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A CRITIQUE OF THE NIST SOFA SUPER STORE DRAFT INVESTIGATION REPORT-PART 2 (ANALYSIS: FIRE EXTINGUISHERS)

By Richard Schulte

The NIST draft report on the Sofa Super Store fire is a “treasure-drove” of information—some good information, some not so good. One of the passages in the draft report which is of interest addresses the use of portable fire extinguishers. The following excerpt is found on page 2-2 of NIST’s draft report:

“On June 18, 2007, at 6:56 p.m., the time of the first sighting of the fire, the Sofa Super Store was open and employees were inside the showroom and warehouse areas within the structure. The fire was first observed by a passerby driving along Savannah Highway in front of the store and was reported to store employees. After being notified by the passerby of a fire on the outside of the loading dock, the store manager located the fire

inside the loading dock around a door frame. According to the investigation by the ATF [13], a fire was discovered in a pile of trash/debris outside the structure between the rear of the showroom area and the warehouse. Upon initial verification of the fire, the store manager discharged a portable dry powder [chemical] fire extinguisher, but was unable to extinguish the fire. Upon returning to the showroom area, the store manager asked other employees to call 911. The manager subsequently returned with a second extinguisher, found the loading dock more fully involved in fire, and discharged the extinguisher into the loading dock area from outside the loading dock. At 7:08 p.m., a report of a fire at the Sofa Super Store was received by the Charleston County 911 Emergency Center and the Charleston Fire Department was dispatched. All of the employees in the showroom area were able to exit the store through the front doors of the showroom.”

“On June 18, 2007, at 6:56 p.m., the time of the first sighting of the fire. . .At 7:08 p.m., a report of a fire at the Sofa Super Store was received by the Charleston County 911 Emergency Center and the Charleston Fire Department was dispatched. . .”

According to NIST's time line, there was an estimated delay of 12 minutes between the time the fire at the Sofa Superstore was discovered and the time that the fire was actually reported. Part to the delay in reporting of the fire was due to verification by the manager that there was actually a fire, while another part of the delay was due to an attempt by the store manager to extinguish the fire using a portable fire extinguisher.

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It's easy to play the "what if" game, but let's play it anyway. What if, instead of the passerby reporting the fire to store employees, the fire had been reported immediately to the fire department? If that

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had been the case, it is highly probable that the fire department would have arrived at the building 12 minutes earlier. Would the events at the Sofa Super Store in Charleston on June 18, 2007 have occurred if first alarm units had arrived 12 minutes earlier? More than likely, the fire would not have spread into the building and the fire could have been easily extinguished with a single hose line. Hence, it seems reasonable to speculate that the nine fire fighters who perished in the Sofa Super Store would be alive today if the public was encouraged to immediately report fires, rather than to delay fire reporting.

Of course, there is no need to end the speculation regarding this fire with the observation about the delay in reporting the fire by the public. What if, rather than attempting to fight the fire with a portable fire extinguisher first, the store manager had immediately reported the fire to the fire department and, then attempted to control the fire using a portable fire extinguisher?

Since it's not possible to determine the time lost due to the store manager's incorrect response to the fire, it's not possible to determine precisely at what time the fire department would have been notified of the fire if the store manager had responded correctly to the fire. Suffice it to say that it is likely that the fire department would have arrived at least a few minutes sooner, perhaps as many as 5 or 6 minutes sooner. Would the arrival of fire fighters 5 or 6 minutes sooner have made a difference in the outcome of the fire? You "betcha" it would have. Again, more than likely the nine fire fighters who died that evening would be alive today. This is not to "point the finger" at the store manager and say that the manager is responsible for the death of nine fire fighters, but rather to "point the finger" at the education the public receives about fires. The correct response to a structure fire by the occupants of the structure is evacuate first and report second.

This brings us to a discussion of the efficacy of providing portable fire extinguishers. While it is common place for fire prevention personnel to require that fire extinguishers be provided, the fire at the Sofa Super Store is an excellent example why many in the fire protection field feel that providing portable fire extinguishers is counter-productive. Obviously, if portable fire extinguishers had not been required to be provided at the Sofa Super Store, the store manager could not have attempted to control the fire before telling employees to contact the fire department.

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It is clear in the case of the fire at the Sofa Super Store that providing portable fire extinguishers on premises cost fire fighters valuable time. There is a reason why fire fighters rush to the scene of a fire, rather than take their “sweet old time” about showing up and that reason is because fires start small and get bigger as time passes. Hence, it would not be unreasonable to conclude that providing portable fire extinguishers at the Sofa Super Store was indirectly responsible for fire fighters being unable to control what should have been nothing more than a nuisance fire.

Obviously, if portable fire extinguishers had not been required to be provided at the Sofa Super Store, the store manager could not have attempted to control the fire before telling employees to contact the fire department.

Forty years ago, it was common for fire extinguishers to be pressurized water-type extinguishers. Today, it seems that the installation of pressurized water-type extinguishers in buildings is rare. Pressurized water-type extinguishers have several advantages of multi-purpose dry chemical-type fire extinguishers. The principal advantage of pressurized water-type extinguishers is that the public is familiar with their operation. These type of fire extinguishers operate like “super soakers” and most, if not all of the public is familiar with the operation of “super soakers” either from their childhood or from being parents.

What percentage of the public knows how to operate a multi-purpose dry chemical extinguisher, or has ever actually operated a dry chemical extinguisher? My guess as to the answer to that question is very few. The use of a dry chemical extinguisher is not intuitive. Hence, it’s not surprising that much of the public would be reticent about using a dry chemical fire extinguisher. Given the choice between using a dry chemical fire extinguisher and the pressurized water-type extinguisher to extinguish an incipient fire, it seems reasonable to assume that most of the public would prefer a pressurized water-type extinguisher.

The other principal advantage of pressurized water-type fire extinguishers is after-fire clean up. It's far easier to clean up a couple of gallons of water than it is to clean up the dry chemical agent. Like dust, the dry chemical agent goes everywhere and needs to be cleaned up soon after being discharged to avoid damage.

The principal advantage of multi-purpose dry chemical-type extinguishers over pressurized water-type extinguishers is that the dry chemical-type extinguishers can also be used on flammable/combustible liquid fires and on electrical fires, while the use of water-type extinguishers is limited to Class A fires (*i.e.*, fires in ordinary combustibles). Do we really want the public to be fighting flammable liquid fires with a portable fire extinguisher? More than likely, probably not.

Would the store manager have been able to control the fire at the Sofa Super Store if pressurized water-type extinguishers had been available? We will never know the answer to that question, but it would certainly seem that the probability that the store manager would have been successful in controlling the fire would have been higher with water-type extinguishers than with dry chemical-type extinguishers.

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It would be my recommendation that fire extinguishers only be provided in occupancies where the occupants of the building are trained in how to use an extinguisher properly. Even in those occupancies, it would seem that pressurized water-type extinguishers would be preferable to providing multi-purpose dry chemical extinguishers.

It should be noted that none of the recommendations included in NIST's draft report on this fire address the use of fire extinguishers, even though the topic is addressed in the report.

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