



Designing skylights for the toughest performance requirements

Skylights are always under pressure to perform.

They have to stand up to the elements – rain, sleet, hail, sun and often extreme temperature variations. And they need to look good while doing so. Skylights are one of the most eye-catching elements of any architectural design. But also the hardest-working. Wherever they may be installed, we expect a lot of them.

So, after 50 years in the business, we thought we'd delivered on the most demanding skylight projects.

We were wrong.

A very interesting and challenging project was presented to us. The complete re-construction of the Préfontaine metro station in Montreal.

The Préfontaine metro station in the district of Hochelaga-Maisonneuve originally opened on June 6, 1976 for the Montreal Olympic Games as part of the extension of the Green Line to Honoré-Beaugrand. Designed by renowned architect Henri Brillon, it is a regular side-platform station built partly within a tunnel that features a large open area entrance and mezzanine. The original design was centered on delivering vast quantities of natural light to fill the mezzanine area and reach down into the tunnel.

It was considered then, and still is today, a stunning and highly progressive example of public transport architecture. But it needed a massive overhaul.

The project presented two very arduous challenges:

1. *Looks* - The renovation had to keep the look and feel of the original 1976 design while completely upgrading and replacing the broad expanse of glass and skylights. There could be no compromise. The famous design elements had to be carefully preserved.



2. *Performance* - Any skylight system in Montreal has to be highly weather and temperature resistant. This was a given, and a requirement with which we are very familiar. However, a metro station is subjected constantly to a huge piston effect which is produced by trains entering and leaving the station. This continuous thundering vibration demands an extraordinarily tough solution. And one that will stand up to this effect for years and years.

In short, Architects Provencher Roy Associés needed a skylight system that would seamlessly match complex esthetic elements while ensuring extreme performance requirements.

Despite our expertise, we were not a slam dunk for this project.

To prove our skylights were up to the task, we had to provide a working sample for punishing performance testing to ensure yield performance, resistance to water infiltration, and the ability to withstand constant pummeling.

We were selected after a long, tough, but ultimately successful testing process. And then we had to render 3D design specifications of all of the structure's multi-angle components including complex 1/4" (6mm) break metal. This was to make sure that our skylight systems could be easily installed without additional field cutting or onsite modification requirements.

We loved the challenge, the project team and the results! Read our case study. . . <http://tinyurl.com/p39rbs3>

Today, the Préfontaine Metro Station features the same generous levels of natural lighting and distinctive design that made it famous while withstanding the most extreme temperatures and rugged vibrations.

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