

## LAMBERT OTTEN, PhD, P.Eng.

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### FORMAL EDUCATION:

1971	Ph.D.	Chemical Engineering, University of Waterloo
1969	M.A.Sc.	Chemical Engineering, University of Waterloo
1968	B.A.Sc.	Chemical Engineering, University of Waterloo

### EMPLOYMENT HISTORY:

2009 -	Professor Emeritus, School of Engineering, University of Guelph
1980 - 2009	Professor, School of Engineering, University of Guelph
1995 - 2005	Director, School of Engineering, University of Guelph
1978 - 1980	Associate Professor, School of Engineering, University of Guelph
1973 - 1978	Assistant Professor, School of Engineering, University of Guelph
1972 - 1973	Assistant Professor, Dept. of Chemical Engineering, University of Saskatchewan

### MAJOR HONOURS AND AWARDS

2008	Gold Medal for Outstanding Research Collaboration. Instituto Superior Politécnico José Antonio Echeverría, La Habana, Cuba
2000	Fellow of The Canadian Society for Engineering in Agriculture, Food and Biological Systems
1999	Maple Leaf Award, Canadian Society of Agricultural Engineering
1988	John Clark Award, Canadian Society of Agricultural Engineering
1984 & 1994	Professor of the Year Award, Engineering Student Society
1978	Outstanding Young Canadian Excellence Award in the Arts and Science (including a dinner and reception with Queen Elizabeth and the Duke of Wellington)
1978	Canadian Merit Award

### ADMINISTRATIVE EXPERIENCE

Director of the School of Engineering:(1995 - 2005) - duties and responsibilities are similar to those of a Dean of Engineering but because the School has no departments, the Director also operates as a department chair, including assigning of teaching responsibilities, hiring faculty & staff, etc., with the assistance of an Associate Director and a Graduate Program Coordinator.

Graduate Coordinator (1979 -1988; 1991) – coordinator of the graduate program in the School of Engineering,

including recruitment, admissions, program development, formation of examining committees, conflict resolution. Prepared the 1984, 1998 and 1991 Appraisal Documents for the Ontario Council on Graduate Studies.

International Program Development (1995-2005) - represented the university in the negotiations and development of programs with institutions in Thailand, Cuba and Colombia.

## **SIGNIFICANT ACHIEVEMENTS AS DIRECTOR**

Engineering Program Restructuring - Completed the introduction of the majors in Environmental Engineering and in Engineering Systems and Computing. Redesigned the Biological Engineering major with a new emphasis on bioengineering and biomedical engineering. Obtained Canadian Engineering Accreditation Board accreditation for the new majors.

Access to Opportunity Program - Planned and implemented UoG's \$11 million project to double the enrolment in high technology fields. Planned a 4000 m<sup>2</sup> addition to the School of Engineering, working closely with the architects and contractors to get the building designed, constructed and occupied in 16 months. Worked with the Administration to get Hewlett Packard as the industrial partner.

New Faculty and Staff - with the aid of a sound business plan obtained permission to hire eighteen new faculty members and six new staff members - effectively doubling the teaching and staff support of 1995; at the same time doubled the number of undergraduate and graduate students. The graduate program became the largest in the university.

Research Chairs – The School was awarded the NSERC Environmental Design Engineering Chair for Ontario Universities, a prestigious NSERC CRC Tier 1 Chair in Water Resources Engineering, and the NSERC Women in Science and Engineering (WISE) Chair.

## **TEACHING EXPERIENCE**

Undergraduate level: engineering design, dynamics; fluid mechanics; thermodynamics; heat transfer; mass transfer; unit operations; engineering economics; food engineering; biochemical engineering; contract law, ethics & safety; and integrated solid and hazardous waste management.

Graduate level: advanced fluid mechanics; advanced heat and mass transfer; advanced engineering mathematics; and advanced integrated solid and hazardous waste management.

## **MAJOR COMMITTEES**

Committee of Ontario Deans of Engineering - (1995 - 2005)

National Council of Deans of Engineering and Applied Sciences - (1995 - 2005) Member of NSERC Subcommittee.

University Committees: University Senate; Task Force on Engineering; Board of Undergraduate Studies; CPES Dean Hiring committee; Graduate Awards committee; Enrolment Planning committee.

College Committees: Promotion & Tenure; Dean's Council.

School Committees: Hiring committees; Promotion & Tenure; Program; Curriculum; Graduate; Planning; Admission; Academic Review committee.

## **RESEARCH ACTIVITIES & FUNDING**

General research interest is in the area of Transport Phenomena (heat, mass, and momentum transfer) with present and past projects dealing with crop drying, storage and handling, fuel alcohol production, ethanol dehydration, solar energy applications to agriculture, storage of waste- and solar heat in phase-change materials, energy conservation in greenhouses, recovery of heat in grain drying and tobacco curing, two-phase fluid flow, Non-Newtonian fluid mechanics, development of microcomputer control systems for crop drying and storage, thermo-physical properties of biological products, microwave applications to biological systems (animals and foods), and solid waste management with emphasis on composting of organic waste.

Research grants and contracts during the ten years prior to the directorship was about \$ 2 million in cash plus several million dollars of in-kind contributions resulting from access and use of industrial and municipal plants and personnel. Most of the funds were supplied by industry, municipalities, NSERC (operating and strategic grants) and several government ministries.

## **PROFESSIONAL MEMBERSHIPS & ACTIVITIES:**

2010 - Technical Advisor. Composting Council of Canada.  
2006 - Editorial Board Member. International Journal of Environment and Waste Management. Interscience Publishers.  
2001 External reviewer of the Bioresources Engineering Program, University of Saskatchewan  
1998 – 1999 ASAE/CSAE Annual Conference, Toronto - Local Arrangement Chair  
1997 Handbook of Powder Science and Technology". Second Edition. Ed. M.E. Fayed & L. Otten. Chapman & Hall, New York.  
1991 "Electric Farm Handbook" - L. Otten and E. Brubaker. Published by Ontario Hydro.  
1991 - Composting Council of Canada - founding member, served as vice-president  
1991 – 1992 Canadian Standards Association Committee on Compost Quality Standards  
1989 - 1993 Composting Task Group, Ontario Ministry of the Environment, Waste Recycling Advisory Committee.  
1987 - 1988 Task Force on Engineering, University of Guelph.  
1987 - 1990 Advisor to President, University of Guelph, on Energy-from-Waste plant proposed by the City of Guelph as part of the waste management system.  
1985 - 1988 Expert Committee on Energy, Canadian Agricultural Services Coordinating Committee.  
1984 "Handbook of Powder Science and Technology", Ed. M.E. Fayed & L. Otten. Van Nostrand-Reinhold, New York.  
1979 - 1988 Coordinator, Graduate Studies, School of Engineering, University of Guelph.  
1976 - 2008 Canadian Society of Agricultural Engineering - served as chair of awards committee, Associate Editor of the Journal, member of Fellows Appointment Committee  
1976 - 2008 American Society of Agricultural Engineering.  
1973 - Association of Professional Engineers of the Province of Ontario.

## **MAJOR SERVICE ACTIVITIES:**

2004	Member of the City of Toronto's New & Emerging [Waste] Technology Advisory Group
2004 - 2005	Member of the Mayor Miller's Roundtable on the Environment - Greater Toronto Area.
1998 - 2008	Member of the International Board, Avant Ministries, Kansas City Member of the Finance Committee, member of the CEO Search Committee
1993 - 1994	Guelph Wet/Dry Public Advisory Committee - appointed by Min. of Environment.
1998 - 2008	Chair, Canadian Board of Avant Ministries; Vice-chair, International Board.
1990 - 1996	Chair or Co-chair, Trustees Board, Calvary Baptist Church, Guelph
1991 - 1999	Co-chair, Building Committee, Calvary Baptist Church, Guelph
1985 - 1990	Superintendent of Sunday Schools, Calvary Baptist Church, Guelph

### GRADUATE STUDENTS SUPERVISED

9 PhD                      38 MSc                      3 MEng

### PUBLICATIONS - LIFE TIME SUMMARY

- scientific papers and refereed conference proceedings	75
- conference papers read	80
- conference proceedings	46
- invited papers & keynote presentations	17
- contract and consulting reports	70
- technical papers, releases, popular press	50
- TV and radio interviews, including CBC Market Place	22
- chapters in books	10
- books	4

### CONSULTING PROJECTS:

1977 - present      President and Owner, Wellington Applied Sciences Ltd., Guelph

Served as advisor to provincial and federal ministries of agriculture, environment and energy, and several communities on alternate energy programs and integrated solid waste management programs. Provided expert opinion in several lawsuits and consulting services to several foreign governments, international institutions and companies.

#### *Projects since 1990:*

- Earl Horst Systems Ltd. GSI Tower Dryer Performance. (2009)
- CIDA/AUCC Tier 2 ECEP-C project management. (2009)
- Region of Peel. Odour abatement of the in-vessel plant and the curing site. (2007- present)
- Brinks, Hofer, Gilson & Lione. Intellectual Properties Attorneys, Chicago. Advisor and Expert Witness in Star Scientific Inc. v. R.J. Reynolds (2002-09).
- Waterdown Garden Supplies Ltd. Development of odour abatement plan to meet the MOE order. (2007-08)
- MacViro Consulting Company - expert advice on the selection and design of solid waste management system for the Greater Toronto Area (November 2005 – February 2006).
- The Greater Toronto Area's New & Emerging Technologies Advisory Group (NETPPAG), Expert

- member and Advisor (May-Dec. 2004)
- CIDA/AUCC Tier 2 Program. Five-day course on integrated solid waste management. ISPJAE, Havana, Cuba (May 2003, May 2007).
- City of Guelph. Troubleshooting of composting facility (2002).
- DeCloet Inc., Delhi - Evaluation of selected heat exchangers for flue curing of tobacco. (2001).
- Canadian Tobacco Research Foundation, Tillsonburg - reduction of nitrosamines in tobacco during flue curing. (2000-2002).
- City of Havana - integrated solid waste management systems. (1999-2009).
- Lybian Ministry of the Environment - establishment of standards, laboratories, ISWM. (2000).
- Gunby *et al.* Expert witness on odour emissions and control of mushroom composting plant in Burford before the Ontario Fair Farming Practice Appeal Board. (April, 1999).
- SKAB, Yanbu, Saudi Arabia. Troubleshooting of composting plant and redesign of process. (March, 1999).
- Solid Waste Data Collection and Analysis. (1998-99) World Bank, Washington. D.C.
- Workshop & Roundtable on Targeting Sustainable Development Through Clean Production and Consumption. Harare, Zimbabwe. Environmental Capacity Enhancement Project funded by CIDA. July/August, 1997. (Three days of presentations)
- TIRU (N.B.) Inc. Moncton. (1997). Redesigned composting process and odour control system to correct odour problems of the in-vessel composting system.
- Review and modification of design of 2000t/d recycling/composting facility for Jeddah, Saudi Arabia. (Saudi Amoudi Group Co., Jeddah, Saudi Arabia & Asahi Juken U.K. Co. Ltd., London, England) (1994 - 96)
- Caledon's Herhof composting plant design & evaluation (Regional Municipality of Peel) (1994-97)
- Certificate of Approval documents for recycling & land application of produce waste (U-Pack Disposal Ltd.)
- Lunenburg, N.S. composting/recycling plant design & evaluation (Acres International)
- Leachate control of acid mine drainage (LAC Minerals Inc.)
- Expert advice on composting odour problems: Scott's Composting Farm Inc. (Gardiner, Roberts & Town of Milton)
- Compostability of brewery sludge (Molsons)
- Composting Research Fund Advice (Procter & Gamble Inc.)
- Composting of MSW Fractions - Shortcourse Dec. 13 and 14, 1990
- Composting of Meat Packaging Plant Waste (J.M. Schneider Inc.)
- Composting of produce waste (U-Pack Disposals Ltd.)