

Sprinkler System Saves Lives & Building

By Chief B. Michael Thurlow

A couple of weeks ago we had another perfect example of the importance of sprinkler systems. We were called to a reported structure fire at a brand new 12-unit apartment building in the Dunstan neighborhood of our community. This building has only been occupied for a few months and is fully leased. The fire started accidentally in a bathroom of one of the apartments shortly after the tenant left to go to work.

The fire started small and triggered a local smoke detector in that individual apartment. Unfortunately, since the tenant had already left, no one was home to hear the smoke detector or investigate the problem. In multi-tenant residential occupancies like this, that is how smoke detectors are installed. There are detectors in the individual apartments that only ring locally to alert the individuals in that apartment. This prevents activation of the entire building's fire alarm system and the evacuation of the facility due to burnt toast or other minor events that cause a small amount of smoke in a single unit.

In addition to the local smoke detectors there are additional smoke detectors in the hallways and other common areas that are tied into the fire alarm system so that if a fire gets big enough to spread smoke outside of a single apartment, the system will sound the alarms throughout the building and notify the fire department.

As the bathroom fire grew it produced sufficient heat to trigger a single sprinkler head in the bathroom which quickly and efficiently put the fire out prior to the arrival of the fire department while using much less water than the hoses we use. When that sprinkler activated we were notified automatically because the fire alarm system recognized the water flow signal meaning a sprinkler had activated.

Instead of a significant fire in a multi-tenant building that would likely have displaced twelve families and caused several hundred thousand dollars in damage, this incident was confined to one small bathroom. Upon arrival the fire department quickly shut off the sprinkler system and did some mop up and overhaul to make sure there was no remaining or hidden fire.

For several decades the Town of Scarborough has had a sprinkler system ordinance that is more restrictive than some of the national codes. This is a prime example of exactly why we did that. In many communities that bathroom would have been too small to require a sprinkler head, and the fire would have had to spread and get much bigger before anyone noticed. Our local ordinance also requires sprinkler coverage in void spaces and attics where some of the national codes do not. There are constant examples where a fire started on an exterior wall and spread rapidly across exterior vinyl siding and into the plastic soffits allowing fire to rage in an attic out of sight and access from firefighters until it is too big to control.

Building construction and furnishing has changed significantly over the forty years I have been in the fire service. We are no longer building homes of solid wood framing and natural fibers like cotton. 40 years ago fires could burn for 20-30 minutes before they damaged solid framing or became structurally unstable. Today our buildings are full of plastics and synthetic materials, all of them made from petroleum products. The products we buy today are in essence gasoline in a solid state. Furnishings burn much hotter and quicker. A fire in a building today burns hotter and faster often resulting in flashover and structural instability in just over 5 minutes, generally before the fire department arrives.

On top of that, the framing materials used in modern construction are much lighter weight. They are called engineered products because engineers have found ways to design trusses and joists that are strong by design in a building system, but are light weight in mass. When not exposed to fire they work great, are cheap to produce, and are easy to install. The problem is when they are exposed to fire they fail very quickly, and structural collapse or instability happens much sooner than it used to.

Sprinkler systems never take a vacation. They are always on and ready to do their job. There is no question that the system installed in this brand new apartment building saved lives and significantly reduced the property loss of not only the building owner, but every tenant who lives there. Sprinkler systems also provide an additional level of safety for our firefighters since they prevent a fire from getting to the point that it damages structural members to the point that they fail injuring and killing first responders.

If you have any questions about this article or any fire department issue you may contact me at mthurl@ci.scarborough.me.us or 730-4201.