WHY DO WE DO THAT?

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As firefighters, we are supposed to be experts in all things fire, and so the public sometimes asks us fire-related questions, such as the following.

DETECTORS

"Where should I place my home smoke and carbon monoxide (CO) detectors?" We tell civilians not to place them within four inches of the point where the wall meets the ceiling. Why not?

Neither smoke nor carbon monoxide detectors should be placed within four inches of where the wall meets the ceiling because this space is considered dead-air space. Detecting devices placed here may not be exposed to true levels of smoke or CO because the lack of air movement in these spaces may result in false low levels of smoke or CO. The result can be a delayed alarm.

When asked where to place these alarms, we should share more information. Smoke and CO detectors are expected to alert occupants to the impending danger of fire or CO exposure. To do this, they must be in a location where occupants can hear their alarm. Placing the home's only smoke or CO alarm in the cellar when everyone in the home sleeps on the second floor might result in disaster should sleeping occupants not hear the sounding alarm. Also, if the fire or CO problem starts on an upper floor, the cellar-mounted detector may not alarm at all.

The correct place to put a single CO or smoke detector is in the vicinity of where the home's occupants sleep. Thus properly placed, the alarm will alert them to danger even in the middle of the night when all are soundly sleeping in their beds. A better solution is to have multiple smoke and CO alarms in the home. One of each type of detector, CO and smoke, should be near the sleeping area, and additional detectors should be on each floor, in areas where the home's occupants normally congregate.

We should explain that there are locations in the home where smoke or CO alarms should not be installed. No CO detectors should be within 20 feet of a heating unit or other fuel-burning heat source, within five feet from a cooking appliance, or within 10 feet of a bath or shower. All fuel-burning appliances give off excess CO as they warm up and, as a result, might trip the alarm unnecessarily as they warm to their proper operating temperature. The initial high levels of CO given off by these appliances, if operating properly, will abate once the appliance reaches operating temperature and present no hazard to the occupants.

The reason CO detectors should not be near the bathroom is that the humidity from a bath or shower can cause them to alarm. In addition, a smoke alarm in the kitchen likely will be tripped by the most careful of cooks occasionally. Relocating a smoke detector to an area remote from the kitchen will result in fewer unnecessary alarms.

Since we are considered experts in all things fire, it would make sense for us to take the time to read the instructions included with a few different smoke and CO alarms. These instructions will explain the operation of the device, when and why it will alarm, as well as where it should be placed and how it should be cared for. We should make it our business to see that people place their smoke and CO detectors properly because proper placement will save lives and reduce the number of alarms to which we must respond.

Every response to a dwelling should be looked on as an opportunity to educate the public on how to better protect themselves. On fire and medical calls, you can point out to the occupant improperly placed smoke and CO detectors, explaining why they are in the wrong place and where they should be placed.

SHUTTING GAS MAIN VALVES

We are told not to shut gas main valves. Why not?

First, let's get the terminology correct. Gas mains deliver gas through a system of underground piping to the supplied areas. Gas service lines branch off the mains to deliver gas to individual customers.

There are a few good reasons firefighters should not shut gas main valves. One is that the gas main valve you shut may not have any impact on the gas problem you are trying to resolve. A gas leak in a structure may not be impacted at all by shutting a gas main valve in the street. Gas main grids are typically fed simultaneously in more than one direction, so shutting a main valve at one location may not stop the flow of gas into the service line of a particular structure.

The same is true for gas leaking from a ruptured main. Shutting one gas valve may not stop the flow of gas to the leak because it is still being supplied from another direction.

OK. So what is the big deal? If it doesn't help, at least it does no harm. Not true. It may well do unintended harm. This is especially true if the main valve you are shutting feeds a dead-end main (sometimes called a "radial main" by utility workers.). A dead-end main is supplied from only one direction, and shutting such a valve will stop the gas flow to all of the occupancies supplied by that main.

So what is so bad about that? In fact, shutting the valve creates several problems:

• Every building supplied by the dead-end main is no longer being supplied with gas. This means that every home, business, hospital, nursing home, and whatever else is fed by the dead-end main is now without gas. This will shut down heat, natural gas air-conditioning, and critical industrial processes and put at risk, financially impact, or just plain inconvenience hospital patients, invalids in nursing homes, businesses, and homeowners.

• Before the main valve can be reopened and gas service can be restored to these buildings, the entire run of piping must be pressure tested. That means the underground piping and the piping in every structure supplied with gas must be tested. This is a time-consuming procedure and, before the pressure test can be performed, the appliances in each occupancy must be shut down. It also means that every occupancy must be accessed. The occupant must be present or in some other way arrange access for the utility workers. The problem is further complicated by the fact that if the piping in any building or the underground piping fails the pressure test, the gas supply to that building or that section of piping cannot be turned on. Unfortunately, it is likely that the building will fail the pressure test, especially older buildings.

Next, the reason the piping underground or in a building or buildings failed must be determined, the problem must be corrected, and the piping must be tested again. This procedure is expensive, time consuming, and inconvenient. Once the gas supply to a large area or large building is shut down, it could take weeks, if not longer, to restore service to all customers.

• After the pipes pass the pressure test, the gas utility must again enter each occupancy in each building to relight each appliance's pilot light as gas is turned on in the structure. This is another time-consuming and expensive procedure. To do this, the occupant must, again, be present or arrange access for the utility company.

Another valve that should be mentioned is the curb valve. It is found on the service line between the main and the occupancy; shutting it will stop the gas flow to the structure it serves. Typically, curb valves are found on the sidewalk side of the curb, but they can sometimes be found in the street. When in the street, the curb valve can easily be mistaken for a main valve; conversely, a main valve can easily be mistaken for a street-side curb valve.

Curb valves are found on some, not all, service lines. Some fire departments will close this valve as part of its tactics, whereas other departments wait for the utility to arrive to shut it. Firefighters should attempt to shut the curb valve only if they have been properly trained and they are sure that the valve is a curb valve and not a main valve. If in doubt, call and wait for the utility. Also, notify the utility of any gas valves you have shut, and NEVER open a gas valve once you have shut it. Doing so will create a gas leak at each pilot light and each gas appliance that was in operation at the time you shut the valve.

THE HAZARDS OF BEING ON THE WRONG SIDE OF A CHARGING HOSELINE

We are warned not to position ourselves between a hoseline and the edge of the roof. Why not?

An uncharged hose lying on the ground or on a roof is a potential hazard to nearby firefighters. As the water races through the previously uncharged hoseline, it often causes the bends and kinks in the hoseline to suddenly straighten

and the hose to whip, resulting in a snaking action. This whipping and snaking action poses a danger to firefighters standing nearby.

As a young firefighter, I witnessed what can happen when a firefighter is on the wrong side of a charging hoseline. We were stretching a second hoseline up the stairs in a dilapidated burnt-out vacant private dwelling. The first line was positioned on the second floor, and the firefighters had just called for water. We were on the stairs waiting to pass them and go above the fire with our line. I was positioned against the wall, and Tony was positioned between the uncharged first line and the edge of the stairs. The banister was missing from the stairs; it probably had been missing for years. Neither Tony nor I was aware of the hazardous condition that would send Tony to the hospital and force his retirement from the fire department.

Waiting on the stairs, we heard the first-in engine officer call for water in his hoseline. We checked his line to be sure there were no kinks in it. As the line charged, it expanded and moved like an angry snake on the stairs. It hit my feet, but I was braced against the wall and did not lose my balance. It struck Tony's feet and, having no banister to grab onto, he lost his balance and toppled off the stairs, clad in fire coat, boots (this was pre-bunker gear), and SCBA. He fell onto the first floor. The cellar stairs were directly below the stairs to the second floor. The banister on the first floor was also missing. When Tony hit the floor, he rolled off the first floor and down into the cellar. The cellar stairs had been burned away in a previous fire. Tony ended up lying on his back on the cellar floor on top of assorted debris. He had hurt his back and was removed from the cellar in a stokes basket and transported to the hospital. He eventually retired with a back injury.

Standing on the wrong side of a hoseline as it charges puts you in harm's way. Being struck by the snaking hoseline can injure you or cause you to lose your balance. If you are standing on stairs, a roof, or on a fire escape, you can wind up like Tony. To avoid this type of injury, pay attention to your surroundings. Do not position yourself between the uncharged hose and a precipice like a roof edge or unprotected stairs. If you see someone in such a position, point it out to him, and get him to move to the safer side of the hose.

At a recent incident on an electrified subway, the chief noticed a young firefighter standing between the third rail and the uncharged hoseline. He immediately directed him to the safer side of the hoseline and afterward explained to him that sudden movement of the hoseline as it charges or as the nozzleman opens or closes the nozzle of a charged line can cause movement in the hoseline severe enough to topple an unsuspecting firefighter.

The fireground is a dangerous place, and you must always be on the lookout for hazards. If you see them, take action to make yourself safe and point them out to others who are not being as observant as you are. ■