

TRAINING GROUND



A NEW HIGH SCHOOL DEDICATED TO ATHLETIC EDUCATION AND TRAINING IN SUBURBAN TORONTO EMPLOYS A HOST OF SUSTAINABLE AND URBAN DESIGN STRATEGIES THAT REFLECT THE LARGER SUSTAINABLE PRACTICES CURRENTLY BEING PURSUED BY THE MUNICIPALITY.

PROJECT BILL CROTHERS SECONDARY SCHOOL FOR ATHLETICS & HEALTHY ACTIVE LIVING, MARKHAM, ONTARIO

ARCHITECTS ZAS ARCHITECTS INC. IN ASSOCIATION WITH ROSSETTI ARCHITECTS

TEXT IAN CHODIKOFF

PHOTOS BRENDA LIU

Located in the Town of Markham, a municipality located immediately north of Toronto, the recently completed Bill Crothers Secondary School (BCSS) is a useful case study that demonstrates a commitment to developing a programmatically sophisticated high school that has succeeded in reducing its footprint on an ecologically sensitive 30-acre site. It is also a facility that employs a host of sustainable and urban design strategies that tie into some of the larger sustainable practices currently being pursued by the municipality, along with measures to enhance and preserve the Rouge River ecosystem which runs through the site. The various components found within this project serve as a model for large-scale sustainable planning that all secondary school designs should attempt to emulate. Furthering the debate

ABOVE THE LARGE PROTRUDING WINDOWS OF THE ATHLETIC TRAINING ROOMS ARE WRAPPED IN GALVALUME AND OVERLOOK THE ATHLETIC COURTYARD, ALONG WITH THE GLAZED SINGLE-LOADED CLASSROOM CORRIDORS IN THE DISTANCE.

of sustainable design, this project includes the stewardship of a healthy lifestyle for its users and the recognition of its unique landscape, while thankfully extending the discussions of sustainable design beyond normative or mainstream practices that might include passive solar design or high-efficiency glazing.

BCSS was conceived as the premier sports and athletic training facility for the York Region District School Board. The four-storey, 220,000-square-foot facility is designed for 1,600 students who follow a curriculum focused on sports and physical education. The school was named after Bill Crothers, a Markham-born athlete who won a silver medal in the 800-metre track and field event at the 1964 Summer Olympic Games held in Tokyo. Crothers was also a pharmacist and former Chair of the York Region District School Board, where he continues to serve as a board trustee. The project team was led by ZAS Architects, a Toronto-based architecture and planning firm established in 1984. Firm principals Paul Stevens and Peter Duckworth-Pilkington worked on the project. Duckworth-Pilkington describes his efforts to create a building that is defined by “the movement of the human form, its users and their activities.” The design team concentrated their efforts to support a cross-curriculum pedagogy where athletics meets academics, and where the rigours of maintaining a busy schedule for the students can be

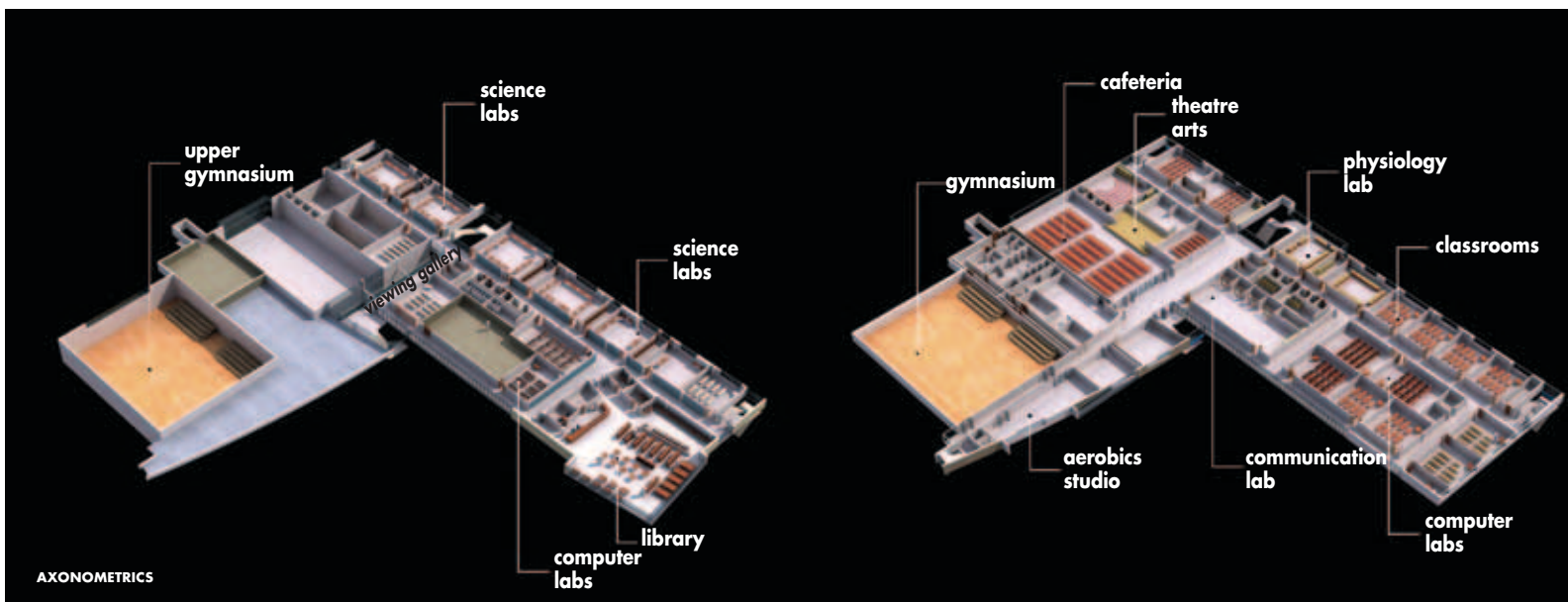


offset with informal meeting and seating areas throughout the school. Many high schools in the Greater Toronto Area offer a specialized program for gifted athletes. What makes BCSS different is that the school is entirely focused on sports, and programs relating to sports management, promotions, coaching and health sciences.

Because of its four-storey height, the L-shaped building occupies a much smaller and more compact footprint than if it were on just two levels, as is typical of many high schools. Visitors will immediately notice the school's focus on athletics the minute they walk in the front door, as a large, brightly lit double-height "student forum" is filled with students milling about, readying themselves for one of 26 school-supported sports activities. Big-screen televisions line the generous space, broadcasting student news and live feeds of sporting events across the globe. The student forum is connected to two large gymnasiums and a lecture theatre, and the plan allows the building to operate as a regional sports facility outside of school hours. On the second floor, students can use either of the two weight-training facilities, along with a broadcast booth and a coaching centre. These programmatic elements—along with the physiology and kinesiology labs, aerobics

studios, sports administration and training facilities—were designed for students to explore a wide range of sports-related careers. While the east-west wing is largely devoted to athletics, the north-south wing contains the bulk of the school's classrooms, along with a double-height library on the fourth floor. With plenty of daylight streaming in, this library sits somewhat askew from the plan, forming a proud beacon for the school that is visible from nearby Kennedy Road and Highway 407. BCSS ties into the developing mid-density, mixed-use urban precinct known as Markham Centre which hopes to attract close to 20,000 residents and 20,000 jobs over the next two decades.

A LEED Silver-rated building, BCSS uses 30 percent less energy than the Model National Energy Code, achieved mainly through a range of standard sustainable features: occupancy sensors, low-VOC materials, demand-controlled ventilation, daylight harvesting, high-efficiency HVAC equipment and external solar-shading devices. Other more interesting features include energy displays used for teaching an eco-school sustainability awareness curriculum. Nonetheless, convincing a school board to invest in many of these features is not to be taken for granted, and the client should be com-





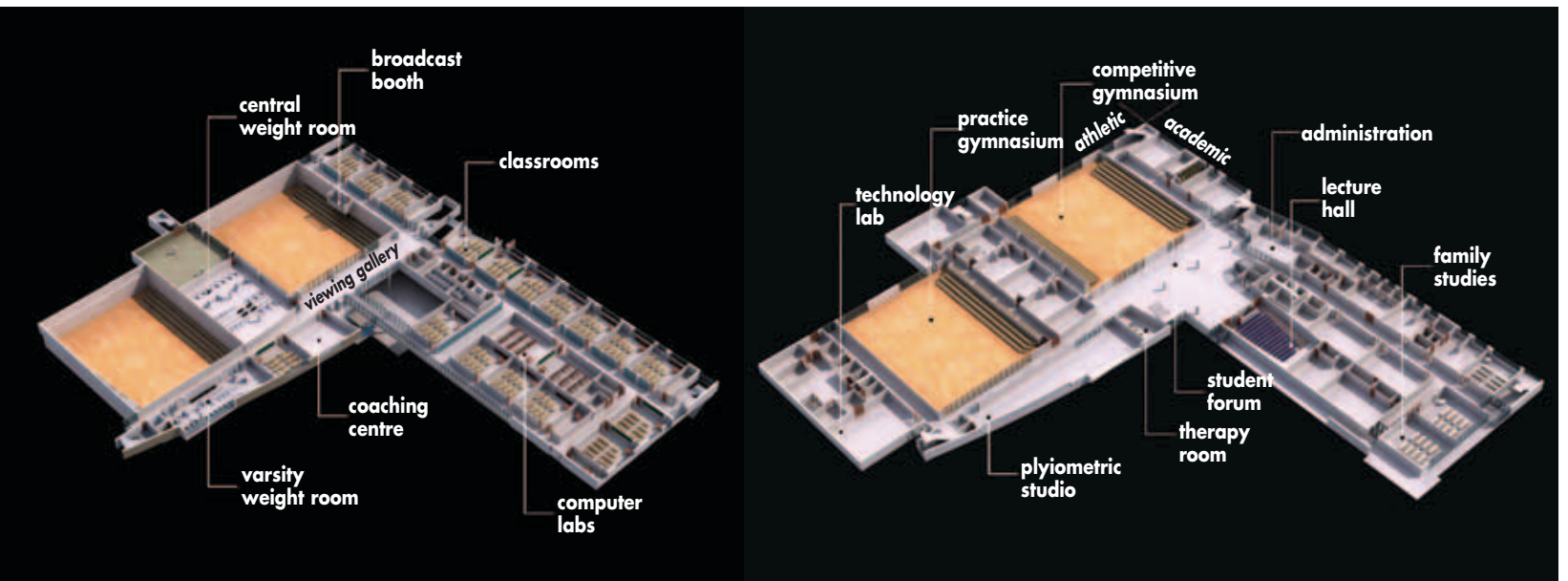
mended for their commitment to BCSS's overall success. What is truly a masterful feature is the way in which the building establishes a pedestrian link to the Unionville GO Station, and a connection to the Markham District energy tri-generation heating and cooling plant. Anticipating future private development to the east of the school further entrenches BCSS into a new and evolving mid-density community within a suburban municipality keen on curbing urban sprawl. (Markham is famous for initiating Cornell in the '90s, Canada's best example of a New Urbanist community that has achieved a level of success in increasing densities of suburban single-family residential developments.)

Formerly a golf course, the site is partially situated within the flood plain of the Rouge River. To accommodate the stress on the environment caused by the new school, along with its parking and outdoor athletic activities (a field house, two artificial turf fields, one natural turf field, a running track, and facilities for javelin, discus, long jump and other sports), a grading design was required to carefully plan for occasional flooding on the site. Landscape architect Mark Schollen of Schollen & Company undertook a low-impact development (LID) that utilized bio-filters, infiltration galler-

OPPOSITE TOP, LEFT TO RIGHT TAKING ADVANTAGE OF AN OPTIMAL MICROCLIMATE, THE SOUTHWEST ORIENTATION OF THE ATHLETIC COURT PROVIDES EXTERIOR MULTI-PURPOSE OUTDOOR SPACE FOR STUDENTS AND THE GENERAL PUBLIC; STUDENTS PARTICIPATING IN ONE OF THE SCHOOL'S 26 SPONSORED SPORTS—BASKETBALL; FILLED WITH NATURAL DAYLIGHT AND FLAT-SCREEN TELEVISIONS PROVIDING LIVE SPORTS COVERAGE, THE STUDENT FORUM IS THE SOCIAL CENTRE OF THE SCHOOL.

ies, and one of the largest rain-water harvesting and recycling systems in North America—a system that is capable of handling 1,875 cubic metres of water at one time. Avoiding conventional catch basins and storm sewer systems, huge cisterns were constructed beneath the two artificial sports fields to contain storm- and rain-water runoffs before releasing the water in the Rouge River system. The landscape plan also included the creation of three hectares of constructed wetlands and reforested riparian areas that reintroduce native plant material to the diversity of plants already found along the Rouge River corridor.

The desire to integrate an energy-efficient high school that acknowledges the efforts of the Town of Markham to increase density and access to tran-





sit, and to share in district heating is laudable. Furthermore, understanding the importance of fostering a landscape that respects its natural heritage while proactively handling the issues of storm-water runoff indicates a holistic design approach that moves beyond the scale of a mere building, and touches upon a larger, more ecological urbanism. **CA**

CLIENT YORK REGION DISTRICT SCHOOL BOARD
ARCHITECT TEAM PAUL STEVENS, PETER DUCKWORTH-PILKINGTON, JIM RENNE, YASSI AKBARIAN, YAMA ASAD, MARTIN BENDA, CARMINE CANONACO, COSTAS CATSAROS, DANIEL COMERFORD, ROB CONNOR, ANTONIO CUVIN, ERIC MANN, AMANDA REED, DUC TRAN, DAN VRABEC
STRUCTURAL HALSALL & ASSOCIATES LTD. (SHAHE SAGHARIAN)
MECHANICAL/ELECTRICAL MMM GROUP (NEIL SPENCE)
LANDSCAPE SCHOLLEN & COMPANY (MARK SCHOLLEN)
INTERIORS ZAS INTERIORS INC. (ELLA MAMICHE)
CONTRACTOR BONDFIELD CONSTRUCTION COMPANY LTD. (STEVE AQUINO)
CIVIL & STORMWATER MANAGEMENT SCHAEFFERS CONSULTING ENGINEERS (HAROLD REINTHALER)
AREA 220,000 FT²
BUDGET \$35.9 M
COMPLETION 2009

- 1 BILL CROTHERS SECONDARY SCHOOL
- 2 FIELD HOUSE
- 3 PARKING
- 4 SOCCER FIELD
- 5 ARTIFICIAL TURF SOCCER FIELD WITH RUNNING TRACK
- 6 SOCCER/RUGBY FIELD
- 7 FUTURE DEVELOPMENT



SITE PLAN

0 100M

TOP THE LIBRARY IS PERCHED ATOP THE SCHOOL TO FORM A BEACON FOR ALL TO SEE. **MIDDLE** THE FLOOR-TO-CEILING GLAZING ALONG THE CLASSROOM CORRIDOR ESTABLISHES A CONSTANT CONNECTION TO THE SITE'S LANDSCAPE. **ABOVE** A FIELD HOUSE, AN EIGHT-LANE SYNTHETIC TRACK CIRCUIT, AND MULTIPLE ARTIFICIAL TURF PLAY FIELDS COMPRISE THE SCHOOL'S MAJOR OUTDOOR ATHLETIC FACILITIES. EXTENSIVE STORM-WATER MANAGEMENT FACILITIES HAVE BEEN CONSTRUCTED BENEATH THE ARTIFICIAL SPORTS FIELDS AND REMAIN LARGELY INVISIBLE.