



# Respiratory Protection in Firing Ranges

Safer | Healthier | More Productive

## Air Filtration- The Safety Component You Can't See

Preventing air contamination is vital to protecting public health in commercial firing ranges. These facilities are commonly designed for training and recreation; however many shooters seriously lack awareness of the air pollutant exposures that could accompany their practice. Lead oxide dust is the bi-product of discharging a firearm. Without proper air filtration an enclosed facility can become harmful and even create toxic air conditions that are conducive to lead poisoning.

Regardless of an occupant's understanding of indoor air quality, facility staff should be keenly aware of OSHA- (Occupational Health and Safety Administration) standards for protective air purification to account for their own safety as well as others. Optimal air filter placement is essential in the ventilation design of a firing range.

### AREAS OF HEAVY

### LEAD CONCENTRATION

### DO YOU KNOW THEM?

- ☐ Shooter's Station: Highest airborne concentration.
- ☐ 15 Feet Down Range: 90% of heavier air particles settle after it enters into the air stream.
- ☐ Target Area: Fragmentation of lead from bullets is at the highest. Increased build up to lead oxide hazard.

### Are You Auditing Your Facility for Lead Control?

#### Lead Sources

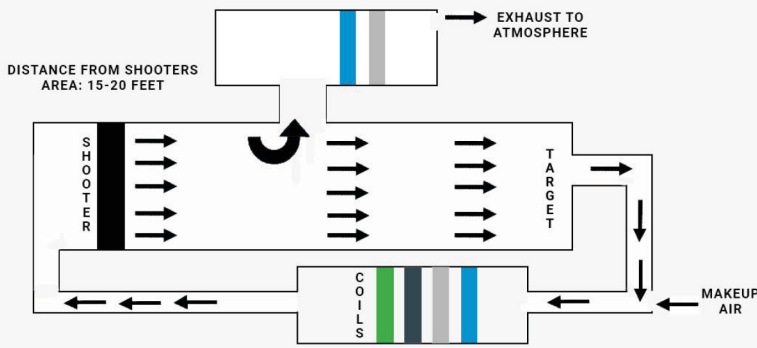
- Lead slug friction on range bullet traps and structural points of bullet interception
- Exploding primers
- Lead dust kick-back air contamination
- Air particle diffusion build up on interior and equipment
- Irregular or improper cleaning within the facility

#### Consequences of Lead Poisoning

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Extreme fatigue</li><li>• Muscle and joint pain</li><li>• Kidney failure</li><li>• Brain damage and memory loss</li><li>• Hearing Loss</li></ul> | <ul style="list-style-type: none"><li>• Nervous system damage</li><li>• High blood pressure</li><li>• Miscarriage or premature birth</li><li>• Developmental delays in children</li></ul> |
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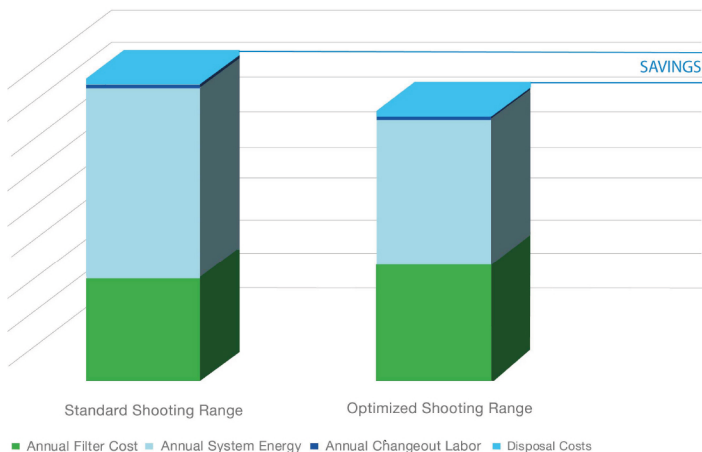
# Safe and Productive Firing Range Solutions

Building designs for commercial and private indoor firing facilities change, but their HVAC systems will always be engineered to direct airflow toward the target area and away from the shooters station. Implementing this ventilation strategy with the recommended filters below will ensure that the smoke and lead oxide particulates are moved downrange, protecting the shooter from potential respiratory harm.



FILTER STAGE	EFFICIENCY	GOOD	BETTER	BEST	STAGE DETAILS
Medium Efficiency Prefilter	MERV 8-13	ENDURO-PLEAT®	NOVAPLEAT® X	GREEN PLEAT	The higher the prefilter MERV, the longer the efficiency filter lasts
High Efficiency Secondary Filter	MERV 14+	SONIQ POCKET FILTER	FP V BANK	RIGID POCKET FILTER	High dust holding capacity is best to prolong life and reduce TCO
Optional Gas Phase Filter	Gaseous Exhaust Removal	--	--	HEGA FILTER	Must have non-dusting media to go in between efficiency and HV Series HEPA filters
HEPA Rated Filter	99.97% @ 0.3 micron	M-SERIES HEPA	M-SERIES HEPA	HV-SERIES HEPA	High media quantity filters are best to prolong life and reduce TCO

## Annual Total Cost of Ownership



## What the Experts Say



When evaluating Total Cost of Ownership, you must consider both the entire HVAC system and how each individual filter cooperates. Managing the filter, energy, labor and disposal costs is not always straightforward due to their inter-related nature. Selecting efficiency and HEPA filters with large media quantities and high dust holding capacities will prolong time between filter changeouts. Prefilter stages with more protective MERV ratings will further extend the service life of expensive efficiency filters, deducting costs from the overall HVAC maintenance program.

FG solution experts have the knowledge and experience to solve the most challenging situations.

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