

RICHARD DENIS, P.E.

Greenhouse Consultant

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PROFESSIONAL ASSOCIATIONS

- The Professional Engineers of Ontario 2000
- Saskatchewan Association of Professional Engineers 1995
- The Association of Professional Engineers and Geoscientists of New-Brunswick 1987
- American Society of Agricultural Engineers 1982
- Ordre des ingénieurs du Québec (Professional Engineers of Quebec) 1980

EDUCATION

1979 B. SC. (Agr.Eng.), Laval University, QC, Canada

PROFESSIONAL EXPERIENCE

1985-present President, Agritechnove Inc., St.Anselme, QC, Canada.
Responsible for the administrative and financial management of the company as well as the promotional and business development activities. From 1987 to 1990 he managed a threefold increase in the volume of contracts. From 1990 to present he expanded operations from a local client base to a national and international client base.

As Project Manager he is responsible for seeing the work contracted by the firm is carried out, distributing and overseeing tasks attributed to the mechanical, electrical and structural design engineers involved and supervising the project budget.

1979-1985 Design Engineer, Les Industries Harnois, Joliette, QC, Canada.
Responsible for the product development of North America's largest greenhouse manufacturer. Provided technical support to sales and to installations in the field. Edited the technical manuals and literature.

SOME REPRESENTATIVE PROJECTS

*United States Government
United States Department of Agriculture*

- USDA/ARS/BARC-West, BL3-Ag Maximum Security Biocontainment Greenhouse and Laboratory, Beltsville, MD, USA. 1,500 sf of BL3-AG contained research greenhouses, divided into 4 independent zones. 1,000 sf of BL3-AG contained laboratory. Research on plant pathogens, viruses, fungi, bacteria and noxious weeds, both indigenous and non-indigenous. Maximum containment facility.
- USDA/ARS/SARL Subtropical Agricultural Research Laboratory, Weslaco, TX, USA. Retrofitting and renovation of 4 greenhouse complexes and design of 3 new greenhouse complexes, one of which is a Level 2 containment. Retrofits and new greenhouses include high pressure fog, supplementary lighting and shade curtains. Total of 6,800 sf in 5 buildings.
- USDA/ARS/BARC Range 1 Replacement, Beltsville, MD, USA. 2 blocks of greenhouses for a total of 14 new research zones 13,000 sf. Greenhouses are BSL-2 containment facilities designed for support of BSL-3 Ag new greenhouse on campus and for vector biology research. Scope included all greenhouse aspects except concrete design.

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Resume

- USDA/ARS Crops Research Laboratory Renovation, Fort Collins, CO, USA. 13,230 sf of new research greenhouse space, divided in 2 wings, 15 compartments including a zone equipped with isolation cubicles for insects and 2 air conditioned zones.
- USDA/ARS National Arboretum, Washington, DC, USA. 12,600 sf of new research and production greenhouse space, divided in 14 compartments including a headhouse zone. Complete design.
- USDA/ARS Pacific Basin Agricultural Research Center, Hilo, HI, USA. 24,000 sf of insectary and 10,000 sf of BSL-2 and BSL-3 greenhouses. Complete design greenhouses, consultation on insectary.

University of Minnesota, St. Paul, MN, USA

- Plant Growth Facilities. 30,450 sf of new research greenhouse space, divided in 4 wings, 34 compartments, including 1,200 sf of BSL-3 greenhouse space.

University of Western Ontario, London, ON, Canada

- Biotron. New rooftop BSL2++ research greenhouse facility of 5,210 sf related to climate effects on plants. Among other spaces includes 6 highly technical air conditioned compartments equipped with the latest plant and insect research technology. Complete design and construction administration services.

Medicago, Quebec City, QC, Canada

- Biopharma BL-2 Greenhouse Complex. The BL-2 containment facility used for alfalfa production in a biopharma and research context is located in the world-renowned Quebec Metro High Tech Park. The insect proof complex includes 11,200 sf of laminated curved roof glass greenhouse and a 3,000 sf of service building area with an airlock, a state of the art potting room, a cold room, an autoclave, mechanical/electrical room and primary recovery/purification suite.

Government of Canada Agriculture & Agri-Food

- Potato Research Center, Fredericton, NB, Canada. Three aisles of research greenhouses totalizing 8,640 sf divided into 17 zones and 3 corridors. A frame type with complete mechanical (heating, cooling, shading, lighting, benching), structure, glazing, electrical and control systems.
- CIDA-Agriculture Canada, Seed Potato Laboratory, Setif, Algeria. 1,500 square meter 2 zone propagation and research greenhouse complex with a small laboratory. Greenhouse is a "Venlo" type structure with glass glazing, radiant heating and forced ventilation with pad cooling, with supplementary lighting, shade curtains and custom benching.

Niagara Parks Commission, Niagara, ON, Canada

- Butterfly Conservatory, Niagara, ON, Canada. Mechanical and control design of heating and ventilation systems within a 11,000 sf tropical conservatory for the display of live butterflies. Structural, mechanical and electrical design of the 17,500 sf multi-zone service greenhouse for raising butterflies and butterfly food plants.

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Resume

McGill University, Montreal, QC, Canada

- Faculty of Agriculture. 600 square meter, 7 zone, research greenhouse complex. A frame type structure with insulated glass panel glazing, radiant heating and forced ventilation, with supplementary lighting, shade curtain, drip and mist irrigation and custom benching.

University of California / Davis. Davis, CA, USA

- Contained Research facility. Large BSL-2 and BSL-3 laboratory and research facility, including 7,600 sf over 18 zones BSL-3 containment (plants & insects) greenhouse. Custom designed greenhouse structure adapted to decontamination protocols. Forced air heating and cooling, supplementary, exterior shading, vertical curtains, mist frame irrigation, automated bench black-out curtains.

Iowa State University, Ames, IA, USA

- Reiman Gardens Conservatory. This award winning building located in the largest public garden in Iowa features five supporting greenhouses totalizing 6,000 sf, a 5,000 sf indoor conservatory year-round plant display and a 2,500 sf butterfly house. Complete design aspects (heating, ventilation, plumbing, benching, supplementary lighting) of greenhouses and control aspect of conservatory/butterfly house.

University of California / Berkeley, Berkeley, CA, USA

- Jane Gray Research Greenhouse. 2,400 sf research and exhibition greenhouses divided into 4 independent zones. A frame tempered glass structure with benching, gas fired unit heaters, pad cooling, shading, HID lighting and irrigation/fertilization systems.

University of Ottawa, Ottawa, ON, Canada

- Biosciences Building Phase II. 2,250 sf of new rooftop teaching/conservatory greenhouse divided into 3 compartments: desert, tropical and undergraduate seedling. A-frame laminated glass structure with ventilation, heating, HID lighting, shade curtain, fog, benching, plumbing and fire protection systems.

The University of Chicago, Chicago, IL, USA

- The Biological Sciences Learning Center and Jules F. Knapp Medical Research Building Complex. Six story laboratory, classrooms research building with a roof top greenhouse of 10,000 sf over 9 zones. 2 zones are air conditioned. The greenhouse is an "A" frame type structure with insulated glass panel glazing, forced air heating and ventilation, supplementary lighting, shading, high pressure fogging. 5 custom designed high humidity growth rooms are part of the greenhouse complex

PUBLICATIONS

Contributing author to the Provincial Horticulture Council publications for:

- Greenhouse irrigation
- Greenhouse construction and heating
- Greenhouse vegetable production
- Drip irrigation systems
- Sprinkler irrigation systems