

Mohamed Ouf, EIT, LEED® Green Assoc.

Winnipeg, MB Canada | 204-930-9663 | oufm@myumanitoba.ca

- PhD Candidate in Civil Engineering with experience in building performance evaluation, energy benchmarking, energy management, and relevant public policy
- Experienced in interdisciplinary research addressing buildings' sustainability from technical and social perspectives (occupancy)
- Skilled in leadership and management of large teams as evidenced by several initiatives including organizing the inaugural TEDx conferences at the University of Manitoba

Education

Doctor of Philosophy (PhD), Civil Engineering **2012-Present**
University of Manitoba, Winnipeg, MB Canada

- Thesis: The Effect of Occupancy and Usage on School Buildings' Energy Consumption in Manitoba
- Certificate in Higher Education Teaching (CHET) **2014-2016**

Master of Science (MSc), Environmental Engineering **2010-2012**
King Abdullah University for Science and Technology (KAUST), KSA

Bachelor of Science (BSc), Construction Engineering **2005-2010**
The American University in Cairo (AUC), Egypt

- Graduated with High Honors (*magna cum laude*) | Minor: Architectural Design
- Specialization: Sustainable Construction Materials, Project Management, Risk Assessment

Exchange Program (non-degree), Civil Engineering **2008**
University of Colorado at Boulder, CO USA

Relevant Research and Teaching Experience

Sessional Instructor **2016 – Present**
Department of Civil Engineering, University of Manitoba

- Prepared and delivered 3 weekly classes in Engineering Economics (CIVL 4050) to undergraduate engineering students in their final year.
- Supervised 2 Teaching Assistants for grading quizzes and assignments throughout the course
- Incorporated active learning strategies for the first time in this course, relying on classroom technologies such as i-clickers for solving in-class exercises

Energy Performance Evaluation of Manitoba's School Buildings (PhD research) **2012-Present**
Department of Civil Engineering, University of Manitoba

- Benchmarked energy consumption trends in a representative sample of school buildings in Manitoba over 10 years to track energy savings due to retrofits and LEED certification
- Identified the "Performance Gap" between energy model estimates and actual energy consumption in sustainable school buildings
- Analyzed room-level hourly energy consumption in 3 case-study schools to identify the effect of occupancy on energy consumption
- Developed surveys, diaries, observation sheets and other tools to measure real-time occupant behaviour
- Investigated the relationship between real-time occupancy and energy consumption
- Published results in 1 journal paper, 5 peer-reviewed conference papers, and submitted 3 journal manuscripts; currently preparing 1 more journal manuscript

Teaching Assistant**2012 – 2015***Department of Civil Engineering, University of Manitoba*

- Prepared and delivered bi-weekly tutorial sessions for Civil Engineering undergraduate courses
- Graded assignments and exams for Civil Engineering undergraduate courses
- Courses Delivered: **CIVL 4380: Infrastructure Engineering and Construction Management (4 Cr.)** | **CIVL 4050: Engineering Economics (3 Cr.)** | **CIVL 4250: Groundwater Hydrology (4 Cr.)**

Evaluating Buildings' Sustainability Performance across Canada**2014***International Initiative for a Sustainable Built Environment (iiSBE), University of Manitoba, University of British Columbia, Ryerson University and Stantec Inc.*

- Collaborated with researchers from the *University of British Columbia* and *Ryerson University* to evaluate and compare sustainability performance in 9 leading Canadian green buildings
- Developed standardized Key Performance Indicators (KPIs) to evaluate sustainable buildings' performance
- Prepared two reports with details about the findings of the study and energy-saving opportunities for building managers
- Published and presented 1 peer-reviewed conference paper

Work Experience**Policy Analyst; Energy Benchmarking****Jul 2016 - Present***Government of Manitoba, Green Building Coordination Team*

- Managed a pilot program for benchmarking energy and water consumption across government-owned buildings in Manitoba
 - Provided technical support to Energy Star Portfolio Manager® and EnergyCAP® users in several governmental departments through workshops and training sessions
 - Increased the government's portfolio to more than 3000 buildings in Energy Star Portfolio Manager®
- Generated and analyzed reports to track energy performance across government buildings including those covered under the provincial Green Building Policy

Building Energy Analyst (Part-time)**Jan 2015 – Jun 2016***University of Manitoba, Office of Sustainability*

- Benchmarked energy and water consumption in a portfolio of over 6,000,000 Sq.ft. of university buildings
- Secured over \$100,000 in incentive programs funding from the local utility provider (Manitoba Hydro) for energy optimization projects in 3 campus buildings that entailed:
 - Collaborating with Physical Plant engineers and consultants (SES Consulting) in Vancouver, BC
 - Developing measurement and verification plans for energy savings reporting
 - Identifying Energy Conservation Measures (ECMs) with payback less than 2 years

Site Engineer (Intern)**Jun – Aug 2009***Orascom Construction Industries, Egypt*

- Developed schedules for two buildings at Borg El Arab International Airport Project using Primavera P6
- Supervised masonry works and concrete pouring for the passenger terminal substation

After-sales Assistant (Intern)**Jun – Jul 2007***General Motors Egypt*

- Assisted in creating course materials to train workers in operating the new Opel Astra
- Processed warranty claims coming from different distributors in Egypt
- Updated the spare-parts database at GM with new modifications and prices

Leadership Experience**Founder and President** | *TEDxUManitoba, University of Manitoba***2014-2016**

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- Successfully obtained a license from TED to organize the inaugural TEDx conference at the University of Manitoba
 - Recruited a team of 32 members (students, staff, and alumni) to organize the first 2 conferences, raising over \$30,000 and recruiting 20 distinguished speakers
- Graduate Students Representative** | *Graduate Awards Committee, University of Manitoba* **2016**
- Programs Coordinator** | *Manitoba Chapter, Canada Green Building Council (CaGBC)* **2013-2015**
- Organized seminars and educational sessions (Lunch and Learns) to increase sustainability awareness among building professionals in Manitoba
 - Assisted in organizing the Better Buildings Conference in Winnipeg in March 2014
- Committee Member** | *Dean of Engineering Review Committee, University of Manitoba* **2015**
- Volunteer** | *Habitat for Humanity* **2014-2015**
- Assisted in building houses for low-income families in Winnipeg, MB
- Publications Reviewer** **2013**
Fourth Construction Specialty Conference, Canadian Society for Civil Engineers
- Reviewed submissions for the conference held in Montreal over 5 months
- Student Council Officer** | *King Abdullah University for Science and Technology* **2011– 2012**
- Led a 4-member committee to negotiate student demands with the university administration
- Fundraising Coordinator** | *Ayatallah Charity NGO, Cairo, Egypt* **2008-2009**
- Managed fundraising activities to develop social rehabilitation programs for youth at Awlad Allam slum near Cairo, Egypt
- Public Relations Chairperson** | *Student Union, The American University in Cairo* **2007**
- Representative Delegate** | *Cairo International Model United Nations* **2006 – 2007**
- Graphic Design Chairperson** | *Student Union, The American University in Cairo* **2006**
- Orientation Leader** | *The American University in Cairo* **2006**
- Fundraiser** | *Student Union, The American University in Cairo* **2006**
- Graphic Designer** | *Entrepreneurs' Society, The American University in Cairo* **2005**

Other Research Experience

- Tertiary Wastewater Treatment Using Aquifer Recharge and Recovery (MSc research)** **2011-2012**
Water Desalination and Reuse Centre, KAUST
- Assisted in a multi-disciplinary project with a budget of \$698,000 to produce a technical report on advanced wastewater treatment in desert regions (submitted to the Water Research Foundation)
 - Simulated Aquifer Recharge and Recovery conditions to study the effect of dissolved organic carbon in wastewater on treatment of trace organics
 - Assembled 16 soil columns for the study and performed chemical analysis (e.g. DOC, SPE)
 - Published 2 Journal Papers and 1 peer-reviewed conference publication
- Simulation of the Degradation of Aromatic Hydrocarbons in River Sediments** **2011**
Flemish Institute for Technological research (VITO), Belgium
- Investigated degradation pathways of aromatic hydrocarbons in river sediments through capping
 - Obtained river sediment samples from around Brussels for lab analysis
 - Operated several chemical analysis equipment (e.g. GC-MS, TOC)
- Synthesis of Nano-particles for Environmental Decontamination** **2011**

Water Desalination and Reuse Centre, KAUST

- Assisted in a project to develop nano-particles for environmental decontamination via adsorption and other techniques

Development of Adobe Construction System (BSc Thesis) 2009-2010
The American University in Cairo

- Developed compressed earth blocks with stabilizers to withstand heavy loads for structural use in buildings
- Produced prototype blocks to test their structural properties

Awards and Scholarships

Dean of Graduate Studies Student Achievement Award (Oct 2015) \$1,000
Faculty of Graduate Studies, University of Manitoba

- Awarded to only 3 graduate students rewarding “outstanding academic achievement, strong leadership skills and notable personal service to the community.”

Emerging Leader Award (Feb 2015) N/A
Office of Student Life, University of Manitoba

- Awarded to students who “made outstanding contributions to the campus community”

Nahlah Ayed Prize for Student Leadership and Global Citizenship (Feb 2015) \$500
International Centre for Students, University of Manitoba

- Awarded to only 2 students from U of M rewarding “exceptional leadership initiatives”

Conference Travel Award (Oct 2014) \$1,500
Faculty of Graduate Studies, University of Manitoba

University of Manitoba Graduate Fellowship (Sep 2014 – Aug 2016) \$36,000
Faculty of Graduate Studies, University of Manitoba

- Awarded to the top 10% graduate students

Research Assistantship (Sep 2012 – Dec 2016), \$80,000
Department of Civil Engineering, University of Manitoba

International Graduate Student Scholarship (Sep 2013-Apr 2014) \$4,000
Faculty of Graduate Studies, University of Manitoba

Conference Travel Award (May 2013) \$250
Faculty of Engineering, University of Manitoba

Conference Travel Award (May 2013) \$150
Department of Civil Engineering, University of Manitoba

Graduate Student Entrance Scholarship (Sep 2012 – Apr 2013) \$4,000
Faculty of Graduate Studies, University of Manitoba

KAUST Graduate Fellowship (Sep 2010 – May 2012) \$32,000
King Abdullah University for Science and Technology

- The fellowship program additionally covered housing, annual repatriation travel and a tuition waiver

KAUST Discovery Scholarship (Sep 2008 – Aug 2010) \$15,000
King Abdullah University for Science and Technology

- The scholarship additionally covered tuition fees for the last two years of undergraduate studies (\$20,000)

Dean's Honor List (Apr 2008 – July 2010) N/A
The American University in Cairo

Academic Achievement Scholarship (Sep 2005 – July 2010) \$15,000
The American University in Cairo

Professional Qualifications/ Designations

Engineer in Training Association of Professional Engineers and Geoscientists of Manitoba	2014 – Present
LEED® Green Associate Green Building Certification Institute, USA	2013 – Present
Engineer in Training National Council of Examiners for Engineering and Surveying, USA	2010 – Present
Certified Civil Engineer Egyptian Syndicate of Engineers, Egypt	2010 – Present

Publications

Published Journal Papers

- 1- **Ouf, Mohamed**, Mohamed Issa, Phil Merkel (2016) “Analysis of Real-time Electricity Consumption in Manitoba Schools” *Energy and Buildings* Vol 128: 530-539.
- 2- Alidina, Mazahirali, Dong Li, **Mohamed Ouf**, and Jörg E. Drewes. (2014) "Role of primary substrate composition and concentration on attenuation of trace organic chemicals in managed aquifer recharge systems." *Journal of environmental management* Vol 144: 58-66.
- 3- Li, Dong, Mazahirali Alidina, **Mohamed Ouf**, Jonathan Sharp, Pascal Saikaly, and Jörg Drewes. (2013) "Microbial community evolution during simulated managed aquifer recharge in response to different biodegradable dissolved organic carbon (BDOC) concentrations." *Water Research* Vol 47; Issue 7: 2421–2430

Submitted Journal Manuscripts

- 4- **Ouf, Mohamed**, Mohamed Issa (2016). “Energy Consumption Analysis of School Buildings in Manitoba”, Submitted to *International Journal of Sustainable Built Environment*, March 2016 (Submission #: IJSBE_2016_44)
- 5- **Ouf, Mohamed**, Mohamed Issa, Afaf Azzouz, Abdul-Manan Sadick (2016) “Effectiveness of Using WiFi Technologies for Detecting Occupancy Data in Buildings” submitted to *Smart and Sustainable Built Environment*, June 2016 (Submission #: SASBE-06-2016-0013)
- 6- **Ouf, Mohamed**, Mohamed Issa, Panos Polyzois, Phil Merkel (2016) “The Effect of Occupant Behaviour on Electricity Consumption in School Spaces” submitted to *Building Research and Information*, October 2016 (Submission #: 16BR0972-RE)

Published Peer-reviewed Conference Papers

- 7- **Ouf, Mohamed**, Mohamed Issa (2016). “The Effect of Occupant Behaviour on Real-time Electricity Consumption in School Spaces”, Sustainable Built Environment Conference of the Americas, Sep 19-20, 2016, Toronto, ON, Canada
- 8- **Ouf, Mohamed**, Mohamed Issa, Panos Polyzois, Phil Merkel (2015). “A Methodology to Evaluate the Effects of School Buildings’ Occupancy and Usage on their Energy Consumption”, The CSCE International Construction Specialty Conference, June 8-10, 2015, Vancouver, BC, Canada
- 9- Bartlett, Karen; Craig Brown; Anne-Mareike Chu; Ghazal Ebrahimi; Mark Gorgolewski; Murray Hodgson; Mohamed Issa; Shauna Mallory-Hill; **Mohamed Ouf**; Leila Scannell; Adrian Turcato. (2014). "Do Our Buildings Perform as Intended?" World Sustainable Building Conference 2014, October 28-30, Barcelona, Spain
- 10- **Ouf, Mohamed**, Mohamed Issa, Shauna Mallory-Hill (2014). “A Protocol for Evaluating School Buildings’ Energy Consumption”, 30th Annual Association of Researchers in Construction Management (ARCOM) Conference, Sep 1-3, 2014, Portsmouth, UK
- 11- **Ouf, Mohamed**, Mohamed Issa, Shauna Mallory-Hill (2013). “An investigation of Indicators, Metrics, and Methods Used to Measure and Quantify Green Buildings’ Occupancy and Usage”, *Sustainable Building 2013-Portugal*, October 30-November 1
- 12- **Ouf, Mohamed**, Mohamed Issa, Dimos Polyzois. (2013) "A Review of Research on the Energy Performance of Green Buildings and its Relation to Occupancy", 4th Construction Specialty Conference, *CSCE Annual Conference*, May 29-June 1, Montreal, QC, Canada

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- 13- Alidina, Mazahirali, Dong Li, **Mohamed Ouf**, Jörg E. Drewes. (2013) "Elucidating the Role of the Primary Substrate Composition and Concentration on Attenuation of CECs in MAR Systems", Biological Treatment Symposium, *American Water Works Association*, March 28-29, Denver, Colorado, USA

Manuscripts in Preparation

- 14- **Ouf, Mohamed**, Mohamed Issa, Panos Polyzois (2016) "A Comparison Between Methods to Measure and Quantify Occupant Behaviour Related to Buildings' Energy Consumption" manuscript currently in preparation

Oral Presentations (non-refereed)

- 15- **Ouf, Mohamed**, Mohamed Issa (2015) "The Impact of Occupancy and Usage Behaviour on Energy Consumption in Manitoba's Schools", Third Annual Sustainable Energy Conference, May 27, Providence, MB Canada
- 16- Mallory-Hill, Shauna, **Mohamed Ouf**, Leila Scannell, Anne-Mareike Chu, Murray Hodgson, Craig Brown, Mark Gorgolewski, Adrian Turcato, Karen Bartlett (2015). "Integrative Research Process – Opportunities, Challenges, and Good Practices in Green Building Performance Evaluation", International Building Performance Evaluation Symposium, Environmental Design Research Association 46th conference, May 27-30, Los Angeles, CA, USA
- 17- **Ouf, Mohamed**, Ahmed Radwan, Mohamed Issa, Shauna Mallory-Hill (2014). "Methods Used to Conduct a Post-Occupancy Evaluation of Green vs. Non-Green School Buildings in Canada", International Building Performance Evaluation Symposium, Environmental Design Research Association 45th conference, May 28-31, New Orleans, LA, USA

Industry Reports (non-refereed)

- 18- Mallory-Hill, Shauna, **Mohamed Ouf**, Mohamed Issa, Kaitlyn Jardine, Wendel **Garcia** (2014). "Building Performance Evaluation for Manitoba Hydro Place, Winnipeg, Manitoba", International Initiative for a Sustainable Built Environment, Ottawa, Ontario, Canada
- 19- Mallory-Hill, Shauna, **Mohamed Ouf**, Mohamed Issa, Kaitlyn Jardine, Wendel **Garcia** (2014). "Building Performance Evaluation for Roblin Center, Red River College, Winnipeg, Manitoba", International Initiative for a Sustainable Built Environment, Ottawa, Ontario, Canada

Theses (non-refereed)

MSc Thesis: "The Role of Dissolved Organic Carbon and Pre-adaptation in the Bio-Transformation of Trace Organic Chemicals during Aquifer Recharge and Recovery", Environmental Engineering Department, King Abdullah University for Science and Technology, 2012

BSc Thesis: "Development of Adobe Construction System", Construction Engineering Department, The American University in Cairo, 2010

Languages

- **English** – Advanced proficiency | **Arabic** –Native proficiency
- **French** – Intermediate proficiency
 - TEF ; Test d'évaluation du français, Feb 2014 (Utilisateur Indépendant)

Other Skills

- Proficient in using the following software
 - **Building Energy Modelling and Benchmarking:** *eQuest, IES VE, Portfolio manager, EnergyCAP*
 - **Data analysis and visualization:** *Tableau, SPSS, JMP, MS Excel*
 - **Civil Engineering-related:** *AutoCAD, AutoCAD Architecture, SAP, ETABS, Primavera P6*
 - **Other:** *Prezi, Adobe Photoshop, MS Word, Project, and PowerPoint*
- Experienced in development of surveys, data analysis, team leadership and management

Training of Highly Qualified Personnel

Graduate Students Supervised

- **Panos Polyzois** | Faculty of Engineering, University of Manitoba **2014 – 2015**
- **Kaitlyn Jardine** | Department of Interior Design, University of Manitoba **2014**

Undergraduate Students Supervised

- **Nishant Nain** | Faculty of Engineering, University of Manitoba **2015**
- **Wendel Campos** | Faculty of Engineering, University of Manitoba **2014**

Professional Memberships

- **International Initiative for a Sustainable Built Environment (iSBE)** | *Member* **2014 – Present**
- **Manitoba Building Envelope Council (MBEC)** | *Student Member* **2013 – Present**
- **Canada Green Building Council (CaGBC)** | *Emerging Green Builder Member* **2013 – Present**
- **Canadian Society for Civil Engineering (CSCE)** | *Student Member* **2013 – Present**
- **American Society of Civil Engineers (ASCE)** | *Student Member* **2009 – Present**

Professional Development

Over the course of my career I attended Professional Development workshops to improve my professional and career-related skills

- **ModelIT IES VE Training** | *Integrated Environmental Solutions* **Jul 2015**
 - **Teaching Dossier Workshop** | *Center for the Advancement of Teaching and Learning* **Jun 2015**
 - **Academic Integrity Workshop** | *Center for the Advancement of Teaching and Learning* **Feb 2015**
 - **Zotero Workshop** | *Center for the Advancement of Teaching and Learning* **Feb 2015**
 - **Life Cycle Cost Analysis** | *Canada Green Building Council* **Feb 2015**
 - **Net Zero Buildings Workshop** | *Manitoba Building Envelope Council* **Dec 2014**
 - **Presentation Skills and Storytelling** | *Mitacs Step Program* **Oct 2014**
 - **Passive House Basics** | *Canada Green Building Council* **Oct 2014**
 - **Am I an Entrepreneur?** | *Grad Steps Workshops Series* **Sep 2014**
 - **Foundations of Project Management I** | *Mitacs Step Program* **Mar 2014**
 - **Proactive and Practical Communication & Teamwork** | *Mitacs Step Program* **Mar 2014**
 - **Building Science 101 Workshop** | *Manitoba Building Envelope Council* **Aug 2013**
 - **LEED in Practice Workshop** | *Canada Green Building Council* **Apr 2013**
 - **The National Energy Code - Hope and Peril** | *Manitoba Building Envelope Council* **Nov 2012**
 - **Teaching Assistant Workshop** | *Faculty of Engineering, University of Manitoba* **Sep 2012**
 - **Laboratory Safety Training** | *Department of Health, Safety and Environment, KAUST* **Feb 2011**
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List of References

Dr. Mohamed Issa (PhD Supervisor)

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Construction Engineering and Management
Department of Civil Engineering,
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Ms. Cindy Choy (Work Supervisor)

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Dr. Dimos Polyzois (PhD Committee Member)

Professor,
Structural Engineering,
Department of Civil Engineering,
University of Manitoba
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Dr. Jörg Drewes (MSc Supervisor)

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