

An aerial photograph of a large building under construction. The entire structure is enveloped in a dense, multi-level metal scaffolding system. The scaffolding is made of silver-colored metal poles and cross-braces, creating a complex grid pattern. The building's roof and walls are visible through the scaffolding. The surrounding area includes a paved road, some greenery, and other buildings in the background.

SAIA Awards 2023
Justice Institute of British Columbia

Company Information

Brief Description of Company:

Skyline Scaffold Ltd. (Skyline) is a supplier of high end, engineered access solutions designed to maximize productivity. We are known throughout the industry as a supplier of top-quality equipment and superior service. Our company uses Layher system equipment, made in Germany, which is the safest and strongest system available. With over \$15M in scaffold assets and 65 full-time employees (and growing), we can service even the largest and most complex projects.

Historical Information:

Skyline was launched in 1995. We have grown from a four-person operation out of the back of a pickup truck, to over 65 full-time employees, including a full time Construction Safety Officer (CSO), an Engineering Division, a Project Management Team, and assets exceeding \$15M.

Target Markets:

Skyline caters to all types of construction-related projects, including industrial, civil, and commercial. We work with general contractors, private owners, government bodies, and indigenous organizations. Skyline is currently affiliated with both the Musqueam and Squamish Nations.

Company Information

Services Offered

We use and innovate with Layher products, including top industry weather protection products like Keder Roof systems and Protect panels. We also insist on high end public access solutions by Layher and can offer exceptional proprietary solutions like 'City Super Frame', a revolution in sidewalk pedestrian protection, site logistics and material storage, and our newly launched SkyTruss system – changing the game for pedestrian bridges and large span applications.



Our major service offerings include:

1. SkyTruss
2. Keder Temporary Roof Systems
3. Public Access Stairs & Bridges
4. Heavy Duty Sidewalk Protection
5. Customized Hoists and Gantry lifts
6. Façade Retention Systems
7. Heavy Shoring

Contracted Scope of Work

Type of Project:

Scaffolding & Access

Project Duration:

Started April 2022; scaffold was dismantled November, 2022.

Contract Value:

\$600,000; completed within budget.

Scope of Work Description

We were contracted by Matra Construction to develop a solution to handle the skylight replacement over an active building lobby in the Justice Institute of British Columbia, in New Westminster, B.C.

This project involved combining multiple elements into one cohesively functioning scaffold system in order to span a two-way sloping skylight, all without loading the existing roof.

The interior scaffold was designed to provide a large span public protection deck using Layher 750mm over 750mm beams over an active diamond-shaped lobby that also provided access to the underside of the skylights for the glazers.

On the exterior, a clear span weather protection system was required that had to be low enough to prevent wind-driven rains from entering from the sides. Additionally, it had to load paths to the exterior of the building as the existing design loads were too low to allow any scaffolding to be built on the roof.

Project Narrative

Project Summary

The skylight replacement project over an active building lobby in the Justice Institute of B.C. required a system that did not load the existing roof, while also being wide enough to span the 100' two-way sloping roof.

After reviewing site conditions and assessing the challenges posed by minimal roof loading capacity, a clear span solution was found to be the only viable approach to redistribute loads from our system, workers and materials to the exterior walls instead via gantries on either side using our patented SkyTruss system, which is the lightest and strongest unit beam on the market.

A Layher Keder roof of approximately 100' x 100' was mounted over our patented SkyTruss gantries on each side of the roof to create a load path through exterior shear walls and columns. Additionally, we constructed a large internal area platform to provide access to the underside of the skylight in addition to public protection.

One of the many challenges was limited crane staging areas on the property. Our SkyTruss system solved the issue of creating a span of this length with the significant loads of a large temporary roof and, being largely modular, we were able to construct it 'in situ' using 1m, 2m and 3m sections that were easily built by hand.

What Makes This Project Special

The construction of a large internal area platform allowed for the changing of the glass in record time, and without any debris issues or leaks into the Justice Institute.

Project Narrative

How Skyline Innovated

Building the track system and rolling the roof out from a stationary launch bay allowed for all work to be conducted with zero risk to the structure or the people working underneath.

Value Analysis/Engineering Processes

We delivered a very sophisticated and innovative engineering package using many 'firsts' in North America and very little in terms of 'off the shelf' systems.

After evaluating load paths, our SkyTruss system was determined to be the only viable solution as steel beams would have been extremely heavy and costly at 35m long, and would have been impossible to place, given the lack of staging area for cranes.

It was determined the SkyTruss gantry had to be reinforced and doubled as a result of side loads imposed from the 100' clear span Keder roof. SkyTruss can not only be double, triple, and quadruple chorded, but it can be STACKED as well in all four configurations!

Our in-house engineering team worked diligently with our project managers in collaboration with base-building engineers to design support towers in only four areas to resolve dead and live loads, as well as wind loads up to 90km/hour.

Photography



Image #1

Justice Institute of British Columbia (JIBC) is a public, post-secondary educational institution in New Westminster, British Columbia, Canada, that is focused on training professionals in the justice, public safety and social services fields. JIBC also has campuses in Victoria, Kelowna, Chilliwack, Pitt Meadows, and Maple Ridge.



Image #2

We built temporary support towers to facilitate the building of our modular SkyTruss system to support the roof. These towers were removed once the roof was in place.

Photography

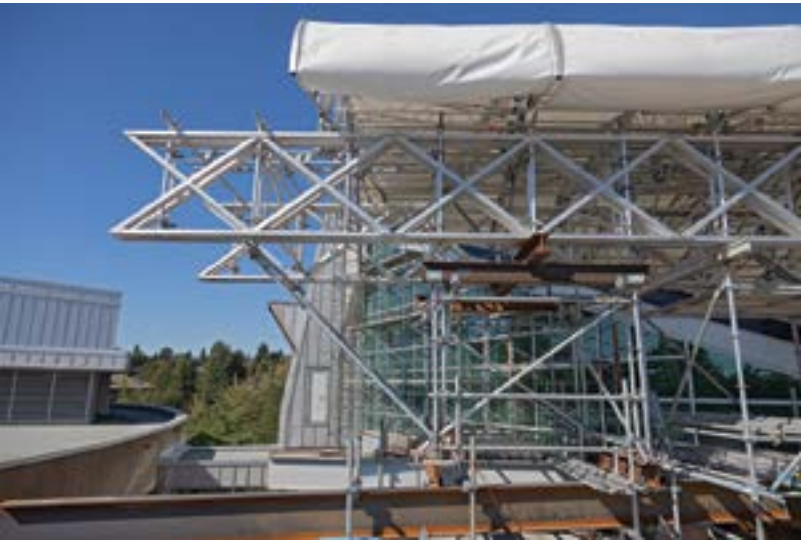


Image #3

SkyTruss cantilevered out to allow the Layher Keder roof to extend past the building face without supporting it from the ground.



Image #4

Double chord SkyTruss supports the 100' span Keder Roof to allow the removal and installation of new Skylight glass. No leaks, no issues!

Photography

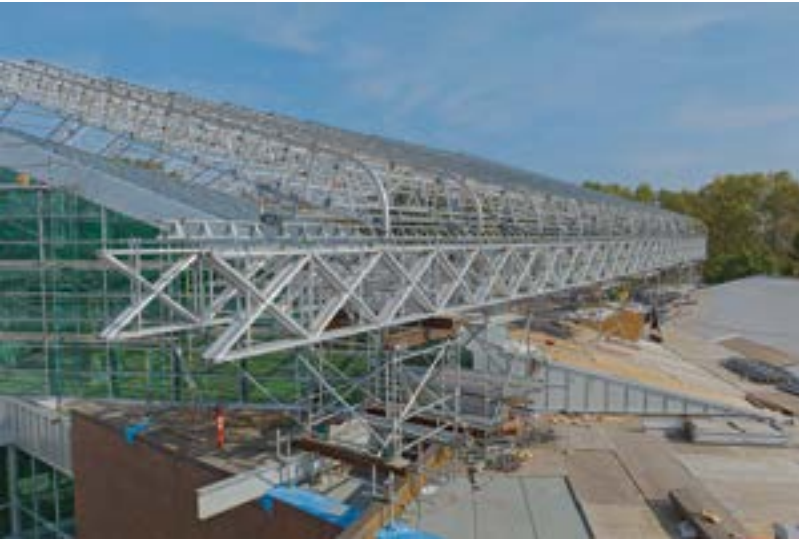


Image #5

Modular Keder roof carried by a 100' clear span of double chord Skytruss. Skytruss can be double, triple and quadruple chord to carry larger loads over longer spans. You can even STACK the chords in all four configurations and hold up the World!

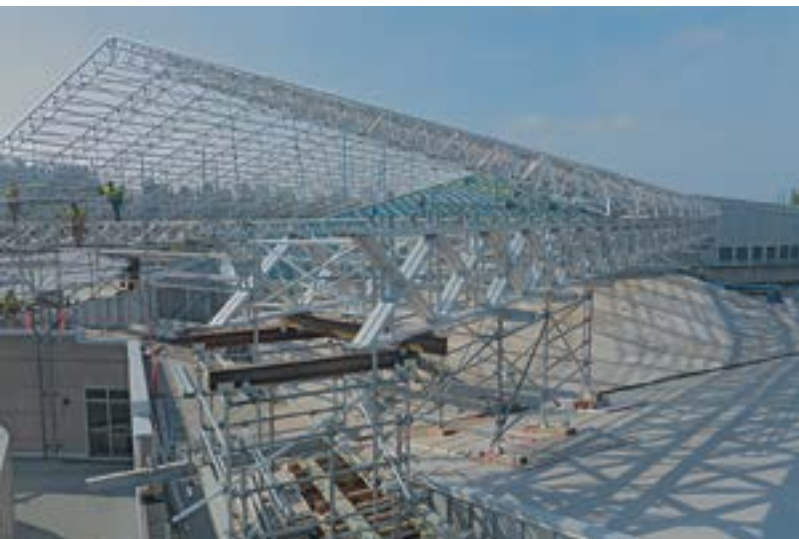


Image #6

Using Layher scaffolding, sandwiched between steel I beams loads the shear wall and building column, not the roof itself.

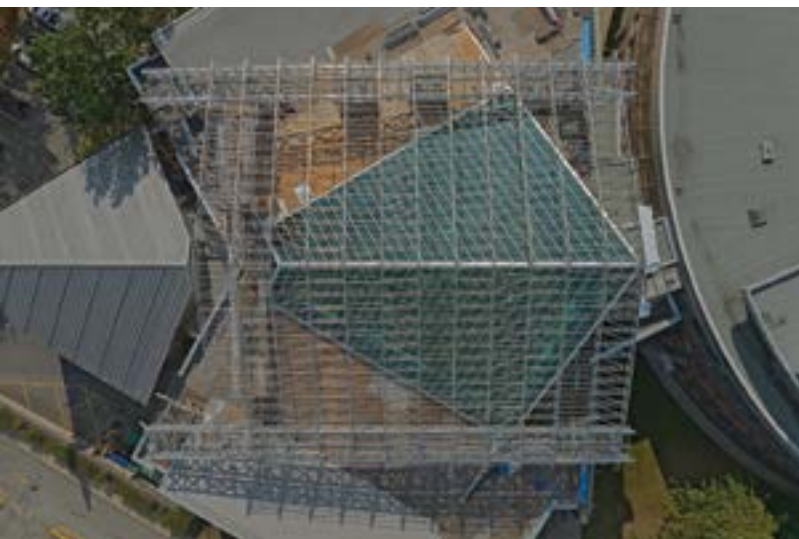


Image #7

Yes, that's a 100'x100' Keder Roof, loading a 100' long span of SkyTruss, picked up on only the four corners. Believe it.

Photography



Image #8

The temporary towers used to stick build the modular Skytruss are to be removed soon... then it's just a four corner support.



Should SAIA require any further information, interviews, photography, videos, or comments please do not hesitate to contact either of the following at Skyline:

Arka Chorbajian — Founder & CEO

604-618-2435

Jeff Remfert — General Manager

604-834-9584