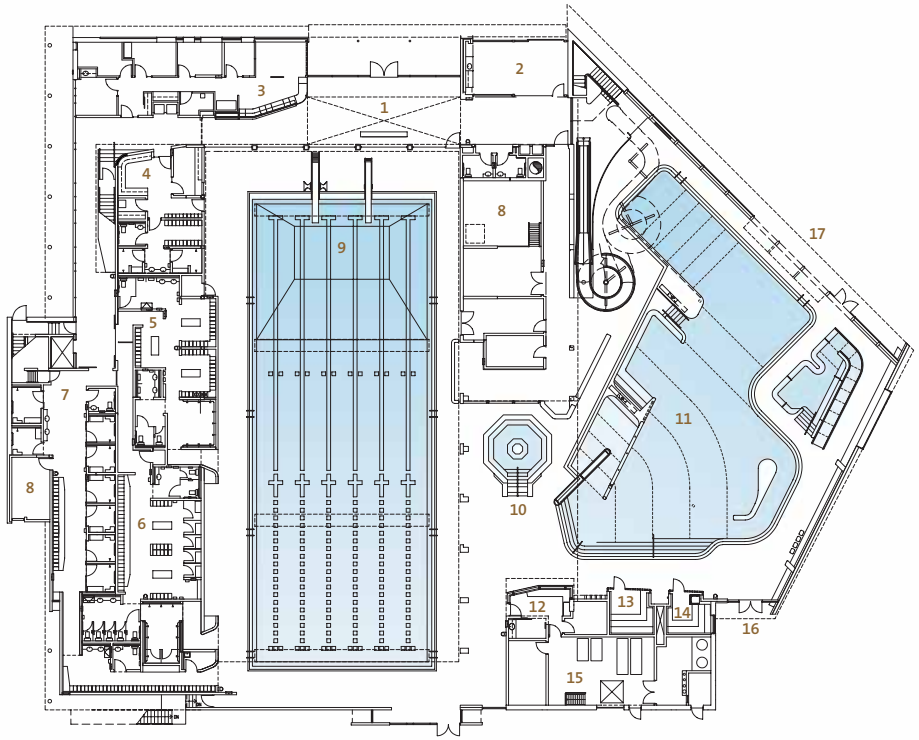
INSPIRING A COMMUNITY TOWARDS
FITNESS, WELLNESS AND HEALTH

WEST VANCOUVER AQUATIC CENTRE





West Vancouver Aquatic Centre



KEY

1 Lobby
2 Multipurpose Room
3 Administration & Control
4 Aquatic Staff Room
5 Men's Change Room
6 Women's Change Room
7 Family Change Room
8 Existing Mechanical Room
9 Existing Pool
10 Existing Hot Pool
11 New Leisure Pool
12 Lifeguard Control Room
13 Steam Room
14 Sauna
15 Mechanical Room
16 Sauna Patio
17 Outside Sun Deck

ARCHITECTURE

THIS PROJECT COMBINED THE REFURBISHMENT of an original 25-year-old aquatic facility with the addition of a leisure pool, accessible hot pool, 65-ft (20-m) waterslide, family change rooms, multi-purpose room, fitness areas and public viewing areas. The many provisions that enhance accessibility for all pool users have attracted international recognition from organizations such as the International Paralympic Committee.

From the top of the new waterslide tower swimmers can take in views of Vancouver's beautiful harbour and majestic mountain backdrop. With its extensive use of wood, the new facility speaks eloquently of accessibility and health.

The expressive volume of the new pools springs from a reinterpretation of the shallow, arched geometry of the original building, structural systems and site constraints.

The addition was designed to open up the facility to the adjacent civic spaces, as well as to the pedestrian and vehicular energy of Marine Drive.

For the new leisure pool, the architects designed a custom glulam glazing system to accommodate glazed overhead doors and a series of electrically operated, solar shading devices. A unique fabric roller blind featuring public art by Sylvia Tait spans the glass wall to provide solar glare control for the pool area. Along with natural lighting, operable glazed overhead doors and mechanically operable vents allow fresh air to flow naturally through the building. These unique features dramatically enhance the facility's indoor air quality, while providing users with the experience of an outdoor pool.

FACTS

- Completed in January 2004, one of the most attractive features of the two-storey, 33,000 ft² (3,050 m²) CAD $7.5 million project is its extensive use of wood
- Wood is particularly well suited to the demanding atmosphere found in swimming pools and ice rinks. Wood tolerates high levels of humidity, and it is capable of absorbing and releasing water vapour without compromising its structural integrity

STRUCTURE

USING THE STRUCTURAL SYSTEM AND PLANNING GRID of the original building as a starting point, the design utilizes a palate of durable materials including reinforced concrete, concrete masonry units, glass curtain walls, structural steel and wood.

In the pool spaces, the roof structure features glue-laminated beams, purlins and columns which support a metal roof on a metal deck. The glulam beams are a versatile solution that provides long, clear spans over the wish-bone shaped columns, thus giving a dramatic and dynamic first impression when one enters the facility.

The walls are a combination of load-bearing masonry, glass curtain wall, cast-in-place concrete and metal cladding, all of which help retain the structural vocabulary of the original building. The eastern wall of the new pool space, which defines the character of the building as seen from the street, uses an innovative glulam-framed, curtain-wall glazing system that accommodates glazed overhead doors and a series of electrically operated solar shading devices.

Careful detailing of the glulam elements in both roof and wall structures, including the use of embedded steel plates, recessed bolts, and wood plugs, give the structure an unusually clean and streamlined appearance. (see technical drawings)

"The sensitive integration of wood into the roof and façade structure serves as an example of how a thoughtfully detailed structure can enhance the overall architecture of a building."

DUANE PALIBRODA, SENIOR ASSOCIATE ENGINEER – FAST + EPP STRUCTURAL ENGINEERS

FACTS

- The West Vancouver Aquatic Centre is sprinkler protected. A sprinklered building of this size and occupancy requires a 45-min fire-resistance rating for roof assemblies. The requirement is waived for heavy timber. As such, the glulam beams and supporting columns were left exposed, and no additional fire protection was required

WOOD AND SUSTAINABILITY

IN ADDITION TO ENERGY AND WATER efficient systems, the design makes extensive use of natural light and natural ventilation. The pool water is heated by a combination of recovered heat from the dehumidifiers, geothermal heat sources and waste heat from the adjacent ice arena's refrigeration plant.

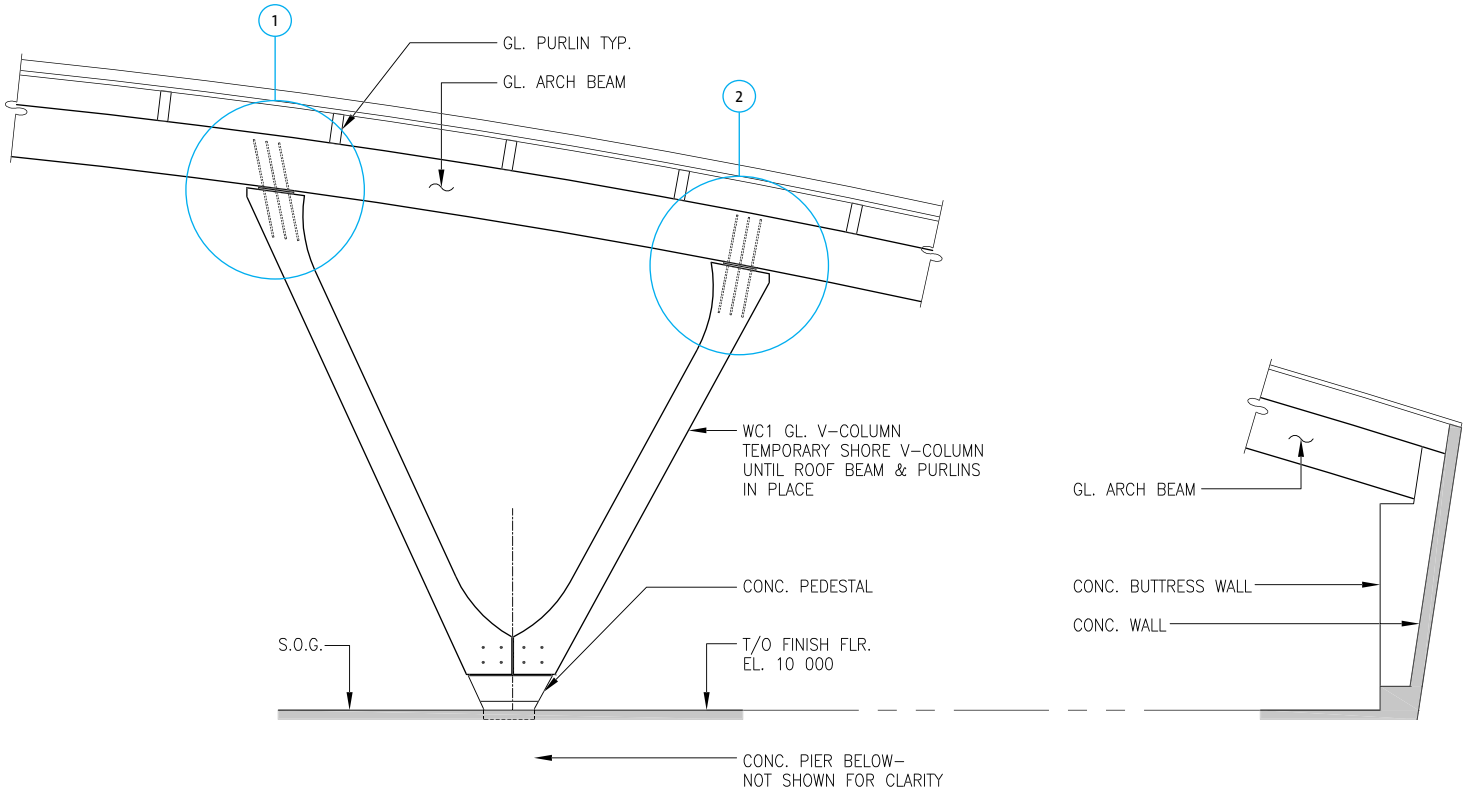
Through the use of operable glazed overhead doors and mechanically operable vents, the facility can be naturally ventilated. This significantly improves the indoor air quality and provides the ambiance of an outdoor pool.

Materials selected are suitable for the demanding atmosphere of an aquatic centre. Excessive humidity is an important consideration in a pool environment, and wood helps to mitigate the problem as it is able to tolerate the high humidity levels. Acoustically, wood absorbs sound, so the building is not as noisy as a complete steel or concrete structure.

In addition, wood, as a renewable, non-toxic material with low embodied energy, contributes both to the indoor environmental quality of the building, and to reduced life cycle energy consumption.

"For architects, wood's intrinsic characteristics of visual warmth, durability and flexibility provide a myriad of imaginative design possibilities to be explored . . . In this project it played a key role in humanizing an important community facility."

DARRYL CONDON, PRINCIPAL— HUGHES CONDON MARLER ARCHITECTS



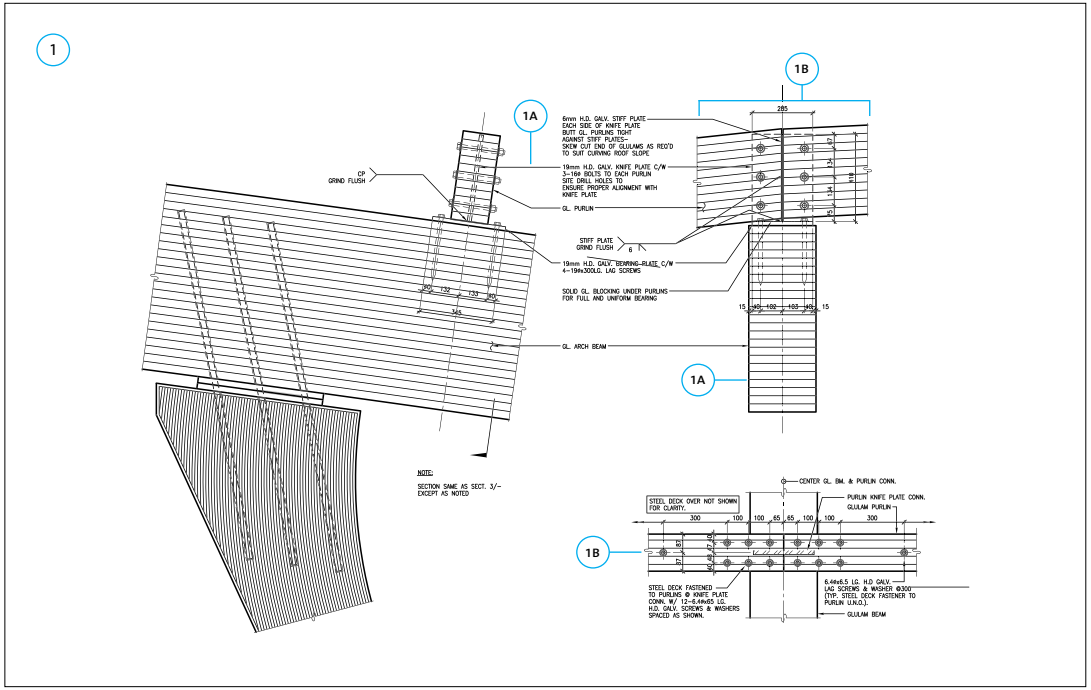
LESS IS MORE

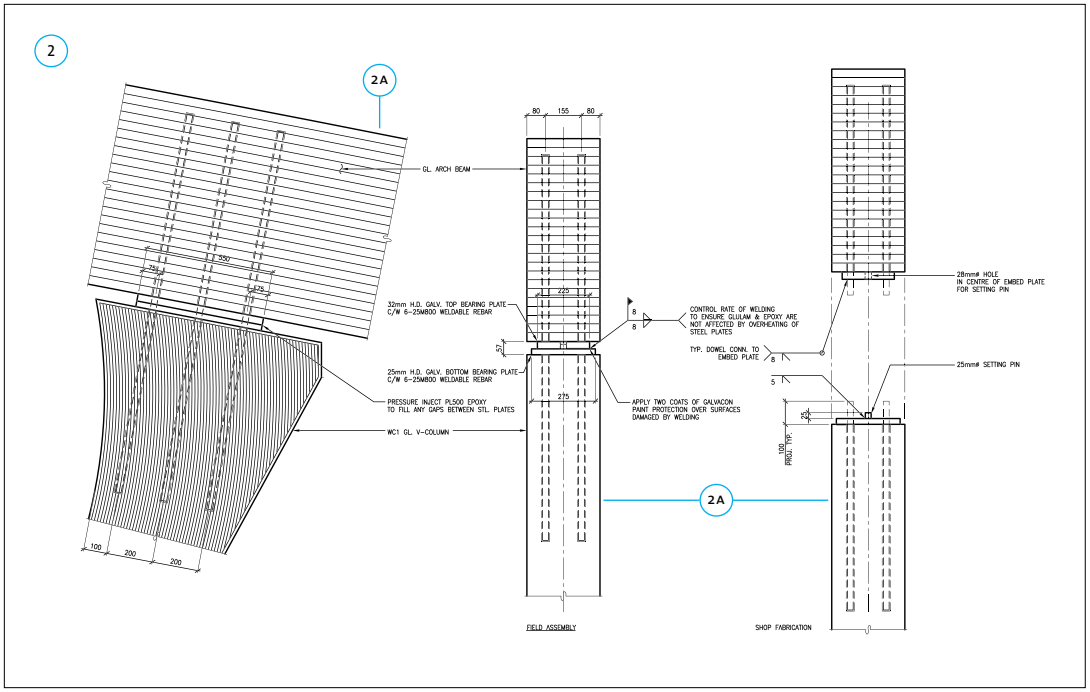
The wood roof and wall structures of the Aquatic Centre are notable for their clean appearance—the virtually invisible connections allow the lines of the structure to flow uninterrupted, which places the emphasis on form and materials rather than connections.

In the roof structure, the curved beams and wishbone columns act as moment frames, with the connections between them achieved using techniques derived from European practice. Each connection comprises steel plates welded to steel dowels that were embedded in both members and glued in place using epoxy. Only a small portion of the steel plates protrudes from each member, and when brought together they left a 1 in (25 mm) gap that enabled the plates to be welded together.

The completed joint reads simply as a shadow line or recess. The epoxy glue was chosen in consultation with the manufacturer, and gluing was done in the glulam fabricator's shop to ensure quality control.

For the window wall, the vertical glulams are bridged by a playful combination of glulam and hollow steel section (HSS) muntins. The vertical glulams serve two purposes; supporting the roof, and providing horizontal resistance for the glazing system. Careful detailing, including rebeting the supporting knife plates and U-brackets, recessing the bolt heads and plugging the holes with wood plugs, achieves a clean appearance consistent with that of the roof arches. Wood meets wood, with no visible connection.





KEY

1 Section of v-column meeting roof beam
- **1A** Section detail
- **1B** Section detail—Top

2 Lower section of v-column meeting roof beam
- **2A** Section detail

"The best award to me is the diversity and experience of our members. I love to hear stories from our visitors about the positive impact this facility has on their lives. These stories and the beautiful surroundings make every day an award-winning one!"

WENDI LACUSTA – COMMUNITY RECREATION SUPERVISOR

VANCOUVER AQ

PROJECT CREDITS

CLIENT
City of West Vancouver

ARCHITECT
Hughes Condon Marler: Architects

STRUCTURAL ENGINEER
Fast + Epp Structural Engineers

MECHANICAL ENGINEER
Keen Engineering Co. Ltd.

ELECTRICAL ENGINEER
Robert Freundlich and Associates Ltd.

GENERAL CONTRACTOR
DGS Construction Company Ltd.

GLULAM FABRICATOR
Western Archrib

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AQUATIC CENTRE

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