BUILT ENVIRONMENT CASE STUDY

Pan Am Aquatic Centre, Field House and Canadian Sport Institute Ontario

Acoustical Design for a World-Class Aquatics Facility at the 2015 Pan Am and Parapan Am Games

VISION

A showpiece international competition venue where acoustics were mission-critical—broadcast-quality intelligibility in the pool halls, acoustic privacy across sensitive training spaces, and lasting acoustic comfort for the community facility in legacy mode.

PARTNERSHIP

Acoustical design services delivered as part of the Design-Build-Finance team, working alongside NORR and B+H Architects to integrate acoustic performance requirements across a complex, multi-venue facility on a compressed programme.

VALUE-ADD

Full-scope acoustic design encompassing speech intelligibility, sound isolation, environmental noise control, mechanical noise and vibration control, and structural vibration control—achieving all key performance requirements for a facility broadcast to an international audience.

CLIENT
Infrastructure Ontario / University of Toronto / City of Toronto

ARCHITECT OF RECORD
NORR

ARCHITECT
B+H Architects

GENERAL CONTRACTOR
PCL Construction

ACOUSTICAL DESIGN
Trinity Consultants Canada

The Toronto Pan Am Sports Centre at the University of Toronto Scarborough Campus was the largest new competition venue built for the Toronto 2015 Pan Am and Parapan Am Games. The $205-million facility, procured as a Design-Build-Finance project under Infrastructure Ontario, comprises the Pan Am Aquatic Centre, a Field House, and the Canadian Sport Institute Ontario. Designed to serve the Games while leaving a lasting legacy as a community athletic centre and elite training facility, it achieved LEED Silver certification and hosted diving, swimming, synchronised swimming, and fencing events that were broadcast internationally.

Trinity Consultants Canada completed the acoustical design of the facility as part of the Design-Build-Finance team. With large, highly reverberant pool halls, broadcast-quality performance requirements, and a range of sensitive training and office spaces, acoustic design was a central consideration from the outset.

Trinity Consultants
CANADA

VISION

Hosting the aquatic events of the 2015 Pan Am and Parapan Am Games placed the facility under international scrutiny. The pool halls needed to support clear public address and commentary in spaces that are inherently challenging acoustically—large volumes, hard reflective surfaces, and the ambient noise of water and crowds. At the same time, the facility was designed from the outset for a long legacy life as a community aquatic centre, University of Toronto athletic facility, and high-performance training centre. Acoustic performance had to serve both modes equally well.

The facility's programme added further acoustic complexity. Alongside the two 50-metre competition pools and a five-metre diving tank, the building houses a field house, fitness and training areas, and the Canadian Sport Institute Ontario—spaces with widely varying acoustic requirements that needed to be managed within a single building envelope. Structural vibration from pool equipment and mechanical systems added a further dimension to the acoustic challenge.

PARTNERSHIP

Trinity Consultants Canada was engaged as part of the Design-Build-Finance consortium alongside NORR and B+H Architects. Working within the constraints of a DBF delivery model, our team contributed acoustical design input from early in the project, when acoustic requirements could still meaningfully shape the building's structural and mechanical systems.

The broadcast requirements for the Games events placed particular demands on the acoustic design. Our team worked with the broader design team to ensure that speech intelligibility in the aquatic areas met the standards required for international broadcast coverage, while maintaining appropriate conditions for competition. The integration of acoustic requirements with the facility's LEED Silver sustainability goals required close coordination across disciplines.

VALUE-ADD

Interior acoustics in the large pool areas were a primary focus of our team's work. Achieving acceptable speech intelligibility in a space of this scale—with hard, reflective boundary surfaces and significant ambient noise from water, ventilation, and spectators—required careful selection and placement of sound-absorptive finishes alongside a coordinated approach to the public address system design. The result supported clear communication during competition events that were broadcast to an international audience.

Sound isolation and acoustic privacy were addressed across the facility's diverse programme. The adjacency of high-activity spaces such as pool halls, gymnasiums, and the field house with offices, training rooms, and the Canadian Sport Institute Ontario required systematic assessment and design of separating assemblies to ensure that activities in one area did not compromise those in another.

Environmental noise control addressed the facility's impact on the surrounding residential district, while mechanical noise and vibration control ensured that building systems did not degrade acoustic conditions in sensitive spaces. Structural vibration control was applied to spaces within the Canadian Sport Institute Ontario where vibration-sensitive activities required isolation from the broader building structure. Our team's work contributed to a facility that met all key acoustic performance requirements, supporting the success of the 2015 Pan Am and Parapan Am Games aquatic events and the facility's ongoing role as a landmark community and elite sport venue.

ABOUT TRINITY CONSULTANTS

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences, and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth, and capabilities to help clients achieve their goals across the natural and built environments.