# ROYAL ALEXANDRA HOSPITAL
# EDMONTON, ALBERTA, CANADA

Temperatures as low as -47 degrees Fahrenheit. Wind speeds up to 40 miles per hour. Snow-loads as heavy as 32 pounds per square foot. Weather takes on a whole new meaning in Edmonton, Alberta, Canada, home to Royal Alexandra Hospital.

Despite Edmonton's sometimes harsh climate and the relative humidity levels of hospital life (up to 50 percent), Royal Alexandra Hospital did not shy away from glass when it constructed a 470,000 square-foot, eight-level complex in 1992. With nearly 50,000 square feet of high-performance glazing containing approximately 43,500 feet of Super Spacer®, the expansive glass provides an airy, light-filled corridor between the two original wings of the hospital.

The grand barrel-vaulted glass roof and expansive curtain walls of the atrium span the eight levels of the buildings, leaving a lasting impression – whether on the inside or outside of the structure.

"Royal Alexandra Hospital has a rich history in downtown Edmonton," said Pat Taylor, facilities manager and 28-year employee of the hospital. "When the glass atrium was built it became a great source of pride for the community and the hospital staff. The height and the magnitude of the design is a unique piece of architecture we were happy to bring to the downtown."

According to Taylor, condensation resistance was important for the hospital when choosing the massive window systems for the project. Condensation is the formation of moisture on an insulating glass unit surface when surface temperature is lower than the localized air dewpoint. If a standard "cold edge" spacer exists and outside temperatures fall to zero degrees Fahrenheit, condensation will form on the glass edge even with 15 percent indoor relative humidity – so the hospital's 50 percent relative humidity and the often cold temperatures in Edmonton created a major concern for the hospital.

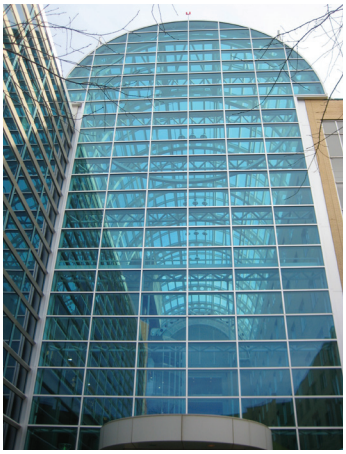
"We keep the humidity levels high for infection control," Taylor said. "The original architect looked at a variety of options for our window systems, including quadruple-pane with metal spacer. Super Spacer was the only system that gave us the condensation resistance and structural strength we required."

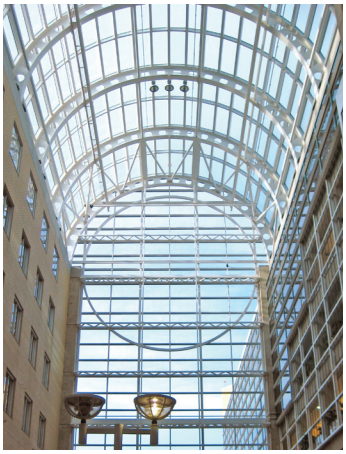
The possible snow-load was also a driving factor in the decision to proceed with Super Spacer. Because it is silicone foam, Super Spacer is able to expand and contract with snow-loads, wind loads and temperature changes.

Royal Alexandra was first featured in Quanex's Warm Edge Digest in 1992 at the completion of the project. Over the past 16 years, Royal Alexandra's atrium has been inspected twice per year by Taylor's team for condensation and visual changes in the window systems.

"Our staff was hands-on during the construction, and we've continued to be very diligent about maintaining the atrium over the years," Taylor said. "In all of this time, we have never replaced one unit and have never seen signs of condensation. The glass looks as great as it did the first week. That is why Super Spacer was chosen for our new addition, which is set to be completed in late spring 2009."

According to head specification writer and building envelope specialist Keith Robinson of Cohos Evamy integratedesign, "The addition stays consistent to the existing aesthetics of Royal Alexandra with glass accounting for approximately 60 percent of 2 exterior walls. It was important for us to keep the same feel as the original atrium project, as well as provide the long-term durability and efficiency the hospital has enjoyed over the years."





## TECHNICAL DETAILS OF THE PROJECT

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| THE CLIENT | Royal Alexandra Hospital |
| THE PROJECT | 470,000 square-foot, eight-level complex constructed in 1992 |
| CONSTRUCTION | Nearly 50,000 square feet of high-performance glazing containing approximately 43,500 feet of Super Spacer® |
| ARCHITECT | Wensley Spotowski Architectural Group<br>Cohos Evamy integratedesign |
| HEAD SPECIFICATION WRITER | Keith Robinson |
| CONTACT | http://www.cohos-evamy.com/ |