



2018 CANADIAN CONSULTING
ENGINEERING AWARDS

North Island Hospitals Project

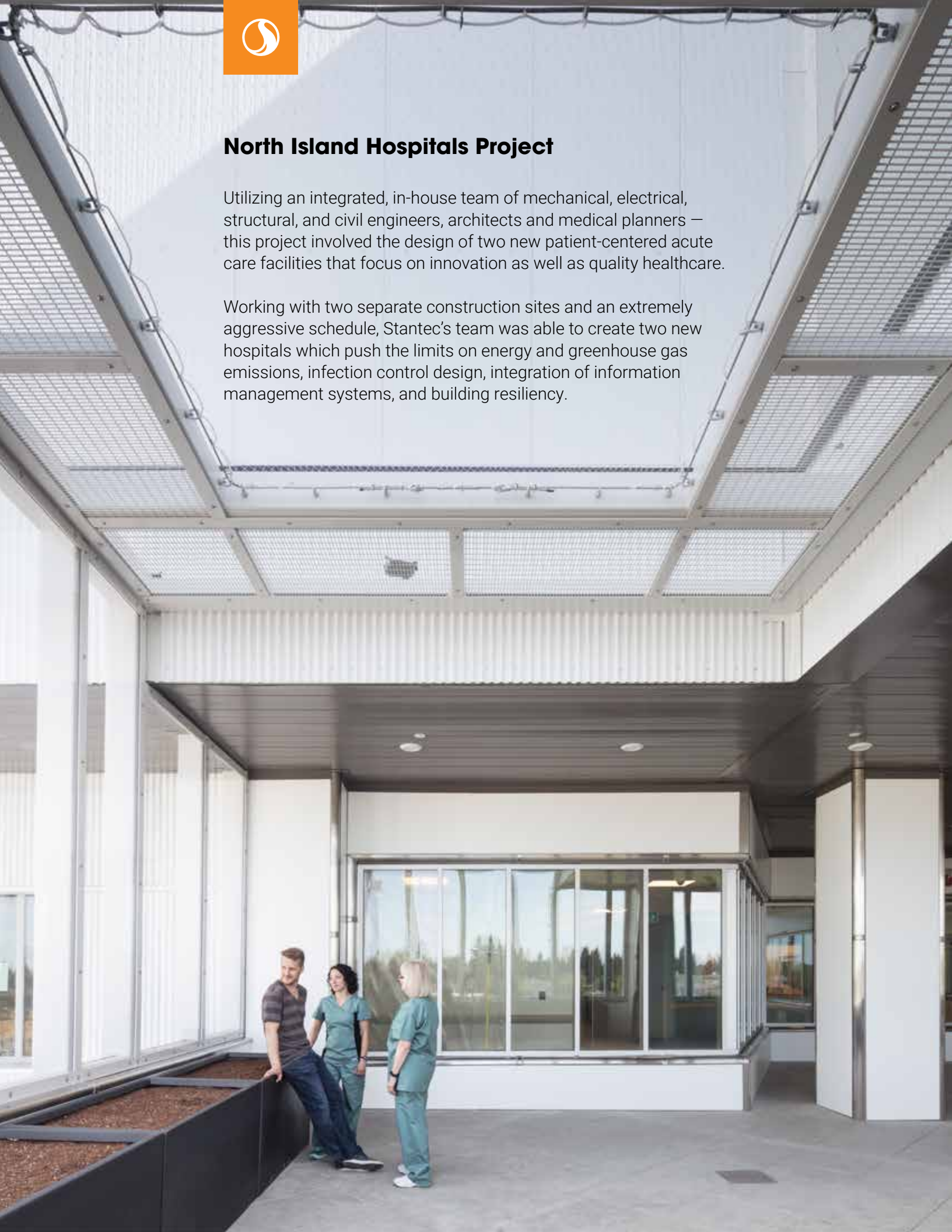
Category A - Buildings



North Island Hospitals Project

Utilizing an integrated, in-house team of mechanical, electrical, structural, and civil engineers, architects and medical planners — this project involved the design of two new patient-centered acute care facilities that focus on innovation as well as quality healthcare.

Working with two separate construction sites and an extremely aggressive schedule, Stantec's team was able to create two new hospitals which push the limits on energy and greenhouse gas emissions, infection control design, integration of information management systems, and building resiliency.



Project Highlights

Q.1 INNOVATION

The North Island Hospitals Project was a \$606 million public, private, partnership (P3) comprised of two new hospitals: a new 153-bed hospital in the Comox Valley, and a 95-bed hospital in Campbell River. With only 36 months to go from project award, through user group consultations, detailed design, all of construction, and commissioning, our integrated project team developed and implemented leading edge design and construction technologies, all the while matching an aggressive schedule. Many of the solutions and strategies used in this project are now creating new best-practice standards at Stantec and in the industry.

Key accomplishments of the project include a high level of First Nations consultation along with intensive integration of multiple information management and information technology systems for innovative building information modelling and prefabrication. We also employed a first-of-its-kind negative air ducting system to help reduce hospital acquired infections. Energy recovery systems spurred by the client's aggressive energy and greenhouse gas emissions targets were also an important feature of our design.

Attractively situated within their respective communities, today both the new hospitals provide state of the art care environments that inspire relaxation and healing.



33

Number of different information management and information **technology** systems that were integrated together to create a 'Smart Hospital'.





2,000 m³

Volume of water stored on site at Comox in order to attenuate the 100 year storm.

One of the typical winter days on site, illustrating the challenging weather conditions

Q.2 COMPLEXITY

For many of the engineers and designers (even for the most seasoned team members), this was one of the most complex projects they had ever faced in their careers.

The modern clinical design component of the project offers a great snapshot of the complexity of the project. The clinical design required a high level of information management and information technology integration. Our team was tasked with integrating a subset of systems that included security (access control, intrusion and surveillance), audio/visual, public address and intercom, nurse call, a real-time locating system, a distributed antenna system, infant abduction and patient wandering systems, a structured cabling and fiber-optic system and a lighting system.

Overall, there were a total of 33 systems that required integration on each site.

To further add to the complexity, many of these systems had never been integrated before, so new protocols and ideas were required to make it all work.

Weather was a major hindrance on both sites. Due to thick fog and high winds, we were unable to use cranes for significant periods on the project. Heavy rains also created thick mud and on the sites, which made moving materials and equipment difficult. Through the use of pre-fabrication, much of the time lost due to bad weather was fortunately made up for in the fit-out stages.



Q.3 SOCIAL AND/OR ECONOMIC BENEFITS

By working closely with and soliciting feedback from the Aboriginal Working Group, and by collaborating with the Infection Control and Prevention group and clinicians, our engineers were able to demonstrate that they can contribute within more than just the traditional responsibilities of engineering. We were able to make a direct and tangible contribution to the community, which we witnessed closely as the two hospitals came to life over the 36 months.



Q.4 ENVIRONMENTAL BENEFITS

Through the accomplishment of aggressive energy and GHG targets, delivering of the project on budget, and the high level of community engagement during design, the project proved to be largely beneficial on all three levels of the triple bottom line.

This project is targeting LEED® Gold under the relatively new LEED® for Healthcare rating system. The energy efficiency of these buildings is approximately twice that of the current average acute care hospital in British Columbia.

Q.5 MEETING CLIENT'S NEEDS

First and foremost, since both facilities would be located in the traditional territories of the K'ómoks, We Wai Kai and Wei Wai Kum First Nations, a significant objective of the project was to ensure that the new facilities reflected the Vancouver Island First Nations and Métis cultures, and that the hospitals included culturally appropriate design features.

Modern clinical design was a second objective. Both facilities were required to be technologically on par with health facilities across the world. Our engineering teams were challenged with reducing the spread of infections and with designing systems that met the client's ambitious energy and greenhouse gas consumption and emissions limits. This involved a total energy consumption limit of

approximately 250 kWh/m²/yr and a GHG limit of approximately 380 Tonnes of CO₂ equivalent per year. To put that in context, this target was about half of the average energy consumption of existing acute care hospitals in British Columbia, and was a 27% reduction on their GHG emissions. The client also had the foresight to request a better solution to accommodate dust control in future renovations.

Emergency preparedness was also of key importance. We had to ensure that the hospitals had appropriate levels of resiliency, and redundancy. At the same time, the project had a fixed budget and a limited amount of resources, so the team had to turn to innovative solutions and critical thinking.



248 Inpatient beds

10 Operating Theaters, 27 Isolation rooms, 4 Trauma Rooms, 2 MRI suites, 2 Laboratories & Pharmacies, 2 Morgue & Autopsy Suites, 2 Medical Device Reprocessing Departments, 4 Gyms, 4 Commercial Kitchens, 10 Elevators and 2 Helipads







