Jonathan Barnett

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Experience

Dr Jonathan Barnett is Managing Director of Basic Expert Pty Ltd. He is an internationally acclaimed technical expert in fire safety engineering with over forty-two years' experience in his field. Previously a professor at WPI in the United States, Jonathan has researched topics such as computer modelling of fire, structural fire protection, combustible cladding and the development of new fire test standards. He has an extensive international presentation and publication list.

Jonathan has done projects throughout the world including the United States, Europe, New Zealand and Australia. Starting in 1992 he has worked with the CSIRO, the University of Melbourne, Victoria University, the University of Newcastle, the Australasian Fire Authorities Council, and fire brigades in Victoria and New South Wales.

Jonathan is a chartered and licensed professional engineer who has designed numerous commercial, residential and special purpose buildings. His work in tunnel fire safety design includes projects worldwide. He is a leader in building defect rectification strategies.

As an expert witness, Jonathan has testified on fire events and building defects throughout the world including Australia, the United States and the Netherlands. In 2001 Jonathan was a core team member for the Building Performance Study that investigated the events of 9/11. Jonathan testified before the US Congress House Science Committee on the event and has given over 110 presentations on the topic.

Qualifications

- Doctor of Mechanical Engineering, WPI, Massachusetts, USA, 1989
- Master of Science, Civil Engineering, WPI, Massachusetts, USA, 1976
- Bachelor of Science, Civil Engineering, WPI, Massachusetts, USA, 1974

Professional Memberships

- Australian Building Codes Board Subject Matter Specialist 2018-March 2020
- Building Appeals Board (BAB) Victoria 2015 - 2019
- Society of Fire Safety Australia, National Chair 2017-Present
- Fellow Institute of Engineers Australia
- Fellow Society of Fire Protection Engineers
- Registered Building Practitioner VIC
- Building Professionals Board NSW C10 accredited
- Registered Professional Engineer of Queensland
- Accredited Building Practitioner Tasmania

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- National Engineering Register (Australia)
- Chartered Professional Engineer
- Professional Engineer, Massachusetts, USA
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- National Fire Protection Association
- ASTM Committee E-5, Committee on Fire Standards
- International Association for Fire Safety Science

Community Service

- Immediate Past President Progressive Judaism Victoria
- President and founder Keshet Australia Pty Ltd, a non-profit organisation supporting the LGBTI+ community in Victoria
- Past Director, Temple Beth Israel
- Co-chair Security Group, Temple Beth Israel

Employment History

Basic Expert Pty Ltd, Australia	**2018 – Present**
Building Appeals Board VIC Australia	2015 – 2019
RED Fire Engineers Pty Ltd, Australia	2014 – 2018
Olsson Fire & Risk, Pty Ltd, Australia	2012 – 2014
AECOM Australia Pty Ltd, Australia	2010 – 2012
Simpson Gumpertz & Heger, USA	2007 – 2010
CSIRO, Australia	2004 – 2005
WPI, Massachusetts, USA	1979 – 2007
Firepro Inc., USA	1978 – 1979
Gestetner Corp., USA	1976 – 1978

Selected Publications

Nguyen K, Navaratnam S, Mendis P, Zhang K, Barnett J, Wang H. "Fire safety of composites in prefabricated buildings: From fibre reinforced polymer to textile reinforced concrete", Composites Part B: Engineering. vol. 187. 2020.

Wickström, U., Hunt, S., Lattimer, B., Barnett, J., Beyler, C. "Technical comment—Ten fundamental principles on defining and expressing thermal exposure as boundary conditions in fire safety engineering" Fire and Materials. 2018;1–4.

Nguyen, K.T., Weerasinghe, P., Mendis P., Ngo, T. and Barnett, J. "Performance of modern building façades in fire: a comprehensive review", Electronic Journal of Structural Engineering 16(1) 2016.

Barnett, J.R. and Stratton, B. "Pedestrian Modelling in a Fire Environment", International Fire Protection Magazine, Issue 62, June 2015.

Barnett, J.R. and Stratton, B. "Sustainability Challenges In Fire Safety Engineering". Engineers Australia Convention 2014. Melbourne November 2014

Barnett, J.R. and O'Meagher, T. "Working Together to Introduce New Technology in a Performance Environment" 10th International Conference on Performance-Based Codes and Fire Safety Design Methods, Gold Coast 2014.

Barnett, J.R. "Structural Failure in Building Fires - Lessons Learned from 9/11" Australasian Structural Engineering Conference, Perth 2012.

Barnett, J.R., Fidler, J. "Fire Safety and Buildings of the Recent Past: Designing a Fire Safety Engineering Strategy to Upgrade and Preserve Twentieth Century Heritage", FSE 11, Sydney, 2011.

Barnett, J.R. "Hot Smoke Testing: A realistic means of testing smoke control systems," Construction Specifier, Vol. 63, No. 6, 2010.

LaMalva, K.J., J.R. Barnett, and D.O. Dusenberry, "Failure Analysis of the World Trade Center 5 Building," Journal of Fire Protection Engineering, Vol. 19, No. 4, 2009.

LaMalva, K.J., J.R. Barnett, and D.O. Dusenberry, "World Trade Center 5 Failure Analysis," STRUCTURE, NCSEA/CASE/SEI, Feb 2008.
Barnett, J.R. "Project Based Fire Safety Engineering Curriculum". Proceedings of FSE2006 – The Future of Fire Safety Engineering. Gold Coast, Australia. May 2006.

Barnett, J.R. "Performance Based Design for Fire Protection". Proceedings of A Technical Seminar: Infrastructure Safety & Security – 2006". American Society of Civil Engineers Metropolitan Section. New York City. March 2006.

Barnett, J.R. "Events Driving Fire Safety for Sea, Road and Rail" Proceedings of the International Conference on Fire Safety – Sea, Road, Rail. Melbourne Australia. November 2005.

White, N., Barnett, J.R., Bennetts, I. "Fully Developed Passenger Train Fire Experiment", Proceedings of the International Conference on Fire Safety – Sea, Road, Rail. Melbourne Australia. November 2005.
White, N. Dowling, V., Barnett, J.R. "Full-Scale Fire Experiment on a Typical Passenger Train", Proceedings of the IAFSS 8th International Symposium. Beijing, China. September 2005.

Quintiere, J., Barnett, J.R. et al "Engineering Guide – Fire Exposures to Structural Elements", Society of Fire Protection Engineers. 2004.

Corley, G., Barnett, J.R. et al "World Trade Center Building Performance Study – Data Collection, Preliminary Observations, and Recommendations". FEMA 403. Federal Emergency Management Agency, Washington, DC. May 2002.

Dembsey, N., Lautenberger, C. and Barnett, J. "Development of an Upward Flame Spread Forward Heating Algorithm for Use in CFD Models". The International Conference on Engineered Fire Protection Design, San Francisco, CA, June 2001.

Pehrson, R. and Barnett, J. " Prediction of Fire Growth on Furniture Using Computational Fluid Dynamics". Third International Conference on Fire Research and Engineering. Chicago, Oct. 1999.
Wright, M., Barnett, J. and Dembsey, N. "Flame Spread on Cored Composite Panels for use in High Speed Craft". Third International Conference on Fire Research and Engineering. Chicago, Oct. 1999.

J. Govindarajan, M. O. Ward, and J. R. Barnett, ``Visualizing Simulated Room Fires,'' Proc. IEEE Conference on Visualization, pp. 475-478, October, 1999.

Barnett, J. R., Govindarajan, J. and Ward, M. "Matching Fires and Simulations ", NIST Annual Conference on Fire Research, November, 1998.

Grenier, A.T., Dembsey, N. A. and Barnett, J. R "Fire Characteristics of Cored Composite Materials for Marine Use". Fire Safety Journal, 30, 2, 1998.

Wade, C. and Barnett, J.R. "A Room-Corner Fire Model Including Fire Growth on Linings and Enclosure Smoke-Filling". Journal of Fire Protection Engineering, 8, 4, 1997.

Sincaglia, P.E. and Barnett, J.R. "Development of a Glass Window Fracture Model for Zone-Type Computer Fire Codes". Journal of Fire Protection Engineering, 8, 3, 1997.

Charters, D., Shannon, M., Harrod, P., Shea, D., Morin, K. and Barnett, J. R. "Investigation of the Effectiveness of Detection of Fires by People in Hospitals", Fifth International Symposium on Fire Safety Science, International Association for Fire Safety Science, Melbourne, Australia, 1997.

Pehrson, R. and Barnett, J. R. "Computer Modeling of Intumescent Penetration Seals". Journal of Fire Protection Engineering, 8, 1, 1996.
Barnett, J. R. and Voorhis, M. "A User Friendly Interface for Fire Modelling", Fire Research Station Publication, Building Research Establishment, Watford, U.K. 1996.

Anderson, M., McKeever, Pehrson, R. and Barnett, J. R. "An Experimental Study of Upward Flame Spread on Cellulosic Materials". InterFlam 96, Seventh International Fire Science and Engineering Conference, Cambridge, England, 1996.

Barnett, J. R. "Structures Subjected to Accidental Fires". Proceedings of the 1995 Illinois Chapter ASCE Lecture Series, 1995.

Tubbs, J. S. and Barnett, J. R. "Modeling the NIST High Bay Fire Experiment With JASMINE". International Conference on Fire Research and Engineering, Orlando, Fl, 1995.

Dolph, B. L. and Barnett, J. R. "Quantitative Target Space Smoke Curve Analysis and Procedures". International Conference on Fire Research and Engineering, Orlando, Fl, 1995.

Barnett, J. R. "Development of Analytical Techniques for Risk Management Training", FTA-MA-11-0050-92-1. U. S. Department of Transportation, Federal Transit Administration, 1992.

Barnett, J. R. "Integrated Hazard Analysis", Invited Paper, Proceedings of the International Fire Safety Engineering Conference, Sydney, Australia, 1992.

Hettinger, J.C. and Barnett, J. R. "Evolution of the Fire Development Scenario for Subway Vehicle Fires: Historical Observations, Vehicle Design Standards, and Application of the COMPF2 Post-Flashover Computer Model", Proceedings of the Aerodynamics and Ventilation of vehicle Tunnels, Elsevier Science Publ. Ltd., England, 1991.

Barnett, J. R. "A New Approach for Steel Structures Exposed to Fires". Journal of Fire Protection Engineering, 3, 1, 1991.

Barnett, J. R. "Use of Computer Models to Predict Fire Growth in Buildings", The Voice - The Journal for Fire Service Instructors and Officers, 1990.

Barnett, J. R., Noori, M., N. Broderick, T. W. "The Analysis of Structural Systems Exposed to Unwanted Fires Using ANSYS 4.2". Proceedings of the 1987 ANSYS conference, Swanson Analysis Systems, Inc., Houston, PA 1987.

Barnett, J. R. "Uses and Limitations of Computer Models in Structural Fire Protection Engineering Applications". Fire Safety Journal, 9, 2, 1985.

Selected Thesis & Dissertations Advised

- LaMalva, K., "Failure Analysis of the World Trade Center 5 Building," Master's thesis, 2007.
- Webb, A., "FDS Modeling of Hot Smoke Testing, Cinema and Airport Concourse," Master's thesis, 2006.
- Ierardi, J.A. "Characterizing The Entry Resistance of Smoke Detectors". Doctoral dissertation, May 2005
- Sipe, Joel E. "Development of an Instrumented Dynamic Mannequin Test to Rate the Protection Provided by Protective Clothing", M. Sc. Thesis. 2004.
- Murphy, Jill "Determination of Failure Criteria for Electric Cables Exposed to Fire for Use in a Nuclear Power Plant Risk Analysis", M.Sc. Thesis. 2004.
- Woodward, Andrew. "Fire Scenarios for an Improved Fabric Flammability Test", M.Sc. Thesis. 2003.
- Parkinson, David. "Performance Based Design of Structural Steel for Fire Conditions", M.Sc. Thesis. 2002.
- Ditch, Benjamin. "Thermal Decomposition of 1,1,1,2,4,4,5,5,5 Nonoflouro-2-Trifluoromethyl Pentan-3-One During Fire Extinguishment", M.Sc. Thesis. 2002. Co-advised by S. Thomas, 3M co.
- Fay, Terry. "Development of an Improved Fabric Flammability Test", M.Sc. Thesis. 2002.
- Lautenberger, Christopher. "CFD Simulation of Soot Formation and Flame Radiation". M.Sc. Thesis. 2002. Co-advisor.
- Lantz, Renee. "Model Validation in Fire Protection Engineering". Doctoral dissertation. 2001. Co-advisor.
- Pehrson, Richard. "Prediction of Fire Growth on Furniture Using CFD". Doctoral dissertation. 1999. WPI's Center for Firesafety Studies' first PhD student.
- Wright, Mark. "Flame Spread on Composite Materials for use in High Speed Craft", M.Sc. Thesis. 1999.
- Ierardi, James "A Computer Model of Fire Spread from Engine to Passenger
- Compartments in Post-Collision Vehicles", M.Sc. Thesis. 1999.
- Gosselin, Steven "The Application of Fire Dynamics to Fire Forensics". M.Sc. Thesis. 1999. Co-advisor
- Averill, James "Performance Based Codes: Economics, Documentation, and Design". M.Sc. Thesis. 1998.
- Belliveau, Leonard Jr. ``An Instructional Text for Teaching Hazard I,
- Version 1.2''. M.Sc. Thesis. 1997.
- Cutonilli, John ``Modeling of a Backdraft''. M.Sc. Thesis. 1997.
- Grenier, Andrew T. "Fire Characteristics of Cored Composite Materials for Marine" M.Sc. Thesis. 1996.
- Carpenter, Douglas ``An Investigation into the Validity of Modeling

- Post-Flashover Fires and Flame Extension From Openings with the Fire
- Field Model Jasmine''. M.Sc. Thesis. 1996.
- Grenier, A. ``Fire Characteristics of Cored Composite Materials for Marine Use''. Co-advised by Prof. Dembsey. M.Sc. Thesis. 1996.
- Lantz, R. ``Ignition Index -- An Engineering Based Methodology for Fabric Flammability Testing''. M.Sc. Thesis. 1996.
- Miller, Debra ``Methodology for the Analysis of False Alarms in Fire Alarm Systems''. M.Sc. Thesis. 1996.
- Spinn, J.P. ``Semi-Empirical Heat Transfer Design Technique for Fibrous Insulation''. M.Sc. Thesis. 1996.
- Wade, C. ``A Room Fire Model Incorporating Fire Growth on Combustible Lining Materials''. M.Sc. Thesis. 1996.
- Tubbs, J.S. ``Modelling The NIST High Bay Fire Experiment with JASMINE''. M.Sc. Thesis. 1995.
- Tucker, James R. "Preliminary Development of a Model to Predict the Thermal Response of Composites Exposed to a Radiant Flux. M.Sc. Thesis. 1995.
- DiSanto, A.M. ``Design Considerations for Fire Protection Systems Subject to Explosions on Offshore Production Platforms'', M.Sc. Thesis. 1994.
- Haynes, E. K. ``Development of WPI/Fire 3.0 - A Multiroom Model''. M.Sc. Thesis. 1994.
- LeBlanc, David J. "Development of an Expert Prescreening System for Evaluating College Residences for Lifesafety". M.Sc. Thesis. 1993.
- Pehrson, Richard "Computer Modeling of Intumescent Penetration Seals". M.Sc. Thesis. 1993
- Sullivan, Paul D. "World's First Performance-Based Building Code 'The New Zealand Experience'". M.Sc. Thesis. 1993.
- Brush, Douglas K. "Multifire: A Multiple Fire Simulation Program". M.Sc. Thesis. 1992
- Hunt, Sean P. "A Finite Element Analysis of a Barrier Subject to an ISO Fire". M.Sc. Thesis. 1992..
- Sheppard, David T. "Test Method for the Determination of Temperature Dependent Thermal Properties of Fire Insulation Materials". M.Sc. Thesis. 1992.
- Cappuccio, Joseph A. "Development of Analytical Techniques for Risk Management Training". M.Sc. Thesis. 1991.
- Nash, Roy ``Passenger Ship Fire Protection Design''. M.Sc. Thesis. 1991.
- Puchovsky, Miloslav T. ``Improved Computer Algorithm For Growing Fires''. M.Sc. Thesis. 1991.
- Anderson, Carl P. `` A Methodology for the Use of HAZARD-I in Residential Fire Investigations''. M.Sc. Thesis. 1990

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