LOCATION
350 West Georgia Street, Vancouver, B.C.

OWNER/DEVELOPER
Vancouver Public Library

ARCHITECT
DA Architects & Planners

GENERAL CONTRACTOR
Smith Bros. & Wilson (BC) Ltd.

STRUCTURAL CONSULTANT
RJC Engineers

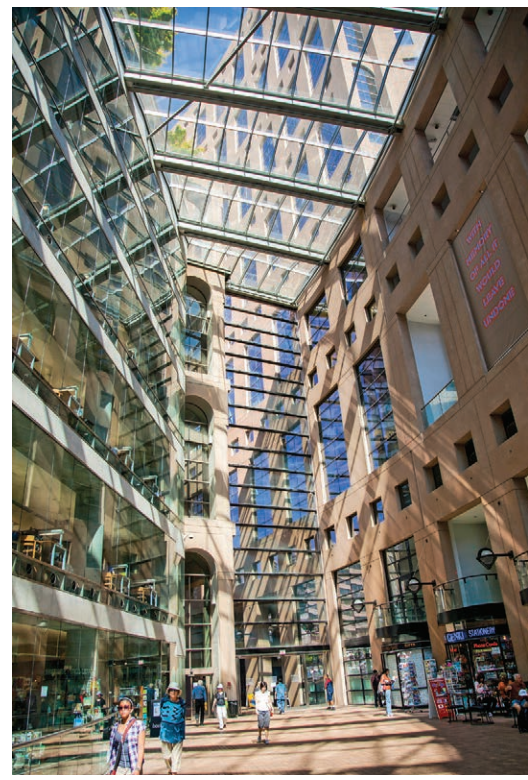
MECHANICAL CONSULTANT
Rocky Point Engineering Ltd.

ELECTRICAL CONSULTANT
Nemetz (S/A) & Associates Ltd.

LANDSCAPE ARCHITECT
Cornelia Hahn Oberlander / Connect Landscape Architecture

TOTAL SIZE
4,045 square metres (interior renovation area)

TOTAL COST
$15.5 million



Vancouver Public Library Revitalization

by **NATALIE BRUCKNER-MENCHELLI**

To Vancouverites and visitors to the city, the central Vancouver Public Library (VPL) is an iconic building. The nine-storey structure, designed by Moshe Safdie and DA Architects, originally opened to the public back in May 1995.

What visitors may not know, however, is that the original design team of Moshe Safdie, DA, and internationally acclaimed landscape architect Cornelia Hahn Oberlander had imagined and designed a rooftop and green roof above that. And yet, as is common with many projects, the intended use of the top floors changed and they were leased as offices to the provincial government with the rooftop garden plans put on hold.

With the 20-year lease coming to its end in 2015, and $15.5-million funding from the City of Vancouver and the Vancouver Public Library Foundation, VPL decided it was time to create a 59,000-square-foot indoor and outdoor expansion of the library on the two top floors, and bring a rooftop garden vision to life that the public could access.

Chief librarian Christina de Castell explains: "Libraries have always been about creating, exploring and bringing ideas to life – and VPL's expanded top floors will provide flexible spaces for performances, programs, quiet reading, and exhibits with a Vancouver focus. This collection of community spaces will enhance our ability to contribute to making Vancouver an informed, engaged, and connected city."

For the revitalization of VPL it made sense to reassemble the original team, and yet the task at hand would be no walk in the park. The project required the removal of 8,000 square feet of the upper level to create the roof garden, the opening up of the floor between level 7 and 8, and connecting those levels with two new escalators.

"VPL wanted something modern while staying sympathetic to the original design. Even when you know a building very well, a renovation can be challenging, especially when you are carving away a huge portion of the structure to make room for outdoor space," says James Kao, partner at DA Architects & Planners.

Bringing in modern elements to enhance visitor experience while complementing the existing structure required careful attention to detail. To achieve this modern look, the revitalization included lots of glass – windows and skylights flood the two new floors in natural light. In addition there is a new public roof garden on level 9 as well as two outdoor terraces on level 8, a striking honey maple feature stair that connects the upper levels, and a new 80-seat theatre, a quiet reading area, an art exhibition area, and multi-purpose rooms with a catering kitchen – adding about 59,000-square-feet of public space.

Of course accessing the top two storeys of the building in the first place was a challenge. "One of the biggest challenges was planning how to perform the necessary lifts in the busy areas surrounding the Central Library," says Daniel Metry from Smith Bros. & Wilson. "Our pre-construction team collaborated to establish which type of crane would be best suited to address the hoisting requirements. It was determined that a luffing jib tower crane was the best choice to get the job done efficiently and with minimal impact to the staff and public."

Metry adds that there was a very elaborate crane base and hoisting plan that enabled the team to temporarily remove some of the skylights with minimal disruption. "We removed a portion of the existing skylight, which allowed us to lower the new escalators into the building, eventually maneuvering them across the existing slab and into their new home."

Previously, access to the upper two levels was via a private access elevator, so to ensure flow within the idea was to create a seamless transition with escalators that run the entire height of the building.

Tommy Lai at RJC Engineers, whose company also worked on the original design, says that while the escalators on the lower levels are all supported by concrete beams, there was no structure in place for escalators in the upper two levels, so they needed to add new steel beams and retrofit existing concrete beams for the new escalators to sit on.

Lai adds that as VPL utilizes a concrete moment-resisting frame seismic system – where the beams rigidly connect to the columns – the moment frame system opens up the library and makes reconfiguring interior spaces easier without any concrete shear walls or x-braces in the library.

For level nine, RJC Engineers worked closely with Cornelia Hahn Oberlander and Connect Landscape Architecture to make sure the materials would be light enough to meet engineering specifications and to support healthy plant growth.

The rooftop garden itself is of course the visual pièce de résistance of the revitalization. Designed by the original landscape architect Cornelia Hahn Oberlander alongside Connect Landscape Architecture, the garden is a 7,300-square-foot community space that not only retains the already-standing trees but is in-keeping with the Roman character of the building.

The 9th level outdoor public garden features a variety of plants that were were inspired by the plants featured in frescos from Pompeii; these plants are hardy for Vancouver's climate and will require low maintenance as well as minimal water consumption. The area itself has been flexibly designed to accommodate large groups or lectures, receptions, and for smaller intimate outdoor readings, quiet study, and

PHOTOGRAPHY COURTESY DA ARCHITECTS & PLANNERS; VANCOUVER PUBLIC LIBRARY

PHOTOGRAPHY COURTESY DA ARCHITECTS & PLANNERS

individual reading nooks. "The central plaza allows for up to 100 people to be seated comfortably for larger events and receptions. On a typical day, the outdoor space is a contemplative stroll garden with centrally located movable tables and chairs for 40 to 50 people. The large canopy provides shelter from the rain and long timber benches allow for people to sit and enjoy the stunning views through the existing Coral Bark Maple trees," says Hahn Oberlander.

On the green roof key plantings included ornamental grasses such as Elijah Blue, a grey-blue low growing grass, and Solling, which is a green grass also with a low profile. "These were chosen to mimic the colours and textures of both the sky and river in the Lower Mainland," adds Hahn Oberlander.

For the electrical and mechanical systems (provided by Nemetz (S/A) & Associates Ltd. and Rocky Point Engineering Ltd.) it was important to not only install a great electrical and mechanical system that would achieve optimal user comfort, but also one that would essentially be invisible to the user so that nothing is taken away from the beautiful structure and look of the building.

The project utilizes a very unique HVAC system that will play a significant role in the LEED certification process and overall energy efficiency of the building. "Each level has a raised access floor which acts as a supply air plenum, and each zone has round floor diffusers that can modulate [open and close] based on the room temperature set point," explains Mathieu Bechard, associate, project manager at Rocky Point Engineering.

"This type of ventilation system not only allows us to improve the ventilation efficiency of the building, but also to hide many of the mechanical services within the floor, keeping the ceilings free of services. This resulted in a very unique look and showcased a lot of the concrete structure of the building," adds Bechard.

In keeping with the sustainable vision of the city, VPL also opted for a number of solar panels that are visible from this rooftop garden to help the public understand the goals of VPL.

Despite construction occurring during one of Vancouver's worst winters, close communication and an understanding of the building resulted in one very smooth and incredibly impressive project.

"It is a project everyone can be proud of," says Metry. "The project scope was extremely invasive in nature since much of the roof needed to be removed, but the team and staff were fantastic. We managed to keep the library open during the entire construction project. Today the building is seamless and to anyone who didn't know about the renovation, you really wouldn't notice the transition between old and new. It is still the beautiful structure it was before, but with so many additional benefits for the public." **A**