



Wellington Secondary School

by LAURIE JONES

When Wellington Secondary School was built in 1967, it was home to students from grades eight to 10. Five elementary schools fed into the Junior High, prompting additions to the building in 1973, 1979 and 2001. The precast panels and masonry units design made for a sturdy school at the time but today, that style of construction makes it a high-risk institution with regards to seismic safety.

As the years passed, Wellington became a full high school including grades eight through 12. The school's design features a centre core hub with spokes, or blocks that house classrooms, science labs, administration offices and more. Emil Bock, energy manager for School District #68 (Nanaimo/Ladysmith), says the replacement of one block and extensive seismic work in the central core afforded the opportunity to rebuild, including incorporation of 21st-Century learning design: "The upgrades will provide students and staff with a seismically safe and renewed facility, including updated amenities that will foster a successful learning environment."

Bock notes the school also received an Earthquake Early Warning System (EEWS) in partnership with the University of British Columbia and the Ministry of Education. This system is intended to provide early warning and communicate on a provincial network as well as register strong building motion to aid in understanding the forces affecting the structure in the event of a quake.

When the \$23-million project began in July 2013, the feasibility study indicated the block that held some classrooms was not worth upgrading, says Bassem Tawfik, principal at KMBR Architects Planners Inc. "Instead we took the block at the back of the school and added length, almost doubling

the run. The new block is a two-storey wing with 25,000 square feet that will house seven regular classrooms, three science rooms, two food rooms, one art room and a special education classroom and support spaces."

The previous design of the school could be disorienting with a lot of solid, often windowless walls that went in a circle around the school's core/courtyard that had limited access for student projects. "Now the courtyard is all glass," says Tawfik. "There are no solid walls there and we made the outer ring of the centre block transparent so it's not disorienting anymore when students are going through the main corridor. You can actually see the courtyard from almost anywhere in the building. We will be finishing it with nice landscaping and umbrella tables."

The school now features both open and collaborative spaces. Some classrooms open to the corridor and others open to other classrooms. The upgrades also allowed for teaching style changes. "Instead of doing three science rooms with all the equipment we did three smaller classrooms for instruction only," says Tawfik. "With the additional space we created a super lab that can be used by the whole school. In a science room, if a teacher is doing instruction they find they don't get the full benefit of the equipment. However, the super lab is open for students to do experiments at any time."

The transformation was massive in many ways and required work schedules during spring and summer breaks. When school was in session, a floor-to-ceiling interior wall was built to create a hallway for the students away from the construction zone. "The centre core, or Block F, included precast panels for the roof in the shape of what I call gull wings, or small pie shapes with a curvature," says Kim



Morrison, site supervisor with Unitech Construction Management Ltd.

Lee Rowley from Herold Engineering Limited, the structural and civil consultant, adds that the foundation work could have also been very disruptive and difficult to do as a result of limited accessibility to that section of the school. "Instead the team was able to replace the central section of the school with a new light wood structure, which avoided the need to seismically upgrade the foundations in that location," says Rowley.

Due to the new seismic codes, the roof had to come off because it was too heavy. "In the summer of 2014 we had one of the largest mobile cranes ever to be on Vancouver Island. It was a 500-tonne crane that lifted the roof panels above the interior concrete structure. Each panel weighed 33,000 pounds. We had to have a crane that would reach 200 feet and could lift 38,000 pounds. In order to remove the panels, we had to nestle the crane in close to the school." Once the centre core was demolished, construction was started on the new glulam support posts and roof beams.

Morrison says the concrete panels were chipped up and hauled to a recycling centre. The materials from the demolished two-storey block A – which previously housed science, foods and other classrooms – was ground up on site and used for fill under the new driveways and parking areas at the new front entry. The school function was also improved by placing parking where block A was situated. This aligns the parking and main entry better and provides an obvious main entry street presence, something that was previously missing.

"The main entry now has a glass curtainwall with a big cantilevered canopy to give shelter from the rain," says Tawfik. "For students who are

waiting for pick up, we designed recesses with colourful sides and concrete bases so the students can get out of the elements."

One area that serves as both a gathering place and high-tech centre is the new Internet café. Tawfik says they created organic seating for the students and they can go right from the corridor, through the café to the courtyard outside.

"Unitech's construction management approach allowed the work to be tendered sequentially, which resulted in a quick start to the project," says Ernesto Ayala, project manager for Unitech. "Our detailed tender packages eliminated any unknowns and Unitech's Proven Process resulted in lower risks and greater value for the owner. The flexibility of construction management minimized the number and scope of changes of the user groups, and in turn eliminated the costly practice of change orders which would have greatly impacted the overall cost. It has been a collaborative process from the start and the results are exciting to see." **A**

LOCATION
3135 Mexicana Road, Nanaimo, B.C.

OWNER/DEVELOPER
School District #68 (Nanaimo/Ladysmith)

ARCHITECT
KMBR Architects Planners Inc.

CONSTRUCTION MANAGER
Unitech Construction Management Ltd.

STRUCTURAL/CIVIL CONSULTANT
Herold Engineering Limited

MECHANICAL CONSULTANT
Rocky Point Engineering Ltd.

ELECTRICAL CONSULTANT
RB Engineering Ltd.

TOTAL SIZE
114,690 square feet

TOTAL COST
\$23 million