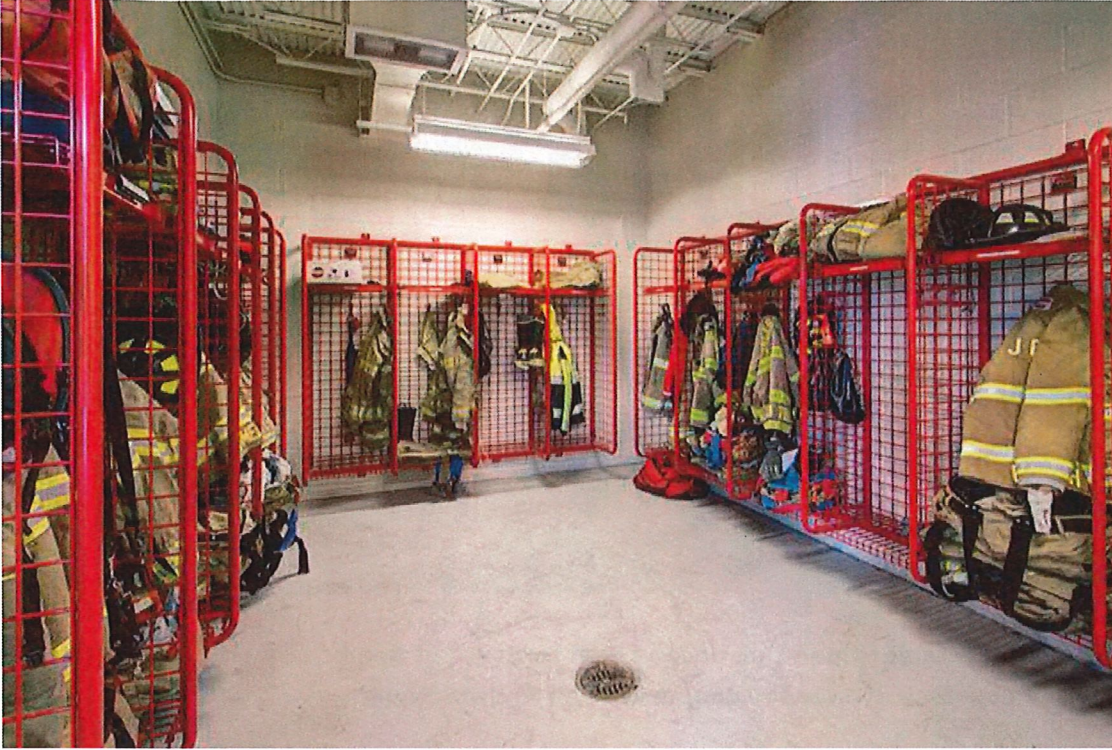


# Turnout Gear Decon Spaces in Fire Stations

8.3.2017



**By Alan M. Petrillo**

*The incidence of cancer in firefighters has been linked to some of the toxins that collect on firefighters' turnout gear and self-contained breathing apparatus (SCBA) after fighting fires.*

Many departments have turned to using decon rooms and turnout storage rooms at the station where turnout gear can be placed prior to decontamination and stored afterward.

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**1 Stewart Cooper Newell Architects designed this decon room for turnout gear and equipment. (Photos 1-4 courtesy of Stewart Cooper Newell Architects.)**

## Hot, Warm, and Cold Zones

Ken Newell, principal at Stewart Cooper Newell Architects, notes that statistics show firefighter incidences of cancer at between 20 and 100 percent higher than the average United States citizen. "The chemicals they are exposed to on the fireground – arsenic, hydrocarbons, benzene, and other carcinogens – collect on their turnout gear and equipment," Newell says. "That gear and equipment is brought back to the station, which is a significant enough impact to affect the design of stations."

Newell's station designs identify the source of contamination and deal with it by designing a hot zone where contamination is the worst, such as apparatus bays, decontamination rooms, and tool rooms; a cold zone, which is the living space where firefighters want to keep the contamination out; and a transition or warm zone in the middle. "We've gotten away from designs with the apparatus bays in the middle of the building with day spaces on one side and night spaces on the other because it's difficult to control contamination," he says. "Now we put the hot zone on one end of the station and the cold zone at the other end."

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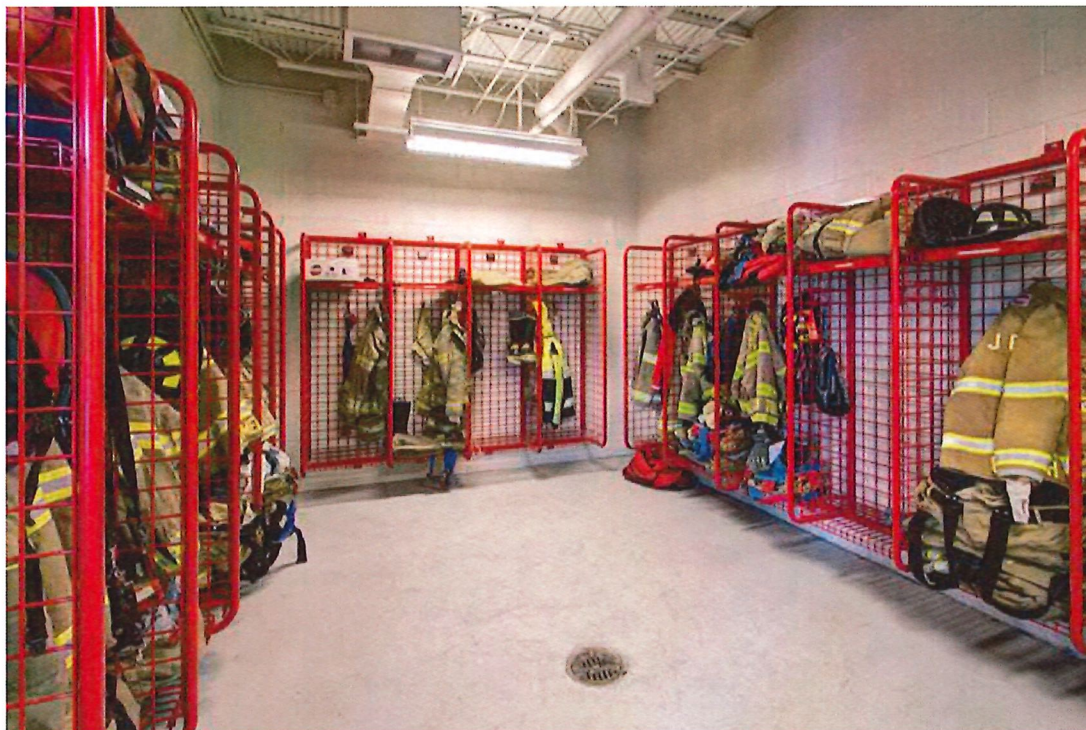
**2 Decon toilet rooms like this one designed by Stewart Cooper Newell Architects are places where firefighters can strip, decon shower, and leave contaminated clothing.**

Newell recommends having a decon room off the apparatus bays with extractors, dryers, and cleaning areas. "Firefighters can enter, strip, clean, and then store their personal protective equipment (PPE) in another room to off-gas properly," Newell says. "Both the decon and PPE storage room should have their own separate heating, ventilating, and air conditioning and exhaust systems."

Because a firefighter's hair and skin might have been contaminated, Newell also recommends a decon/dirty toilet room near the decon room where firefighters can strip, decon shower, and leave their contaminated clothing. "We also like to have positive pressure on the living side of the station and negative pressure in the hot zone and transition area, which makes it difficult to have air flow into the cold zone," Newell observes. "The connection of the warm zone then serves as an airlock corridor, from 12 to 20 feet wide, that helps capture contaminants."

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**3 This PPE storage room, designed by Stewart Cooper Newell Architects, sits adjacent to a decon room in a station's hot zone.**

## Decon Rooms

A few years ago, the Phoenix (AZ) Fire Department instituted protocols for dealing with contaminated PPE, says James Zwerg, Phoenix's architect and facility manager. "We carry large heavy-duty bags like lawn/leaf bags where firefighters put their dirty gear, knot the bag, and identify it with their name on medical tape," Zwerg says. Back at the station, a red shirt fire academy crew will take the contaminated gear to the department's Support Services facility, which has extractor/washing machines and dryers run by civilians who decon and clean the gear. "Every firefighter has two full sets of turnouts in gear storage rooms at the station," Zwerg points out.

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**4 This transition corridor, or warm zone, designed by Stewart Cooper Newell Architects, is placed between the hot zone apparatus bays and decon areas and the cold zone living and sleeping quarters.**

Phoenix's newer stations also have decon rooms often used to clean equipment and tools that have become contaminated, Zwerg says, usually located just off the apparatus room floor. "When firefighters return to the station, they can go straight to a stainless steel sink with overhead spray nozzles and clean equipment," he says. "There are hand sanitizers and wipes in there and extra trash bags for any contaminated PPE. Often, firefighters will do some level of equipment cleanup on the scene, or they might do it on the ramp outside of the station."

Keith Schrieber, principal at Schrieber Starling Whitehead Architects, says his company built turnout gear decon rooms in Station 28 and Station 38 for the Seattle (WA) Fire Department. "For both 28 and 38, the decon room is off the apparatus bay on the return side at the back of the rear apron," Schrieber says. "The decon room has a metal floor grate with a floor drain beneath it, a handheld shower device for rinsing, and a stainless steel sink and counter to rinse and drain equipment. Turnout gear extractors and dryers are located there too, so the gear gets deconned, extracted, cleaned, and dried before going into the station house. In the meantime, firefighters use a second set of turnout gear."

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**5 This turnout gear storage room was designed by Mitchell Associates Architects for a career fire department. (Photos 5 and 6 courtesy of Mitchell Associates Architects.)**

Bob Mitchell, principal at Mitchell Associates Architects, says he has been designing turnout gear storage and decon rooms in both career and volunteer fire stations. "For a volunteer department, they would respond from the parking lot into the turnout gear space, grab their gear, and move to the apparatus bays," Mitchell says. "The aisles in the gear storage room are pretty generous to accommodate people hustling in and out."

Turnout gear storage rooms in career stations typically have less generous aisles, Mitchell points out, because usually the firefighters take the gear out of the storage room when they come on shift and leave it near the apparatus they will ride. Personal gear is locked up in the gear storage room, he says.

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**6 Turnout gear storage rooms for volunteer departments get more generous aisles and space to allow for firefighters hustling in and out of the room.**

For the volunteer South River (NJ) Fire Department, Mitchell's new firehouse design is laid out so it can be converted to a combination or career firehouse. "The decon room is off the parking area and accessible from the apparatus bays," he says. "The first space is the gross decon area, where firefighters can use a hand sprayer to wash off turnout gear and also take a personal shower. They can exit into the apparatus bay or a decon room, where washers/extractors and drying cabinets are located. The gear storage room is adjacent and down a corridor to the decon room."

Mitchell points out that "decon and turnout gear storage rooms are almost always built into new stations these days. All of the stations we've designed in the last three years have separate decon and gear storage rooms, and each has its own separate exhaust system and is heated by radiant floor heat."

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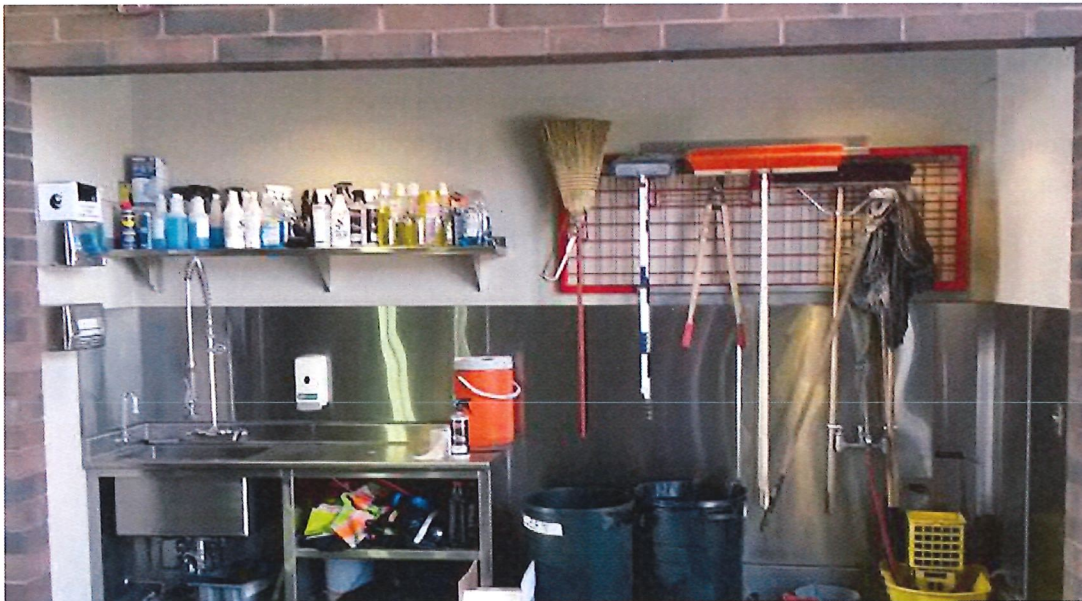
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**7 The Phoenix (AZ) Fire Department decontaminates all its turnout gear at a central Support Services facility, but newer stations often have a decon room off the apparatus room floor where firefighters can clean and decon equipment. [Photos 7 and 8 courtesy of the Phoenix (AZ) Fire Department.]**

**ALAN M. PETRILLO** is a Tucson, Arizona-based journalist, the author of three novels and five nonfiction books, and a member of the Fire Apparatus & Emergency Equipment editorial advisory board. He served 22 years with the Verdoy (NY) Fire Department, including in the position of chief.



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## 8 The equipment decon room at Phoenix (AZ) Fire Department Station 60.



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