RICHARD DENIS, P.E.

GREENHOUSE CONSULTANT

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President
Agritechnove Inc.
Consulting Engineers

PROFESSIONAL ASSOCIATION

Ordre des ingénieurs du Québec (Professional Engineers of Quebec), 1980
The Association of Professional Engineers and Geoscientists of New-Brunswick, 1987
The Professional Engineers Ontario, 2000
Eligible to the Association of Professional Engineers and Geoscientists of Saskatchewan

EDUCATION

B. Sc. (Agr. Eng.)	Laval University, Quebec, Canada	1979

PROFESSIONAL EXPERIENCE

1985-present — President, Agritechnove Inc., St-Anselme, Québec, 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, Quebec, 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

Government of Canada.
Agriculture & Agri-Food Canada

- L'Assomption, Québec. 6 zone research greenhouse complex with laboratory and office spaces. Greenhouse is a “Venlo” type structure with glass glazing, forced air heating and ventilation systems with mobile supplementary lighting, irrigation, shading, vertical curtains, fog systems and custom benching with electric bench heating.

- 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. Project was tendered and awarded in 1993. Material is on site held for construction until civil unrest ceases.

- Health of Plants and Animals Laboratory, Charlottetown, Prince Edward Island. , Includes large BSL-3 laboratory and a 1000 square feet, 4 zones, BSL-2 greenhouse (upgradable to BSL-3). The greenhouse is an "A" frame type structure, glass glazing, HVAC system below greenhouses, supplementary lighting, automated irrigation, custom benching.

- Expansion of Lethbridge Research Center, Lethbridge, Alberta. Includes 12,000 sf of research greenhouses subdivided in 35 compartments, 4 zones of BL-3 containment greenhouses. The greenhouses are "A" frame type structures, glass glazing, HVAC system below greenhouses, supplementary lighting, automated irrigation, custom benching and other features.

The International Institute for Tropical Agriculture

- Biological Control Center for Africa, Cotonou, Republic of Benin. Upgrade of existing BSL-3 greenhouses for biological control. Acted as designer and supplier for fogging system, shading system, computer control system and other miscellaneous systems.

The Scripps Research Institute

- The Arnold and Mabel Beckman Center for chemical sciences, La Jolla, California. Three story laboratory with roof top greenhouse of 11,000 square feet over 11 zones. The greenhouse is an "A" frame structure with glass glazing. Forced air heating and cooling, supplementary lighting, shading, high pressure fogging.

The University of Oregon

- Forest Ecosystem Research Laboratory, Corvallis, Oregon. Four story building with roof top greenhouse of 625 square feet over 3 zones, including one BL-3 containment greenhouse. The greenhouse is an "A" frame structure with glass glazing. Forced air heating and cooling, supplementary lighting, shading, high pressure fogging.

The University of Minnesota

- Plant Growth Facilities, St-Paul, Minnesota. 30,450 sf of new research greenhouse space, divided into 4 wings, 34 compartments, including 1,200 sf of BSL3 greenhouse space.

The University of Chicago

- The Biological Sciences Learning Center and Jules F. Knapp Medical Research Building Complex, Chicago, Illinois. Six story laboratory, classrooms research building with a roof top greenhouse of 10,000 square feet 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.

The University of California

- Davis Campus, Davis, California. Contained Research Facility, large BSL-2 and BSL-3 laboratory and research facility, including 7,600 square feet 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.

• Los Angeles Campus, Los Angeles, California. Molecular Life Sciences Building, rooftop BSL-2 research greenhouses and Botanical Garden Greenhouses. Total of 3500 square feet of greenhouses.

Virginia Commonwealth University

- The Sciences Building, Richmond, Virginia. Four story building with roof top greenhouse of 2000 square feet over 4 zones (tropical, desert, temperate and temperate pesticide free). The greenhouse is an "A" frame structure with glass glazing. Forced air heating and cooling, HVAC for desert zone, supplementary lighting, shading, high pressure fogging.

United States Department of Agriculture (USDA)

- Subtropical Agricultural Research Laboratory, Weslaco, Texas. Retrofitting and renovation of 4 greenhouse complexes and design of 3 new greenhouses 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 square feet in 5 buildings.

- BSL3-AG Maximum Security Laboratory & Greenhouse, Beltsville, Maryland. 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.

- Crops Research Laboratory Renovation, Fort Collins, Colorado. 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.

- Pacific Basin Agricultural Research Center, Hilo, Hawaii. 24,000 sf of insectary and 10,000 sf of BSL2 & BSL3 greenhouses.

Niagara Parks Commission

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

McGill University

- Faculty of Agriculture, Montreal, Quebec. 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.

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