



# MaRS Centre – Phase 2

by Luigi Benetton

**T**oronto's MaRS Discovery District supports innovators as they commercialize intellectual property. Phase 2 of MaRS will complete the vision when it welcomes tenants in September 2013.

"Intellectual property is evaluated for its readiness to become the underlying logic of a business," says Dale Martin, senior advisor to the MaRS real estate group, "and MaRS brings the resources needed to convert it."

Those resources include space (like business incubators), capital (both in-house and external, from venture capital and banks,) and mentors (nearly 200 senior executives in various industries mentor new business owners as they start and grow businesses).

Phase 2's 800,000 square feet will bring total rentable space at MaRS to a total of about 1,500,000 square feet. "We had to double the amount of area in the existing MaRS buildings on approximately one-third of the site," says Patrick Fejér, partner with B+H Architects.



MaRS stands 20 storeys high, which is unique among typically lower-slung science buildings. "There's a higher-than-usual floor-to-floor height, which makes the common spaces grander while providing space for mechanical and electrical above," notes Aaron Yohnke, construction manager with PCL Constructors Canada Inc.

All of this space is purpose-built to accommodate everything from scientific activities to heavy computational uses to office space for businesses involved in innovation and science.

The District is populated by the University of Toronto, Ryerson University and nearby hospitals. (Originally, MaRS was a file name: Medical and Related Sciences. The scope of work done at MaRS has since expanded greatly.)

The project team is seeking LEED Gold certification for Phase 2. The location on bike-friendly roads in the downtown core certainly helps. The Queen's Park TTC subway station is so close that the team built a tunnel from the station to the building's concourse level.

The entire building is wired for real-time energy consumption monitoring. "We can make adjustments on an ongoing basis," says Martin. "There won't be commissioning, then a pause, then doing nothing until you recommission."

The interior allows for plenty of natural light penetration and LED lights illuminate the ground floor atrium and common areas. "Our lighting power consumption restriction is 1.2 watts per square foot," Martin says.

MaRS also uses downtown Toronto's Enwave's deep-lake water cooling and district steam heating systems. "The building has no chillers," notes James Hannaford, partner with The Mitchell Partnership Inc.

Science lab buildings are mechanically interesting. For instance, chemistry fume hoods must vent to the outdoors, "and they require very high hourly turnover," says Martin. "You need to bring the laboratory exhaust up to the roof and have it blown by high-velocity 'induction' fans (Martin calls these 'jet engines') way up into the atmosphere to meet environmental requirements for dispersing lab gases."

Traditional laboratory exhaust systems allow heat to be lost. To eliminate the need to reheat supply air, MaRS Phase 2 was designed as a "shell and core" building with base building systems to allow for zone level cooling and heating. "Laboratories are often required to maintain specific air exchange rates," Hannaford explains. "The hybrid heat recovery system employs a hydronic runaround loop to save energy traditionally lost through the lab exhaust system."

The team also took special care with water drainage. "We have a central acid neutralization system to deal with laboratory waste drainage before it hits city infrastructure," says Hannaford.

Mechanical equipment lives on P2 and the second and third floors, as well as the penthouse, while the P3 level contains fuel storage. "With a building which supports laboratories, there is a need to be able to run off generators for a longer than standard period of time," Yohnke states.

"The types of tenants that occupy this type of facility require larger amounts of power than those in a typical office building," says Bob Lymer, partner with Mulvey & Banani International Inc. In case of a power failure, "processes can continue and vital experiments are not lost," says Lymer, who looks beyond data processing to things like fridges and freezers "and other environments that need to be kept stable."

Phase 1 proved to be the prototype for Phase 2, which made the second phase easier to build. Better access for trucks from University Avenue, which borders the site to the west, also helped, as did the lack of a heritage restoration project like Phase 1's Evans Wing. Phase 2 encloses the Evans Wing's west wall in its atrium at the northeast corner of the lot, but it otherwise consists of new construction.

"We're looking at ways we can break down the massing of this building and not make it look so imposing," says Fejér. "Phase Two contains an east and west wing, two volumes that are fused together. The cladding system, the articulation of the skin, the curtain wall in particular used in the two volumes are differentiated."

"The west volume that fronts onto University Avenue has a series of recesses in which we used biotech-

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inspired ideas to come up with the cladding system. There's an inner low-iron glass skin that looks like a volume within a volume."

Exposed architectural steel in the atrium called for careful coordination with the architect to achieve desired esthetic goals. "The atrium roof is isolated from the existing heritage building using a sliding bearing connection so that the two buildings can move independently," says Eric Gordon, senior principal at Halcrow Yolles.

The project did suffer one major hiccup. MaRS broke ground in 2007 and will welcome its first tenants in September 2013, but due to economic difficulties, the then-development partner couldn't complete the project as originally agreed. "There was a pause from the fall of 2008 to early 2011 during which we had to raise money and rearrange our partnership to reflect the new reality," says Martin.

When the building was being designed, it didn't have any tenants so the team had to create a space that would work for a wide variety of users without much customization. "In a lab building, lab modules often define the grid," says Gordon. The team went with

a 9.6-metre flat-slab grid, 9.6 metres being a multiple of the typical 3.2-metre lab desk, "so you get your columns lining up nicely with your benches," Gordon adds. ■

#### LOCATION

MaRS Discovery District  
101 College Street  
Toronto, Ontario

#### OWNER/DEVELOPER

MaRS Discovery District

#### ARCHITECT

B+H Architects

#### GENERAL CONTRACTOR

PCL Constructors Canada Inc.

#### STRUCTURAL CONSULTANT

Halcrow Yolles

#### MECHANICAL CONSULTANT

The Mitchell Partnership Inc.

#### ELECTRICAL CONSULTANT

Mulvey & Banani International Inc.

#### LEED CONSULTANT

Halsall Associates Ltd.

#### ACOUSTICAL CONSULTANT

HGC Engineering

#### LANDSCAPE ARCHITECT

Quinn Design Associates

#### TOTAL AREA

800,000 square feet of office and lab space

#### TOTAL REDEVELOPMENT COST

\$344 million



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