

CURRICULUM VITAE – Dr. Scott Walbridge, P.Eng. (Alberta)

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Environmental Engineering
University of Waterloo
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EDUCATION

- Ph.D. in Structural Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), 2005
Thesis: A Probabilistic Study of Fatigue in Post-Weld Treated Tubular Bridge Structures
(available via: <http://icom.epfl.ch>)
- M.Sc. in Structural Engineering, University of Alberta, 1998
Thesis: An Analysis of the Cyclic Behaviour of Gusset Plate Connections
(available via: <http://www.civil.engineering.ualberta.ca/Research/ResearchAreas/Structural>)
- B.Sc. in Civil Engineering, University of Alberta, 1996
(*Co-op program, graduated with Distinction*)

PROFESSIONAL EXPERIENCE

- May 2005 – Present Assistant Professor
University of Waterloo
Department of Civil and Environmental Engineering, Waterloo, Ontario
- teaching undergraduate courses in civil engineering materials (CIVE 265) and design of concrete structures (CIVE 414)
 - teaching graduate level courses in steel structure design (CIVE 712) and bridge design (CIVE 704)
 - conducting research in the general field of metal structure assessment and repair, with a focus on steel highway bridges
- October 2000 – February 2005 Research Engineer / Teaching Assistant / Doctoral Candidate
Steel Structures Laboratory (ICOM)
Ecole Polytechnique Fédérale de Lausanne (EPFL) – Lausanne, Switzerland
- involved at various levels in a number of test- and analysis-based investigative mandates for the Swiss structural steel industry
 - performed simulations and analysis to calibrate the fatigue design factors for highway bridges adopted in the new Swiss Code: SIA 263:2003
 - translated technical publications and assisting with undergraduate courses
- May 1998 – September 2000 Structural Engineer (E.I.T. May 1998 – February 2000)
The Cohos-Evamy Partners – Edmonton, Alberta
- performed the duties of the design engineer (i.e. structural analysis and design, supervising the production of working drawings, and construction administration) for a number of small and large projects
- September 1996 – May 1998 Teaching / Research Assistant
University of Alberta – Edmonton, Alberta
- performed a variety of laboratory tests on wood composite I-joists
 - graded assignments and assisted with undergraduate lab sessions
- May 1993 – August 1995 Co-op Student
1 x 8 month and 3 x 4 month work terms with the following employers:
- I.F. Morrison Structural Engineering Laboratory, University of Alberta
 - Syncrude Canada Ltd. – Fort McMurray, Alberta
 - Transport Canada Aviation – Vancouver, British Columbia
 - HBT AGRA Ltd. – Fort McMurray, Alberta

PUBLICATIONS

Refereed Journal Publications:

Full Papers:

- Coughlin, R. & Walbridge, S. (accepted on January 11, 2011). Fatigue Testing and Analysis of Aluminum Welds under In-Service Highway Bridge Loading Conditions. *ASCE Journal of Bridge Engineering*.
- Ghahremani, K. & Walbridge, S. (2011). Fatigue testing and analysis of peened highway bridge welds under in-service variable amplitude loading conditions. *International Journal of Fatigue*, 33: 300-312.
- Damgaard, N., Walbridge, S., Hansson, C., & Yeung, J. (2010). Corrosion Protection and Assessment of Weathering Steel Highway Structures. *Journal of Constructional Steel Research*, 66(10): 1174-1185.
- Walbridge, S. (2008). Fatigue analysis of post-weld fatigue improvement treatments using a strain-based fracture mechanics model. *Engineering Fracture Mechanics*, Vol. 75, pp. 5057-5071.
- Walbridge, S. & Nussbaumer A. (2008). A probabilistic assessment of the effect of post-weld treatment on the fatigue performance of tubular truss bridges. *Engineering Structures*, Vol. 30, No. 1, pp. 247-257.
- Walbridge, S. & Nussbaumer A. (2008). Probabilistic fatigue analysis of shop and field treated tubular truss bridges. *Journal of Constructional Steel Research*, Vol. 64, pp. 156-166.
- Walbridge, S. & Nussbaumer A. (2007). A probabilistic model for determining the effect of post-weld treatment on the fatigue performance of tubular bridge joints. *International Journal of Fatigue*, Vol. 29, pp. 516-532.
- Walbridge, S., Grondin, G.Y., & Cheng, J.J.R. (2005). Gusset Plate Connections under Monotonic and Cyclic Loading. *Canadian Journal of Civil Engineering*, Vol. 32, No. 5, pp. 981-995.

Extended Abstract:

- Walbridge, S., Grondin, G.Y., & Cheng, J.J.R. (1998). Analysis of the cyclic behaviour of steel gusset plate connections. *Journal of Constructional Steel Research*, Vol. 46, No. 1-3, pp. 449-450.

Conference Publications (Refereed and Non-Refereed):

- Ghahremani, K. & Walbridge, S. (2010). Predicting the Effect of Peening Treatments Applied under Load on the Fatigue Performance of Welds in Existing Steel Bridges, 7th International Conference on Short and Medium Span Bridges, Niagara Falls.
- Coughlin, R. & Walbridge, S. (2010). Fatigue Correction Factors and Design S-N Curves for Welded Aluminum Highway Bridge Structures, 7th International Conference on Short and Medium Span Bridges, Niagara Falls.
- Damgaard, N., Walbridge, S., Hansson, C., & Yeung, J. (2010). Assessment and Corrosion Performance Enhancement of Weathering Steel Highway, 5th International Conference on Bridge Maintenance, Safety and Management, Philadelphia.
- Walbridge, S. & Coughlin, R. (2009). Aluminum Bridge Structures – Recommendations Regarding Design S-N Curves and Fatigue Correction Factor, 2nd International Conference on Fatigue and Fracture in the Infrastructure, Philadelphia.
- Damgaard, N. & Walbridge, S. (2009). Service Life Prediction for Weathering Steel Highway Structures, SEI Structures Congress, Austin.
- Walbridge, S. (2009). Fatigue Analysis of Peened Bridge Welds under Realistic Service Loading Conditions Including Periodic Overload Events, SEI Structures Congress, Austin.
- Walbridge S. (2008). Post-Weld Treatments for the Service Life Extension of Existing Steel Bridges, IABSE Symposium, Chicago.
- Monfared, A., Soudki, K., & Walbridge, S. (2008). CFRP reinforcing to extend the fatigue lives of steel structures, 4th International Conference on FRP Composites in Civil Engineering, Zurich.
- Walker, M., Van Berkel, S., & Walbridge, S. (2008). Needle Peening to Improve the Fatigue Performance of Existing Steel Bridge Welds, CSCE Annual Conference, Quebec City.

- Walbridge, S. (2008). Fatigue Analysis of Needle Peened Welds under Variable Amplitude Loading Conditions, SEI Structures Congress, Vancouver.
- Walbridge, S. & Nussbaumer A. (2007). Benefits of Post-Weld Treatment to Improve Tubular Bridge Fatigue Performance, IABSE Symposium, Weimar, Germany.
- Walbridge, S. & Nussbaumer, A. (2006). Probabilistic Fatigue Analysis of a Post-Weld Treated Tubular Bridge, Proceedings of the 11th International Symposium on Tubular Structures, Quebec City.
- Walbridge, S. & Nussbaumer, A. (2006). Probabilistic Fatigue Assessment of Post-Weld Treated Tubular Truss Bridges, 7th International Conference on Short and Medium Span Bridges, Montreal.
- Schumacher, A., Nussbaumer, A., Haldimann-Sturm, S., & Walbridge, S. (2006). Fatigue of Tubular Bridge Joints Using Welded or Cast Steel Node Solutions, 7th International Conference on Short and Medium Span Bridges, Montreal.
- Walbridge, S. & Nussbaumer, A. (2006). Post-Weld Treatment in the Field to Improve Tubular Bridge Fatigue Performance, International Conference on Fatigue and Fracture in the Infrastructure, Philadelphia (received a student award).
- Walbridge, S. & Nussbaumer, A. (2005). Post Weld Treatment to Improve the Fatigue Performance of Tubular Bridge Structures, Eurosteel Conference on Steel and Composite Structures, Maastricht (awarded 3rd place among 72 contributions by “young engineers and researchers”).
- Walbridge, S. & Nussbaumer, A. (2004). Probabilistic Fatigue Analysis of Post Weld Treated Tubular Bridge Joints, Joint Committee on Structural Safety (JCSS) Workshop, Copenhagen.
- Walbridge, S. & Nussbaumer, A. (2004). Probabilistic Fatigue Analysis of Improved Tubular Bridge Joints Considering Multiple Crack Initiation Sites, Probabilistic Safety Assessment and Management (PSAM) 7 – ESREL 04, Berlin.
- Walbridge, S., Nussbaumer, A., & Hirt, M.A. (2003). Fatigue Behaviour of Improved Tubular Bridge Joints, Proceedings of the 10th International Symposium on Tubular Structures, Madrid.
- Walbridge, S. & Nussbaumer, A. (2003). A Probabilistic Study of the Fatigue Behaviour of Improved Tubular Bridge Joints, 3rd International Association for Bridge Maintenance and Safety (IABMAS) Workshop, Lausanne.
- Walbridge, S., Grondin G.Y., & Cheng, J.J.R. (1998). Design of Gusset Plate Connections in Concentric Braced Frames for Seismic Loads, 2nd World Conference on Constructional Steel Design, San Sebastian (extended abstract published in Journal of Constructional Steel Research, Vol. 46, No. 1-3, 1998).
- Walbridge, S., Grondin, G.Y., & Cheng, J.J.R. (1998). An Analytical Study of the Cyclic Behaviour of Steel Gusset Plate Connections, Canadian Society of Civil Engineers (CSCE) Conference, Halifax.
- Cheng, J.J.R., Yam, M., & Walbridge, S. (1996). Effects of Web Openings on the Strength of OSB Webbed I-Joists, 1st Structural Specialty Conference, CSCE, Edmonton.

Other Publications:

- Damgaard, N., Walbridge, S., Hansson, C., & Yeung, J. (2010). Prediction and Prolongation of the Service Life of Weathering Steel Highway Structures. Report to the Ministry of Transportation of Ontario (MTO), HIIFFP 2007 – Project 12.
- Kuhn, B., Lukic, A., Nussbaumer, A., Gunther, H.-P., Helmerich, R., Herion, S., Kolstein, M.H., Walbridge, S., Androic, B., Dijkstra, O., & Bucak, O. (2008). Assessment of Existing Steel Structures: Recommendations for Estimation of Remaining Fatigue Life, Joint Report Prepared under the JRC – ECCS Eurocode 3 Cooperation Agreement, Luxembourg.
- Walbridge, S. & Nussbaumer, A. (2006). A Probabilistic Study of Fatigue in Post-Weld Treated Tubular Bridge Structures, Swiss Federal Roads Authority (OFROU) Research Project 2002/011, Lausanne (ICOM – EPFL Report No. IC-537), Lausanne.
- Schumacher, A., Sturm, S., Walbridge, S., Nussbaumer, A., & Hirt, M.A. (2003). Fatigue Design of Bridges with Welded Circular Hollow Sections, Swiss Federal Office of Roads (OFROU) Research Project 88/98 (ICOM – EPFL Report No. IC-489E), Lausanne (available in English and German).

Walbridge, S. & Hirt, M.A. (2002). Essais push-out: Teilklebeverbund, ICOM – EPFL Report No. 698-1, Lausanne.

Walbridge, S. & Lebet, J.P. (2001). Patch Loading Tests of Bridge Girders with Longitudinal Web Stiffeners, ICOM – EPFL Report No. IC-447, Lausanne.

Walbridge, S., Yam, M., & Cheng, J.J.R. (1996). Further Studies of the Effects of Web Openings on the Strength of OSB Webbed I-Joists, Canada-Alberta Partnership Agreement in Forestry, Edmonton.

PROFFESIONAL AFFILIATIONS

- Registered Professional Engineer (P.Eng.) and member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)
- Active member of CSA CHBDC Ch. 17 Technical Subcommittee on Aluminum Bridges
- Active member of the European Convention for Constructional Steelwork (ECCS) – Technical Committee 6 – Fatigue, Working Group A – Assessment of Existing Structures
- Member of IABSE, CSCE, and ASCE

ADDITIONAL INFORMATION

- Languages: English (mother tongue), French (fluent)