

From a downtown Toronto office building, the Archives of Ontario will soon move to a new home on the campus of Toronto's York University.

"This is a self-contained, purpose-built facility of the highest international archival standards, made to archive collections owned by the Province of Ontario," says Doug Rolfe, assistant vice president, project delivery for The Plenary Group (Canada) Ltd.

The upcoming three-storey Archives building will serve as a podium for York's new seven-storey research tower. The two buildings combined will add another 120,000 square feet of academic and research space to the campus.

York won the design-build-lease-back project in response to a Request for Proposal (RFP) from the Ontario Realty Corporation (ORC) with the help of its partners: The Plenary Group, Bregman + Hamann Architects and PCL Constructors Canada Inc.

A decisive factor in the win was a planned subway stop nearby. "It was in the province's best interest to align two infrastructure projects to get more bang for its buck," says Bud Purves, president of the York University Development Corporation.

"Archives are kind of funny," muses Douglas Birkenshaw, design partner with Bregman + Hamann Architects,

"in that they try to not let you see their stuff, yet still maintain accessibility."

Birkenshaw refers primarily to important government documents that the Archives must safeguard in perpetuity. Yet he notes that, "archives are trying to become public institutions that aren't used just by people who want to research their genealogy."

To accomplish the first objective, several records storage areas on the second and third floors will carefully maintain optimal temperature, humidity and light levels within to preserve the province's priceless collections of historically significant records.

Exterior windows on the second and third floors feature a ceramic frit to keep

sunlight from heating up the interior.

Even though part of the top floor meets the roof, "we created an interstitial space between the ceilings of the records storage areas and the roof to create a level-two environment around the level-one environments," Birkenshaw says. "The records storage areas never touch the outside so you don't have to deal with the onerous requirements" that would result if they did.

"This series of records storage areas, each one no larger than 2,000 square feet, are lined up side by side and on top of each other in the heart of the building," said Bill Nankivell, managing architect for Bregman +

York Research Tower, Archives of Ontario – York University

by Luigi Benetton



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Hamann. "If something happens in one, it doesn't affect the others," Birkenshaw explains.

The ground floor will be the public institution, where people can study in the reading room and view featured documents in a gallery.

Ontario's RFP stipulated both a modern archival facility and LEED Silver designation. The project may achieve up to 38 points, well above the 33 required for Silver.

Aside from the mandatory points, the team is focusing on the quality of the indoor environment. High-tech, clean HVAC systems will contribute points, as will the aggregation of all photocopiers in one externally ventilated room. Also, "we're making sure there are no VOCs in the furniture, paint or carpets," Purves says.

York expanded its stormwater pond to improve runoff from campus and installed a cistern under part of the Archives building for stormwater management and reuse. Most of the construction waste – up to 90 per cent according to Curtis Paddock, Construction Manager for PCL Constructors Canada Inc. – was sorted and diverted from landfill.

York will earn heat island points as well, thanks to a reflective roof that does not absorb heat, and shade

points from indigenous low-water-consumption plants included in the landscaping plan.

Cyclists will find bike lockers and showers in the building. And in several years, thousands of transit riders will no longer need to ride one of the 1,600 buses that roll through York's campus every day. The Toronto Transit Commission (TTC) will dig a subway stop next to the Archives building to link the campus to Toronto's rapid transit lines. "That will take a lot of diesel buses off the road," says Purves.

Design challenges emanated from the complexity of each of the parts, in addition to the core archival mission of the building. For instance, a requirement in the RFP bars the installation of bathrooms above archival records storage areas. "You put a tower over top of that and you can see you'll have some problems right away," says Birkenshaw. "All the layouts had to be dependent on each other even while they're moving around."

The proximity of the subway stop – the dig will come within a foot of the Archives and go down three storeys – required the extension of foundation piling to lower elevations to avoid having the building's

foundation undermined by the subway construction.

Sitting this close to a subway stop presents other challenges. "Our vibration consultant recommended placing insulation on the vertical face of the foundation then horizontally under the structural slab on grade to the south of the basement," says Paddock. "The insulation creates a shear plane that will dampen vibrations passing through the soil generated by the subway."

"One of the early challenges of the construction phase was an existing 1,500-millimetre storm and 450-millimetre sanitary sewer running through the centre of the building very close to a column line," says Paddock. "We deleted one row of piling and increased the size and number of piles on each of the adjacent column lines, then built an underground bridge structure for the length of the building to carry the building loads and protect the existing sewers."

The York team balked at traditional sprinkler systems within the records storage areas. They found a solution in an aerosol-type system commonly found on diesel ships but not yet approved for widespread use in Canadian buildings. "We had to get regulatory approvals to use it," says Birkenshaw.

The Archives and the research tower stand on the northeast corner of York Commons, a location that makes the building instantly iconic according to Nankivell. "It'll become like a public room to the subway and a terminus to the arcade that comes around the commons," says Birkenshaw. ■

OWNER/DEVELOPER

York University Development Corporation
The Plenary Group (Canada) Ltd.

ARCHITECT

Bregman + Hamann Architects

DESIGN-BUILD CONTRACTOR

PCL Constructors Canada Inc.

STRUCTURAL CONSULTANT/ SUSTAINABILITY CONSULTANT

Halsall Associates Limited

MECHANICAL/ELECTRICAL CONSULTANT

Smith and Andersen Consulting Engineering

LANDSCAPE ARCHITECT

Quinn Design Associates Inc.

TOTAL AREA

350,000 square feet

TOTAL CONSTRUCTION COST

\$100 million

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