

BURNABY LAKE ARENA AND AQUATIC COMPLEX

Burnaby, BC | Construction Phase

Role of the firm: Structural Engineer of Record

Area: 230,000 sq.ft. (21,368 sq.m.)

Budget: CAD \$187 million

Architect: hcma

Client: City of Burnaby

The Burnaby Lake Aquatic and Arena Facility offers a wide range of amenities for all community members. Along with the NHL-sized ice arena, the new facility will include the aquatic program featuring a ten-lane Olympic-sized pool with seating for 750 spectators, a leisure pool, a wellness zone, sauna, steam rooms and accessible, universal gender-specific change rooms. The project design draws inspiration from the captivating history of Burnaby Lake, a place of significance as an Indigenous fishing site and former wetland.

The structural system is configured to address the architectural concept with primary building volumes containing the main pools and the ice arena, spaced between secondary building volumes containing informal program elements such as leisure pools, change rooms, and social spaces. Openness and column-free transparency of the primary volumes are achieved by utilizing long-span custom fabricated steel girders, which are partially exposed and placed in a pattern to compliment the architectural uniqueness of the interior space. Secondary volumes are designed to 'float' between primary volumes without an additional vertical structure to provide a natural movement flow throughout the building.

The high level of seismic resiliency is achieved by incorporating steel bracing within the upper portion of the building and concrete shear walls within the lower portion of the building. Cast-in-place concrete construction was chosen for the lower portion of the building to accommodate pools, ice arena, mechanical and other service rooms due to material's inherent robustness and durability required for such spaces.

The Burnaby Lake Aquatic and Arena Facility is a shining example of energy efficiency, producing 80% fewer greenhouse gas emissions than a conventional building. It features sustainable elements such as a green roof, a rainwater harvesting system and energy-efficient mechanical and lighting systems. The facility encourages sustainable transportation through bicycle parking and access to public transit.

