



Winnipeg Int'l Opens New Terminal

By Jodi Richards

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Project: New Terminal

Location: Winnipeg James Armstrong Richardson International Airport

Cost: \$200 million

Grand Opening: Oct. 2011

Program Management Team: Parsons, Wardrop Engineering, Hanscomb, TRH

Prime Architect: Stantec Architecture

Master Architect: Pelli Clarke Pelli

Other Design Firms: Apple Designs, Earth Tech Canada, Marshall Macklin Monaghan, Unison Maximus

Construction Contractors: EllisDon Construction, Advance Pro, CIMC, IBM, Inter-Roller Engineering, Man-Shield Construction, McCain Electric, Mulder Construction, Nelson River Construction, Otis Elevators, SimplexGrinnell

Common-Use & Self-Service Systems: AirIT

ATP3 Printers, Boarding Pass/Baggage Tags: VidTroniX LLC

Automatic Vehicle Identification System: TransCore

Flight Information Display & Messaging Systems: AirIT

Audio/Visual Systems: Mulvey + Banani

Electrical Systems: SMS Engineering

Baggage Handling System: Pteris

Baggage Weight & Info System/Baggage Mgmt. & Reconciliation System: AirIT

Property & Revenue Mgmt. System: AirIT

When the new \$200 million terminal opens for service at Winnipeg James Armstrong Richardson International Airport (YWG) in late October, officials will also celebrate the end of the airport's six-year, \$585 million redevelopment program.

The redevelopment program kicked off in 2005 with construction of a new parking facility and continued in 2006 with a new roadway and infrastructure updates. The project moved airside with pavement upgrades in late 2006, and improvements to the central utility building began in late 2007.

A new terminal was necessary because of the existing facility's age and limited capacity, says Barry Rempel, president and CEO of the Winnipeg Airports Authority (WAA). The new 51,000-square-meter terminal provides Winnipeg what Rempel calls the "right size pipe."

"It's not too big, so it's a waste of money; but it's not so small that it's constricting our community's development in anyway," he explains.

According to Rempel, having a greenfield site for the terminal was a sizable advantage. "There aren't many airports that have the fortune that we have of really designing a new building from scratch," he relates.

Input from air carriers yielded a design that stresses flexibility to serve increased traffic, including a technology core that will accom-

modate future technologies without adding to the physical footprint of the building. Common-use check-in, gates and baggage handling systems will help save carriers money over the long term and increase the potential throughput of the terminal, Rempel explains.

Stantec Architecture based some of its design on the premise that more passengers will embrace self-service options in coming years. CUSS Kiosks (common-use, self-service) from AirIT, for instance, allow YWG passengers to tag their own bags. The new option eliminates the need for take-away belts normally found at check-in, notes Stanis Smith, senior vice president at Stantec.

Common-use technology for ticketing and check-in reduced the overall size of the new check-in area by 30%, reports Smith. "We were able to get a lot of space efficiencies out of the fact that technology has improved the whole check-in process," he explains. "Technology has made a big difference to space efficiencies and the cost of the terminal building."

The airport uses AirIT's EASE common-use system for airline ticketing and check-in. It also uses the company's CUSS Local Departure Control System. "YWG has a large percentage of seasonal air charter service," explains AirIT president and COO Chris Keller. "With our system, charter passengers enjoy the same self-service options as traditional airline passengers, which further increases throughput and decreases space requirements."



Barry Rempel

Concessions space was also revamped. Previously, retail and food/beverage options were shoehorned in before the security checkpoint, Rempel recalls. The new terminal has most of the concessions where passengers want them — post-security. Working with Paradies and SSP, the airport's two prime concessionaires, WAA developed a mix of internationally recognized brands and local offerings.

"It's about having the best possible mix of concessions, because that's an important part of our revenue base," he adds. According to Rempel, roughly one-third of WAA's revenue comes from air carriers; the rest is generated by parking, concessions and WAA's subsidiary companies.

Pipe Problem

The project encountered a setback toward the end of construction that delayed the terminal opening from late 2010 to October 2011. An "attentive engineer" discovered problems with some of the water/sewage pipes installed at the beginning of the project during a random check of building components, explains Rempel. "He saw one pipe that looked to be disconnected by looking through the portholes with his flashlight," he elaborates. After a series of additional examinations, crews had to dig underneath the building's basement to replace all of the affected pipes.

"We were very fortunate that this was found prior to a lot of the testing that we're doing today with commissioning," Rempel says, epitomizing a glass-half-full mindset.

Positive attitude aside, Rempel expects the project delay to be a matter of discussion for years to come. "The issue will be around liability in the end," he predicts.

At this stage, a dollar value regarding the delay has not yet been established, but Rempel expects that to be the subject of many meetings long after the building is open. In the end, it will boil down to "time is money," he relates. "At some point, there will be a determination — likely through arbitration."

Meanwhile, Rempel has already begun the post-project analysis. "We learned the incredible importance of communication and continuity of personnel as you are going through [a project]," he notes.

When construction began, he explains, demand for contractors within the region was "intense," and some started switching jobs. He consequently plans to "nail down an 'A team' from day one and have it intact until the end of future projects.

Despite the delay, Rempel says WAA has a building of which the community can be extremely proud. "It is innovative, but fiscally responsible as well," he specifies, referring to the terminal's ability to meet future demand without expanding its physical footprint.

The new terminal will serve up to 5 million passengers without any difficulty, he relates. Currently, YWG serves about 3.5 million total passengers.

LEEDing Canada

Sustainability was key in the design and construction of the new facility, Rempel says. As a result, WAA's new terminal is the first Leadership in Energy and Environmental Design (LEED)-registered terminal in Canada.

"Everything that we (the airport authority) do has to be in line with our vision and mission values," Rempel notes. In retrospect, he realizes that he came to appreciate the benefits of green technologies in a back-door manner: "When we entered this, we said that we wanted to be sustainable, but in a fiscally prudent manner. And one of the things that surprised me the most is how quickly green technologies pay back."

Rempel credits the designers, architects and engineers with constantly "pushing the envelope" to make sure the author-

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ity understood the full potential of green technology. The program management team was comprised of Parsons, Wardrop Engineering, Hanscomb and TRH. Stantec Architecture served as the prime architect and Pelli Clarke Pelli as master architect.

"In simple terms, it's all about doing more with less," Smith says. "It's about making sure that the buildings are more energy efficient, that they use materials that come from renewable sources and making sure that the materials we choose do not have any kind of contaminants or pollutants. Basically, it's designing in a responsible fashion."

In-floor radiant heating and a heat recapture mechanism are just two of the green technologies included to save both the authority and its customers money. When combined, the design features will make the new, multi-level terminal less expensive to heat than the former smaller facility, notes Rempel.

Sustainability Features at Winnipeg Int'l

- 97% of the building's steel is from recycled materials.
- Aggregate from an old runway was used in the base of the new terminal.
- Water-conserving plumbing fixtures are expected to reduce the use of potable water by 30%.
- Energy-efficient HVAC, hot water tanks and interior lighting were designed to reduce energy consumption 25%.
- Wastewater technologies to reduce the design energy cost by 18% were installed.
- Parsons' waste management plan diverted construction, demolition and land-clearing debris from landfill disposal — into recycling facilities when possible.
- WAA negotiated a plan with Winnipeg Transit to expand and extend transit service to the terminal to help reduce pollution and other negative impacts of automobile use.
- Native grasses and plants were used for landscaping to reduce maintenance costs and the use of pesticides and herbicides.
- At least 7.5% of the overall building materials were products with recycled content.
- 10% of the overall building materials were extracted, processed and/or manufactured within 500 miles of the project site.
- Green cleaning products and procedures are used.
- The terminal facade includes a high-performance exterior envelope.
- Displacement ventilation decreases the volume of air that requires heating or conditioning.
- Large roof overhangs and suncreening on the outside of the glass reduce heat gain.

Open Design & Communication

Rempel describes the new 51,000-square-meter terminal as open, transparent and intuitive, with an "incredible use of natural light." Thanks to its northern face, the terminal benefits from bright days, but indirect light.

Smith cites visibility as a key design concept that makes the terminal intuitive and easy to navigate. The layout provides passengers with views of the gates from the check-in area, and arrival and departure levels are interconnected with a central atrium. "You can easily understand how the terminal works standing anywhere in the terminal," he explains. "You can sort of see all of the different arriving and departing passenger flows."

Just as Stantec built open design features into the terminal, Rempel built open communication with the community and airport customers into the design and construction process. "We let them know where we were at so they would have a comfort that we were proceeding in the right way," he explains.


Continued Growth


The airport authority plans to deconstruct the old terminal shortly after the new one is commissioned. And while there are no immedi-

ate plans for the site, it offers future revenue potential. With about 800 acres of developable land remaining at the airport, WAA is considering its best use, explains Rempel.

"A lot of what we do out here is about how can we leverage our existing assets in a way that grows or benefits our community," he continues. In the last several years, the airport site has become home to the new Western Canada Aviation Museum and facilities for Canada Post and Greyhound Bus. In addition, a new hotel is currently under construction.

The new tenants help build critical mass for restaurants, hotels and other services at the airport, Rempel notes. In turn, he explains, the airport needs to provide more meeting space and other services as Winnipeg becomes more known as an "airport city."

According to project officials, airport redevelopment initiatives provided \$300 million in wages and more than \$1 billion in economic output for the community. 

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