



# Engineering V Building – University of Waterloo

by Don Procter

**T**he University of Waterloo's newest addition, the Engineering V (E5) building, is a six-storey complex with a dominating presence on campus. This first phase of a master plan calls for two more engineering buildings east of the main campus.

The striking new addition to the university is clad in a glass curtain wall but it looks nothing like a common glass box. While the first two floors are faced with a transparent glass curtain wall, upper storeys feature a ceramic frit applied to the glass in a diamond-shaped pattern. "Using four different gradients of dots, we created the illusion that each rectangular panel of glass looks like a raised diamond. From a distance, it appears as if the floors are formed out of a series of metal pyramids," explains Andrew Frontini, principal and design director, Shore Tilbe Perkins + Will, the project's chief architect.

The design was inspired by the facility's anechoic chamber, which features an electromagnetic radiation laboratory. The cube-shaped space is lined with carbon-fibre-coated rubber, pyramid-shaped protrusions that block unwanted frequencies, notes Frontini. The shielded room, which is supported by the Canadian Foundation for Innovation, is used to attenuate radio frequency and microwaves for research in wireless communications. "It's a

phenomenal, leading-edge, world-class facility," says Ron Venter, space planning consultant for the Faculty of Engineering.

The 160,000-square-foot building provides office, teaching and research space, he says. The first two floors operate as a student design centre, showcasing engineering projects such as solar and hydrogen fuel cell vehicles. "In my view, the first two floors are the gems of the building," says Venter.

The building's main entrance, on the second floor, features a lobby with a five-storey atrium. In the middle of the atrium is a sculptural staircase to upper floors. Clad in metal perforated acoustic panels, the staircase provides lighting for the atrium through a series of LED lights recessed into reveals, says Frontini. On the fourth and fifth floors is an outdoor two-storey "sky garden" that overlooks the main campus.

The building is the first within the Faculty of Engineering that is located outside the ring road circling the university campus. That was an important step in the faculty's masterplan (Vision 2010), spearheaded by Adel Sedra, dean of the faculty, because it identified the location for the additional engineering facilities to be constructed within the master campus plan of the university, says Venter.

Linking E5 to the main campus is

a third-floor glass pedestrian bridge which crosses the ring road to E3. Constructing the new building and bridge link without disrupting daily activities at the busy campus complicated the building sequencing program for general contractor Bondfield Construction Co. Road shutdowns, traffic detours, pedestrian control and after-hours construction were critical to ensuring the project was on time and budget, explains Steve Aquino, Bondfield's vice-president of operations.



Right: The atrium feature stair system.

