

Canadian Engineers' Awards



National Award for Exceptional Engineering Achievement Canadian Light Source Synchrotron Facility

When the University of Saskatchewan received funding to build Canada's first synchrotron in 1999, the task of engineering a facility suitable to house and support a complicated \$173 million microscope fell to a group of engineers from the Saskatoon office of UMA Engineering Ltd. (UMA), a Canadian-based consulting firm.

Synchrotrons, which act like powerful microscopes, are capable of producing a light millions of times more intense than the sun in beams the width of a human hair. They help scientists develop new and better drugs, plastics, textiles, detergents, computer chips, motor oils and solar cells. They can reveal the secrets of aging and possible treatments for diseases like cancer, Alzheimer's and diabetes, or even be put to use tracking down environmental contaminants.

Building a facility to house a synchrotron is no small feat. Even when located in the middle of Saskatchewan, these finely tuned precision instruments can sense ocean tides.

Yet less than two years from the date of project approval, an extraordinary building awaited its extraordinary occupant. The UMA team, with assistance from its project/construction management division, had come through on time, on budget, with a facility owned by the University of Saskatchewan and operated by Canadian Light Source Inc. (CLSI). The building and systems fully satisfy the conditions required to house and power a synchrotron that will allow Canadians to do research they never could have dreamed of undertaking in their own country before.

The key UMA project leaders were Nizar Dhanani, P.Eng., UMA design manager and structural engineer, Peter Hooge, P.Eng., mechanical engineer, Edwin Klassen, P.Eng., electrical engineer, and Barry Pearson, senior technologist responsible for site services. The team included a further 10 engineers, specialists in design, mechanical, electrical and structural engineering.

UMA not only succeeded in creating a first-class home for the Canadian Light Source Synchrotron which satisfied the needs of its multiple stakeholders, its proposal also included an important point of added value for the University of Saskatchewan. The company opened the construction site to the university's engineering students. Promoting the idea of education through real-life experience, students toured the facility on a regular basis, studying its intricacies and consulting with the professionals engineering the project.

In addition to its important research capabilities, it is anticipated that Canada's first synchrotron will produce a variety of significant benefits for the university, the province and the country. Initially, there will be 200 permanent jobs with the potential for increase. The national profile of the project should also benefit the engineering industry in Saskatchewan. Once it is fully operational, it is anticipated that the synchrotron will host as many as 2,000 visiting scientists and graduate students each year, adding some \$35 million annually to Canada's commercial and development spending and \$12 million annually to the country's gross domestic product.

The Canadian Light Source facility is one the UMA engineering team can justifiably be proud to seal.

The engineers involved in building the Canadian Light Source synchrotron facility are all members of the Association of Professional Engineers and Geoscientists of Saskatchewan.