Introduction to ISSF Shooting Venue Planning Guide

The ISSF receives many requests for assistance from our member federations to provide guidelines when new shooting ranges are being planned. Up until now we have had very little useful information to send although recognizing the importance of having such a manual to provide guidance, prompted us to publish this document.

The ISSF commissioned a firm of architects to produce a set of model drawings for the ideal ranges for each shooting discipline. Alongside these drawings, guidelines were put together in order to highlight the important stages of decision making that are required when considering the construction of world class shooting ranges.

The ISSF is pleased to inform you that the commissioned architects agreed to help if requested. Therefore, please get in contact with them directly if you wish.

Of course, ranges come in all shapes and sizes, depending on their intended use and the budget available. We have seen in recent Olympic shooting venues where immense pressure has been put on saving costs when constructing the venues. In London 2012, not only were temporary ranges built but for the first time we saw 10m and 50m ranges combined. In Tokyo 2020, it is likely that the Finals Hall will also provide the venue for the 25m Qualification Range. Such factors make the early decision making stages all the more important. Financial constraints will continue to play a part in the development of future ranges and you can expect to see such factors as they develop, being included in this manual as they become relevant.

We are delighted to see this document come to fruition. Whilst we are certain that the advice given in this manual will be well received, we would ask member federations to forward any information regarding factors that they experience during construction that might be of interest to others following in their footsteps.

We hope this document will help you to plan and construct your shooting range. If you have any questions, comments or advice, please do not hesitate to contact the ISSF Headquarters and we will try to find a specific person in charge to help you.

Olegario Vázquez Raña
ISSF President

Franz Schreiber
ISSF Secretary General
INTRODUCTION.

This document is provided for national shooting federations, governing authorities and other organizations that are planning to develop a shooting venue that complies with ISSF Regulations, Rules and Requirements. These Shooting Venue or Range Planning Guidelines include a series of questions that the venue planning group must answer before appointing an architect and beginning the preparation of detailed plans that are required before a construction firm(s) can be appointed.

Definitions used in these Guidelines are:

- **ISSF.** The International Shooting Sport Federation. The ISSF is the world governing body for shooting and is recognized by the IOC as the “International Federation” (IF) for the Olympic sport of shooting.

- **ISSF Championship.** A major international shooting competition that is directly supervised by the ISSF. ISSF Championships are the Olympic Games shooting events, ISSF World Shooting Championship, ISSF World Shotgun Championship, ISSF World Cups, ISSF World Cup Finals, Continental Shooting Championships and Continental Games shooting events.

- **EST.** Electronic scoring targets. EST are used for Rifle and Pistol event scoring.

- **FOP.** Field of Play. The area where athletes shoot and where accredited competition officials can work.

- **NOC.** National Olympic Committee.

- **NF.** The national shooting federation in a country; also the ISSF Member Federation.

- **Range.** A shooting range is a facility within a shooting venue where shooting activities associated with one or more shooting disciplines can be conducted safely and in accordance with ISSF or NF rules and regulations.

- **Venue.** A shooting venue is a complex of shooting ranges with the administrative and logistical facilities necessary to support training and competition activities that take place on those ranges.

- **WCH.** World Shooting Championship.

- **WC.** World Cup (Shooting).

References in this document to numbers (i.e. 3.2) refer to specific sections in the ISSF Rules and Regulations, Edition 2017, 2nd Print 01/2018).
QUESTIONS VENUE PLANNERS MUST ANSWER BEFORE PROCEEDING WITH A RANGE DEVELOPMENT PROJECT.

A. WHO WILL BUILD, OWN AND CONTROL THE SHOOTING VENUE? IF THE GOVERNING AUTHORITY IS NOT THE NATIONAL SHOOTING FEDERATION, WHAT IS THE RELATIONSHIP OF THE GOVERNING AUTHORITY TO THE NATIONAL FEDERATION?

VENUE GOVERNING AUTHORITY. Before the planning of a shooting venue can begin, the governing authority or owner of this potential venue must be identified.

A.1 ISSF Rules. ISSF Rules do not establish any requirements regarding the governing authority or owner of shooting venues, except that if the national federation where the venue is located expects to apply to host an ISSF Championship, the venue must comply with ISSF Rules. Applicable ISSF Rules include Rule 3.5, “Ranges and Other Facilities,” in the ISSF General Regulations and Rule 6.4 the ISSF General Technical Rules.

A.2 Possible Governing Authorities. The governing authority that builds, owns and controls a shooting venue may be one of or a combination of the following:

A.2.a National Shooting Federation. While funding to build a venue may come from other sources such as the government or NOC, the NF will have actual control of the venue and how it is used.

A.2.b National Olympic Committee. The NOC may build and control a shooting venue as part of its efforts to develop Olympic sports.

A.2.c Ministry of Sports or Other Government Body. A government with the responsibility for developing sports in a country may fund and build a shooting venue, usually in cooperation with the NF that controls venue operation.

A.2.d Military or Police Authority. The Ministry of Defence or a military command may establish a shooting venue to support its own shooting program and to make this venue available for wider use by the NOC or NF.

A.2.e Regional or City Government. A regional (state, province) or city government may fund and build a shooting venue for the purpose of developing sports or obtaining the economic impact and prestige of attracting events to that region. An NF or regional or city shooting organization usually operates these venues.
A.2.f **Shooting Club.** A large shooting club with land and access to private or government resources could develop a shooting venue that is larger than what is needed to support its own club activities.

A.2.g **Private Owner.** A private individual, often with assistance from a government grant, could build a major shooting venue. A private owner who operates a shooting venue on a for-profit basis could be a venue owner although the potential for earning profits from a shooting venue that supports ISSF events is very limited. Without government subsidies, making a profit from such a venue is very unlikely.

A.3 **ISSF Recommendation.** While ISSF Rules do not require that ranges proposed as ISSF Championship venues be owned and controlled by the NF, the ISSF strongly encourages all venue development projects to be structured so that the NF either owns or controls the venue or that the NF has a positive working relationship with the venue owner that gives the NF ready access and full opportunities to use the venue for NF programs and future ISSF Championships.

**B. WHY DO YOU WANT TO BUILD A SHOOTING VENUE?**

**REASONS FOR BUILDING A SHOOTING VENUE.** Before a governing authority can make an initial decision regarding the construction of a shooting venue, governing authority decision makers must have a clear understanding of the objectives to be achieved and the benefits that come from having a shooting venue. This stage of the planning process requires answering the question, “why do we want to build a shooting venue?” The primary reasons can include all or some of the following reasons:

B.1 **Sport Development.** One of the great ways to improve the living conditions of the people in a city, region or nation is to encourage them to learn and practice sports. Sports participation provides physical and mental health benefits for the community. Olympic sports like shooting promote participation in a challenging sports activity that stresses the benefits of hard work and the development of concentration and coordination skills, self-discipline and self-control.

B.2 **Olympic Athlete Development.** An important national and sports ministry priority in many nations is to develop athletes who can qualify to participate in international competitions in the Olympic sports. The development of international class athletes requires international class facilities where these athletes can train and compete.
B.3 **Provide a Competition Venue.** The development of a sport in any city, region or nation is not possible without having a venue or venues where competition in that sport can take place. The presence of a venue promotes participation and especially youth participation as well as the development of athletes, coaches and judges in that sport. When good competitions are available, the performance standards of participants in that sport are raised.

B.4 **Prestige of Hosting International Events.** Cities and nations acquire recognition and prestige when they host important national and international sports events.

B.5 **Economic Impact from Shooting Events.** National and international shooting competitions bring many participants into a host city. An ISSF World Cup, for example, that brings 300 participants and 200 team officials into a city for a week will have an estimated economic impact on that region of EUR 500,000 to EUR 1,000,000.

B.6 **Initial Venue Decision.** After the governing authority of the potential shooting venue is identified, discussions about promoting the Olympic sport of shooting must take place. If these discussions conclude that an important objective for the governing authority’s support for shooting is to construct a venue that fulfills ISSF requirements, then an initial decision must be made to plan and build a shooting venue.

C. **WHAT ARE THE PRIMARY OBJECTIVES THAT THIS SHOOTING VENUE MUST SERVE?**

**VENUE PLANNING OBJECTIVES.** Before venue planning can take place, it is critically important to clearly establish what the competition and program objectives for the venue will be. Decisions regarding venue objectives determine which discipline ranges to build, how large the ranges will be, how large the spectator area should be, whether there will be a Finals Range and how large the administrative and logistical areas must be. The objectives and purposes for which a shooting venue will be built most likely will include the following:

C.1 **Host a World Shooting Championship.** The main World Shooting Championship (WCH) takes place every four years in a city chosen by the ISSF General Assembly. The WCH is a massive event that includes individual and team competitions for all ISSF male and female events and all ISSF male and female junior events. The event list includes 10m and 50m Running Target, 300m Rifle and Center-Fire Pistol events. Recent WCH have hosted over 2,000 athletes, 1,000 officials and many international guests from 90 or more countries. This requires a large venue in a city with a well-developed hotel and transportation infrastructure. The venue must also be well established as a venue that has previously hosted major national, continental and ISSF World Cup competitions.
C.2 Host Separate World Shotgun Championships. For the Shotgun discipline, there are Shotgun events in the WCH and there are also separate Shotgun World Championships, with junior and team events, in the odd numbered years.

C.3 Host ISSF World Cups. The ISSF Executive Committee selects cities and venues to host four Rifle-Pistol World Cups and four Shotgun World Cups each year. Usually one World Cup (WC) will combine Rifle-Pistol and Shotgun. The practice of the ISSF is to select one host city-venue in Asia and one in the Americas for the four WCs available in each discipline. WCs have individual competition only in the Olympic events. They can host 250 to as many as 800 or 900 athletes from 40 to 80 different countries.

C.4 Host Continental Shooting Championships. Continental shooting confederations choose Continental Shooting Championship host cities. They may take place annually or every four years depending upon the continent and the discipline. The size also depends upon the continent. Continental Championships in Europe and Asia tend to be as large as World Cups. In America they will be smaller and in Oceania and Africa they will be much smaller.

C.5 Host Continental Games Shooting Events. Africa, Asia and America have established Continental Games with shooting events that take place every four years in a host city selected by the continental confederation of NOCs. Europe had their first European Games in 2015 and shooting was included. Continental Games host cities are normally not chosen because of their shooting venues and it often becomes necessary to develop a permanent or temporary venue to support Games shooting events.

C.6 Serve as a National/Regional Shooting Venue. National or regional shooting venues are larger venues developed primarily to support and develop shooting in that nation and to host national and regional shooting competitions. The number of athletes who will be accommodated determines the size of the venue, but in making these projections it is important to look at least 10-15 years into the future and determine how many athletes there will be if the NF and its clubs or affiliated organizations do a good job of promoting shooting sport participation.

C.7 Serve as a Training Venue. This type of venue is one that is developed primarily to support the training of elite or sub-elite athletes. Frequently these ranges are established in connection with sports training centers where dormitory and food service accommodations are available for athletes selected to be part of the training program. The sizes of the ranges in the venue are determined by the maximum numbers of athletes who will train there.
C.8 **Serve as a Team or Club Venue.** These venues are also small and designed to support club or team practice and to host local competitions.

C.9 **Host Olympic Games Shooting Events.** This is a very special purpose that is not normally an objective of most shooting venue planning. The Olympic Games take place every four years in a city chosen by the IOC. Many special requirements apply to shooting venues used for the Olympics and much additional planning and discussion must take place between the Games Organizing Committee and the ISSF before Olympic venues are planned. Basic requirements for Olympic shooting venues are given in this document, but most additional detailed requirements are not included. In recent years, some Olympic shooting venues have been temporary ranges (London 2012). An appendix covering temporary ranges is in preparation for this Guide. We have seen continued pressure to reduce the costs involved when building Olympic shooting venues, this has resulted in London 2012 incorporating the 10m range within the 50m range and in Tokyo 2020, the 25m range will be incorporated within the Finals Hall.

C.10 **ISSF Recommendation.** A governing authority is certainly encouraged to plan and build a shooting venue that could be selected in the future to host World Cups or a World Championship, but the ISSF now receives many more World Cup applications than it can accept so the primary objective should be to build a shooting venue that will serve as a national/regional shooting venue. In doing that it is essential to build the venue ranges large enough that the venue could host a World Cup or Continental Championship. By using a venue to develop a large, dynamic national program with many athletes, coaches and judges will strengthen the position of the NF within the ISSF and increase the possibility of being chosen to host a WC or continental championship in the future.

D. **FUNDAMENTAL RANGE PLANNING DECISIONS.** After a decision is made to construct a shooting venue, there are some critical planning decisions that must be made:

D.1 **WILL THE SHOOTING VENUE BE A COMBINED VENUE FOR ALL THREE DISCIPLINES, FOR RIFLE AND PISTOL ONLY OR FOR SHOTGUN ONLY?**

**Type of Venue.** There are three fundamental disciplines within the sport of shooting, Shotgun (clay target), Rifle and Pistol. A shooting venue can be for Shotgun only, for Rifle and Pistol only or it can be a combined venue for all three disciplines.
D.2 WILL THE RIFLE-PISTOL RANGES HAVE ELECTRONIC TARGETS?

**Electronic Targets for Rifle-Pistol Ranges.** Some older ranges are equipped with paper target systems that use target carriers, target changing systems or turning targets. When cost is a major consideration in building a range for a club or team or for group training, paper target systems may still be necessary. ISSF Regulations (3.5.1.4) require the use of electronic scoring targets (EST) for all Rifle and Pistol events in the Olympic Games as well as in all Rifle and Pistol event Finals in World Championships, World Cups and Continental Games and Championships. Electronic targets offer huge advantages for the conduct of competition (instant, accurate results; no scoring personnel required) and the presentation of competition results. The ISSF recommends that any large range that may host major national or international competition have EST.

D.3 WILL THE VENUE HAVE A SEPARATE RIFLE-PISTOL FINALS RANGE?

**Separate Rifle-Pistol Finals Range.** ISSF Rules require that competitions in all Olympic events end with Final round stages for the top eight or six athletes in Preliminary or Qualification round stages. Finals are the high point of each event and attract many more spectators than Qualification stages as well as media coverage. Finals are often televised so the ranges where Finals take place must be configured for television productions. The Finals themselves are staged as productions where graphics and visual information are provided to spectators and the media. For Shotgun Finals, one of the ranges must be designated as a “Finals Range.” That range must have additional spectator seating. Rifle-Pistol Finals can either be conducted on a designated area within the 10m, 25m or 50m ranges or on a separate Finals Range. A separate Rifle-Pistol Finals Range is mandatory for the Olympic Games and almost certainly will be required for future World Shooting Championships. Today, most venues selected to host World Cups also have separate Rifle-Pistol Finals Ranges. A separate Finals Range adds additional cost to the venue project, but it offers many advantages in scheduling, spectator appeal and sports presentation.

The ISSF strongly recommends that any venue that may host major national or international competitions have a separate Rifle-Pistol Finals Range. As mentioned in C.9 at Tokyo 2020, the 25m Qualification stages will also be staged in the Finals Hall.
D.4 HOW LARGE SHOULD THE RANGES BE?

Size of Venue Ranges. A shooting venue is a complex of ranges that support shooting activities in one or more shooting disciplines.

In addition to deciding whether the venue will be for all disciplines, for Rifle-Pistol only or for Shotgun only (D.1 above), venue planners must decide how big each of the ranges in the new venue must be in accordance with the venue planning objectives identified by the venue owner. The next section (E.) provides basic requirements for determining the size of each of the ranges in the venue.

E. SHOOTING RANGES ON THE VENUE. Planning must identify each range that will be constructed on the venue and determine how large those ranges will be. The different ranges that may be planned and built are identified below together with guidelines for determining how large those ranges should be:
### E.1 Shotgun Ranges

Shotgun ranges are constructed as separate fields or ranges where shooting in Skeet, Double Trap and Trap events takes place. Shotgun ranges may be "combined" for shooting in all three events, or they may be separate ranges designed for Trap and Double Trap only, for Double Trap only or for Skeet only. For ranges that will be used for ISSF Championships, one of the ranges must be designated as the Finals Range and must have significantly larger spectator capacity. The chart below identifies the requirements for 1) the number of ranges, 2) spectator capacity recommendations and 3) special requirements.

<table>
<thead>
<tr>
<th>Venue Objective</th>
<th>No. of Ranges</th>
<th>Recommended Spectator Capacity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Championship</td>
<td>4</td>
<td>1,000 for Finals 200-500 for other ranges</td>
<td>A minimum of 5 ranges are now recommended for all WCH venues</td>
</tr>
<tr>
<td>World Cup</td>
<td>4</td>
<td>500 - 1,000 for Finals 100 - 200 seats for other ranges</td>
<td>5 ranges are recommended for World Cups in Europe and Western Asia</td>
</tr>
<tr>
<td>Continental Championships</td>
<td>2 - 4</td>
<td>500 for Finals 100 for other ranges</td>
<td>No. of ranges depends upon the continent</td>
</tr>
<tr>
<td>National/Regional Range</td>
<td>2 - 5</td>
<td>200-400 for Finals 100 for other ranges</td>
<td>No. of ranges depends upon projected participation</td>
</tr>
<tr>
<td>Training Venue Club/Team Venue</td>
<td>2 - 3</td>
<td>50-100 for each range</td>
<td>No. of ranges depends upon size of club/team or training group</td>
</tr>
<tr>
<td>Olympic Games</td>
<td>3</td>
<td>2,000-2,500 for Finals, with additional space for media &amp; commentators; 300-500 for Qualification Ranges</td>
<td>4-5 ranges are required if World Cups are planned</td>
</tr>
</tbody>
</table>
E.2 **50-Meter Rifle/Pistol Range.** Both Rifle and Pistol events are fired on 50m ranges. The firing distance for all events is 50m. The range design must provide for the following:

E.2.a **Covered Field of Play.** All 50m Rifle/Pistol ranges must have covered firing areas field of play (FOP), where the athletes are protected from sun, wind and rain (3.5.1.2). The firing line cover should be designed so that it also covers and protects the athletes and officials circulation area behind the firing points as well as the spectator area. The total covered FOP should include 1.5m for firing points, a 2.5m – 3.0m circulation area for athletes and officials. The cover should also be provided for the spectator stands behind the FOP.

E.2.b **Target System.** A basic decision concerns whether a range will have electronic scoring targets (EST), target carriers for paper targets or target changing mechanisms for paper targets (see D.2 above). EST will cost EUR 3,000 to EUR 4,000 per firing point. Paper target mechanisms will cost EUR 1,000 per firing point. The ISSF requires EST for all Championship venues.

E.2.c **Enclosed vs. Open Ranges.** An enclosed 50m range is enclosed with side and back walls and will have 3-4 baffles constructed above the firing area. Baffles are designed to prevent any unintentional shots from leaving the range area. Ranges with baffles are sometimes referred to as “safety ranges.” Open ranges have a covered firing line and spectator areas and usually have earthen backstops, but there is no means of preventing unintentional shots from going over the backstop and landing in an impact area behind the backstop. An open range must have a controlled impact area of 2.5 km. In order to build a shooting venue that is in or near a city, it is mandatory that an enclosed range be built. All 50m ranges used for ISSF Championships in recent years have been enclosed ranges.
E.2.d **How Large Should the Range Be?** Size requirements and recommendations for 50m ranges according to venue objectives are shown in the chart:

<table>
<thead>
<tr>
<th>Venue Objective</th>
<th>No. of Firing Points</th>
<th>Recommended Spectator Capacity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Championship Qualification Range</td>
<td>80</td>
<td>500 seats for a Qualification Range</td>
<td>A separate Finals Range will be required for all future WCH</td>
</tr>
<tr>
<td>World Cup</td>
<td>60</td>
<td>200 - 400 for a Qualification Range</td>
<td>80 firing points are necessary for World Cups in Europe and Eastern Asia</td>
</tr>
<tr>
<td>Continental Championships</td>
<td>30 - 60</td>
<td>200 - 300 for a Qualification Range</td>
<td>A minimum of 60 firing points are required in Europe and Asia, 40 in America</td>
</tr>
<tr>
<td>National/Regional Range</td>
<td>40 - 80</td>
<td>200 for a Qualification Range</td>
<td>No. of firing points depends upon projected participation</td>
</tr>
<tr>
<td>Training Venue Club/Team Venue</td>
<td>20 - 40</td>
<td>100 - 200</td>
<td>No. of firing points depends upon size of club/team or training group</td>
</tr>
<tr>
<td>Olympic Games Qualification Range</td>
<td>60</td>
<td>1,000 - 1,200 with additional media space</td>
<td>80 firing points are preferred in order to accommodate WCs</td>
</tr>
</tbody>
</table>
E.3  **25-Meter Pistol Range.** 25m Pistol ranges host only Pistol events. The firing distance for all events is 25m, but since Center-Fire Pistol events may be fired on this range the backstop must be more robust and greater noise suppression must be considered. 25m targets are installed in groups of 5 targets in order to facilitate the firing of the 25m Rapid-Fire Pistol event. The 25m range design must provide for the following:

E.3.a  **Covered Field of Play (FOP).** All 25m Pistol ranges must have covered firing lines where the athletes are protected from sun, wind and rain (3.5.1.2 & 6.4.11). See E.2.a above.

E.3.b  **Target System.** A basic decision concerns whether a range will have electronic scoring targets (EST) or turning targets that use paper targets (see D.2 above). EST will cost EUR 20,000 per 5-target group. Paper target mechanisms will cost EUR 5,000 per 5-target group. The ISSF requires EST for WCH and WC venues.

E.3.c  **Enclosed vs. Open Ranges.** See E.2.c above.

E.3.d  **Divided or Open Range** (6.4.11.5). 25m Pistol ranges are designed so that all target groups on a range can operate together or sections of two 5-target groups can be operated separately. The entire range is usually operated as one range for competitions, but in training, the two-target group units are often operated separately and are configured for different events. In addition, when paper targets are used, it is necessary to move range personnel downrange to score and repair targets. To facilitate target scoring and separate operation, many 25m Pistol ranges have been built with walled walkways between every two groups of targets.
### How Large Should the Range Be?

Size requirements and recommendations for 25m Pistol ranges according to venue objectives are shown in the chart:

<table>
<thead>
<tr>
<th>Venue Objective</th>
<th>No. of Target Groups</th>
<th>Recommended Spectator Capacity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Championship Qualification Range</td>
<td>10 groups 50 targets</td>
<td>400 seats for a Qualification Range</td>
<td>A separate Finals Range will be required for all future WCH</td>
</tr>
<tr>
<td>World Cup</td>
<td>8 groups 40 targets</td>
<td>200 - 300 for a Qualification Range</td>
<td>10 groups may be necessary for World Cups in Europe</td>
</tr>
<tr>
<td>Continental Championships</td>
<td>6 - 8 groups</td>
<td>200 - 300 for a Qualification Range</td>
<td>A minimum of 60 firing points are required in Europe and Asia, 40 in America</td>
</tr>
<tr>
<td>National/Regional Range</td>
<td>6 - 10 groups</td>
<td>100 - 200 for a Qualification Range</td>
<td>No. of firing points depends upon projected participation</td>
</tr>
<tr>
<td>Training Venue/Club/Team Venue</td>
<td>4 - 6 groups</td>
<td>50</td>
<td>No. of firing points depends upon size of club/team or training group</td>
</tr>
<tr>
<td>Olympic Games Qualification Range</td>
<td>8 groups 40 targets</td>
<td>800 - 1,000 with additional media space</td>
<td>50 firing points are preferred in order to accommodate WCs</td>
</tr>
</tbody>
</table>
**E.4 10-Meter Rifle-Pistol Range.** 10m ranges for Air Rifle and Air Pistol events must be indoor ranges (3.5.1.3). The firing distance is 10m and target systems can be either EST or carriers with paper targets. The cost of EST is approximately EUR 3,000 – EUR 4,000 per firing point. The cost of paper target carriers is approximately EUR 500 per firing point. 10m ranges are especially important in areas that have cooler temperatures during much of the year as they can be used for competition and training 12 months per year. Size requirements and recommendations for 10m ranges according to venue objectives are shown in the chart:

<table>
<thead>
<tr>
<th>Venue Objective</th>
<th>No. of Targets</th>
<th>Recommended Spectator Capacity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Championship Qualification Range</td>
<td>80</td>
<td>500 seats for a Qualification Range</td>
<td>A separate Finals Range will be required for all future WCH</td>
</tr>
<tr>
<td>World Cup</td>
<td>60</td>
<td>200 - 400 for a Qualification Range</td>
<td>80 firing points are necessary for World Cups in Europe and Eastern Asia</td>
</tr>
<tr>
<td>Continental Championships</td>
<td>40</td>
<td>200 - 400 for a Qualification Range</td>
<td>A minimum of 60 firing points are required in Europe and Asia, 40 in America</td>
</tr>
<tr>
<td>National/Regional Range</td>
<td>40</td>
<td>200 for a Qualification Range</td>
<td>No. of firing points depends upon projected participation</td>
</tr>
<tr>
<td>Training Venue Club/Team Venue</td>
<td>40</td>
<td>100 - 200</td>
<td>No. of firing points depends upon size of club/team or training group</td>
</tr>
<tr>
<td>Olympic Games Qualification Range</td>
<td>60</td>
<td>1,000 - 1,200 with additional media space</td>
<td>80 firing points are preferred in order to accommodate WCs</td>
</tr>
</tbody>
</table>
E.5 **Rifle-Pistol Finals Range.** A dedicated Finals Range is required for the Olympic Games and World Shooting Championship and highly recommended for ISSF World Cups. Finals Ranges are recommended for any range that will host large national and international competitions. Finals Ranges must fulfill these requirements:

<table>
<thead>
<tr>
<th>Venue Objective</th>
<th>No. of Targets</th>
<th>Recommended Spectator Capacity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Championship</td>
<td>10 50m targets</td>
<td>500</td>
<td>Finals Ranges must be quickly convertible from 50m to 25m to 10m</td>
</tr>
<tr>
<td>World Cup</td>
<td>3 groups of 25m targets</td>
<td>300 - 400</td>
<td>Adequate space for television production must be provided</td>
</tr>
<tr>
<td>Continental Championships</td>
<td></td>
<td>300 - 400</td>
<td></td>
</tr>
<tr>
<td>National/Regional Range</td>
<td>10 10m targets</td>
<td>200 - 400</td>
<td></td>
</tr>
<tr>
<td>Olympic Games</td>
<td></td>
<td>2,000 - 2,500, with additional media space</td>
<td></td>
</tr>
</tbody>
</table>

Reference should also be made to the following document: ISSF Guidelines for Accreditation, Finals Ranges, and Victory Ceremonies.

E.6 **Special Ranges.** Shooting venues normally have separate ranges for Shotgun, 10m Rifle-Pistol, 25m Pistol and 50m Rifle-Pistol. Either as a cost saving measure or to accommodate special ISSF events like Running Target and 300m Rifle, combined ranges or additional special purpose ranges may be included in the venue plan. These special ranges include:

E.6.a **Combined 10m/50m Rifle-Pistol Range.** The 10m and 50m ranges constructed in London for the 2012 Olympic Games were combined into one range. This required one additional day in the schedule to accommodate the conversion, but this combination resulted in a substantial cost savings to the Organizing Committee. When competitions are not taking place, the combined range can be divided for training in both 10m and 50m shooting.
E.6.b Combined Finals/25m Rifle-Pistol Range. Finals Ranges must be large enough to accommodate 3 x 5-target groups for 25m Pistol events. This means that by enlarging the width approximately 15m, it is possible to have a combined Finals and 25m range with 6 x 5-target groups. If it is necessary to achieve significant reductions in venue costs, such a combined range can be considered. This has been agreed for Tokyo 2020 OG.

E.6.c 10m Running Target Range. When 10m Air Rifle Running Target events are scheduled, special Running Target mechanisms (either EST or for paper targets) are required. These Running Target mechanisms can be installed in a regular 10m range or they can be installed in a separate room dedicated to 10m Running Target activities.

E.6.d 50m Running Target Range. The ISSF also recognizes 50m Running Target shooting with 5.56mm Smallbore Rifles as WCH events; at least one continent also conducts 50m Running Target events. 50m WCH Running Target events require two separate Running Target ranges. Only one athlete can fire on one Running Target range at any one time.

E.6.e 300m Rifle Range. The ISSF and the European Continental Confederation recognize 300m Rifle events as WCH events. CISM (International Military Sports Council) also recognizes 300m Rifle events. 300m ranges are similar to 50m ranges except that the targets and firing point widths are wider. 300m Rifle ranges may either be separate ranges or they may be combined with 50m ranges.

E.6.f Target Sprint Range. Target Sprint is a new ISSF Sport for All discipline that combines 10m Air Rifle shooting at knock-down targets (biathlon-type) with short or medium distance running. Target Sprint requires a 10m Outdoor Air Rifle range equipped with 10-20 sets of knock-down targets (Klappscheiben) and a safe area where a 400m or 600m running loop can be laid out. There are no ISSF requirements to build Target Sprint ranges, but NFs or clubs that wish to promote physical fitness with shooting, may want to set up one of these ranges. The design makes it relatively easy for such a range to be constructed in a short space of time prior to such an event taking place. As it is often a temporary range and does not require a large safety area, consideration should also be given to the possibility of setting it up in a local public area, such as the town square to encourage spectators, rather than having it within a range complex. See also ISSF Rules for Target Sprint Competition, 2017.
F. HOW LARGE WILL THE RANGES IN YOUR VENUE BE?

<table>
<thead>
<tr>
<th>Range</th>
<th>Size</th>
<th>Spectators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shotgun</td>
<td># of ranges:</td>
<td></td>
</tr>
<tr>
<td>50m Rifle-Pistol</td>
<td># of firing points:</td>
<td></td>
</tr>
<tr>
<td>25m Pistol</td>
<td># of 5-target groups:</td>
<td></td>
</tr>
<tr>
<td>10m Rifle-Pistol</td>
<td># of firing points:</td>
<td></td>
</tr>
<tr>
<td>Rifle-Pistol Finals</td>
<td>10 firing points, 50m and 10m</td>
<td>3 x 5-target groups, 25m Pistol</td>
</tr>
</tbody>
</table>

G. WHAT ADMINISTRATIVE AND LOGISTICAL FACILITIES WILL BE PROVIDED?

G.1 Administrative and Logistical Facilities. A successful shooting venue needs more than ranges in order to carry out its program plans for training and competition. There must be initial decisions about administrative and logistical facilities that must be included in the overall venue plan. These facilities may include:

G.1.a Venue Headquarters. There must be an office with space for the venue manager and working space for other persons involved in administering venue activities.

G.1.b Internet Service. Modern shooting training and competition activities cannot take place without persons involved in those activities having access to the internet. How will this service be provided?

G.1.c Meeting and Classrooms. Almost no venue training or competition event can take place without requiring instruction to be given to participants or a meeting of coaches or athletes. The number and size of the meeting and classroom areas must be decided.

G.1.d Ceremony/Victory Ceremony Area. A ceremoninal plaza or other location where special ceremonies and victory ceremonies can take place.

G.1.e Arms Storage. Especially when guns are brought to the venue for activities, provisions must be made for providing secure storage for them on the venue.

G.1.f Arms Repair. Gunsmithing and arms repair is an important part of shooting activities. Where will this take place?
G.1.g **Rooms for Officials, Juries and Media.** Areas where officials and media can meet, relax and do their work are needed.

G.1.h **Venue Storage and Maintenance.** The storage of spare parts for venue equipment and the equipment used to clean and maintain the venue must be provided.

G.1.i **Food and Snack Service.** Large ranges require facilities where food service vendors can provide food and snack services for range users.

G.1.j **Anti-Doping Controls.** If a range is to be used to host ISSF Championships, it must have a center where doping tests can be made. This facility must have at least two rooms and one bathroom (two are preferred).

H. **IS FUNDING AVAILABLE FOR THIS VENUE PROJECT?**

**WHO WILL PROVIDE THE FUNDING?**

**IS AVAILABLE FUNDING ADEQUATE TO COMPLETE THE PROJECT?**

H.1 **Funding and Funding Sources.** At this early stage of planning, it is not possible to know how much the total venue project is going to cost. However, it is critically important to have a good understanding of possible sources of funding for land acquisition, planning costs and construction costs. Possible funding sources for shooting venue development projects include national and state government, national sports authority, the national federation and private investments. Often a combination of funding sources will be used. Some projects start with funding assured and others must obtain funding as part of the venue planning process. At this stage, it is essential to understand the funding sources that are available for this project. Initial planning requires answers to these questions.
HAS A SITE FOR THE SHOOTING VENUE BEEN SELECTED? IS SUFFICIENT LAND AVAILABLE?

WILL GOVERNMENT APPROVAL FOR A SHOOTING SITE BE POSSIBLE? ARE THERE NOISE OR OTHER GOVERNMENT RESTRICTIONS THAT WILL REQUIRE SPECIAL MEASURES TO COMPLY?

I.1 The Venue Site. The location of a shooting venue represents another set of critical planning decisions. Shooting venues require a large area of land where government regulations permit shooting to take place. Issues to be considered in initial venue planning are:

I.1.a Land for Venue. A compact Rifle-Pistol shooting venue could be built on an area of 3-5 hectares (7-12 acres) if all ranges are enclosed. A Shotgun venue with five ranges (700m x 300m) will require 21 hectares (51 acres). This means that to construct a full venue capable of hosting an ISSF Championship an area of 60-70 acres is required. Initial planning must determine if a venue site is available or if a site must be located. If a site is available, an evaluation must determine if sufficient land is available for the complete shooting venue.

I.1.b Suitability of Site for Shooting. Government authorities in most nations establish zoning or planning restrictions for how land can be used. If a projected venue site is identified, a determination must be made as to whether local government regulations will permit the conduct of shooting activities on that site. Further government concerns will address safety and projectile containment as well as noise. A government inspection or certification may be necessary to confirm that no projectiles will leave the venue and endanger persons outside of the venue. Shooting with Shotguns and Center-Fire Rifles or Pistols generates loud impulse sounds that may not be acceptable in residential or business areas adjacent to the venue. Many government regulations restrict the volume of sound that may leave a venue site. Venue planning must identify these regulations and make sure the venue can be designed to comply with these regulations.

I.1.c Suitability of Site Location. For a shooting venue to be successful, it must be readily accessible to its users. Factors such as roads, distance, the availability of public transportation and nearby hotels and the general environment in the venue area will have an impact on how many participants and spectators will come to the venue area.
J. HAS A PLANNING TEAM BEEN APPOINTED? WHO ARE THE MEMBERS OF THE PLANNING TEAM?

J.1 The Next Planning Steps. After the planning issues identified in sections A through I in this document have been resolved, the venue planning team will be ready to move into more detailed planning. This detailed planning will include the following:

J.2 Planning Team. The organization that will own and control the venue needs to appoint a larger planning team or committee that will oversee the next planning steps as well as the actual construction of the venue. In addition to the venue owner’s contact person or person-in-charge, other persons with planning expertise and an excellent knowledge of shooting should be appointed to the planning team. If the NF will not be the venue owner, then one or more representatives from the NF must be included in the planning team to ensure that their expertise is considered and to be sure efficient liaison with the ISSF is possible.

J.3 Program Plan. The “Shooting Venue Objectives” establish what the major objectives for the venue will be, but before moving ahead with detailed planning, there must be a program plan for the venue. Who will the regular range users be? What kinds of activities will they participate in on the range? Who will provide the leadership, supervision and instruction for these activities? What competitions will be organized there? What plans are there for training shooting coaches and judges for conducting competitions?

J.4 Detailed Range Planning. In addition to developing a “program plan” that details how the venue will be used, the planning team must become familiar with all of the special range design features that are to be incorporated into the architectural plans for each range and administrative or logistical area. The ISSF has commissioned design proposals from an architectural company to work with ISSF venue design experts to provide detailed specifications and drawings for the design features that should be included in modern shooting venues. These sample drawings appear at the end of this Guide.

K. HAS AN ARCHITECT/ARCHITECTURAL FIRM BEEN SELECTED TO DESIGN THIS SHOOTING VENUE?

K.1 Venue Architect. The development of detailed specifications and drawings for a particular shooting venue must be done by professional architects and engineers who work with the venue planning team.
ANNEX 1  SPECIMEN RANGE ARCHITECT DRAWINGS PREPARED FOR ISSF

by the following architect:

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Architekten BDA

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AN1.1  10M RANGE – SINGLE-STOREY VERSION

This range design is for a stand-alone range where all necessary training and
competition functions must be performed in this range. If the 10m range will be
part of a larger venue where there are 10m, 25m, 50m and Finals Ranges, those
plans should also provide for a separate and common range headquarters or
administrative center. For those ranges, the following rooms should not be
included in the 10m range plan, but should be included in the range
headquarters plan:

○ Competition management offices
○ Press, radio and TV rooms
○ Conference/press-conference rooms
○ Classroom(s)
○ First aid/conference room
○ Medical room
○ Anti-doping control
○ Armory
○ Gunsmith’s shop
AN1.2  10M RANGE – TWO-STOREY VERSION
AN1.3  25M RANGE – TWO-STOREY VERSION

This range design is for a stand-alone range where all necessary training and competition functions must be performed in this range. If the 50m range will be part of a larger venue where there are 10m, 25m, 50m and Finals Ranges, those plans should also provide for a separate and common range headquarters or administrative center. For those ranges, the following rooms should not be included in the 25m range plan, but should be included in the range headquarters plan:

- Competition management offices
- Press, radio and TV rooms
- Conference/press-conference rooms
- Classroom(s)
- First aid/conference room
- Medical room
- Anti-doping control
- Armory
- Gunsmith’s shop
AN1.4  50M RANGE – SINGLE-STOREY VERSION

This range design is for a stand-alone range where all necessary training and competition functions must be performed in this range. If the 50m Range will be part of a larger venue where there are 10m, 25m, 50m and Finals Ranges (and Shotgun Ranges), those plans should also provide for a separate, common Range Headquarters or administrative center. For those ranges, the following rooms should not be included in the 50m Range plan, but should be included in the Range Headquarters plan:

- Competition management offices
- Press, radio and TV rooms
- Conference/press-conference rooms
- Classroom(s)
- First aid/conference room
- Medical room
- Anti-doping control
- Armory
- Gunsmith’s shop
AN1.5  50M RANGE – TWO-STOREY VERSION – GROUND FLOOR
### ERLÄUTERUNGEN

**Erklärungen für die Zeichnung:**

- **Manövrierraum (Zugang Zielscheibe):** Der Manövrierraum dient der Bewegung von Zielscheiben auf und ab. Die genaue Positionierung der Zielscheiben wird durch den schützenden Behälter (Schießblende) und den tragbaren Behälter (Schießblende) gewährleistet.

- **Vorrichtungen für Schießanlagen (Zugang Zielscheibe):** Diese sind für den Schutz von Schützern und Betriebsbediensteten während der Schießübungen vorgesehen.

- **Zielstichel (Zugang Zielscheibe):** Die Zielstichel sind für die Zielsetzung der Schützen vorgesehen. Sie werden von den Schützen benutzt, um das Ziel zu erreichen.

- **Ellbogen (Zugang Zielscheibe):** Die Ellbogen sind für die Stabilisierung der Waffe während der Schießübungen vorgesehen.

- **Führungsräume (Zugang Zielscheibe):** Die Führungsräume dienen der Überwachung der Schießübungen und der schnellen Bereitstellung von Wasserentnahme- und Notrufverbindungsgeräten.

- **Pistolen-/Rifleschiene (Zugang Zielscheibe):** Diese sind für den Schutz von Schützern und Betriebsbediensteten während der Schießübungen vorgesehen.

- **Zielscheiben (Zugang Zielscheibe):** Die Zielscheiben sind für die Übung der Schützen vorgesehen. Sie werden von den Schützen benutzt, um das Ziel zu erreichen.

- **Wasserentnahme- und Notrufverbindungsgeräte (Zugang Zielscheibe):** Diese Geräte dienen der schnellen Bereitstellung von Wasserentnahme- und Notrufverbindungsgeräten in Notfällen.
Basiskonzept für Schießanlagen
der olympischen Disziplinen nach
internationalem Standard der ISSF

DAS URHEBERRECHT AN DIESEZEICHNUNGVERBLEIBT BEI UNS. Sie darf ohne unsere ausdrückliche Genehmigung weder vervielfältigt noch dritten
personen, insbesondere Wettbewerbern, überlassen oder sonstwie zugänglich gemacht werden.

(§ 1 Nr. 3 des Gesetzes vom 19.06.1902)
FINALHALLE

ground floor
Basiskonzept für Schießanlagen
der olympischen Disziplinen nach
internationalem Standard der ISSF

ERLÄUTERUNGEN

ground floor, first floor, section

Me 1:200

ILSF FREILINGHAUS ARCHITEKTEN

FRIEDBERG           FAX 06031

STRASSHEIMER STR - BAULEITUNG GMBH - ARCHITEKTEN

13055  03.07.2018
Basiskonzept für Schießanlagen der olympischen Disziplinen nach internationalem Standard der ISSF.
A big problem for the ISSF is that many Shooting ranges used for ISSF Championships were designed to fulfill venue requirements of 50 years ago. These old range designs and ideas must be modernized if Shooting is to become a modern Olympic sport.

Covered trap ranges

Long, narrow boxes for R-P
What is a Modern Shooting Venue?

• Many Shooting venues were designed and built for the pre-finals era.
• Many modern venue designs still use pre-finals era thinking—we need to change our thinking.
• Today’s venues must accommodate modern finals formats and showcase our sport for television, spectators, media and internet—WE NEED MORE CREATIVE THINKING!
• Modern Venue Requirements:
  • Athlete performance before, during and after the competition
  • Finals Ranges as Shooting Theaters
• This presentation will illustrate and discuss many modern venue requirements.

We must change our thinking!

This 1996 Olympic 10m Range was ahead of its time. It placed spectators and officials in the center and the firing points on the outside.
Modernizing Shooting Venues

- **We must change our thinking**—we must build ranges for the future, not the past.
- **Change** will be slow, difficult and expensive, but necessary for Shooting to continue as an Olympic sport.
- **Lessons Learned.** London 2012 and Rio 2016 have helped us understand modern Shooting Venues.
- **Rule 6.4.2.** This rule was updated for 2017 to include modern venue requirements.
- **This presentation will highlight many of the requirements for modern ranges that are included in the revised Rule 6.4.2.**

Athlete Performance Considerations

Athletes require much more than a well-designed range to achieve peak performance.
6.4.2 a) Athlete Rest Areas

- **Required All CH**
- Old rules: Team Rooms
- Critical for Shotgun athletes to rest between rounds
- Shotgun and R-P Rest Areas should be separate
- Should provide tables, chairs, water, air conditioning

6.4.2 g) Athlete Warm-Up Areas

- **Required All CH**
- “Dry firing or warm-up areas for all rifle, pistol and shotgun ranges.”
- Wall with space for athletes to dry fire
- Especially important for pistol athletes
- Must be close to Qualification ranges
6.4.2 Athlete Comfort Facilities

b) **Athlete Changing Rooms**
   - Must be close to ranges
   - Athlete changing on the line unacceptable in many countries

p) **Toilet Facilities**
   - Toilets close to ranges are recommended
   - Should have toilet close to Finals Range Preparation Room

u) **Medical Facilities**
   - First Aid Station, should have doctor or nurse
   - Emergency evacuation capability

6.4.2 j) **Equipment Bag Storage**

   - **Required All CH**
   - “An armory for secure arms storage and a room for equipment bag storage.”
   - Consider size, shelving, location, door width.
   - Should be on walking route between Athlete entrance and ranges.
ARMORY REQUIREMENTS:
• Required All CH
• Security
• Location (convenient for athletes)
• Space and shelving
• Door width--access

6.4.2 k) Equipment Control Area

• Required All CH
• “An equipment control testing area, with changing rooms”
• With sturdy tables, chairs
• Consider space, location
• When EC area is not close to ranges, additional EC areas are required on the ranges (for post-competition testing).
6.4.2 m) Industry Service Facilities

- “Free facilities for firearms and equipment manufacturers to service their products”
- Should be an indoor area with heavy benches and chairs
- Manufacturers provide free service and parts for their equipment
- Industry is an important member of the ISSF family

6.4.2 o) Catering

- “A restaurant or facilities for food service and refreshments”
- Required All CH
- Athletes, coaches, NTOs, ITOs and spectators need snacks or lunch while they are on the range.
Modern Range Design

Modern range design must support both athlete performance and sport presentation.

Considerations include 1) light on athletes, 2) score displays, 3) ranked results display, 4) speaker locations 5) control room for RTS operations.

50m Range Design

• **SIZE.** 60 firing points are OK for the Olympics; 80 are necessary for most World Cups.

• **WIND MANAGEMENT.** Range design should plan on space for 5 free firing points without targets, on either side of the range.

• **SHADOW MANAGEMENT.** There must be no shadows on the targets.

• **COMPETITION OPERATIONS.** There should be 7m of space from the firing line to the spectator barrier. If photographers must be accommodated (OG only), another 2m should be provided.
25m Range Design

- **SIZE.** 6 5-target groups are adequate for the Olympics; 8 groups are necessary for World Cups.
- **Tunnels, Walls or Open.**
  - All are OK; tunnels are not required; open ranges are more attractive; walls without tunnels add flexibility to accommodate multi-event operations.
- **TEST FIRE RANGE.**
  - Adjacent to the 25m bays to be used for pistol velocity tests.
- **RANGE EQUIPMENT.**
  - The old full-size dividing screens are now illegal.

10m Range Design

- **SIZE.** 60 targets are adequate for the Olympics; 80 targets are necessary for World Cups.
- **COMPETITION OPERATIONS.** There should be 7m of space from the firing line to the spectator barrier. If photographers must be accommodated (OG only), another 2m is required.
- **LIGHTING.** For OG we required 1000 lux on athletes, >1800 lux on targets

  *30m mural below is at Camp Perry, USA range*
R-P Finals Range Design

Lighting, look and layout must place focus on athletes.

Rio de Janeiro R-P Finals Range (Homologation Test):
Note the open center where the focus is the athletes.
R-P Finals Range Design

• **AIM.** Range must not only support the conduct of Finals, but must provide **visual and audio color and excitement** to facilitate spectator involvement and entertainment.

• **DESIGN** must include Preparation Room and Mixed Zone.

• **LAYOUT.** Keep **center open with focus on the athletes**
  - Place control table, printer table, coaches and eliminated athletes on side; place Jury members and NTOs on the sides

• **FOP.** 2 m firing point distance; FOP depth was 17m in London and Rio – that was too much; 12m is probably ideal

• **LIGHTING.** 1700 lux on athletes, >2000 on targets

• **SOUND SYSTEM.** For music and announcements.

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**6.4.2 s) Press and TV**

6.4.2 s) “Facilities for media, radio and television representatives”

• **Press Facilities:**
  - Work space for ISSF Communications Manager
  - Press room with tables, power and Internet

• **TV Facilities:**
  - ISSF TV production center (close to Finals Range)

• **General Requirements:**
  - Photographer access
  - Access control (especially for Finals Range)
6.4.2 Administrative Facilities

c) & d) Meeting Rooms and Offices
- ISSF President/Secretary General
- Technical Delegate
- Jury Room (one room, may have separate Jury of Appeal room)
- ISSF Event Manager
- OC offices (one for Competition Manager, others as required)

e) & f) RTS Operations
- Separate room with shelving for documents for RTS Jury
- Control rooms on all ranges for RTS Jury and Results Provider
- Main scoreboard and separate range scoreboards

t) Anti-Doping Control
- “Facilities for Anti-Doping testing, with toilets”

Don’t Forget  Range Clocks

Well managed competitions follow the schedule and stay on time. Modern ranges require:
- 2 clocks on each Qual. Range
- 2 clocks on R-P Finals Range
- 2 count-down clocks on Finals Range ahead of firing line
- 1 clock in the Preparation Room
- 1 clock in the Equipment Control area
We hope this presentation has given you some new ideas for designing or improving your shooting range.