

## UNIVERSITY OF WESTERN ONTARIO / BIOTRON



**PROJECT:** The Biotron  
**OWNER:** University of Western Ontario  
London, ON, Canada  
**CLIENT:** Tillmann • Ruth • Mocellin Architects Inc.  
Perkins + Will Architects  
London, ON, Canada  
Mr. Tom Tillmann, Arch.  
**AREA:** 5,210 sf  
**COMPLETION:** 2008

The Biotron consists of 6 large, custom-designed, environmentally controlled Biomes exhibiting enhanced Level 2 containment. Unlike conventional greenhouses, Biomes are completely sealed units. The glass Biomes allow natural sunlight to pass through; shading systems can be activated to control levels of sunlight. In addition, the chambers are equipped with artificial lighting and an array of micro-sensors and computer systems to enable strict analysis and control over factors such as CO<sub>2</sub>, temperature, UV radiation, light intensity, wind, and precipitation. Each biome has its own negative pressure anteroom, directly connected to the biome and used for isolation work specific to that biome. The Biomes are designed to allow multi-disciplinary teams to create and simulate integrated ecosystems including plants, insects, soil microbes, fungus, and algae.



In addition to the Biomes, the complex benefits 2 more conventional greenhouses (non-A/C) for acclimation and seedlings, as well as one glass headhouse.

**TECHNICAL SYSTEMS** – Full air conditioning and negative pressure cascade for biomes, air filtration, independent HVAC connections to building systems, levels of redundancy. Specialized greenhouse control system fully interfaced with building automation system. Horizontal and vertical shading systems, high pressure sodium lighting system (High intensity), 2 different benching systems, fogging system, CO<sub>2</sub> injection, automated irrigation with multiple feed-sources and many other systems.