



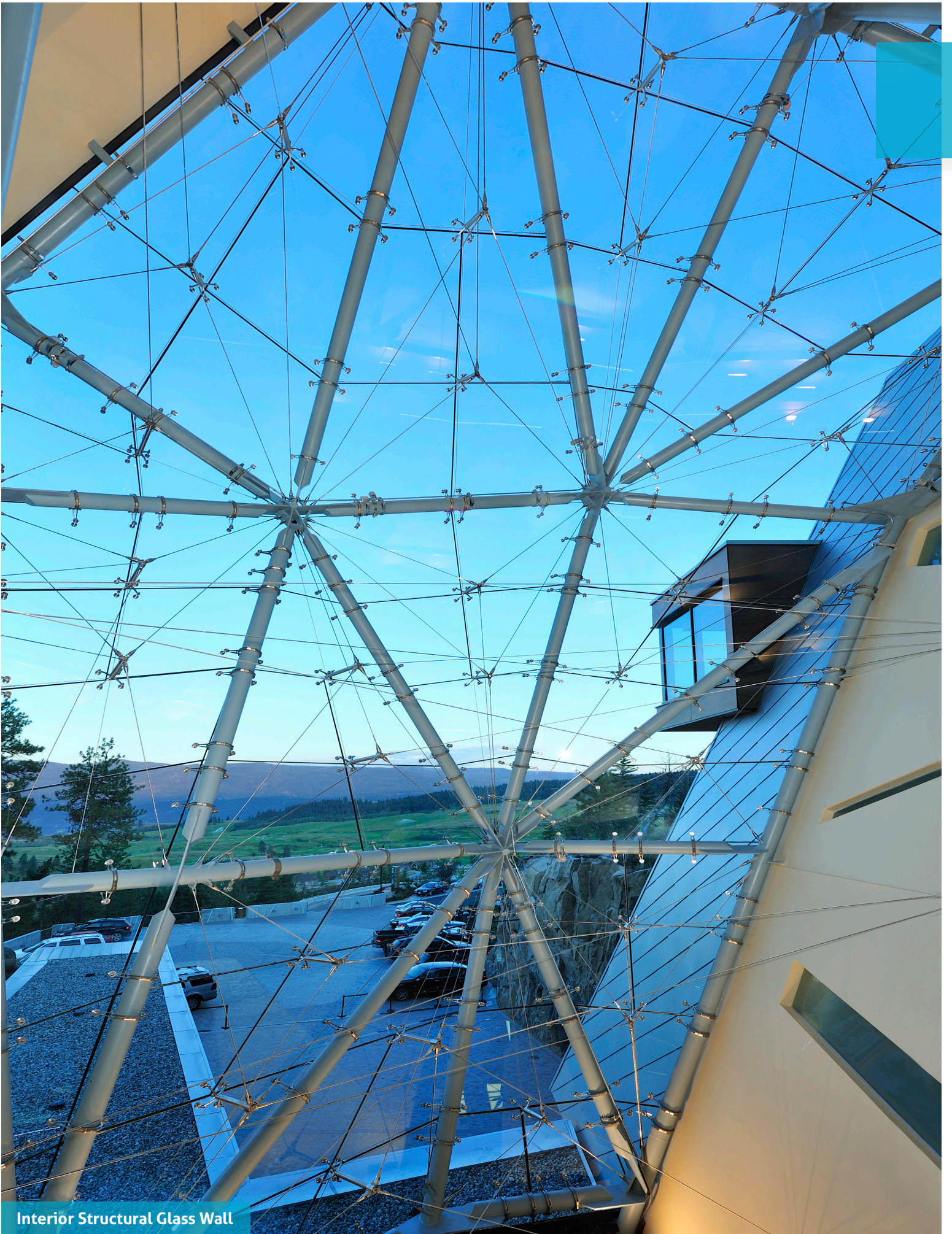
Sparkling Hill

Hotel & Spa
Vernon, BC





Exterior of Sparkling Hill - Vernon, BC



Interior Structural Glass Wall

Sparkling Hill

Project Overview

Project Name

Sparkling Hill Resort & Spa

Location

Vernon, British Columbia

Design Overview

The twinkling glass was designed to be the centerpiece of the three-story crystal shaped glass atrium at Sparkling Hill Resort – the support for the glass was meant to disappear.

Architect

Cannon Design

Glazing Contractor

Advanced Glazing Systems

Year Completed

2010

Products Supplied

AB602T 60mm dia Button Face Front-Mount, Sparkling Hill Tension Cable Assembly, Sparkling Hill Tube Spider, SS204FT-AB602T, Custom Product

Design Services

Glazing System, Hardware Design, Shop Drawings, Glass Fabrication Drawings, Engineering

Sector

Hospitality & Retail



Close-up of Tension Cable



Sparkling Hill

Wellness Resort and Spa

The Challenge

To create a structural glass wall that looks like and sparkles like a crystal. With concept created by the chief designer of Swarovski Crystals and design realized by the Vancouver branch of Cannon Design, Sparkling Hill Resort and Wellness Hotel is the first hotel project in North America incorporating Swarovski Crystal elements into key elements of its design.

One such element – the external focal point of the hotel perched high on a cliff above the scenic Okanagan Lake - is the three story glass structural atrium forming a large “crystal”.

Specifics regarding the challenge

- Structural glass was above the main lobby and three stories high.
- Glass had to be seated on multiple and varying planes to create sparkle.
- Site location on the top of a mountain meant extremely high wind loads (approximately 4.5 kPA).
- Original panels of glass spanning 7 to 9 metres.
- A design objective to maximize transparency.
- Tight project timing meant design had to go from initial concept to install in approximately 6 months.







Project Hardware

Stage 1 / Vision

A glass crystal was presented as a design start/vision and the question was posed to Stella by Cannon Design on how they could make the crystal into a structurally sound, aesthetically pleasing, cost-effective reality.

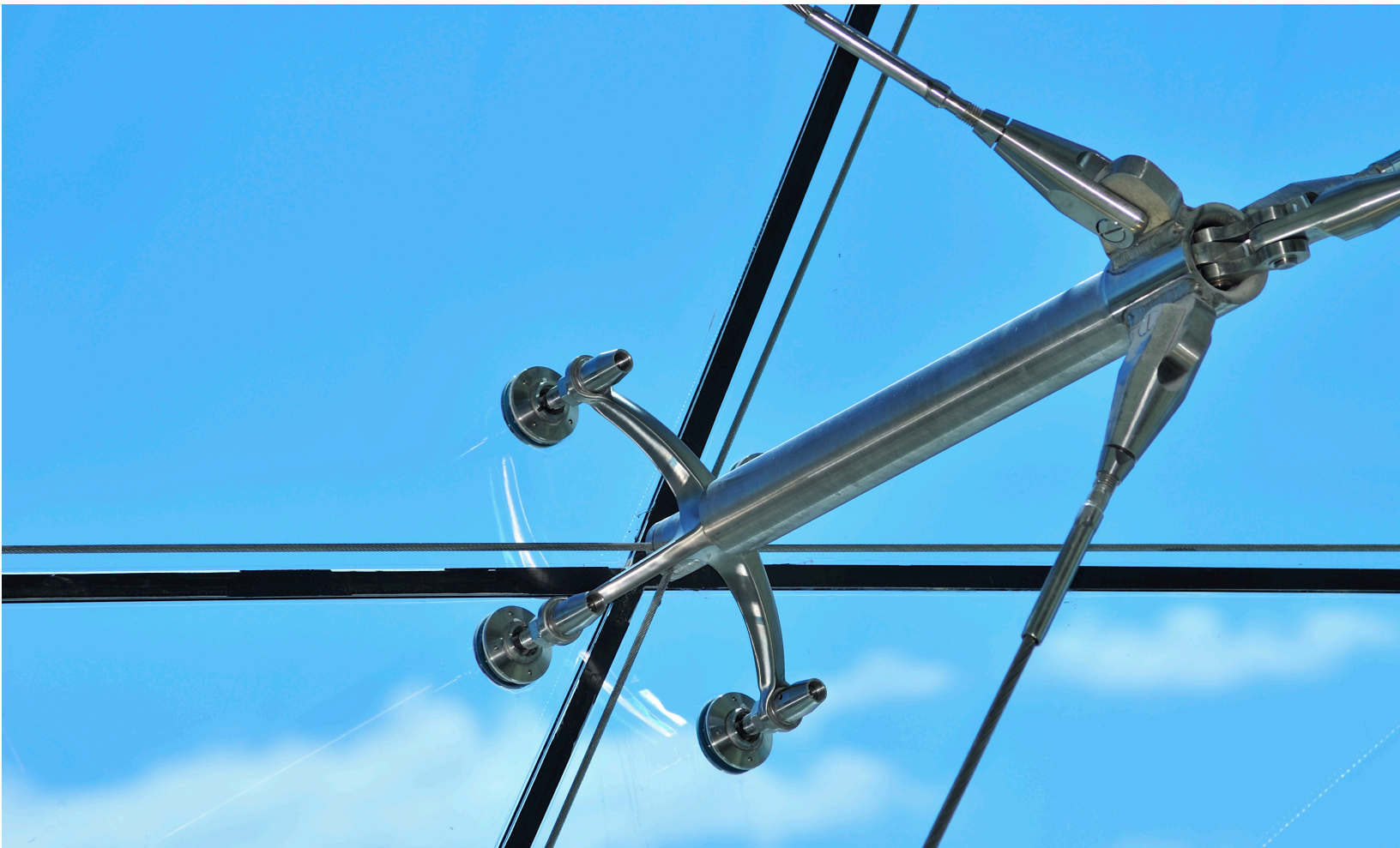
After conversations with Stella, the overall structure was determined to be divided into 15 core triangles of up to 7m by 5m in size, with each core triangle to be further divided into 5 or 6 smaller-shaped pieces of glass (over 90 uniquely shaped and sized pieces of glass).

Stage 2 / Conceptual Design

With the basic definition of the crystal look established, Stella introduced a structural engineer who specialized in tension systems for complex structures (Erdevicki Structural Engineering) to consult with the design team.

The following design options to support the glass were investigated:

- An entirely cable supported option. Although the design potential for this was exciting, the cost and possible wind loads halted this line of thinking.
- Support the glass via glass fins. This became a non-viable option as the complex geometry prevented smooth transition lines.
- Eventual conclusion: Tension Cables.
- A tubular structure to support the 15 core triangles with the glass within these triangles supported by a unique tension cable system.





Project Hardware

Stage 3 / Initial Concept 3D

With an initial buy-in of the team - now growing and consisting of:

- Client representative - Spiegel Skillen and Associates
- Architects - Cannon Design
- Structural engineers - Read Jones Christoffersen
- Structural glass engineer - Erdevicki Structural Engineering
- Glazing contractor - Advanced Glazing Systems
- Glass engineer - Division 8 Consulting
- And of course, Stella Custom Glass Hardware – Stella's drafting team began to piece together the initial layouts.

As the general layout was mapped, Stella's design team started creating custom spider fittings to mount onto the tubes. The concept was approved by the team via the presentation of 3D images of the proposed spider fittings which allowed for a visualization of the end result.



Project Hardware

Stage 4 / Design Result

The proposed design was revised and tweaked via meetings and feedback from the project team and eventually consisted of the following:

- Primary support of the structure via 15 core triangles. Each core triangle consists of 5 or 6 pieces of smaller glass which are supported on an interesting triangular cable tension system.
- Glass was affixed to the tubular structure via Tube Spider.
- Custom piece designed, tested and fabricated exclusively via casting process for this project.

In the middle of each triangle, the glass was connected to a Stella Signature Spider and then stabilized with a tension system consisted of the following:

- 10mm Back Cables.
- 10mm and 12mm Front Cables
- Stabilizing Cables.
- Compression Struts allowing multiple connection angles.
- At the key intersecting points of the triangle, Stella designed Node Connectors to minimize the stress point at the sharp corners of the glass 16mm tempered laminate glass.





**Sparkling Hill
Wellness Resort and Spa**



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