Organizer´s Guidelines

OC Guidelines

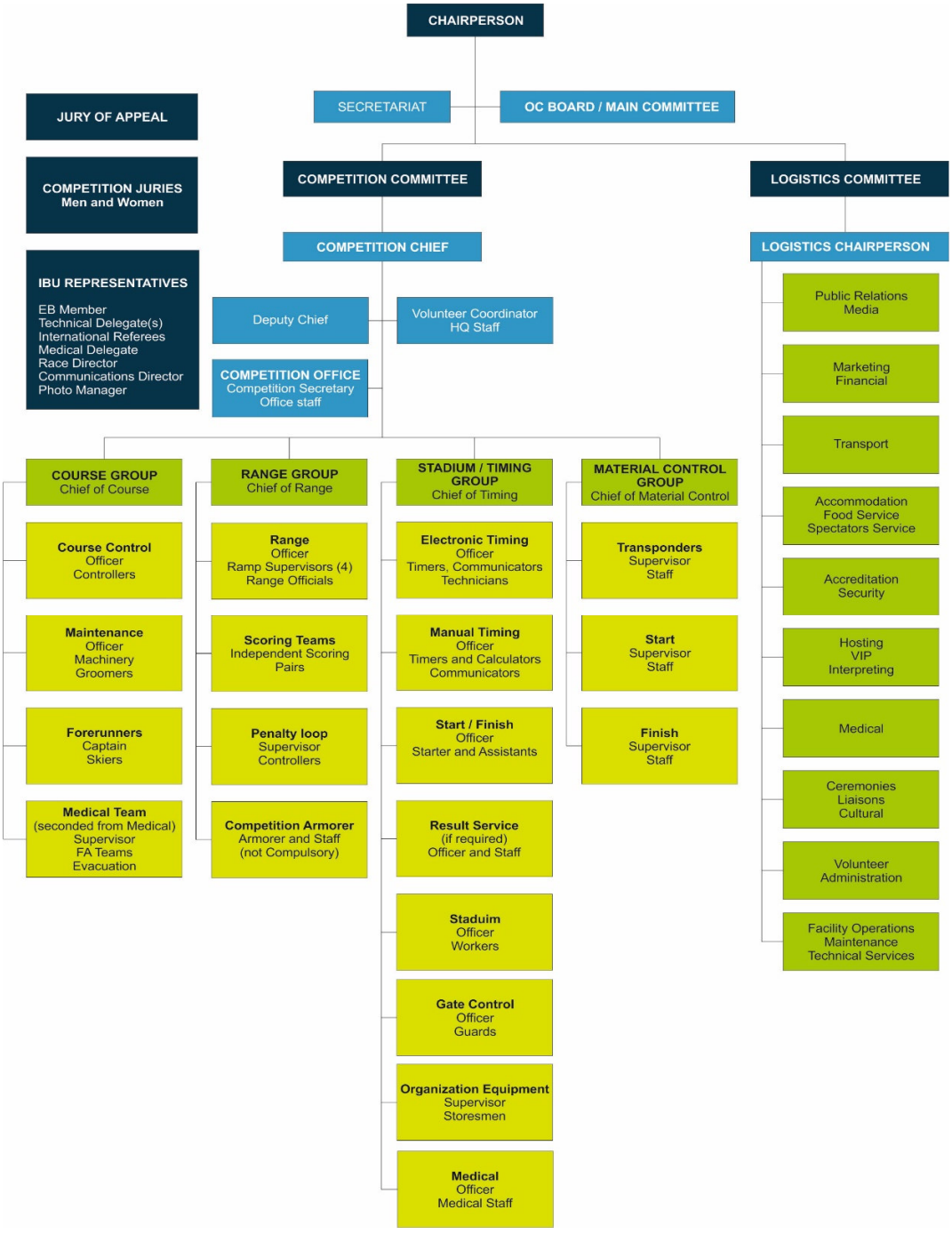
Edition November 2019

1. ORGANIZATION

1.1 Basic OC Structure

In order to secure efficient organization of IBU Event, a solid Organizing Committee structure is very important. Of course, different organizers put up different organization matrix, but here one of possible option:

Chart 1: Basic OC structure

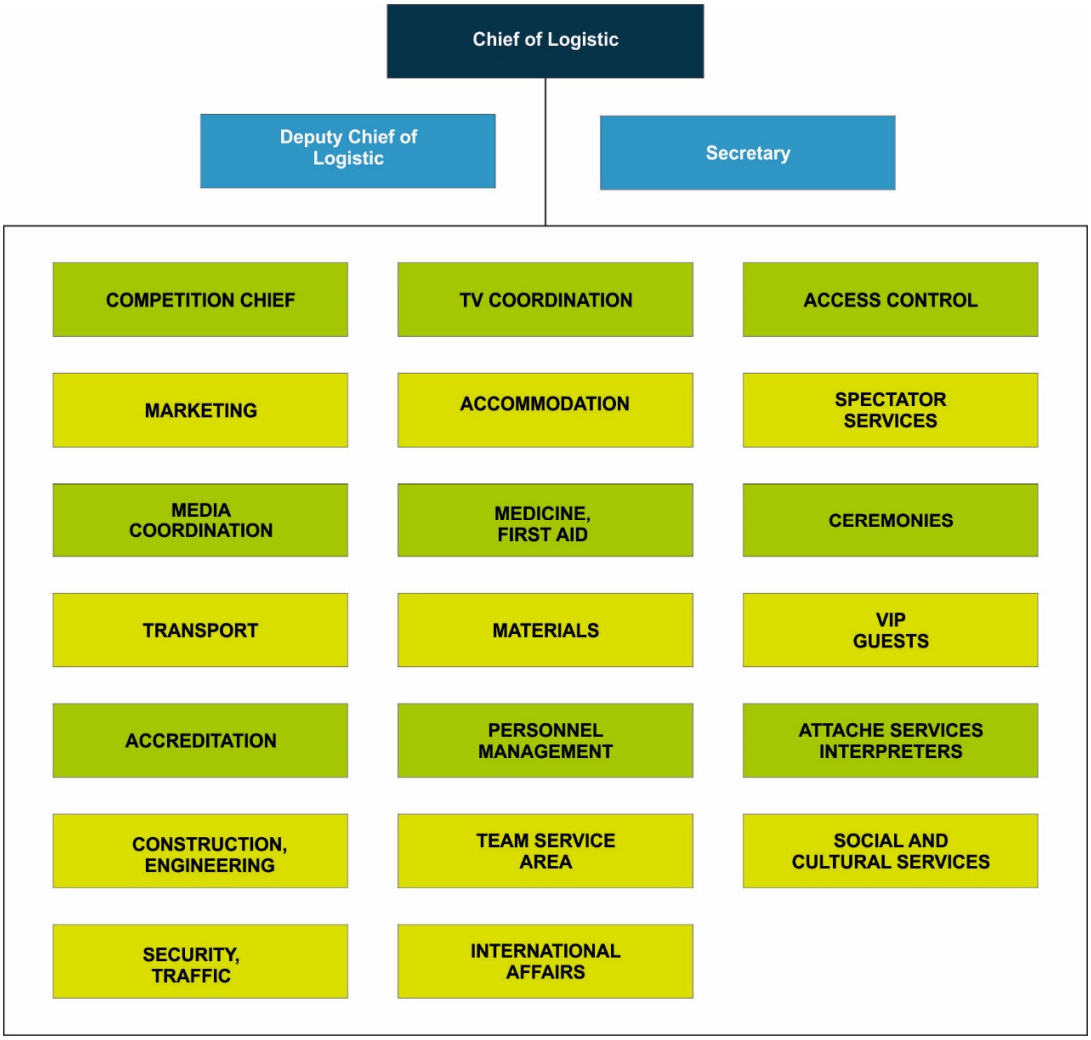


1.2 OC Logistic Committee structure

Logistic Committee is taking care of all issues around sport itself. When such Committee is established some characteristics should be respected:

- *Local environment,*
- *Local of Federal legislation*
- *Involved out-sourced companies and/or individuals*
- *Status of general infrastructure*
- *Ownerships of venue*
- *Natural and meteorological characteristics*

Chart 2: OC Logistic Committee



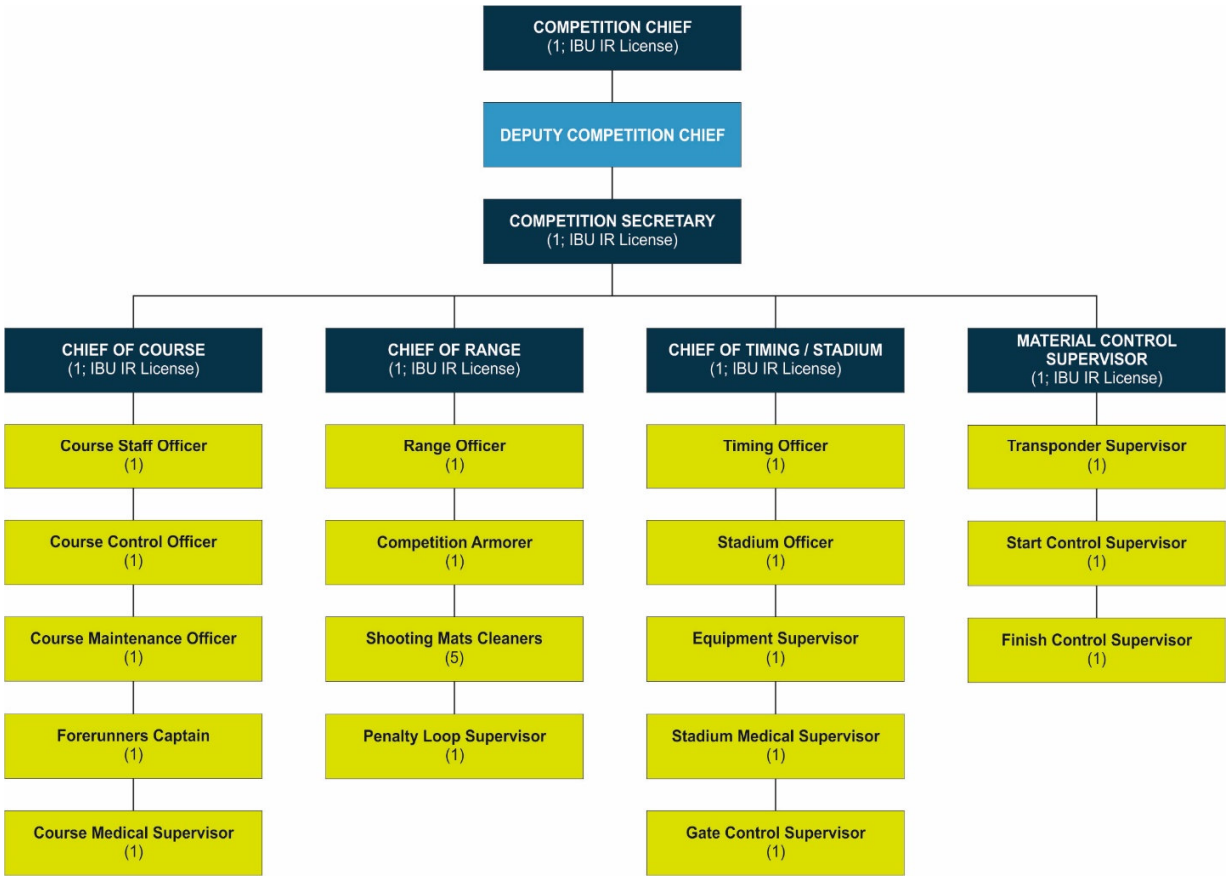
1.3. Competition Committee

Task of Competition Committee is to prepare, execute and also evaluate biathlon event. It should be organized in a way that all areas and tasks are covered by specific group. One of most common structure follow allocation of IBU Officials, as follows:

- *Chief of Competition* — *Technical Delegate*
- *Chief of Range* — *Referee Range*
- *Chief of Course* — *Course Referee*
- *Chief of Stadium (and Timing)* — *Start/Finish Referee*
- *Material Control Supervisor* — *Material Control Referee*

How many persons are involved in whole Competition Committee is responsibility of OC; depend on knowledge, experience and availability of personal. In any case, structure need to secure execution of event in safe and fair manner in any weather conditions and according to IBU Event & Competition Rules (as in effect).

Chart 3: Competition Committee

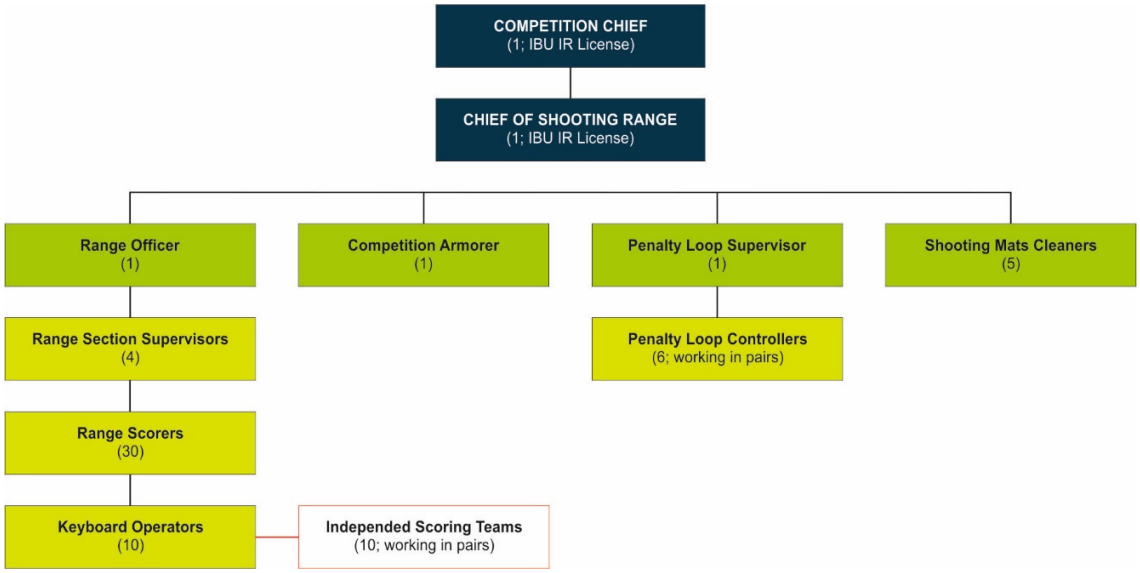


1.3.1 Shooting Range Group

Range Group is responsible for all activities on the range including preparation and organization of all activities at the range (trainings and competitions). For their work they need proper tools and equipment which need to be prepared and controlled before final preparation.

Main person is Chief of range who need to closely cooperate with IBU Range Referee.

Chart 4: Shooting Range Group



1.3.2 Course Group

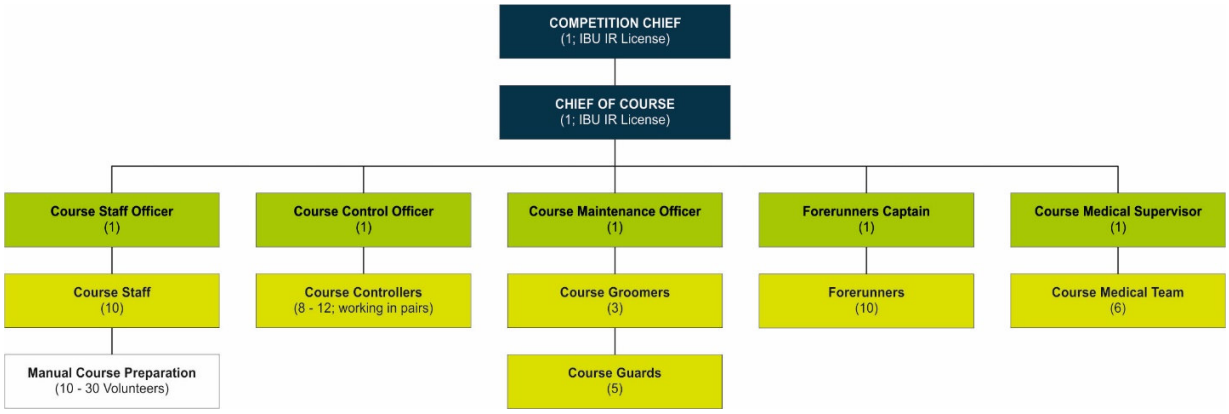
Work of Course group begin well before the event, because courses need to be prepared before snow cover in order to minimize later effort with course maintenance and preparation. Courses need to respect IBU Rules and should guarantee safe and as fair as possible conditions for all athletes and other course users.

Very important is to secure enough snow with good quality. As today only natural snow fall cannot guarantee and secure event, it is necessary to secure snow from other resources such are snow storage and well organized artificial snow production (including latest innovations in snow factories).

Chief of course (together with other main officials in OC) is responsible to prepare the plan how to secure the snow in a best and effective way. On the other hand all snow grooming machinery need to be double checked well before beginning of final preparation.

Very important issue for course group is careful planning of course staff, because most of the staff will experience a lot of physical work – staff need to be able to do their job in any circumstances and this many times demand good physical condition. Special attention has to be put on having experienced and reliable grooming machines driver, who are able to operate diverse snow grooming machines – different snow and weather conditions demand different machinery.

Chart 5: Course group

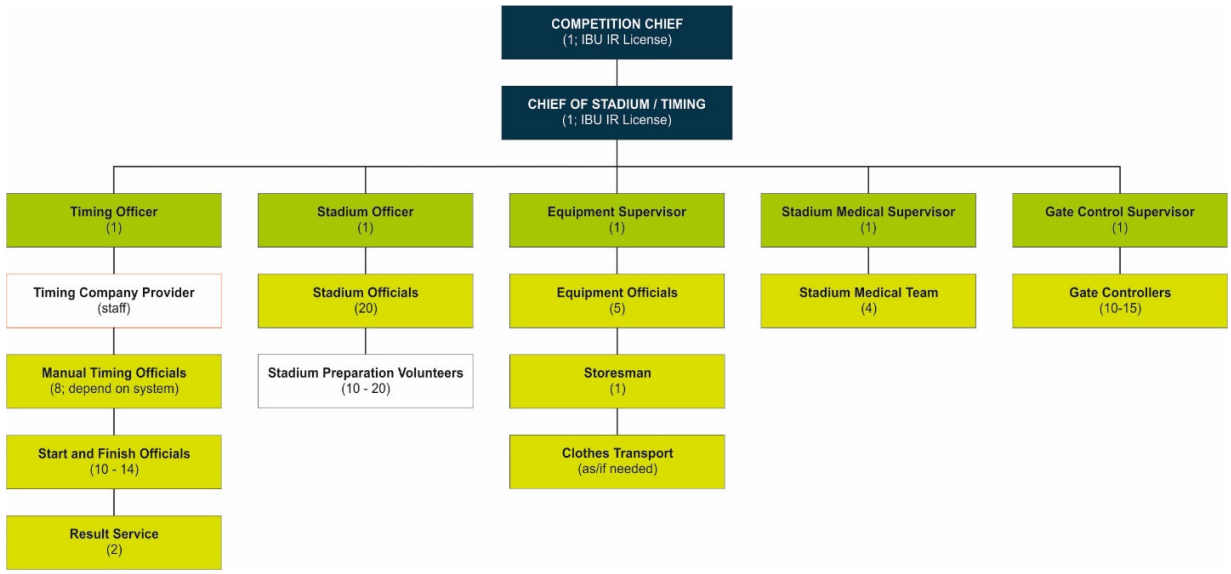


1.3.3 Stadium and Timing Group

This group in general take care of all activities and equipment in the biathlon stadium and not belong to range or course. It need to be clearly divided where stadium starts and ends, so during competition no misunderstandings will occur.

This group need to take care of all timing equipment installed in the stadium and offer support to professional time keepers.

Chart 6: Start and timing group

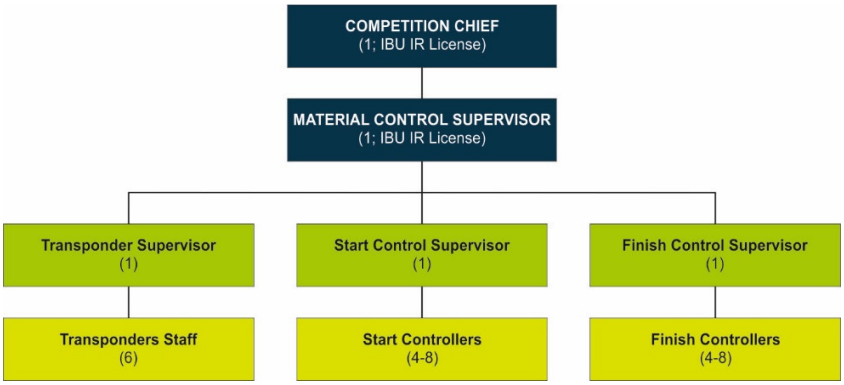


1.3.4 Material control group

Work of this group is specific and demand good knowledge of biathlon materials and equipment used by athletes and also team officials. It is important to recruit to this group person who has some foreign language and communication skills. Staff of this group has most of personal contacts with athletes, where all of them need to be treat with same respect and approach.

During competition all group members need to be able to work precisely and efficient; athletes expect the procedures to run smooth and in pretty much the same at all venues. To achieve this goal group need to communicate and cooperate with IBU Material control referee – basic check of all procedures will be done before each event.

Chart 7: Material control group



2. Biathlon Venue

Biathlon venue includes all areas need to prepare and execute biathlon event. In this guide we will mainly focus on sport facilities which are the most important for athletes and teams. At the same time each OC need to take care of all other supporting facilities (sport management facilities, media centre and all media areas, TV compound and camera positions, commentator cabins, team area, catering for different groups, timing facilities, anti-doping room, medical services, VIP treatment, accommodation capacites …).

Support infrastructure is usually checked during venue license inspection and also during event inspections. Every venue need constant maintenance and development, including new permanent buildings and facilities, constant improvement in communication infrastructure and energy supply. Before OC start with any kind of reconstruction is highly recommend to introduce plans to IBU Officials in order to minimize possible mistakes discovered after work is done.

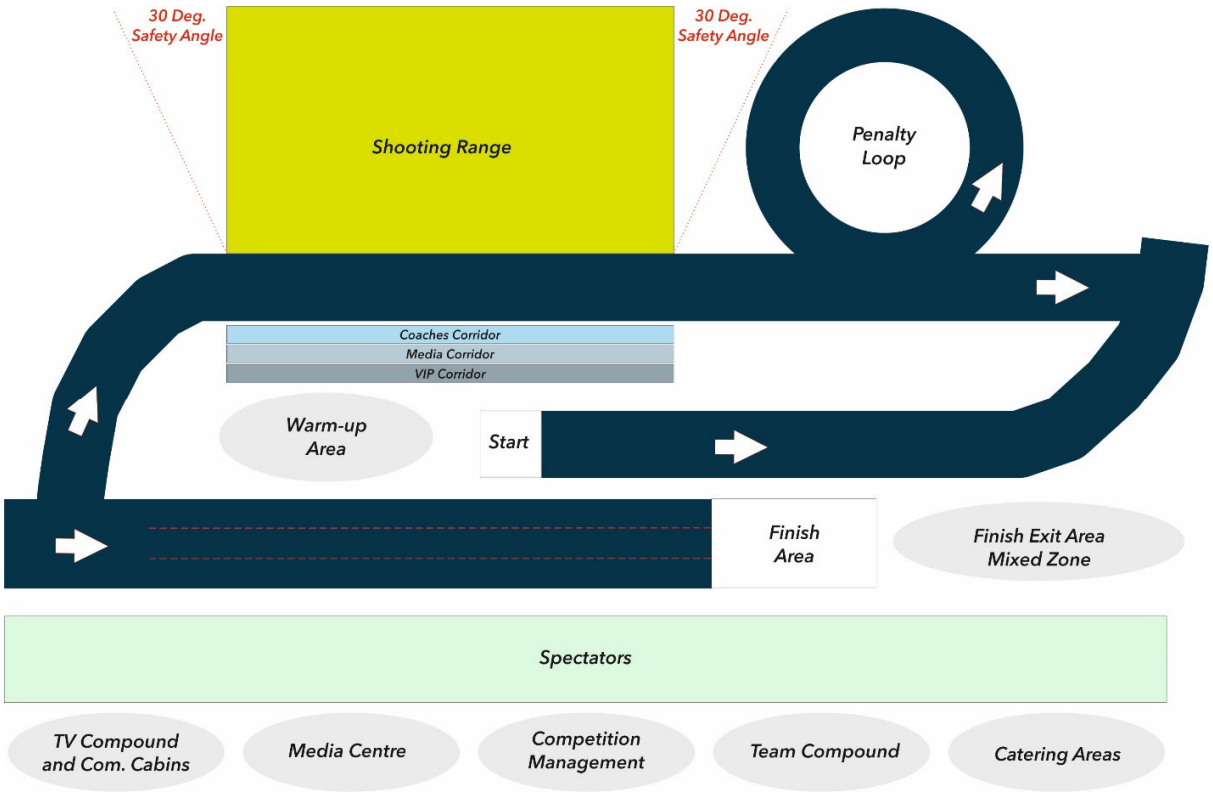
2.1. Biathlon Stadium

Biathlon stadium is area where most of activities are in progress during events and also most of media, guests and spectators are located. There are two big areas: stadium and courses.

In the stadium are start and finish areas, shooting range with penalty loop, corridors for coaches, media and guests on the range and spectator areas. In addition most of above mentioned support facilities are located in the stadium or in very close surroundings.

Very roughly stadium can be present as shown on

Chart 8: Biathlon Stadium



3. Start Area

Depend on a competition format, different start areas need to be prepared for biathlon event. Important is that biathlon stadium is planned in a way that warm-up area does not need to change or even change location during same event. On the other hand all regulations and measurements precisely described in IBU Event and competition rules are followed.

There are some differences in final preparation, based on level of competition: national level normally does not demand exactly the same organization as higher levels (such is World Cup or Championships), so this Guide mostly show highest preparation level.

3.1 Warm-up area and warm-up course

Warm-up area should be closely connected to start area (when possible for all kind of start organization). Because area is mostly covered with snow it need to be well groomed and later also well maintained. Surface should be solid but not slippery. Whole area need to be big enough to accommodate all participating teams (at least enough space for 20 rifle racks or 140 rifles with adequate space in between).

Important part of area equipment are rifle racks (shape of racks may vary) also because biathlon rifles cannot be placed on the ground. At the same time they offer enough space for all other team equipment. OC need to organize transport of athletes' clothes from start to finish area – in case those areas are not connected.

Warm-up course should be close to start area (up to 400 m is still acceptable). Course can be at least 400 m long and when possible organized as loop – if not, course need to be wide enough (min. 8 m) to allow both direction skiing. Warm-up course need to be groomed as close as possible to competition course grooming; it might be used for ski testing as well.

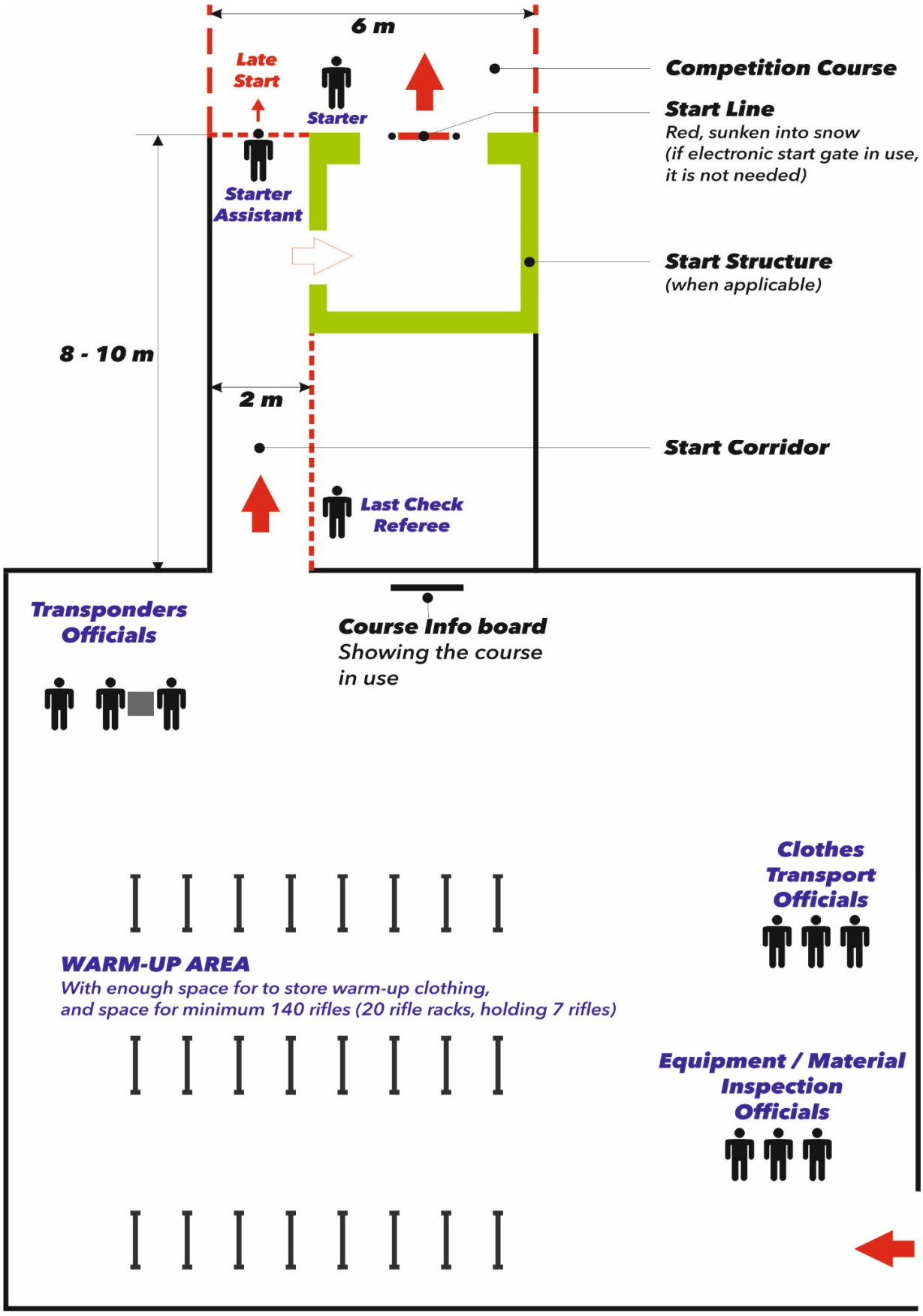
When possible OC can offer also part of competition course for warm-up, if not in use for scheduled competition. Of course, access and exit to those areas cannot cross competition course in use.

3.2 Single start area

This organization of start area is used for sprint, individual and super sprint competitions. General organization of area need to secure safe start procedure for athletes, without directly mixing with other athletes already competing.

When event is broadcasted, area need to observe request from TV director and much as possible, to assure that all IBU Rules are respected and there is absolutely no hindering of athletes.

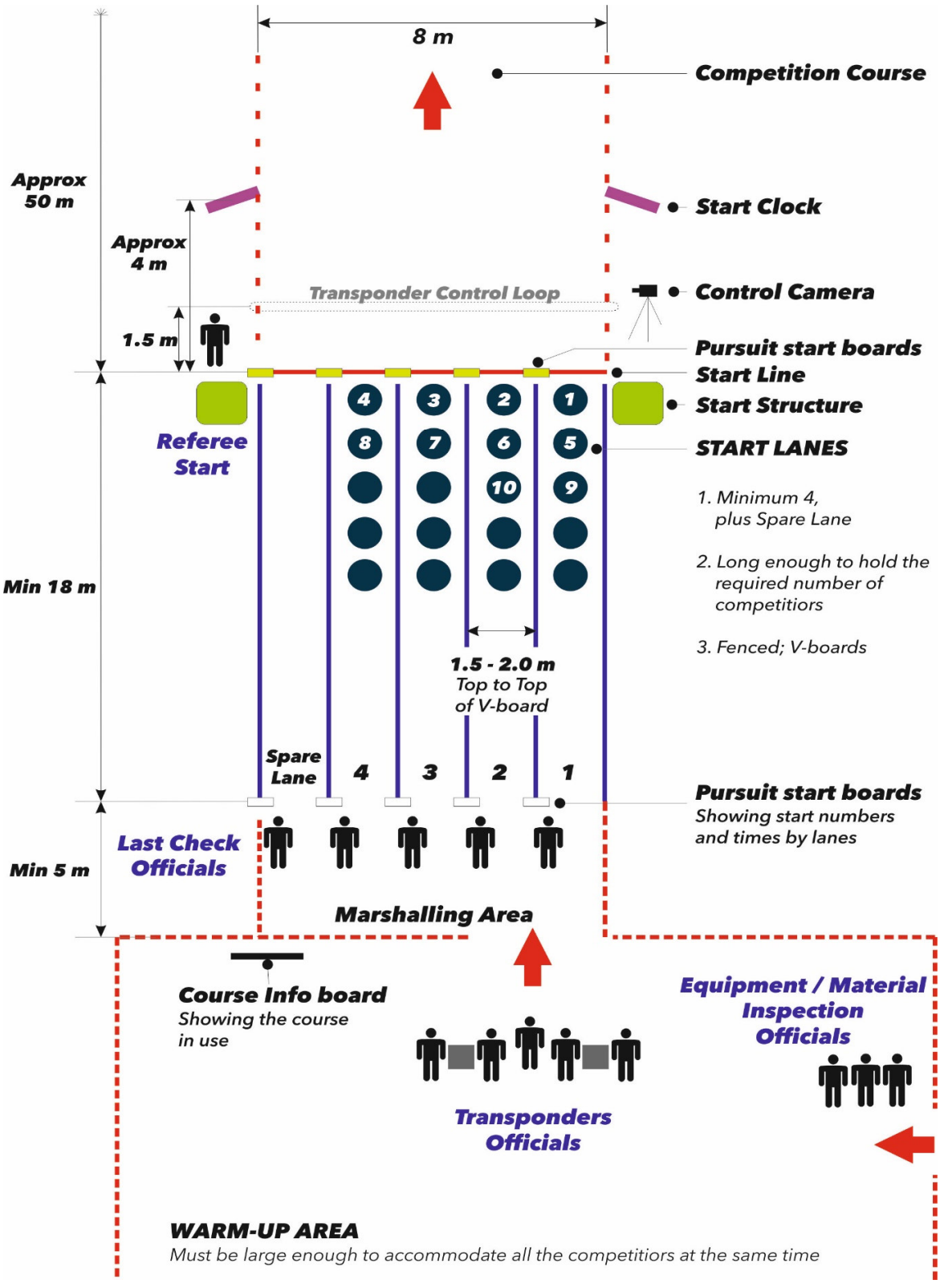
Chart 9: Single start area with warm-up area



3.3 Pursuit start area

Only used for pursuit competitions.

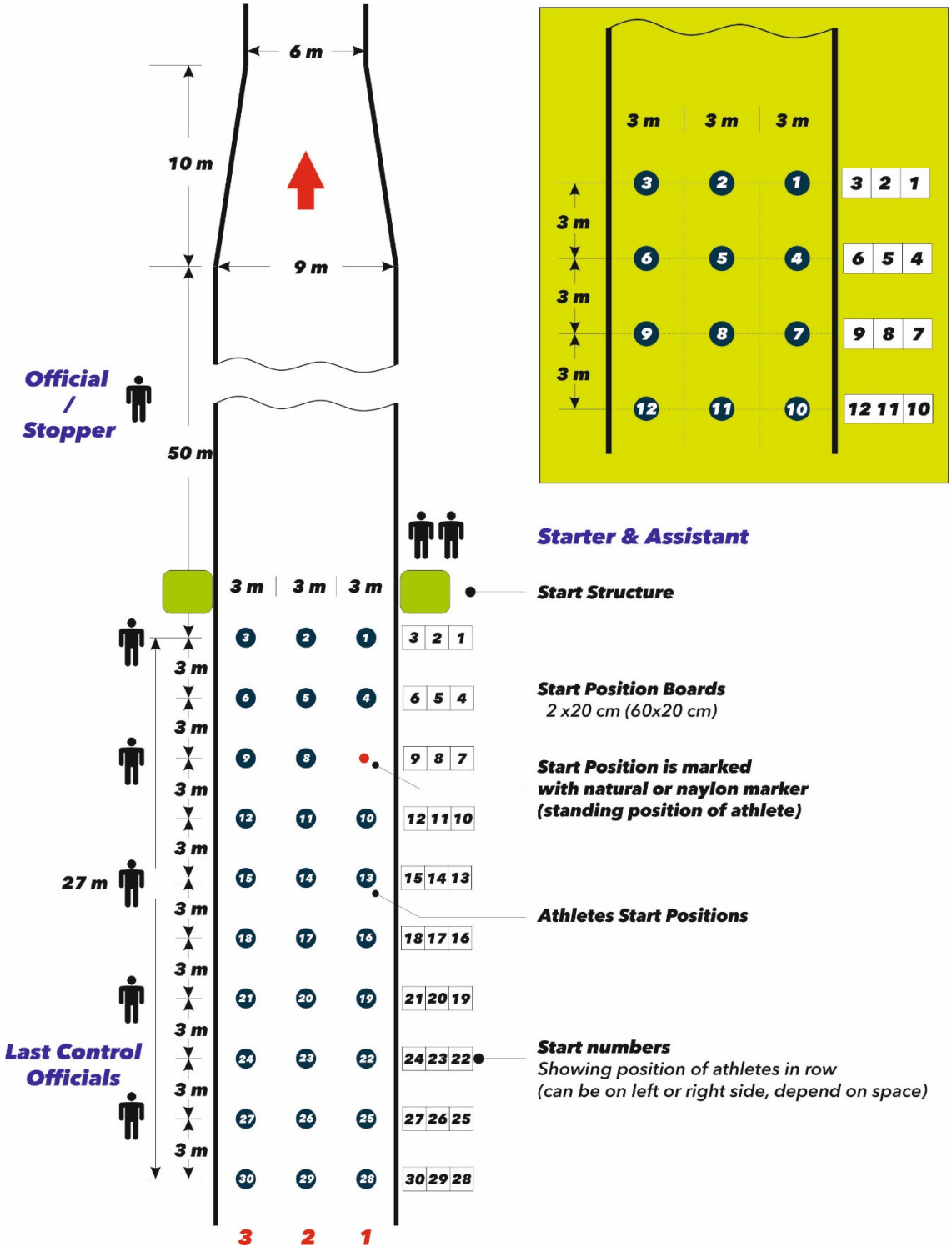
Chart 10:Pursuit start area



3.4 Simultaneous start area

This are is used for all relays, mass starts and super sprint finals. To accommodate 60 athletes for mass start 60 format, area can should be modified based on available space (more than 3 athletes in one row, more start rows).

Chart 11:Simultaneous start area



4. Hand over zone

Hand over zone is used for all relay competitions, where athletes start with a tag from previous athlete. When possible hand over zone should be very close to warm-up area and also finish area. This will optimize flow of athletes going to start and entering finish area (and further to mixed zone when applicable).

Please note that Single Mixed competition might require different organization of hand over zone, because it starts right after penalty loop.

Chart 12:Relay hand over zone (common)

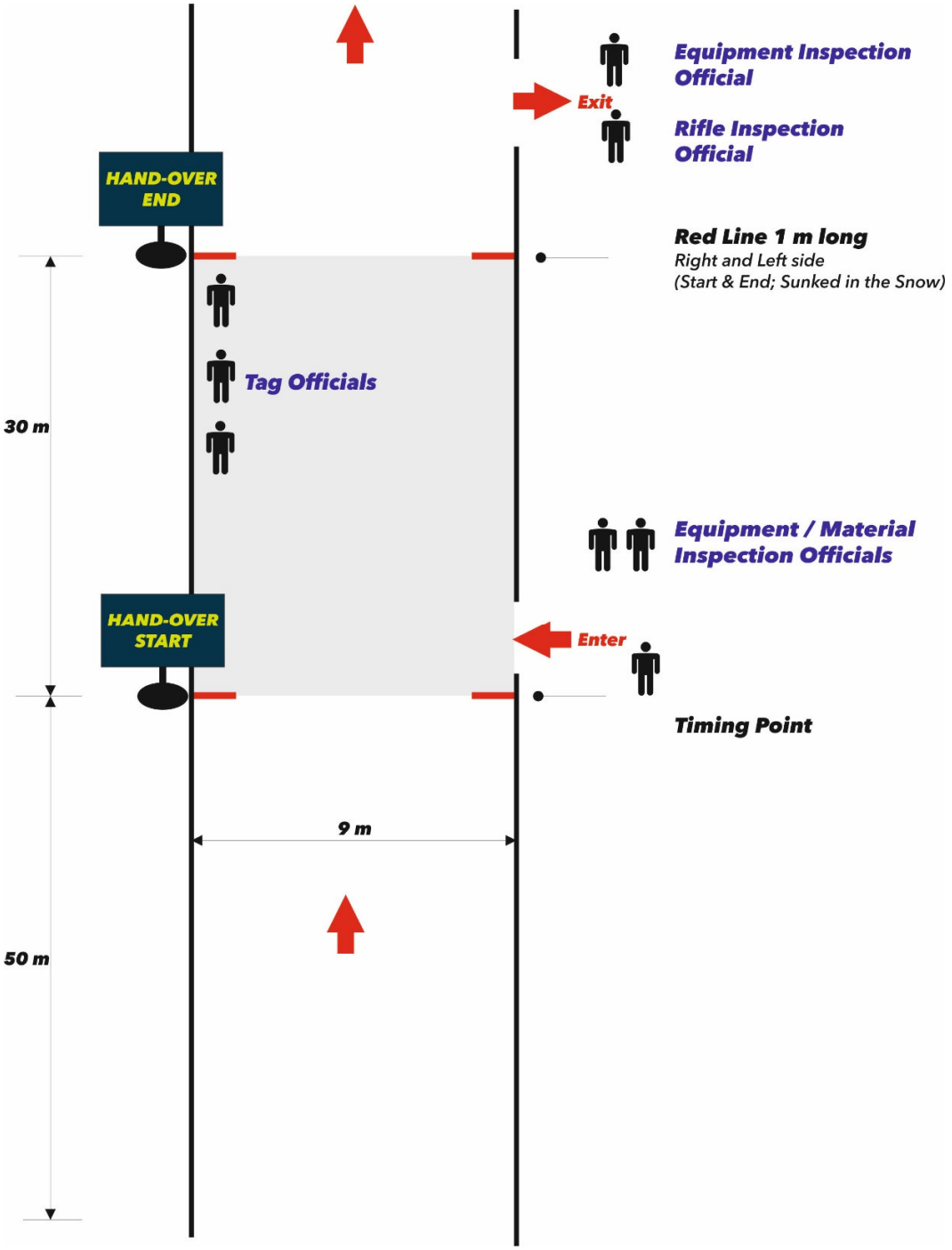


Chart 13:Single mixed relay hand over zone option A

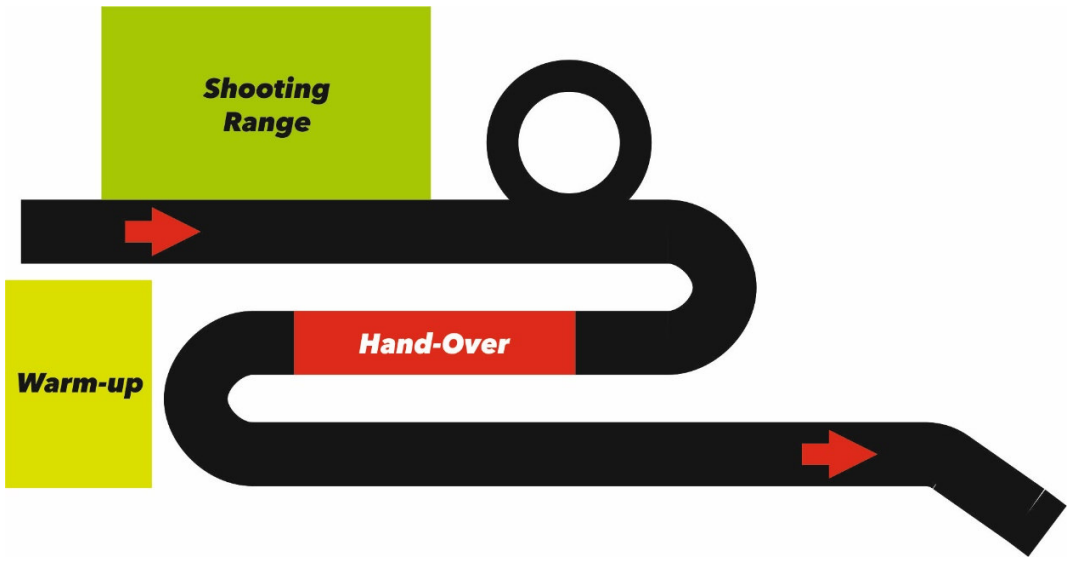
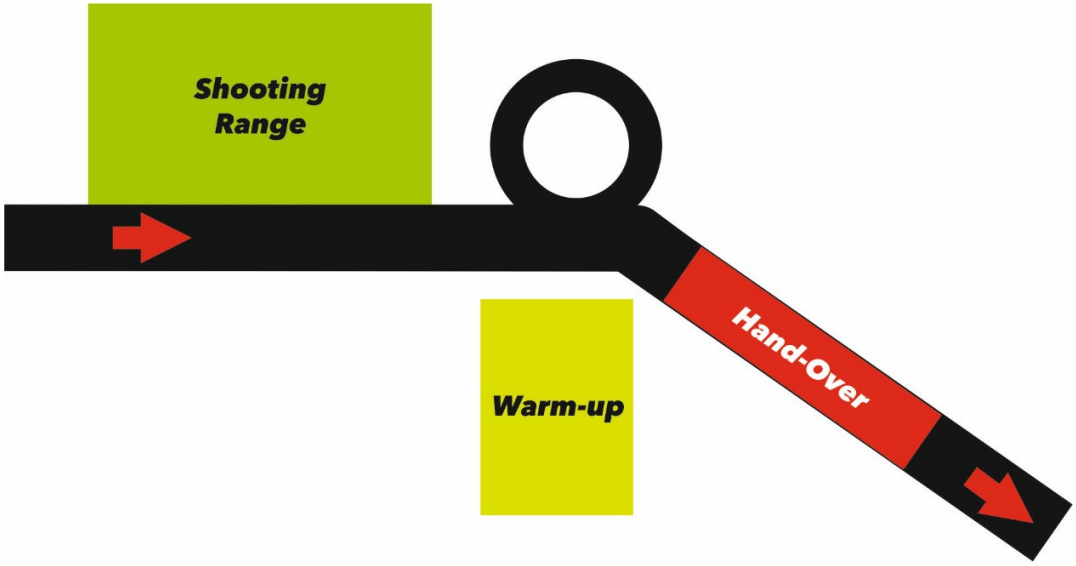


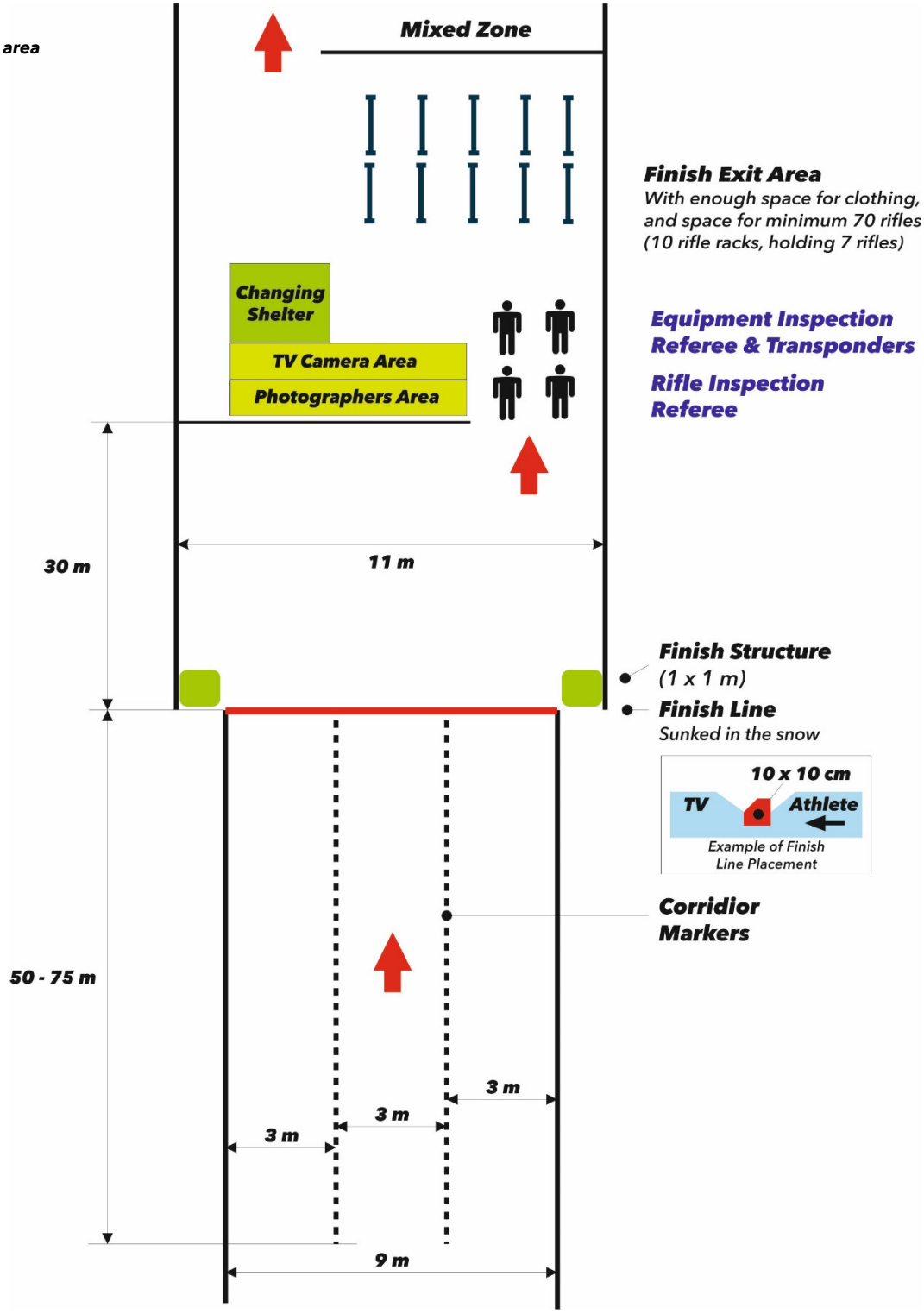
Chart 14:Single mixed relay hand over zone option B



5. *Finish area*

Finish area start right after finish line, with first 30 m of clear area same groomed as course which allow athletes to safely reduce their speed and stop. Further it continue to finish exit area, where all material inspections take place and is a space for teams where athletes can get warm clothes and proceed to mixed zone (when applicable).

Chart 15:Finish area



6. *Shooting Range*

Most important issue at shooting range is to guarantee safety at every time shooting is in progress. IBU Rules need to be respected strictly which will minimize possible accidents. On the other hand shooting range need to be prepared carefully to secure as much as possible same conditions for all athletes and with no major differences to other ranges used for biathlon events.

There are different types of biathlon target available. Target systems, currently authorized, are listed in IBU Material Catalogue – Annex A. For rifle zeroing purpose paper target also need to be prepared in enough quantity to secure all trainings and competitions with same type of paper targets (same colour, same quality). Characteristic of paper targets are also described in Annex A.

Chart 16:Shooting range top view

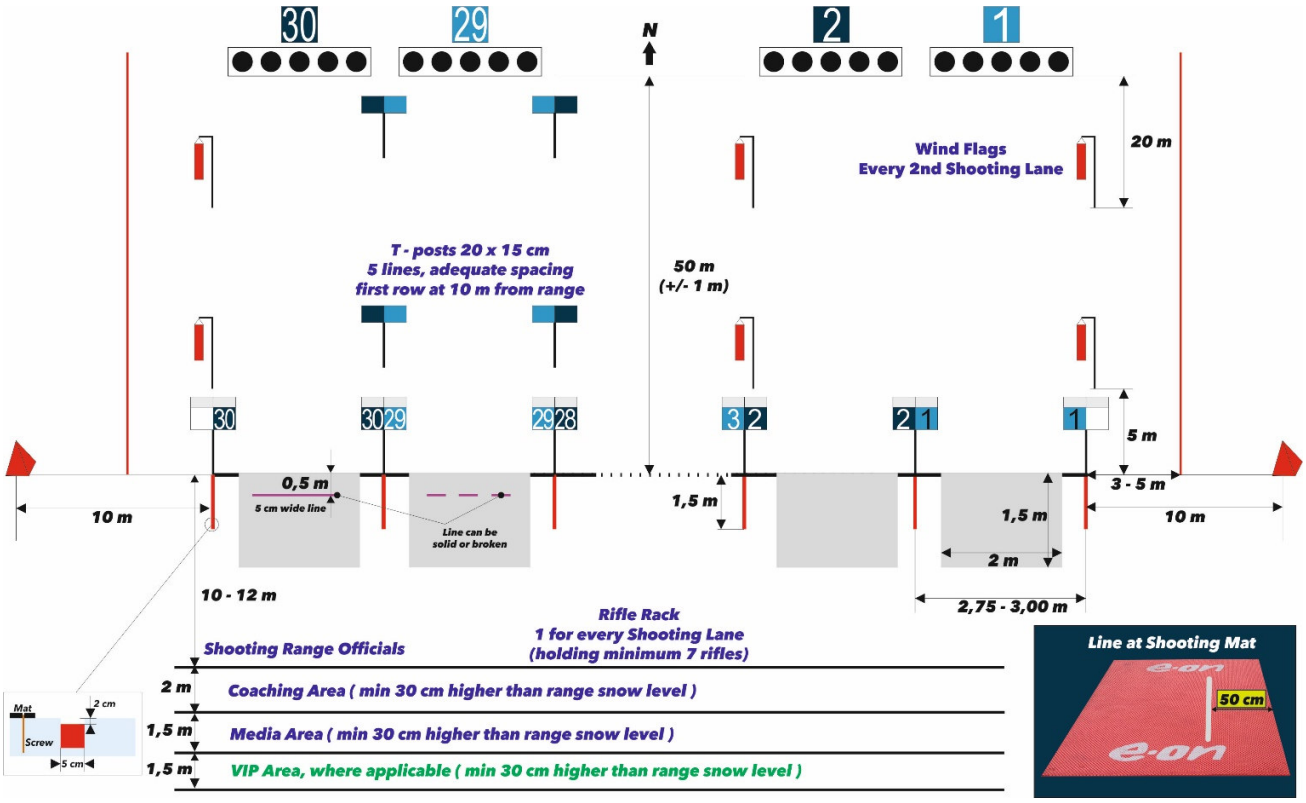


Chart 17:Shooting range side view

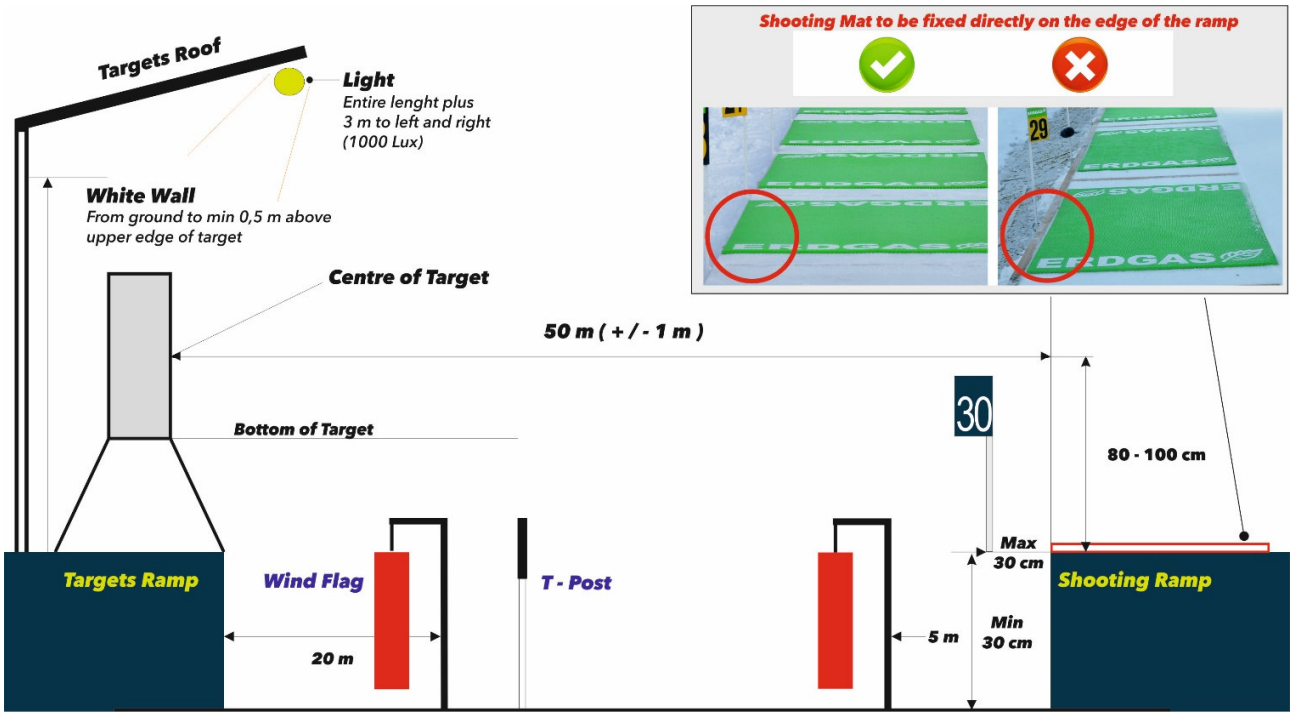
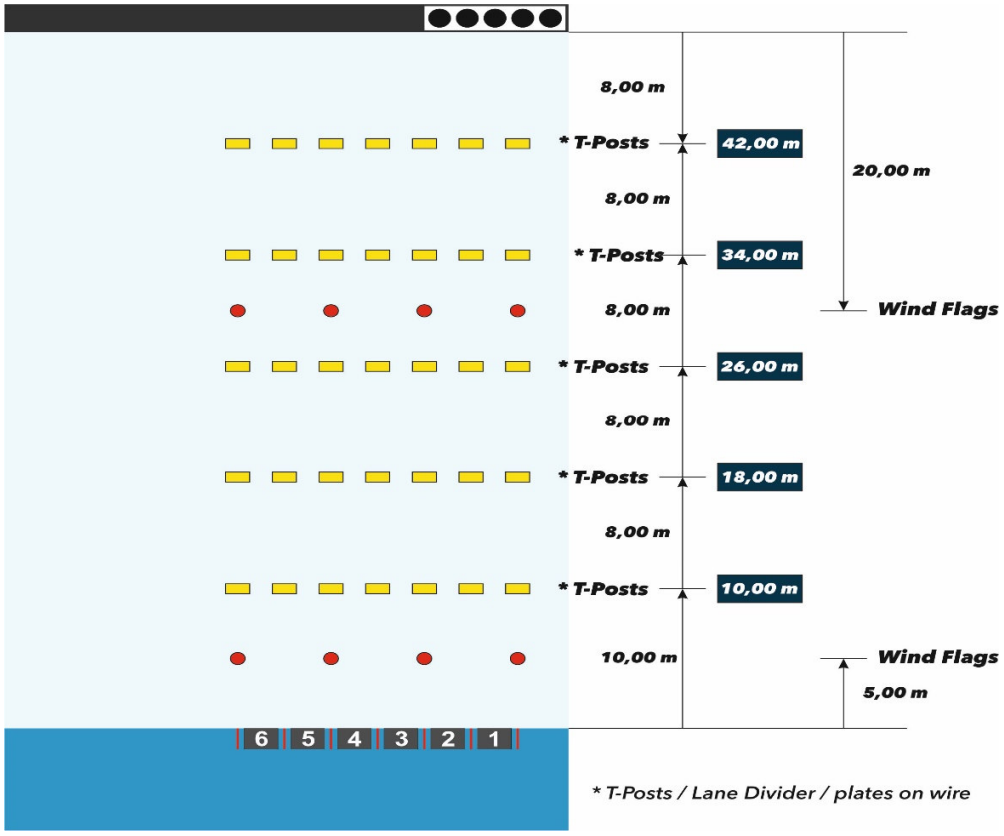


Chart 18:T-posts / Lane Dividers placement (IBU E&C Rules: 3.4.3.1 Shooting Lanes)



7. Penalty loop

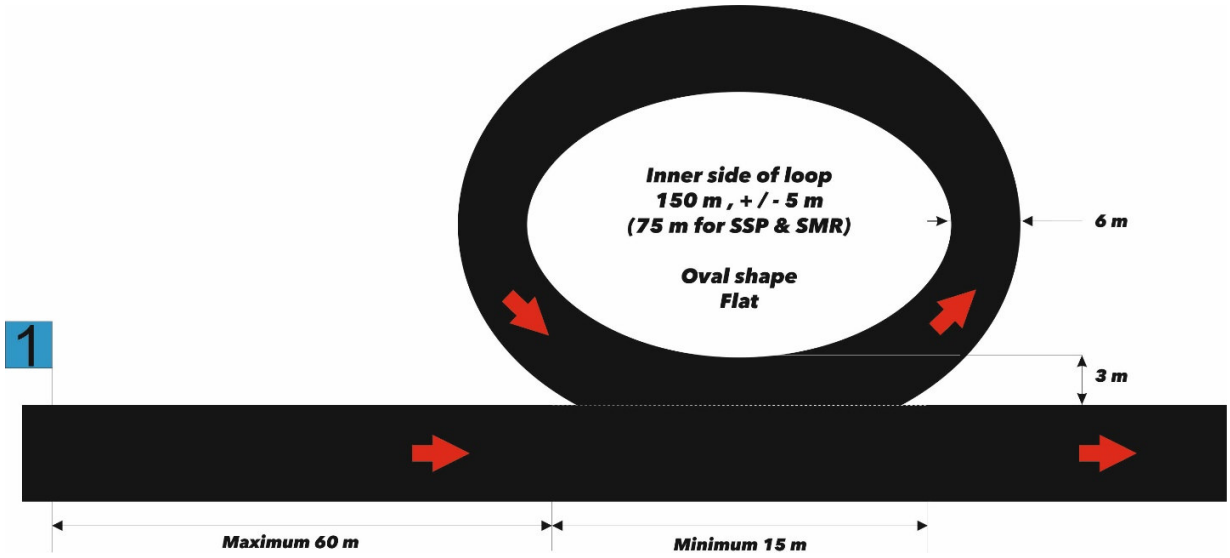
Penalty loop location is right after shooting range exit, but not more than 60 meters after shooting lane nr. 1. Area for penalty loop need to be flat, loop itself have to be oval shape without sharp corners. There are 2 length of penalty loop used in biathlon competitions:

- *150 m and*
- *75 m*

When possible penalty loop should be marked with closed V-board line, at least inside and especially in the corners (when middle part is straight). Length of the loop is measured on inside border (not in the middle as course).

Entrance/Exit should be placed in a way that distance in and out of the loop does not mean significant added meters to whole distance. Since penalty loop should be 6 meters wide, recommended placement of inner side of loop next to course is not more than 3 meters, like shown in a chart.

Chart 19:Penalty loop

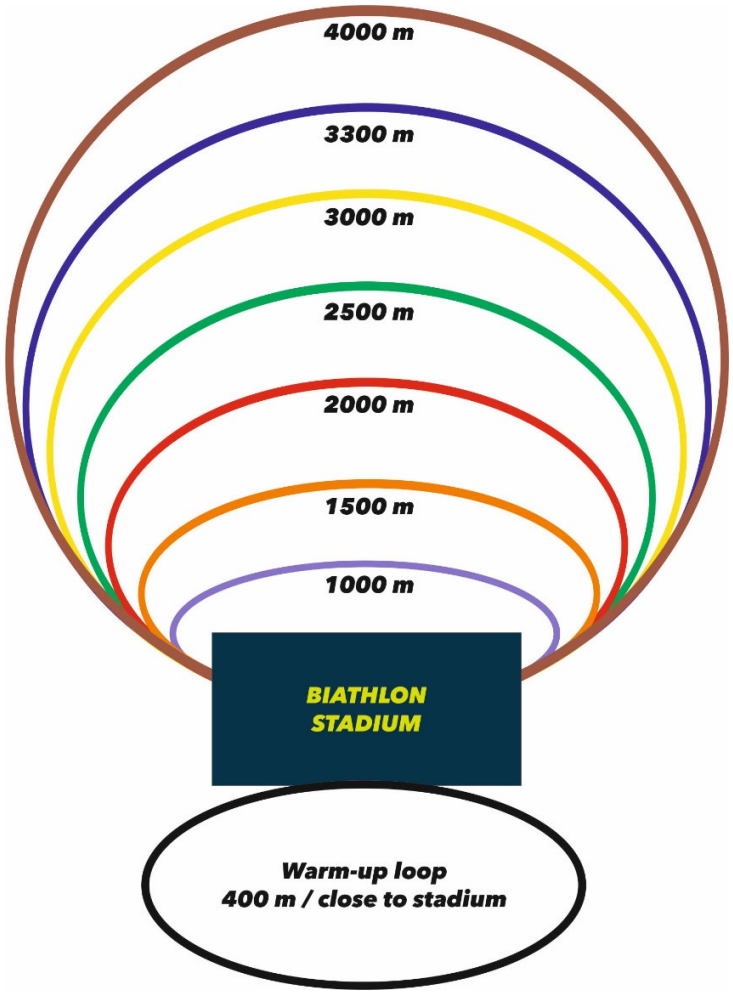


8. Courses

Courses are essential part of biathlon sport and some basic characteristic need to be observed:

- *Minimum width have to be 6 meters in some parts up-to 8 meters (uphills)*
- *When necessary some short parts (not more than 50 meters) can be minimum 4 meter wide (bridges)*
- *Highest altitude reached by any part of course cannot exceed 1800 meters above sea level*
- *Maximum grade of all climbs on the course must not exceed 25%*
- *Maximum unbroken uphill high difference is 50 meters*
- *Maximum permitted difference in altitude between highest and lowest point is 80 meters for all competitions*
- *Actual length of competition distance may not be more than 2% shorter or 5% longer*
- *Preparation of course must be done so that competitor may ski it at full speed without undue risk of an accident*
- *To improve safety Jury may alter first loop of mass start, pursuit or relay competition*
- *Classic track can be set for training days or can be set in some downhill sections if required by teams or officials*
- *When planning courses coaches' areas need to be foreseen*
- *For roller ski competition course need to be at least 3,5 meters wide*

Chart 20:Biathlon course system



8.1 Course specifications

Legend to competition specifications

Column 1 *Class of Competitor: according to these Rules.*

Column 2 *Type of Competition: according to these Rules.*

Column 3 *Competition Distance.*

Column 4 *Start Types and Intervals: the method by which the start is made and the interval between the starts of two consecutive competitors.*

Column 5 *Number of Ski Loops: course rounds to be skied by the competitor.*

Column 6 *Length of single loop used for competition.*

Column 7 *Shooting Bouts: the number of shooting bouts the competitor must do and the shooting position to be used in the bout (P = Prone, S = Standing), the number of rounds the competitor must fire in each bout.*

Column 8 *Shot Penalties: automatic shot-penalty - 1 minute / 45 seconds of added time or a 150 m / 75 m penalty loop - imposed on a competitor for each target left standing after all rounds for the bout have been fired.*

Column 9 *Minimum Total Climb (tc): the total vertical ascent in the competition (the sum of all the ascents) for each competitor.*

Column 10 *Maximum Total Climb (tc): the total vertical ascent in the competition (the sum of all the ascents) for each competitor.*

Column 11 *Loop Minimum Total Climb (tc): the total vertical ascent for one loop in the competition (the sum of all the ascents) for each competitor.*

Column 12 *Loop Maximum Total Climb (tc): the total vertical ascent for one loop in the competition (the sum of all the ascents) for each competitor.*

Chart 21:Competition specifications

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
MEN	INDIVIDUAL	20.000	Single, 30 sec	5	4.000	P - S -P - S	60 sec	550	600	800	800	110	160
	SHORT INDIVIDUAL	15.000	Single, 30 sec	5	3.000	P - S -P - S	45 sec	400	400	600	600	80	120
	MASS START 30	15.000	Simultaneous	5	3.000	P - P -S - S	150 m	400	350	600	500	80	120
	MASS START 60	15.000	Simultaneous	6	2.500	P - P - S - S	150 m	420	400	600	600	70	100
	PURSUIT	12.500	Pursuit	5	2.500	P - P -S - S	150 m	350	350	500	500	70	100
	SPRINT	10.000	Single, 30 sec	3	3.300	P - S	150 m	270	300	405	450	90	135
	RELAY	7.500	Simultaneous and Tag	3	2.500	P - S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY men first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY men second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

WOMEN

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
	INDIVIDUAL	15.000	Single, 30 sec	5	3.000	P - S -P - S	60 sec	400	400	600	600	80	120
	SHORT INDIVIDUAL	12.500	Single, 30 sec	5	2.500	P - S -P - S	45 sec	350	400	500	600	70	100
	MASS START 30	12.500	Simultaneous	5	2.500	P - P -S - S	150 m	350	350	500	500	70	100
	MASS START 60	12.000	Simultaneous	6	2.000	P - P - S - S	150 m	330	400	480	600	55	80
	PURSUIT	10.000	Pursuit	5	2.000	P - P -S - S	150 m	275	200	400	300	55	80
	SPRINT	7.500	Single, 30 sec	3	2.500	P - S	150 m	210	200	300	300	70	100
	RELAY	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY women first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY women second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

JUNIOR MEN

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
	INDIVIDUAL	15.000	Single, 30 sec	5	3.000	P - S -P - S	60 sec	400	400	600	600	80	120
	MASS START 30	12.500	Simultaneous	5	2.500	P - P -S - S	150 m	350	300	500	500	70	100
	MASS START 60	12.000	Simultaneous	6	2.000	P - P - S - S	150 m	330	300	480	500	55	80
	PURSUIT	12.500	Pursuit	5	2.500	P - P -S - S	150 m	350	350	500	500	70	100
	SPRINT	10.000	Single, 30 sec	3	3.300	P - S	150 m	270	300	405	450	90	135
	RELAY	7.500	Simultaneous and Tag	3	2.500	P - S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY men first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY men second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

JUNIOR WOMEN

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
	INDIVIDUAL	12.500	Single, 30 sec	5	2.500	P - S -P - S	60 sec	350	350	500	500	70	100
	MASS START 30	10.000	Simultaneous	5	2.000	P - P -S - S	150 m	275	200	400	400	55	80
	MASS START 60	9.000	Simultaneous	6	1.500	P - P - S - S	150 m	180	150	360	325	30	60
	PURSUIT	10.000	Pursuit	5	2.000	P - P -S - S	150 m	275	200	400	400	55	80
	SPRINT	7.500	Single, 30 sec	3	2.500	P - S	150 m	210	200	300	300	70	100
	RELAY	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY women first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY women second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

YOUTH MEN

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
	INDIVIDUAL	12.500	Single, 30 sec	5	2.500	P - S -P - S	45 sec	350	350	500	500	70	100
	MASS START 30	10.000	Simultaneous	5	2.000	P - P -S - S	150 m	275	200	400	400	55	80
	MASS START 60	12.000	Simultaneous	6	2.000	P - P - S - S	150 m	330	300	480	500	55	80
	PURSUIT	10.000	Pursuit	5	2.000	P - P -S - S	150 m	275	200	400	400	55	80
	SPRINT	7.500	Single, 30 sec	3	2.500	P - S	150 m	210	200	300	300	70	100
	RELAY	7.500	Simultaneous and Tag	3	2.500	P - S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY men first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY men second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

1.	2.	3.	4.	5.	6.	7.	8.	9.		10.		11.	12.
	Competition Format	Competition Distance (m)	Standard Start Types and Intervals	Number of skiing loops	Length of the Loop (m)	Shooting sequences 5 rounds per bout, plus spare rounds for Relays (3) and Super Sprint (1)	Penalty for missed shot	Minimum Total Climb per Competition (m)		Maximum Total Climb per Competition (m)		Minimum Total Climb per Loop (m)	Maximum Total Climb per Loop (m)
								2019	Old*	2019	Old*		
YOUTH WOMEN	INDIVIDUAL	10.000	Single, 30 sec	5	2.000	P - S -P - S	45 sec	275	200	400	350	55	80
	MASS START 30	7.500	Simultaneous	5	1.500	P - P -S - S	150 m	150	125	300	300	30	60
	MASS START 60	9.000	Simultaneous	6	1.500	P - P - S - S	150 m	180	150	360	325	30	60
	PURSUIT	7.500	Pursuit	5	1.500	P - P -S - S	150 m	150	125	300	300	30	60
	SPRINT	6.000	Single, 30 sec	3	2.000	P - S	150 m	165	200	240	300	55	80
	RELAY	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	MIXED RELAY 2.5 km loop	7.500	Simultaneous and Tag	3	2.500	P -S	150 m	210	200	300	300	70	100
	MIXED RELAY 2.0 km loop	6.000	Simultaneous and Tag	3	2.000	P - S	150 m	165	150	240	250	55	80
	SINGLE MIXED RELAY women first	6.000	Simultaneous and Tag	4	1.500	P - S + P - S	75 m	120	100	240	240	30	60
	SINGLE MIXED RELAY women second	7.500	Simultaneous and Tag	5	1.500	P - S + P - S	75 m	150	125	300	300	30	60
	SUPER SPRINT QUALIFICATION	3.000	Single, 15 sec	3	1.000	P - S	75 m	45	45	120	120	15	40
	SUPER SPRINT FINAL	5.000	Simultaneous	5	1.000	P - P - S - S	75 m	75	75	200	200	15	40

* ***For venues with licensed courses (valid at cut-off date: October 15th 2019) the old values are still accepted until the courses are changed/renewed on site.***

8.2. Course calculator for biathlon venues

Normally during license inspection, all courses (loops) are carefully measured by inspector, inspecting if all loops are suitable for biathlon competitions.

Usual measurements is like follows:

- *First Loop from start to shooting lane number 15*
- *Middle loop from shooting lane number 15 to shooting lane number 15*
- *Last loop from shooting lane number 15 to finish*

Biathlon courses are measured in the middle of the course at all times. In process of licensing different devices may be used:

- *GPS device gives quite precise data, especially useful when course surface is not finally prepared*
- *Measurement wheel very precise data when handle careful, very easy to use on final prepared course surface*
- *Altimeter to establish high difference for all uphills*
- *Inclinometer to check grade of uphills*

It is very useful for each venue to have precise course (and venue maps), done in correct scale. For optimum planning all different sections have to be measured and noted in a map (this is very helpful when alternative loops need to be found due different circumstances).

Chart 22:Biathlon course calculator (example for men and women competitions)

	MEN											WOMEN										
Competition Type	IND	Short IND	SPR	MASS 30	MASS 60	PUR	REL	MIX REL	SMI REL	SS Quali	SS Final	IND	Short IND	SPR	MASS 30	MASS 60	PUR	REL	MIX REL	SMI REL	SS Quali	SS Final
Penalty	60 sec	45 sec	150 m	150 m	150 m	150 m	150 m	150 m	75 m	75 m	75 m	60 sec	45 sec	150 m	150 m	150 m	150 m	150 m	150 m	75 m	75 m	75 m
Loop Color	20 km	15 km	10 km	15 km	15 km	12.5 km	7.5 km	7.5 km	7.5 km	3 km	5 km	15 km	12.5 km	7.5 km	12.5 km	12 km	10 km	6 km	6 km	6 km	3 km	5 km
First loop																						
Shooting	P	P	P	P	P	P	P+3	P+3	P+3	P+1	P+1	P	P	P	P	P	P	P+3	P+3	P+3	P+1	P+1
Middle Loop																						
Middle Loop																						
Shooting	S	S	S	P	P	P	S+3	S+3	S+3	S+1	P+1	S	S	S	P	P	P	S+3	S+3	S+3	S+1	P+1
Middle Loop																						
Shooting	P	P		S	S	S			P+3		S+1	P	P		S	S	S			P+3		S+1
Middle Loop																						
Shooting	S	S		S	S	S			S+3		S+1	S	S		S	S	S			S+3		S+1
Finish Loop																						
Comp. distance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Distance	21.000	15.750	10.500	15.750	15.750	13.125	7.875	7.875	7.875	3.600	6.000	15.750	13.125	7.875	13.125	12.600	10.500	6.300	6.300	6.300	3.600	6.000
Minimum Distance	19.600	14.700	9.800	14.700	14.700	12.250	7.350	7.350	7.350	2.400	4.000	14.700	12.250	7.350	12.250	11.760	9.800	5.880	5.880	5.880	2.400	4.000
Highest Point																						
Lowest Point																						
Maximum Climb																						
Total Climb (loop)																						
Total Climb (distance)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Climb Dist.	800	600	420	600	600	500	300	300	300	120	200	600	500	300	500	480	400	240	240	240	120	200
Minimum Climb Dist.	550	400	270	400	450	375	225	225	150	45	75	400	375	225	375	330	275	165	165	120	45	75

9. Markings

Each biathlon venue need diverse markings to mark areas, lanes, targets, courses and other facilities. Most of dimensions and placements are described in IBU Event and competition rules while some can be manufactured by OC based on their own needs.

Be aware that some marking for highest biathlon events need to respect IBU Advertising rules and IBU Venue dressing guide. When a certain rule apply in need to be observed; mostly in all areas show by TV cameras.

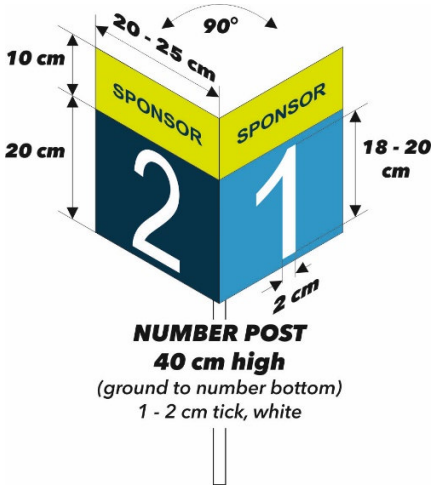
However some markers could be done for multipurpose use: the best is to use neutral (or venue) design without any indications (logos) of specific events.

9.1 Shooting range markings

9.1.1 Target number

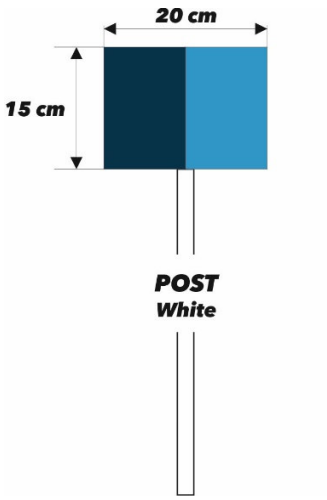
- *Recommendable dimensions is 45 x 45 centimeters*
- *Number must be placed directly above target in the middle of (metal) target*
- *For highest IBU events Dressing guide need to be observed for design*

9.1.2 Shooting lane number

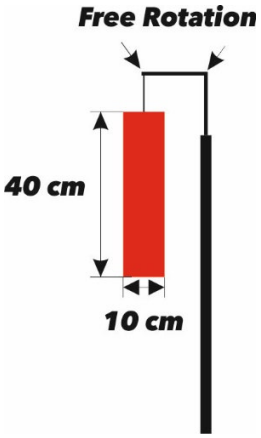


9.1.3 Prone/Standing divider (example)

9.1.4 T-Post / Lane Divider / Post mounted on hard wire



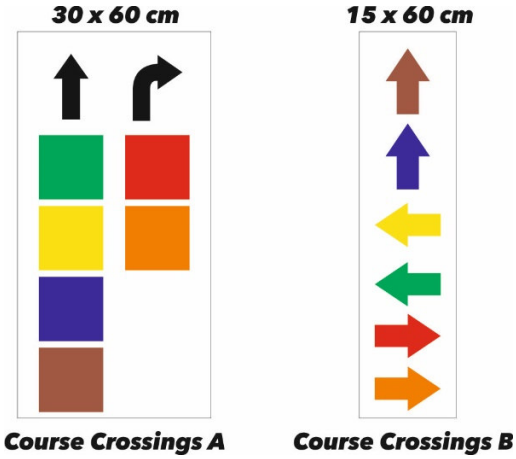
9.1.5 Wind flag (made from light material, maximum weight 5 gram, adjustable post height, highly visible colour)



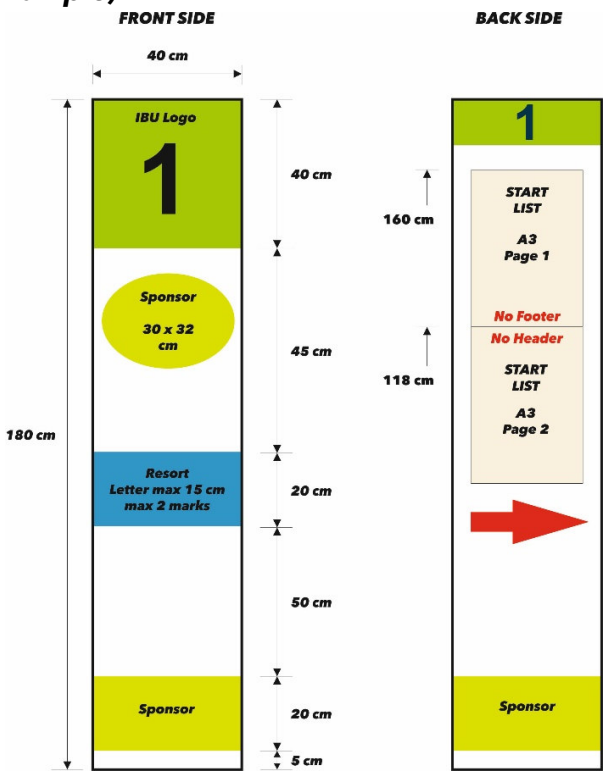
9.1.6 *Silent zone markers (optional)*

9.2 *Course and stadium markers*

9.2.1 *Course junctions' markers (example)*

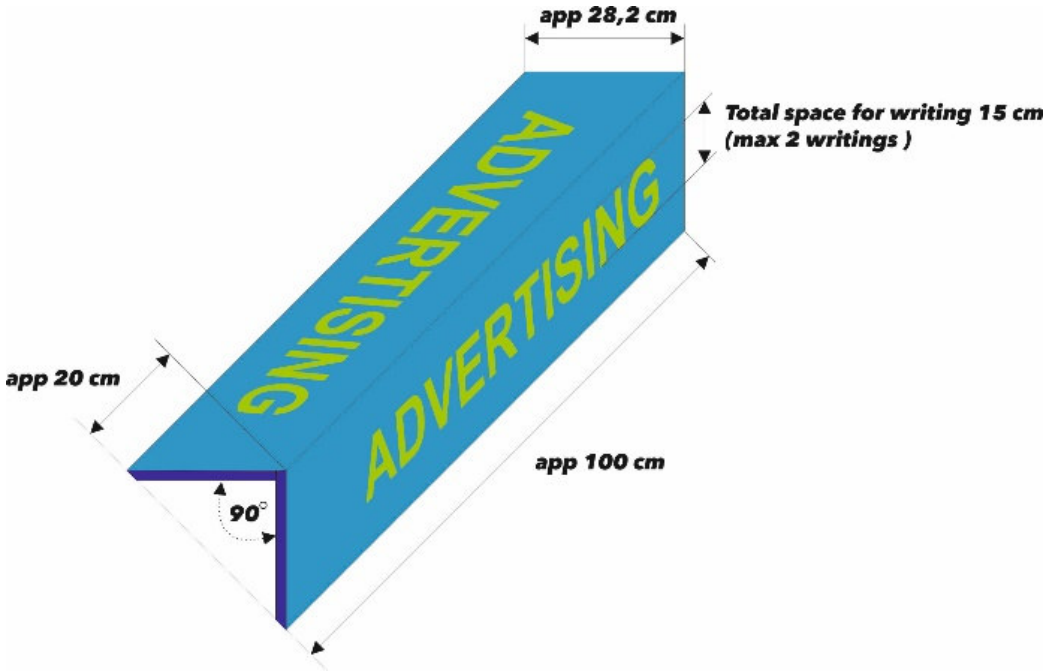


9.2.2 *Pursuit start boards (example)*



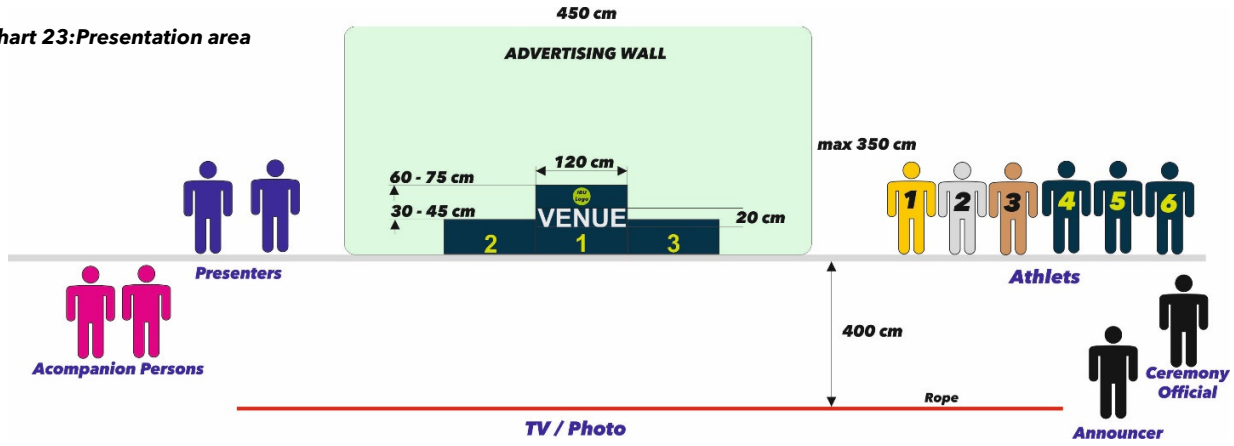
9.2.2 Diverse stadium markers (example)

10. V-board (example)



11. Victory/Flower ceremony area organization

Chart 23:Presentation area

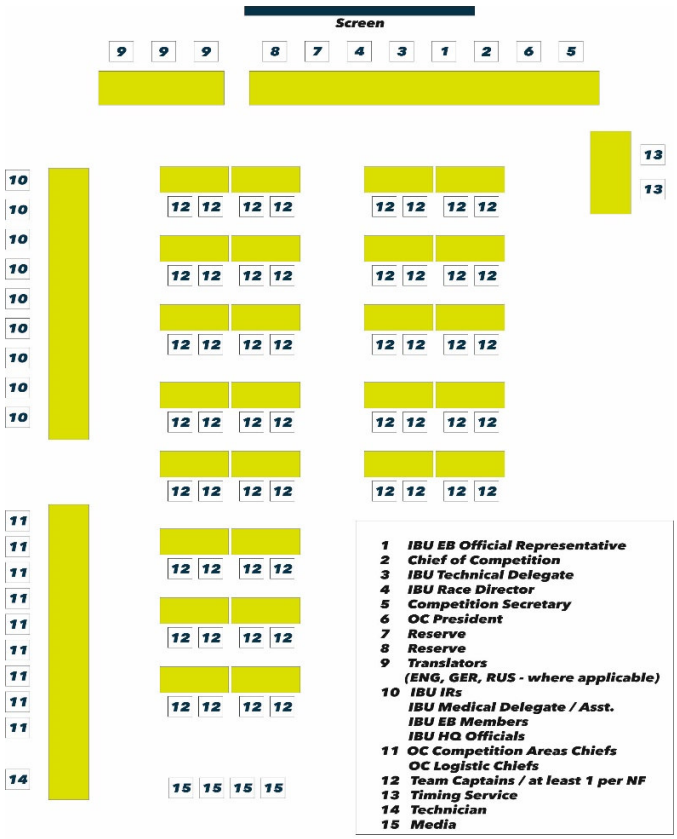


11. Team captains´ meeting room organization

Meeting room can be organized directly in the venue (in competition management area, media centre or VIP area) when space is available and not in use or outside venue (hotel, culture centre, school…). Before final preparation requests or other specifics should be checked with IBU Race director or IBU Technical delegate.

For meeting OC need to prepare agenda and presentation accordingly.

Chart 24:TCM Room



12. Shooting range record sheet

Each shooting need to be recorded during competition. In order to fulfil this record as precise as possible, each shooting lane should have dedicated shooting lane recorder, who observe athlete during shooting and record necessary data.

This records are extremely important in order to solve some range issues, when just electronic records are not enough.

Every OC should find their bets procedure to record shooting, but it is necessary to educate IBU Officials about system in use.

Chart 25:Shooting record sheet sample