

# FARS — A Firefighter Safety Concept Whose Time Has Come

## By Chief Mario Trevino

If you've ever been tasked with lugging dozens of spare SCBA air bottles up 20, 30, or 40 stories to cache at a forward logistics or staging area, you've probably thought that there *MUST* be a better way. By the time you get anywhere near the fire floor, your own air bottle may already be low on pressure before you've even begun your tactical assignment.

Or, imagine you are working a fire in a tank farm, industrial complex, or other mega-building: Chances are that while you will probably have access to a standpipe or other water system on the grounds, you can only enter as far as your air supply lasts. That may mean you aren't able to reach the base of the fire before you have to return to get a fresh air bottle. This could result in compromised firefighter safety as well as reduced capabilities for rescue and extinguishment. SCBAs are normally rated for one-half hour of structural use, but firefighters know when they're working hard in full PPE they can suck up their available air in 12-15 minutes. So why is it, then, that we expect a water supply in these situations, but not air replenishment?

The answer is that the technology just hasn't been available. Until now. It's called FARS (Firefighter Air Replenishment Systems).

If you've never heard of FARS you're not alone. It appears that many firefighters and fire officers still don't know about this technology. It works like a standpipe, but instead of delivering water it provides essential breathing air. FARS was just added to the 2015 edition of the International Fire Code as Appendix L, and already over 400 of these systems have been installed around the country. It is anticipated that FARS will soon move from an appendix to the body of the IFC for high-rise building applications, so if you haven't heard about it yet, you will soon.

Recently I was asked by my colleague Ronny Coleman, retired Fire Chief and Fire Marshal, to help inform the fire service about FARS. It's a concept that I had already embraced. I became aware of it back when I was the Fire Chief in San Francisco (2001-2004). We were investigating whether FARS would be helpful in high-rise responses in the City and the more I learned about the concept, the more I was convinced of its efficacy. Thus began the process that resulted in air replenishment being adopted into the City's Fire Code.

Here's how it works: During the construction process, long, seamless lengths of stainless steel tubing are routed from a reserve air storage area and up 2-hour shaft enclosures. They terminate every few floors at either bottle-filling stations with rupture containment housings or at quick-fill panels. Pressurized by large "H" air cylinders, the system has the capacity to fill two air bottles every 2 minutes at any refilling station, making air immediately available to first-arriving units. When the Mobile Air Unit (MAU) arrives, one quick connection enables pressurization of the system and provides on-going air supply throughout an incident. New installations are rigorously tested for approval to ensure they are free from contamination, delivering only clean, breathable air. Monitoring is constant (24/7) and any indication of low-pressure, moisture, CO, or tampering will trigger audible alarms to alert building maintenance personnel. Gauges

are provided at the building's fire control panel, the Air Resource room, and the MAU station for quick reference and monitoring during emergency operations. The benefits for fire departments are clear:

**Enhanced Firefighter Safety:** Air-filling stations are easy to find and readily accessible. In a pinch, firefighters can even fill their own air bottles right on their backs **without ever removing their breathing protection**. They will be able to fully re-charge in less than two minutes and then safely exit the building or return to firefighting activities.

**Simplified Logistics:** With FARS it will no longer be necessary to dedicate a cadre of responders to haul air bottles to higher floors in high-rise buildings or remote areas. One or two members can be assigned to easily perform re-filling duties.

**Reduction in Life-Loss Potential:** The ability to get breathing air to responders quickly and effectively not only increases firefighter safety, it allows crews to focus on rescue efforts more quickly and effectively.

**Increased Effectiveness and Efficiency:** Since crews no longer have to go to such lengths to maintain their air resources, they can focus their efforts on achieving tactical goals. Decreasing efforts for air-replenishment will result in reduced fatigue and increased productivity, which means **reduced property losses**.

**Simplified Command and Control:** Incident Commanders will be free to assign crews to actual firefighting and rescue duties much faster, optimizing personnel resources. In the event of a catastrophic building event, isolation valves can be employed to ensure air-system integrity.

**Ease of Use:** Connections are easy for all first-responders using any approved SCBA equipment; the minimal training needed can be quickly acquired through normal training processes. Strategically placed fire training facilities already have FARS training modules installed for drilling, with more planned. Even mutual aid personnel with no knowledge of the system can quickly be briefed on-scene.

**Zero Budgetary Impact:** Since FARS is part of the building's fire protection equipment, there is no impact on fire department budgets.

Is there a cost? Of course there is, but it is minimal by comparison. Installation cost history shows that FARS adds only about one-tenth of one percent to construction expenditures. The fire service can expect resistance from the usual quarters, as we've seen with automatic sprinklers, shaft pressurization, combination standpipes, and modern fire alarm systems, which may slow progress. In the past, it has often taken catastrophic incidents to force code improvements. Before modern water-delivery systems were mandated, firefighters used "bucket brigades" to extinguish fires. It's easy to envision that we will soon look back upon the use of "air bottle brigades" in much the same way: An anachronism.

*Mario Trevino (ret.) is the former Fire Chief of San Francisco, CA and Las Vegas, NV. Under his command, the City and County of San Francisco adopted one of the country's first FARS codes in 2004. A self-described former "smoke eater," he is a stage 4 throat cancer survivor.*