



RESEARCH GREENHOUSE

BUILDING:	Centre for Advanced Research in Environmental Genomics Biosciences Building Complex-Phase I & II
OWNER:	University of Ottawa Ottawa, ON, Canada
CLIENT:	University of Ottawa Ottawa, ON, Canada Mr Claudio Brun Del Rey
AREA:	4,010 sf
COMPLETION:	2004

The greenhouses, located at the top of the Biosciences Building Complex, are used by the Department of Biology for research in plant ecology, plant physiology, plant-insects interactions, disease resistance, plant molecular biology, biochemistry, teaching and plant display. Phase 1 greenhouse is part of the Centre for Advanced Research in Environmental Genomics (CAREG) and included a 1,760 sf research greenhouse complex and its mechanical/electrical rooms. The facility is composed of 6 greenhouse compartments with a double-loaded access corridor. Phase 2 greenhouse included 3 greenhouse compartments and an access corridor; one compartment is dedicated to desert plants (very dry climate), another has a function of tropical plant display (very humid, hot and shady climate) and the last one serves research/teaching purpose for undergraduate students (flexible set points). This 2,250 sf complex is traditionally ventilated and cooled.

Agritechnove was part of a larger design team for this project and was responsible for the basic Engineering services related to the greenhouses and their mechanical/electrical rooms. (Program of Requirement, design, drawings and specifications, production of bid documents, shop drawing review, non-resident construction supervision).

SPECIAL FEATURES – Two compartments are completely air-conditioned and heated through their own air-handling systems, independent from the other zone, with adjustable fresh air intake. A permanent monitoring of the greenhouse tied to the general building control system and system's redundancy. Design to ensure reasonable temperature within the greenhouse in case of coolant system failure by switching to 100% fresh air, fog cooling and use of the horizontal shading system. Natural ventilation is used in the other compartments in conjunction with automatic shading and fog system to minimize the use of forced air system. Snow melt function with heat generated close to the roof to ensure structural integrity and snow melting to avoid long periods of time with light obstructed by snow on the roof.

TECHNICAL SYSTEMS – Both greenhouse complexes are tied to a dedicated DDC control system with greenhouse designed software tied to a weather station. This system controls HID lighting, automatic irrigation, high pressure fog system, modulating hot-water heating system with fin tube radiators, 2 speed forced ventilation systems, HAF recirculation fans, vertical and horizontal shade/energy curtains, electrical outlets in some zones. Emergency power feeds the horizontal shading, positive pressure ventilation, cooling and heating systems.

