



South Carolina Department of Labor, Licensing and Regulation

**Division of Fire and Life Safety**

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June 24, 2019

To: SC Licensed Pyrotechnic Operators  
SC Fire Code Officials

Re: SC Office of State Fire Marshal clarification on chain-fused shells fired from lightweight mortars, Trainee/Assistant licenses, and Display Operators for "Consumer Fireworks Only" public displays.

Dear Pyrotechnic Industry Partners and Fire Code Officials,

The following topics require written clarification of intent for consistency of application and enforcement.

**Chain-fused shells fired from paper, HDPE, or fiberglass mortars in wood framed racks:**

In 2015, the Office of State Fire Marshal issued letter that caused much confusion in the public display industry. The intent of this letter was to answer a specific question regarding wood framed racks with HDPE mortars. However, it was misunderstood and misapplied by many industry partners as a requirement that racks be constructed in accordance with a prescriptive portion of an annex of the code or as to require mortars of other than HDPE in order to avoid the increased separation distances. These interpretations and applications of this letter are not consistent with its intent.

In April of 2018, OSFM staff meet with a group of pyrotechnic operators and fire code officials to discuss a variety of issues. One issue discussed was the confusion caused by the 2015 letter and the code requirements outlined below that require the separation distance of NFPA 1123 (2014) Table 5.1.3.1 be doubled when firing chain-fused shells from lightweight mortars in wood framed racks. It was determined that OSFM would loosely enforced that requirements of the code through the 2018 fireworks season with the intent to educate operators and that the issue would be readdressed by OSFM with a new position statement later in 2018.

Recently, it came to my attention that OSFM never issued the clarifying letter that was promised in the 2018 meeting. Therefore, this Fourth of July season, OSFM will continue the practice of educating the industry and loosely enforcing the requirement for doubling the separation distance for chain-fused shells fired from light weight mortars in wooden racks. However, we will use the permitting process to indicate to pyrotechnic operators and event sponsors the requirement of the code. **Local AHJ's and Deputy State Fire Marshals still have the authority to require a greater separation distance including twice the distance, when for due cause, they determine the racks to be of questionable construction, poorly maintained, or otherwise to pose a safety concern.** The application of these code sections requiring doubling of the separation distance does not apply to light weight mortars in metal racks that are properly stabilized.

The facts about the issue include that wood frame racks with paper, HDPE, or fiberglass mortars cannot withstand a catastrophic failure and the separation distance should be doubled from that of table 5.1.3.1 when more than three shells are chain fused.

NFPA 1123 (2014) A.4.6.1 states:

*[...] Aboveground wood frame mortar racks with lightweight mortar materials such as paper, HDPE, or fiberglass generally will not withstand a catastrophic aerial shell malfunction in a mortar.*

NFPA 1123 (2014) 4.6 states:

*Wherever more than three shells are to be chain fused, additional measures shall be required to prevent adjacent mortars from being repositioned in the event that a shell explodes in a mortar, causing it to burst.*

NFPA 1123 (2014) 4.6.1 4.6.1.2 states:

*Where there is doubt concerning the strength of racks holding chain-fused mortars, the separation distances from those racks to spectators shall be twice those listed in Table 5.1.3.1 for the largest mortar in the sequence.*

Again, the industry is granted this July 4th season to adjust to the requirements of the code. Future outdoor public displays will be expected to comply fully with the requirements of NFPA 1123.

This letter serves to inform the industry that any permits applications received after July 4-2019 will be expected to conform to the requirements of the code as referenced above. Separation distances will be required to be doubled for chain-fused shells fired from paper, HDPE, or fiberglass mortars in wood framed racks.

### **Trainee/Assistants Licenses:**

During the April 2018 meeting, industry partners discussed the licensing requirement for trainees/assistants. There is no test required for a trainee/assistant license. The application package must include an ATF Letter of Clearance, fingerprint card, affidavit of eligibility, and an emailed passport style photo in jpeg format. It was discussed that everyone who works on the display site must hold the Trainee/Assistant license.

However, after further review of the current laws and regulations, there is not currently a basis to require the EVERY trainee/assistant be licensed. Instead, the intent of the regulation is that the Trainee license is intended for those who are desiring to become licensed Operators. Not every Assistant desires to become a licensed Operator. For this reason and until we see changes in the SC Code of Regulations, we will continue the practice of allowing unlicensed assistants to handle the fireworks. However, it is the licensed operators responsibility to ensure that every person who handles explosives be properly trained and qualified. See the requirements of NFPA 1123 below.

The roles and responsibilities of an "Assistant" is best defined by NFPA 1123 Annex: A.3.3.2 *Assistant. The duties of an assistant include tasks such as setting up the equipment and fireworks, loading mortars (loader), spotting the bursting location of aerial shells (spotter), tending a ready box (ready box tender), igniting the fireworks (shooter), striking the equipment, and cleaning the discharge site.*

NFPA 1123 (2014) requires:

*10.2 Assistants. All assistants shall be trained in the duties they are to perform, be under the direct supervision of the operator, and be at least 18 years old.*

**Consumer Fireworks Only Public Display Operators:**

Operators who meet the requirements of the Regulation for a Public Display Outdoor Operators License, but who does not work for a company who uses 1.3g fireworks and, therefore, is not required by Federal Regulations to have an ATF Letter of Clearance, will be granted a license that is marked “Consumer Fireworks Only.” These licenses limit the operator to conducting shoots that contain only 1.4g fireworks. The Operator’s name and license number must appear on all permit applications. The operator who is listed on the permit must be present at the discharge site when the site is set up, during the shoot, and when the discharge site is dismantled and cleaned up.

The Office of State Fire Marshal wants to thank the SC Pyrotechnic Operators and the SC Fire Code Officials for your heightened awareness to safety and code compliance at public displays. We are confident that fireworks will continue to be an safe, enjoyable holiday tradition in South Carolina so long as we all work together to understand, apply, and enforce the code requirements. If anyone has questions about the contents of this letter to the application and enforcement of other code requirements, please do not hesitate to contact our office.

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