



roarengineering.com



Michael L. Flynn, P.Eng.

Fire Investigations

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Education

RYERSON UNIVERSITY

Bachelor of Mechanical Engineering

YORK UNIVERSITY

Administrative Studies

1984

UNIVERSITY OF MISSOURI

Process Management Skills

1985

PACE UNIVERSITY

Statistical Process Control

1984

UNIVERSITY OF EASTERN KENTUCKY

2001, 2005

Experience

ROAR ENGINEERING

Fire investigations

2021 – PRESENT

General work experience over the past 27+ years involving inspection, review, investigation/review of approximately 13,000 claims, involving a wide range of damages including property, fire, water damage, smoke damage, product failure, injury investigations, settlement of claim and damage disputes.

Manage daily forensic, design engineering, failure analysis including a wide range of engineering disciplines. Experienced in a range of engineering disciplines involving steel manufacturing, aircraft manufacturing, electronic consumer product design/manufacturing, mechanical systems, robotics, roofing, construction, restoration, and forensic investigation. Knowledge of The Canadian National Farm Building Code, Ontario Building Code, CAN/CSA B139, B365, B149 Regulations, TSSA

Regulations, Occupational Health & Safety Act, Designated Substances, various applicable CSA and ASTM Standards. Participate in hearings/mediations involving construction disputes, claims and damages. Experienced in forensic engineering, performing cause and origin investigations relating to fire, water damage, etc. Provide engineering expertise to clients, design consultants, site staff, trades, roofing manufacturers, HVAC installers, manufacturers, wood/oil/gas industry, roofing contractors, regional building departments, municipalities, law firms, Insurers, and the private sector. Conduct daily and routine site examinations evaluating building damages including, fire, water/mould damages, structural failures, slip and fall incidents, product failures, heating/cooling failures, remediation/abatement, and oil escape losses. Provide heating/cooling analysis, and mechanical designs for new construction, and retrofit applications.

Responsible for fire/explosion investigation services within MFAL with an annual volume of attending approximately 150 fire/explosion investigations; and supervision of MFAL staff and outside consultants.

MICHAEL FLYNN & ASSOCIATE LIMITED
President

2014 – 2021

Services provided and duties consistent with present role at Roar Engineering.

ROCHON ENGINEERING (formerly FIRST DIMENSION ENGINEERING) 2006 – 2014
Manager

Manager of Rochon Engineering and First Dimension Engineering – performed approximately 350 annual site investigations pertaining to losses involving fire/explosion investigation, building damages, product failures, roofing failures, code non-conforming problems, injury claims, heating/cooling failures, oil escapes, lightning strikes, building impacts, and fire, flood, water damage, mould and asbestos assessment/protocol. Provided assessments, remedial plans/specifications, supervised/reviewed staff engineering/forensic investigations, construction/remediation repairs.

Completed numerous investigations, including fire/explosion investigations, oil/gas/wood product failures, flood damages, electrical/mechanical/ metallurgical/product failures, fire/explosion assessments and building damage assessments. Responsible for performing cause and origin investigations, failure analysis, building damage assessments, fire/explosion analysis, oil escape causation, heat, smoke, water, wind, vibration, blasting related damages including secondary damages. Responsible for evaluating property losses and failures primarily throughout Ontario, periodically outside the province including Saskatchewan, British Columbia, P.E.I, Newfoundland, Quebec and the USA

Responsible for the investigation of oil escape causation investigations including examination of oil heating systems for Code compliance. Investigations include determining if heating systems are properly installed, inspected, serviced, and maintained according to industry standards, manufacturer's instructions and CAN/CSA B139, B149, WETT, and the TSSA Regulations. Participate and carry out metallurgical investigations of oil tank, filter failures, plumbing line, and other metallurgical/material failures.

Provide mechanical, heating, ventilation, and building mechanical HVAC engineering design for residential, commercial, and industrial buildings as per the Ontario Building Code requirements and ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).



Responsible for overseeing structural design, structural repairs, and new design for building systems, including agricultural, residential, commercial, industrial, and institutional.

Performed numerous personal injury investigations pertaining to ladder falls, balcony failures, falls from strand cables, slip and falls, trip and falls, step and falls, stair fall incidents, handrail incidents, pedestrian fall related injuries, and product failure resulting in personal injuries.

Ontario Building Code Past Consultant for City of Barrie, Simcoe County, Georgina Township, District of Muskoka, District of Muskoka Lakes, Tarion, Tay Township, Stewart Title Insurance Company, Town of Killarney, Armstrong Township, Insurers, private residents, TARION and legal experts.

**FIRST DIMENSION ENGINEERING
Engineering Department**

1990 – 2006

Investigation of claims and damages including Engineering Cause and Origin investigations, fire/explosion investigations, building assessments, water damage assessments, and roofing failures.

Responsible for the investigation and analysis of claims and damages pertaining to fire/explosions, wind, water, smoke, lightning, blasting damage, product failures, vibration failures, building failures, roofing failures, and personal injuries.

Responsible for the inspection, construction, restoration, new construction, damage assessment with respect to fire/explosion, water, wind, lightning, mould, asbestos and roofing damages; including industrial, commercial, institutional, and residential. Responsible for design/installation of heating systems, fireplace, wood, oil, gas, solar, etc.

**FIRST DIMENSION RESTORATION
Construction and Engineering Manager**

1990 – 2001

Construction, and Engineering Manager responsible for estimating, site visits, plans and specifications, overseeing construction related activity, construction of new houses, fire and flood restoration, and performed approximately 750 Insurance related fire/flood restorations/new construction annually. R2000 Certified Builder, Registered Builder with the Ontario New Home Warranty Program (Tarion), modular home constructor, general contractor and roofing contractor throughout Ontario. Building designer, restoration contractor, log home constructors, general contractor, and new construction. Water, wind, fire, smoke, mould, asbestos, biological hazards, lead, silica, designated substances and remediation/restoration contractor.

**McDONEELL DOUGLAS CANADA LTD.
Engineer**

1980 – 1990

Engineer – Fabrication, Assembly, Composites, Paint, and Process
Manager of Facility Engineering
Production Manager of F-18 Hornet Program. Assembly/Fabrication Manager for MD-11 Commercial Airline Program.
Product Engineer – Investigating and resolving production related manufacturing problems in assembly and fabrication.

Responsible for mechanical design/build operations including automated process, paint, drying ovens, and robotic facilities. Implemented Health & Safety program and procedures, developed and implemented WHMIS training and plant safety procedures for construction subcontractors, inhouse and sub-contractor construction personnel.



Responsible for computer assisted design/manufacturing, design/ implementation of new systems, equipment, failure analysis, start-up, fabrication and assembly operations.

Responsible for facility engineering and maintenance operations for a plant encompassing 2.2 million square feet, and managing engineering/architectural staff of 50 engineers/architects, technologists, and design personnel. Responsible for assembly/fabrication personnel.

Supervisor – Productivity improvement, Just in Time production, Corporate International consultant for process improvement, and quality improvement.

Manufacturing Manager - Assistant to the Vice President of Manufacturing.
Fabrication and Assembly Manager of F-18 Hornet, and Commercial MD-11 Program.

Managed, designed, implemented, and operational start up of a fully automated high manufacturing volume process and paint robotic automated facility (\$15,000,000 project).

CONSULTANT to CAMBERIN ELECTRONICS

1980 – 1983

Designer, manufacturer of consumer electronic products, including off air and cable TV converters.

Research and product development engineer

Developed off air TV converters with volume control and channel selection

DOMINION FOUNDRIES and STEEL (DOFASCO) Engineer in Training (Co-op Work Student, May-September)

1976 – 1980

Worked in the Manufacturing Controls Operations Research Department at Dofasco developing computer simulation software for new start up facilities, automation of office reporting systems, performed plant assessments, analyzed systems to improve production in steel mill operations, blast oxygen furnace, ingot production, and hot rolling of steel.

Professional Memberships

Professional Engineers of Ontario (PEO) Member

Association of Professional Engineers, Central Chapter, Executive Member, Served for a 2 year term

Association of Professional Engineers and Geoscientist of Saskatchewan (Past Member)

Association of Professional Engineers and Geoscientist of Manitoba (Past Member)

IICRC - Certified in Fire, Smoke, Water Damage, and Mould

NAMP – Certified in Mould Remediation, Assessment and Testing

National Association of Fire Investigators (NAFI) – Member for 19 years

Canadian Association of Fire Investigators (CAFI) – Member for 19 years



Certified Fire and Explosion Investigator (CFEI) 19 years

Certified Fire Investigation Instructor (CFII) 19 years

NACE International – National Association of Corrosion Engineering – Member - 2010

R2000 Construction Certificate - 2000

CSA Member on the CAN/CSA B139 Oil Heat Committee – Participated in developing the new 2015-B139 Oil Heat Code which outlines OBT duties and responsibilities in the field. Provided foundation designs for oil tanks for the CSA B139-2015 Code.

Additional Education

NAFI - Advanced Fire, Arson & Explosion Training (Toronto, 2010, 2015)

IICRC Certified – Water Damage, Fire and Smoke Damage

Mould Training – Testing, Evaluation, Abatement and Control (CMR Certificate)

COHA – Knowledge of COHA Technician Manuals and Best Practices – COHA member

NORA – Knowledge of NORA Recommended Guide for Installation and Maintenance

CAN/CSA B139 Code(s) – Co-Authored Can CSA B139-2015 Oil Heat Regulations

UL Standards – Familiar with UL and ULC Manufacturing Standards, UL80, S601, S602, S603, and S607

Ontario Building Code and past Editions, and Canadian Farm Building Code

Presentations and Courses

Fire/Explosion Recertification of CFEI and CFII NAFI – Toronto 2015 (Attended 40 hours of training)

Fire/Explosion Training NAFI – 2000, 2001, 2005, 2010 (160 hours of training)

Fire/Explosion Investigation Techniques Seminar, 2003 - OIAA, Central Chapter (Speaker)

Fire/Explosion Seminar - 2018 – Durham – Guest Speaker – panel discussions with Forget/Smith

Attended NAFI – Advanced Fire Investigation Training at Eastern Kentucky University (2001, 2005) (80 hours of training)

Fire and Explosion Investigations Seminar, 2005, - Niagara OIAA (Guest Speaker)

Fire and Explosion Seminar – 2003 – Peel Mutual (Guest Speaker)

Oil Spill Forensics -Brokers/Underwriters/Claims Personnel, 2005

(Speaker) -FMRC – 2008, 2010, 2012 and 2014

-TD Bank -2009



-Insurance Bureau of Canada 2009

-Portage Mutual 2010

-FMRP 2009, 2010, 2012

Structural Collapses
(Speaker)

-Insurance Industry, 2002

-Peel Mutual Insurance - Seminar 2007

-Peel Maryborough Insurance – Seminar 2009

-OIAA Niagara Region

Advisory Board Technology - Ryerson University (Past Member)

CBC Marketplace – Appeared on television documentary pertaining to the discovery of
LG Refrigerator fires - 2007

AMOP Technical Seminar on Environmental Contamination and Response, Vancouver June, 2013

Age Dating A Heating Oil Release: Investigation into Liability Ownership Following a Spill and
Associated Reclamation – D. Birkholz, PHD. Eng., and M. Flynn, P. Eng., co-authors

Mould Training, Broker/Insurance Personnel, 2004 - Accredited Course (Host/Speaker)

Environment Canada Annual Symposium (BC) 2013 – Guest Speaker Dr. Birkholz, prepared by
Dr. Birkholz and Michael Flynn

Publications

Oil Spill Forensics, WP Magazine, 2009

War on Waste, 1986

Continuous Improvement Process, 1984

Statistical Process Control, 1984

Dezincification – Insurance Industry

Presented at Environment Canada – Annual Conference BC, Canada, 2013

Age Dating Heating Oil Escape. Co-Authored by Dr. Birkholz P.Eng., and Michael Flynn, P. Eng.,
2013



Court Experience

Qualified as an Expert Witness

- Oil Spill Forensics Cause and Origin Expert
- Structural Expert
- Water Damage/Mould Expert/Remediation
- Building Code Consultant/Expert
- Personal Injury - Assessment of Building Conditions, Parking Lots
- Oil Heat Code Expert
- Fire Causation Expert
- Pool Failure Investigation Expert
- Building Code and Foundation Expert
- Roofing Failure Expert – Flat and Steel Roofing
- Assess building deficiencies related to personal injury

