



### Areas of Expertise

#### 1. Contact info

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#### 2. Overview of Services

FP2 is a **Fire Protection Engineering** firm, established in 2000, that provides specialty services in the following areas:

- ✓ **Fire Life Safety Systems and Analysis.**
- ✓ **Fire Code Consulting** (entire model Fire Code and applicable National Fire Protection Association (NFPA) codes/standards)
- ✓ **Owner Advocacy** – Representing facility owners with A&E Firms, Fire Alarm and Sprinkler contractors and Code Enforcement Officials.
- ✓ **Fire Protection Project Management**
- ✓ **Code Analysis:** New and existing buildings (suppression, alarms, egress, HAZMAT, etc.)
- ✓ **Due Diligence Surveys**
- ✓ **Health Care Occupancies** (Class I-1 and I-2 occupancies)
- ✓ **Building Code Consulting** (non-structural with focus on Chapters 1-10)
- ✓ **Hazardous Materials Consulting**
- ✓ **Life Safety and Egress Analysis**
- ✓ **Government Services**
- ✓ **Hydrogen Technologies**
- ✓ **Design Review/Plan Review**
- ✓ **Specification Development**
- ✓ **Fire Hazard Analyses**
- ✓ **Life Safety (Egress) Course Instruction**
- ✓ **Fire Alarm Systems** (including special detection and emergency voice alarm communication systems)
- ✓ **Fire Suppression Systems** Design and Review (fire sprinklers, standpipes, fire pumps, dry systems, pre-action systems, gaseous systems, etc.)
- ✓ **High Rise Building Fire Protection Systems**
- ✓ **Evacuation Plans**
- ✓ **Smoke Control Systems**



3. Key FP2 Individuals

**Martin Gresho, PE** – Licensed Fire Protection Engineer. Specialties include general fire protection engineering, industrial applications of fire protection, highly protected risk (HPR) standards, hazard analyses, code development, high rise, Fire Marshal, fire prevention program director, fire analyst, project manager, project oversight, design, code consulting, hazardous materials, hydrogen installations and code development, hydrogen balloon inflation safety systems.

**Scott Heyworth, PE** – Licensed Fire Protection Engineer. Specialties include: hazardous materials, fire alarm and sprinkler plan review, code consulting, construction inspection, existing building evaluations and general fire protection engineering.

**John Sharry** – Fire Protection Engineer, Fire Marshal, Fire Chief. Specialties include delivering training, analyzing fire department operations and preparing Baseline Needs Assessments to determine needed response capabilities, general senior management consulting.

**Al Bruch** – NICET Level III certified sprinkler system designer. 35 years’ experience in fire sprinkler system design including: Wet, dry, pre-action, special hazards; fire pumps and standpipes; hydraulic analysis and system review of existing fire sprinkler systems.

**Mike Ruef** – Architect/Drafter with excellent ACAD skills.

4. Professional License, Training and Experience Summary

Name	Licenses/Certificates	Training
Martin T. Gresho	PE, CA #1208 Fire Protection PE, CO # 46101 Fire Protection PE, WY # 14878, Fire Protection Society of Fire Protection Engineers (SFPE) – Professional Member Grade	BSME UC Davis (1985) MS Environmental Engineering, Colorado School of Mines (1995) Numerous NFPA specialty courses
Scott M. Heyworth	PE, CA #1498 Fire Protection PE, FL #68959 SFPE – Professional Member Grade	BSME Worcester Polytechnic Institute, MA (1993) MS Fire Protection Engineering, Worcester Polytechnic Institute (1996) Numerous CA State Fire Marshal fire prevention / investigation classes

**Code Development** – FP2 has participated in code development on a national level in many areas. This participation leads to a deep understanding of the basis for code content and the reasons that certain types of code requirements come to be. FP2’s clients benefit from this knowledge without additional cost. FP2 participation in code development includes:

- ✓ NFPA 2, *Hydrogen Technologies Code* – Martin Gresho has chaired the technical committee responsible for creating this new code since its inception in 2005. The 2016 2<sup>nd</sup> edition has been published and provides all relevant hydrogen related requirements in one code. Work on further development of this code continues. Hydrogen use is considered a **green technology** because of its increasing use in pollution free fuel cell automobiles.
- ✓ NFPA 55, *Compressed Gases and Cryogenic Fluids Code* – Mr. Gresho serves on the technical committee responsible for continued development of this long standing code



utilized by the compressed gas industry. Mr. Gresho has been a consistent contributor to assure that the viewpoints of both Fire Protection Engineers and Regulators are well represented in code content.

- ✓ NFPA 400, *Hazardous Materials Code* – Mr. Gresho serves on the technical committee responsible for continued development of this document. Ammonium nitrate fertilizer storage requirements were developed for the 2016 edition.
- ✓ International Code Council (ICC) – The ICC is responsible for creating the International Building and Fire codes which are the model codes that most states (including Colorado) adopt for use. Mr. Gresho has submitted and participated in the ICC hearing process on multiple occasions to advocate code changes relative to hydrogen requirements.

**Hydrogen Technologies** – FP2 has been involved in significant hydrogen installations including both liquefied and compressed gas and hydrogen generation installations. FP2 has assisted with accident investigation following a significant accident involving hydrogen. FP2 has developed an engineered safety system to justify filling of weather balloons with hydrogen safely.

**Fire Hazards Analyses** – FP2 has performed detailed analyses of fire hazards at complex facilities where the principles of hazard analysis and fire modeling were utilized to estimate fire consequences and determine preventative and mitigative actions required when needed.

**Fire Protection Assessments** – FP2 has performed fire code and life safety assessments of existing buildings to determine overall code compliance and offer suggestions for improvement. Findings and observations are detailed with code citations to improve awareness and knowledge of end user. Recommendations and strategies for improving code compliance are also provided.

**Egress Analysis** – FP2 has significant experience performing specialized egress analyses such as may be required when atrium designs cannot meet prescriptive code requirements and performance based code analyses are required.

**Healthcare** – FP2 has experience with design and remodel projects at healthcare facilities and in applying egress and fire barrier requirements at healthcare occupancies including institutional I-2 occupancies

**Highly Protected Risk (HPR)** – FP2 personnel have experience in applying the property protection principles used by the property insurance industry for the most highly protected class of properties termed Highly Protected Risks (HPR). These criteria are frequently applied to governmental properties even though they carry no commercial insurance and are therefore not required, in order to manage financial risk exposure.

**Fire Marshal** – FP2 personnel have experience running entire fire protection programs at large governmental facilities where the Fire Marshal oversees all aspects of Fire Protection (plan review, design, inspection, testing and maintenance, code enforcement, permits, training, hazardous material regulation, etc.). FP2 personnel also have experience in municipal fire code enforcement, plan review and inspection.



**Fire Department Baseline Needs Assessments** – FP2 has performed several Baseline Needs Assessments which are documents that analyze the hazards and protection levels within a jurisdiction and develop a set of performance measures for the Fire Department that address staffing levels, response time requirements and end equipment requirements based on the hazards. These analyses create customized performance requirements that address structure and wildland fire response, medical responses, hazardous materials responses, technical rescue responses, training, dispatch, frontline and reserve apparatus requirements as well as pre-incident plan requirements.

**Fire Department Operations** – Several FP2 personnel have the experience and depth of knowledge of requirements and fire safety that can only come from serving on a Fire Department. FP2 personnel with Fire Department operational experience include: Gresho – Current Firefighter/Medical 1<sup>st</sup> Responder on Coal Creek Canyon Volunteer Fire Department, Heyworth – Former firefighter on Swansea, MA Fire Department (7 years) and Auburn, MA Fire Department (3 years).

**Emergency Preparedness** – FP2 has developed Pre-incident Plans for several Department of Energy sites and involved Evacuation Plans for facilities with complicated egress strategies. The pre-incident plans provide response route maps, exposure maps, fire block plans and hazardous material information sheets showing pertinent information for emergency responder use.