

DETAILED INSPECTION CHECKLIST FOR INDOOR RANGES

For use of this form, see DA PAM 385-63; the proponent agency is OCSA.

SECTION 1 - BUILDING ENVELOPE

	YES	NO	REMARKS																								
1. Width of firing lanes is adequate (a minimum of 4 feet to fire rifle and/or pistol). (Noncritical but may present some operational problems particularly when firing in the prone position.)	<input type="checkbox"/>	<input type="checkbox"/>																									
2. Single steel plate bullet stop with sand type (plate/sand trap) set at an angle of 45° (+ or -5°) from the vertical and inclined forward towards the firing line. (Critical only if it appears backsplatter of lead particles occurs all the way back to the firing line.) (.22 Caliber firing (std)).	<input type="checkbox"/>	<input type="checkbox"/>																									
3. Escalator bullet stop is set at an angle of 30° from the horizontal. (Criticality as discussed in item 2 above.) (M16 firing)	<input type="checkbox"/>	<input type="checkbox"/>																									
4. Thickness of steel plate/sand trap bullet stop is adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. (Critical only if bullet stop is damaged to the point where repair/replacement is necessary.)	<input type="checkbox"/>	<input type="checkbox"/>																									
DIMENSIONS OF ARMOR BACKSTOPS, SIDE PLATES AND BAFFLING PLATES. <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Caliber (up to)</th> <th style="width: 20%;">Thickness of Backstops (minimum)</th> <th style="width: 20%;">Thickness of Side Plates (minimum)</th> <th style="width: 20%;">Thickness of Steel plate in Baffling</th> </tr> </thead> <tbody> <tr> <td>.22 S/LR</td> <td>1/4" @ 45°</td> <td>3/16"</td> <td>3/16" @ 30°</td> </tr> <tr> <td>.38 wadcutter</td> <td>3/8" @ 45°</td> <td>1/4"</td> <td>1/4" @ 30°</td> </tr> <tr> <td>.45</td> <td>1/2" @ 45°</td> <td>3/8"</td> <td>3/8" @ 30°</td> </tr> <tr> <td>5.56mm (M193)</td> <td>5/8" steel plate w/8" reinforced concrete</td> <td>3/8"</td> <td>3/8" @ 30°</td> </tr> <tr> <td>5.56mm (M855)</td> <td>1" hardened steel plate permanently affixed to backstop w/1" armor plate facing</td> <td>armor plate 1"</td> <td>armor plate" @ 30°</td> </tr> </tbody> </table>				Caliber (up to)	Thickness of Backstops (minimum)	Thickness of Side Plates (minimum)	Thickness of Steel plate in Baffling	.22 S/LR	1/4" @ 45°	3/16"	3/16" @ 30°	.38 wadcutter	3/8" @ 45°	1/4"	1/4" @ 30°	.45	1/2" @ 45°	3/8"	3/8" @ 30°	5.56mm (M193)	5/8" steel plate w/8" reinforced concrete	3/8"	3/8" @ 30°	5.56mm (M855)	1" hardened steel plate permanently affixed to backstop w/1" armor plate facing	armor plate 1"	armor plate" @ 30°
Caliber (up to)	Thickness of Backstops (minimum)	Thickness of Side Plates (minimum)	Thickness of Steel plate in Baffling																								
.22 S/LR	1/4" @ 45°	3/16"	3/16" @ 30°																								
.38 wadcutter	3/8" @ 45°	1/4"	1/4" @ 30°																								
.45	1/2" @ 45°	3/8"	3/8" @ 30°																								
5.56mm (M193)	5/8" steel plate w/8" reinforced concrete	3/8"	3/8" @ 30°																								
5.56mm (M855)	1" hardened steel plate permanently affixed to backstop w/1" armor plate facing	armor plate 1"	armor plate" @ 30°																								
5. Plate/sand trap type bullet stop is properly installed and joints and edge lines backed with a continuous 1/4" thick steel backing plate 4 inches in width or wider. (Critical if missing and joints and edge lines show signs of bullet damage.)	<input type="checkbox"/>	<input type="checkbox"/>																									
6. Plate/sand trap bullet stop is suspended by angle braces faced with wood to prevent ricochet or backsplatter. (Critical only if braces show signs of bullet damage.)	<input type="checkbox"/>	<input type="checkbox"/>																									
7. Bullet stop sidewalls are of steel or covered with steel plate. (Critical only if there is evidence of plate being punctured by bullets.)	<input type="checkbox"/>	<input type="checkbox"/>																									
8. Plate/sand trap type side plates extend vertically downward from the top edge of the bullet stop to the bottom of the sandpit to the bottom rear edge of the bullet stop. (Critical to protect building and adjacent areas.)	<input type="checkbox"/>	<input type="checkbox"/>																									
9. Side plates extend vertically downward from the top edge of the bullet stop to the bottom rear edge of the bullet stop. (Critical to protect building and adjacent areas.)	<input type="checkbox"/>	<input type="checkbox"/>																									
10. In high ceiling buildings where the plate/sand trap type of bullet stop has been installed, the rear wall above the stop is lined with 2" of wood (or 2 sheets of 3/4" plywood over a 1/8" steel plate to prevent shooting through the rear wall).	<input type="checkbox"/>	<input type="checkbox"/>																									
11. Pitted or bowed steel bullet stop plates are repaired by cutting out the damaged piece and welding in a new piece. (Critical to the extent that this condition may result in ricochet, backsplatter, or damage to the building walls.)	<input type="checkbox"/>	<input type="checkbox"/>																									
12. Welds are ground smooth to prevent backsplatter. (Self-explanatory; also should prolong life of the weld.)	<input type="checkbox"/>	<input type="checkbox"/>																									
13. Forward leading edges in a louvre or venetian-blind type of bullet stop are maintained "knife-sharp" to prevent ricochet. (Critical where leading edges are blunted and cause ricochets or backsplatter.)	<input type="checkbox"/>	<input type="checkbox"/>																									
14. On a plate/sand trap type of range, targets are not suspended in front of plate seams or welds. (Noncritical, except where seam/weld is damaged.) Reposition, relocate to correct.	<input type="checkbox"/>	<input type="checkbox"/>																									

SECTION 1 - BUILDING ENVELOPE (Continued)

	YES	NO	REMARKS
15. On ranges constructed prior to 1980, pipes, conduit, lights, lighting fixtures and other protecting surfaces in front of the firing line are baffled or covered with 3/4-inch plywood. <i>(Critical to protect items mentioned above and reduce maintenance costs.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Side wall windows or doors in front of the firing line are bricked in, baffled or otherwise protected with wood or steel. <i>(To prevent shooting outside of the building.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
17. On plate/sand type ranges, width of sandpit is determined to be adequate by dropping a plumb line from the edge of the bullet stop to the floor. <i>(Necessary to prevent damage to the floor.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Special Situation Type Comments:			
a. Range floor is constructed of wood and there is a room below, the floor in front of the firing line for at least 8 feet is covered with steel plate of 3/16-inch minimum thickness for .22 caliber and 1/4-inch for .38 and .45 caliber ranges. <i>(Where used, steel plate must be covered with a non-skid composition floor covering such as linoleum.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Wooden floor at firing line is covered with a non-skid composition floor covering to prevent powder from accumulating in cracks and presenting a fire hazard.	<input type="checkbox"/>	<input type="checkbox"/>	
c. Wooden ceiling is protected for 10 feet in front of <i>(extending from the firing line to the first baffle)</i> and 10 feet in back of firing line with 3/16" steel plate covered with 2" douglas fir planking or one sheet of 3/4" douglas fir plywood for .22 caliber and 1/4" steel plate for .38 and .45 caliber faced with 2 inches of douglas fir planking or 2 sheets of 3/4" plywood. <i>(Mandatory - where applicable.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Ceiling baffles are constructed and positioned properly to prevent shooting into the ceiling. <i>(Mandatory where ceiling design only utilizes one ceiling target light and no ceiling baffles.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Ceiling baffles are placed so they do not restrict vision or interfere with operation of the target carrier system. <i>(Self-explanatory.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Partitions or baffles extending from floor to ceiling between firing positions are used only when all positions are visible from the control point. <i>(Mandatory, but generally applies to the older ranges.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
19. Plate/sand trap type range - sandbagging, heavy padding or other means are used on the back of the bullet stop to reduce impact noise.	<input type="checkbox"/>	<input type="checkbox"/>	
20. Range illumination eliminates undesirable contrasts between bright target and dark surroundings. Fifty foot candles or better are desired. <i>(Desirable, but noncritical.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
21. Lower edges of overhead lighting protection baffles do not interfere with shooters' seeing up range. <i>(CRITICAL - shooters cannot hold a correct sight picture if they must bend over to see under the baffles. Applies to handgun and off-hand rifle shooting.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
22. On pistol ranges, center of target is on a line extended 5% above firing position to and through the target. <i>(Noncritical but a height below or above this makes it more difficult to hit the target.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
23. On rifle and pistol ranges, target heights of 18" and 5' are provided. <i>(Noncritical but desirable.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
24. Target holders are constructed of round bar metal stock without any flat surfaces exposed to the firing line. <i>(Exposed flat surfaces can cause ricochet or backscatter.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
25. Targets are numbered to coincide with numbered firing positions. <i>(Essential to ensure firing on proper target.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
26. Range is equipped with floor drain and trap to facilitate cleaning by wet methods.	<input type="checkbox"/>	<input type="checkbox"/>	

SECTION II - ENVIRONMENTAL CONSIDERATIONS			
	YES	NO	REMARKS
27. An industrial hygienist has determined that the installed ventilation system is acceptable. This determination shall be based on measurement of exhaust and supply air volumes, air velocity at the firing line, downrange transport velocity, and observation of turbulent flow. NOTE: When ventilation is inadequate, the range must be closed or exposure controlled per Table of Lead Exposure Limits until corrective action can be taken.	<input type="checkbox"/>	<input type="checkbox"/>	
28. Personnel assigned or detailed to work in the firing range on a permanent basis are enrolled in a Medical Surveillance Program and in a Hearing Conservation Program. NOTE: Personnel will not be permitted to work in firing range unless the foregoing medical requirements are satisfied.	<input type="checkbox"/>	<input type="checkbox"/>	
SECTION III - OPERATIONAL SAFETY			
29. Plate/sand trap type bullet stop has a layer of clean sand used to catch deflected lead 6" to 8" deep running the width and in front of the stop. <i>(Required to attenuate bullets, prevent ricochet and backsplatter.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
30. Sand is screened regularly to remove lead and reduce the possibility of backsplatter. Lead analysis is required before disposal of sand. <i>(Frequency of firing will determine amount of lead bullet-mass buildup and frequency of cleaning required.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
31. When using a sand-filled "crib" type of bullet stop, slope is maintained at a 1:1 slope ratio. <i>(This will provide best bullet attenuation.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
32. Door openings into the range <i>(from the outside or adjacent rooms)</i> in front of the firing line are secured from the inside to prevent personnel from entering while firing is in progress. <i>(MANDATORY from a life safety standpoint. Where possible, doors should be locked/secured and keys controlled.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
33. Ventilation system is in operation when range is in use and during cleanup. <i>(MANDATORY - no exceptions.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
34. Cleaning of the range is accomplished by vacuuming or wet methods. HEPA filters are required on vacuum cleaners. <i>(Dry cleaning methods, i.e., use of a hand broom, with or without sweeping compound, are prohibited.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
35. Personnel assigned or detailed to work in the range are required to wear a NIOSH approved respirator <i>(for the removal of lead dust and fumes)</i> while cleaning, repairing, or reclaiming lead from bullet trap. <i>(MANDATORY - TB MED 502, 15 February 1982, Occupational and Environmental Health, Respiratory Protection Program, Table 2, Part 1, Dust, Fume, and Mist Respirators, lists respirators and filters suitable to provide protection against lead exposure.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
36. Smoking and/or the consumption of food/beverages in the range is prohibited to preclude the ingestion of lead into the body. <i>(Should be included in prefiring orientation and appropriate signs should be posted.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
37. Firers are advised to wash hands thoroughly after firing.	<input type="checkbox"/>	<input type="checkbox"/>	
38. All personnel permitted in the range during weapons firing are required to wear appropriate hearing protection devices, i.e., firers, coaches, spectators <i>(where permitted)</i> and assigned/detailed operating personnel. <i>(Failure to comply is basis for removal from range.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
39. Personnel assigned to, or employed full-time at the range, are enrolled in a hearing conservation program <i>(TB MED 501)</i> . <i>(MANDATORY - base level audiogram must be made prior to beginning work in the range and periodically as prescribed by the Support Activity Command Surgeon.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
40. All drapery has been removed from firing range. <i>(Noise attenuation capability of drapery is questionable, and it collects lead dust.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	

SECTION II - OPERATIONS SURVEY (Continued)

	YES	NO	REMARKS
41. Range signs are posted denoting Caution in handling weapons and stating the conditions under which the range may be used <i>(to include weapons and ammunition authorized to be fired)</i> . (MANDATORY)	<input type="checkbox"/>	<input type="checkbox"/>	
<p>RANGE SIGNS</p> <p>a. An easily read "Caution" sign will be prominently posted near the firing line of each indoor range. The color, size, and design of the sign will conform to guidance provided in American National Standards Institute (ANSI) Z535 "Safety Color codes.</p> <p>b. The sign will carry the following message with wording modified, as appropriate, for caliber of ammunition and types of weapons authorized:</p> <p>CAUTION! USE OF THIS RANGE FACILITY IS RESTRICTED TO SUPERVISED FIRING WITH <i>(Select from the following: RIFLE CAL .22; PISTOL CAL .22; PISTOL CAL .38; PISTOL CAL .45)</i> WITH SOFT NOSED LEAD OR LEAD ALLOY AMMUNITION ONLY.</p> <p>c. Large numbers, indicating target position, will be painted on the top of the steel plate bullet stop above the top target position, or painted on wooden boards installed above the top of the bullet stop plate, or painted on front backing material above the targets.</p> <p>d. Signs specifying who may use the range, under what conditions, and under what controls will be posted.</p>			
42. Signs are posted requiring all personnel to wear hearing protection. (MANDATORY)	<input type="checkbox"/>	<input type="checkbox"/>	
43. Quick-draw type firing and/or hip shooting is prohibited. (MANDATORY)	<input type="checkbox"/>	<input type="checkbox"/>	
44. Only authorized paper targets are used. <i>(Use of nonstandard targets can produce ricochets.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
45. Where space permits and spectators are authorized, they are physically separated by a railing from the firing line. <i>(MANDATORY to preclude any interference with firing controls.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	

SECTION IV - REMARKS

46. NAME OF INSPECTOR	48. DUTY STATION
47. TITLE AND GRADE OF INSPECTOR	
49. SIGNATURE OF INSPECTOR	50. DATE (YYYYMMDD)