

Fire- and Life-Safety Group (FLS)

Pyrotechnic Effects

This document was prepared to list some but not all of the requirements based on the latest edition of adopted codes in 2004. Please ensure that all the requirements of applicable codes at the time of new installations or changes to existing installations are verified and implemented.

This memorandum is to summarize the safety conditions of the fireworks/pyrotechnics display as identified by the campus Fire- and Life-Safety Group (FLS). The Boulder Fire Department (BFD) may identify additional conditions and requirements. Please note that no pyrotechnic effects inside buildings or on campus property may be initiated without written approval of FLS and BFD. Please see this link to view or print FLS' [Pyrotechnics Display Form](#).

1. Licenses are to be provided to BFD before the date of the pyrotechnics display.
2. BFD is the Authority Having Jurisdiction (AHJ) and will be present at the time of display. Operators are to fully comply with BFD directions.
3. Provisions are to be made for handicapped seating, with approved guardrails in place.
4. Sites that are within the fallout area are to be closed off and guards are to be on duty to keep the fallout areas unoccupied. If there exist sections in the fallout area that also serve as exits, which can be locked, the guards on duty are to be capable of opening them at any time, in the event of an evacuation.
5. Please refer to the Code for Fireworks Display (NFPA 1123) with regard to safe separation distances including minimum secured site diameter, minimum separation distances to spectators, minimum distance to special hazards and the minimum fallout radius. The fallout radius is to remain clear of personnel except for the BFD and other emergency or crowd control personnel. When needed, BFD will provide fire protection within the fallout area. (For example, for the CU campus Fourth of July display, based on fireworks arrangements in previous years, the fallout area has included: Dal Ward, Boulder Creek bike path and foot paths, parking lots 390, 391, 394, and most of lot 169. *Note: Fuels, flammables and all motor vehicles are to be removed from the fallout and secured areas.*)
6. Please refer to the Standard for the Use of Pyrotechnics Before a Proximate Audience (NFPA 1126) with regard to transportation, storage, permits, manufacturers requirements and proximate audience safeguards when handling pyrotechnics materials.
7. Maximum occupancy limitations are to be maintained for all pyrotechnics displays and will vary depending on the site.
8. Please ensure that the appropriate authorities will be in charge of crowd control for large audience displays; contact BFD and CUPD for requirements and directions.
9. The requirements of NFPA 1123 are to be fully complied with. Such requirements include but are not limited to the following:
 - Minimum fallout radius for pyrotechnics displays.
 - "Spectators, vehicles, and readily combustible material shall not be located within the fallout area during the display." Note that the fallout area varies with mortar size, mortar arrangement (vertical or angled), and storage of additional pyrotechnics. Please see Appendix A of NFPA 1123 for additional information. If, during the show, mortar pieces land in the spectator areas or persons other than those authorized are in the fallout area, the display is to be immediately postponed and the condition corrected or the mortars realigned such that this condition is alleviated. FLS believes that 6" mortars were used last year. As such, an absolute minimum of 420' fallout radius is to be maintained if the mortars are positioned vertically. Other mortar sizes and orientations require varying fallout radii; consult NFPA 1123 for information.
 - The display "Operator has the primary responsibility for safety." NFPA 1123 defines the "operator" as "the person with overall responsibility for safety and the setting up and discharge of an outdoor fireworks display."
 - "Whenever, in the opinion of the Authority Having Jurisdiction or the operator, any adverse condition exists that significantly affects safety, the fireworks display shall be postponed until the condition is corrected."
 - If "in the opinion of the AHJ or the operator, that a lack of crowd control poses a danger, the fireworks display shall be immediately discontinued until such time as the situation is corrected."
 - Operator is to fully comply with the requirements and procedures for shells that fail to ignite.

- If fireworks are displayed at night and "it is not possible to thoroughly inspect the site, the operator shall ensure that the entire site is re-inspected very early the next morning." A thorough inspection of the site for unexploded aerial shells is to be conducted as soon as feasible following the end of the display. Any unexploded shells are to be disposed of properly.
 - "As part of the permit process, the fireworks display company, the organization or the group of individuals (operating the show) shall demonstrate financial responsibility by providing proof of insurance or by other appropriate means." Insurance requirements for Boulder Campus are determined by University Risk Management (CU RM). Please contact CU RM and ensure that they are satisfied with the insurance provisions.
 - The BFD and NFPA 1123 have requirements for operator certification and qualifications. These requirements are to be met.
10. Other requirements of NFPA 1123, NFPA 1126 and the current edition of the *International Fire Code* are to be strictly adhered to in the interest of life-safety and fire prevention.

If you have questions or comments, please do not hesitate to contact Zachary Niehues at 492-4042.