



2014 AWARDS FOR ENGINEERING EXCELLENCE

Award of Merit

TRIUMF Advanced Rare Isotope Laboratory (ARIEL)



Consultants

Stantec Consulting Ltd.
Bush, Bohlman & Partners
Applied Engineering Solutions Ltd.

Owner/Client

TRIUMF

Category

Buildings

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An expansion of the existing TRIUMF facility, this project increases Canada's capability to produce and study isotopes for physics and medicine. The project is a highly specialized installation using leading-edge technology. It features a high-power superconducting electron accelerator, electron linear accelerator, proton beam line, high-power target stations, and a front-end isotope separator.

Coordination between the three branches of engineering – structural engineering by Bush, Bohlman & Partners, electrical engineering by AES and mechanical engineering by Stantec Consulting was facilitated by the Prime Consultant Chernoff Thompson Architects. The depth of the construction adjacent to existing buildings along with radiation shielding requirements including thick concrete walls, provided a particular challenge for this project. Ductwork, pipe and cable placement needed to be carefully worked into the design early due to the required thickness of the concrete walls. 3D models of the plantroom arrangement helped with this process.

AES assisted by LEX engineering were responsible for the electrical power to the development that had to be incorporated within the scope of a fully operational research facility without any interruption to important research. Stantec designed the highly specialized nuclear ventilation system and the "active" and "non active" cooling systems along with the room pressurization systems. Bush, Bohlman & Partners LLP achieved a design of a hugely deep excavation within a metre of existing buildings with a structure of massive concrete.

The project was completed on time and within budget with Ellis Don as the prime contractor.