Casino Nova Scotia

Halifax, Nova Scotia, Canada

Approximately 850 architectural precast concrete panels and structural precast prestressed concrete components were used to build this prestigious $44 million entertainment center on the harbor of downtown Halifax.

This premiere entertainment center, located in Halifax, Nova Scotia, is used for both gaming and special events. The facility animates the waterfront and contributes to urban life. Sited on a 3.5-acre (1.42 ha) lot on the harbor, it adjoins the downtown core via both an all-weather elevated pedestrian system and pedestrian boardwalks to four major hotels, two retail malls, the 10,000-seat Metro Centre and the World Trade and Convention Centre.

Approximately 850 components of architectural precast and structural precast, prestressed concrete were used in the project. The largest pieces used were the 57 ft (17.4 m) span of the prestressed double tees used in the parking structure. The largest units used in the actual casino were the 8 x 32 ft (2.4 x 9.8 m) panels used on the exterior.

The casino encompasses 138,340 sq ft (12900 m^2) of total building area, of which approximately 27,120 sq ft (2520 m^2) is gaming area and 169,740 sq ft (15800 m^2) for the main activities. The 550-car parking structure directly services the upper level of the casino by elevator. The sea walk surrounds the perimeter of the casino and connects into the existing waterfront pedestrian boardwalks and the elevated all-weather pedway to connect the complex to the city.

As a major nightlife attraction in the city, the casino complex houses two restaurants, special events rooms, retail stores and an entertainment lounge. TGI Fridays restaurant and bar is accessible from the sea walk and can accommodate up to 250 persons.

Adjacent to the casino floor area is the fast food court. With seating for up to 150, and additional stand-up service, this restaurant serves as a lunchtime destination for adjacent businesses and casino patrons. The entertainment lounge has live music and seating for 150. Adjacent to the main entrance lobby is a 2010 sq ft (190 m^2) retail area.

Located on the upper floor of the casino is the special events room with a stage and an adjoining servery for hosting events such as concerts, cabarets, banquets and boxing. The seating capacity is 650 persons depending on the type of occasion.

The upper floor also has a 2915 sq ft (890 m^2) pre-function room adjacent to the special events room with an adjoining terrace overlooking the harbor. The adjacent executive boardroom provides space for public functions and accommodates 250 persons.

The casino gaming area has 826 slot machine potential and 40 gaming tables. There is also a separate high limit area and private VIP lounge.

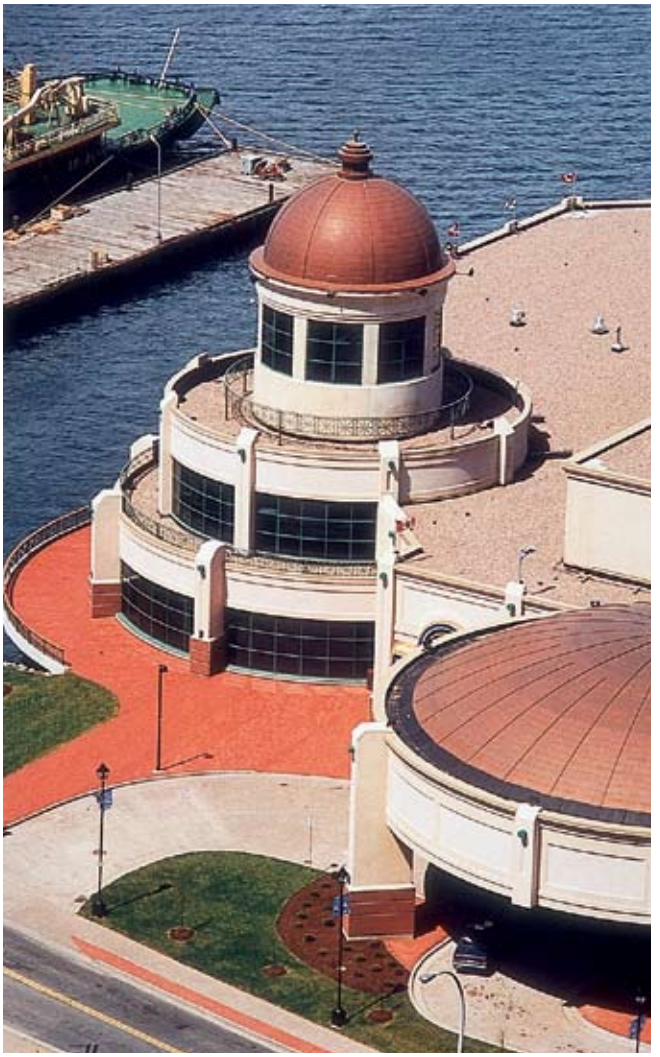
A weather-protected amphitheatre, located on the northeast corner of the sea walk, provides a covered and partially enclosed venue for live entertainment, such as "Buskers" and "Winterfest," on the waterfront.

Building materials and processes had to support the fast track construction process and design-build management utilized on this project. Longevity, economics, coastal climatic conditions and a site that projects over the harbor were equally important and initiated the extensive use of concrete throughout the building. Quality control, maintenance and tectonics made precast concrete panels and cast-in-place concrete the preferred material choice.

Projecting over the water created unique construction challenges. While 95,000 sq ft (9140 m^2) of the project is over land, the remaining 30,000 sq ft (2790 m^2) is over water. It is supported on over 2 miles (3.2 km) of concrete filled-steel covered caissons. These are driven to and socketed into solid bedrock in the harbor floor. Some of the caissons extend through as much as 70 ft (21.3 m) of sea water.

Doughnut shaped pile caps were cast on site and then set in place on top of the large caissons to support both the formwork used to construct the cast-in-place concrete main floor slab and the final concrete floor structure. The pile caps support a series of concrete girders, beams and structural slabs, which were all cast in place.

Serving several functions, the main floor slab was conceived as a mul-



tilayer system. Insulation had to be introduced into the floor system, one-third of which is directly over the harbor, to ensure the comfort of patrons within the complex. Designed and constructed to support heavy carts, known as mules, that travel between slot machines to collect change, this slab also contains hundreds of conduits and cables cast into the various layers of the floor system to provide heat, communication systems and to enable slot machines to be connected to main control panels.

Precast beige-toned concrete panels form the exterior cladding of the casino and the parking structure. Precast concrete is the preferred choice of material for the construction of the parking structure, where structural steel or even cast-in-place concrete cannot compare for longevity.

A complex structural steel back-up system provides support for the precast cladding. The support system for the precast cladding covering the towers proved to be a significant engineering challenge.

The massing and tectonics of the buildings blend with the existing architecture of the downtown core. These include the Sheraton Hotel and the adjacent Historic Properties. Designed as a series of precast beige-toned articulated columns with terra-cotta precast bases, the casino complex along with the timber covered sea walk is reminiscent of classical patterns found in this city and other cities of the Eastern Seaboard. Precast concrete ensures that the building fits seamlessly into the built environment inexpensively and elegantly.

Concrete used locally available materials and labor. This was crucial for this politically sensitive project. A significant amount of additional local employment was created while simultaneously controlling the cost of the project.

Concrete block walls were used extensively throughout the project for partition walls due to their inherent strength, sound insulation and fire separation characteristics.

Concrete in various forms enabled this complex project to be completed on schedule and on budget. Precast concrete cladding's inherent ability to withstand the salt-air environment better than any other economical building material will ensure longevity and low life cycle costs.

The total construction cost of the casino was $44 million (Canadian). The precast concrete contract for the parking structure was $5 million and the building exterior was $2.6 million (Canadian).

The project broke ground on January 28, 1998, with pile driving and other foundation work.

The precast concrete components were manufactured by Strescon Limited at their plant in Bedford, Nova Scotia. Mockups and fabrication of the first precast panels were started in November 1998, and after approval, the panels were shipped by truck-trailer to the project site – a distance of about 30 miles (48 km).

The first panels for the parking structure were erected starting in December 1998. The parking structure was completed by March 30, 1999. The precast concrete work for the casino property was started April 15, 1999, and completed by the end of August 1999. The facility was opened for business on April 24, 2000.

The owner and design-construction team are very pleased with the structure.

During the last couple of years, the Casino Nova Scotia has become increasingly popular with the area residents and tourists alike. Today, the facility stands as a major landmark.

CREDITS

Owner: Park Place Entertainment, Halifax, Nova Scotia

Architect: Lydon Lynch Architects, Halifax, Nova Scotia

Structural Engineer: BMR Structural Engineering, Halifax, Nova Scotia

General Contractor: J.W. Lindsays Ltd, Dartmouth, Nova Scotia

Precast Concrete Manufacturer: Strescon Limited, Bedford, Nova Scotia