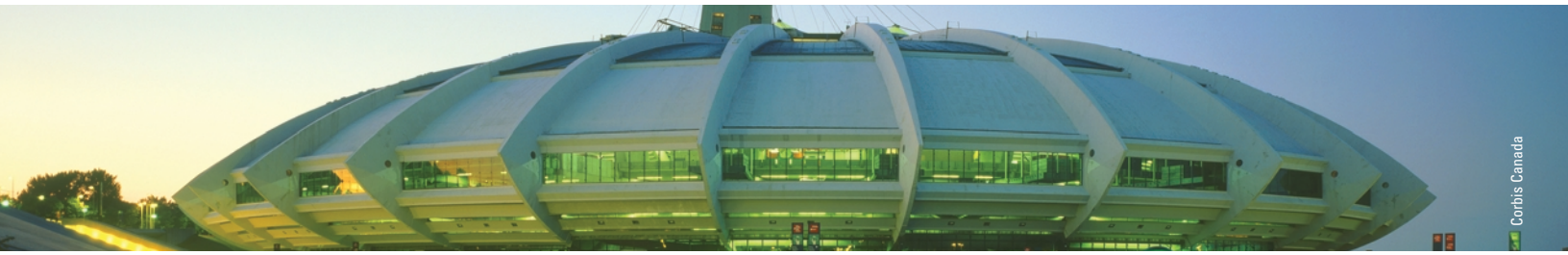

THE OLYMPIC STADIUM

Masterpiece of architecture and engineering

Designed by French architect Roger Taillibert at the request of Mayor Jean Drapeau, the Olympic Stadium is the centrepiece of all the structures built for the 1976 Games.

Everyone has their own words to describe the Stadium, but all agree that it is impressive and grandiose! The Olympic Stadium is an integral part of Montréal's modern heritage. It is a one-of-a-kind monument and world-renowned architectural masterpiece, and for many people around the globe, the Stadium is also a symbol for the city of Montréal. It is also the only venue in Québec large enough to host major national and international events, which significantly boost our economy.

For many tourists, a trip to Montréal would not be complete without a visit to the Olympic Stadium and Montréal Tower Observatory. In fact, the *Green Guide* has bestowed its highest honour, the three-star "worth the trip" rating, on the breathtaking view from the Observatory.

BREAKING NEW GROUND IN NORTH AMERICA

Beyond the Olympic considerations, the Stadium constructed for the 1976 Games was not meant to be purely utilitarian; it was also designed to become an iconic representation of Montréal around the world. The City of Montréal thus opted for a structure made entirely of concrete, which lends itself well to the futuristic curved design, rather than the traditional steel structural frame so common of North American stadiums. The project was extremely audacious for the times, employing a construction technique never before seen in North America, that of prestressed concrete *(see sidebar on the next page)*. The Olympic Stadium was only the second major creation to make use of this avant-garde French technique, after Paris' Parc des Princes stadium.

The Stadium, an immense concrete structure with an elliptical shape reminiscent of an enormous seashell, comprises 12,000 prefabricated elements held in place like the pieces of a Meccano toy set. Each element had to be crafted, adjusted and assembled to the others with the utmost precision, and many of the elements weigh several tons. To build the structure, it took 71,500 m^3 of poured concrete containing almost 1,000 km of high tensile steel cable.

The Olympic Stadium, symbol of Montréal

The console: the Stadium's building blocks

The Stadium's impressive "rib cage"

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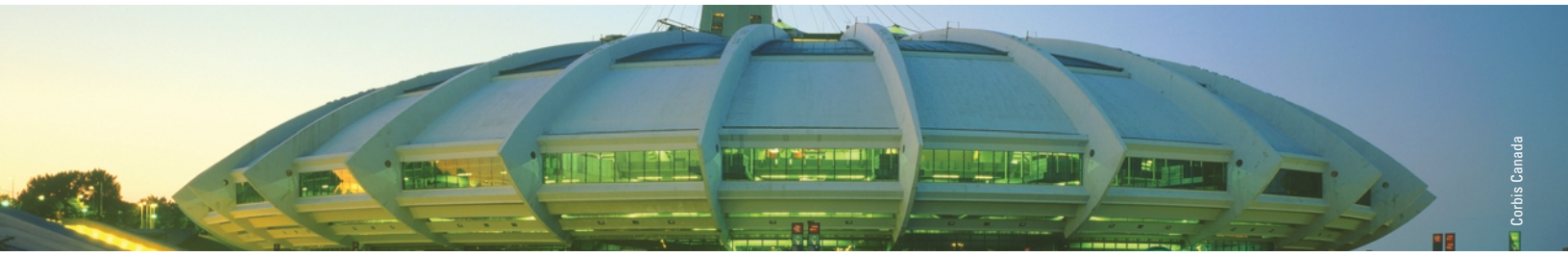


Masterpiece of architecture and engineering *(continued)*

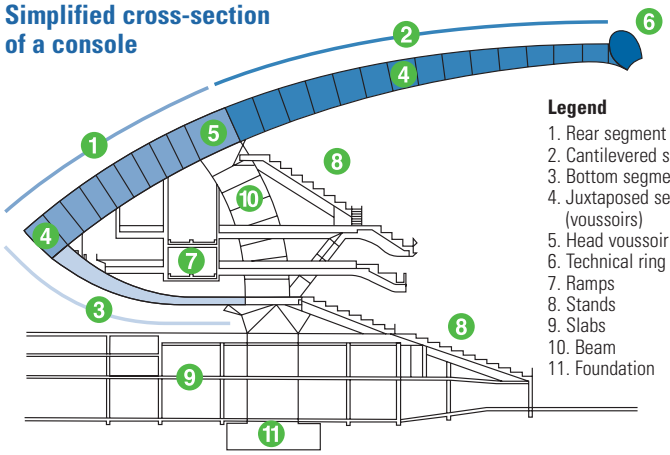
Like Parc des Princes stadium in Paris, the lines of the Olympic Stadium proved to be highly original, evoking movement in which each shape blends and glides into the next, lending it an outstanding sculptural quality.

CONSOLES: THE STADIUM'S BUILDING BLOCKS

The Stadium's structure is very distinctive. Calling to mind giant hands with curved fingers or even a rib cage, the 34 cantilevered consoles and four truncated consoles comprising the base of the Tower cast the mould for the entire building. Each console is made up of at least 40 juxtaposed elements, including high tensile steel cables concealed within. In total, 1,500 prefabricated elements, weighing anywhere from 40 to 145 tons, were used to build the consoles. Since the size and shape of every element is different, each of the 38 consoles is completely unique, and their extremities are each connected to one part of the technical ring.

The technical ring has two floors. The first floor is where 60% of the Stadium's lighting equipment is housed, more specifically, 759 units of 2,000 watts each, or the equivalent of 15,180 100-watt light bulbs. It is thanks to this equipment that the Stadium offers such a wide variety of lighting options, which may be anywhere from almost total darkness to light resembling natural daylight, depending on the requirements for each event. The ventilation equipment is located on the second floor.

Simplified cross-section of a console



Legend

1. Rear segment
2. Cantilevered segment
3. Bottom segment
4. Juxtaposed segments (voussoirs)
5. Head voussoir
6. Technical ring
7. Ramps
8. Stands
9. Slabs
10. Beam
11. Foundation

PRESTRESSED CONCRETE: UNDER A LOT OF PRESSURE

Prestressed concrete is made using a technique perfected in 1928 by French engineer Eugène Freyssinet, who is celebrated for designing large concrete and reinforced-concrete (concrete reinforced with steel) structures. It was while attempting to improve the performance of concrete that he developed the technique of prestressing, an innovative way of overcoming the problem of tensile strength stress—the material's main weakness—which, to date, had been only partially resolved with metal reinforcements. Prestressing concrete consists in incorporating high tensile steel cables, in other words, cables stretched out like elastic bands. The tension in the cables found inside the Stadium's consoles is anywhere from 200 to 300 metric tons.

This tension enables the Stadium consoles to achieve their curved shape, without columns, also referred to in the architecture world as a cantilevered segment. Prestressing can be accomplished with pre-tension (tensioning the steel cables before the concrete hardens), or, as is the case with the Stadium, post-tension (tensioning of the steel cables after the concrete hardens).

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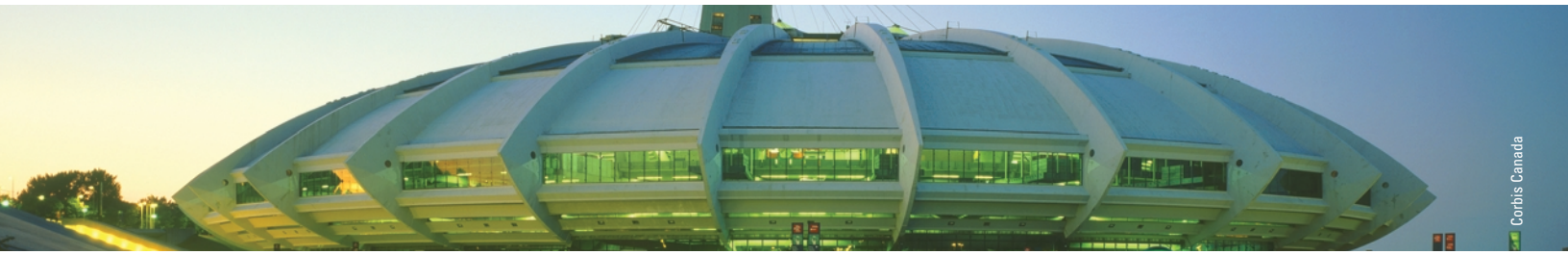

Masterpiece of architecture and engineering *(continued)*

ONE OF QUÉBEC'S LARGEST CONSTRUCTION SITES

More than 10,000 workers toiled day and night to build the Olympic Stadium. The work began in August 1974—when the first beams, poured on site, began to emerge from the ground—and ended on July 9, 1976, just days before the Olympic Games' Opening Ceremonies.

In order for this monumental structure to materialize, the firm Schokbéton, one of very few companies in Québec capable of using the prestressed concrete technique at the time, was called in. All of the Stadium's key components were made at their factory in Saint-Eustache. Among these were the famous concrete blocks used for the consoles, which give the Stadium its unique rib-cage shape.

To pour the oversized building elements, Schokbéton even custom-designed part of its factory. Moreover, another groundbreaking technique at the time, the continuous pouring of concrete in a vertical mould, was used to facilitate the matching of components. At one point, the factory was putting out 12 pieces per day, and, less than six months later, they had produced the 1,500 console pieces ordered. As soon as the base of the beams had been poured and the mould stripped, the prefabricated console elements left the factory. But transporting the immense blocks from Saint-Eustache to the site in Montréal became a challenge in itself: only the Pie-IX Bridge was able to support such a weighty load.

THE TOWER: A DARING EXAMPLE OF OBLIQUE ARCHITECTURE

The Stadium's tower (Montréal Tower) is a highly original and daring example of oblique architecture. It is also a fine example of the prestressed concrete technique. At 165 metres high, its peak is on a 45-degree incline. Reaching its full height in 1987, the Tower is made with concrete up to the 92-metre point, then with steel all the way to the top. The upper portion comprises prefabricated steel caissons supplied by Rimouski company Marine Industries. The custom foundation reaches depths of 45 metres in places. The Tower's purpose is three-fold: it serves as a partial cover for the Sports Centre, supports the Stadium's roof and houses the Observatory. Situated at the highest part of the Tower, the Observatory attracts some 300,000 tourists and locals every year.

A construction site heralding a giant masterpiece

A segment of the technical ring at ground level

The Montréal Tower: the world's highest inclined tower

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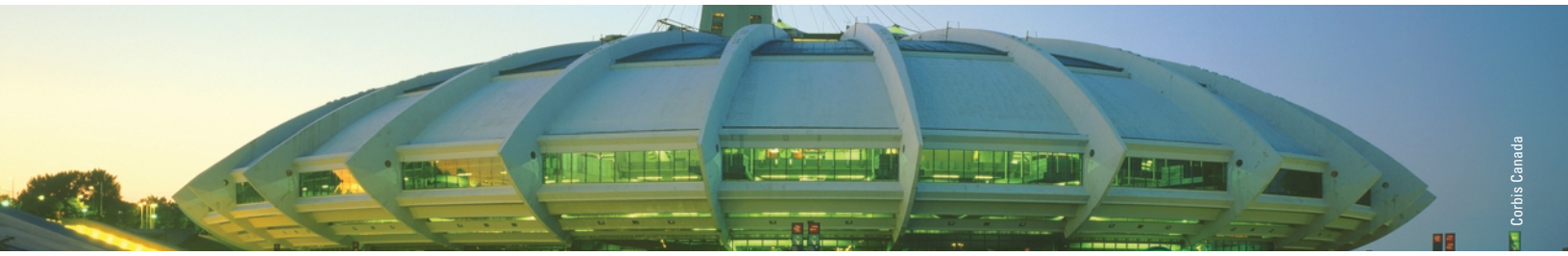


Masterpiece of architecture and engineering *(continued)*

AN ASSET TO THE PEOPLE OF QUÉBEC

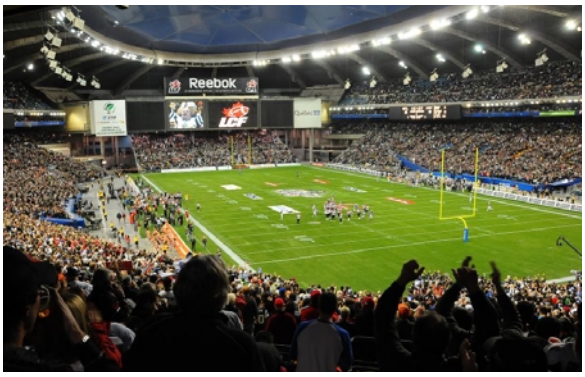
The Olympic Stadium is the only venue in Québec capable of holding more than 60,000 spectators for major national and international gatherings.

The Stadium's Main Room is a unique space, ideal for putting on even the most ambitious events. The multipurpose venue has no columns, and its expansive size offers a 49-metre (160-foot) ceiling clearance, making it possible to showcase unusually large objects.

In addition to the impressive 18,989 square-metre (204,000 sq.-ft.) Main Room, other spaces of varying sizes are available to meet the needs of promoters of large-scale cultural, commercial and institutional events.

Apart from being an architectural work of art, the Stadium is an asset to the Québec population. The large-scale events that take place there are extremely beneficial for the economy. One Grey Cup tournament alone generates some $50 million in economic spinoffs. The Stadium makes it possible to host events that could not otherwise be held in Québec.

It took a mere 30 years to repay the $1.5 billion mortgage loan it took to build the Stadium, the Sports Centre, the Olympic Village and its later conversion to apartments, as well as the Velodrome and its conversion to the Biodôme. This is a perfectly reasonable amount of time for buildings of this scale, especially considering that it often takes as many years to repay the mortgage on a single-family home.



Grey Cup 2008: Attended by more than 66,300 spectators

CONCACAF Champions League 2009 soccer game

An immense multipurpose space

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