

**OPTION A: Section L101.1 Scope.** Fire fighter air replenishment systems (FARS) shall be provided in accordance with this appendix in new buildings when any of the following conditions occur:

1. Any new building 5 or more stories in height.
2. Any new building with 2 or more floors below grade.
3. Any new building 500,00 square feet or more in size.

Each stairwell shall have a supply riser. SCBA fill panels shall be located on odd numbered floors commencing at the first level in the primary stairwell and on even numbered floors commencing at level 2 in the remaining stairwells. Fill panels in buildings over 500,000 square feet shall be located adjacent to each standpipe connection.

~~The adopting ordinance shall specify building characteristics or special hazards that establish thresholds triggering a requirement for the installation of a FARS. The requirement shall be based on the fire department's capability of replenishing fire fighter breathing air during sustained emergency operations. Considerations shall include:~~

- ~~1. Building characteristics, such as number of stories above or below grade plane, floor area, type of construction and fire-resistance of the primary structural frame to allow sustained fire-fighting operations based on a rating of not less than 2 hours.~~
- ~~2. Special hazards, other than buildings, that require unique accommodations to allow the fire department to replenish fire fighter breathing air.~~
- ~~3. Fire department staffing level.~~
- ~~4. Availability of a fire department breathing air replenishment vehicle.~~

*(Reason: Breathing air is critical for firefighting operations. Historically, fire departments have supplied air bottles by manually transporting air bottles up stairways or across long distances in a building, which is an extraordinarily intensive process and takes firefighters away from their primary mission of rescue and firefighting. The FARS technology in Appendix L exists to address this issue using in-building air supply systems. Many jurisdictions in North Texas and across the country have already adopted this Appendix and are enforcing and installing these systems to improve the life safety of firefighters and enhance their firefighting capabilities in an emergency incident, which is one of the reasons for recommending this Appendix for adoption – to ensure regional consistency, as well as to improve mutual emergency aid among jurisdictions in North Texas. NOTE: Jurisdictions should consider whether to also require FARS to be installed at a location 125 feet from corners of any new horizontal building 500,000 square feet or more in size.)*

**OPTION B: Section L101.1 Scope.** Fire fighter air replenishment systems (FARS) shall be provided in accordance with this appendix in new buildings when any of the following conditions occur:

1. Any new building 5 or more stories in height having an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.
2. Any new building with 2 or more floors below grade.
3. Any new building 500,00 square feet or more in size.

Each stairwell shall have a supply riser. SCBA fill panels shall be located on odd numbered floors commencing at the first level in the primary stairwell and on even numbered floors commencing at level 2 in the remaining stairwells. Fill panels in buildings over 500,000 square feet shall be located adjacent to each standpipe connection.

The adopting ordinance shall specify building characteristics or special hazards that establish thresholds triggering a requirement for the installation of a FARS. The requirement shall be based on the fire department's capability of replenishing fire fighter breathing air during sustained emergency operations. Considerations shall include:

- ~~1. Building characteristics, such as number of stories above or below grade plane, floor area, type of construction and fire-resistance of the primary structural frame to allow sustained fire-fighting operations based on a rating of not less than 2 hours.~~
- ~~2. Special hazards, other than buildings, that require unique accommodations to allow the fire department to replenish fire fighter breathing air.~~
- ~~3. Fire department staffing level.~~
- ~~4. Availability of a fire department breathing air replenishment vehicle.~~

*(Reason: Breathing air is critical for firefighting operations. Historically, fire departments have supplied air bottles by manually transporting air bottles up stairways or across long distances in a building, which is an extraordinarily intensive process and takes firefighters away from their primary mission of rescue and firefighting. The FARS technology in Appendix L exists to address this issue using in-building air supply systems. Many jurisdictions in North Texas and across the country have already adopted this Appendix and are enforcing and installing these systems to improve the life safety of firefighters and enhance their firefighting capabilities in an emergency incident, which is one of the reasons for recommending this Appendix for adoption – to ensure regional consistency, as well as to improve mutual emergency aid among jurisdictions in North Texas. NOTE: Jurisdictions should consider: 1) whether to also require FARS to be installed in high density residential structures 5 or more stories in height; 2) whether to also require FARS to be installed at a location 125 feet from corners of any new horizontal building 500,000 square feet or more in size.)*

It is my understanding that the starting point for the upcoming discussion is going to be the currently approved COG amendment, which deletes the COG amendments to Appendix L, but it leaves the appendix in place for jurisdictions to adopt if they choose to do so. Accordingly, I will not be submitting a proposal to accomplish that. If this is not correct, and COG is rolling the starting point back to the 2021 code amendments, please let me know.

With the proposal below, I am suggesting that COG go one step further than what has already been approved, by deleting the appendix entirely, i.e. not including it in the COG amendments for local adoption. My proposal is as follows:

### **Delete Appendix L in its entirety.**

The fire service has experienced many advances in technology and tactics impacting how we do business since I started my career in the 1970s. Some of these innovations, like widespread use of self-contained breathing apparatus, have become foundational. Others, like the use of fog nozzles vs. smooth bore nozzles, remain unsettled. And still others, such as aqueous film forming foam (AFFF) have come and gone.

Firefighter air replenishment systems (FARS) currently fall in the middle category. While the concept has been around for over 30 years, it remains a fringe technology but has gained increased attention after references began showing up in model code appendices: first the Uniform Plumbing Code in 2006, then the International Fire Code (IFC) in 2015, and finally the NFPA Fire Code in 2018 (simply a pointer to the Uniform Plumbing Code Appendix). Importantly, all of these references are in code appendices, not the main body of the codes, signaling that FARS is only intended for individual jurisdictions that take explicit action to add the appendix to their fire code, presumably with a lifelong commitment to maintenance and firefighter training.

At first glance, the premise seems simple and appealing. The Firefighter Air Coalition (FAC) proclaims...firefighters need air, FARS is a standpipe for air just like we provide standpipes for water, “more air, more time,” and FARS is advertised as reducing the risk of firefighter cancer and injuries. So, why not support this? Let me explain.

**Why FARS Should Not Be in the Council of Governments’ Fire Code Amendments** – model codes and the COG amendments establish minimum requirements to provide a reasonable level of life safety and property protection, with the IFC going further by specifically mentioning safety to firefighters and emergency responders. What is or isn’t reasonable is determined by a consensus of individuals who participate in the process, including representatives of the fire service, typically weighing cost, benefit, and risk. Codes have a responsibility to reflect good public policy and spend resources wisely, essentially asking the questions, “Is there a real benefit and at what cost?” and “how much is enough” when layering additional safety features into buildings that are already considered by the code to be sufficiently safe.

On cost, the NFPA Research Foundation published “An Analysis of Firefighter Breathing Air Replenishment Systems” in April 2021. In that document the costs of new installations were evaluated, ranging from \$218,000 for an 18-story building in Texas to \$485,000 for two 8-story buildings in California. The estimated lifecycle cost over 45 years for the Texas building ballooned that figure to \$474,657. Anecdotally, more recent projects in Texas have seen even higher costs, though documentation was not publicly available at the time of writing.

So, what's the benefit? History tells me that it is absolutely zero. Despite a 30-plus year history with over 500 installations and claimed code adoptions in 26 states, there is a striking lack of evidence showing even a single FARS system contributing to a better outcome. While that may sound surprising, it aligns with the fact that most high-rise buildings, where FARS is typically installed, are already built to high safety standards.

**Should FARS be mandated in high-rise or large-area buildings** – In 2016, FAC Executive Director Mario Treviño stated *“Buildings keep getting taller, more complex, and far more dangerous for firefighters. Yet the safety systems we provide in these buildings remain stuck in the past. We need to do better.”* That is simply not true. High-rise buildings constructed in accordance with current codes are among the safest buildings built today. While there is risk associated with building height, many redundant, overlapping, and effective safety features have been added to codes in the past 40 years and have proven effective, including mandatory:

- Fire sprinkler systems
- Fire detection, alarm, and voice evacuation systems
- Elevator lobbies that are smoke separated from the building or a pressurized elevator shaft
- Emergency Responder Communication Enhancement Systems (ERCES)
- Smokeproof interior stairway enclosures
- Smoke removal systems for salvage and overhaul
- At least two fire service access (hardened) elevators, which were specifically added to accommodate transport of personnel and equipment, including air cylinders, in buildings over 120 feet in height

If FARS is to be mandated, we must ask: where are the incidents that show these buildings failed firefighters due to a lack of FARS availability?

With respect to large area buildings, the phrase “tilt up – fall down” construction applies. These buildings typically have no fire resistance for the roof or rack structures. They are not designed with firefighter safety or interior attack in mind. Plus, there are no good answers to the question of where FARS connections would be located or how firefighters would find them in unprotected areas of smoke logged building.

**What about keeping FARS in the code as an installation standard** – In the past, this argument leveraged getting FARS into the UPC and the IFC. However, the approach raises other concerns. The FARS market is and has been dominated by a single manufacturer with multiple patents to protect proprietary technology. That manufacturer, or supporting groups such as the FAC, could publish their own installation and maintenance standard without a model code endorsement. When a model code references a product or technology, even in an appendix, it grants a level of legitimacy, which in the case of FARS hasn't been earned by evidence or demonstrated need.

The added legitimacy of being in model codes hasn't been lost on the FARS industry or the FAC, which are investing heavily to promote FARS with sensational videos, donated training equipment, event scholarships, and personal visits by FAC code advocates, seemingly to win the favor of fire service members and organizations, keep FARS in model codes, and sell more systems. According to a public filing, FAC reported \$720,000 in “member dues” in 2022, though no details were disclosed regarding membership composition or donation levels. This lack of transparency raises questions, especially when promotional efforts are tied to influencing code requirements.

**Conclusion** – It is a fact that the vast majority of fire departments do not use FARS and operate successfully without it. The idea that “FARS saves lives,” improves firefighter safety, or reduces cancer risk, is not supported or quantifiable by evidence or data. Trusting that a complex, rarely used system will be properly maintained by multiple building owners over decades is a major leap of faith, especially for equipment meant to be deployed by firefighters in life-or-death emergencies. In addition, it cannot be ignored that the consequence of model codes endorsing or mandating FARS is flowing money spent on these installations to a single manufacturer.

As model codes are now considering removal of FARS appendices, these are important considerations, and it is my personal view that FARS appendices should be deleted. In my experience, “out of air” incidents are most often related to firefighters becoming disoriented, lost, or trapped, as opposed to not having air available at a staging area that also allows for evaluation, hydration, and rehabilitation after using an air cylinder. The FARS industry needs to present evidence, not speculation, to demonstrate that there is a demonstrated or demonstrable need for FARS systems that goes beyond hype. They have not.

This proposal does not seek to ban the technology, but to instead ensure that it is vetted thoughtfully and responsibly, with clear-eyed evaluation of cost, benefit, and long-term assurance that systems will be safe for firefighters to use. Without the appendix, jurisdictions are still free to require FARS if they choose—but the COG recommendations should not lead them there or create the appearance of legitimizing these systems without compelling data and justification, which has never been presented.