



2019 CANADIAN CONSULTING
ENGINEERING AWARDS

Gary W. Harris Canada Games Centre

Category : Buildings



Project Summary

The Gary W. Harris Canada Games Centre played host to over 20,000 visitors during the 2019 Canada Winter Games. With a projected economic impact over \$130 Million for Alberta, the design needed to bridge the gap between function, form and flexibility. The completed project stands as a remarkable accomplishment of innovation, sustainability and aesthetic that elevates the reputation of Red Deer College and provides an environment of wellness, teaching and learning for the community.



Project Highlights

Q.1 INNOVATION

The Gary W. Harris Canada Games Centre is a great example of engineering and architectural teamwork. Endless hours of collaborative design from the multi-disciplinary Stantec team facilitated a diverse range of innovation and the use of new technologies

Appropriately named, the Great Hall at the entrance of the facility is a celebratory landmark for the City of Red Deer. It's visibility from the Queen Elizabeth II Highway proudly welcomes visitors and celebrates the community in which it stands. Its minimalist aesthetic, abundance of natural light, and 23-meter-high ceilings captivate spectators and energizes users.

Innovation is abundant throughout the facility, as these impressive visual features could not be made possible without the collaboration of Stantec's engineering teams.

The mechanical systems in the Great Hall and throughout the facility are a testament of innovation and acquiring LEED® Silver certification while maintaining the architectural appeal. Our mechanical team upheld the minimalist aesthetic by minimizing the number of vents and air ducts typically used in traditional large-scale recreational facilities. Instead, a single DOAS (Dedicated Outdoor Air System) unit is used in conjunction with free cooling and naturally rising heat to capture wasted air and reuse it in other areas of the facility. This combined system drastically reduced the amount of mechanical cooling needed, lowering utility costs and prevented overventilation.



Aerial view of the Gary W. Harris Canada Games Centre

[Previous Page: Inside the Great Hall](#)



Large-diameter, slender, concrete-filled columns up to 24m tall are a prominent feature of the Great Hall - they provide adequate stiffness to the structural frame and complement the architectural vision for minimalism and space. Vibration analysis and subsequent design of the elevated floors allowed our engineers to limit vibrations from the fitness rooms during activities, providing a comfortable facility for the occupants.

LED luminaires are used exclusively throughout the facility. By using the same fixture platform with different reflectors in different areas, the electrical system meets the technical and sustainability requirements while allowing for illumination flexibility for various events. It enhances the architectural elements and meets the visual comfort needed by the occupants.

No innovative features in the facility overshadows another—an outcome of Stantec’s holistic approach in weaving the architecture and engineering together. The facility in its entirety is outcome of the innovation of our teams producing an atmosphere that is beautiful, functional and comfortable without compromising time or budget.



A hub for community, sport, and wellness in the heart of Alberta

Q.2 COMPLEXITY

As one of the main venues for the upcoming Canada Winter Games in February 2019, Red Deer College had a strict deadline. One condition that made this requirement particularly difficult, was that the Canada Winter Games organization needed the facility to be in working operation for one year leading up to the games. Their reasoning was to ensure all engineering systems were operating as specified, that branding as a legacy project was properly displayed, and to certify that competition areas were built in accordance to the organizations requirements.

The project was awarded to Stantec in May of 2015, leaving less than three years to complete the design and build. To add to the already tight deadline, the project delivery system was a design/build, requiring a guaranteed price that the contractor had to submit prior to the build.

Over ten Stantec offices were engaged on the project, working seamlessly together to prepare packages for the contractor so that the build could begin while the designs were still in process. It took an extraordinary amount of coordination and efficiency by the Stantec team to price out the project without drawings and complete the build on-time and on-budget.

Not only was Stantec able to complete the build in time to open one year before the games, but they did so without compromising the vision for the facility. The final building exceeded Red Deer College's expectations; strengthening the College's bright future and providing a new community hub for the City of Red Deer.



Inside the Arena at the Gary W. Harris Canada Games Centre

Q.3 SOCIAL AND/OR ECONOMIC BENEFITS

Since opening, the Gary W. Harris Canada Games Centre has become an iconic home for sport in Red Deer and central Alberta. A project “25 years in the making” according to the Mayor of Red Deer, the new facility is a crucial mend to the City’s continued recession and growing social challenges.

In February 2019, the new facility welcomed the Canada Winter Games, attracting over 20,000 visitors, with a projected economic impact exceeding \$130 million. The games proved to be a strong federal and provincial investment that the City needed, while contributing to the 2019 Canada Winter games Legacy Plan—providing a permanent facility with long-term community benefit.

Now that the games are over, the facility acts as a health and wellness hub for students of Red Deer

College and the surrounding community. It’s an attraction that welcomes outside visitors and potential Red Deer College students—moving the college closer to acquiring university status and towards the City’s goal of becoming Alberta’s next university city.

The opening of the Gary W. Harris Canada Games Centre and the success of the Canada Winter Games in Red Deer symbolized more than the City’s ability to host a large sporting event; it was a celebration for the City’s future and its commitment to bringing the community together for decades to come. The Gary W. Harris Canada Games Centre impresses visitors and instills pride and a feeling of optimism in Red Deerians.



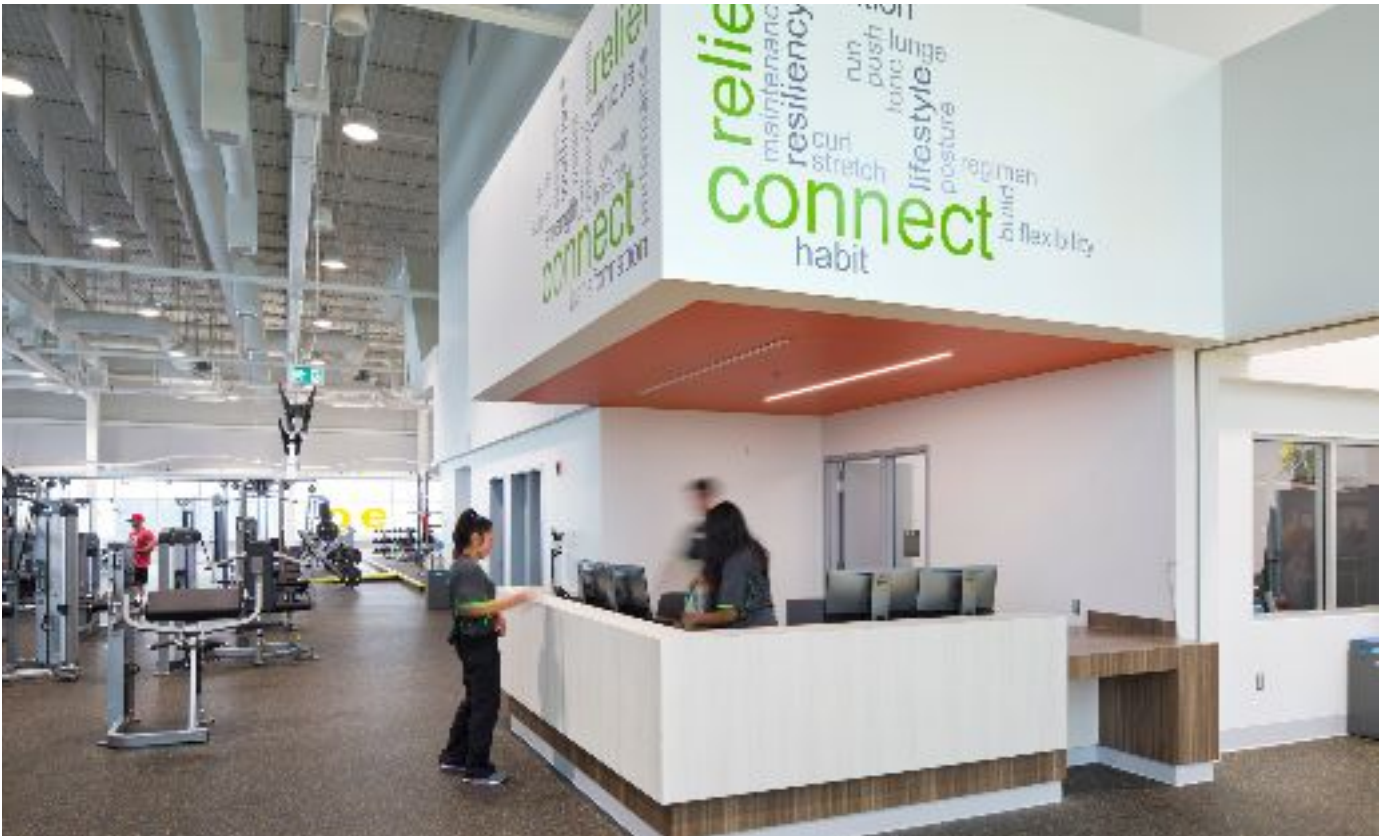
Q.4 ENVIRONMENTAL BENEFITS

As a government funded project, the Gary W. Harris Canada Games Centre was required to achieve LEED Silver certification—how the Stantec team achieved this was up to them, and they sought to maximize sustainable benefits in every aspect of the facility. Starting with the roof that spans 12,500m², storm water is collected and reused in the facility's washrooms. The combination of recycled water and low-flow fixtures uses 3.7 million liters less (48%) annually than a building with bare-minimum code compliancy. The entirety of the roof also supports solar panels, reducing power drawn from the grid.

A central DOAS (Dedicated Outdoor Air System) unit in the refrigeration plant captures heat from the ice rink and recycles it to preheat domestic hot water and zamboni flood water.

Using this method reduces the amount of energy needed to cool the ice rink and heat water needed for the zamboni.

The Great Hall uses the same DOAS for heating and cooling. In the summer, the Great Hall is cooled by expelling rising heat produced by the sun and people through vents in the roof, and custom frosting on the windows reduces the amount of solar heat and glare that enters the Great Hall. Compared to a traditional forced air design, this approach reduces the cooling load from 100 tons to 32 tons, an incredible 68% energy reduction. In the winter, the Great Hall is heated by pushing the rising heat from the sun back down to ground level using ceiling fans.



Checking in at the Gary W. Harris Canada Games Centre

Q.5 MEETING CLIENTS' NEEDS

Achieving LEED status and staying on schedule were critical goals for Red Deer College, but the most important was to raise the credibility of the College on a national level, helping it move towards becoming a university. To achieve this, the College needed to provide more than affordability and advanced programming for its students. It needed infrastructure that demonstrated an investment to the community's wellbeing, encouraging students to train, work and stay in the City of Red Deer.

During the proposal process, Stantec made a strategic decision to go against the master plan provided and change the position of the facility so that the Great Hall would achieve impressive visibility from the highway, while the entrance faced the neighboring recreational area of Waskasoo Creek.

By doing this, the facility made a physical connection to the community and acted as a welcoming landmark to those on the road. Stantec was awarded the project because we analyzed and challenged the master plan. Red Deer College was excited about this change, mentioning that the competition followed the master plan without considering how much repositioning the facility could fulfill their needs.

Joel Ward, president and CEO of Red Deer College states, "The opening of the Gary W. Harris Canada Games Centre is a defining moment for Red Deer College, symbolizing our future path and demonstrating our commitment in supporting our community. Every detail of this building was carefully considered based on our goals and needs, and the execution of this vision is awe-inspiring."