



RESEARCH GREENHOUSE

BUILDING:	Centre for Advanced Research in Environmental Genomics Biosciences Building-Phase 1
OWNER:	University of Ottawa Ottawa, ON, Canada
CLIENT:	University of Ottawa Ottawa, ON, Canada Mr Claudio Brun Del Rey
AREA:	1,760 sf
COMPLETION:	2003

The research greenhouse is located at the top of the Three-phases Biosciences center. The first phase project started mid 2001 and includes the construction of new research greenhouses and its mechanical/electrical rooms. The new greenhouse facility is intent to be used by the Department of Biology for research in plant ecology, plant physiology, plant-insects interactions, disease resistance, plant molecular biology and biochemistry. The facility is composed of 6 compartments of greenhouses including 2 air conditioned zones and an access corridor. The greenhouse is part of the Centre for Advanced Research in Environmental Genomics (CAREG).

Agritechnove is part of a larger design team for this project and is responsible for the basic Engineering services related to the greenhouse (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 four other compartments in conjunction with automatic shading and fog system to minimize the use of forced air system. Fresh air is introduced through corridors and from there to each greenhouse compartment, as needed. Other features are: Special insect screening in natural ventilation openings and on positive pressure fans, vertically moving sash panels allowing fresh air in the greenhouse without obstructing corridors. 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 – A-frame roof glass structural system with over 190 points of controls distributed DDC control system with greenhouse designed software tied to a weather station. All greenhouse functions are tied to this system: 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. Rolling benches and manual water outlets. Electrical main power, electrical distribution and emergency power that feeds the horizontal shading, positive pressure ventilation, cooling and heating systems.

