

Section 3- STANDARD OUTDOOR HANDGUN RANGES

3.1 Introduction

The standard outdoor handgun range can have different configurations, dependent on the intended shooting activities. These ranges have a firing line or firing line(s), a target area, a suitable backstop and a downrange danger area. They may also have other features such as covered firing points, target mechanisms etc. Refer to Figure 16.

Standard outdoor handgun ranges can be configured to have traditional firing lines, such as would be used for ISU-style shooting, or they can be configured to have the active range area for a more extensive firing area, such as with IPSC-style handgun shooting. However, in many cases outdoor handgun ranges are used for both purposes.

Except where noted, all the requirements of this section apply to both range configurations. If the outdoor handgun range is used solely for action shooting (e.g. IPSC) then Section 3.3 does not apply; however, Section 3.5 does apply. If the range is used for both fixed firing line activities and for action shooting, then all requirements of this section would apply.

3.2 Backstop Design And Construction

Backstops are designed to capture as many fired bullets and low flight ricochets as possible. Those bullets (overshoots and ricochets) that pass beyond the backstop shall be contained within the downrange danger area, within the design limits of the range.

A backstop consists of a raised mound of earth, or a suitable natural feature, behind the target(s). The design and construction of the backstop must meet criteria, which have been established to promote bullet capture. The dimensions, construction and location of the backstop are of critical safety concern to the design of this type of outdoor range.

Backstop Height

The required minimum height of the backstop is related to the Coff and the intended firing distance(s).

The top of the backstop is referred to as the “crest”. The backstop height is measured from the crest to where the range floor meets the backstop base.

Table.6 contains the minimum backstop heights versus the intended firing distances.

Maximum Firing Distance	Minimum Backstop Heights
15 metres or less	3 metres
25 metres	5 metres
50 metres or more	15metres

Table 6 - Outdoor Handgun Range Minimum Backstop Heights.

Any reduction to backstop heights must be based on an approved Cone of Fire (CofF)

Backstop Crest Length

The length of the backstop crest must exceed the outside edge of both the left and right flank (outside) target lanes. The amount that it must exceed the centre of the flank target lanes is dependent on the distance to the backstop (from the firing line). Refer to Table 7 for flank extension distances. Refer to Figure 10.

Firing Distance	Max. Distance To Backstop	Min. Flank Extension
15 metres or less	18 metres or less	1.5 metres
20 metres	23 metres	2.0 metres
25 metres	28 metres	2.5 metres
50 metres or more	53 metres or more	4.5 metres

Table 7 - Outdoor Handgun Range Minimum Crest Flank Extensions

Backstop Crest Thickness

The thickness of the backstop, at the required minimum height must be at least 1.0m.

3.3 Firing Points / Firing Lines / Firing Lane Marking

Firing points are the specific locations from which individual shooters engage their targets. They are intended to control the location from which shooters fire and help to direct their firing.

A firing line is a group of individual firing points with a common attribute (e.g. distance to the targets).

Firing Line Distances

Firing lines can be located at any distance from the targets, as dictated by the shooting discipline that the range was designed to accommodate.

Firing Line Marking

Each major firing line must be clearly marked with a distance marker, which indicates the distance to the targets (e.g. 100 metre). The marker must be clearly visible to shooters using the firing line.

Shooting can occur from distances other than specifically defined firing lines, unless prohibited by the Range Operating Instructions or the Range Approval.

Firing Point and Target Numbers

All firing points and target positions shall be numbered. The numbering is intended to:

- a) assist shooters to locate their correct target and firing point;
- b) reduce the possibility of unintentional cross-firing between lanes; and
- c) reduce the possibility of firing outside of the approved horizontal firing arc.

The firing point and target “numbers” can be either composed of numbers or letters, as long as each firing point is uniquely identified. When the range is organized into multiple banks of similar numbered targets, then each bank must also have a unique identifier (e.g. target “A5” - target bank A, target 5).

Each firing lane shall be marked with clearly visible numbers located at the target line and at least one firing line, usually the most distant one. These numbers must be large enough to be readily visible with the unaided eye (e.g. not requiring the use of a spotting scope) from the distance at which they will normally be viewed from. Therefore, the firing point numbers can be relatively small as they will be viewed from a close distance by the shooters; however, the target line numbers must be larger to accommodate them being viewed at the distance for which the range was designed for (e.g. 100 m).

Target numbers cannot be situated on a backstop such that any part of them is above the backstop crest. It is recommended that they be placed in front of the targets or immediately above them.

Firing Point Spacing

The spacing of firing points along the firing line must be large enough that:

- ❑ shooters do not interfere with each other during firing; and
- ❑ the Range Officers can conduct their duties (e.g. supervise shooters, clear firearms or to otherwise assist hooters as needed).

However, the firing point spacing must not be so large that the Range Officer cannot maintain adequate control of the firing line.

Having the correct firing point spacing for the intended range use will minimize shooter errors (e.g. cross-firing) while promoting the optimum use of range facilities. Firing point spacing is the measured distance centre-to-centre between adjacent firing points.

There are competition regulations from various shooting organizations that have minimum spacing requirements that specify the minimum allowable distance between adjacent firing points. Those requirements may be different from the spacing recommendations provided in Table 8 & 9

Table 8 & 9 contains the recommended minimum spacing between adjacent, single shooter occupied, firing points.

Firing Point Use	Recommended Min. Spacing
Standing	1.0 metre
Kneeling	1.5 metre
Barricade	1.5 metre
Prone	2.0 metres

Table 8 - Recommended Mm. Firing Point Spacing (Handgun Range)

Firing Point Use	Recommended Min Firing Point Depth	Recommended Min Range Officer Area	Recommended Min Total Depth
Rim-fire Handgun	1.5 metres	1.0 metre	2.5 metres
Centre-fire Handgun	1.5 metres	1.0 metre	2.5 metres

Table 9 - Recommended Firing Line Depth (Handgun Range)

3.4 Range Floor

The floor of a range is defined as the space between the firing line(s) and the most distant target line.

The range floor (between firing line and target line) shall:

- ❑ be as level as is practical;
- ❑ not contain any large obstructions (excluding backstops);
- ❑ not contain any large exposed rock outcroppings; and
- ❑ not contain unsheltered standing bodies of water or rivers/streams.

If the range floor contains a body of water that cannot be drained or diverted from the active range area, then a berm or shelter shall be constructed such that the water cannot be struck by a shot fired from any intended firing location.

The range floor may slope downwards towards the target line. This serves to move the Coff intersection point with the range floor further downrange and it will help direct ricochets into the backstop, not over top of it.

3.5 Firing Areas and Target Areas

If the range is configured solely for action shooting (e.g. IPSC events), this section applies and supersedes Section 2.3. In this case, the range is configured to have all or a portion of the active area used for a firing area and a target area instead of specific firing lines and target lines.

In this configuration the active range area does not have defined firing lines or target lines; however, there are requirements that must be met to ensure that the range design is not unintentionally exceeded by range users.

The perimeter of the active range area to the rear, at the backstop and on both sides shall be marked. The side markers shall be at intervals no greater than 1/5 of the maximum firing distance (e.g. for a 100 metre range, the maximum marking interval shall be 20 metres). They shall indicate the distance from the backstop. The rear and backstop markers shall be at no more than 5 metre intervals and shall indicate the distance from one (reference) side of the range.

These markers are to assist shooters and Range Officers to ensure that all shooting occurs within the acceptable arc(s) of fire for the range.

The Coff of all shooting shall be directed into a backstop, not beyond the flanks of the

backstop, nor over top of the backstop. The Range Standing Orders [RSO] shall reflect these horizontal and vertical restrictions. These restrictions shall be reduced to simple angle or distance operating rules that can be applied by shooters using the range (e.g. \pm 2 targets at 50 metres and \pm 1 target at 10 metres).

Targets shall be placed as close to the backstop as practical.

The intended firing area(s) shall provide the shooters secure footing.

For the purposes of determining backstop flank extensions, the left and right edge of the active range area are equivalent to the outside edges of the flank firing lanes.

3.6 Berms

Earthen Berms

For the purposes of these guidelines a berm is defined as a significant raised mound of earth associated to a range. They are usually intended to.

- prevent movement of people/animals onto the active range area
- reduce the likelihood of an errant shot escaping the active range area
- separate adjacent ranges and protect people in areas adjacent to the range
- protect buildings or equipment (e.g. a target shed)

Berms are not to serve as backstops. If the planned arcs of fire are such that the Coff will cover a berm, then a properly constructed backstop is required in that location.

The core of a berm can be constructed from any solid materials including: soils; roots; rock; or asphalt. However, if the berm core is composed of hard materials (e.g. rock rubble) then the face of the berm shall have at least a 1 m thick layer of soil covering these materials.

The use of large quantities of tires in berm construction is strongly discouraged because of the potential environmental impact that they can have (e.g. pollution generated by a tire fire). Due to their construction, tires can cause ricochets and dangerous backslash. If tires are used in berm construction, then they are to be treated in accordance with hard materials and covered.

The berm face can be terraced to accommodate local soil conditions or site features. If terraced, the horizontal step surfaces must slope to the rear (into the berm) with an angle of approximately 5 Deg (1:12) or more. This will aid in drainage and prevent ricochets off of these surfaces. Refer to Figure 12.

Timber can be used to stabilize a berm.

The berm face must be free of major outcroppings of rock or other hard materials.

The growth of ground cover (e.g. grass, clover or similar vegetation) should be encouraged on berms to reduce erosion effects.

If used to separate adjacent ranges, earthen berms shall:

- have a minimum height of 2.5 metres, measured from the range floor;
- have a minimum face slope of 30 deg, relative to the horizontal;
- have a minimum crest thickness of 1.5 metres; and
- join to at least one backstop.

Side berms can also be used to shelter adjacent areas where people or equipment are likely to be. If used to protect adjacent areas, earthen berms shall:

- ❑ have a minimum height of 2.5 metres, measured from the range floor;
- ❑ have a minimum face slope of 30 Deg, relative to the horizontal;
- ❑ have a minimum crest thickness of 1.5 metres; and
- ❑ be of sufficient length to shelter the adjacent area.

If used to separate adjacent range areas or to shelter adjacent areas the crest of the berm shall not have any trees, poles, or other similar features positioned such that a ricochet could be directed into the adjacent area.

Man-made Material Berms

Man-made material berms are frequently used for the same reasons as earthen berms. However, they are primarily made from man-made materials (e.g. wood or concrete). They can also be used in conjunction with earthen berms to augment the overall height or length.

If used to separate adjacent ranges manmade material berms shall:

- ❑ rise vertically; and
- ❑ have a minimum height of 2.5 metres measured from the range floor.

Man-made material berms shall be of such construction that they will defeat the maximum calibre of cartridge for which the range was designed. There shall not be any gaps in protection along the length of a manmade material berm.

If tires are used for manmade material berms then the tires shall be:
arranged in columns;

- ❑ staggered and overlapped to provide uniform, gap-free coverage;
- ❑ filled with soil or sand;
- ❑ securely supported and configured to prevent toppling, sagging or leaning;

3.7 Danger Area Templates

The danger area templates to be applied to this type of range are located in Appendix A.

3.8 Targets and Target Holders

For this type of range, the choice of targets and target holders rests with the Range Operator.

Notwithstanding the above provision, to reduce the probability of bullet ricochet and backsplash off of the target holders it is recommended that when practical: low ricochet materials such as plastic or wood be the primary construction materials; and they not be constructed of unsheltered metal members; however, metal fittings can be used.

For example target holder designs refer to Figures 14 and 15.

When practical, it is recommended that the target backers be made of, plywood, heavy cardboard or similar materials.

If hard material targets (e.g. steel targets) are used:

- the range users must be aware of the minimum safe firing distance from these targets. Firing at distances less than the safe limit will expose shooters to the risk of injury from bullet backsplash. Refer to Section 2.10 of these guidelines;
- the targets shall not be of such a design (e.g. concave) that would direct ricochets or backsplash towards the shooters; and
- it is recommended that the targets be of a flat steel design, constructed of materials of sufficient hardness not to significantly crater from bullet impacts. Refer to Section 9.7 for information about steel specifications for indoor range backstops. This information can be applied to steel target specifications