



## Local and National Council Range Designs for Shooting Sports

The Boy Scouts of America in all program divisions use responsible outdoor activities to promote character development and values-based leadership training. Shooting sports can attract and retain youth in the movement. Millions of young people participate in one or more of the shooting sports annually including: archery, rifle shooting, shotgun activities, and are guided by adult volunteers who have the skills and knowledge to provide quality programs in a safe and effective way.

As your council continues to offer the BSA – approved shooting sports programs it is important you make sure your equipment and ranges meet the current standards.

The BSA has been around for over 100 years and many of our camps were built more than 50 years ago so it is necessary to review your facilities annually to ensure they meet the newest standards.

Your council should first decide which program or programs you will offer and then design a range to fit that program.

- A major consideration is the number of participants you plan to serve in program; attempting to offer all our programs through one range will not provide enough range-time to satisfy the demand from participants.
- Additionally, the best practice is to have a range designed and operated specifically for the program.

Here are the traditional programs we have offered through the years and things to consider as you evaluate your facility are:

1. A rifle range using a .22 caliber rimfire rifle and shooting from a bench rest or supported prone position at 50 feet so having a range designed and operated specifically for this program is the best solution.
2. A pistol range using a .22 caliber pistol and shooting from a standing, bench rest or supported prone position at up to 25 feet so having a range designed and operated specifically for this program is the best solution.

3. A shotgun range using 12 or 20-gauge ammunition containing No. 8 shot or smaller is recommended on ranges with protected down range of 600 feet. Additional down range distance of 150 feet (total 750 feet) is required for No. 6 shot size, so having a range designed and operated for this program is the best solution.
4. An archery range with targets from 10 yards to 50 yards from the shooting line. A range must have an additional 100 feet cleared safety area for a total of 250 feet from the shooting line, so having a range designed for this program is the best solution.
5. Muzzle Loading Rifles (Black Powder) may be used to qualify for the Rifle Merit Badge or Outpost Evening Programs. National Camping Schools (NCS) will certify participants in NRA Muzzle Loading Rifle only.

Here is a list of programs that are new-comers to our program and have their own requirements for ranges.

1. \_\_\_ Multi-gun airsoft
2. \_\_\_ Chalkball
3. \_\_\_ Action Archery
4. \_\_\_ Cowboy Action
5. \_\_\_ Sporting Arrows

Experience has shown each program is very popular with high demand to participate. Fulfilling the demand for each is difficult without dedicated range for each program.

As you plan to design or upgrade your current facilities, consider whether you have or need to acquire or create the following.

1. \_\_\_ A design that will contain all rounds fired within the range.
2. \_\_\_ Standard Operating Procedures (SOP)
3. \_\_\_ Program Hazard Analysis (PHA)
4. \_\_\_ Correct side berm height
5. \_\_\_ Correct back berm height
6. \_\_\_ Baffling to reduce "Blue Sky" and possibility of bullet not being contained
7. \_\_\_ Handwashing station (wash lead off hands after shooting)
8. \_\_\_ Restrooms located near the range
9. \_\_\_ Gun Locker/Safe
10. \_\_\_ Ammunition Locker/Safe
11. \_\_\_ Archery back stop netting
12. \_\_\_ Ground quivers
13. \_\_\_ Bow locker/Safe
14. \_\_\_ Arrow locker/Safe
15. \_\_\_ Target Butts
16. \_\_\_ Target faces that fit your target butts.
17. \_\_\_ Buildings or tarps
18. \_\_\_ Firing line (wood or concrete floor)
19. \_\_\_ Compliance with local and/or state laws on design, construction and operation.

Guidelines established as minimum standards are listed below. Your council should engage an architect or engineer locally to ensure their final design incorporates local geography, and you are meeting all local standards and laws for your county or state. Designing an all-purpose range is not desirable because of the specific differences in the disciplines.

1. Side Berms have an 8-foot minimum
2. The rear berm height must be at least 20 feet high. If there is any risk to something behind the berm and within range of the bullet (1 mile for 22 caliber, more for higher caliber) reaching 25 feet or more.
3. Side by side ranges require separation by minimum 8-foot high berms.
4. Rifle and pistol ranges side by side can create several additional complications, e.g. different firing lines, shooters who are down range retrieving targets are in front of the firing line of other range. The Program Hazard Analysis (PHA) will address the potential hazards and must be addressed in the Standard Operating Procedures (SOP's) of the range(s).
5. Building materials can include: filled concrete block, concrete, and wood with special considerations to the quality of the wood and construction. Railroad ties are not suitable because of the possibility of soft spots and ricochets.
6. The use of baffles can reduce the height of back and side berms if designed and constructed properly.

To ensure that the projectiles are contained within the range, you must consider engineering solutions such as:

- natural ballistic walls
- canopies
- baffles
- natural terrain
- existing surface danger zone (SDZ)

The general administrative tools that enable you to operate a safe range are Standard Operating Procedures (SOP), training, shooter-to-instructor ratio, Program Hazard Analysis (PHA) and other factors to be considered.

- Outdoor ranges should be oriented to eliminate firing into the sun.
- The range should be oriented to the north or slightly to the northeast. The ideal direction is between due north and 25 degrees northeast.
- Administrative controls such as use of the low-ready position or engineered controls such as muzzle traverse/elevation limiters can be used to control the firearm.
- Natural terrain such as a mountain or a hill provides an excellent backstop for firing. The terrain should be high enough to capture rounds fired at up to a maximum 15-degree muzzle elevation.