AMIR RAFINAZARI, Ph.D., P.Eng., PMP

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Profile

An accomplished professional engineer and project manager with more than ten years of experience in the areas of Fire/Life Safety, Civil and Structural Engineering. Amir has developed an extensive theoretical and practical base of knowledge in the area of code consulting and performance-based design through post-graduate studies and complementing practical experience. He is looking forward to positively contribute his skills, knowledge, and experience to his future team.

Key Skills

- **Code compliance**: NFPA, OBC, OFC, NBCC, NFC, UL/ULC, IBC, ISO, ASTM, ASCE, FEMA, NEHRP
- **Fire Protection Engineering software**: FDS, PyroSim, FPETOOL, CFAST, CONTAM, HydraCAD
- **Structural design software**: SAP2000, ETABS, ANSYS, S-Frame, S-Concrete, WoodWorks, SAFIR
- **Project Management**: Primavera Project Planner, MS Office, MS Project, AutoCAD, Adobe, Bluebeam
- **Technical knowledge**: Computational fluid mechanics (CFD), fire detection and alarm systems, suppression systems and sprinkler design, structural fire resistance design, fire risk and hazard analysis, smoke management in atria and tunnels, occupant response and evacuation, data analysis, project management

Education

- **Ph.D., Civil Engineering - Fire Safety Engineering** *Jan. 2011 - Aug. 2015*
  Department of Civil and Environmental Engineering**,** Carleton University, Ottawa, Canada
  Thesis: “Investigation of the make-up air effect on atrium smoke conditions”
  Award: SFPE National Capital Region Chapter Scholarship for 2014-2015
- **M.A.Sc, Civil Engineering - Structural Engineering** *Sep. 2007 - Jan. 2010*
  Department of Civil Engineering, Sharif University of Technology, Iran
  Thesis: “Investigation of the IBC proposed *R* factor for base isolated structures”
- **B.Sc., Law** *Sep. 2007 - Jan. 2010*
  Department of Law, Payame Noor University, Iran (not completed – transferring courses)
- **B.Sc., Civil Engineering** *Sep. 2003 - Feb. 2007*
  Department of Civil Engineering, Islamic Azad University - Central Tehran Branch, Iran

Work Experience

Project Manager – Fire Services *Apr. 2018 – Present*

Hatch, Mississauga, ON

- Managed fire safety projects to provide code and system design consultation in the field of fire safety. Projects include building code and fire code consulting services. System design consulting services include consultation regarding non water-based suppression system such as Stat-X, Novec and Argon.
- Supervised junior engineers to prepare fire safety design criteria, design basis and risk analysis reports for mining projects.
- Assisted preparation of work, prepared and issued tender/bid packages to pre-qualified sub contractors.
- Performed on-site field inspections for code and engineering design compliance.
- Monitored overall progress of projects, took corrective action where required, informed manager of project status and issues affecting schedule, and client relations.
- Developed positive working relationships with clients, building authorities, architects, consultants, contractors and subcontractors and ensure project requirements were met in a timely and cost-effective manner.
- Effectively tracked progress of project and quality of work to ensure work was completed as per drawings and standards.
- Processed and reviewed all shop drawings, site instructions and technical investigations.

Project Consultant *Apr. 2017 – Mar. 2018*

JENSEN HUGHES CONSULTING, Toronto, Canada

- Provided code consulting in the field of Fire Protection Engineering with respect to the Canadian Building Code and Fire Code. Prepared technical reports and alternative solutions for special cases, such as water curtain sprinkler system, standpipe system, hydrant coverage, fire wrap, combustible piping and discontinuity in fire

separations. Worked on performance-based design projects such as time-based egress analysis with CFD modeling using FDS and zone modeling using FPETOOL and CFAST. Calculated special separation and exposure protection. Provided fire code consulting and prepared report for industrial buildings such as electronic recycling facility and commercial cooking facility using Ontario Fire Code and NFPA codes and standards (NFPA 68, NFPA 30, NFPA 69, NFPA 497, NFPA 499, NFPA 654 and NFPA 96).

- Reviewed architectural drawings for exiting code compliance and provided markups using Bluebeam.
- Communicated with Fire Marshal, Plan Examiners and Building Inspectors to interpret requirements of the Ontario Building Code and decide on the degree of compliance indicated by drawings and specifications.
- Liaised with clients and building owners in order to apply for building permit and rectify the Notice of Violation.

Technical Consultant *Sep. 2016 – Mar. 2017*

LRI Engineering, Toronto, Canada

- Provided code consulting in the field of fire protection engineering and proposed alternative solutions for special cases. Reviewed building drawings based on part 3 of Ontario Building Code (OBC), ABC, NBCC and OFC and NFC, prepared technical reports and provided consultation to clients, governmental officials and municipalities. These projects included new and existing buildings with different types of occupancies such as assembly occupancies, residential, care/care and treatment, mercantile and industrial occupancies in several provinces in Canada. The code consulting included services on building classification, fire separation, occupants evacuation, occupant load calculation, exit analysis, travel distance, barrier free design and etc. for combustible and non-combustible constructions.
- Advised clients about interpretation of the building code articles using good engineering judgement, identified relevant issues and recommended applicable approaches using NFPA standards (NFPA 130, NFPA 502, NFPA 101 and NFPA 220) for designing an unenclosed open-air station (train shed) for non-electric trains.
- Assisted in designing suppression system for Air Canada hangers in Toronto Pearson International Airport based on NFPA 409.
- Attended to technical meetings and recommended solutions to working groups to meet the safety requirements.
- Performed site inspections for compliance with codes and investigate the cause and origin of fire after incident.

Project Manager *Jun. 2016 – Sep. 2016*

Mirenda Inc., Aurora, Canada

- Managed a group of fire safety technicians and successfully designed sprinkler systems for residential condominiums and manufacturing facilities based on NFPA 13, performed hydraulic calculations and prepared drawings using HydraCAD/HydraCalcs software.

Postdoctoral Fellow in Fire Protection Engineering *Sept. 2015 – April 2016*

Carleton University, Ottawa, Canada

- Worked with other professional engineers and researchers on 3 different research and consulting projects in the field of fire safety engineering.
- Efficiently designed tunnel ventilation system and simulated a train fire in a tunnel using FDS (PyroSim). The effect of air velocity on fire development in the tunnel was investigated based on NFPA 130 requirements. This project resulted in a technical paper presented in ISTSS 2016 conference as a keynote paper.
- Performed CFD modeling using FDS (PyroSim) to assess the fire safety of subway train cars based on Korean fire risk assessment manual for railcars. Prepared a technical report with 3 other professional engineers for client as a part of a project from Korea Railroad Research Institute.
- Developed and presented technical presentations to researchers, clients, inspectors and industry professionals.
- Taught Fire Dynamics II, Enclosure Fire Dynamics, as a graduate course in winter semester 2016.

Research Assistant in Fire Protection Engineering *Jan. 2011 - Aug. 2015*

Carleton University, Ottawa, Canada

- Successfully conducted full-scale tests and CFD modelling of atrium fire to investigate the effect of make-up air on smoke layer height compared to NFPA 92B requirements. This research resulted in proposing a new design correlation for the effect of make-up air on the smoke layer height.
- Designed pressurization systems for high rise buildings and performed smoke control rational analysis using CONTAM.
- Reviewed design of an 8-storey wood building (cold and fire design), estimated fire resistance rate of structural members based on CWC code.

- Detailed calculation of fire resistance rate of CLT wall and floor assembly using MATLAB and Excel.
- Simulated compartment fires using FDS (PyroSim) and CFAST. This work resulted in a technical paper presented in International Conference on Fire Computer Modeling, GIDAI-Fire Safety- Research and Technology, University of Cantabria, 2012.

Piling and Foundation Inspector *(Jun. 2012 - Aug. 2014 part time)*

AATECH Scientific Inc., Ottawa, Canada

- Travelled to oil and gas sites in Alberta (Fort McMurray Syncrude and Horizon-CNRL) to conduct inspections, including mentoring and training of junior inspectors of the cast in place concrete piling activities and ensure successful project delivery.
- Reviewed design and shop drawings, conducted construction site visits and coordinated clearing of a number of outstanding projects working with project teams.

Project Manager *Jan. 2007 - Nov. 2010*

Pahne Gostar Dejboran Aram Co., Tehran, Iran

- Managed, scheduled and controlled construction projects using Primavera to optimize time-cost expenditure.
- Established scope, budgets, schedules, prepared proposals, negotiated terms, authorized contract acceptance, and managed budgets, invoicing and collection efforts.
- Developed business with existing and new potential clients by identifying and utilizing sales opportunities.
- Developed overall work plans and schedules, executed construction activities including supervision of crews and equipment to ensure that projects were completed in a timely and cost-effective manner. Developed detailed drawings and recommended policies regarding project requirements.
- Worked closely with clients and assisted manager to evolve cost budgets, progress billing, cash flow, construction methodology, scheduling of sequential tender packages and construction activities.
- Assisted to facilitate the tracking of project milestones and financial deadlines, project plans, working hours, budgets, and expenditures using schedule and control tools and preparing progress reports.

Research Assistant in Structural Engineering *Sept. 2007 - Jan. 2010*

Sharif University of Technology, Tehran, Iran

- The ASCE proposed response modification factor for base isolated structures was studied by performing extensive nonlinear dynamic analysis of 3-D structural models designed with different *R* factors and different eccentricities under several earthquake excitations using SAP2000. This research resulted in proposing an increase in *R* factor limit for seismic design of base isolated structures.
- Conducted stress and strain analysis of a beam with a hole using Finite Element Method by programing in MATLAB.
- Researched on the seismic rehabilitation of the base isolated structures using FEMA 356.

Publication

Fire Technology journal

- A study of the Effect of Make-Up Air Velocity on the Smoke Layer Height with Symmetric Openings in Atrium Fires

SFPE Conference, Montreal, Canada October 2017

- Impact of Make-Up Air Velocity on the Effectiveness of Smoke Management Systems in Atria

Fire Science and Technology journal

- Full-Scale Tests and CFD Modeling to Investigate the Effect of Opening Arrangement on Smoke Layer Height in Atrium Fires

14th International Conference and Exhibition on Fire Science and Engineering (Interflam 2016), Windsor, UK, July 2016

- Full-Scale Tests to Evaluate the Make-up Air Velocity on the Atrium Smoke Conditions

The 7th International Symposium on Tunnel Safety and Security (ISTSS 2016), Montreal, Canada, March 2016

- Fire Development and Spread in Rail Tunnels

International Conference on Fire Computer Modeling, GIDAI-Fire Safety- Research and Technology, University of Cantabria, 2012

- Full Scale Tests and CFD Modeling of a Compartment Fire in an Atrium with Smoke Exhaust

Professional Membership

P.Eng. (PEO) (APEGA), Member of PMI, SFPE, IAFSS, CSCE, OSPE, P.Eng. (Iran)
Editorial Board of Sustainable Structures and Materials – An International Journal.