



## RESEARCH / EDUCATION GREENHOUSES

**BUILDING:** Environmental Sciences Research Center

**OWNER:** Acadia University  
Wolfville, NS, Canada

**CLIENT:** Robert A.M. Stern Architects  
New York, NY, USA  
Mr Preston Gumberich, AIA

**AREA:** 6,320 sf (greenhouse)

**COMPLETION:** 2003

This project includes laboratories, classrooms, libraries, study rooms, social gathering rooms and, in particular, a large, beautiful, classical style but state-of-the-art greenhouse. The greenhouse is divided into two general parts: the science side and the public side. The public side includes a small conservatory housing native plants of eastern Canada, a collection room and a fern room. Agritechnove is responsible for the complete design of the 12 greenhouse compartments (6,320 sf). It also helped in the design of the mechanical level and the architectural criteria of the entire greenhouse.

**SPECIAL FEATURES** - The public side is using passive ventilation for climate control along with modulated hot water heating system. They have shading systems, automatic irrigation, HPS lighting and are under full computer control. The science side is somewhat special. There are 6 identical fully air-conditioned zones, each fitted with HPS lighting canopy that can be raised or lowered at the tip of a hand, automatic systems generating acid rain or acid fog for environmental studies and are capable of maintaining ultra-precise temperature conditions throughout the year. There is one propagation zone and one compartment is dedicated to wetland research. The latter has 3 mesocosm benches: each bench handles up to 350 gallons of sea water, is 10 ft. long by 6 ft. wide and is capable of reproducing tides at various angles of shore on a continuous basis with water temperature control, monitoring of temperature, all under full computer control. Every science zone has multiple unassigned sensor jacks allowing the direct plugging into the computer of any conceivable sensor. These sensors can then be assigned to turn on or off several computer controlled power outlets or simply can be monitored for data accumulation.

**TECHNICAL SYSTEM** - 6 compartments for research in science side including A/C, CO2 injection, adjustable lighting canopies. Emergency power for critical systems, RO water, tempered and cold water. Many assignable inputs and outputs in each of the 12 greenhouse compartments in addition to modulating control of all permanent systems. Electrical outlets monitored through the greenhouse computer control. Wetland research room including 3 mesocosm benches (tide simulator). Planned to accommodate all present and future research and teaching programs of the Acadia University.

