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**Project Name: University of Saskatchewan, College of Agriculture Phytotron Control Upgrade**

Location: Saskatoon, Saskatchewan

Owner: University of Saskatchewan



**Plant Facility:** The CEF (Controlled Environment Facility), also known as the Phytotron, is located on the ground floor of two wings of the College of Agriculture building. The facility consists of 183 environmentally controlled reach-in growth chambers and walk-in rooms that can be programmed to produce various environmental conditions, such as qualities and intensities of light, ranges of temperature and humidity. The cabinets are linked via a communication network for centralized control sequence programming and alarm monitoring.

When the chambers were initially installed in 1991, the control system electronic hardware was given a projected 15-year lifespan. By 2000, the Owner became aware that while the growth chambers themselves were still operating well, the electronic controls were becoming prone to failure, and replacement components were becoming obsolete. The Owner also recognized that due to the large number of chambers, the replacement would be a significant capital cost which must be budgeted for and installed over a number of fiscal periods.

**Delco Automation's Scope of Work:**

Delco Automation was retained to:

- Perform site audits to confirm existing control systems and field devices
- Investigate new technologies for control and communications.
- Provide guidelines for proposals from both OEM and third-party vendors for replacement of the control and communication system.
- Evaluate all proposals based on technical merit, installation procedures, future upgradeability, and capital and operating costs.
- Provide a report to the owner with features and benefits of each proposed solution, and recommend the most suitable solution and timeline for upgrading the control systems.