

## Sports Complex Brings World-Class Facilities to Small-Town Rimouski

City of 50,000 people receives \$40 million complex

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Rimouski, a city of about 50,000 people in eastern Quebec, has long been passionate about local sports and athletic development.

The city is home to the Rimouski Océanic, a major junior hockey team, and boasts two major post-secondary institutions with their own sports teams. With health care a major part of the local economy, residents and officials in the city understand the importance of living an active lifestyle.

That's why the \$40-million Desjardins Sports Complex (Complexe sportif Desjardins), opened in early 2019, is so important for the local community. Its swimming facilities, plus two ice rinks suitable for serious hockey games, bring the kind of amenities that will differentiate Rimouski on the international stage. Plus, its state-of-the-art, energy-efficient design is sure to turn heads in the design and construction world while saving the facility significantly in annual operating expenses.



### High-Performance Design to Match High-Performance Athletics

The Desjardins Sports Complex is sure to last for generations, given its use of modern technologies and materials. Consortium H2O Architecture created a design that blends into the urban fabric of the

surrounding community and conforms to the topography of the site, which slopes down north to south. It's easy to find the two pools, because they're showcased through a large glass wall. This distinctive feature lends a modern and inviting look.

The LEED® Gold design will generate significant energy savings throughout the life of the facility. Contributing some of these savings is the Dectron® LEEDeR® DS-562 dehumidifier, which controls the space conditions of the pool environment. Using technologies like heat recovery and purge-economizer, it provides serious payback in reduced energy demand throughout the year and contributes to the facility's overall LEED® credits.

Dehumidification is central to any indoor pool. Without a good system in place, the space would be so stiflingly hot and humid it would be unbearable to use. While dehumidifiers have high energy requirements, they can incorporate several key features to reduce their demand while recycling some energy for the benefit of the facility.

Take, for example, the pool water heating. Pools are constantly losing heat through evaporation and must be continuously heated to make up for this. This takes a lot of energy — it's not uncommon for large facilities like the Desjardins complex to spend hundreds of thousands a year on heating the pool water alone.

To reduce these costs, mechanical engineer and general contractor, Stantec, asked Dectron to include its highly efficient pool water heating option with the dehumidifier. Pool water heating mode takes the heat generated by the dehumidification process and puts it back into the pool water. This process basically uses the pool water as a heat sink for the dehumidifier waste heat. The pool water heating function returns a coefficient of performance around eight.

Dectron's pool water heater can run any time the compressor is in operation. Given the size of the two pools and the fact they will always present a dehumidification load (even when not in use, evaporation from a pool is significant), that will certainly be much of the year. As a result, the Desjardins complex will not need to run auxiliary pool water heating as often, resulting in substantial energy savings.

Rimouski is in a northern climate, which means outside air will be cold or even below freezing for several months of the year. Since cold air is dry air, the LEEDeR® was equipped with purge-economizer mode so it can automatically turn its compressors off at times when the outdoor air alone can control the indoor conditions, without the need for mechanical dehumidification. Even if only used for a few dozen hours a year, this feature can typically pay for itself in about a year in northern climates.

Given the cold temperatures through some parts of the year, outside windows, walls, and doors dropping below the space dew point and forming condensation is always a concern. Not only does it look unsightly, but condensation on surfaces can promote corrosion and mold.

While a high-performance dehumidifier such as the Dectron® LEEDeR® is critical to preventing condensation in an indoor pool, it relies on a good air distribution system in order to do its work. Stantec created a network of ducting that delivers the airflow where it's needed. Surfaces where condensation

could form, like windows, are covered. As well, the breathing zone — the area where patrons are — gets its share of fresh airflow to ensure there are no stagnant zones. The team even put their design accent on the ductwork by integrating it with the cedar wood ceiling.

Exhaust air intakes were also strategically placed in the facility to source-capture harmful chemicals coming off the water surface, so they can be expelled outside the building before having the chance to diffuse throughout the space. As the aquatics community is becoming more aware of the dangers posed by poor air quality in pools, these important steps taken during the design phase will likely benefit the Desjardins Sports Complex by making it a more attractive and healthy facility for athletes to compete and practice in.

The mayor of Rimouski, Marc Parent, commented that national or international competitions could be hosted at the new facility.

Bringing this facility to Rimouski was a public effort in every way. Construction began in 2017, with funding from the city of Rimouski, province of Quebec, and the government of Canada, plus a \$4-million contribution from the local office of the Desjardins credit union. It was built on land contributed by the University of Quebec in Rimouski. The local community was so excited to start using the facility that, when it opened, admission was free for two weeks.

Thanks to the collaborative effort by three levels of government, plus other community stakeholders, citizens of Rimouski are now the proud stewards and users of a one-of-a-kind athletics facility. Dectron® was delighted to play a supporting role in this great community-building project.

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