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### Changing History with Automatic Fire Sprinklers

As the clock neared 4:45, quitting time, on Saturday, March 25, 1911, several hundred teenage girls at the Triangle Shirtwaist Factory began putting away their work. However, before they made their way out into the warm spring air, to head home to their own apartments or to family and loved ones, a fire sprung up from a pile of discarded rags on the floor. A few employees threw pails of water at the fire in an attempt to put it out, but it was useless. The hanging patterns, the wooden tables and partitions quickly caught fire and the room rapidly filled with smoke. Someone ran to grab the hose from the stairwell, but it wouldn't work. Cries of "fire" rang out as the girls began to panic and run for the doors. They jammed into the stairway and the single passenger elevator terrified for their lives and eager to escape the steadily growing fire (Linder). Then, as if their prayers had been answered, the automatic fire sprinkler system kicked in and water rained down from the sprinkler heads above them. The fire diminished and the smoke began to clear. The screaming and crying died down and the state of utter chaos abated. They had experienced quite a shock, but they were okay now. Everything was going to be okay. Every employee made it out of the building safely that day or at least they did in this version of the story.

The fire at the Triangle Shirtwaist Factory offers an excellent depiction of the use and the necessity of the automatic fire sprinkler. An automatic fire sprinkler is "the part of a fire sprinkler system that discharges water when the effects of a fire have been detected, such as when a predetermined temperature has been reached" (Fire Sprinkler).

They are designed to protect buildings from fire and are effective in doing so. Without fire sprinklers, innumerable buildings, like the Triangle Shirtwaist Factory, and lives would suffer a much different fate in the face of a fire.

Henry S. Parmalee of New Haven, Connecticut was very aware of the devastation that a fire could cause his piano factory, which is why in 1874 he installed an improved fire sprinkler system into the building (Bellis). Although he was not the first to invent the automatic fire sprinkler, he is credited with giving it its practical application. The first automatic fire sprinkler was actually invented in England in 1806 by John Carey. It consisted of a pipe with several valves that opened to release water. However, his invention and many of the manual sprinkler system of the time doused fires and often caused water damage to areas of the building where the fire wasn't even present. Henry Parmalee successfully improved the system by creating a way to control which sprinkler heads discharged water. His newly designed sprinkler head contained a heat sensing device that only opened the valve when a predetermined temperature was reached (History of Fire Sprinkler Systems). Still, despite the danger of fires, the use of the automatic fire sprinkler did not catch on right away. Realizing that most people could not afford to install sprinkler systems, Parmalee began educating insurance companies about the potential of his system. Although Parmalee took great efforts to inform the public, he did not have much success (Fire Sprinkler). However, the history of the automatic fire sprinkler does not end there.

Frederick Grinnell worked to improve Parmalee's system and in 1882 invented a sprinkler that could withstand higher pressures and distribute water more evenly. Like Parmalee, Grinnell took his invention to Europe where he had much greater success (Fire

Sprinkler). A few years down the road, in 1895, insurance representatives met in New York and officially established fire protection standards which included the automatic fire sprinkler. Only a year later, the National Fire Protection Agency was officially formed and began publishing codes for automatic sprinkler installation. Today, automatic fire sprinklers are mandatory safety equipment in hospitals, schools, hotels, and other public buildings. They save millions of dollars annually and more importantly, they save lives (About.com). Fire protection experts generally agree that “automatic sprinklers represent the single, most significant aspect of a fire management program” (Artin). Properly designed, installed, and maintained systems can overcome shortcomings in risk management, building construction, and emergency response. Rapidly grow fires can easily overpass the abilities of extinguishers, in which case automatic sprinkler systems become essential (Artin).

Indeed, automatic fire sprinklers would also have been a crucial aid to the fire at the Triangle Shirtwaist Factory. Sadly, however, as the true and historical account tells us, the Triangle Shirtwaist Factory did not have an automatic sprinkler system installed and not everyone made it out safely. The fire continued to spread from the eighth to the ninth and tenth floors. The panic rose as everyone surged for the exits. Many who did make it to the exit found that they were trapped, the door was locked. The elevator quit working and young women began to throw themselves from the windows and rooftop. It only took firefighters eighteen minutes to get the fire under control, but it was too late for many. The Triangle Shirtwaist Factory fire claimed 146 lives, lives that could have been saved by automatic fire sprinklers (Linder).

Works Cited

Artin, Nick. "An Introduction to Automatic Fire Sprinklers, Part 1." *WAAC Newsletter*.

Vol. 16.3. 20. 1994. Web. 7 Jan. 2010.

Bellis, Mary. "Fire Sprinkler Systems." *Fire Fighting – Inventions*. About.com. 2010.

Web. 7 Jan. 2010.

"Fire Sprinkler." *Wikipedia*. Wikimedia Foundation, Inc. 15 Dec. 2009. Web. 7 Jan 2010.

"History of Fire Sprinkler Systems." *Fire Protection Group*. APi Group, Inc. 2003. Web.

7 Jan. 2010.

Linder, Doug. "The Triangle Shirtwaist Factory Fire Trial." *Famous Trials*. 2002. Web. 7

Jan. 2010.