



**Session 1A:
Spaceports and the Development of NFPA 461**

When we were children, we all watching in awe as the Space Shuttle took astronauts to the International Space Station, the Atlas and Saturn rockets launched satellites that allowed for GPS and satellite TV, and some of us even watched the first person step onto the moon. All of these launches were by NASA or other Government entities. When the space shuttle program ended in 2011, there was a push to “commercialize” space flight. A number of commercial space partners, most notably SpaceX, Blue Origin and Virgin Galactic, have developed or are in the process of developing launch vehicles to bring cargo and humans back into space. This rush to provide commercial space flight has caused some concern over how to address fire protection and life safety hazards for the launch area as well as the facilities that are associated with manufacturing, testing, launch and recovery. NASA and the USAF only have a limited number of “spare” launch pads and the demand for launch sites has grown rapidly. In 2016, NASA started discussions with NFPA to look at whether current NFPA standards address the hazards (on the earth) related to space flight. This lead to the creation of NFPA 461, Standard on Spaceports which is currently in pre-first draft stage. This presentation will review the current state of US private spaceports and launch licenses, review common terms related to the space industry, discuss “common” hazards associated with launch vehicles, payloads and their associated facilities, give an update on the NFPA 461 process as well as discuss future activities related to fire protection for spaceports.

Doug Fisher, PE, FSFPE, LEED AP BD+C
Principal Fire Protection Engineer
Fisher Engineering, Inc.



Doug is a licensed fire protection engineer, a Fellow in the Society of Fire Protection Engineers and LEED® Accredited Professional in Building Design and Construction with over 29 years of experience in the field. He is a professional fire protection engineer, by exam, and currently licensed in 26 states. Doug is a principal member of the NFPA Technical Committees on Space Ports, Commissioning and Integrated Testing, and Flammable and Combustible Liquids (Correlating Committee and Operations) as well as the Chair of the NFPA Technical Committee on Water Tanks. He is an active member of the Society of Fire Protection Engineers (SFPE) and the Chair of the SFPE Committee on Professional Qualifications. He is also a Governor of the SFPE Greater Atlanta Chapter Foundation and Past President of the SFPE Greater Atlanta Chapter.

He is currently a Principal Fire Protection Engineer in the Georgia office of Fisher Engineering, Inc. His experience includes design, review, commissioning and retro-commissioning of active and passive fire protection systems, fire protection system failure analysis, life safety/building code review and analysis, fire hazard analysis and fire modeling. He holds a Bachelor of Science degree in Fire Protection Engineering from the University of Maryland and Master of Business Administration degree from Emory University.

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