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City of Calgary, Alberta
Population: 988,193



THE CITY OF
CALGARY



The Calgary Public Building, soon after its construction in 1929
Credit: Glenbow Museum

Renovation of the historic Calgary Public Building

Summary

The 79-year-old Calgary Public Building required extensive renovation to continue as a home for the performing arts and a healthy workplace for City of Calgary staff.

In 2008, the City of Calgary began upgrades to the heating, cooling and electrical systems. Six of the building's eight floors were "re-skinned" — insulation was added to the inside walls along with a second layer of high-performance windows. The goal was to improve both energy efficiency in the building and the health and safety of more than 300 City of Calgary employees.

The renovation has preserved the exterior of an historic building in the downtown core, lowered operating costs by 46 per cent, and reduced greenhouse gas emissions by 54 per cent. The city has achieved LEED® Gold certification and is awaiting the results of its application for LEED Platinum certification for Commercial Interiors.

Background

The Public Building was commissioned by the federal government as a home for the post office and other federal departments just before the Great Depression. Located in the heart of downtown Calgary, the building features an exterior of Tyndall limestone and massive Ionic columns on two sides. When the city bought the building in 1979, it became the home of the Jack Singer Concert Hall, part of the Calgary Centre for the Performing Arts.

In 1996, the Calgary Public Building was protected as a municipal historic resource. By choosing to renovate and upgrade this "grande dame", instead of demolishing and building anew, the city preserved a heritage landmark in the downtown core for future generations.

The decision to renovate found support in the Centre City Plan, a framework for making Calgary's core a thriving, caring, and livable space. Approved by City Council in May 2007, this plan encouraged city officials to think creatively about how to succeed at both exterior preservation and interior upgrades to the Public Building. The Calgary Heritage Authority, an arms-length group that advises City Council and officials on heritage designations and renovations, also supported the Public Building renovation.

Project development

From October 2007 to April 2008, studies by the city's Corporate Properties and Buildings unit showed that the cost to renovate the Public Building would be less than the cost of constructing a new building of the same size and quality. As a result, Calgary City Council approved \$21.2 million for renovation of the six city-occupied floors in the building. The project also qualified for and received \$4 million from the Canada-Alberta Municipal Rural Infrastructure Fund; setting the stage for packages of work to be tendered throughout 2008. A plan to remove asbestos from walls and ceilings was developed early in the project.

A new process model, developed over a two-year period by Corporate Properties and Buildings, was used to manage the Calgary Public Building renovation. This project management tool's main job was to connect and track the roles of all city departments and external stakeholders.

Calgary's booming economy of 2006–2007 had cooled down by early 2008, thanks in part to the recession. Demand for skilled trades was down and, with less work generally available in the marketplace, the city benefitted in two ways: pricing was competitive and contractors were available to begin work right away.

Project implementation

Since the city decided it was not feasible to relocate 324 employees and the performing arts centre during the renovation, scheduling became a major preoccupation. Office workers occupied the building from 8 a.m. to 5 p.m. on weekdays, and the performing arts hall was in use most evenings from 7 to 10 p.m. Because the building had only one entrance located on a busy downtown street, all deliveries and certain kinds of work had to happen after 10 p.m. and before 6 a.m.

Communication with users of the building also became a priority. The city's Intranet site helped to keep workers informed, while posters at the building's entrance and regular e-mails kept the performing arts section up to date. Because public interest in the project was high, a page on the city's website was created to field questions and provide information.

The building's exterior masonry and original windows are heritage features that the project team needed to maintain. The "re-skinning" to improve energy efficiency began January 2009, and involved insulating the building on the inside and adding a second layer of high-performance windows. Remediation work on the asbestos also began in January 2009 and continued, on a floor-by-floor basis, until December 2010.

To launch the Calgary Public Building into the 21st century, its heating, electrical and plumbing systems, and communications wiring had to be funneled up its central core. The goal was to have all mechanical systems in this central location, rather than on the periphery of the building or in ceiling spaces.

The building's natural gas heating and cooling system was replaced by a heat exchanger that will eventually be connected to Calgary's downtown district energy system. Winter heat will still be delivered by the building's original hot water radiators, which were scaled to clean out internal corrosion. Summer cooling will be delivered by chilled beams installed in the ceilings of each floor. The cold air falls to the space below without air-flow vents and creates a quiet atmosphere in work areas.

As part of the mechanical upgrades, a building management system (BMS) was installed. It ties into an existing BMS in the Calgary Municipal Building, one block away, and allows for system monitoring at all times. The building upgrades also provided separate meters to track electrical use by different occupancy groups.

The renovation sought to use natural lighting as much as possible. Offices on all but the sixth floor are located along the outer walls of the building. Low-energy lighting and occupancy sensors were installed throughout the building. On the building's top floor, a false ceiling hid six massive (3.6 x 1.8 metres) skylights. These windows were in good condition, so workers cleaned them up and reinstalled them to full operation.

The building's three brass elevators, which still have human operators, are both functional and charming. In fact, the operators were pressed into service as on-site messengers during the renovation.

The project team and the city's senior heritage planner, who was also a member of the renovation team, chose the sixth floor to showcase the building's past. Terrazzo flooring, radiators, lighting fixtures, furniture, and bathroom fixtures salvaged from other floors were preserved in a modern working space. Only limited tours of the floor will be possible since staff offices occupy the space.

With renovations to two floors complete by the end of 2010, the project team has already had feedback from building occupants, who describe their satisfaction with the new windows, lighting, and heating. A full survey will be done when the renovation is complete.

Results

- 54 per cent reduction in greenhouse gas emissions
- 46 per cent reduction in operating costs
- 45 per cent reduction in water use due to low-flow toilets and automatic faucets
- 50 per cent diversion of construction waste from landfill sites
- 60 per cent of hot water is supplied by evacuated glass tube technology (solar powered)
- Heat for the building will be supplied through Calgary's downtown district energy system (DES) once the DES lines are extended to the building (expected in 2011)
- All windows in the building open and close
- The project has the points required to achieve LEED Gold certification for Commercial Interiors and has applied for Platinum certification
- The renovation won the 2010 Calgary Heritage Authority's Lion Award in the building restoration category

Lessons learned

- HIND SIGHT IS 20/20. "One thing I would have done differently is that I would have emptied the building out," says Darrel Bell, manager of building infrastructure. "It would have sped up the process and we would have gotten more value for our dollars." Because the building was occupied, the project team had to spend time and money communicating scheduling to people using the building; and with work and deliveries taking place overnight, costs increased. "We burned a lot of midnight oil."
- YOU NEVER KNOW WHAT YOU'LL FIND UNTIL YOU OPEN IT UP. "There were lots of changes to the project as we went along. The challenges we faced were multiplied many times over because of the age of the building."
- CREATE AN INTEGRATED DESIGN PROCESS. "This is a pretty common practice these days and we had the ability to use a new project management tool we'd just developed." The lead department worked with many other municipal units and outside contractors. It was crucial to keep track of everyone's roles and responsibilities.
- LOOK AT THE BIG PICTURE. "It's very important to take into account the needs of end users, system operators, in fact everyone who plays a role during the process," he said.

Related and future initiatives

By March 31, 2011, the six floors of the Public Building occupied by City of Calgary staff will have been renovated. A new group of employees will move in, increasing the number of workers in the building to 420 from 324 before the renovation began.

Partners and collaboration

For the City of Calgary:

Corporate Properties and Buildings

Corporate Security

Information Technology

Environmental Management

Senior Heritage Planner

Buildings Regulations

Canada-Alberta Municipal Rural Infrastructure Fund

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Visit www.calgary.ca and search for “public building renovation”