



# ***CHIEF'S FILE CABINET***

***Ronny J. Coleman***

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## **Getting a Bad Rap**

If a fire sprinkler were a person it would probably have grounds for a lawsuit. Personally, I cannot think of any other piece of modern technology that is as often maligned. Supposedly they leak, they destroy more property by water than they protect from fire, and they are ugly. What a bad rap!

The myth of the automatic sprinkler being a source of unnecessary loss and an inefficient way of controlling fire is very difficult to pin down. No one seems to know exactly where it got started, and there doesn't seem to be much effort to eliminate the myth among the uninformed.

Sprinklers have been made the butt of jokes on several television comedies. A recent magazine article published in the 'Executive Traveler' reported that a sprinkler system was being replaced in a high-rise hotel because it was cheaper and less likely to destroy the building from water.

Granted, many people - most of them fire professionals - have raised a finger in objection and stated, "Wait a minute, sprinklers aren't really all that bad." Unfortunately, they don't take that next step which is to state exactly why a sprinkler is such a fine, well-engineered piece of equipment.

To make matters worse, the operational fire service often contributes to the myth. Frequently, a sprinkler will discharge after it has completed controlling a fire. The fire department's press release sometimes says that "fire damage was minimal but water damage was extensive." Yes, even we in the fire service give sprinklers a bad rap.

This reputation is certainly not deserved. There is probably no other water control device that must go through such extensive design and engineering criteria to be installed on a waterway. Compared to what an automatic sprinkler must endure to go from the drawing table to installation, the plumbing devices we find in our kitchens and bathrooms are strictly bush-leaguers.

The automatic sprinkler is the Rolls Royce of water control. The real name of the game in sprinkler design is quality. That is quality with a capital Q. There is an assumption in the manufacturing of an automatic sprinkler that it may have to remain in position, unsupervised, and basically unmaintained for a period as long as 50 years and then be called upon to perform within a minute's notice.

Granted, sprinklers are not manufactured as one-of-a-kind devices. They are created by an industrial process that must grind out hundreds of thousands of almost identical components in order to remain competitive.



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W. Edwards Demming, in his landmark text “Quality Productivity and Competitive Position,” (Massachusetts Institute of Technology, Center for Advanced Engineering Study) stated, “Folklore has it in America that quality and production are incompatible, that you cannot have both.”

Demming goes on to prove that quality and production are compatible. Simply stated, Demming, who was talking primarily to the automobile industry, emphasized that as you improve the quality of a product its competitiveness begins to increase. The reason is that higher quality means less waste; less waste means cost efficiency.

Demming’s principles are alive and well in the sprinkler industry.

Recently I visited a sprinkler manufacturing plant and followed the assembly of a sprinkler practically from the drawing table to the shipping dock. What I observed shoots a lot of holes in the concept that a sprinkler is a potentially dangerous device to place in a business or residence. The focus on quality and on consistency in the assembly of sprinklers would not only lead one to trust their dependability, but would also force one to ask where the reputation for malfunction exists.

One process I found fascinating was the assembly of a series of solder pellets into the device that would ultimately melt at the time of fire. A solid stream of these pellets were coming down an assembly line. As they passed through a particular gate, a piston would periodically fly out and knock one of the pellets off into a tray. When I questioned, I learned that those pellets were out of tolerance and unacceptable. In short, at every stage of the process there were tolerances built into the automatic sprinkler that were acceptable, and any variation was unacceptable.

Demming’s philosophy was that consistency in all of the components was worth a lot more than inspection on the final assembly line. That is what a sprinkler gets as it moves from being a hunk of brass on one end to a finished sprinkler on the other end. All along this assembly line there are tolerances established, and any one of the components that fails to meet these tolerances is never allowed to be part of a sprinkler.

As I moved down the assembly line, I came to a spot where a young lady was hydrostatically testing every sprinkler that came off the line. Each sprinkler head was placed on a device that instantaneously charged the head to a pressure far in excess of what it would ever see in an operating sprinkler system. If the sprinkler was going to malfunction or if some pieces were not properly assembled, the chances of failure were incredibly high at this point.

Quality and productivity are compatible, provided one pays attention to details. Those companies manufacturing automatic sprinklers have an eye on tolerances constantly. One cannot say the same



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thing for devices that are also attached to water systems in homes, such as nozzles, faucets, plumbing fixtures, etc.

It must be recognized that there are things that can happen to a sprinkler after it has been assembled. They can be damaged in transport, damaged after installation, or even sabotaged. But, the image of sprinklers as being a potential locus for malfunction is simply not justified. They are among the most finely engineered pieces of fire protection technology we have available.

This story hasn't even begun to explore the other obstacle courses that sprinklers must overcome in order to be certified, such as their testing. Sprinklers are tough little devices.

While their performance over the last 100 years speaks loudly, sprinklers cannot speak for themselves. Those of us in fire protection must articulate in laymen's terms why the quality of a sprinkler gives us faith in its reliability. Our failure to refute the myth of water damage created by sprinklers is a serious problem.

Sprinkler manufacturers have done their part in giving us a product that deserves our confidence. We must promote that confidence to the public.

I'll put it to you this way. I trust a sprinkler a lot more than I do the warranty on my toaster.