

# CV: Björn Karlsson

**Research Field:** *Fire Safety and Risk Engineering*

## **Personal information**

Date of birth: 10<sup>th</sup> April, 1959

Citizenship: Icelandic

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## **Education**

Diploma in Public Management	University of Iceland	2004
Ph.D. in Civil Engineering	Lund University, Sweden	1992
Techn. Lic. in Civil Engineering	Lund University, Sweden	1989
B.Sc Honours in Civil Engineering	Heriot-Watt University, Scotland	1985

## **Present Employment**

*Director General*, Iceland Construction Authority (ICA), 2011–present.

The ICA is responsible for the administration of laws and regulations regarding Construction, Fire Safety and Electrical Safety matters. The ICA runs The Fire Service Technical College, the purpose of which is to train and educate rescue personnel in Iceland. The Director General sits on the Icelandic Safety and Security Committee, which oversees all Civil Protection and Preparedness matters in Iceland.

*Associate Professor*, Civil and Environmental Engineering, University of Iceland, 2006–present.

Part-time (50%) Docent at the University of Iceland with the permission of the Minister of the Environment. Main activity has been to manage research projects on fire safety and risk, supervise Ph.D. students, M.Sc. students and teach one course per year, on Fire Safety Engineering and Risk Engineering.

## **Previous Employment**

*Director General*, Iceland Fire Authority, 2001–2011

*Associate Professor*, Civil Engineering, Lund University, 1992–2000

Teaching Assistant, Ph.D. Student, Civil Engineering, Lund University, 1985–1992

*Visiting Professor*, Fire Protection Engineering, University of Maryland, 2006

## **Guidance of Graduate Students**

**Doctoral Students:** 1. Sóley Kaldal, University of Iceland (ongoing), 2. Georges Guigay University of Iceland (graduated 2008) and 3 Ph.D students at the University of Lund in the period 1996-2000.

## **External Examiner at Ph.D defences**

2015	External Examiner for William Hay's PhD Thesis „An investigation into the fire resistance of service penetrations in fire rated floor constructions containing timber I-joists, in relation to building regulation guideline“, at Glasgow Caledonian University, Glasgow, 26 March 2015, supervisor Professor Tony Kilpatrick
2015	External Examiner for Marcus Sauter's PhD Thesis „GPGPU enabled CFD simulation for fully coupled fire and evacuation modeling“, University of Greenwich, London, 16 July 2015, supervisor Prof. Ed Galea

- 2015 Faculty opponent for Nils Johansson's PhD Thesis „Fire Dynamics of Multi-room Compartment Fires“, Lund University, 13 april 2015, supervisor Prof. Patrick van Hees.
- 2014 External Examiner at the Ph.D defence of Agustin Majdalani, University of Edinburgh, UK.
- 2013 Opponent at the Licentiat Thesis defence of Alexandra Byström, Luleå Technical University, Sweden
- 2012 Chairman of the Examining Board for the Ph.D defence of Annemarie Poulsen at Danmarks Tekniske Universitet, Lyngby, Denmark.
- 2009 Opponent at the Ph.D defence of Berit Andersen, Univeristy of Lund, Sweden.
- 2008 Opponent at the Ph.D defence of Morten Birk Sabroe Valkvist at Danmarks Tekniske Universitet, Lyngby, Denmark.
- 2007 Opponent at the Ph.D defence of Björn Sundström, University of Lund, Sweden
- 2007 External Examiner at the Ph.D defence of Iain Sanderson, Caledonian University, Glasgow, UK.
- 2006 External Examiner at the Ph.D defence of Tony Pearson at the University of Poitiers, France.
- 2003 External Examiner at the Ph.D defence of George Boustras, at Kingston University, Surrey, UK.
- 2002 External Examiner at the Ph.D defence of Kim Rogér Thomsen, Danmarks Tekniske Universitet, Lyngby, Danmörk.
- 2002 Opponent at the Ph.D defence of Tuula Hakkarainen, Tampere University, Finland.
- 2001 External Examiner at the Ph.D defence of Mark Tsai, University of Edinburgh, UK.

***Work on various public committees in Iceland***

- 2010- 2012 Appointed by the Minister of the Environment as the Chairman of a committee to re-write the Icelandic Building Regulation. The regulation was enforced in February 2012.
- 2009 - 2010 Appointed by the Nordic Council of Ministers as the Chairman of a committee with the aim of increasing harmonization work in the building industry of the Nordic countries.
- 2007 – Appointed by the Minister of Justice as member of the Committee for Property Evaluation.
- 2009 – Appointed by the Prime Minister as a member of the Safety and Security Committee.
- 2003 – 2010 Appointed by the Minister of Social Affairs as a member of the Committee for Prevention of Large Accidents in Industry.
- 2007-2008 Appointed by the Minister of Finance as a member of a Working Group on Equal Pay.
- 2007-2008 Appointed by the Minister of the Environment as a member of a committee to review a report on the Working Conditions of Local Building Officials.
- 2002-2006 Appointed by the Minister of the Environment as a member of a committee to re-write the law on Construction.
- 2001-2002 Appointed by the Minister of the Environment as a member of a committee to re-write the regulation on the operation of The Fire Service Technical College.

***Board member of various associations and member of editorial boards***

- 2003 - Board member of the International Association of Fire Safety Science (see [www.iafss.org](http://www.iafss.org)).
- 2005 – Chairman of the Education Committee of the International Association of Fire Safety Science (see [www.iafss.org](http://www.iafss.org)).
- 2003- On the Editorial Board of the International Journal on Engineering Performance-based Fire Codes.
- 2000- On the Editorial Board of Fire Technology, published by the National Fire Protection Association.

2010-2013	External Examiner for the Fire and Risk Engineering Programme at Glasgow Caledonian University (GCU), appointed for a three year period by the Rector of GCU
2002-2009	Board member of the Association of Directors General in Iceland, secretary in the years 2004-2009 (see <a href="http://www.ffr.is">www.ffr.is</a> ).
2005-2009	Vice-Chairman of the Association of Chartered Engineers in Iceland (see <a href="http://www.vfi.is">www.vfi.is</a> ).
2003 -	The Education Committe of the Association of Chartered Engineers in Iceland
2005-2009	Chairman of the Heating and Venting Association, Iceland (see <a href="http://www.lafi.is">www.lafi.is</a> ).
2007-	Chairman of the Iceland Construction Technology Platform (see <a href="http://www.mvs.is/ictp">www.mvs.is/ictp</a> ).

### ***Honorariums***

- Appointed Visiting Researcher at the Tianjin Fire Research Institute (TFRI), China, 2010.
- Recipient of „The Philip H. Thomas Medal of Honour“, awarded by the University of Edinburgh, 2009.

### ***Selected Publications***

Have written an internationally acclaimed textbook on Enclosure Fire Dynamics, authored chapters in 4 books, been editor of a mayor conference proceedings, published 15 peer-reviewed journal articles and peer-reviewed conference articles and a multitude of other written work. Below is a shortlisted selection.

1. Karlsson, B., Quintiere, J.G., Enclosure Fire Dynamics, CRC Press LLC, 1999.
2. Karlsson, B., Editor: Proceedings of the 10th Symposium of the International Association for Fire Safety Science, Baltimore 2008.
3. Karlsson, B., Changing the Building Regulatory System in Iceland and Paving the way Toward Electronic Submission of Building Permits and Automated Code Compliance Checks. Proceedings of the 9th European Conference on Product and Process Modeling, held in Reykjavik 25-27 July 2012.
4. Karlsson, B., Tomasson, B., Developing a Performance Based Building Regulation and Paving the way toward Electronic Submission of Building Permits and Automated Code Compliance Checks, Proceedings of the 9th International SFPE Conference on Performance Based Codes, held in Hong Kong 20-22 June 2012.
5. Guigay G., Most, J.M., Elíasson J. and Karlsson, B., A CFD and Experimental Investigation of the Mixing Process in Compartment Fires. Fire Safety Science 10: 1043-1056, 2011
6. Guigay, G., Elíasson, J., Horvat, A., Sinai, Y.L., Karlsson, B., “Different Approach to Vent Flow Calculations in Fire Compartments using the Critical Flow Condition”, Journal of Fire Sciences Volume 28 No 5, September 2010
7. Pérez Jiménez, C., Franssen, J.M., Karlsson, B., “Influence of Gas Species on Backdraft Probability Using a Diffusion Flame Limits Criterion”, Journal of Fire Sciences 2009 27: 143-156.
8. J Elíasson, G Guigay, B Karlsson. Enclosure Fires, Gravity Waves and the Backdraft Problem, Journal of Fire Sciences, 2008.
9. Karlsson, B., Chapter 3, The Burning Process and Enclosure Fires, in Plastics Flammability Handbook - Principles, Regulations, Testing and Approval, ed., Troitzsch, J., Hanser Publishers, Munich, 2004.
10. [22] Karlsson, B., Tomasson, B., “A Fire Risk Index Method for Multi-Storey Apartment Buildings”, Proceedings of the 10th International Interflam Conference, Interscience Communications Limited, London, 2004.
11. Karlsson, B., Tomasson, B., “Repeatability Tests of a Fire Risk Index Method for Multi-storey Apartment Buildings”, Proceedings of the 8th International Symposium on Fire Safety Science, London, 2005.

12. Karlsson, B., North, G., Gojkovic, D., "Towards Using Results from Performance Based Test Methods for Material Flammability in Fire Safety Engineering Design", Proceedings of the 3rd International Conference on Performance-Based codes and Fire Safety Design Methods, 15-17 June, 2000, Lund University, Sweden
13. G Guigay, B Karlsson, J Elíasson. Numerical and Simple Engineering Approach to the Determination of Combustion Products in Strongly Under-ventilated Fires Prior to Backdraft. Proceedings of the First Workshop on Fires in Enclosures, Jordanstown, Ulster, May 2006.
14. Björn Karlsson, Bödvar Tómasson, Vidar Stenstad, "Using a Fire Risk Index Method for Multi-storey Apartment Buildings in the Design Process", Proceedings of the 6th International Conference on Performance-Based Codes, Tokyo, 2006.
15. Stenstad, V., Karlsson, B., "Flame Spread on a Solid Wooden Ceiling", INTERFLAM 2007, Proceedings of the Eleventh International Conference, pp 45-57, Interscience Communications, London 2007
16. G Guigay, B Tómasson, J Bengtsson, B Karlsson, J Elíasson. Using Computational Fluid Dynamics in Fire Safety Engineering of Buildings. Proceedings of the 19th International Symposium on Transport Phenomena, Reykjavik, Iceland, Aug. 2008.
17. Tomasson, B., Bengtsson, J., Thorsteinsson, D., Karlsson, B., "A probabilistic risk analysis methodology for high-rise buildings taking into account fire department intervention time" Proceedings of the 9th International Symposium on Fire Safety Science, Karlsruhe, Germany, IAFSS, Baltimore 2008
18. Bödvar Tómasson, Jens Bengtsson, Dadi Thorsteinsson, Björn Karlsson, "The Influence of Fire Department Intervention for the Fire Safety of High-rise Buildings", Proceedings of the 7th International Conference on Performance Based Codes, New Zealand, 2008.
19. Karlsson, B., "Changing the Building Regulatory System in Iceland and Paving the way Toward Electronic Submission of Building Permits and Automated Code Compliance Checks". Proceedings of the 9th European Conference on Product and Process Modeling, held in Reykjavik 25-27 July 2012.
20. Karlsson, B., Tomasson, B., "Developing a Performance Based Building Regulation and Paving the way toward Electronic Submission of Building Permits and Automated Code Compliance Checks", Proceedings of the 9th International SFPE Conference on Performance Based Codes, held in Hong Kong 20-22 June 2012.
21. Suzanne, M., Ukleja, S., Delichatsios, M., Zhang, J., Karlsson, B., Fundamental Flame Spread and Toxicity Evaluation of Fire Retarded Polymers, Proceedings of the IAFSS Symposium, 2014.