



Policy Number 15-001
November 6, 2015

State Fire Marshal Policy

Use of Wood Frame Pyrotechnic Racks with HDPE Mortars

In response to questions relating to the use of wood frame pyrotechnic racks with high-density polyethylene (HDPE) mortars, the following policy is provided.

A review of NFPA 1123, *Code for Fireworks Displays (2010 Edition)*, did not reveal any specific prohibition to the use of HDPE. NFPA 1123, Section 4.3.7.1 allows the use of paper, HDPE, and fiberglass mortars.

NFPA 1123, Section 4.6.1.1 of the prescriptive portion of the adopted code states “For mortars in racks, prevention of repositioning shall be accomplished by using mortar racks that are designed to withstand a shell exploding in a mortar, which causes the mortar to burst.”

NFPA 1123, Section A.4.6.1 reiterates that aboveground racks should be constructed to withstand a catastrophic malfunction in a mortar. The section concludes by stating, “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.”

Based on this information, and historical data relating to catastrophic malfunctions of HDPE mortars in wood frame racks, all such wood frame racks must be designed to meet the requirements of Section 4.6.1.1 of the prescriptive code. In the event of an incident where the rack fails to withstand a catastrophic malfunction, the design criteria will be subject to scrutiny by investigating officials.

Since there is doubt concerning the strength of racks holding chain-fired mortars, in accordance with NFPA 1123, Section 4.6.1.2, it is the policy of the Office of State Fire Marshal that when using wood frame racks with HDPE mortars, the separation distances from those racks to spectators shall be twice those listed in NFPA 1123, Table 5.1.3.1 for the largest mortar in the sequence.

The Display Fireworks Permit Application will require information relating to the rack/mortar construction.