Curriculum Vitae

Scott E. Dillon, P.E., IAAI-CFI, CFEI, CVFI

Fire Science Manager • Fire Protection Engineer

Professional Practice

Scott Dillon is a licensed professional engineer with over 18 years of experience in the areas of fire protection engineering, fire science, fire and explosion investigation and forensic analysis. Scott provides clients with expert consultation regarding fire protection and alarm systems, life safety, fire dynamics, fire testing, fire modeling and compliance with industry codes and standards. He has an in-depth understanding of origin and cause investigations of fires and explosions and has experience performing investigations involving residences and vehicles as well as commercial, industrial, chemical, and agricultural facilities. He performs investigations of fire and explosion incidents involving fuel gas systems and equipment. He also has experience with the investigation of incidents involving combustible dusts and combustible metals as well as evaluating combustible dust hazards and performing Dust Hazard Analyses (DHAs). He has performed evaluations of the design, installation, inspection, testing, maintenance and failure of fire and life safety systems, including sprinkler systems, clean agent systems, vehicle suppression systems and commercial kitchen suppression systems. He also has experience performing safety, risk, and hazard evaluations of facilities related to root cause analysis of accidents and the prevention of accidents.

Employment History

Fire Protection Engineer, Fire Science Manager – Crane Engineering

Plymouth, MN • 2013 - Present

Specializes in fire protection engineering, fire science and fire and explosion investigation. Applies his knowledge of fire dynamics and fire protection principles to the analysis and investigation of building fire and life safety systems, the causation of fires and explosions, the evaluation of product liability issues, and the prevention of accidents, with particular emphasis on fires and explosions. Routinely performs analyses of fire protection and alarm systems to determine mechanisms of failure and compliance with codes, regulations and industry best practices. Investigates incidents involving fuel gas systems. Performs site safety assessments, hazard and risk evaluations and code conformance audits of facilities to determine the cause of accidents as well as to assist facilities in the prevention of accidents.

Senior Managing Engineer – Exponent

Warrenville, IL • 2006 - 2013

Performed numerous origin and cause investigations of fires and explosions involving structures, vehicles and commercial products. Investigated fire and explosion incidents involving combustible dusts and combustible metals and provided consulting related to the OSHA Combustible Dust National Emphasis Program (NEP). Evaluated the mechanisms of failures of fire suppression, fire alarm and life safety systems and their impact on the outcome of accidents. Performed gap-analysis and code compliance audits to evaluate the safety and hazard of industrial facilities.

Fire Research Engineer – Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), Fire Research Laboratory (FRL)

Ammendale, MD • 2000 - 2006

Performed numerous small- and large-scale fire tests and simulations to assess the ignition and growth of fires including the determination of ignition properties, flame spread, material reaction to fire, heat release rate and smoke production. Provided engineering analyses, technical assistance and fire scene support to ATF Certified Fire Investigators in the areas of ignition and flame spread, fire modeling, fire performance of materials, fire growth, fire dynamics and codes and standards. Member of the ATF National Response Team for the investigation of large fires. Assisted in the design and commissioning of the ATF's Fire Research Center.

Fire Protection & Testing Engineer – Southwest Research Institute, Department of Fire Technology

San Antonio, TX • 1998 - 2000

Performed standardized fire tests to determine compliance with the requirements of building and fire codes. Performed routine and custom fire tests to determine ignition propensity, flame spread, heat release rate, smoke production rate, visibility and smoke toxicity. Performed research on numerical methods to evaluate material performance in full-scale fires and fire tests based on small-sale fire tests.

Professional Licenses

Licensed Professional Engineer

Minnesota, Illinois, Iowa, Wisconsin, North Dakota, Vermont, Missouri, Montana and Nebraska

IAAI Certified Fire Investigator (IAAI-CFI)

NAFI Certified Fire and Explosion Investigator (CFEI)

NAFI Certified Vehicle Fire Investigator (CVFI)

OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Technician (29 CFR 1910.120)

Professional Affiliations

International Association of Arson Investigators (IAAI) – Member

International Association of Arson Investigators, Minnesota Chapter – Member

National Association of Fire Investigators (NAFI) – Member

Society of Fire Protection Engineers (SFPE) – Professional Member

Society of Fire Protection Engineers, Minnesota Chapter – Member

National Fire Protection Association (NFPA) – Member

Mr. Dillon also serves as a member of the NFPA Technical Committees on Fire Tests, Combustible Metals & Metal Dusts, and Wood & Cellulosic Materials Processing

ASTM International – Member

Committee E05 on Fire Testing

Subcommittee E05.13 on Large Scale Fire Tests

Subcommittee E05.21 on Smoke and Combustion Products

Subcommittee E05.22 on Surface Burning

Subcommittee E05.32 on Research

Subcommittee E05.33 Fire Safety Engineering

International Code Council (ICC) – Member

Education

B.S., Fire Protection Engineering, University of Maryland, College Park, MD, 1996

M.S., Fire Protection Engineering, University of Maryland, College Park, MD, 1998

Publications

S.E. Dillon, J. Milke. Thermal and Structural Response of Light Steel Frame Wall Assemblies Exposed to Fire Using The SAFIR Finite Element Model. National Institute of Standards and Technology, 2nd International Conference on Fire Research and Engineering, Gaithersburg, MD, August 10–15, 1997.

S.E. Dillon, W.H. Kim, J.G. Quintiere. Determination of Properties and the Prediction of the Energy Release Rate of Materials in the ISO 9705 Room-Corner Test. Volume 98, NIST GCR 98-753, National Institute of Standards and Technology, Gaithersburg, MD, July 1998.

S.E. Dillon. Analysis of the ISO 9705 Room/Corner Test: Simulations, Correlations, and Heat Flux Measurements. Master's Thesis, University of Maryland. NIST GCR 98-756, National Institute of Standards and Technology, Gaithersburg, MD, August 1998.

S.E. Dillon, J.G. Quintiere, S. Messa, D. Rosa. Wall and Ceiling Heat Flux Measurements in a Room-Corner Test. NISTIR 6242, October 1998, National Institute of Standards and Technology Annual Conference on Fire Research, Book of Abstracts, Gaithersburg, MD, November 2-5, 1998, pp. 141-142.

S.E. Dillon, J.G. Quintiere, W.H. Kim. Discussion of a Model and Correlation for the ISO 9705 Room-Corner Test. Proceedings, Fire Safety Science 6th International Symposium, University of Poitier, France, M. Curtat (ed), International Association for Fire Safety Science, July 5-9, 1999, pp. 1015–1026.

C.L. Beyler, S.P. Hunt, B.Y. Lattimer, N. Iqbal, C. Lautenberger, N. Dembsey, Barnett J, M.L. Janssens, S.E. Dillon, A.T. Grenier. Prediction of ISO 9705 Room/Corner Test Results. Volumes I and II, CG-D-22-99, United States Coast Guard, Washington, DC, November 1999.

M.J. Spearpoint, S.E. Dillon. Flame Spread Model Progress: Enhancements and User Interface. NIST GCR 99-782, National Institute of Standards and Technology, Gaithersburg, MD, November 1999.

M.L. Janssens, S.E. Dillon. Balanced Approach to the Fire Performance Evaluation of Interior Finish Materials. NISTIR 6588, S.L. Bryner (ed), November 2000, U.S./Japan Government Cooperative Program on Natural Resources (UJNR), Fire Research and Safety, 14th Joint Panel Meeting, Vol. 1, Proceedings, San Antonio, TX, March 1-7, 2000.

M.L. Janssens, S.E. Dillon, S. Allwein S. Burning Characteristics of Heptane and Methanol Pool Fires. Proceedings, Fire and Materials Conference, San Francisco, CA, 2001, Interscience Communications Limited, London, January 2001.

A.T. Grenier AT, M.L. Janssens, S.E. Dillon. Predicting Fire Performance of Interior Finish Materials in the ISO 9705 Room/Corner Test. Proceedings, Fire and Materials Conference, San Francisco, CA, Interscience Communications Limited, London, January 2001.

S.E. Dillon, M.L. Janssens, M.M. Hirschler. Using the Cone Calorimeter as a Screening Tool for the NFPA 265 and 286 Room Test Procedures. Proceedings, Fire and Materials Conference, San Francisco, CA, Interscience Communications Limited, London, January 2001.

S.E. Dillon, M.L. Janssens, A.S. Garabedian. A Comparison of Building Code Classifications and Results of Intermediate-Scale Fire Testing of Stored Plastic Commodities. Conference Proceedings, 9th Interflam Conference, Edinburgh, Scotland, Interscience Communications Limited, London, September 17–19, 2001, pp. 593-604.

M.L. Janssens, S.E. Dillon, S. Allwein. Characterizing the Thermal Environment of the Cone Calorimeter for Analyzing Ignition Data of Materials. Proceedings, 9th Interflam Conference, Edinburgh, Scotland, Interscience Communications Limited, London, pp. 125–135, September 17–19, 2001.

S.E. Dillon, A. Hammins. Ignition Propensity and Heat Flux Profiles of Candle Flames for Fire Investigation. Proceedings, 2003 Fire and Materials Conference, San Francisco, CA, Interscience Communications Limited, London, January 2003.

A. Hammins, M. Bundy M, S.E. Dillon. Characterization of Candle Flames. Journal of Fire Protection Engineering 2005; 15(4):265–286. Society of Fire Protection Engineers, Bethesda, MD, 2005.

S.E. Dillon, A.R. Carpenter, R.A. Ogle. Comparative fire risk of motor vehicle fires: Gasoline vs. Ethanol. American Institute of Chemical Engineers (AIChE), 42nd Annual Loss Prevention Symposium, New Orleans, LA, April 7–9, 2008.

D.R. Morrison, R.A. Ogle, S.E. Dillon, Lucas RJ. Analysis of a Two Decade Old Arson Investigation Using Scientific Fire Investigation Methods: The People Vs. Madison Hobley. Proceedings, 2009 Fire and Materials Conference, San Francisco, CA, Interscience Communications Limited, London, January 2009.

D.R. Morrison, S.E. Dillon, M.T. Fecke. Lessons Learned From a Thermal Runaway Incident Involving an Organic Peroxide Intermediate During a Power Outage. American Institute of Chemical Engineers (AIChE) Proceedings, 2010 Global Process Safety Congress, San Antonio, TX, March 21–24, 2010.

D.R. Morrison, S.E. Dillon, T.H. Hetrick. A Review of the Hypotheses of Low-Temperature Self-Ignition of Wood. Proceedings, 2011 Fire and Materials Conference, San Francisco, CA, Interscience Communications Limited, London, January 2011.

R.A. Ogle, S.E. Dillon, A.R. Carpenter. Fatal Explosion Caused By an Intermittently Used Fuel Gas Piping System. American Institute of Chemical Engineers (AIChE) 7th Global Congress on Process Safety, Chicago, IL, March 13–16, 2011.

R.A. Ogle, S.E. Dillon, A. R. Carpenter. Facility Siting and Hidden Pathways for Hazardous Gas Migration. Mary Kay O'Connor Process Safety Center, 2011 International Symposium, College Station, TX, October 25–27, 2011.

R.A. Ogle, S.E. Dillon, J.R. Ramirez. Flash Fire Involving a Hot Combustible Liquid. Presentation at the American Institute of Chemical Engineers (AIChE) 2012 Spring National Meeting & 14th Annual Process Plant Safety Symposium, Houston, TX, April 1–5, 2012.

S.A. Smyth, S.E. Dillon. Common Causes of Bus Fires. SAE Technical Paper 2012-01-0989, Society of Automotive Engineers (SAE) World Congress, Detroit, MI, April 24-26, 2012.

A.F. Blum, R.T. Long, N.P. Wu, S.E. Dillon. Analyzing Unsatisfactory Fire Sprinkler Performance. American Society of Civil Engineers (ASCE) 6th Forensic Engineering Congress, San Francisco, CA, October 31-November 3, 2012.

A.F. Blum, R.T. Long, S.E. Dillon. Investigating Inadvertent Automatic Fire Sprinkler System Discharges. American Society of Civil Engineers (ASCE) 6th Forensic Engineering Congress, San Francisco, CA, October 31-November 3, 2012.

R.A. Ogle, S.E. Dillon, M.T. Fecke. Explosion from a Smoldering Silo Fire, Process Safety Progress, Vol. 33, No. 1, American Institute of Chemical Engineers, March 2014.