

The range master, instructors, cleaning and maintenance crews are the primary personnel of concern when designing a firing range. The day-to-day contact with lead is usually at a higher dose than the occasional shooters. On the other hand, the occasional shooter may not be aware of their lead exposure that can be carried home on their clothing and hands.

1. Ensure that there are no obstructions to airflow (furniture, range master's station, coat racks, supplies, waiting personnel, etc.) located between the supply air plenum and the firing line. Provide coat racks, lockers, benches, etc. outside the range.
2. Do not allow space within the supply air plenum to be used as an observation or storage area. Provide ventilation storage areas for cleaning equipment, e.g. HEPA vacuum cleaners, wet mops and other supplies.
3. Each firing position should be designed to minimize surface areas that may obstruct airflow. Surface planes of booths, partitions, shelves, gates, etc. should be oriented parallel to the down-range flow direction to minimize turbulence at the firing line.
4. Provide rest rooms or wash stations for hand cleaning. Consider providing employee lockers to separate street (clean) clothes and clothes (dirty) worn in the range. Showers may be needed if there are lead overexposures.
5. Provide ventilated weapons cleaning stations or workbenches that are not located in offices, classrooms or the lunchroom. If feasible, provide a separate room with ventilated workbenches.
6. Locate and design the range entrance doors to have minimum effect on the supply air plenum and airflow to the firing line.
7. Determine all shooter positions and design airflow distribution to accommodate all such positions. Typical positions are standing, kneeling, and prone.
8. Consider installing a target carrier system to reduce foot traffic downrange of the firing line, thus reducing lead dust re-entrainment.
9. Do not permit personnel to use a standard range for SWAT-type training unless the range is specifically designed for those operations.
 - A. Higher air velocities with ceiling-to-floor airflow throughout the range are the preferred design for SWAT-type ranges because shooting is non-directional and frequently more intense.
10. Commission the range, to include performance requirements and acceptable testing, paying close attention to airflow along the outer walls. Contaminated air can travel back to the shooter position if the supply air is not properly balanced.
11. Consider using bullet traps or other dust reducing mechanisms to reduce lead dust generation from bullet impact on the backstop.



TITLE

HANDGUN AND SMALL BORE RIFLE RANGE DESIGN

FIGURE

VS-99-04a

DATE

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