CASE STUDY

Cornell Community Center Ontario

VIBRO-ACOUSTICS®
A Swegon Group company

SCOPE & SUCCESS

Vibro-Acoustics performed a **full system analysis** and supplied an **extensive Sil-Throw air distribution system, noise control and vibration isolation solutions** for an innovative community center in Ontario, Canada.

HIGHLIGHTS

> Draft-free air distribution system

> NC-40 criteria met

> High-quality architectural finish

> Full system analysis provided to the en

Improved Energy Efficiency
★★★★★

Improved Occupant Comfort
★★★★★

Project Risk Maximization
★★★★★

Noise Criteria
★★★★

OVERVIEW

Located alongside Markham-Stouffville Hospital in Ontario, the Cornell Community Centre & Library was developed as a central feature of a new dynamic healthcare campus.

Designed to meet LEED Silver Certification, this 129,000 sq.ft. building integrates an array of programs and innovative spaces to promote education, community, fitness, inclusion, and accessibility. The building incorporates a library, fitness center, a 13,057 sq.ft. gymnasium, indoor playground, therapy rooms, rehearsal hall, and a large 18,556 sq.ft. aquatic center comprised of three pools: a 25-meter, eight-lane competition pool, a leisure pool and a therapeutic pool.

ⓘ CHALLENGES

PROPER DISTRIBUTION OF AIR in occupied spaces is vital to comfort and energy consumption. If the air is distributed unevenly, occupants may experience varying temperature levels within different zones of the same room or space. Having the necessary supply and return air distribution system in place would also help prevent condensation from forming on windows in the winter.

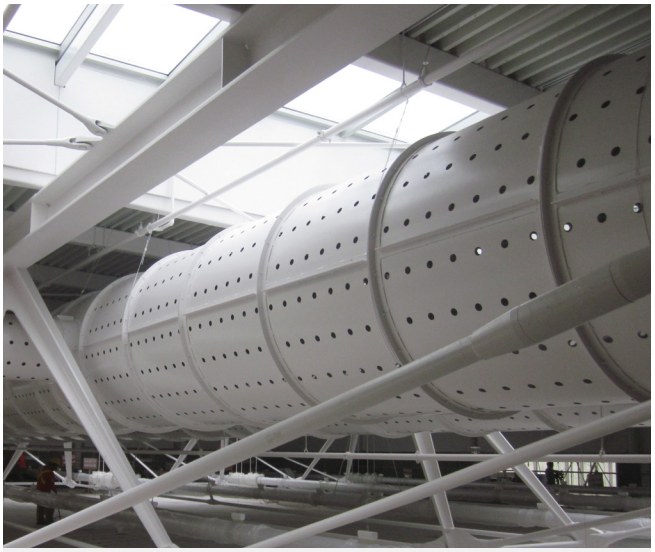
To ensure an even distribution of air in the gym, rehearsal hall, and aquatic center, an analysis was required and air distribution systems had to be specially designed. Along with the air distribution requirements, the noise criteria had to be met for each of the three areas. Aesthetics also had to be taken into consideration in this modern building since these systems, when installed, would be visible to occupants.

SOLUTION

Vibro-Acoustics' Sil-Throw air distribution system is designed to provide a steady draft-free flow of uniform, low-velocity air to maintain a constant thermal gradient in occupied spaces.

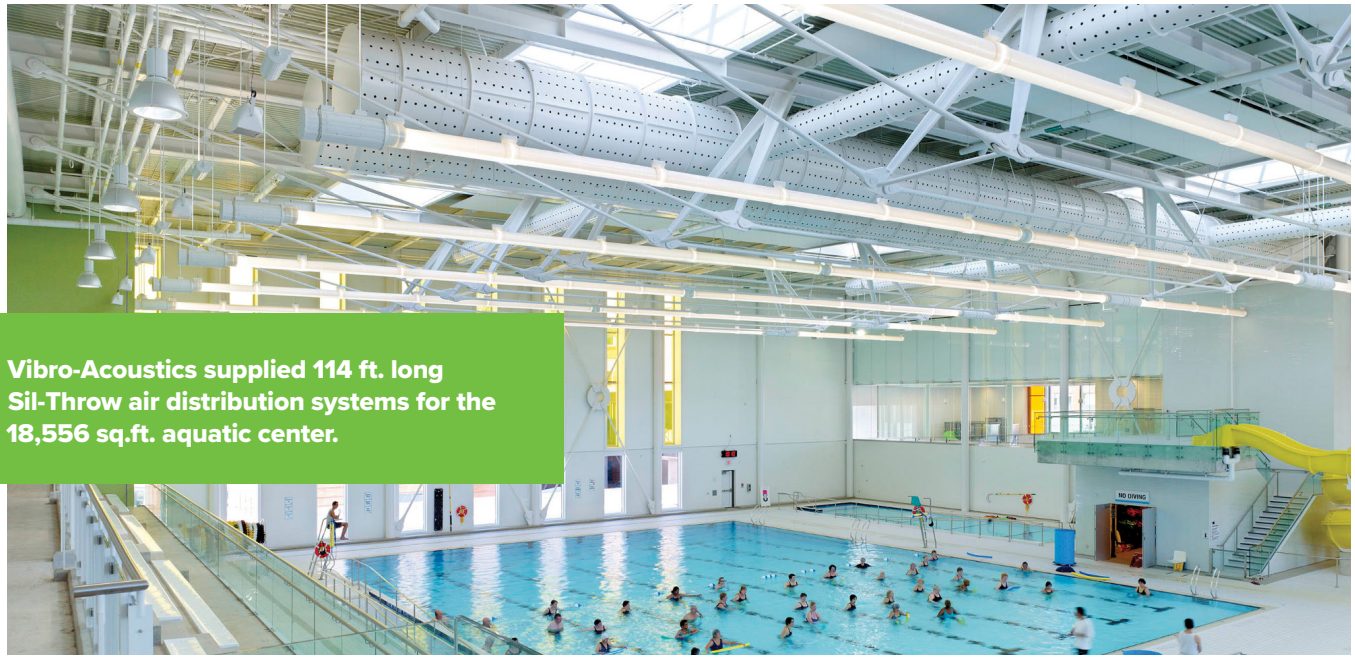
FOR THE CORNELL COMMUNITY CENTRE, Vibro-Acoustics performed a full system "Lay-in" analysis and a number of Sil-Throw systems were provided.

The largest Sil-Throw system supplied was for the aquatic center. This particular system consists of two large return systems, each with an overall length of 114 ft. and a diameter of 72 in., and one supply system of the same length and a diameter of 24 in. Fabricated from heavy gauge aluminum, all three systems were divided into 48 in. sections with mating flanges for installation. The size and number of holes – as well as the distance between them – were designed to reduce sound levels to meet the noise criteria of NC-40. Attached to each of the return systems are two auxiliary "duct tap" systems of 43 ft. to draw in air laterally. The entire pool return system was finished with a paint to match the aesthetics



of the aquatic center. In addition to the aquatic center, Vibro-Acoustics provided another eight straight Sil-Throw systems – four for the gymnasium and another four for the rehearsal hall.

Besides the Sil-Throw air distribution systems, Vibro-Acoustics also successfully addressed noise-vibration paths in the building by providing noise control and vibration isolation solutions. The Cornell Community Centre & Library opened its doors to the public in December 2012 and has since received numerous design awards.



Vibro-Acoustics supplied 114 ft. long Sil-Throw air distribution systems for the 18,556 sq.ft. aquatic center.