

# NATALIE WILLIAMS PORTAL

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## EDUCATION

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**Candidate for Ph.D.**, Civil Engineering, Chalmers University of Technology, Göteborg, Sweden, Sept 2011 – present

- Funded by FORMAS research project entitled *Homes for Tomorrow (Framtidens hem)* and supervised by Karin Lundgren and Kent Gylltoft.

**M.Sc.**, Structural Engineering and Building Performance Design, Chalmers University of Technology, Göteborg, Sweden, Sept 2009 – June 2011

- Williams Portal, N. L. (2011). Evaluation of Heat and Moisture Induced Stress and Strain of Historic Building Materials and Artefacts, Master's Thesis No. 2011:82, Department of Civil and Environmental Engineering, Division of Building Technology, Chalmers University of Technology, Göteborg, Sweden, 2011.
- Williams Portal, N. L., Sasic Kalagasidis, A., van Schijndel, A.W.M. (2011). Simulation of Heat and Moisture Induced Stress and Strain of Historic Building Materials, Proceedings of the IBPSA-AIRAH Building Simulation 2011 Conference, Sydney, Australia, 2011.
- Williams Portal, N. L., van Schijndel, A.W.M., van Aarle, M.A.P. (2011). Simulation and Verification of Coupled Heat and Moisture Modeling, Proceedings of the COMSOL Users Conference 2011, Stuttgart, Germany, 2011.

**BASc.**, Honours Civil Engineering - Co-operative Program With Distinction (Specialization in Structural Engineering), University of Waterloo, Waterloo, Canada, Sept 2004 – June 2009

- BASc. Design Project: *Pressure Moderation Study of a High-rise Building*, Jan 2008 – June 2009

## WORK EXPERIENCE

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**Engineering Student**, RDH Building Engineering Ltd., Vancouver, CANADA, July 2010- Aug 2010 and Sept 2008 – Dec 2008

- Assisted with an ongoing research study encompassing the analysis of the energy conservation of high rise buildings that have undergone rehabilitation
- Performed thermal modelling on various wall assemblies to draw a comparative analysis with the performance capability of wood infill walls in varying climates
- Investigated premature failures of window wall application on a high rise building with the implementation of state-of-the art wireless instrumentation
- Initiated the certification and labelling programs for the use of energy efficient fenestration products for Cascadia Windows Ltd.
- Assisted with field work and testing for new construction projects, including water penetration testing, glazing unit seal testing, and spray wand testing

**Field Representative**, RDH Building Engineering Ltd., Portland, USA, Jan 2008 – Apr 2008

- Implemented pressure equalization field instrumentation for monitoring performance of a prototype building wall assembly in a high-rise building

- Assisted with field work and testing for new construction projects, including water penetration testing, glazing unit seal testing, and spray wand testing
- Documented field observations for new, rehabilitation, and forensic construction sites
- Developed maintenance manuals and reserve fund studies for residential buildings

**Junior Facility Assessor**, Jacques Whitford, Markham, CANADA, May 2007 – Aug 2007

- Performed site investigations, involving architectural/structural, site, mechanical and electrical components of multi-storey residential and public buildings
- Analysed and reported observations from facility assessments for the purpose of Capital Planning

**Environmental Field Supervisor**, Jacques Whitford, Markham, CANADA, Sept 2006 – Dec 2006

- Executed environmental site assessment and remediation tasks, which included soil sample collection, strata documentation during borehole drilling, installation of monitoring wells and collection of groundwater samples
- Quantified soil and groundwater conditions through documentation and analysis of monitoring and sampling data
- Supervised contractors during environmental site assessment tasks, such as borehole drilling and well decommissioning

**Civil Engineering Assistant**, Toronto Transit Commission, Toronto, CANADA, Jan 2006 – Apr 2006

- Performed CADD and design work applied to roadway and streetcar line layout, parking lots, pavement rehabilitation, underground structures, utilities and storm water management
- Supervised engineering consultants executing geo-environmental drilling
- Revised contract specifications, reports, as well as drawings issued for construction

**Engineering Assistant**, Coco Group of Companies, Windsor, CANADA, May 2005 – Aug 2005

- Performed a wide range of survey layout, using GPS systems and Total Station for the widening and rehabilitation of a major highway (Highway 401) and its associated overpasses
- Executed in-field modifications and design for the rehabilitation of Highway 401
- Computed material quantities for cost evaluations related to site installations

**TEACHING AND RESEARCH EXPERIENCE**

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**Supervisor** for *MSc. Thesis: Analysis of reinforced concrete slabs strengthened with textile reinforcement – Non-linear Finite Element Analysis (2012:87)*, Dragos Petre and Iwona Zapalowicz, Department of Civil & Environmental Engineering, Division of Structural Engineering – Concrete Structures, Chalmers University of Technology, Göteborg, SWEDEN, Jan 2012 – June 2012

- Supervised two master-level students during the course of the thesis project which included non-linear finite element analysis of reinforced concrete slabs strengthened with textile reinforcement

**Teaching Assistant** for *Bärande konstruktioner (BMT015)*, Prof. K. Lundgren, Department of Civil & Environmental Engineering, Chalmers University of Technology, Göteborg, SWEDEN, Oct 2011 – Dec 2011

- Executed tutorials in relation to the course material
- Supervised bachelor-level students during assigned structural design tasks
- Developed and corrected written examinations

**Research Assistant** for *Finite Element Methods (CivE 422)*, Prof. M.A. Polak, Department of Civil & Environmental Engineering, University of Waterloo, Waterloo, CANADA, Jan 2009 – Aug 2009

- Developed projects, course work, and tutorials
- Executed laboratory testing of reinforced concrete structures related to punching shear
- Evaluated the failure patterns observed in the tested reinforced concrete structures

#### TECHNICAL SKILLS

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- Proficient ability to operate COMSOL Multiphysics, DIANA FX+, Matlab, MathCad, THERM, HEAT2, SAP 2000, AutoCad, Microstation, and MS Office
- Working knowledge of ABAQUS, and Visual Basics
- Understanding of wireless pressure and temperature sensor applications in buildings

#### LANGUAGE SKILLS

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- English and French – *Bilingual, mother languages*
- Swedish – *Proficient*
- Spanish – *Intermediate*
- Dutch – *Basic knowledge*