

Chapter 31 – Fire Protection

31.1 Scope

This chapter addresses Glenn Research Center (GRC) policy guidance for fire protection provisions to prevent loss of life, property and research capability. GRC Management is committed to operate in a manner to ensure a fire-safe work environment. Fire protection support activities are conducted in compliance with fire safety standards, National Aeronautics and Space Administration (NASA) directives and regulations, and general industry practices, and in a manner appropriate for the associated hazards. It is the GRC Management policy that a fire protection program be established and implemented in accordance with NASA STD 8719.11 August 2000 "Safety Standard for Fire Protection."

31.2 Applicability

The provisions of this chapter are applicable to all NASA employees and to all other agencies, organizations and contractor personnel who design, construct, inspect, operate, maintain or manage facilities or systems within the confines of the GRC at Cleveland and at the Plum Brook Station in Sandusky.

31.3 Responsibilities

Fire safety is an integral part of the overall Glenn Safety Program. Specific responsibilities of individuals or organizations tasked with establishing fire safety requirements are as follows:

31.3.1 Safety Branch

- a. The Safety Branch (SB) Chief is the designated Authority Having Jurisdiction (AHJ.)
- b. The SB Chief has the overall management responsibility for planning, direction, and execution of a comprehensive fire protection program for GRC, in accordance with the criteria established in NASA STD 8719.11 August 2000. See paragraph 31.4.
- c. The SB provides guidance and direction for center-wide activities that involve fire protection.

31.3.2 Supervisors

Supervisors are responsible for maintaining their operations in a fire safe manner and in accordance with the requirements of this chapter and the Glenn Safety Program

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31.3.3 Employees

All employees at the GRC Cleveland facilities and Plum Brook Station are responsible for understanding and conforming to the policies, fire safe practices, and provisions of this chapter.

31.4 Fire Protection Program

The fire protection program is intended to provide and maintain a level of fire protection at GRC which meets and/or exceeds the objectives and criteria stated in the NASA STD 8719.11 August 2000, "Safety Standard for Fire Protection." Program objectives are described in the following paragraphs.

- a. In conjunction with the AHJ, facilitate an ongoing program of FIRE HAZARD RISK ASSESSMENT SURVEYS of critical or hazardous or highly populated facilities to identify fire safety deficiencies.
- b. Appropriate review and correction of fire safety violations will be accomplished by a formal fire protection design review process to facilitate fire protection and life safety deficiency resolution in the earliest design phases. The SB will establish the review person or committee as appropriate, when requested by the project team. This process will aid in preventing vital programs or projects from suffering unacceptable delays as a result of fire or its perils.
- c. The Glenn Fire Protection Engineer will serve as the advocate for having fire protection deficiencies corrected via locally funded and Construction of Facilities (CoF) projects.
- d. Control of flammable materials and hazardous operations to ensure that fire does not cause an on-site or off-site release of hazardous material that may threaten public health and safety or the environment will be addressed through the design review process, safety permit process, the FPE survey program, and an aggressive fire prevention and housekeeping program.
- e. Ensuring adequacy of fire protection equipment and systems will be accomplished and documented through an aggressive inspection, testing, and maintenance program of fire protection systems and equipment, as well as a documented impairment system to follow fire protection system outages and to ensure complete and proper on-line operations.
- f. Facility fire inspection will be accomplished through an aggressive inspection program with responsibility lying in the structure of the SB. This inspection program will assure a fire prevention program for the control of housekeeping, combustibles loading, hot work operations, hazardous materials, and ignition sources such as smoking and portable heating devices.
- g. Proper functioning of the local fire department emergency response will be ensured by appropriate communications between the Glenn Fire Protection Engineer, the Glenn Emergency Preparedness Coordinator and the local fire companies, including discussions of unique situations or conditions in Glenn facilities

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- h. All fires will be reported and investigated per the requirements of NASA STD 8719.11 August 2000.
- i. Compliance with local, state, and federal law and national codes and criteria for fire protection, as well as ensuring implementation of operational fire protection devices will be addressed through the design review process, FPE survey program, more detailed FHAs as warranted, and direct fire protection technical support to projects and operations by the SB.
- j. SB will assist in ensuring the adequacy of designs from a fire code compliance, contractual, and cost benefit standpoint for major construction projects. This will be accomplished through an established fire protection design review process and a design-based FHA, as warranted.
- k. Review of facility design drawings for inclusion of adequate fire protection features and systems and for compliance with applicable codes and criteria will be accomplished by establishing requirements that provide an acceptable degree of life safety to facility personnel; by providing a reliable water supply and water supply system (source, pumps, valves, and hydrants) of sufficient capacity for the maximum credible fire; by developing and maintaining FHAs for new facilities; and by providing automatic suppression and detection systems in all areas at risk for serious property damage and/or program interruption.
- l. Review of all contractual documents for fire protection specifications will be accomplished through an aggressive and documented fire protection design review process and the requirement to have contractual documents reviewed and approved by the Safety and Assurance Technology Directorate.

31.5 Regulations and References

The following requirements apply to NASA's fire protection program. Where requirements are different among the regulations, the most stringent shall apply as determined by the SB:

- a. Code of Federal Regulations (CFR).
- b. NPD 8710.2B NASA Safety and Health Program Policy
- c. NPG 8715.3 NASA Safety and Health Handbook/Occupational Safety
- d. NASA STD 8719.11 August 2000 "Standard for Fire Protection"
- e. NHB 7320.1 "Facilities Engineering Handbook".
- f. National Fire Protection Association (NFPA) Fire Codes and Standards.
- g. NASA Glenn Research Center Safety Manual

31.6 Appendix

- NASA STD 8719.11 August 2000 "Standard for Fire Protection"