



Vancouver Convention Centre West Sustainability Consulting and LEED Platinum Project Management

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SUMMARY

Aiming to become the world's most sustainable convention centre, Vancouver Convention Centre engaged WSP to provide strategic sustainability consulting and project management of their pursuit of LEED for Existing Buildings. The West building voluntarily registered under the newest, most stringent version of the standard – LEED version 4, and achieved the highest award level, Platinum, making it the world's first double LEED Platinum convention centre, and Canada's first LEED Platinum existing building certified under version 4.

PROJECT HIGHLIGHTS

INNOVATION

With the ambitious goal of being the most sustainable convention centre in the world, Vancouver Convention Centre and BC Pavilion Corporation (PavCo) engaged WSP to pursue LEED for Existing Buildings: Operations and Maintenance (LEED-EB) to the highest award level, Platinum, for the West building, and voluntarily registered under the newest version of the standard – LEED v4.

Since 2014, WSP provided technical consulting services and project management for the LEED pursuit, including strategy, implementation, performance verification and application preparation. WSP created a cohesive and balanced strategy that addressed everything from conference attendees' nutrition to the maintenance and monitoring of the adjacent restored marine habitat, by establishing new environmentally sensitive policies and practices, and optimizing existing equipment.



Having achieved LEED certification for New Construction in 2010, and now LEED-EB, the West building is the world's only Double LEED Platinum convention centre. It is also the first Canadian LEED-EB v4 Platinum certified building, achieving 87 of 110 available points (Platinum requires 80). For many of the credits, the building surpassed the maximum threshold, earning additional points for 'exemplary performance'. The strategy also did not shy away from more challenging credits which are not typically pursued, such as purchasing and waste diversion requirements for renovation projects.

While the LEED rating system is well known for New Construction, the LEED-EB version is completely different focusing on the operation phase of the facility. Further, version 4 of the rating system is intentionally designed to raise the bar beyond current sustainable practices with more stringent criteria. LEED-EB is performance based and demands analysis of actual (not modelled) energy, water and waste data, and relies on supporting documentation such as invoices and cutsheets to demonstrate performance. Adherence to the required policies and practices is strict, and significant evidence is required to support claims made for credit achievement. The rating system is typically applied to commercial office buildings, meaning that additional work arounds and problem solving were required to meet the desired objectives.

This project boasts significant social, environmental, and economic benefits which required coordination of a collaborative team. While traditionally the role of an engineer has been to design to specific, predefined criteria, this project is an exemplary case of how that role is changing as technical systems become more integrated and complex, creating a need for an integrated team of technical professionals who are able to work together to define targets which meet the client's overall objective.



COMPLEXITY

This project required an unusual approach due to the complexity of the building, atypical building systems, and new and ambitious LEED version. At the time of the application, only two buildings in Canada were certified under LEED-EB v4, and both were commercial office buildings.

The building contains advanced HVAC controls, chillers that provide both heating and cooling, seawater cooling, blackwater treatment, and the largest non-industrial green roof in North America. Typical LEED policies and practices were therefore insufficient. To create the strategy for LEED pursuit, the project team used various adaptations to the rating system to meet credit requirements and intent with atypical heating, cooling, plumbing, and roofing systems (among others), and with a fluctuating, sometimes exceedingly large, transient building population.

A significant challenge during this project was the high level of coordination required to establish and maintain the required policies, documentation tracking, and execute the required audits for a high number of targeted LEED credits. While a typical LEED Gold certification would include a team of 1-2 on-site contacts and up to three sub-consultants, the complexity and size of this building meant more staff were involved on the owner's side as well as more auditors, surveyors, service contractors, the Province of BC, green building councils, and industry experts – making up a team of more than 25 parties.

To mitigate risk related to the atypical project attributes mentioned above WSP implemented proactive project management solutions including an intensive internal Peer Review process, training, and regular meetings and status reporting.

SOCIAL AND/OR ECONOMIC BENEFITS

The project's success has a positive impact not only for the Convention Centre, but also the City of Vancouver, conference delegates, visitors and the environment. Located in one of the City's most prominent waterfront locations, the Convention Centre hosts more than 550 events each year, with hundreds of thousands of visitors annually.

Since receiving the LEED-EB Platinum Certification, the Convention Centre has reported an increase in bookings, attracting global clientele providing significant economic benefits for Canada and the Vancouver region.

The project also includes an occupant engagement program specifically to promote knowledge and awareness for environmental sustainability and health. The program includes key performance indicators such as energy, waste, and water consumption data, along with suggestions for improving sustainable and healthy practices both at work and at home. This information is relayed through three mechanisms:

- Over 120 public tours of the building that provide details on the sustainable features and practices delivered annually.
- Dynamic educational signage program that can be seen on over 70 electronic screens throughout the facility.
- Posts on the facilities website.

The Convention Centre achieved the World Obesity Federation's Healthy Venue Certification, making it the first in the Americas (2nd in the world). The strategy included 3 main items: incorporating healthy catering into all events, promoting activity throughout its hosted events and providing a healthy workplace. This certification was used as an innovation point in the LEED-EB application.

Further, the project focusses on improving occupant health through an indoor air quality management plan and material procurement policies.



ENVIRONMENTAL BENEFITS

Designed and constructed as a focal point for the city, the unique design has led it to be one of Vancouver's most iconic buildings. Because the building is so well-known, its practices set the tone for the City's international reputation and within the region.

This project has significant environmental benefits and resulted in the following measurable impacts:

- Optimizing energy efficiency to consume 44% less than the average convention centre in Canada
- Reducing indoor potable water consumption by 37.7%
- Cultivating hives of 60,000 honeybees who pollinate surrounding habitats and provide honey for the kitchen
- Improving waste diversion to 86% through tenant engagement
- 93% of renovation waste diverted from landfill
- 100% of renovation products, materials, and furniture purchases meeting LEED sustainability criteria
- 92% of staff and visitors using alternative transportation methods to reach the building

In addition, the project includes many features which can be seen as a net positive on the environment including increasing biodiversity through the restored meadow habitat on the roof, and restored marine habitat in the adjacent harbor. For example, examination of the meadow habitat revealed the presence of pollinator species which have not been found in BC since 1932, and salmonids have been observed returning to the restored marine habitat.

This project helped the Convention Centre walk the talk when it comes to sustainability, greening not only the building itself, but also the operations and maintenance practices employed there, demonstrated by hard evidence of actual environmental performance.



MEETING CLIENT'S NEEDS

WSP implemented project management processes to mitigate risk, manage the client's budget and schedule, and ultimately help exceed their goals.

Due to the newer rating system and building complexity, a higher buffer of six points was recommended by the WSP team. In practice, the project achieved seven more than is required for LEED Platinum. For several credits, WSP not only assisted with the strategy to comply with requirements, but also aided with additional tracking and quality control to support operations personnel in navigating the new policy requirements. WSP conducted training of the client operations' team on compliant documentation for ongoing tracking, maintaining energy performance, and occupant education programming. We also liaised with the CaGBC and the USGBC to smooth the path for the final application, addressing concerns related to the uniqueness of the project.

The project was implemented 7% below the budget provided in WSP's 2014 feasibility study. Due to changes in the client's timeline, the submission and review of the LEED application was expedited. The project was successfully completed on a timeline six months shorter than the initial schedule.

The Convention Centre West is currently the only Double Platinum convention centre in the world. WSP also helped the building to achieve the 2017 Excellence in Green Building – Existing Building CaGBC award, and in 2018 the ACEC BC Award of Excellence. These achievements could not have been realized without a technically sound strategy, integrated with all building operations and maintenance systems, and careful management of targets and policy adherence.



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