



**DANIEL N. BAK**  
CURRICULUM VITAE  
March, 2022

**EDUCATION**

Texas A&M University, College Station, Texas, USA  
Ph.D., Major: Industrial Engineering Concentration. Computer Fire Models Evaluation via Statistical Analysis, 1987

Texas A&M University, College Station, Texas, USA  
M.S., Major: Safety Engineering. Concentration: Probabilistic Approach to Fire and Life Safety Evaluation of Buildings, 1982

Illinois Institute of Technology, Chicago, Illinois, USA  
B.S., Major: Fire Protection and Safety Engineering. Concentration: Fire Protection Design, 1980

**PROFESSIONAL REGISTRATIONS**

- Licensed Professional Engineer, California (#1495)
- Licensed Professional Engineer in Singapore (FSE # 084)

**PROFESSIONAL AFFILIATIONS**

- Society of Fire Protection Engineers (SFPE)
- National Fire Protection Association (NFPA)
- Society of American Military Engineers (SAME)

**EXPERIENCE**

**2018 – Present**

**WorldWide Fire Safety Experts (WWFSE)** Krabi, Thailand  
*Principal*

Principal for WorldWide Fire Safety Experts (WWFSE), a fire and life safety consulting firm that performs expert witness, construction consulting and design services. Responsibilities include review evidentiary documentation, focusing on relevant fire protection systems and life safety provisions for buildings. Performs site inspections, testing, computerized fire simulation (fire modeling) and code and standards analysis. WWFSE also provides technical assistance to clients, writes reports and testifies in depositions, hearings, trials, and International Tribunals.



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**2016 – 2018**

**Ivey Engineering, Inc.**

San Diego, California, USA

*Sr. Fire Protection Consultant*

Senior Consultant and Project Manager for Ivey Engineering, Inc., an engineering firm that performs expert witness, construction consulting and design services. Responsibilities include specifying and forensically analyzing fire protection systems and life safety provisions for buildings. Performs site inspections, testing, computerized fire simulation and code analysis. He also provides technical assistance to clients, writes reports and testifies in depositions, hearings and trials.

**2014 – 2016**

**Scientific Expert Analysis Limited**

Columbus, Ohio, USA

*Senior Forensic Fire Engineer*

Provided forensic services to insurance companies and law firms regarding fire losses and litigation. Cases included fire protection system design and installation, equipment performance and investigation of fire system failures in various occupancies.

**2013 – 2016**

**International Fire Compliance**

Udon Thani, Thailand

*Principal-Advisor*

Activities involved technical advisory and international collaboration in fire protection and fire/life safety engineering. Also provided review and quality assurance of fire and life safety design.

**2013 – 2013**

**Complete Fire Design**

Perth, Australia

*Executive Engineering Manager*

Oversaw the fire protection and the fire safety teams providing fire protection design, fire engineering reports, project management and project related budgeting.

**2011 – 2012**

**AECOM**

Singapore

*Technical Director*

- Recruited staff and created the fire engineering team of 3 fire engineers for South East Asia.
- Created fire engineering qualification statement for the AECOM Singapore unit.

- Performed a variety of fire safety engineering services for the AECOM business units.
- Focused and created the fire engineering group based in Singapore serving Southeast Asia.
- Participated in a variety of tenders and fire engineering reviews including bringing changes to mass transit systems and the Singapore Fire Code via Value Engineering proposals.

**2007 – 2011**

**AECOM**

Orange, California, USA

*Senior Fire Engineer*

- Performed a variety of fire safety engineering services for the AECOM USA business units.
- Focused on performance-based approaches and applications.
- Participated in a variety of US Navy and Air Force projects in Guam as well as in Japan.

**2007 – 2007**

**Norman Disney Young**

Sydney, Australia

*Fire Engineering Manager*

- Managed fire engineering staff in the Sydney office.
- Provided Fire Engineering and Risk Assessment support to other NDY Offices throughout the world.
- Participated with Fire Engineering Practice Leaders globally in maintaining fire engineering consistency and information sharing within the company.
- Provided quality assurance of all fire engineering reports and key documents.

**2006 – 2007**

**Sinclair Knight Merz Limited**

New Zealand

*Fire Engineering Manager*

- Managed fire engineering staff in all offices of New Zealand.
- Provided Fire Engineering support to other SKM Sections throughout the world.
- Participated with Fire Engineering Practice Leaders globally in maintaining fire engineering consistency and information sharing within the company.
- Provided peer reviews of fire engineering reports.

**2003 – 2006**

**MD Fire Safety**

Mission Viejo, California, USA

*Fire Protection and Safety Engineer - Principal*

Responsible for general project management and performance of comprehensive services of fire protection and life safety engineering. It included code compliance, fire and life safety risk assessments, hazardous materials analysis, and performance-based analysis and evaluations.

**1998 – 2003**

**Rolf Jensen & Associates, Inc.**

Yorba Linda, California, USA

*Senior Fire Protection Engineering Consultant – Project Manager*

- Designed and successfully managed research projects of an industrial and educational nature where issues were challenging and politically sensitive.
- Performed the role of clearinghouse for feedback to other engineering staff members for negotiating strategies with Authorities Having Jurisdiction.
- Managed and coordinated labor and budgets in the survey assessment of the Federal Aviation Administration's air traffic control towers in the Western Pacific Region. Designed and implemented fire and life safety improvements of the 78 control towers throughout the region.

**1996 – 1998**

**Orange County Fire Authority**

Orange, California, USA

*Fire Protection Engineer*

- Assisted, directed, and supervised various engineering aspects of the Fire Prevention Bureau.
- Reviewed and evaluated complex building projects for compliance with statutes, codes, and standards.
- Reviewed and approved fire defence system improvements for new residential and commercial developments.
- Provided fire protection and risk assessment consultation and technical expertise to government officials, and to pertinent bureaus of the Fire Authority.
- Participated in the process of fire code changes and recommended appropriate changes and additions to 19 jurisdictions and all unincorporated areas of Orange County, California.



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**1993 – 1995**

**Chicago Tribune Company**

Chicago, Illinois, USA

*Fire Protection Specialist – Project Manager*

- Provided technical support for maintaining fire and life safety at the main printing facility and other facilities under the Chicago Tribune Company with the support of various departments.
- Managed and improved programs for testing all fire protection and life safety systems (detection, suppression, and monitoring) by using bar coding technology.
- Managed the conceptual design and implementation of the improvements of the fire alarm system and the voice communication system.

**1989 – 1993**

**Forensic Fire Dynamics**

Chicago, Illinois, USA

*Fire Protection and Safety Consultant*

- Responsible for fire, safety, and life safety studies, building and fire code consultation, fire litigation support, fire safety hazard, risk assessment, reconstruction analyses, fire safety computer animation, and expert testimony. Conducted research in collaboration with the Illinois Institute of Technology.
- Instrumental in the settlement of the largest fire loss in Illinois history (150 million dollars).
- Responsible for the settlement of property fire losses which occurred in a variety of occupancies (residential, commercial, and industrial). These fire losses ranged from \$500,000 to \$150,000,000.

**1987 – 1989**

**Schirmer Engineering Corporation**

Deerfield, Illinois

*Fire Protection Consultant, Project Manager*

Responsible for fire protection and building code analyses for major building projects. Work included using fire modelling technology for fire litigation support cases and design projects.

**1980 – 1981**

**Skidmore Owings & Merrill**

Chicago, Illinois, USA

*Fire Protection Designer*

Responsible for the design of fire protection systems and coordination of those systems with other disciplines (architecture, mechanical, structural, civil, and electrical). Work included specialized fire protection systems for national and international projects.

**ACADEMIC RELATED  
EXPERIENCE**

**1998 – 2000**

**University of California Los Angeles  
School for Public Health**

Los Angeles, California, USA

*Adjunct Associate Assistant Professor*

Presented two introductory graduate courses of fire and life Safety engineering concepts for industrial setting applications.

**1989 – 1995**

**Illinois Institute of Technology  
Department of Civil Engineering**

Chicago, Illinois, USA

*Adjunct Associate Assistant Professor*

- Responsible for the development and teaching of Fire Protection and Safety Engineering Programs (five different courses).
- Participated in the preparation, submittal of proposals, and the conduct of research in fire safety areas. These research areas include risk of fires following earthquakes, and structural building stability during fi,res.

**1986 – 1986**

**University of Maryland,  
Department of Fire Protection Engineering**

College Park, Maryland, USA

*Lecturer*

Presented fire protection engineering materials for undergraduate level course in which applied fluid dynamics concepts are utilized.

**1986 – 1987**

**National Institute of Standards  
and Technology (CFR)**

Gaithersburg, Maryland, USA

*Research Associate and Principal Investigator 01/86 to 02/87*

Performed sensitivity analysis on a state-of-the-art fire model (FAST version 17) and validated it with full-scale fire data emanating from the Centre of Fire Research full scale laboratories.

**1982 – 1985**

**Texas A & M University  
Department of Industrial Engineering**

College Station, Texas, USA

*Graduate Teaching and Research Assistant*



- Redesigned senior level fire safety course with focus on industrial fire protection. Introduced system safety as applied to fire safety industrial projects using Markovian process and concept of probabilities.
- Conducted fire safety laboratories in hydraulics engineering concepts and applied instrumentation for fire pump testing at the Texas Firemen's Training School. Conducted preliminary research activities at the Centre for Fire Research (NBS) and submitted a research proposal and budget as the principal investigator.
- Participated at the 53rd annual session of the industrial firefighting training at the Texas Firemen's Training School on August 1 through 6, 1982.

#### TECHNICAL PAPERS AND PRESENTATIONS

- "Overcoming Cultural Differences in the Practice of Fire Protection Engineering," Daniel N. Bak, Ph.D., P.E., FSE (**Keynote Speaker**), SFPE North America Conference & Expo: Freedom to Design, Philadelphia, Pennsylvania, USA, November 9-11, 2015.
- "Overcoming Cultural Differences in Risk Assessment and Management: Lessons from the Practice of Fire Protection Engineering," Daniel N. Bak, Ph.D., P.E., FSE (SEA Limited, Columbus, Ohio, USA) and Rodney J. Simmons, Ph.D., CSP, Fellow, ISSS (The Petroleum Institute, Abu Dhabi, UAE), 33rd International System Safety Conference, San Diego, California, USA, August 24-27, 2015.
- Case Study: A Risk-Informed, Performance-Based Approach Applied to the Design of a Streamlined Fire Suppression System for 23-Station Underground Train Line, Dr. Daniel N. Bak, P.E., FSE (SEA Limited, Columbus, Ohio, USA) and Dr. Rodney Simmons, CSP, Fellow, (The Petroleum Institute, Abu Dhabi, UAE), 33rd International System Safety Conference, San Diego, California, USA, August 24-27, 2015.
- "Performance-Based Approach Applied to a 23 Underground Stations Train Line for Streamlined Fire Suppression Systems," Daniel N. Bak, Ph.D., P.E., FSE, (SEA Limited, Columbus, Ohio, USA) and Wenlei Zhang, Chief Fire Safety Engineer (Dalian Wanda Group, Beijing, China), SFPE Conference & Expo, Engineering a Fire Safe World, Long Beach, California, USA, October 12-17, 2014.
- Prescriptive versus Performance-Based Fire Safety for Super High-Rise Buildings: Which One Is Superior? Fire Safety Asia Conference Singapore 2011, Singapore, October 12-14, 2011.
- "Managing Fire Emergency and Other Emergency in Correctional Facilities", The American Correctional Association, 138th Congress of Correction, New Orleans, USA, August 08-13, 2008.
- "Review and Approve Performance Proposal with Confidence -What Every Fire Prevention Officer Should Understand and Question", the 16th California Fire Prevention Institute Workshop, Buellton, California, USA, March 2006.
- "Lessons Learned from the World Trade Center Collapse", Society of Fire Protection Engineers Auckland, New Zealand, November 14, 2006.
- "Are Fire Prevention Officers Ready for the Performance-Based Codes?", The 13th California Fire Prevention Institute Workshop, Monterey, California, USA, February 4-9, 2002.



- “What Every Fire Protection Engineer Should Know About Risk Assessment”, The International Conference on Engineered Fire Protection Design”, San Francisco, California, USA, June 11-15, 2001.
- Developed and taught department specific classes for fire, life safety emergency response procedures at the Freedom Centre facility for the Chicago Tribune Company, Chicago, Illinois, USA, Summer 1995.
- “Analysis of Post-earthquake fire hazard”, Tenth World Conference on Earthquake Engineering, Madrid, Spain, July 19-24 1992.
- “Application of Animation and Fire Modelling Technology to the Subrogation Case”, Property Insurance Subrogation from A to Z, Marco Island, Florida, USA, April 19 & 20, 1991.
- “Investigation of the Cause and Effects of Fires Following the Loma Prieta Earthquake”, Department of Civil Engineering, Illinois Institute of Technology, Chicago, Illinois, USA. Funded by the National Science Foundation (BCS-9003557) (1991).
- “Sandwiching” a “Legal” “Fire”, HAZARD I Users’ Conference, National Institute of Standards and Technology, Centre for Fire Research, Gaithersburg, Maryland, USA, June 4 - 5, 1990.
- “An Introduction to the National Building Code (1987 & 1990 editions) a two-day seminar on BOCA model building code presented for the Centre for Design Technologies in fifteen (15) cities of the country, USA, 1989-1990.
- “Overview of Fundamentals of Fire Modelling Technology”, University of Cincinnati, Department of Mechanical, Industrial and Nuclear Engineering, Cincinnati, USA, (1990).
- “How to Prevent a Disastrous High-Rise Fire”, Concept Chicago 89, Chicago, Illinois, USA, October 5 - 6, 1989.
- “Simulating an Accidental Fire in High-Rise Building”, National Fire Protection Association, Annual Spring Meeting, Washington D.C., USA, May, 1989.
- “Procedures for Quantitative Sensitivity and Performance Validation Studies of a Deterministic Fire Model”, U.S. Department of Commerce, National Bureau of Standards, NBS/GCR-88/544, March, USA, 1988.
- “A Computerized Analysis Technique for Evaluating Safety of Buildings”, Hazard Prevention Journal, (May/June 1984).
- “A Computerized Analysis Technique for Evaluating Fire Safety in Buildings”, Sixth International Systems Safety Conference, Houston, Texas, USA, September, 1983.
- “Application of Digital Computer Programming of Building Fire Safety”, American Society of Safety Engineers, Region III, Professional Conference, College Station, Texas, USA, March, 1983.