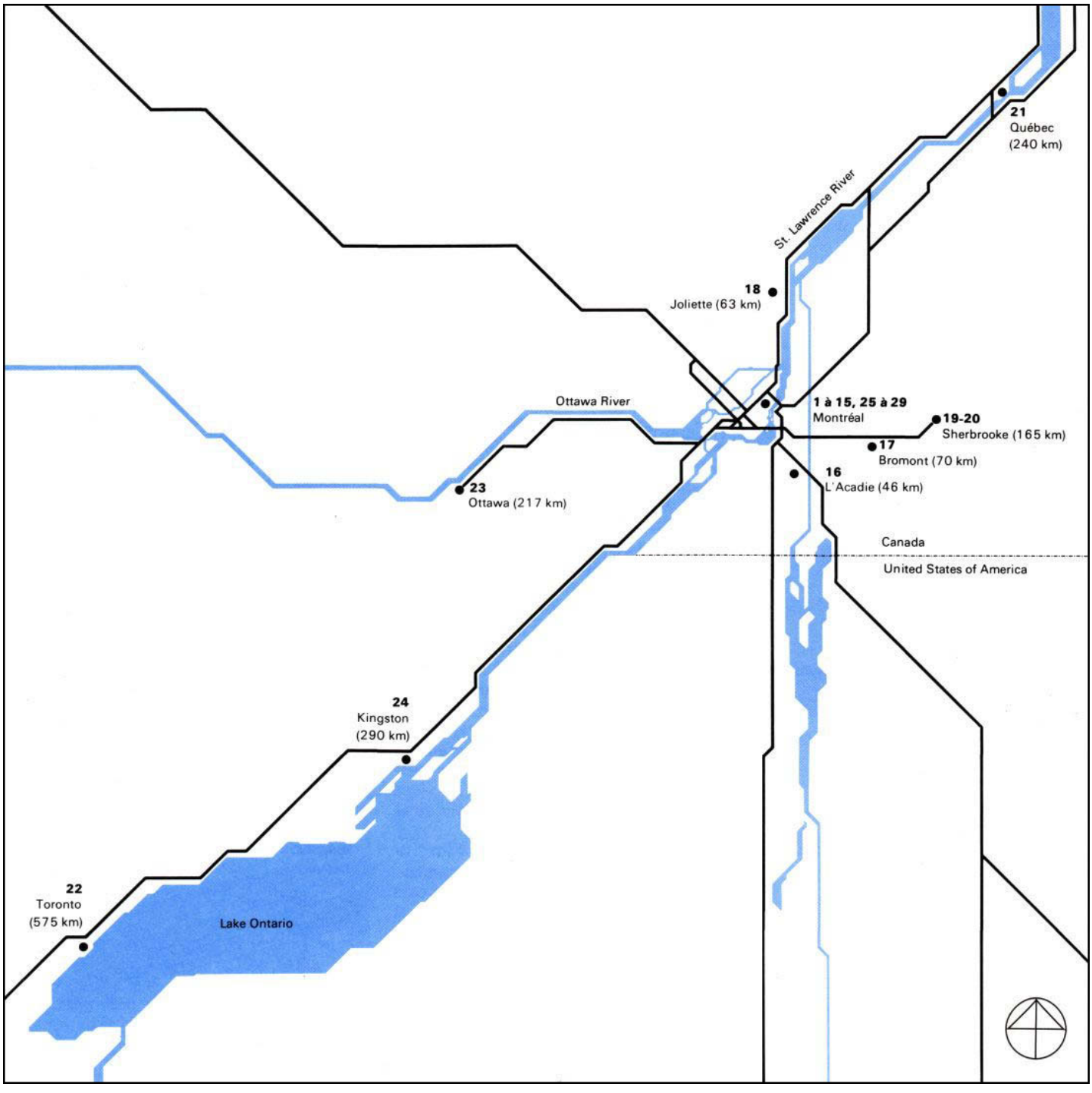
Facilities outside Montréal

4

As in previous Games, several events during the Montréal Olympics took place outside the host city. Shooting competitions were held at L'Acadie (16) and Joliette (18) was the site of the archery events.

Most equestrian events were held at Bromont (17) and the provincial capital of Quebec (21) hosted preliminary matches in handball. Sherbrooke was the only town outside of Montréal to host more than one sport; preliminary football rounds were played in a temporary stadium (19) and preliminary handball rounds in the Sports Palace (20).

In the neighboring province of Ontario, Kingston (24) was the site of the yachting events and the University of Toronto's Varsity Stadium (22) was renovated for preliminary football matches. Other preliminary rounds of football were played at Lansdowne Park (23) in Ottawa, the capital of Canada.



● Distance from Olympic Village in brackets.

Olympic Shooting Range, L'Acadie

In the spring of 1974, COJO and the International Shooting Union (UIT) agreed upon the selection of a small private club in the village of L'Acadie, 46 km from the Olympic Village, as the site for shooting competitions during the 1976 Games.

Located on an old farmsite in the St. Lawrence River Valley, the club occupies flat, treeless terrain that allows unrestricted vision and is free of sudden wind gusts, two qualities essential for competitive shooting. The existing installations were modest, since the club had originally been constructed to serve amateur sportsmen and hunters rather than Olympic marksmen. Nevertheless, it was clear that it could be adapted to the standards required by the UIT for Olympic competition.

Because the site had once been used for agricultural purposes, the land was divided into long narrow strips running at right angles to the main road. It contained a clay pigeon range with fourteen stations for trap shooting, American style, each facing away from the sun and into the prevailing winds. Although this particular event is not included in Olympic competition, five of these stations were already equipped for skeet shooting and one for trap shooting, Olympic style. A pavilion behind these stations was used as a dressing room and a lounge by club members. At the extreme west end of this field, enough space remained to install galleries for the target competitions, as well as all necessary services for athletes, officials, and administrative personnel.

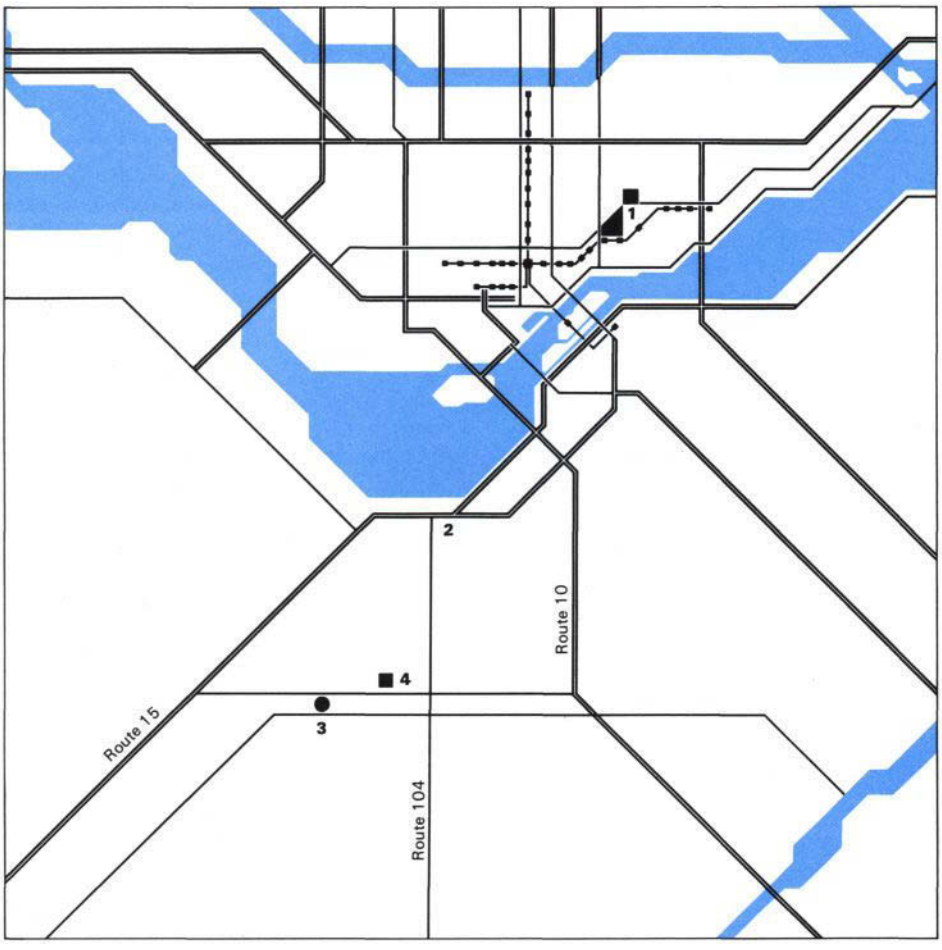
The installations required for the Olympics were temporary, since the club was not able to assume the costs of maintaining permanent facilities of this nature. Consequently, the majority of equipment was rented, or purchased only when it could be of future use. The physical modifications, however, had to be sufficiently durable to survive a Canadian winter since they were made in the spring of 1975, a full year before the Games, in order to be ready for the Montréal international competitions that year.

To accommodate the new structures, drainage ducts were installed throughout the site, as well as electrical circuits to feed new outlets. A second artesian well was dug. At the same time, access routes were opened to the various parts of the site and parking lots were laid, including one for the public with room for more than four hundred vehicles.

The existing clay pigeon range was renovated and enlarged to accommodate two new Olympic-style traps. Because they did not conform to UIT norms, the six skeet-houses had to be reconstructed. The walkways were relaid and temporary spectator stands were installed around the competition zone.

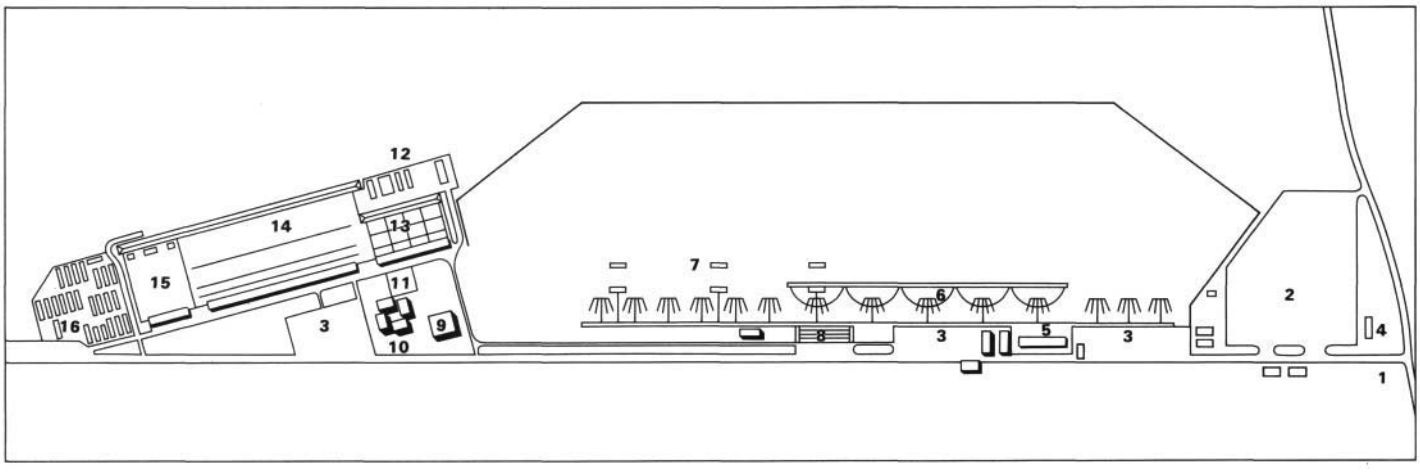
The clubhouse was modified to serve as a reception centre for dignitaries and the press. Finally, the different sections of the site were separated by fences, including one canvas barrier approximately three kilometres in length surrounding the entire shooting field, to prevent the marksmen from being distracted by vehicles passing in the distance.

The installations for the target competitions were created from scratch. The three galleries were erected in a single line: one with 8 targets at a distance of 25 m, another with 85 fixed targets at 50 m, and the third with 2 moving targets at 50 m. These galleries were installed at an angle of 30° to the internal access road running the length of the field, so that all targets faced north. Besides meeting official requirements, this arrangement also left more space for essential services.



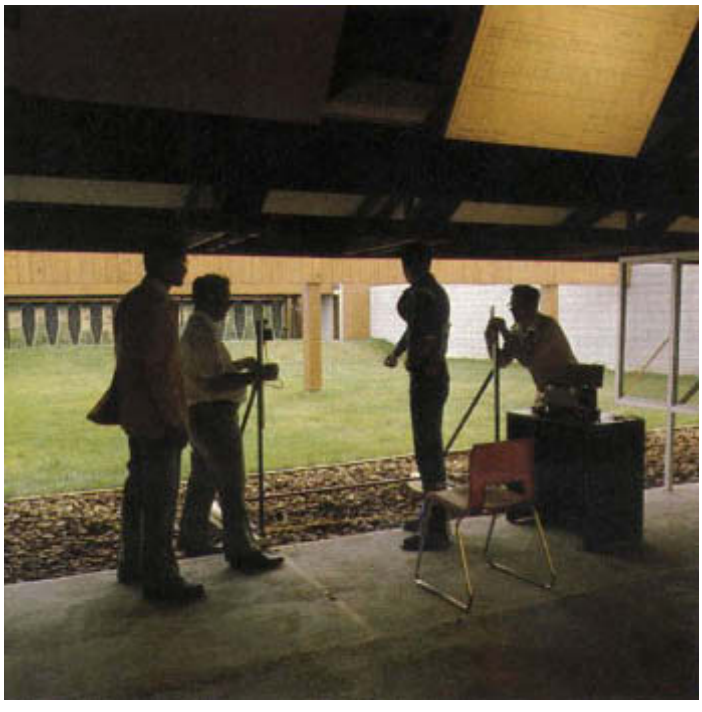
Location plan

1 Olympic Park
2 Town of La Prairie
3 Village of L'Acadie
4 Olympic Shooting Range



Site plan

1 Entrance
2 Public parking
3 Reserved parking
4 Canada Post Office
5 VIP and press pavilion
6 Clay pigeon skeet
7 Clay pigeon traps
8 Stands
9 Public services
10 Administration
11 Medal ceremonies' podium
12 Results centre
13 25-metre range
14 50-metre range
15 Running target range
16 Athletes' quarters



For the full length of the galleries, wooden shelters were constructed for athletes, officials and equipment. A canvas lean-to erected behind these shelters accommodated up to 1,000 spectators. In front of the safety embankment, another narrow wooden shelter was erected to protect the targets and the electronic equipment which activated them. Bullet-proof cabins were installed for officials responsible for verifying targets, which were reached via tunnels beneath the embankment.

A complex communication system linked these two areas. For reasons of safety, wooden barriers were erected at regular intervals above the shooting galleries, and concrete partitions were installed between the galleries and between each group of shooting stations.

Behind the safety embankment at the target end of the 25-metre gallery, five trailers were installed to hold the results centre. At the west end of the shooting stations, another twenty-two trailers and tents comprised the athletes' quarters with facilities for eating and relaxing.

Medal ceremonies took place on a paved area laid in the angle formed by the shooting stations and the internal access road. Flags of the participating nations were displayed here, as well as several large manual scoreboards. Four prefabricated pavilions housed administrative offices and a partially covered terrace-café completed the major installations on the site.

A large number of mobile units, serving as cloakrooms, washrooms, ticket offices, souvenir shops and a post office, were placed at strategic points along the main access road. Trees and flowers were planted on the grounds to brighten up the surroundings and to add some variety to these largely geometric installations.

Olympic Archery Field, Joliette

After consultation with the International Archery Federation (FITA), COJO designated Joliette on July 9, 1974, as the official site for archery competition during the Games of the XXI Olympiad.

This city of 25,000 inhabitants, located in the Laurentian foothills 63 km from the Olympic Village, already possessed a number of archery facilities.

The existing field was too small, however, to accommodate an Olympic competition, which consists of two FITA rounds spread over four days. This requires two ranges, one for women with distances of 70, 60, 50 and 30 metres, and one for men with distances of 90, 70, 50 and 30 metres. The simplest solution was the preparation of a new field nearby, complete with spectators' stands and all necessary services.

Work on the site began in 1974 so that it would be ready for the International Competitions Montréal 1975. As soon as these events were over, work crews began to put finishing touches on the administration pavilions and to install temporary services for the Olympic Games.

The old field, which was equipped with two competition areas, was used as a training site. Three galleries were added to the FITA-type range, and the second area was made up of thirty targets, placed at intervals along a path that skirted the field. A chalet, a swimming pool, two tennis courts and a playing field were also located in this area. The chalet was transformed into a VIP lounge, and a tent, erected near the swimming pool, served as a temporary dining room for COJO employees.

The new section of the site consisted of three separate areas: the competition zone, spectators' stands, and a reception area that included administration, athletes' services and two parking lots.

The two FITA shooting ranges contained nine galleries for women and eleven for men. To afford the best sighting conditions, the ranges faced north and the targets were set up with the surrounding forest as a backdrop. Each gallery was provided with an equipment rack, a parasol-covered table and chairs.

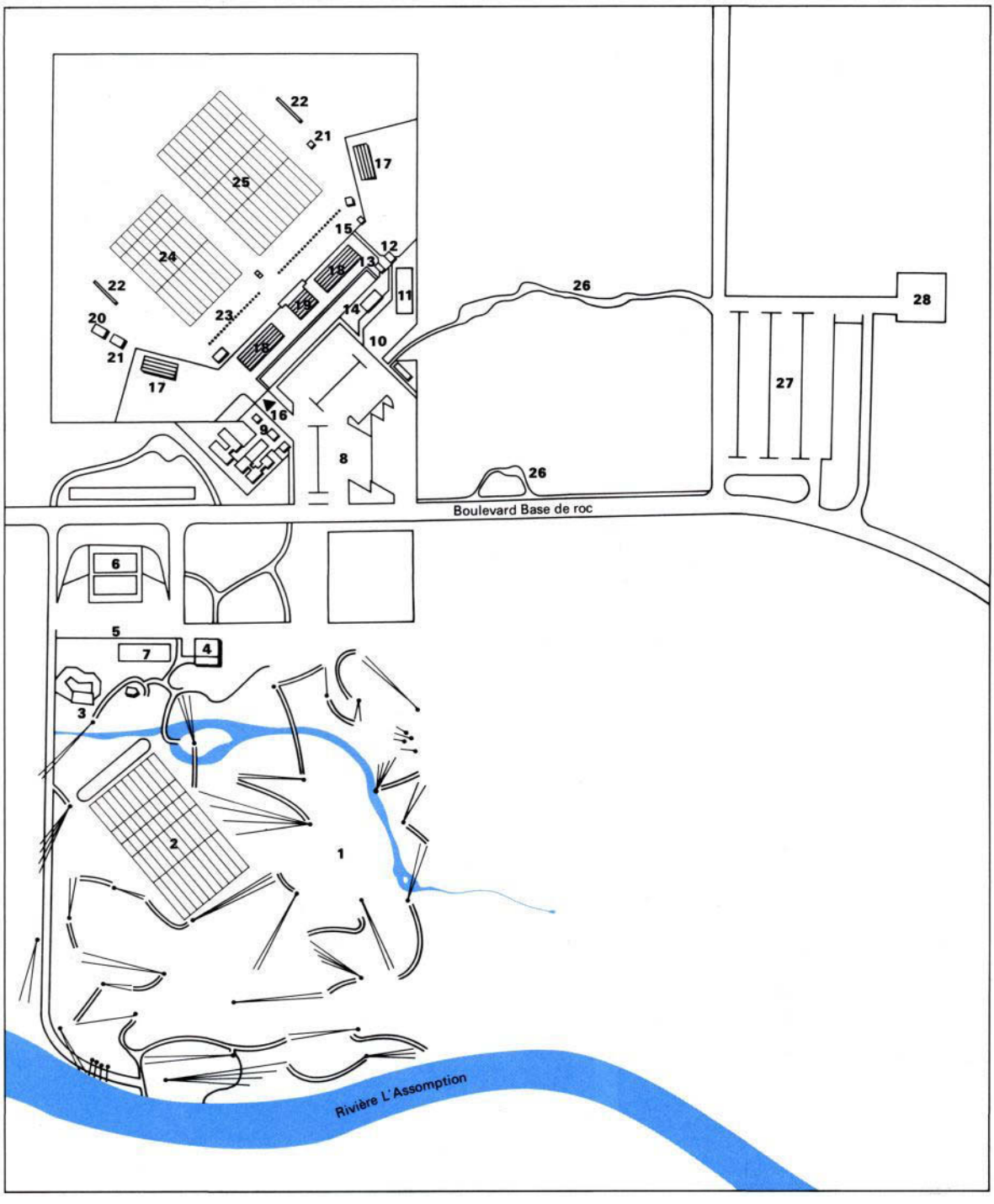
A scoreboard was installed at one side of each range and small pavilions were provided for equipment storage.

Five spectators' stands accommodating 2,000 people, three of which were permanent concrete structures and two temporary, were erected along the south side of the competition zone. In the centre of the permanent stands, a covered area was provided for VIPs and the press, and beneath these stands were located the timekeepers' office, quarters for the Olympics Radio and Television Organization (ORTO) and a snack bar.

Approximately one hundred metres to the west, a parking area was created for the public with two paths linking it with the stands.

Directly behind the stands was a reserved parking area for athletes, VIPs and the press. Athletes proceeded directly to their quarters, separated from the rest of the site by a wire fence. These quarters included a rest area and cafeteria installed in large tents, and a first aid room and doping control centre located in permanent pavilions. A fenced corridor traversing the public area allowed athletes direct access to the competition zone.

On the opposite side of the reserved parking, seven small pavilions housed quarters for the hostesses, a press subcentre, a results centre, the archery secretariat and offices of the Canadian Archery Federation, FITA and COJO. These small wooden buildings with gabled roofs and ochre-colored walls were grouped around a small plaza and created a warm and inviting atmosphere at the site.



Site plan

1 Practice course
2 Practice range
3 Swimming pool
4 VIP lounge
5 Parking area (COJO)
6 Tennis courts
7 Cafeteria tent (COJO)
8 Parking area (press and athletes)
9 Administration pavilions
10 Restricted area (athletes)
11 Athletes' tent
12 Doping control
13 First Aid pavilion
14 Rest rooms
15 Athletes' access to ranges
16 Public entrance
17 Temporary stands
18 Permanent stands
19 VIP and Press stands
20 Storage pavilion
21 Results' centre pavilion
22 Scoreboard
23 Sunshades and equipment racks
24 Competition zone (women)
25 Competition zone (men)
26 Path to public parking
27 Public parking
28 Heliport


Terrain de
tir à l'arc
olympique

Olympic Equestrian Centre, Bromont


The picturesque town of Bromont, nestled in foothills 70 km east of Montréal, was the site of virtually all the equestrian events during the 1976 Games.

Only 45 minutes from Montréal by autoroute, this peaceful community is well-known for its excellent sports facilities. Among these are an 18-hole golf course, ski slopes and a riding centre which has been the home of North America oldest hunt club since 1966, the year the hunt moved from Laval-des-Rapides, north of Montréal.

The riding centre consists of a stable for thirty-five horses, an arena, a rotunda (or covered exercise ring), and a school which possesses some 80 km of training and competition trails and more than 160 km of mountain trails.

Equestrian events during the 1976 Games which took place here were *Grand Prix* individual and team dressage, *Grand Prix* individual jumping and the Three-Day Event, altogether attracting 169 riders from 23 countries between July 18-30. The riding event in the modern pentathlon also took place here. The *Grand Prix* team jumping was held in the Olympic Stadium on August 1.

Most of the events at Bromont took place in a natural amphitheatre at the foot of a hill which gave spectators an almost unlimited view of the competitions. Its vast dimensions and numerous paths made it possible to accommodate large crowds of people and the surrounding areas offered ample space for parking.

A study undertaken in 1974 confirmed that the granular subsoil of the site provided adequate drainage, as well as a solid foundation for riding trails.

Construction work at the equestrian centre included the installation of the stadium, training and competition fields, several new stables, and quarters for COJO administrative personnel, athletes and trainers.

Dressage and Jumping

In the stadium, a 20 x 60 m area was prepared for dressage competition with a layer of special sand, which facilitated judging and ensured equitable ground conditions throughout the event. The ground was covered with a polyvinyl membrane to prevent sand from penetrating the gravel layers beneath. This area was surrounded by a low fence inclining outwards at a 40-degree angle, and the five judges' booths and the officials' booth were then placed about the perimeter.

Adjacent to the dressage field, an area of some 12,000 square metres was prepared for the jumping events. For the first time in Olympic history, sand was used instead of the traditional grass to ensure equitable footing for all competitors, even in rain. A portable wooden fence was then erected about these two competition zones to separate them from public areas and a well was dug to provide water for the horses.

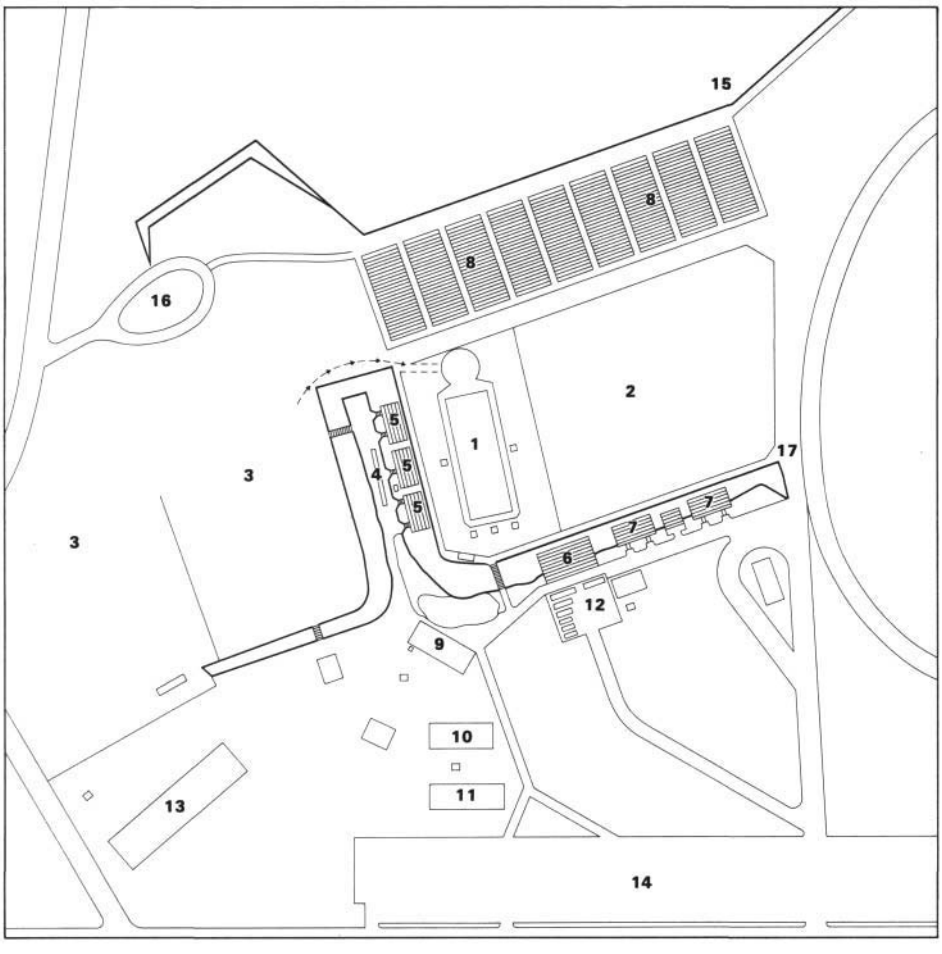
Spectators' stands capable of accommodating more than 15,000 people were erected about the competition zone and were augmented by the open spaces on the hills surrounding the stadium, where there was room for 20,000 more. Souvenir booths, a snack bar, telephone booths, washrooms and a mobile post office were installed on the site, as well as a special viewing platform for handicapped spectators.

Dressage and jumping results were posted on a large, manual scoreboard at the west end of the stadium, in front of which were placed benches for five hundred special guests and three hundred competitors. Two scoreboards were also placed east of the stadium to record results of the Three-Day Event.

Covered stands for broadcasters and journalists were constructed opposite the public stands. Fifty-six tables were provided for commentators as well as platforms for television cameras. Beside this area were five hundred seats reserved for dignitaries and, in the centre of these seats, was the box for members of the jury.

Finishing touches were supplied by landscape architects who also decorated the dressage and jumping areas with bushes and shrubbery.

A nearby farm building, owned by the centre, was transformed into a storage area for equipment and fodder for the horses. It was also designed to be of future use as a quarantine area.



Dressage and Jumping Stadium

1 Competition area — dressage
2 Competition area — jumping
3 Competitors' waiting area
4 Scoreboard
5 Officials' and athletes' stands
6 Covered press stands
7 VIP stands
8 Public stands
9 VIP lounge
10 Press subcentre
11 COJO administration offices
12 ORTO mobile units
13 Temporary stables (modern pentathlon)
14 Reserved parking
15 Public access to stands
16 Public services
17 Maintenance and service access to stadium

A ski chalet equipped with a cafeteria, normally unoccupied during the summertime, was used for journalists and COJO personnel. An information booth and several offices were also located there.

Riders could train on any one of some fifteen tracks or courses that had been specially constructed for this very purpose in the vicinity of the centre. And what this permitted was a fair allocation of training time and facilities among all the competitors.

Three-Day Event

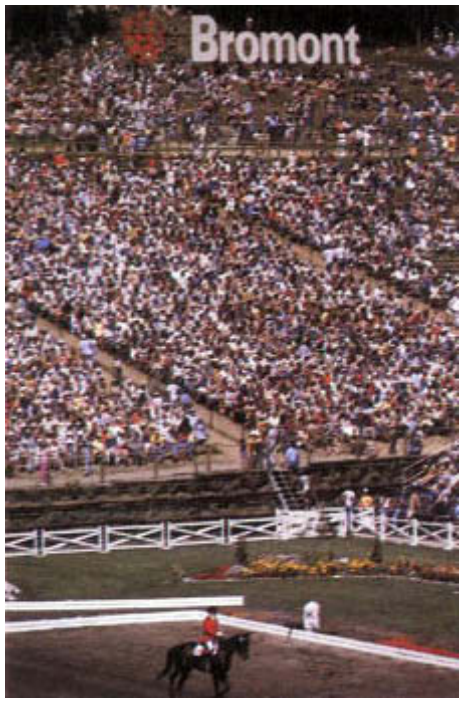
The endurance tests, the most important part of the Three-Day Event, were divided into four stages: two runs on roads and tracks totalling a distance of some sixteen kilometres; two runs over a four-kilometre steeplechase course with six obstacles; and a cross-country run with thirty-six obstacles spread over a distance of some seven kilometres. All these tests were conducted over a course approximately twenty-eight kilometres in length, partly in forest, partly on open terrain.

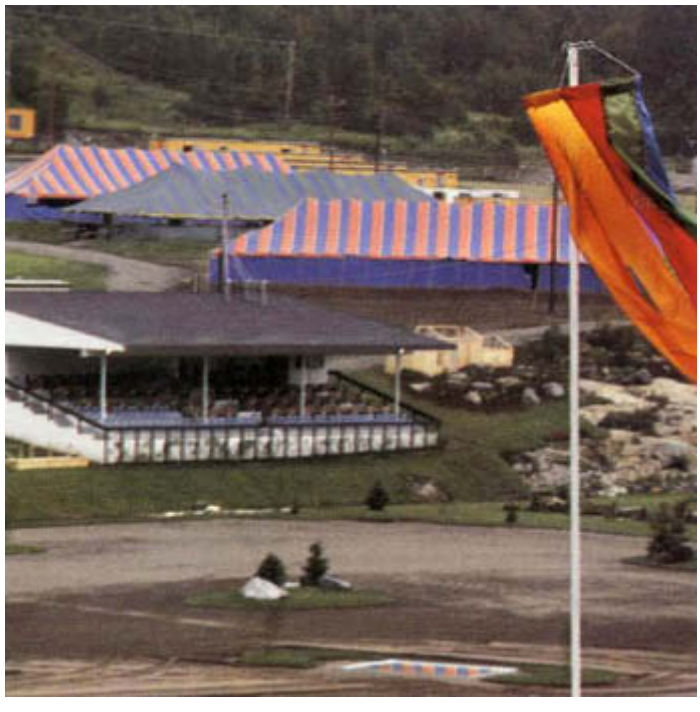
The course had to be at least three metres wide at all points and the surface had to be identical for all competitors. Obstacles of various sizes and shapes were placed at strategic points dictated by the terrain and platforms were erected alongside to hold TV cameras. The route was indicated by flags and signs and, in some cases, by numbered posts installed every 1,000 metres.

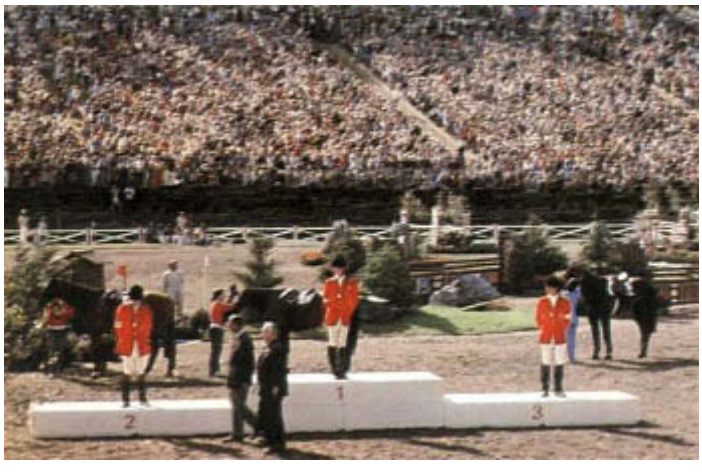
Accommodations

One kilometre from the stadium, ten temporary stables were constructed to house nearly three hundred horses, with space in each for a saddle room, a storage room for fodder and a medical room. Each stable had four exits,


Bromont

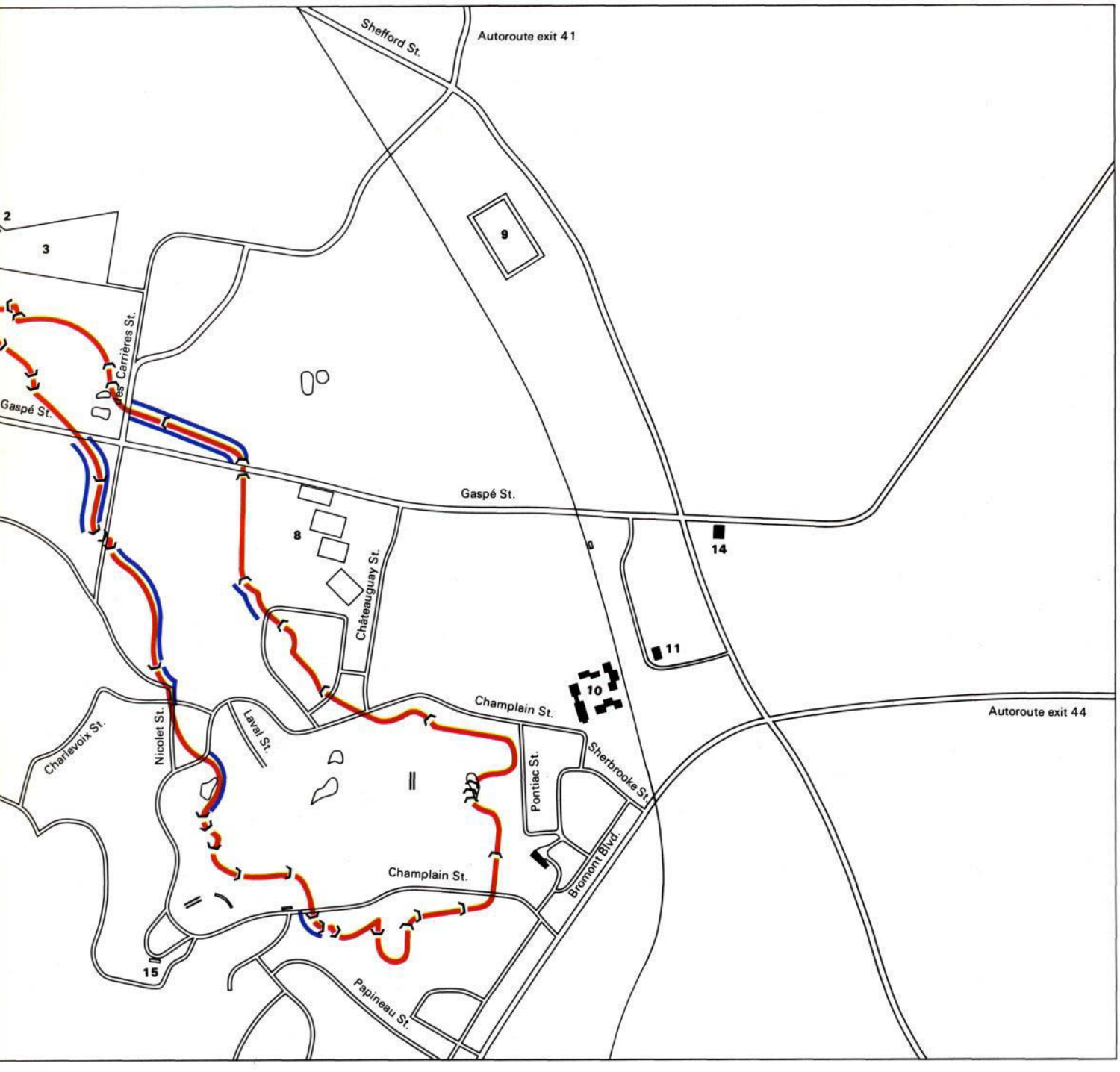

Bromont





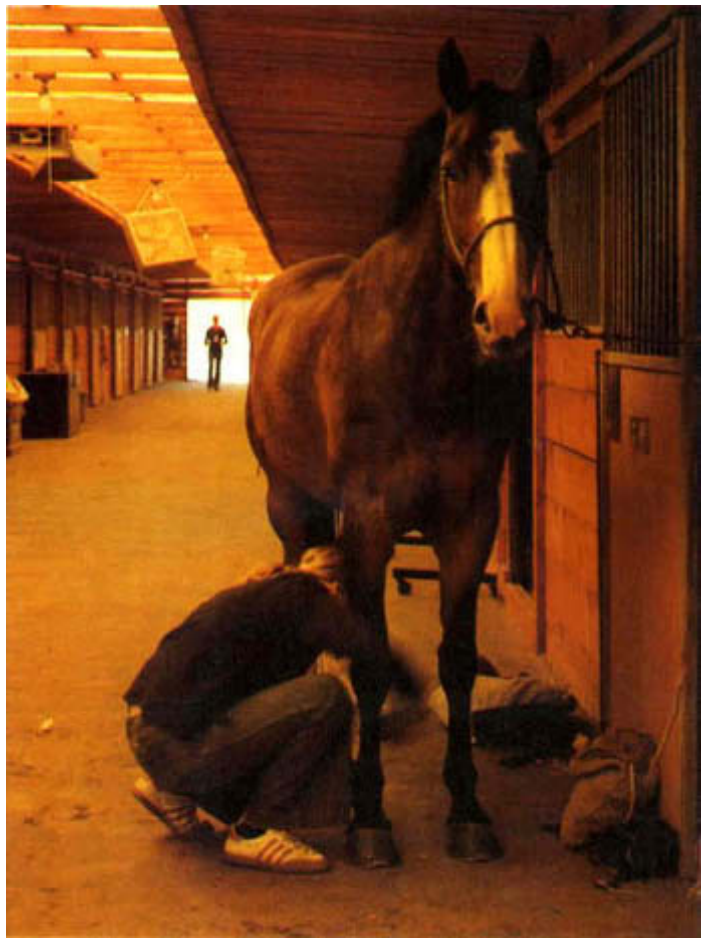
Three-Day Event

- Left control flag
- Right control flag
- Start
- Finish
- Phase A
- Phase B
- Phase C
- Phase D
- Restricted area



Site plan

1 Dressage and jumping stadium
2 Public access to stadium
3 Public parking
4 Grooms' quarters
5 Stables
6 Training areas — dressage
7 Training areas — Three-Day Event jumping
8 Training areas — Grand Prix jumping
9 Warm-up area
10 Athletes' village
11 Bromont arena (athletes' cafeteria and security)
12 Administration offices
13 Veterinary hospital area
14 School (sports federation offices)
15 Ski chalet (cafeteria for press and COJO personnel)



arranged so as to permit rapid evacuation of horses. Folding panels installed in the walls ensured proper ventilation, and each stall of 3 x 4 m was equipped with a sliding door and automatic water supply. All lights in the stables were enclosed in wire netting to prevent the horses from being electrocuted and walls were coated in creosote to deter the horses from gnawing them.

A covered structure with six individual baths and a series of showers with hot and cold water for the horses was installed beside the stables. These facilities operated on the pumping system which also supplied the fire hydrants. A fire truck was permanently located at the site.

Meanwhile, the riding centre was also a hive of construction activity. Built in the early sixties, the building required extensive modifications in order to accommodate the grooms and stableboys during the Games.

A bar and a restaurant with accommodations for up to four hundred people were installed in the rotunda. The training arena in the riding school, located beneath the same roof as the clubhouse, was stripped of sand and covered first with asphalt and then a layer of carpeting. Temporary partitions were then installed to create rooms for stableboys and grooms. The kitchens in the clubhouse were renovated and were augmented by a lounge, a cafeteria and washrooms. Finally, the neighboring tennis club was repainted to serve as a meeting place for riders and grooms and to accommodate stable administration offices.

A new, covered exercise arena for the horses was constructed, 20 x 60 m, and was used for dressage training.

Four completely new buildings were constructed to house the contestants, providing fifty-two individual apartments. The Bromont indoor ice rink was converted to provide ancillary services and contained a cafeteria, bar, souvenir booths, information centres and lounges.

Offices for security and site administration were also located in the ice rink; the international sports federation offices, the equestrian secretariat, athletes' transportation service and the telecommunications centre were placed in the local school.

Finally, three public parking lots for 15,000 vehicles were created and a bus service organized from the two farthest lots to the stadium.

Following the Games, Bromont, in addition to its other fine facilities, was left with an equestrian centre capable of accommodating major international competitions.

Le Pavillon d'éducation physique et des sports, Laval University

In 1974, when drawing up the schedule for the Olympic handball competition, COJO decided to stage some of the preliminary rounds in Québec City.

The seat of provincial government, Québec was founded in 1608 and was the first French settlement in North America. The city stands on a rocky bluff commanding the St. Lawrence River, 240 km northeast of Montréal and was the original gateway to the continent.

Having decided upon Québec, COJO had little difficulty in selecting a facility; the unanimous choice was the *Pavilion d'éducation physique et des sports* (PEPS) at Laval University, located in the suburb of Sainte-Foy.

The PEPS was conceived for the training of physical education instructors and to provide sports facilities for the university students. With its covered stadium, triple gymnasium, swimming pool and platform diving area, multiple athletic facilities, classrooms and administrative offices, it is one of the finest sports complexes in Canada.

Built in 1971, the PEPS was enlarged in 1976 to include two indoor ice rinks complete with spectator stands. In addition to its comprehensive range of sports and recreation facilities, the centre also has underground parking for 1,400 cars.

The International Handball Federation (IHF) approved the site selection without hesitation. Handball and water polo matches were staged there during the International Competitions Montreal 1975 and left no doubt that the PEPS was up to the Olympic challenge.

The vast size of the PEPS, 350,000 cubic metres, is not apparent at first sight. Through judicious landscaping, this compact facility of interlocking blocks hugs the ground and blends into the surrounding grassy areas and playing fields. However, the floor area is immense, 70,000 square metres beneath a single 20,000-square metre roof, although figures alone cannot convey the real scope of this vast facility.

Preliminary rounds of the Olympic handball tournament were held in the covered stadium, the largest component within the sports complex. Its most striking visual feature is the exposed roof structure, a series of 20 massive steel trusses 13 m above the competition floor. Interspersed among these steel girders are the suspended lighting system and the ventilation ducts, both of which are also exposed.

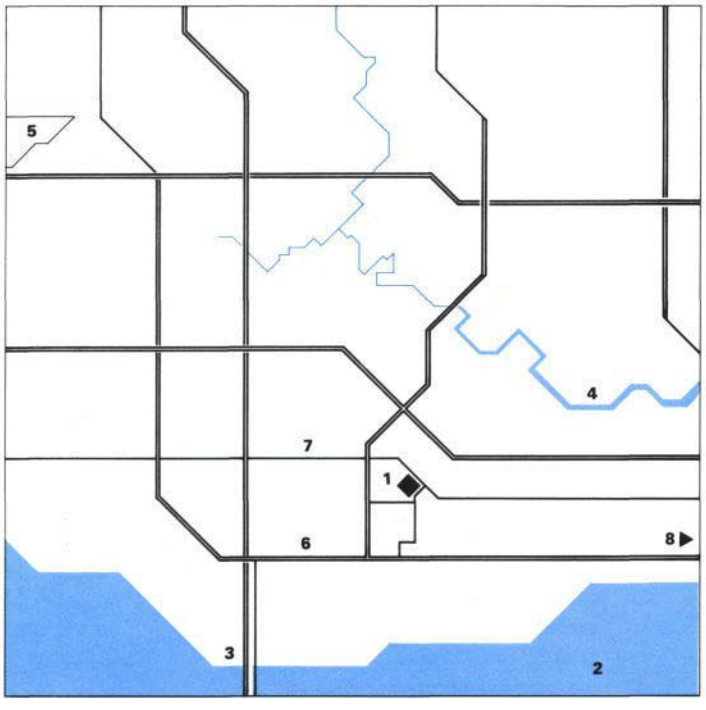
Lighting intensity in the stadium was raised to conform to standards laid down by the Olympics Radio and Television Organization (ORTO). Twenty lighting projectors were mounted in a bank along the press gallery on the second mezzanine, and the electrical system was redesigned to accommodate the additional load. After the Games, the actual projectors were removed but the mountings and the new, sophisticated circuitry were left intact. If the need should ever arise, the projectors can be returned and hooked up with little effort.

As there are only 494 permanent seats in the first mezzanine below the press gallery, 3,238 temporary seats were erected on three sides of the competition zone. These were designed to ensure that no spectator would be more than 20 m from the action.

Other facilities, such as snack bars and information and souvenir booths, were installed at each end of the hall to accommodate the sudden influx of spectators.

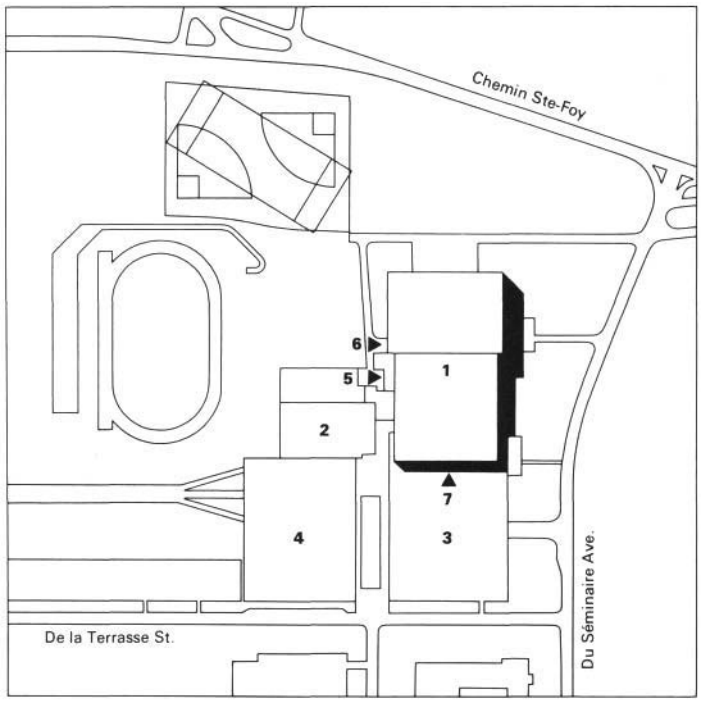
A special 24 x 45 m polychloride vinyl surface was laid in the competition zone to conform to IHF standards. The actual court measured 20 x 40 m.

Upon their arrival from Montréal, the athletes were driven directly into the PEPS through the underground



Québec City plan (west end)

1 PEPS
2 St. Lawrence River
3 Pierre Laporte Bridge
4 St. Charles River
5 Airport
6 Boulevard Laurier
7 Chemin Sainte-Foy
8 Downtown

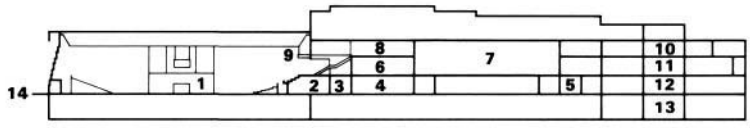


Site Plan

1 PEPS
2 Arena
3 Reserved underground parking
4 Public underground parking
5 Public entrance
6 Athletes' and officials' entrance
7 VIP, press and COJO entrance

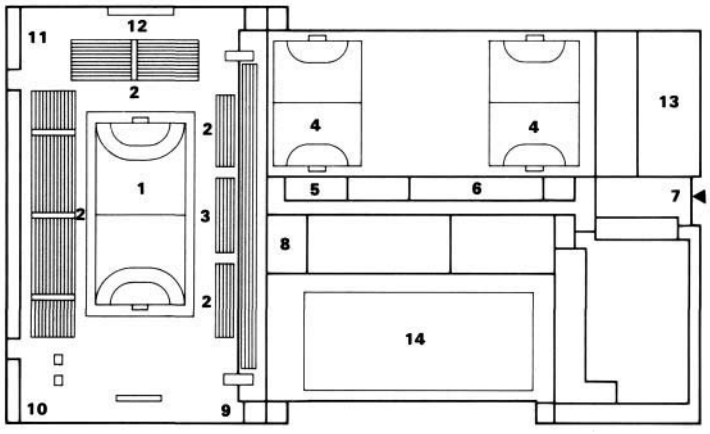
Longitudinal section

1 Competition hall
2 Men's dressing rooms
3 Corridor
4 VIP lounge
5 International federation office
6 Women's dressing rooms
7 Warm-up hall
8 Main lobby
9 Press gallery
10 Public entrance
11 Access to public parking
12 Access to reserved parking
13 Athletes' rest area
14 Ground floor level



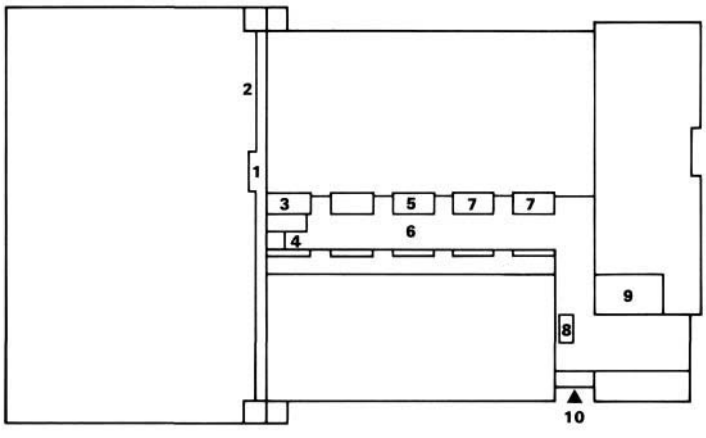
First floor plan

1 Competition area
2 Public stands
3 Reserved stands
4 Warm-up areas
5 Women's dressing rooms
6 Doping control station
7 VIP, press and COJO entrance
8 Public entrance to stands
9 Athletes' and officials' entrance
10 Public first-aid room
11 Washrooms
12 Snack bar
13 COJO lounge
14 Swimming pool



Second floor plan

1 Press gallery
2 Press subcentre
3 Press lounge
4 Public access to competition hall
5 Snack bar
6 Main lobby
7 Washrooms
8 Post office
9 COJO administration office
10 Public entrance



parking garage. Immediately adjacent to the garage was a large resting area equipped with beds where they could relax from the 240-kilometre bus journey. Meals were served in the *Pavillon Pollack* just next door to the PEPS.

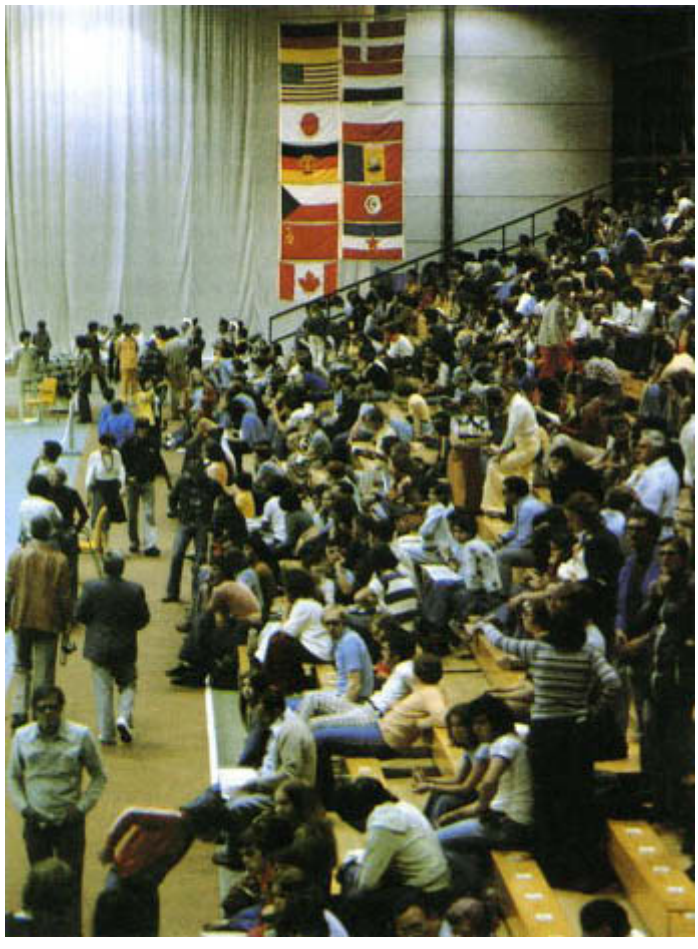
Following their rest period, the athletes then went up to the ground floor and their dressing rooms. Those for male athletes and referees were located at either end of a long corridor down the south side of the stadium which also gave access to the results centre. A second corridor, at right angles to the first, connected the IHF technical delegates' office and the VIP lounge with other facilities. At the intersection of these two corridors, a small office was reserved for COJO administration and all athletes, officials and special guests had to pass through this control area before entering the stadium. Spectators were not permitted in this area.

The first mezzanine contained the women's dressing rooms, located next to the warm-up area, the doping control centre and the COJO lounge. Also at this level, in the stands overlooking the competition floor, platforms were installed for the ORTO cameras and a section reserved for paraplegics.

At either end of this mezzanine, steps led down to the stadium floor and were the only spectator access to the temporary stands.

Spectators entered the PEPS through a lobby on the second level which contained a post office and ticket booths. COJO offices were also established here, but during competition, key services were located in the small nerve centre on the ground floor. The lobby led to a wide corridor containing a snack bar and a press lounge, through which journalists reached the press gallery in the stands.

This gallery consisted of a narrow platform, 3 x 83 m, located nine metres above the competition floor. Forty journalists shared a single table, 30 m long, facing the court. The press subcentre was located at the east end of the gallery and included a working area for the journalists and a room for the press officer. No facility was required for interviews with athletes since, traditionally, the only formal interviews organized are with the medal winners, which would be decided at the Forum in Montréal.



Sherbrooke Stadium

Football competition during the 1976 Games took place not only in Montréal (where some preliminary rounds and the finals were played in the Olympic Stadium), but in three other cities as well.

The three outlying locations were Toronto, Ottawa and Sherbrooke, this last a vibrant, fast-growing community located in a picturesque farming and tourist region east of Montréal and noted for its two universities, one English and one French.

Selection of Sherbrooke was influenced by several factors. There were over 100 amateur football clubs in the area, a modern expressway made the 165-kilometre journey from the Olympic Village possible in under two hours and, furthermore, civic officials were eager to increase permanent sports facilities in order to meet an ever-increasing demand.

With the cooperation of these officials, COJO decided to present five preliminary football matches there as well as a dozen preliminary handball matches, making Sherbrooke the only city outside Montréal to host more than one Olympic sport.

A new stadium, capable of accommodating large crowds, was required for the Olympic football competition. Agreement was quickly reached on the general location, a sloping area only one kilometre from the centre of town which was already the site of an important annual agricultural show, county fairs, conventions and various sports events.

A number of sports facilities were already in existence there: the Sports Palace and the Eugène Lalonde Arena catered to thousands of ice hockey enthusiasts, and there was a horse-racing track and pavilion, as well as numerous secondary buildings, in the immediate vicinity. Also nearby stood a modern educational complex equipped with a gymnasium and an outdoor, Olympic-size pool. Finally, a short distance away, there was a baseball stadium with seating for 5,000 spectators.

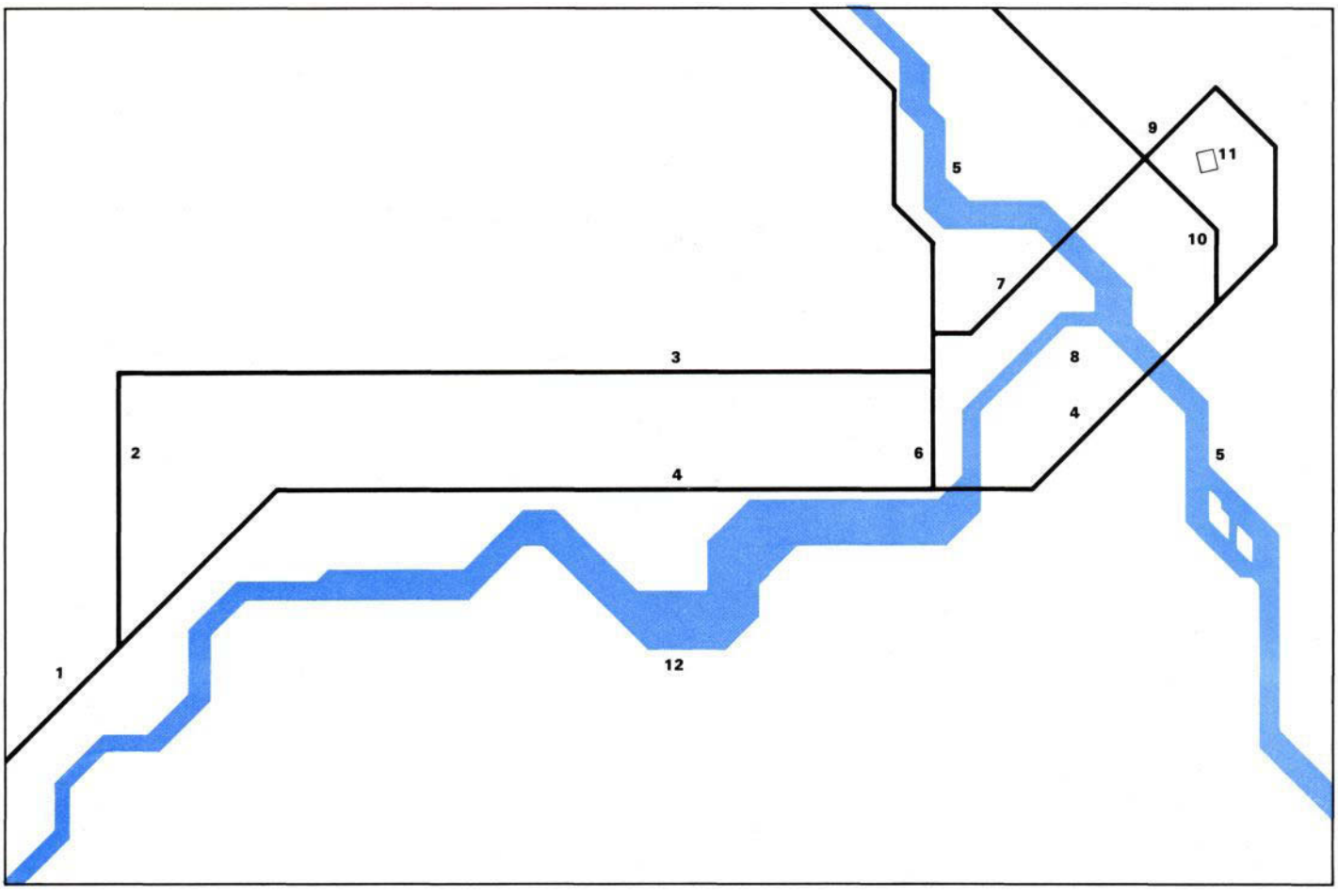
There remained the problem of determining the precise location of the new football field. The two areas considered for this purpose were the baseball stadium and the racetrack. The former had the distinct advantage of being equipped with permanent seating, but there was a lack of space in the immediate area to accommodate administrative services. For this reason, the racetrack was the final choice.

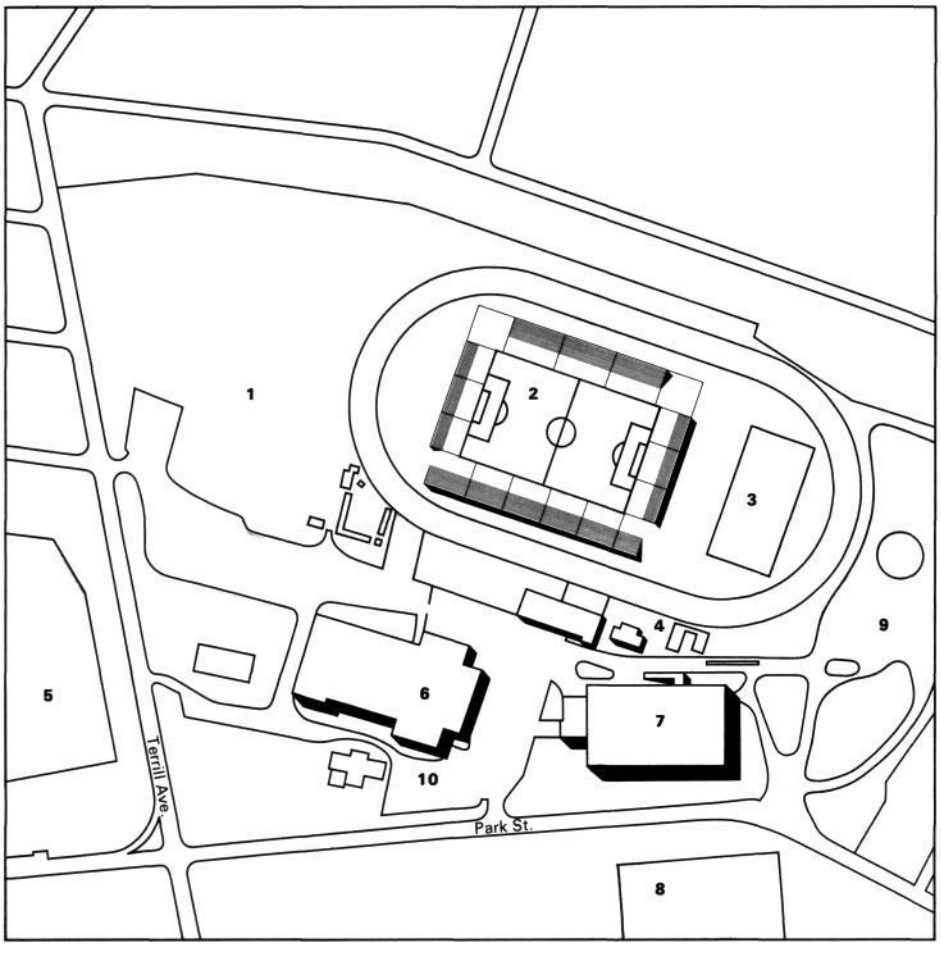
After careful consideration, it was decided to locate the playing field and the warm-up area inside the oval track. This open surface, measuring 4,000 square metres, was equipped with a system of drainage ducts, filled with gravel, and covered with turf to provide a natural grass surface. With an eye to future use, a 400-metre track was constructed around the perimeter of the field which could easily be covered with a synthetic surface when needed.

The racetrack itself was converted into a temporary public walkway, separated from the playing area by a high wire fence 1,800 m long.

To meet the requirements of the *Fédération internationale de football association* (FIFA), four temporary stands, containing a total of 10,000 seats, were arranged about the playing field. Platforms were installed for the press and, in the centre of the south section, a canopy-covered platform was constructed to hold all TV and film cameras. After the Games, only the northeast section of the stands was left intact for future competitions, the remaining 7,500 seats being distributed to various parks in the city. In this manner, several local amateur football clubs shared in the ongoing benefit resulting from the Olympic construction.

A parking lot with a crushed rock surface and accommodation for 120 vehicles was constructed in the vicinity of the warm-up area for use by organizing personnel, and the parking lots adjacent to the two arenas were reserved for dignitaries and the press. The large parking area on the northwest side of the new stadium was set aside for the public. Ticket booths, souvenir shops, information booths, a post office, and four mobile washrooms were provided for the public attending the Games.





Site plan

1 Public parking area
2 Football stadium
3 Football warm-up area
4 Press subcentre
5 Baseball stadium
6 Eugène Lalonde Arena
7 Sports Palace
8 Collège de Sherbrooke
9 COJO parking area
10 VIP and press parking area

Sherbrooke city plan

1 Aurotoute to Montréal
2 Industrial Boulevard
3 Portland Street
4 King Street
5 St. François River
6 Queen Street
7 Moore Street
8 Sherbrooke city centre
9 Terrill Street
10 Park Street
11 Sherbrooke stadium
12 Magog River

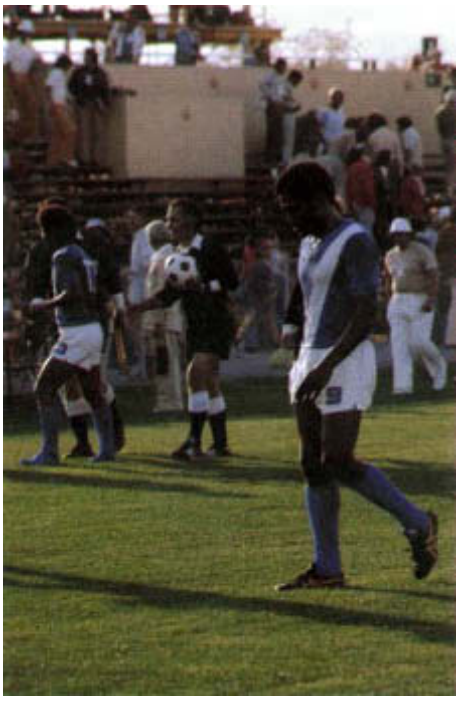
With all five football matches scheduled during daylight hours, no lighting installations were required. However, loudspeakers were located behind the stands to carry the play-by-play commentary to the spectators.

Administrative services for both football and handball events were situated, for the most part, in the Eugène Lalonde Arena, and dressing rooms were located in the Sports Palace. Alterations were necessary in both areas. These consisted largely of the addition of electrical outlets and the installation of modern telecommunications systems. Dressing rooms in the Sports Palace were completely remodelled, and offices were installed in the Eugène Lalonde Arena at minimal expense through the extensive use of temporary partitions.

Journalists covering both football and handball shared press facilities established in a small building adjoining the racetrack and normally used as a restaurant.

Finally, several rooms in the educational complex were equipped with beds for the athletes, who also had access to a cafeteria in the building.

In May, 1976, major work on the site was completed and it was officially handed over to COJO, leaving only the finishing touches to be put on the installations.



Sherbrooke Sports Palace

Whereas a new facility was necessary to accommodate Olympic football competition in Sherbrooke, the city's Sports Palace was readily adaptable for the eleven preliminary handball matches scheduled there by COJO during the 1976 Games.

Built in 1965 and located only a few metres from the new football stadium, the Sports Palace contains Sherbrooke's primary ice hockey arena. The size and dimensions of the principal structure and the seating capacity of 4,400 were more than sufficient to meet the requirements of the International Handball Federation (IHF). In addition, the building was already equipped with ventilation and air-conditioning systems and was attractively located, commanding a scenic view of the St. François River valley.

The core of the rectangular building is constructed of concrete and steel and is covered with a roof of enormous steel girders in the shape of elongated rhomboids, each with a span of some 50 metres. The handball court was located on the ice rink and the surrounding barricade retained to delineate the limits of the competition zone. The concrete surface of the rink was covered with a polychloride vinyl for the duration of the Games.

To illuminate the competition zone, the IHF and the Olympics Radio and Television Organization (ORTO) required only 1,260 lux within camera range, in contrast to the 1,820 prescribed for most other sites. Nevertheless, the lighting system in the arena had to be augmented for the Games, although the sound system was found to be adequate.

Temporary platforms for film and television cameras, as well as tables for the press, were installed in the permanent stands facing the centre of the competition zone. The four restaurants located in the interior passageways of the arena were retained.

Existing dressing rooms, located behind and beneath the stands and each large enough to accommodate an ice hockey team of 30-odd players, were renovated and a number adapted for use as conference halls and for the use of IHF administrative officials. The majority remained as dressing rooms for football and handball players and officials, competition in each sport having been scheduled mostly on alternate days.

Similarly, remaining requirements for both sports were met by sharing facilities within the overall complex. A common results centre was located within the Sports Palace; administration offices were located in the Eugène Lalonde Arena next door; journalists covering each sport shared a press subcentre in a nearby building and athletes' rest and dining areas were set aside in the *Collège de Sherbrooke.*

The college gymnasium, only 100 metres from the competition site, required no modification for use as a warm-up area for handball.

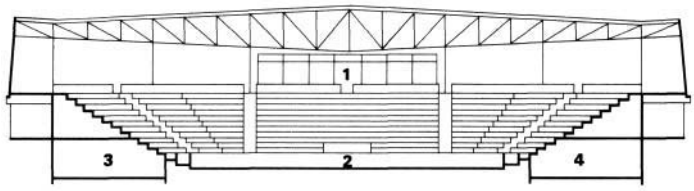
On May 1, 1976, the City of Sherbrooke handed over the entire site to COJO, leaving only some finishing touches to be applied: installing barriers and flags, arranging furniture and making scoreboard and telecommunication systems operational.

Site plan

1 Public parking area
2 Football stadium
3 Football warm-up area
4 Press subcentre
5 Baseball stadium
6 Eugène Lalonde Arena
7 Sports Palace
8 Collège de Sherbrooke
9 COJO parking area
10 VIP and press parking area

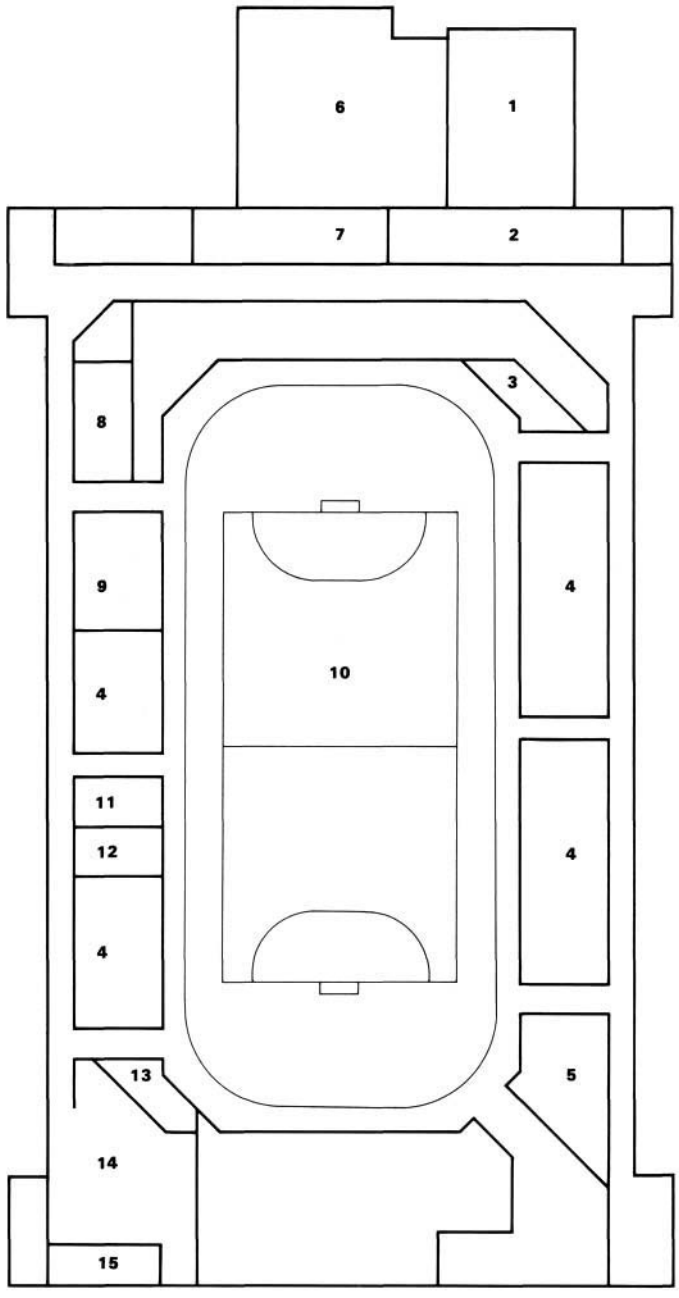
Cross section

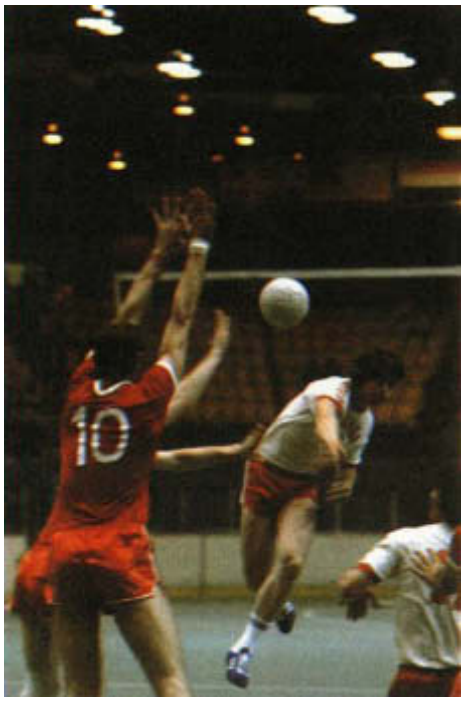
1 Public entrance
2 Competition hall
3 Handball secretariat
4 Athletes' dressing rooms



Competition level plan

1 Press subcentre
2 Results centre
3 Food storage room
4 Athletes' dressing rooms (football and handball)
5 Sports equipment storage room
6 Public entrance
7 Washrooms
8 Hostesses' lounge
9 Handball secretariat
10 Competition zone
11 Referees' quarters
12 Support officials' quarters
13 ORTO quarters
14 Conference room
15 Federations' offices





Olympic Yachting Centre, Kingston

More than in any other Olympic sport, the choice of competition site for yachting is dictated by geographical considerations, namely the location of a suitably large body of water in an area of stable wind and water conditions. Consequently, the yachting centre is frequently located a considerable distance away from the Olympic Village, requiring complex residential and competition facilities.

Such was the case during the 1976 Games with the selection of Kingston as the competition site for yachting, located 290 km from the Olympic Village. The choice was a natural one, and warmly endorsed by the International Yacht Racing Union (IYRU), since Kingston offers some of the most favorable wind and water conditions in Canada and its reputation as one of the world's leading sailing sites has been growing for several years.

Since 1969, the Kingston Yacht Club has hosted many international competitions, including the Canadian Olympic-training Regatta Kingston (CORK). An annual event providing young Canadian sailors with competition in large, full-scale races against some of the best yachtsmen in the world, CORK proved to be an excellent source of knowledge and experience for COJO.

Kingston was an Olympic site unlike any other outside Olympic Park in Montréal. In addition to complex competition facilities, which included provision of a large harbor and on-shore facilities, the athletes had to be housed with suitable services and security. Kingston even had its own opening and closing ceremonies with a large urn to contain the Olympic Flame and temporary stands for spectators. In short, a comprehensive construction program was required to prepare this site for the yachting events of the 1976 Games.

Yachting Centre

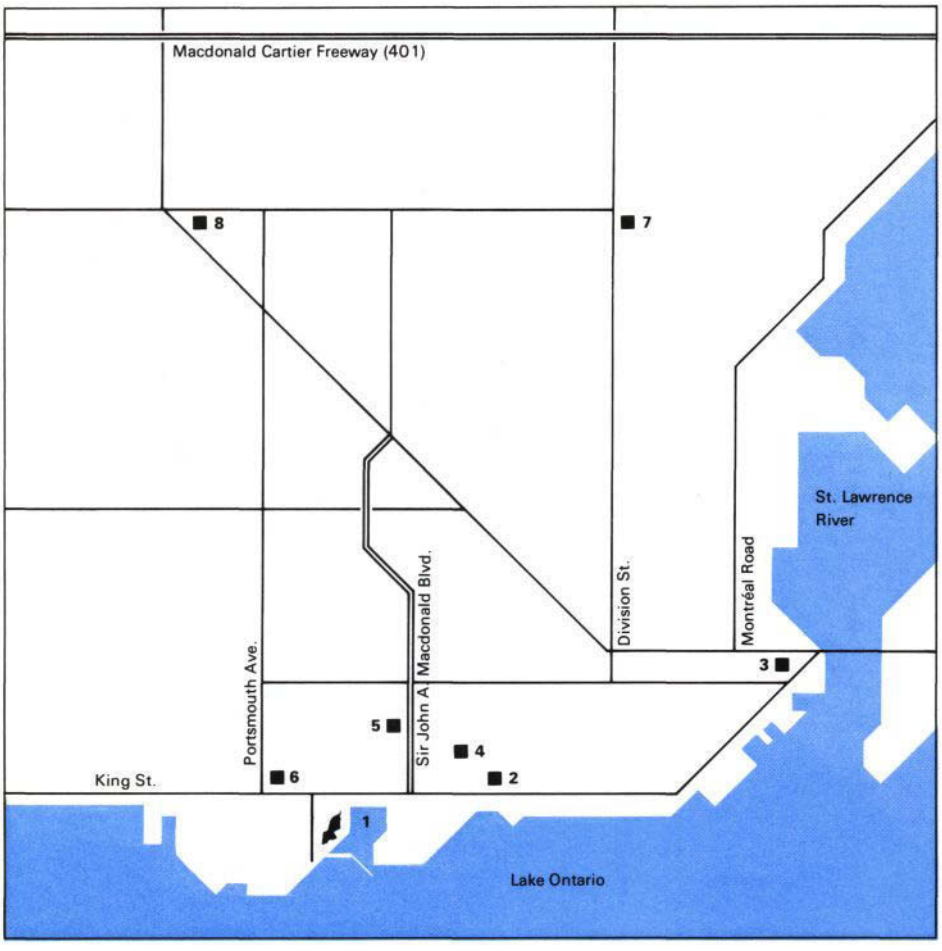
The site of the Olympic Yachting Centre was Portsmouth Harbour, originally a nineteenth-century commercial port for sailing ships which had fallen into a state of some disrepair. Reconstruction of the harbor began in March, 1974. Since the facility would later remain available to the public, the government of Ontario provided funds for the purchase of the land, and the federal government undertook to share the cost of installations through the Marina Policy Assistance Program of Environment Canada.

The work itself, carried out by the federal Ministry of Public Works, included the repair and extension of the existing breakwater and the dredging of the harbor. The City of Kingston also requested the same ministry to design and build the facewall and walkways, as well as all services to be located on the site.

To avoid the time-consuming process of installing coffer dams and reducing the level of the water, the new harbor walls were constructed of precast concrete. Steel " H " beams were cemented into holes drilled in the rock bottom and concrete slabs were then lowered between them. The new breakwater extension was a revolutionary structure of "A-frame" steel pipe driven into the harbor bottom and faced with 20-ton concrete slabs set in place by a giant floating crane. This novel design effectively diminished wave action within the harbor without restricting the free flow of water.

The original breakwater was recapped in concrete and walls were built around the harbor. Precast concrete jetties were then installed, and fresh water and electrical outlets were provided both for boats moored at the jetties and for those parked on the paved areas surrounding the harbor. Floating finger-piers allowed yachts to be safely moored regardless of the water level.

A completely new structure was required to house the on-shore facilities at the harbor. The design of this Olympic Yachting Centre was entrusted to a consortium of local architects who worked with COJO to ensure Olympic standards and with the Kingston Olympic Users Committee to ensure the maximum post-Olympic recreational use.

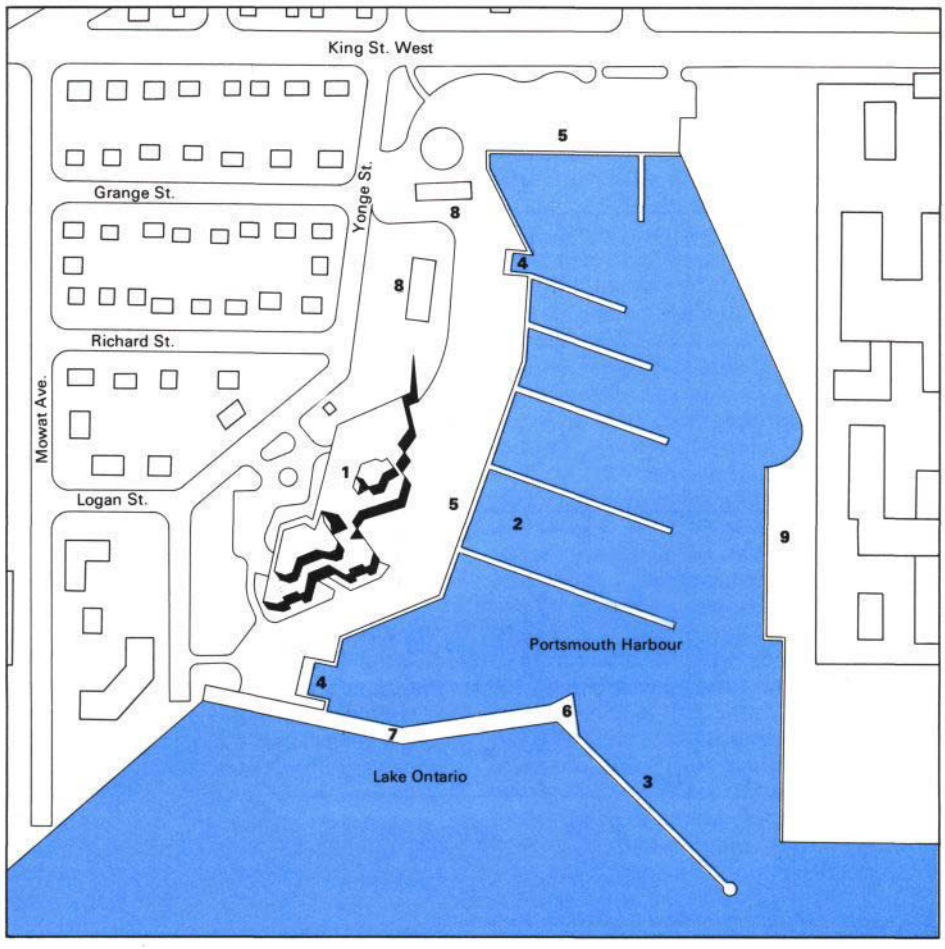


Kingston City plan

1 Olympic Yachting Centre
2 Olympic Village
3 COJO administration building
4 VIP residence
5 Press residences
6 Harold Harvey Arena (ORTO)
7 Bus terminal
8 Railway station

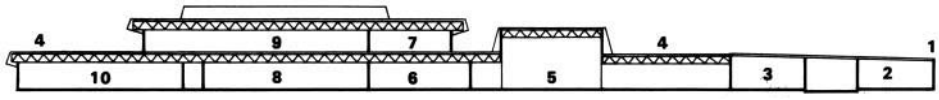
Site plan

1 Olympic Yachting Centre
2 Floating docks
3 Breakwater
4 Launching ramp
5 Yacht parking area
6 Olympic urn
7 Flags of participating nations
8 Temporary stands
9 Spectator area



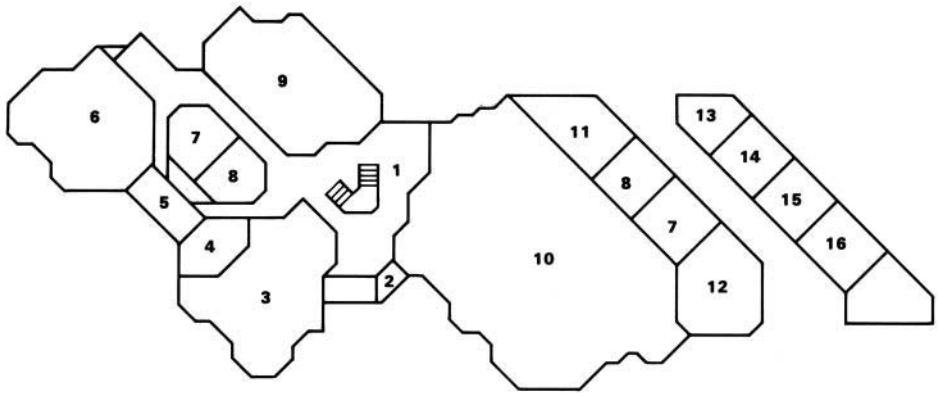
Longitudinal section

1 Ramp to observation deck
2 Sail loft
3 Men's washroom
4 Observation deck
5 Measuring room
6 Main lobby
7 Public lobby
8 Press Subcentre
9 Restaurant
10 ORTO quarters



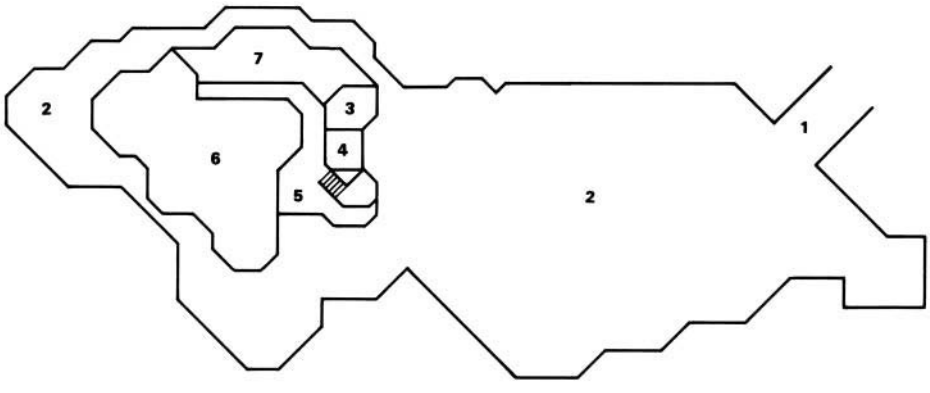
Lower Level plan

1 Main lobby
2 First aid & doping control station
3 COJO administration offices
4 VIP lounge
5 Building maintenance quarters
6 ORTO quarters
7 Men's washroom
8 Women's washroom
9 Press subcentre
10 Measuring room
11 Women's dressing room
12 Men's dressing room
13 Post office
14 Sail loft
15 Workshop & ship's chandlery
16 Hull repair shop



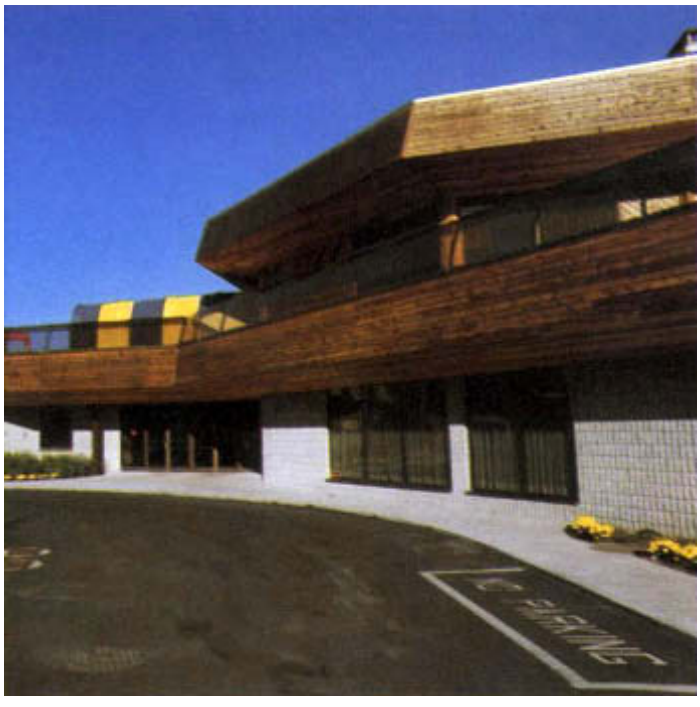
Upper Level plan

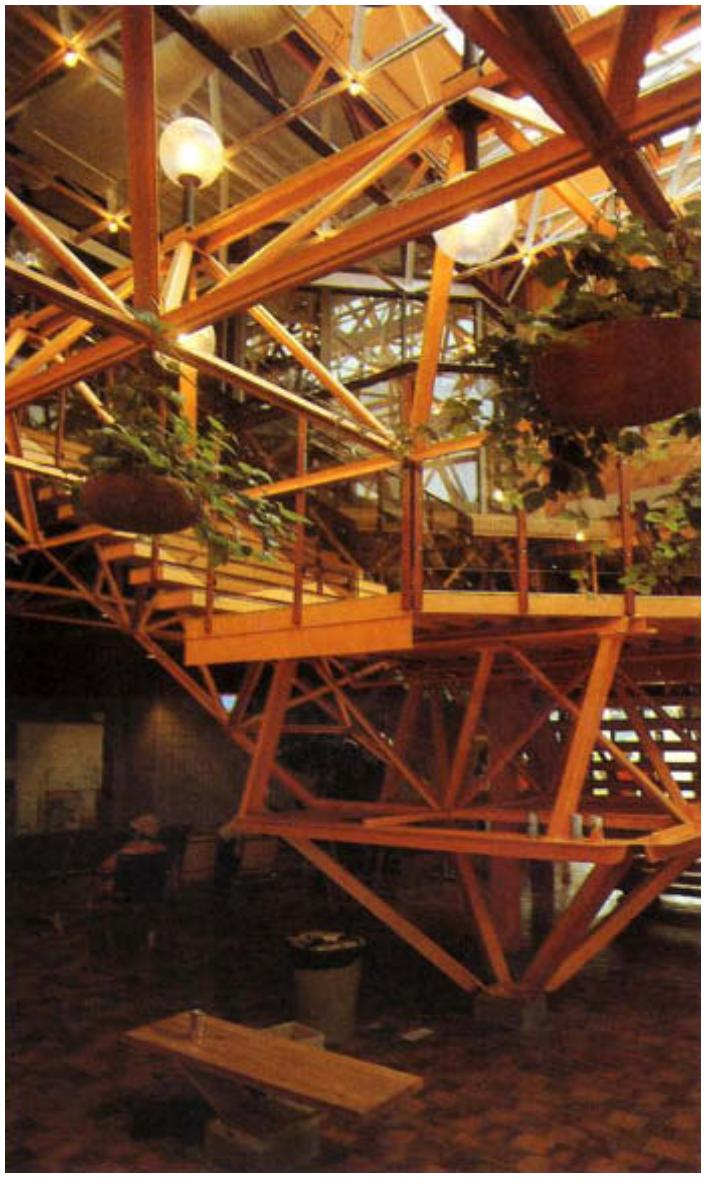
1 Ramp to observation deck
2 Observation deck
3 Men's washroom
4 Women's washroom
5 Upper lobby
6 Restaurant
7 COJO administration offices



For example, competition requirements called for the construction of a huge sail-measuring room of 1,000 square metres. This was designed to be used as a reception and multi-purpose area within the centre after the Games.

Construction of the centre began in October, 1974. As with the harbor modifications, it was planned in such a way as to allow work to continue throughout the winter. To avoid the complications involved in laying a solid





foundation on soft earth, the site was first excavated down to bedrock and then back-filled with crushed rock.

The Olympic Yachting Centre consisted of two stories, totalling 5,000 square metres of floor space. The lower exterior walls were of split-fluted concrete block and the overhanging sections of the roof were sheathed in natural Canadian red cedar. The windows were of bronze-tinted glass.

The core of the building was a space-frame structure of prefabricated steel. In the centre was the main lobby, where the exposed frame of the structure was brought down from the ceiling to form the basis of the stairway and extended upward to accommodate a skylight.

The ground floor consisted of two main areas separated by the lobby. One of these areas housed offices for Games' officials, a press subcentre, quarters for the Olympics Radio and Television Organization (ORTO), the doping control station, and a VIP lounge. The other area was occupied by the sail-measuring room, where, in keeping with Olympic rules, the hulls, sails and spars of all yachts entered in competition were carefully scrutinized.

On the far side of the measuring room, various athlete services were located on either side of a walkway beneath a ramp leading to the second-story observation platform. These included competitors' locker rooms, clothes-drying rooms, a ship's chandlery, sail repair loft, hull repair shop, post office and a snack bar for competitors.

The second level of the structure consisted mainly of an upper lobby and restaurant, surrounded by the observation deck and offering a panoramic view of the Olympic harbor and Lake Ontario. Additional administration offices were also located on this level.

Temporary spectator stands for the opening and closing ceremonies were erected adjacent to the centre. Additional seating was available across the harbor on a gently sloping lawn.

In addition to 400 square metres of space in the Olympic Yachting Centre, ORTO required a further 900 square metres which were provided in an arena located one kilometre from the centre. Temporary offices and a film laboratory were installed on the floor of the arena and were dismantled after the Games.

For security reasons, the entire harbor area was surrounded by a three-metre steel link fence, and floodlights were installed about the grounds. These installations were only temporary, and were later removed. Most of the large paved surface surrounding the boat slips, used to store boats during the sailing events, was also temporary and was later removed and the ground reseeded.

Athletes' Residences

To provide accommodations for some 550 athletes and team officials from 40 nations registered for yachting events, it was decided to use co-educational student residences at Queen's University. Less than one kilometre from the Olympic Yachting Centre, the residential complex consisted of a quadrangle of four buildings surrounding an open park area. Because the university had housed CORK sailing competitors on previous occasions, COJO again was able to benefit from past experience.

No major renovations were needed; teams were assigned to blocks of rooms, with an extra room provided each team for an office.

New chainlink fences were erected about the compound, with one central checkpost to allow entry to accredited individuals.

Officially opened on June 18, 1976, the residential complex included a boutique area with post office, bank, travel agency, sporting goods store, book store and souvenir shop, all specially constructed for the Games.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Provisions were also made for athletes' leisure time. Art exhibitions and films were organized, and a variety of sports equipment was acquired to supplement the facilities already available on the university campus. Competitors had access to a swimming pool, a fully equipped gymnasium, tennis and squash courts, soccer fields, exercise rooms, and indoor and outdoor tracks. Volleyball nets were installed on the Village grounds, and table tennis, pool tables and color television sets were placed in the lounges. Finally, an outdoor terrace was renovated and refurbished to be used for official receptions.

Journalists were accommodated in another student residence located only a half-kilometre from the Olympic Yachting Centre and dignitaries were housed in the university's conference centre, also located nearby. The only installations required in the latter, a luxurious old limestone building, were temporary fencing and spotlights similar to those installed elsewhere on the site.

Throughout the Olympic construction, one of COJO's guiding principles in planning was to ensure maximum post-Olympic use of the Games facilities, an objective shared by the City of Kingston. This aim could hardly have been more fully realized than at the Olympic yachting site; the centre and adjacent harbor facilities are now the focal point of a water sports program run by the Kingston Parks and Recreation Department and constitute one of the best equipped and most popular boating centres in the country.

Varsity Stadium, Toronto

Toronto, the capital of Ontario, achieved a unique distinction during the 1976 Games. Located 575 km from the Olympic Village, it was the only competition site to which athletes had to be transported daily by airplane.

The selection of Toronto as the site of five football matches during the Games involved a number of factors which offset the problem of distance. Principal among these were the suitability of the city's main stadium and the cosmopolitan make-up of its population.

Varsity Stadium, owned and operated by the University of Toronto, is centrally located, convenient to major public bus and subway lines and can accommodate up to 21,000 spectators. The fact that Toronto's population includes a large number of citizens from countries where football is a national sport assured COJO that the presentation of Olympic competition here would be enthusiastically received.

Consequently, COJO and city officials made every effort to involve the citizens of Toronto in the Olympic events being staged in their city: civic receptions were arranged for the athletes at City Hall; decorative banners and flags festooned the streets leading to the stadium and distinctive route signs were installed throughout the metropolitan area, all pointing to the Olympic site.

Varsity Stadium itself was accustomed to large crowds. In addition to track and field meets and other events associated with the university's regular athletic program, the stadium has been the home of a number of professional football teams, both association and North American style. It has also been the setting for such diverse attractions as conventions, parades, religious revivals and rock music spectacles.

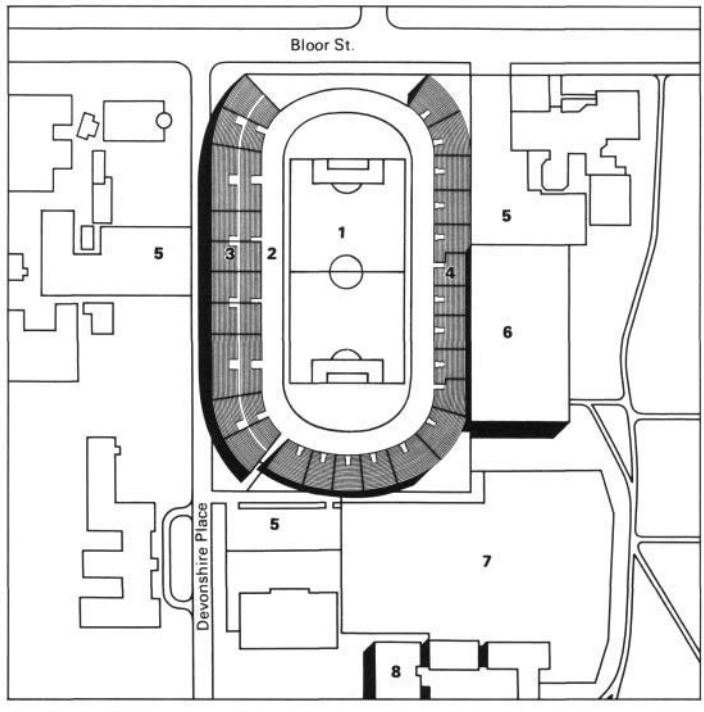
Originally constructed in 1923, the building underwent extensive renovations in 1950 when the east stands were added, practically doubling capacity. In preparation for the Olympic Games, further renovations were undertaken early in 1976.

The playing field, which had been constructed to conform to North American football standards, was enlarged to meet the required 125 x 75 m dimensions for Olympic competition, (which included the actual pitch of 105 x 68 m) by incorporating the surrounding cinder track. The original grass surface was removed and new sod was laid, raising the level of the playing surface some five centimetres. A fibrous membrane, which was removed after the Games, was laid over the cinder track to protect it from the top soil and sod.

The stands on the east and west sides of the field were repainted and the seats were renumbered to conform to COJO's ticket system. At the same time, a large number of damaged seats were replaced, and new metal staircases leading to the mezzanine level of the east stands were installed. The press box was extensively renovated to accommodate twenty-five journalists and five cameras of the Olympics Radio and Television Organization (ORTO). Unlike some other sites, no additional press tables had to be provided in the stands.

The rooms under the west stands, which had been unused for some time, were completely renovated and were divided into four principal areas: COJO administration offices, athletes' dressing rooms, VIP lounge and press subcentre. Access to each of these areas was restricted by separate entrances, and provisions were made to allow dignitaries to proceed directly from the VIP lounge to the seats reserved for them in the stands.

Because this part of the stadium normally housed team dressing rooms, weightlifting rooms, boxing rings, press rooms and track and field storage rooms used by the University of Toronto athletic department, every attempt was made to ensure that the area could be restored to its original state after the Games, though in a vastly improved condition. Lighting and plumbing installations were replaced, new drywall partitions were erected and each room was entirely repainted. Furniture for the Olympic Games was rented locally, but all sports equipment was shipped from Montréal. This equipment later became the property of the University of Toronto.

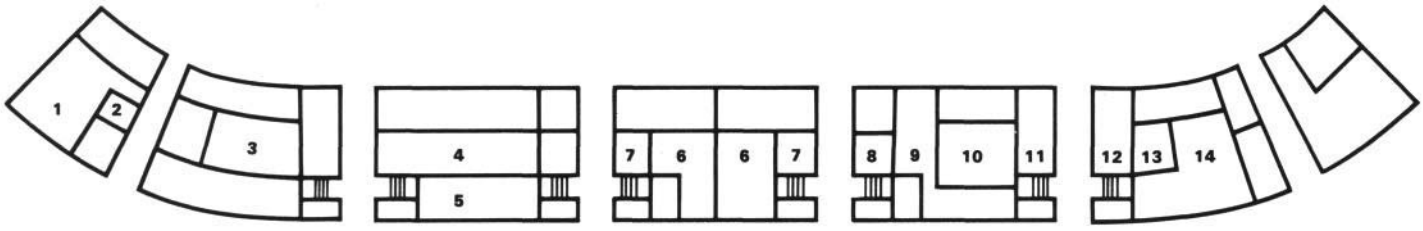


Toronto city plan

1 Varsity Stadium
2 Toronto International Airport
3 Toronto harbor
4 Downtown area

Site plan

1 Playing field
2 Reserved stands
3 West side public stands
4 East side public stands
5 Reserved parking
6 Varsity Arena
7 Warm-up field
8 Athletes' rest area & cafeteria



Ground floor plan (West stands)

1 COJO services quarters
2 Public first aid room
3 COJO administration offices
4 VIP lounge
5 Hostesses' lounge
6 Athletes' dressing rooms
7 Athletes' massage rooms
8 Athletes' medical centre
9 Referees dressing room
10 Film storage room (National Film Board)
11 Film storage room (ORTO)
12 Results centre
13 Athletes' interview room
14 Press subcentre

The areas under the east stands were also refurbished for Olympic use. Public information booths, souvenir shops and snack bars were located here.

Headquarters for security staff were installed on the ground floor of the Varsity Arena, located nearby. Acoustic panels and furniture were arranged here to create temporary offices and lounges.

Varsity Stadium is located on one of the principal east-west thoroughfares in Toronto and has two subway stations within walking distance. Parking is severely restricted in the vicinity of the stadium, but the University of Toronto provided almost two hundred reserved parking spaces for VIPs, COJO and ORTO representatives and members of the press. The athletes were transported directly from the airport to the competition site by bus, and the general public was encouraged to use public transport. For operational and security purposes, the area surrounding the site was closed to traffic for the duration of the Games.

Because athletes were often scheduled to be away from the Olympic Village in Montréal for periods of up to twenty hours, the *Fédération internationale de football association* (FIFA) requested that COJO provide a rest area equipped with beds and a dining area with facilities for serving hot meals. COJO consequently made arrangements for the use of dormitories and a cafeteria in student residences within easy walking distance of Varsity Stadium. Training and warm-up fields for the athletes were installed on a large grassy area between the stadium and one of these residences.

The success of the Olympic football competitions in Toronto, and the enthusiasm with which they were received, appeared to justify fully COJO's selection of such a distant site. They left an ongoing legacy of appreciation both for association football and the Olympic ideal, and the students of the University of Toronto benefited greatly as a result of their significantly improved athletic facilities.

Lansdowne Park, Ottawa

During the 1976 Olympic Games, four preliminary football matches were scheduled for Ottawa, the capital of Canada. Dominated by Parliament Hill, the seat of federal government, Ottawa is a medium-sized city of green spaces, historic buildings and institutions of learning.

In selecting Ottawa as a site for Olympic football competition, COJO was impressed with the suitability of its main municipal stadium, Lansdowne Park. The city's location, some 217 km from the Olympic Village, also made it possible for competitors to travel to and from the Olympic site daily.

Completely rebuilt in 1967, the year of Canada's centennial celebrations, Lansdowne Park offered permanent seating for over 30,000, at least three times that needed for the Olympic competition. The facility is located in an attractive setting on the tree-lined bank of the Rideau Canal, is served by a city bus line, and includes a large parking area adjacent to the stadium.

Constructed to the standards of North American football (hereafter referred to as "football"), the playing field is flanked by two spectator stands, each of which is three-quarters covered. No major difficulties were envisioned in adapting the stadium to accommodate the needs of association football, or soccer.

The area beneath the north stands contained an ice rink, offices, dressing rooms, storerooms, and a number of public reception halls. All facilities for the Olympic competition were located here. For security reasons, competitors were assigned to the dressing rooms adjacent to the rink (those for regular league "football" players were located under the south stands), and the reception rooms were transformed into rest areas for the athletes, equipped with beds and a snack bar. Offices were provided for all COJO services and for delegates of the *Fédération internationale de football association* (FIFA). Additional offices and a lounge were made available to dignitaries and officials. An existing press gallery suspended from the roof of the north stands was assigned to the media.

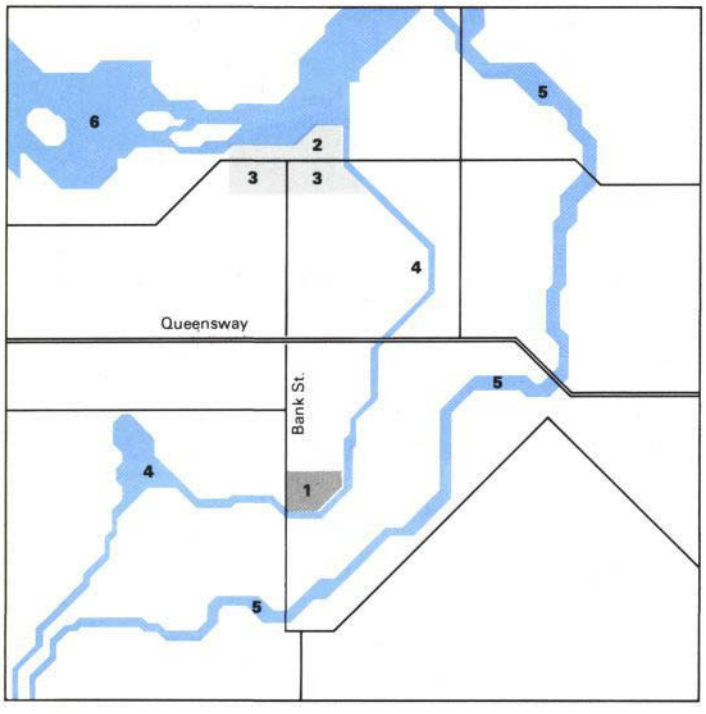
In 1974, the City of Ottawa had decided to double the size of the south stands. At the same time, it was decided to rearrange the entire system of barriers and access routes. Other minor renovations were carried out by COJO in conjunction with the City of Ottawa in preparation for the Games and included seat painting, seat numbering and sign reorientation.

There remained only the problem of increasing the width of the playing field some eight metres to conform to the 68-metre requirement for association football. In May 1976, this was done by covering part of the asphalt surface, which bordered the field on two sides, with earth and sod.

An automatic watering system located in this area had to be partially dismantled for the safety of the players and buried beneath the new turf. For the period of the Games, the turf was watered manually.

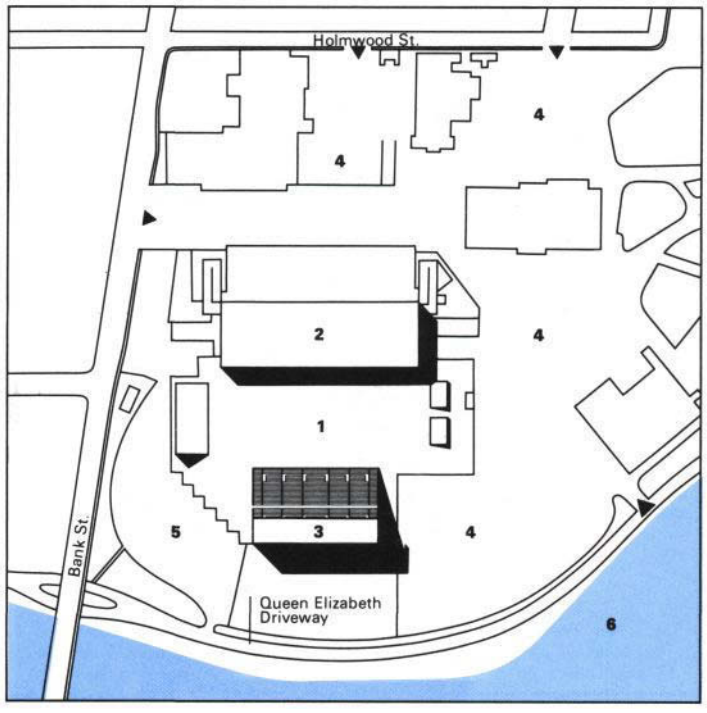
Since Ottawa's professional "football" team was scheduled to use the stadium right up until a week before the Games, all finishing touches on the site had to be carried out during that final week. These included painting the outer lines of the newly enlarged playing field, camouflaging billboards, furnishing premises, hooking up temporary lighting, sound, and communication systems and installing souvenir stands.

Due to careful planning and the simple nature of most changes made at the site, organizers were able to prepare the stadium for Olympic competition in a matter of days and at minimal expense. Lansdowne Park remains a prime example of the advantages to be gained in utilizing existing installations for international sports events such as the Olympic Games.



Ottawa City plan

1 Lansdowne Park
2 Canadian Parliament Buildings
3 Downtown area
4 Rideau Canal
5 Rideau River
6 Ottawa River

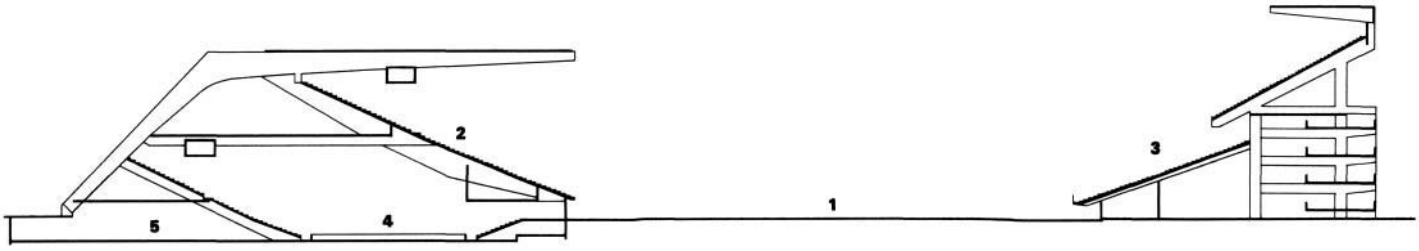


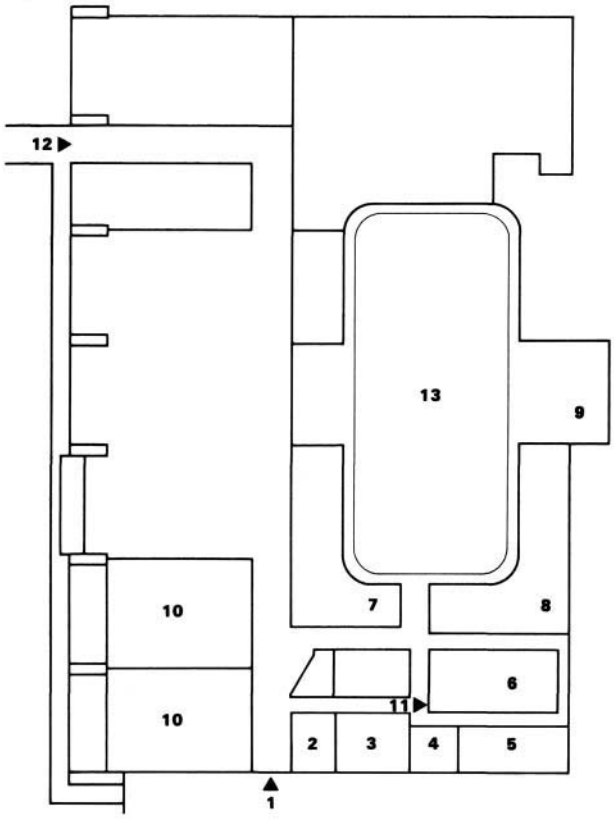
Site plan

1 Competition zone
2 North stands
3 South stands
4 Public parking areas
5 Reserved parking areas
6 Rideau Canal

Cross section

1 Competition zone
2 North stands
3 South stands
4 Ice rink
5 Services quarters





North stands ground floor plan

1 VIP entrance
2 Hostesses' lounge
3 VIP lounge
4 Federations offices
5 Football secretariat
6 Athletes' dressing rooms
7 Site Management offices
8 Officials' quarters
9 Athletes' access to competition zone
10 Athletes' lounge and rest area
11 Officials' entrance
12 Athletes' entrance
13 Ice rink

Appendix

Contributors to Olympic installations

Consultants and specialists
Archer, Seaden et Associés
Arsenault, Garneau, Villeneuve et Associés
Asselin, Benoit, Boucher, Ducharme, Lapointe, Inc.
Beauchemin-Beaton-Lapointe, Inc.
Bland, LeMoyne, Shine, Lacroix
Blouin, Blouin et Associés
Boudreau, Dubeau, Lemieux, Inc.
Bouthillette, Parizeau et Associés
Brunelle, Lambert et Associés
Cabana, Séguin Inc.
Canadian Pacific Telecommunications
Carmel, Fyen, Jacques et Associés
Compagnie Nationale de Forage et Sondage, Inc. (La)
Consortium Design, Enrg.
Consultas, Inc.
Consultants du Stade de Montréal, Inc. (Les)
Corriveau et Associés, Inc. (Jacques)
Crevier (Jean)
Cromarty, Dominik, Inglis, MacLennan, Mill, Ross, Sorenson
Dallaire Designers, Inc. (Michel)
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Design & Communication, Inc.
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Laboratoire de Béton, Ltée (Le)
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Pageau, Morel, Bouthillette, Parizeau et Associés
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Robillard, Jetté, Caron
Sainte-Marie et Associés (Gilles)
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Service d'architecture des travaux publics de la Ville de Montréal
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Trudeau, Régis et Associés
Valent et Associés (Serge)
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Contractors and suppliers
Acier d'Armature de Montréal (1963), Ltée
Acier d'Armature du Québec, Inc.
Acoustic Development Corporation
Acme Asbestos Co. Ltd.
Acme Awning
Acme Signalisation, Inc.
Advance Electric Inc.
Agences Guénette
Air Care Inc.
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Films
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Paper
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C.S. Velours 160(M), white

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Assistant project leader
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