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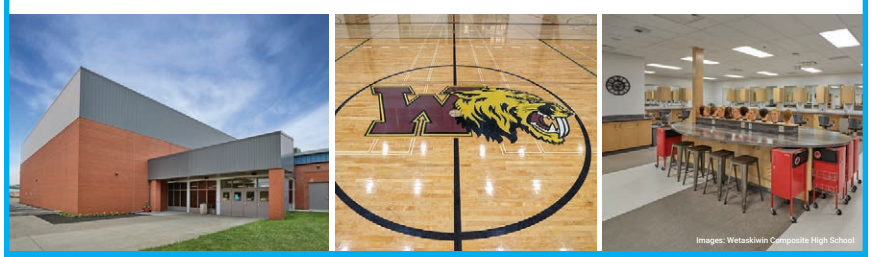

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Wetaskiwin Composite High School

by **ZUZANNA WODZYNSKA**

LOCATION
4619 – 50 Avenue, Wetaskiwin, Alberta

OWNER/DEVELOPER
Wetaskiwin Regional Public Schools

ARCHITECT
The Workun Garrick Partnership Architecture and Interior Design Inc.

GENERAL CONTRACTOR
Fillmore Construction Management Inc.

STRUCTURAL CONSULTANT
RJC Engineers

MECHANICAL CONSULTANT
KFR Engineering Services Ltd.

ELECTRICAL CONSULTANT
JO Engineering Inc.

TOTAL SIZE
150,867 square feet

TOTAL COST
$22.5 million

Students and faculty at Wetaskiwin Composite High School in Wetaskiwin, Alberta, started this school year with a fully operational and upgraded building. Construction for this major modernization project started late August 2015 and had continued in phases since then while occupied by staff and students.

Originally built in 1955, sections of the school were either modernized or added in 1963, 1965, 1976 and 1989. "Some of these additions closed in courtyards, creating areas within the core with minimal or no natural daylighting," notes Brett Woodrow, the project lead from The Workun Garrick Partnership Architecture and Interior Design Inc.

"Moreover, through these past additions, the school began to develop different levels and a variety of different building styles and types, which, over time altered the efficiencies of programs through flow, function and use of the facility." The new design helps correct most of these issues.

The main priority of the modernization was to replace the existing mechanical and electrical systems as they were near the end of their life expectancy. These new systems have been designed for the next 30 to 40 years.

Functionally, the design addressed serious program deficiencies affecting school operations through additions and program changes. "It was vitally important for this school to be able to provide meaningful learning opportunities that align with current and future learning strategies that utilize existing technology," says Sherri Senger, Wetaskiwin Regional Public Schools' (WRPS) associate superintendent.

Some changes included installing new flooring and painting to a majority of the interior of the school to provide a refresh, and more modern look. Likewise, the library and student common areas were upgraded for a more welcoming and inclusive environment. A number of classrooms were expanded and connected in order to accommodate more collaborative learning strategies with some area relocation for better staff and student flow.

"One of the main elements of the modernization was the gym expansion," notes Colin Ward from Fillmore Construction. "There were two gymnasia when we started: one was renovated to become the music and drama program space, and the other was dismantled and expanded by 360 square metres with an additional 3.6 metres in height."

Nils Hahn, project engineer with RJC Engineers elaborates: "This expansion involved removing the existing precast concrete double tee roof and the north masonry wall. New masonry walls were built to the height of the remaining existing walls and a steel framework was built inside them to support the raised roof." The new roof consists of a metal deck on open web steel joists supported by two-metre-deep trusses spanning the 30-metre width of the gym.

The City of Wetaskiwin, where the school is located, is in central Alberta so winter weather had to be taken into account. "The bigger, taller gym required us to review increased snow drifting on the existing structure," notes Hahn. "To the west of the gym this required adding a new steel roof over the existing precast concrete roof, while to the south, the increased snow drifting plus the addition of a large new mechanical unit required extensive sub-framing of the existing steel structure along with column and foundation upgrades." New concrete pile caps were installed that grabbed onto the existing cast-in-place concrete friction piles, transferring the additional snow and mechanical loads to new, adjacent galvanized steel helical piles. "These piles were used because of height restrictions," says Hahn. "The foundation upgrades had to be accomplished by equipment that fits under the existing roof structure."

Innovation and problem-solving needed to be applied during construction as well. "When working with existing buildings the challenges are always hidden," comments Woodrow. "It takes ongoing review of spaces and the design, as well as good communication. It's a group effort with all parties involved in the design and construction to come up with practical solutions to modify and incorporate the design intent into existing spaces."

As demolition progressed, surprises emerged. "For example, the cafeteria floor was stripped towards the end of the project, unexpectedly revealing the original gym floorings beneath," notes Paul Bureau, lead mechanical engineer on the project from KFR Engineering Services Ltd. "The flooring is early 1960's vintage and has been left as is, bringing a nice artistic touch to this area."

These kinds of disruptions are to be expected given the scope and depth of this project and its 60-year history. "Six months into the project it became apparent that we needed an on-site project manager to work with the construction company on a daily basis in order to co-ordinate the school requirements and the construction activities," says Senger. "Through this individual, we were able to build and maintain a solid working relationship with Fillmore Construction Management Inc. and to implement efficient and effective resolution strategies to these unforeseen challenges."

Construction in and around a functioning school also brings with it the obvious challenge of building with minimal disruption to the students' education. "Building the new mechanical and electrical systems, and supporting infrastructure was a significant challenge in the shop areas," remembers Bureau. "The team carefully planned with the respective teachers and construction occurred on one half of the shop at a time to let classes continue." The whole project was carefully phased and planned throughout so that existing heating, plumbing, electrical and fire systems were not disturbed while the new systems were being built up.

"Through each stage of deconstruction and reconstruction, safety of the staff and students was a major consideration, with temporary partition walls and dust partitions erected around construction areas to control sound and dust transmission whenever possible," notes Ward. "Closing off sections of corridors was also required to accommodate the work and traffic throughout the school and had to be co-ordinated with the school fire department." In some cases, certain stages of construction were performed after hours, on weekends or during the summer months.

"The school's major modernization was completed while it was operational, and both staff and students are to be commended for their understanding, patience and co-operation during the last two years," comments Senger. "We are excited to have the construction completed so they can start to fully experience the opportunities the newly modernized facility will provide in years to come."

The $22.5-million project was completed at the end of August this year. **A**

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