

Toronto's RBC Centre will be the first triple-A office building in Canada to achieve LEED Gold NC status.

"We originally announced the project as Silver because we were conservative in calculating the LEED scorecard in terms of what we might be able to achieve," says Wayne Barwise, senior VP of office development for Cadillac Fairview, which owns the RBC Centre.

"LEED was becoming so important for leasing, for marketing purposes, that the higher the category the better," adds Stephen Herscovitch, senior associate with Bregman + Hamman Architects. "There wasn't a huge increase in construction costs to go that one extra step."

To attain Gold accreditation, the Centre boasts "the greatest number of sustainable elements we've seen in one place, especially a highrise," according to Greg Waugh, senior associate principal and project manager for architectural firm and RBC Centre design architects Kohn Pedersen Fox Associates.

Massive cisterns in the Centre's basement collect and store rainwater for use in toilets and urinals on the first 300,000 square feet of the building. Meanwhile, Enwave Deep Lake Water Cooling (Lake Ontario water) cools the building, reducing air conditioning costs to a tenth of what they would be using traditional systems.

Also untraditional is the building-wide under-floor air distribution system. "The supply air is delivered through occupant-adjustable flush floor diffusers," says Dermot Sweeny, principal with Sweeny Sterling Finlayson & Co. Architects, adding, "All occupants in the building thereby adjust their own temperature and flow of air."

Where occupants experience demand-based ventilation, building management will realize increased efficiency, according to Josh Chaiken, senior associate principal and senior designer for Kohn Pedersen Fox Associates Architects and Planners. "In a typical system, where the ducts are up above, you heat and cool areas that don't have to be heated or cooled," he says.

As well as ductwork, the 18-inch under-floor space also houses cabling for power, data and communications creating a "plug-and-play" environment. "It's a selling feature when it's easier to move people around an office," says Tõnu Altosaar, senior partner and managing director, Middle East for Bregmann + Hamann Architects.

The underfloor design also eliminates eyesores common to open-concept offices. "You don't see the PAC poles coming down from the ceiling," says Herscovitch.

Putting all this equipment under the floors eliminated the need for drop ceilings, and occupants can enjoy exposed concrete eleven feet, three inches above the floor. "The lights shine up onto the light-coloured concrete, which reflects light back to desk level," says Altosaar.

Creating light-coloured concrete ceilings to maximize light reflection posed a challenge. "Debris gathers on top of slab tables during assembly and the tying of rebar," says Darius Zaccak, construction manager for PCL Constructors Canada Inc. "We power-washed the plywood to ensure no latence was left behind from earlier concrete pours."

To trim energy bills, motion sensors turn off nearby lights if nobody is around. Another system adjusts light levels relative to what the sun provides during the day. "Photo cells on the roof track the sun and help control the automatic window blind system," says Herscovitch.

"Sunshade louvers on the exterior cut down glare," Barwise explains. "Also, the interior has retractable light shelves located at the nine-foot level of the curtain wall. They are about two feet wide, and on a grey day, they capture exterior light and reflect it further into the building."

"When light sensors detect a lot of glare, the light shelves automatically fold up into a vertical position, which eliminates two feet of glare coming in the top portion of the floor-to-ceiling windows."

Should there still be too much glare, the system rolls down blinds behind the light shelves, and lighting inside adjusts as well.

All 41 storeys feature a very efficient net to gross, maximizing the amount of leasable area. "On each cantilevered floor slab, columns are 15 feet inboard from the perimeter," Barwise says. "The glass curtain wall is unobstructed in terms of visibility and utilization at the perimeter."

Building to LEED specifications involves what Zaccak terms a "parallel process." He offers sedimentation control as an example. "To maintain strict control of contaminants during construction," he says, "we had to under-

stand what they were, put methods in place for controlling them, document the methods, share them with our consultants, have them reviewed and accepted, then document implementation throughout the construction process."

Given its size and location at a bustling downtown Toronto intersection, the Centre's builders took time while planning the project to collaborate with its future neighbours and the City. To accommodate heavy inflows and outflows of materials, "we had to create a traffic flow plan that works for everybody," Zaccak says.

The Centre shares a loading dock with its current neighbour, Simcoe Place, and the soon-to-be-built 53-storey Ritz-Carlton Hotel and private residences (which Cadillac Fairview is also developing). Loading facilities had to be initially enlarged, then moved at different phases of construction. "Even though it was a construction site, we had to ensure it would continue to operate for the existing building," says Barwise.

RBC Centre

by Luigi Benetton

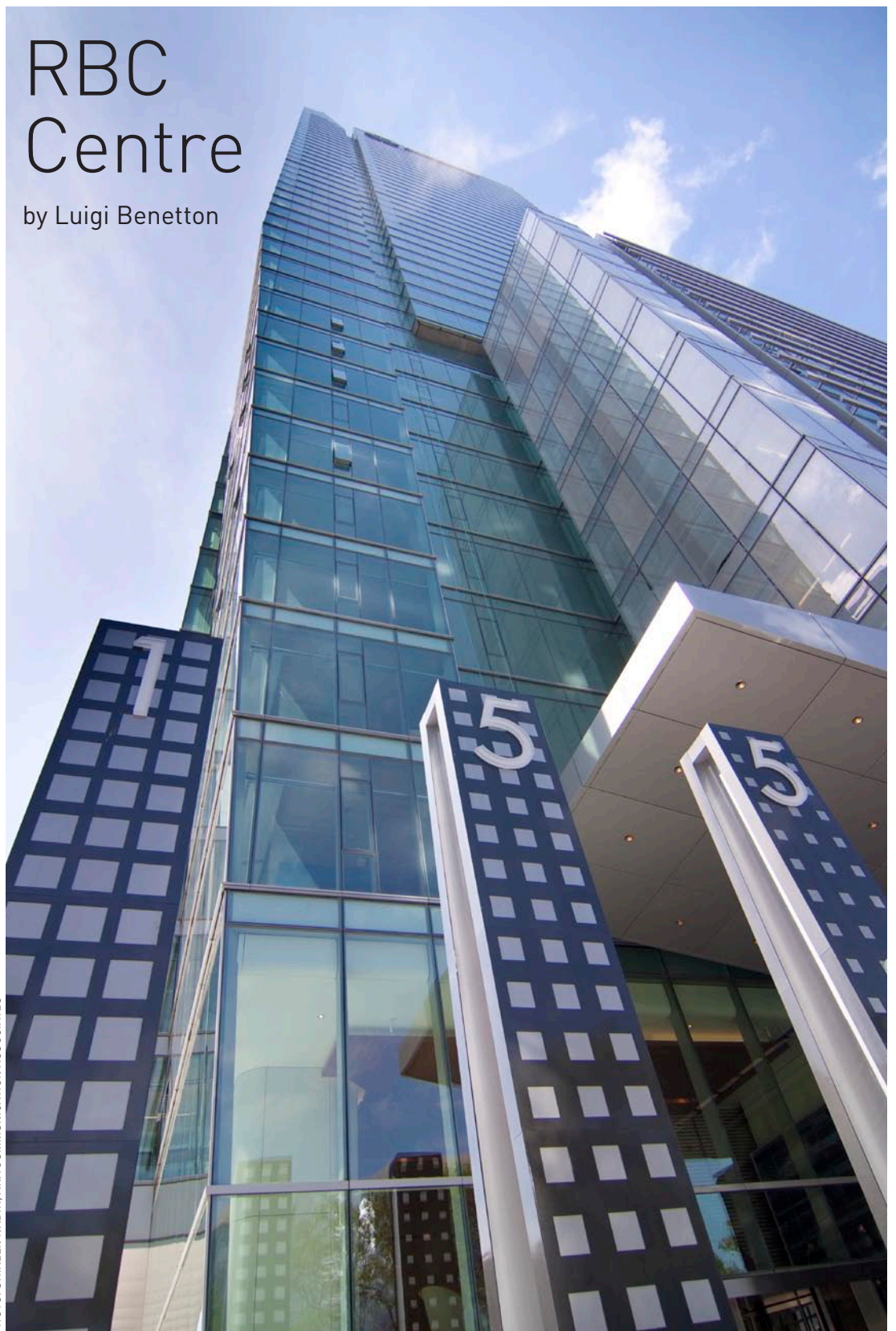


PHOTO: SHIREEN NADIR, AKA COMMUNICATION ASSOCIATES

“This is the largest project we’ve ever worked on,” says Jon Taylor, a partner at Govan Brown & Associates Ltd., the company performing the construction management and tenant general contracting for the move of RBC Dexia Investor Services Group into the RBC Centre. “It’s a large series of small jobs that we’re doing in phases, one step at a time. Working around the base building contractors and coordinating with all the activity on-site is a task, but we have well-trained staff who are focused on meeting the deadlines in

order to provide the business tenants with their new working space.” Govan Brown will be continuing work at the RBC Centre for the remainder of 2009.

Labour strikes in 2007, plus adverse weather during the winter of 2007-2008 caused scheduling concerns. “We lost close to two months,” Zaccak recalls. “We still met the original deadline under which the deal was made, to the day. Our first tenants moved in on June 1st, 2009.”

Chaiken expected another challenge: “when owners begin value



PHOTO: SHIREEN NADIR, AKA COMMUNICATION ASSOCIATES

LOCATION

155 Wellington Street West
Toronto, Ontario

OWNER/DEVELOPER

Cadillac Fairview Corporation

DESIGN ARCHITECT

Kohn Pedersen Fox Associates
Architects and Planners

DESIGN ARCHITECT/ADVOCACY AND COMPLIANCE ARCHITECT FOR RBC

Sweeny Sterling Finlayson & Co.
Architects Inc.

PRODUCTION ARCHITECT

Bregman + Hamann Architects

GENERAL CONTRACTOR

PCL Constructors Canada Inc.

TENANT GENERAL CONTRACTOR

Govan Brown & Associates Ltd.

STRUCTURAL CONSULTANT

Halcrow Yolles

MECHANICAL CONSULTANT

The Mitchell Partnership

ELECTRICAL CONSULTANT

Mulvey + Banani International
Consulting Engineers

LANDSCAPE ARCHITECT

Strybos Barron King Landscape
Architecture

TOTAL AREA

1.775 million square feet

TOTAL CONSTRUCTION COST

\$400 million

engineering – looking for places to save money on the building,” he recalls.

“PCL did a great job of estimating costs and keeping them under control,” he adds. “After the value engineering phase, much of what was important was left intact. Cadillac Fairview didn’t want to diminish design quality.”

Sweeny sees LEED as suffering from “underlying incorrect assumptions in the industry: green buildings cost more; change costs more; new ideas cost more.”

“Typically, for every dollar you spend on increased capital, you add 10 cents per square foot in rent,” he explains. “But here, the capital costs are competitive and the Centre boasts dramatically lower operating costs.”

“There are challenges in the marketplace right now,” Barwise admits, noting that 75 per cent of the building has been leased. “The top of the building, the best space available, is available to lease, so we’re confident that the remaining 25 per cent will be leased, but we anticipate that it will take a little longer than originally planned.”

But Barwise remains bullish. “The building will achieve energy savings of 40 to 50 per cent, so when economic times are tough, companies will cut back on costs to save money, and one way to do so is to move into a building with reduced operating costs.” ■

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