



FÉDÉRATION INTERNATIONALE
DE MOTOCYCLISME

FIM STANDARDS FOR CIRCUITS

2018

NORMES FIM POUR LES CIRCUITS

FIM Standards for Circuits

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Any references to the male gender in this document are made solely for the purpose of simplicity, and refer also to the female gender except when the context requires otherwise.

ARTICLE 1 - OBJECT

The FIM Standards for Circuits will be used by FIM inspectors for circuit homologation.

Course designers can also use these standards as initial guidance for the construction of new circuits. Practical criteria concerning conception and use are included in these standards to assist the designer of a new circuit in the presentation of a project to the FIM. Circuits that plan modifications to a course can also use these standards as guidelines and have to apply for homologation of the changes.

Exceptions to the following articles may be granted according to the grade of circuit licence.

A study of the circuit drawings will be made for each circuit and FIM inspectors will issue specific requirements. The circuit will have to apply these requirements to achieve homologation.

These standards are subject to interpretation depending on each individual case and on local conditions, laws and inspections.

The operators of a circuit are responsible for the safety conditions prevailing within its precincts.

The current FIM standards come into force on 1 January **2018**.

They cancel and replace all prior editions.

Changes may be made to these standards, each time the FIM, on the basis of experience or technical evolutions or for safety reasons, deems it necessary.

Please note that circuit designers should use these standards as guidance to build the racetrack (up to the second line of protection), the Pit Lane, the Medical Centre and the Race Control room.

Basically, these standards deal with all safety-related matters at a circuit.

For all other aspects, please consult the Promoter's Manual of the event's organisers, if existing. For example for MotoGP™, please consult Dorna's Promoter's Manual.

ARTICLE 2 - DEFINITIONS

Circuit: A closed course, permanent or non-permanent, where the course itself starts and finishes at the same point, built or adapted specifically for motorcycling racing.

Track: The area defined by the outer edges of the racing surface, delimited by white lines, and the parts of a track between the pit lane entry and pit lane exit lines, and the track itself.

These Standards do not refer to FIM Track Racing. Standards for Track Racing Circuits are to be found in a different manual.

Track surroundings: The area between the edges of the track and the first protection lines

Service Areas: The areas between the first and the second line of protection

New circuit: For the purposes of the application of these standards and any FIM texts concerning circuit safety and/or construction, the term "New Circuit" means:

- a non-existent circuit
- an existing circuit which has not been used for international racing.
- An existing circuit that undergoes substantial modifications may also be considered by the Commission as "new circuit"

Commission: In these Standards, the term “Commission” refers to the Commission of Circuit Racing of the FIM (CCR).

Inspection: A visit by the Commission delegates in order to:

- make recommendations in accordance with these standards
- verify or approve works preformed on the basis of the recommendations made previously.
- verify all the conditions and services required for the circuit to host an international event.
- the final visit carried out in order to issue the circuit licence.

Homologation Procedure:

- The procedure to be followed in order to issue a circuit licence.

Circuit Licence:

- A certificate attesting that a circuit has been homologated by the FIM.
- It stipulates the conditions under which the circuit may be used and the categories of motorcycles and events that can be admitted.

FMN: National Motorcycle Federation (Fédération de Motocyclisme Nationale).

World Championship acronyms:

- MotoGP: Whenever the word “MotoGP” is used during these Standards it refers to the FIM World Championship Grand Prix.
- WSBK: Whenever the word “WSBK” is used during these Standards it refers to the FIM Superbike World Championship.
- Endurance: Whenever the word “Endurance” is used during these Standards it refers to the FIM Endurance World Championship.
- Sidecars: Whenever the word “Sidecars” is used during these Standards it refers to the FIM Sidecar World Championship.
- Moto3 Junior: Whenever the word “Moto3 Junior” is used during these Standards it refers to the FIM Moto3 Junior World Championship.

ARTICLE 3 - INSPECTIONS AND HOMOLOGATION PROCEDURE

3.1 CIRCUIT LICENCE GRADES

FIM circuit licences are issued in grades from A to E according to the categories and groups of motorcycles for which the circuit is considered suitable and are issued with the sole purpose of permitting the registration of races in the FIM Calendar for the categories of motorcycles specified.

The types and groups indicated below correspond to the classification established in the relevant FIM regulation. Each licence grade is also valid for all categories of motorcycles in the grades below it, except Grade E for Sidecars.

They are:

Grade	Grand Prix	Superbike Supersport Superstock	Endurance	Junior Moto3	eBike	Sidecar
A	X	X	X	X	X	
B		X	X	X	X	
C			X	X	X	
C/I				X	X	
D					X	
E						X

“+N” in addition to the grade means that this circuit is also homologated for night races for motorcycles not equipped with lights. A small “t” attached to the grade means that this circuit is homologated for TESTS only. The grade will be stated on the circuit licence.

The granting of a homologation licence is a prerequisite for the organisation of an FIM Championship, Prize or Cup event.

The homologation licence is valid for FIM World Championships, Prizes and Cup events only. The operators of a circuit are responsible for the safety conditions prevailing within its precincts.

3.2 PROCEDURE FOR NEW HOMOLOGATION

This article concerns the homologation procedure for new circuits **ONLY**.

In the case of new circuits or new projects at circuits intended for FIM events, a comprehensive dossier of plans and specifications must be submitted to the FIM in order to obtain a circuit license. (See dossier requirements in Article 3.4). This dossier must be submitted to the FIM through the FMN of the country in which the circuit is situated. Without submission of the dossier, no homologation process will begin,

The FIM will charge a project analysis and inspection fee for handling a new circuit dossier. The same fees will be charged each time the FIM is asked to approve a proposed modification to an existing circuit.

These standard rates will be fixed each year by the FIM. An additional fee will be charged for each study of a modified or alternative configuration requested on behalf of a circuit or required for FIM approval. Such fees are for Supplementary Simulation. These will be charged in the framework of a project analysis that needs more than the Simulations covered by the circuit inspection fees.

The FIM, after the examination of each case in relation to its particular circumstances, may recommend modifications and shall be kept informed of each stage of development.

The Commission's delegates will perform on-site inspections, as necessary. There will be at least one preliminary inspection and one final inspection.

For permanent circuits, it is recommended that the final inspection should be made not later than 90 days before the first FIM event to be held. At this point all works should be completed.

For non-permanent circuits, a special homologation procedure will be followed.

The above procedures are also mandatory for circuits that have undergone substantial modifications. Any substantial modifications carried out but not submitted to the FIM are liable to suspend the homologation.

3.3 PROCEDURE FOR HOMOLOGATION RENEWAL (Existing circuits)

To see with the FIM/CCR Administration.

3.4 PROCEDURE FOR FUTURE PROJECTS

Preliminary consultations with the FIM Commission on future projects or modifications may be requested through the FMN. However, FIM inspectors will not respond to invitations to undertake consultations or site visits except when mandated to do so in the context of the FIM homologation procedure

Recommendations/assistance regarding design for circuits that have not yet decided to apply for homologation or even whether they intend to host international/national sporting events but want to build a safe circuit for motorcycles (with future possibilities).

3.5 OBLIGATORY CIRCUIT DOSSIER

The circuit dossier should include the following information:

- Circuit layout to scale 1:2000 (minimum), with indication of orientation, race direction, buildings, installations, services as requested in the relevant FIM Codes and Regulations.
- Plan of pits and paddock area and medical centre to scale 1:500 minimum.
- Detailed plan of all buildings (including medical centre and helipad), to scale 1:200 minimum.
- Profile of track centreline, to scale 1:2000 (length)/1:200 (altitude) minimum.
- Cross-sections of track and lateral spaces (track, track surroundings and service areas) at the start line, centre of principal corners, points of minimum and maximum width of the track, bridges and other singular points, to scale 1:200 minimum.
- A study of local climatic conditions and the design of the drainage system.

The circuit dossier should be supplied in digital format (to be requested to the FIM, including dwg and pdf).

The digital plans shall comply with the FIM circuit drawing standards (available on request).

The whole dossier should be revised and sent to the FIM each time the circuit is modified and will be the essential reference for the homologation process and the issuing of the circuit licence.

3.6 INSPECTIONS

Mandatory circuit inspections by the FIM and their fee categories:

TYPE OF MANDATORY CIRCUIT INSPECTION	FEE CATEGORY	CALCULATION OF FIM FEE
New circuits intended for international events, for first licence Grade A and B. (with necessary simulations and three inspections up to final)	1	Inspector's costs + necessary simulation costs + fee
New circuits intended for international events, licence Grade C, C/I, D and E (with necessary simulations and three inspections up to final)	2	Inspector's costs + necessary simulation costs + fee
Renewal of an FIM circuit licence (existing race-tracks), Grades A, B, C, with inspection	3	Inspector's costs + fee
Renewal of an FIM circuit licence (existing race-tracks), Grades C/I, D and E, with inspection	4	Inspector's costs + fee
Renewal of an FIM circuit licence (existing race-tracks), Grades A, B, C, without inspection	5	Fee
Renewal of an FIM circuit licence (existing race-tracks), Grades C/I, D and E, without inspection	6	Fee
Preliminary FIM consultations about safety of a non-homologated circuit (future projects)	7	Inspector's costs + fee
Preliminary FIM consultations on future modifications of existing racetracks	8	Inspector's costs + fee

The fee will be determined each year by the FIM. When a circuit receives different grades of homologation, the fee payable will be the one corresponding to the highest fee category.

Simulation results remain the property of the FIM.

For new circuits and future projects the FIM charges the applicant 50% of the fee on receipt of the dossier and 50% after final inspection. For existing circuits 100% of the fee will be charged after the inspection. The rate applying to each category will be fixed by the FIM each year.

Inspections may also be decided on for other reasons - by the Commission or at the request of circuit representatives through their FMNs.

During the final inspection for new circuit, the circuit operators must ensure that the inspector, when carrying out his duties, does not encounter obstruction or obstacles in the form of persons whose presence is not essential. It is recommended that no vehicle be allowed on the track during the inspection, except when works are under way on the track and its surroundings.

For inspections at existing circuits the FIM, the FMN, the inspector and the circuit operators will agree on a date and time for the inspection for the homologation renewal.

3.6.1 FIM Inspection reports

After each inspection a report will be issued with the relevant requirements of the inspector (this can include works to be carried out to obtain the circuit license).

After the final inspection, the homologation will be issued as well as a report including the safety measures to be taken for each FIM event.

The homologation report is valid for FIM World Championships, Prize and Cup events only.

3.7 CONSEQUENCES OF INSPECTION

After the issuing of an inspection report, the circuit must comply with the requirements stated in the report in order to continue with the homologation process. If the circuit fails to comply with such requests, the homologation process will stop.

After the issuing of the report following the final inspection, if all the works have been completed to the FIM's satisfaction, a circuit license may be issued.

It is understood that the organisation of an FIM World Championship, Prize and Cup event may not be allowed if the required works have not been fully carried out according to the FIM inspection reports.

Should a circuit combine more than one layout, the approval is valid only for the inspected configuration(s).

Circuits are accepted for the running of events entered in the FIM Calendar only in the same configuration and with all the same installations as are indicated in the circuit homologation report within a maximum period of validity of:

- Two calendar years from the date of the final inspection report for existing circuits
- One calendar year from the date of the final inspection report for new circuits

3.8 SUSPENSION OF THE HOMOLOGATION LICENCE

The FIM Circuit Inspector can suspend a homologation licence in the following cases:

- Failing to comply with the FIM requests for improvement of the permanent safety measures.
- Failure to report any modifications affecting the existing homologation license.
- Any deterioration that affects any of the elements in existing homologation license.
- Insufficient maintenance of the circuit

3.9 NUMBER OF MACHINES ADMITTED

The maximum number of solo bikes that are allowed in a group start will be defined during the homologation process and will depend on the tracks widths and lap time. The final number of machines allowed for the race will be indicated in the final inspection report.

The maximum number of sidecars that are allowed in a group start will be 60% of the solo bikes.

The absolute maximum will be 60 bikes for solo and 36 for sidecars.

For official practices, an additional 20% of machines are allowed.

For Endurance, the absolute maximum will be 70 bikes for practices and race.

ARTICLE 4 - CIRCUIT DESIGN

4.1 GENERAL PRINCIPLES

The elements in this article are meant to be of aid in the basic approach to circuit design. In order for circuits to obtain FIM homologation it is recommended that they follow the points described herein. Circuits that want to obtain Grade A or B licences will find that some points are mandatory.

Every circuit must also comply with the laws established by the public authorities of the country where the circuit is located.

4.2 CIRCUIT LAYOUT

There are no restrictions to the form of the course in plan. However, the FIM may recommend alterations in the interests of good competition, practical necessity and safety.

For the purposes of planning new permanent circuits, the track width should be at least 12 m excluding the starting grid straight where the minimum width required will be 14 m.

The transition between the different widths of the track should be made as gradually as possible. The recommended transition is 1 m difference for every 20 m section.

Existing circuits requesting international recognition but which are narrower may be homologated (by going through the homologation procedure) if national events have regularly been organised on them.

The centre line is the geometrical shape of the layout: half way between the outer and inner edges of the track.

The racing line and not the centre is the factor that will be used when referring in these standards to straights and curves and in order to calculate the average speed of a circuit and to design the layout. The racing line (which is represented by the ideal trajectory of competition motorcycles in a complete lap) will generally have the effect of reducing the straights and elongating the curves.

The length of the circuit should be between 3.5 km and 10 km.

For Grade A, the ideal layout of a circuit will have a total length between 4.2 km and 4.5 km with a minimum number of 10 turns.

4.3 TRANSITION OF BANKING

Banking is the transversal gradient or slope of the track, which is measured perpendicularly to the centre-line of the latter.

On a straight the track must be banked in order to allow for the drainage of surface water.

The transition of the different gradients around the track should be carefully checked in order to guarantee the following points:

- Proper lateral drainage of water.
- Avoidance of any sudden variation in transversal acceleration, which is no longer compensated by banking (dynamic).
- A suitable line of sight for the riders.

4.4 DRAINAGE SYSTEM

A proper drainage system must ensure that the Race Track, Pit Lane, verges, run-off areas and gravel beds are cleared of any surface water.

When calculating the possible flow of water (dependent upon the intensity of rainfalls, their duration and the coefficient of flow) local climatic conditions must be respected.

A study of these local climatic conditions and the design of the drainage system must be submitted in the Circuit Dossier.

All the required drainage channels at the sides of the Race Track and between the verge and the first line of protection should be installed in such a way that the covers do not represent any step or bump for the motorbikes and riders that have lost the racing line: i.e. they must be covered by a smooth metal wire mesh, or an absorbent well must be used, in order to maintain, without any interruption, the normal surface of the verge and/or of the run-off area.

(SEE ART. 4.11.3 For the drainage marking).

4.5 STRAIGHT SECTIONS

The maximum recommended length for straight sections will be 1 km.

On a straight, the track must be banked in order to allow proper drainage of the surface water. The transversal incline along the straights should be maintained between 1.5% and 3%.

4.5.1 Start / Finish Straight

Except for Endurance races, the starting zone must be compulsorily situated on a straight of a minimum length of 250 m.

The starting line must be located at a minimum distance of 200 m from the first curve.

Particular measures for Grade A Homologation:

The minimum length for the straight where the starting grid will be located is 400 m.

The starting line will be located minimum 250 m before the first corner.

JUMP START SYSTEM REQUIREMENT: please refer to the Promoter's Manual (if existing) for information on how to comply with this requirement.

4.6 CURVE SECTIONS

A curve (corner) will be defined by a number of different characteristics. Each circuit's curves will be defined on a case-by-case basis. Using simulation software for each circuit, the number of curves will be established. The total number of turns and their numbering will be decided by the FIM Homologation Report.

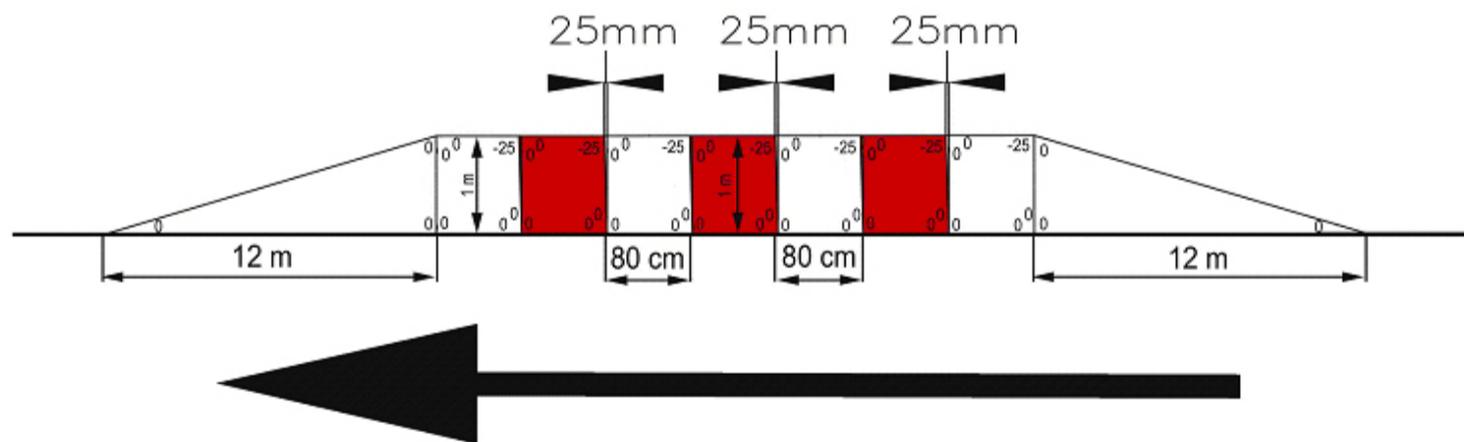
Banking in curve sections will always be calculated from the outside to the inside of the racetrack. In curve sections banking should not exceed 5%.

Negative gradient in curve sections should not be accepted for new circuits.

4.7 KERBS

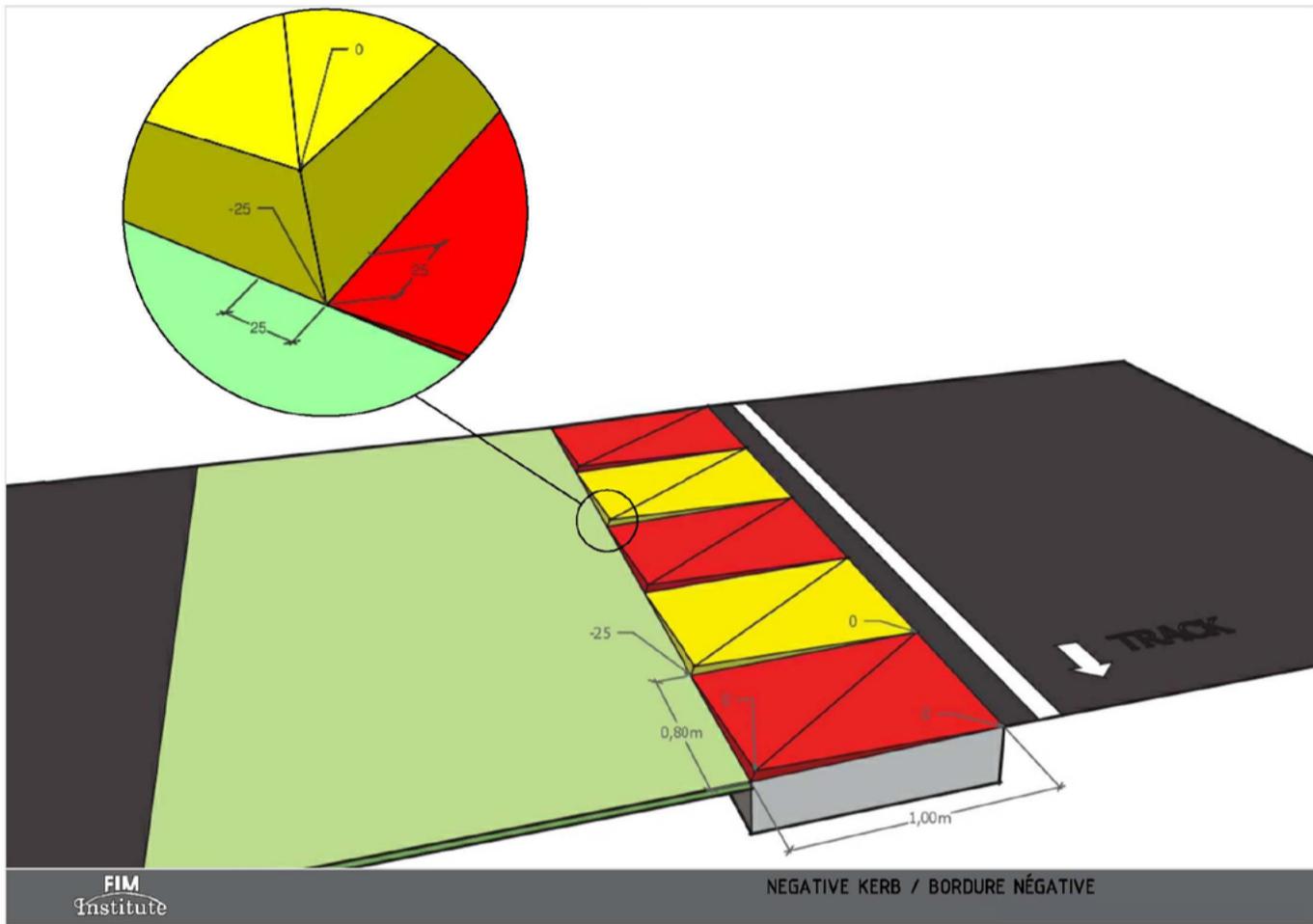
The ideal types of kerbs approved for the FIM Championships, Cups and Prizes should be constructed according to the following parameters and recommendation of the FIM Inspector:

4.7.1 FIM kerb

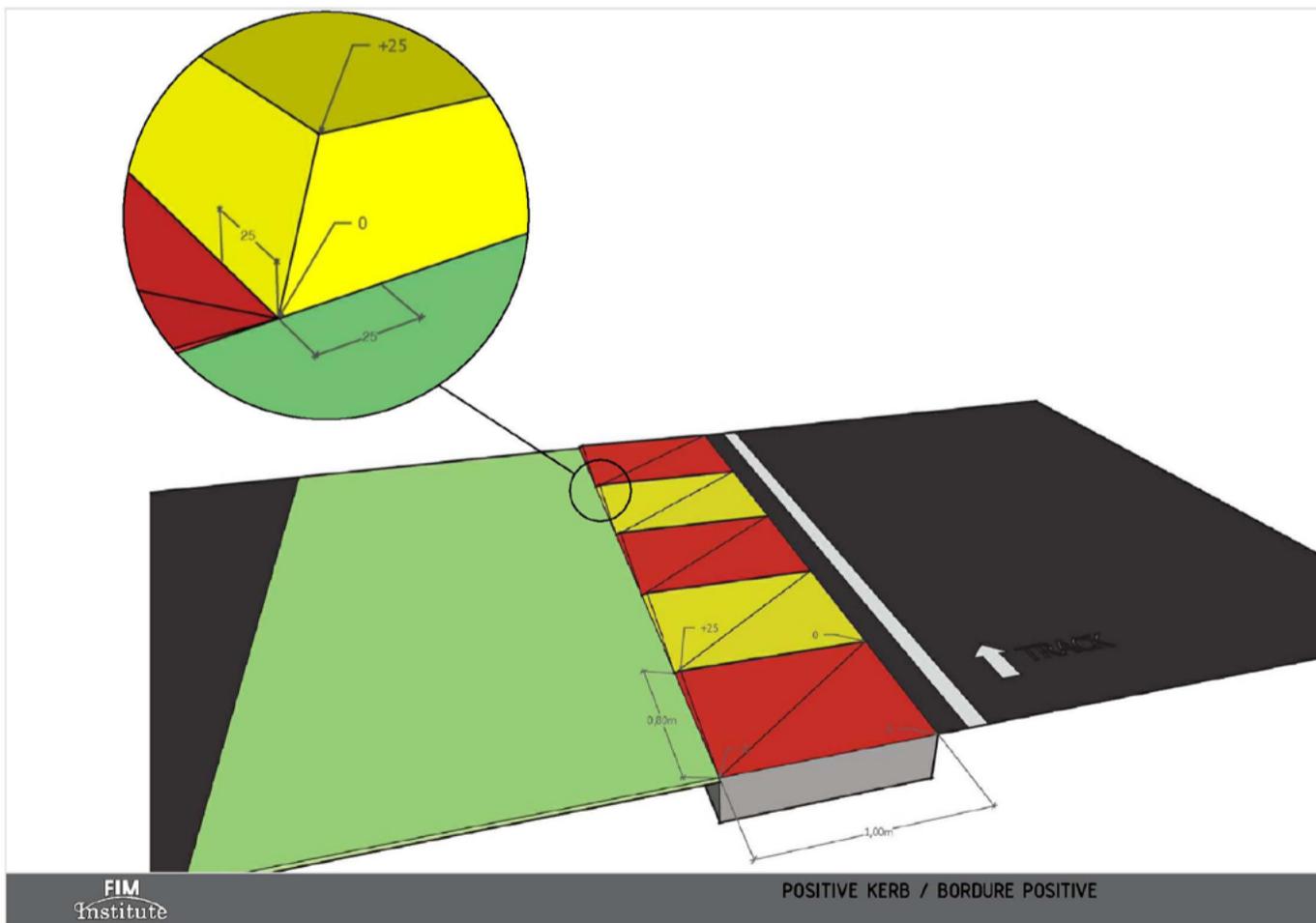


The 12 m triangle kerb at the beginning of the kerb and at the end of it must be painted in white color.

4.7.2 FIM Negative kerb



4.7.3 FIM Positive kerb (only on internal turns)



Other kerbs can be approved during the homologation process.

4.8 VERGES AND RUN-OFF AREAS

4.8.1 Definition and Purpose

Verges are the outer parts of the transversal profile of the track.

Run-off area is the ground between the verge and the first line of protective devices.

Both are absolutely necessary from the construction point of view as they serve as a limit and shoulder for the superstructure of the track.

They contribute to higher safety by improving visibility, improving the possible use of the track over its whole width and, if they are of sufficient range, serve as an area in which motorcycles can be brought to a halt.

4.8.2 Characteristics

Verges should be at the same level of the racetrack asphalt or the upper side of the kerbs avoiding any kind of positive step.

Negative steps are permitted with a maximum of -2 cm. They have a flat surface but which is less even than that of the track itself.

They must be kept free of any debris and stones of a higher diameter than those of the grains of the gravel beds.

Verges should be completely flat without any kind of obstruction and it is recommended that they should have a surface different from the racing surface. Any kind of artificial grass planned for the verges should be inspected and approved in advance.

The width of the verges will vary along the track according to the circuit layout. A minimum of 2 metres should be maintained around the complete racetrack.

The transition from the verge to the run-off area should be very smooth.

In addition to the speed at every point of the racetrack, the final length of the run-off areas will be defined bearing in mind the racetrack layout, topography, racing trajectories and gradients.

In case that run-off area slopes, it is recommended that this should not exceed 10% upward or 3% downwards. In case that the run-off area is covered with a gravel bed, additional calculations should be considered.

4.9 GRAVEL BEDS

The surface of the gravel beds must be completely flat without undulations. It should be levelled with the racetrack or the lower side of the kerb.

It is also strictly recommended that the gravel level be 1 cm or 2 cm lower than the edge of the circuit.

The depth of the gravel bed will vary according to the type of gravel available in the region and the type of run-off area. As standard, the height of the gravel bed should be 25 cm and the diameter of the grains must be between 8 mm and 20 mm. Mono-grain is strongly recommended.

The first 5 m of the gravel bed should grow gradually until we reach the exact gravel bed height required.

In order to maintain the effectiveness of the gravel beds, a mixing (countersinking) should be carried out before every FIM event and all debris and stones of a diameter superior to the grains must be taken out.

It is also recommended to have:

- A verge of approximately 2 m in width between the edge of the track and the gravel beds.
- A path of at least 3 m between the gravel bed and the first line of protection.

4.10 ADDITIONAL PROTECTIVE DEVICES

When deciding what measures will be used for the protection of riders, race officials, service personnel and spectators during competitions, the characteristics of the course should be taken into consideration. These include track layout and profile, topography, racing trajectories, adjacent areas, buildings and constructions, as well as the speed reached at any point of the track.

There will be a first line of protection at the edge of the verges and run-off areas around the complete Circuit Layout.

Most frequently it is necessary or preferable to contain an accident in relative proximity to the trackside by absorbing the bike's energy and/or providing conditions for the rider to regain control. In order to achieve this, various deceleration systems and energy-dissipating and stopping barriers may be installed to constitute a first line of protection. In other circumstances it may be appropriate to provide sufficient obstacle - and spectator - free spaces for the energy of a bike leaving the track out of control to be completely dissipated.

The type of protection device to be installed will have to take into account the available space from the racetrack edge to the first line of protection, the possible impact angle and the type of facility behind of the first line of protection.

The protective devices used must be homologated by the CCR/FIM.

4.10.1 CCR / FIM HOMOLOGATED ADDITIONAL PROTECTIVE DEVICES

The following **additional** protective devices are homologated by the CCR/FIM (see manufacturers' and/or distributors' details in Appendix).

Type A

- Air Active Protective Devices
Alpina Air-Module AA
- Air Protective Devices
Alpina Air-Module
Airfence Type IS and Airfence IIS
Liski Air Safety Mattress
SPM AirPADS
Trackcare Inflatable Barrier
- Foam Protective Devices
Alpina Super Defender and Alpina Super Defender 2
Airfence Bike and Airfence Bike Evo
Bridgestone Module 1000 and Bridgestone Module 1300
Liski Safety 1
Recticel Safeguard barrier 1 and Recticel Safeguard RR
SPM Energy Absorber Type A
Trackcare Hi-Lite
PKS Modele 1

Type B

Airfence Type I and Airfence Bike B
Alpina Defender Barrier
Liski Safety 3
Recticel Safeguard barrier 2
SPM Energy Absorber Type B1

Type C

Filling Italiano Protection System (ONDA 27/33 - 20/26),
Liski Safety 4
Alpina Synthetic bales and “Big bales”
PKS Modele 5
Recticel Safeguard barrier 3 and Safeguard barrier 4
SPM Energy Absorber Type C2
Trackcare barrier

Until the end of 2018, additional protective devices may be approved at the sole discretion of the track Inspector.

Type D

Car tyre barrier covered with conveyor belt.

Type E

Car tyre barriers

All additional protective devices must be placed against the rigid obstacle (no free space).

All **additional** protective devices must be used and installed according to the manufacturer’s indications and requirements.

The homologation report may require contingency type C protective devices to be available at each FIM event.

4.10.2 Track Openings

Several openings at each sector of the racetrack will have to be prepared along the first line of protection in order to allow all the track and medical services standing at the service road to enter the race track. The required number of accesses and the distance between them will have to be defined during the homologation process according to the racetrack layout. The recommended width for the racetrack accesses from the service road will be 3 m. All racetrack accesses in the first line of protection should be clearly marked by being painted in Pantone 15-1350 TPX Orange Popsicle.

Some of the openings may be required to have a compact surface that links the Service Road with the racetrack. This will be defined during the homologation process.

4.10.3 Advertising Pads

Only approved advertising pads can be placed in front of any approved protective devices. MotoGP™ and WSBK advertising pads produced by Dorna are approved for this purpose.

Any other advertising pads to be placed in front of homologated protective devices must be approved by FIM/CCR.

4.10.4 Supplementary measures

In addition to the protective devices described in the previous points, supplementary measures for the protection of public areas, which should be placed at the same level as or higher than the track edge, may be required.

Protective devices located beyond the service road are referred to as the second line of protection. Although these standards provide guidance up to the second line of protection, the FIM is not responsible for the placement (or not) of the barriers in the second line of protection.

FIA-approved fences can be used in the second line of protection.

The FIM/CCR can provide advice on these protection devices, after examination of the proposed layout.

The admission of the public to any areas and the conditions existing in those areas must obey the laws of the country of the circuit.

4.11 TRACK MARKING

4.11.1 FIM Approved paint

The paint to be used for the white lines and the kerbs along the track, for the starting grid and for any other marking on the track, in the pit- lane and on the asphalt run-off areas must be approved by the CCR/FIM.

For the Sidecar class, the use of the CCR/FIM approved paint is recommended.

The CCR/FIM approved paints are the following:

DREW PAINTS, INC.	09NS-Series W/B Circuit Marking Paint
SWARCO LIMBOROUTE	Circuit line WBP
COLORIFICIO SAMMARINESE	Samoline Antiskid paint (8550.0500)
COLORIFICIO SAMMARINESE	Samoline Starting Grid (white or black)
ORÉ PEINTURE	Race Line

(see the manufacturers' contact details in the appendices)

Circuits shall keep at the disposal of the Safety Officer, the FIM Inspector or the Jury President, the paint order forms and invoices, so that it can be proved at any time that the paints used are the FIM approved ones.

The paint application method defined by the manufacturer shall be scrupulously followed.

The approval procedure can be obtained from the CCR/FIM Administration

4.11.2 Race Track edge

The complete Racetrack surface will be bordered on both sides by continuous 10 cm wide white lines, except at the entrance and the exit of the Pit Lane where an interrupted white line must be painted. The length of this white line will be fixed by the FIM/CCR Inspector during the homologation.

No decoration or advertising is permitted on the track surface with the exception of the run-off areas.

For MotoGP™ and WSBK events, Dorna has the exclusive right to allocate advertising in the run-off areas, with the agreement of the FIM safety officer.

If necessary, it is also recommended that the protection device at the first line of protection be painted with a white line one (1) metre wide aligned with the marks at the edge of the track (SEE BREAKING MARKS Art. 4.11.9).

4.11.3 Drainage

All the Drain Grates, if located just behind the kerbs or the white line, have to be painted with FIM Approved paint.

For MotoGP and WSBK the FIM approved paint must be “green” RAL6029.

4.11.4 FIA-FIM double kerb and track edges

For the FIM MotoGP and WSBK World Championships, the 2nd part of the FIA-FIM double kerbs, as well as the edges of the track, must to be painted as per follow:

The 2nd part of the FIA-FIM kerb will be painted in green and white, starting with a white triangle on the side of the darkest part of the standard kerb.

The edges will be painted with a uniform green color (RAL 6029).

For the other FIM Championships (Moto3 Junior, EWC, Sidecar), the use of this this paint is recommended.

4.11.5 Openings

The openings in the first line of protection allowing access to the run-off area must be indicated by a “fluorescent” orange (recommended color reference: Pantone 17-1350 TPX “Orange Popsicle”) line two metres wide minimum, painted on the first line of protection or on the protective devices.

Both sides of the opening must be painted.

4.11.6 Start Line

The Start Line will be marked with a white 10 cm-wide line across the Track.

If the Finish and Start Line are in the same position, the drawing will meet the specifications of the Starting Line Plan.

4.11.7 Finish Line

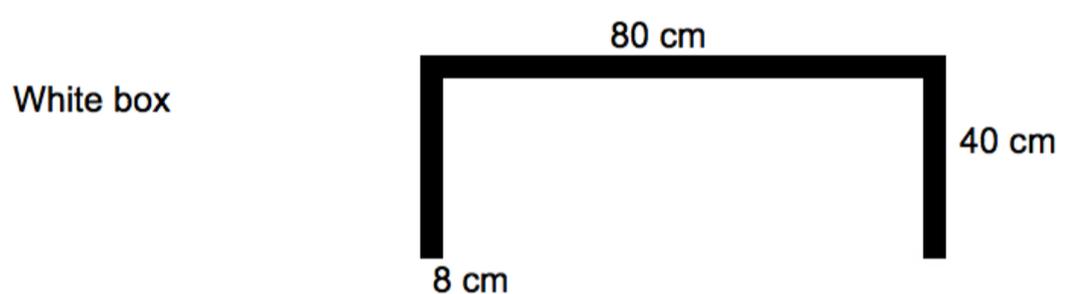
The Finish Line will always be aligned with the Timekeeping Room. It will be marked with a white 10 cm-wide line across the track.

When the Finish and Start lines are different, the Clerk of the Course must inform the competitors in a written note which one is the Finish line.

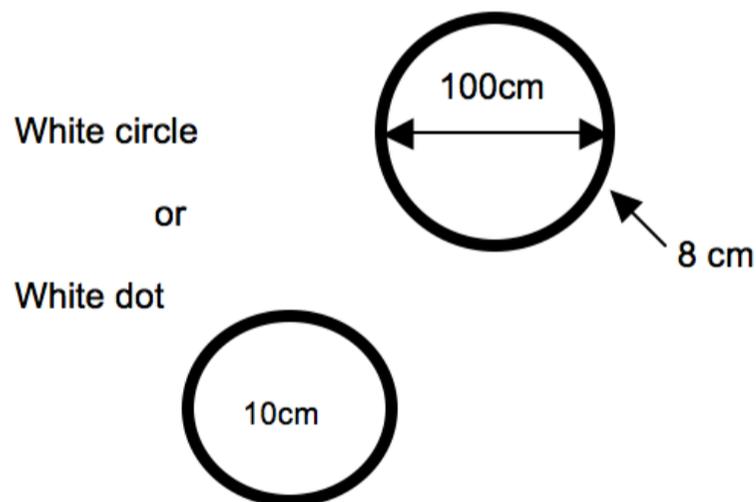
4.11.8 Starting Grid

The positions on the starting grid must be indicated on the track with an approved paint as follows:

- Solo and Sidecar:



- Endurance:



White dot  Circ. 10 cm

A red light connected to the starting light lever control should be installed at each of the rows of the starting grid. These lights must work simultaneously with the starting lights and shall be opposite the Marshals in charge of the control of the start.

The starting grid shall be formed in the following way:

- The width available on the start line will be divided into lanes taking into consideration the number of riders per row, and the interval of the riders on the second row.
- The minimum width available must be:
 - for solo machines: lane of 3.00 m
 - for sidecars: lane of 4.00 m

Pole position: 1 m behind the start line

The inspector will decide during the homologation procedure at which side the pole position will be located. As standard, the pole position will be at the side opposite the side corresponding to the direction of the first corner.

- Length of track available for each row: 9 m.
- Machines must be positioned “in echelon” on the grid in staggered lines, thus leaving the space in front of each machine free in the preceding row.

Particular measures for all solo machines except Endurance:

It is recommended to remove the old starting grids from other series before preparing the MotoGP™ starting grid.

There will be 9 metres between each row of the Starting Grid. A minimum of 14 rows should be painted.

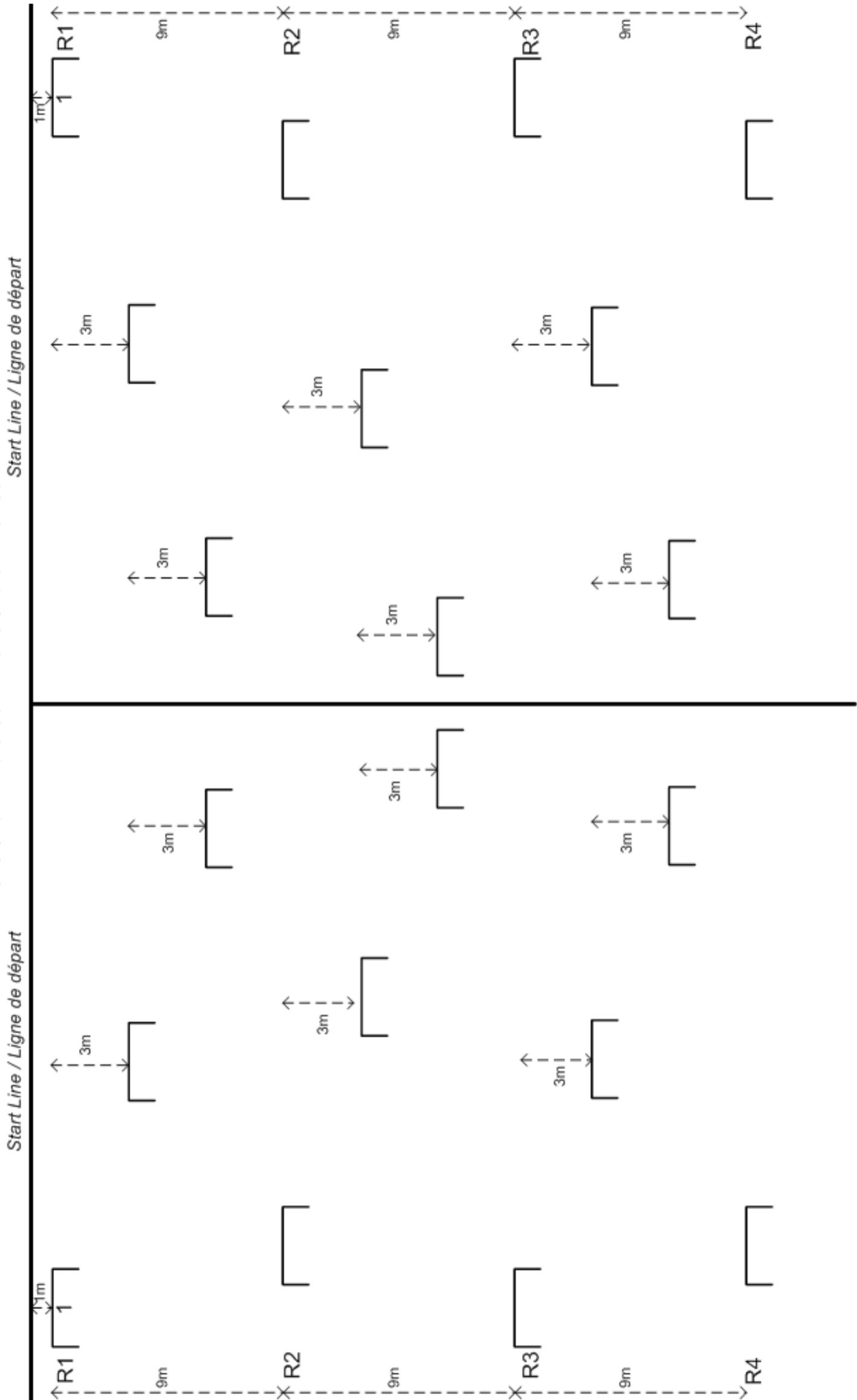
The width of the Start/Finish straight should be divided into eight (8) equal corridors in order to separate the starting boxes as much as possible, always leaving free the two corridors at the sides.

The Starting Grid plan must be in accordance with certain requirements as per following simplified drawings:

SOLO (3-3-3-3)

STARTING GRID / GRILLE DE DEPART

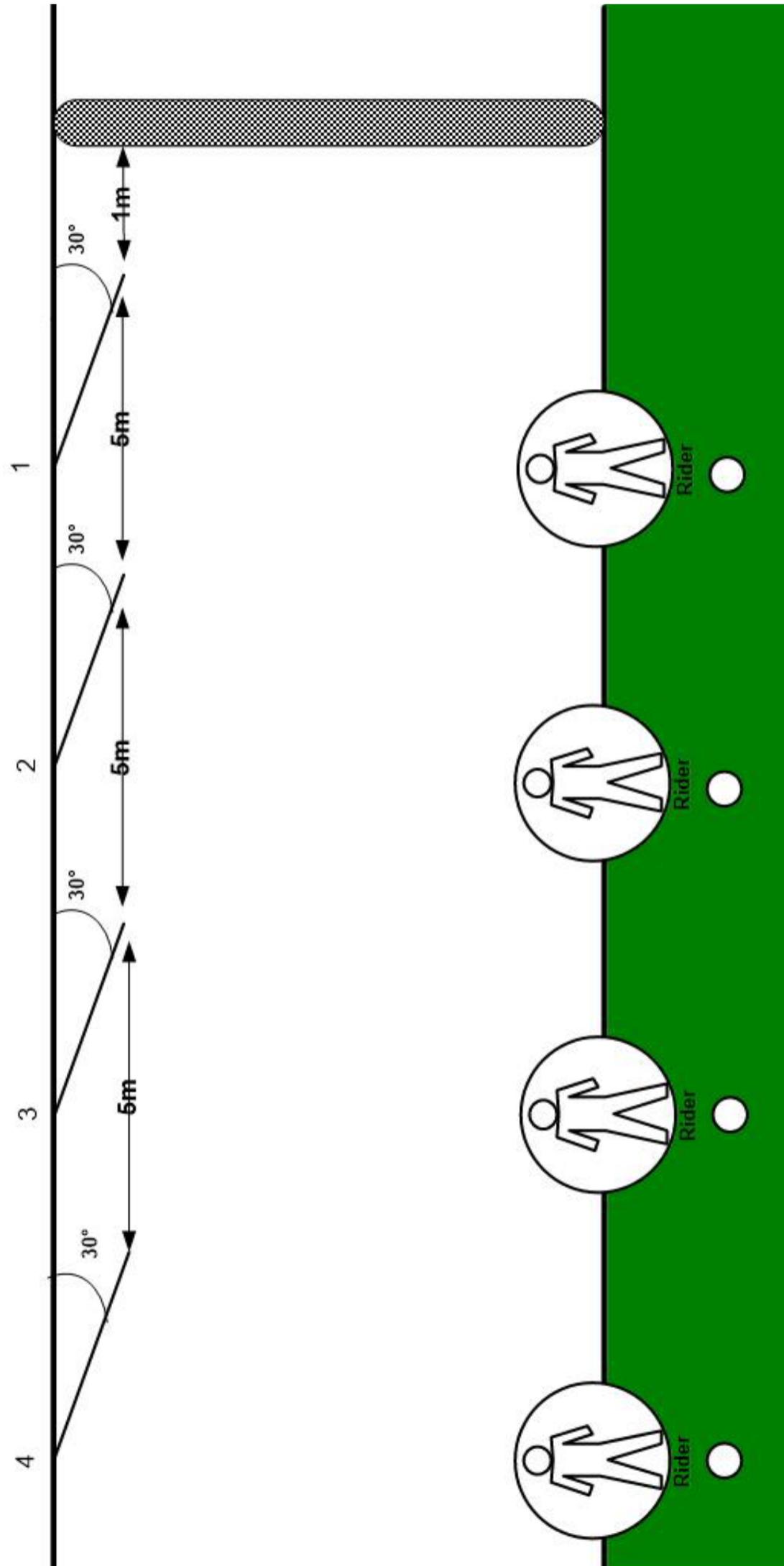
Dimensions in meters / Dimensions en mètres



Pole position on the left side / Pole position à gauche

Pole position on the right side / Pole position à droite

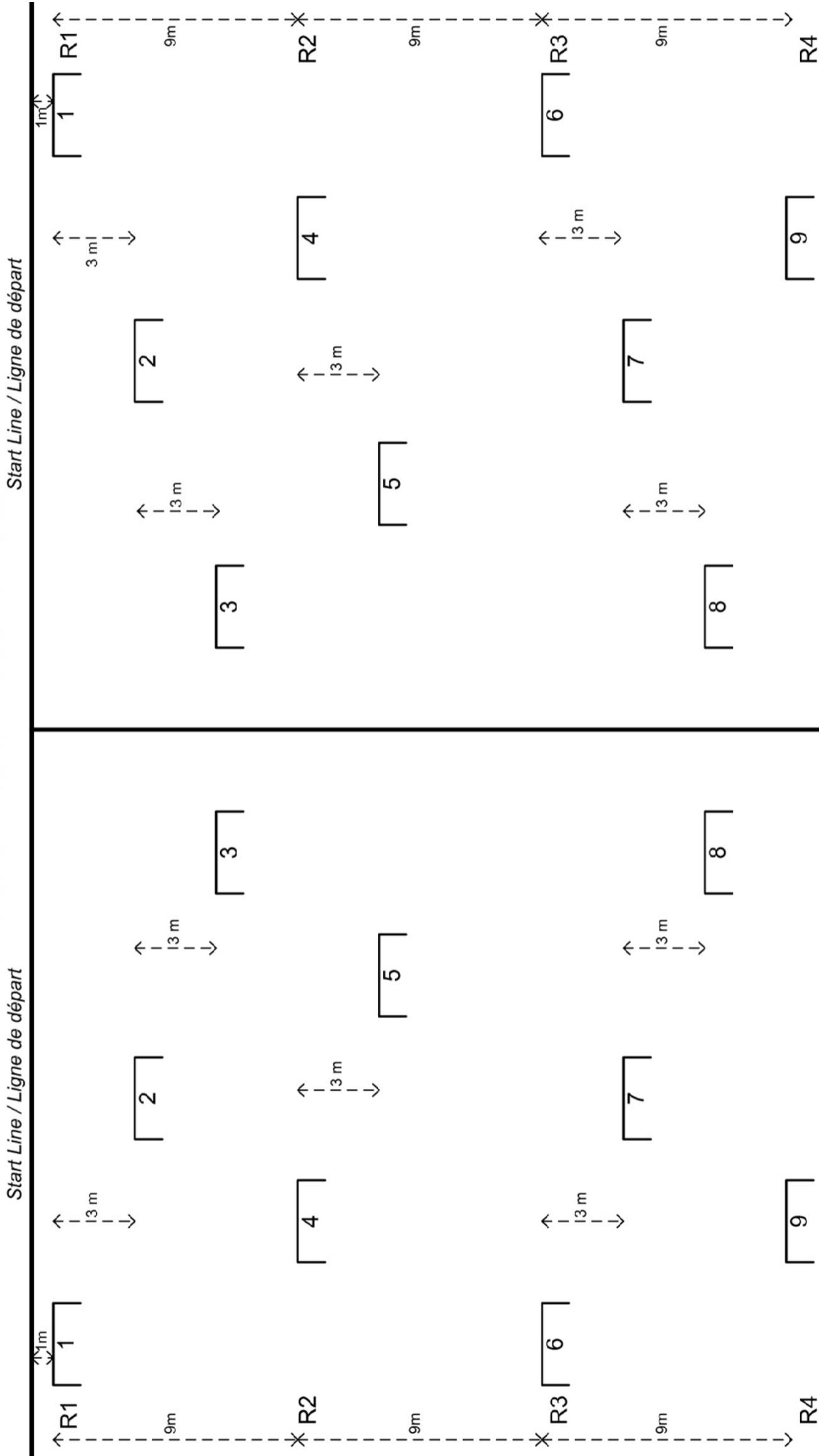
Endurance Starting Grid / Grille de départ



SIDECAR

STARTING GRID / GRILLE DE DEPART

Dimensions in meters / Dimensions en mètres



Pole position on the left side / Pole position à gauche

Pole position on the right side / Pole position à droite

4.11.9 Braking Marks and Turn Signals

There must be a white line (width: 1 m; length: minimum 5 m) painted at both sides on the verge at the edge of the racing surface or the kerb in order to be used for the riders as a breaking reference when approaching the turn.

This white line must also be painted on the first line of protection (guardrail or wall).

If necessary, it will be also required to paint the protection device at the first line of protection with a white line 1 metre wide aligned with the marks at the edge of the track.

The approach before a turn must be indicated. Boards indicating the distance to the turns can also be installed. The position, type and dimensions of these boards should be approved during the homologation process.

For Endurance races taking place partly at night, signs in reflective material must be installed.

4.11.10 Pit Lane Marking

4.11.10.1 Pit Lane Entry:

A continuous 10 cm-wide white line must be painted across the pit lane entry. The exact position of this line will be defined by the FIM inspector during the homologation process. This line will coincide with the first speed control loop. 60 km/h speed limit boards must be placed at both sides of this line.

4.11.10.2 Pit Lane Exit:

A continuous 10 cm wide white line must be painted across the pit lane and 10 meters before the pit lane exit lights. This line will coincide with the last speed control loop. Crossed-out 60 km/h speed limit boards must be placed at both sides of this line.

4.11.10.3 Line defining the fast lane:

It is recommended to paint two parallel white lines of 10 cm wide with a 40 cm gap between them, along the pit lane in order to separate the pit lane working area from the fast lane.

ARTICLE 5 - SERVICE ROAD

5.1 DEFINITION AND PURPOSE

The internal and external rings running more or less parallel to the racetrack form the Service Road. These rings are located after the first line of protection and must be separated from the public areas. It is recommended that both rings be in place.

The purpose of the Service Road is mainly to enable service motorcycles and other vehicles to circulate around the track without using the racetrack itself. These service vehicles include (amongst others):

- Ambulances
- Fire-fighter trucks
- Recovery vehicles
- Moto-taxi
- Medical (fast) cars
- Photographers shuttles
- VIP shuttles

In certain circumstances, the FIM Inspector (or FIM Safety Officer) may forbid the circulation of shuttles.

The Marshals are placed along this Service Road to survey the track. For more information on Marshal posts SEE ARTICLE 10.

5.2 CHARACTERISTICS

A complete internal and external ring for the emergency services will be required in order to guarantee easy and quick access to any point of the racetrack and run-off areas. This ring will have direct access to the Medical Centre as well as quick exit from the circuit.

Preferably the ring will be a two-way road, if the circumstances do not allow this, several holding areas where emergency vehicles can stand by and allow overtaking should be planned around the Circuit. The surface should be in solid and stable material.

Particular measures for Grades A, B and C:

Scaffolding for the TV cameras will be placed at some points of the Service Road. Space for these should be planned in advance. Circuit designers should plan this with the event organisers during the design phases.

ARTICLE 6 - TRACK ADVERTISING AND STRUCTURES

6.1 GENERAL REQUIREMENTS

All advertising boards must be perfectly stable. The position and characteristics of any advertisements placed on the circuit must neither reduce riders' or officials' visibility nor create an optical effect likely to obstruct or give a false impression. No form of advertising is permitted on the track surface (run-off areas excepted). The paint used for advertising on the asphalt run-off areas must be approved by the CCR/FIM.

All advertising structures must be approved by the Safety Officer or Jury President in coordination with the possible promoter of the Event (i.e. for MotoGP they must be approved by Dorna Sports S.L.).

6.2 TRACK SIDE STRUCTURES

Any type of structure that provides protection from adverse weather conditions, either sun or rain, for Marshals, medical teams and TV cameramen.

It is strongly recommended that these devices be in a grey color.

ARTICLE 7 - TRACK SUPERVISION & EMERGENCY SERVICES

This Article describes the object of Track Supervision and Emergency Services. These include:

- Race Control: SEE ARTICLE 8
- Pit Lane: SEE ARTICLE 9
- Marshall Posts: SEE ARTICLE 10
- Track Signaling: SEE ARTICLE 11
- **Rescue Services:** SEE ARTICLE 12
- **Medical Services:** SEE ARTICLE 13
- Other services: SEE ARTICLE 14

Therefore ARTICLES 8 - 14 should all comply with the standards in this article.

7.1 DEFINITION

Track supervision is intended to maintain safe conditions for the running of an event, through observation, signaling and intervention. Emergency services seek to provide specialised support when necessary.

ARTICLE 8 - RACE CONTROL

8.1 DEFINITION

Race Control room is the center of supervision and control of the race.

It must provide the Clerk of the Course and his assistants, as well as the Race Direction if appropriate, with all the facilities necessary to perform these duties in suitable working conditions. It should be a room with suitable sound attenuation.

It will be accessible only to the authorised personnel.

The Clerk of the Course should remain in Race Control for the duration of all on-track activities.

A proper Race Control must be spacious enough to hold (approx. 120 m²), in a comfortable manner, 20 working officials (National and International) including the relevant furniture and technical equipment.

8.2 LOCATION

Race Control has to be located in a permanent facility preferably on the ground floor of the Pit Box building, with direct access to the Pit Lane and as close as possible to the Start line.

8.3 EQUIPMENT

The following equipment must be installed in the control post:

- A telephone connected to the outside network available for international calls
- A radio transmitter/receiver for the internal network

- WiFi connection must be provided and must be sufficient for all of the members of the Race Control and must be a private network.
- Closed circuit television (CCTV) (See Art. 8.4)
- 1 TV screen for live feed and 1 or preferably 2 TV screens for timing (recommended size: 42 inch screens)
- A switch to turn on/off all the red lights around the track including the pit lane exit lights
- The Circuit must be equipped with an Uninterruptible Power System (UPS) (See Art. 8.5).
- Adequate heating or cooling facilities

8.3.1 Particular Measures for Grades A, B and C Circuits:

8.3.1.1 Radio Communications

Frequency Control system to interconnect the Race Control Room with the following Race Track services: Race Track Marshals, Scrutineering, Medical services, Recovery Bikes service, Security, Moto Taxi services and Race Track maintenance service. All track-side personnel connected with the Race Control by radio should have head-sets to avoid noise interference. To avoid any interference among different services, at least 8 different frequencies must be provided.

8.3.1.2 Control of Red Lights along the track

The circuit must be provided with red lights (same meaning as the red flag) along the track, the lever or the push-button control to switch-on these red lights must be located ONLY at the Race Control and NOT at the Marshals posts along the track.

8.3.1.3 Cables

The Circuit/Promoter will have to provide a patch panel with several cable connections between the Data Processing Control room (DPC) at the Paddock and the Race Control. The best position for the Patch Panel inside the Race Control room will be near the working tables of the International Race Direction.

(When necessary, please refer to Dorna's Data Processing and Timing Manual for detailed explanation of the cables and connections required)

There will be temporary installation for intercom and data transmission between the TV Broadcasting Area and the Race Control room. Cable access has to have a clear unobstructed run from the TV Broadcasting Area to Race Control room.

At each work station, various electric sockets should be provided.

8.3.1.4 Other Requirements

Comfortable chairs and large desks will be necessary for all the officials working in this area.

Toilets must be provided close to this area. It is important to keep this service in optimum condition.

8.4 CLOSED CIRCUIT TELEVISION (CCTV)

This installation can be permanent or provisional and must be in compliance with the following instructions:

- 1 small TV screen per track camera
- 2 larger TV screens to enlarge any of the track cameras
- A CCTV operator must be in the Race Control Room
- All the TVs must be clearly visible from the last row of the Race Control Room (officials must be able to recognise incidents from the last row).
- The sizes of the TVs and the number and location of cameras will be decided during the homologation procedure.
- It is recommended that the size of the small screens should be 27 inches and the larger screens 42 inches.
- It is also highly recommended to use HD cameras and HD TVs.
- Each screen (camera) must be connected to a video or DVD recorder system.

- The control system of the recorders must be located in the Race Control room.
- The operating technician must be able to replay an incident in a very short time.
- The storage capacity of the recording system must be sufficient to record all the sessions of an event.
- The installation must be operational throughout the event from the first practice session.
- The cameras must be pivoting and be equipped with an efficient zooming system. If the installation is provisional, it must be completely independent of the installation for the TV broadcast of the event (different cameras, different cameramen, different control screens and different recording devices).
- If the installation is provisional, the presence of a crew coordinator who is in charge of passing the instructions of the officials to the cameramen all around the track and vice-versa is compulsory throughout the event at the Race Control Post.
- The cameras must be located in such a way that the officials at the Race Control Post can follow a rider for a full lap without missing him while all the cameras are stationary.
- The footage recorded should be kept at the disposal of the Race Direction and the FIM for a period of at least 6 months following the event.

8.5 UNINTERRUPTIBLE POWER SYSTEM (UPS)

It is compulsory to protect the mains power supply of the Race Control room with an Uninterruptible Power System 0,0 s (ON LINE).

The UPS must cover the following elements:

- The Telephone connected to the track network, the service posts and outside network
- The radio transmitter/receiver for the internal network
- The WiFi connection

- The CCTV
- The 2 TV screens for live feed and timing
- The switch to turn on/off all the red lights around the track
- All of the signaling lights around the track including the start/finish line and pit lane entry & exit.
- An audible warning must be installed in this room to indicate when the UPS begins to operate. In addition, the system should specify the remaining autonomy time.

ARTICLE 9 - PIT LANE

9.1 DESCRIPTION

The pit lane is part of the racetrack in terms of planning, designing and constructing a circuit. It is the area where the bikes can access the pit boxes. The pit lane in front of the pits should have a minimum width of 12 m.

The pit entry and pit exit white lines delimit the pit lane. The pit lane will be divided into two lanes. The lane closest to the pit wall will be designated the “fast lane” and must be a minimum 3.5 m wide and maximum 5 m wide.

The lane closest to the pit boxes will be designated the “inner lane”. This lane must be as wide as possible, fuel resistant and have similar anti-skid properties to the track.

It is recommended that the surface of the working lane can resist the deterioration caused by fluids such as fuels, brake fluids and any other liquids that are carried in motorcycle or a car.

At the same time, the surface should resist to the use of hydraulic or air jacks.

Both lanes must be divided by a corridor. This corridor must be minimum one (1) metre wide delimited with white lines.

Both lanes must be clearly delimited with white lines on both sides of each lane.

All marking on the pit lane must be done with anti-skid paint approved by the CCR/FIM.

The inner lane is the only area where any work can be carried out on a bike.

It is reminded that the pit lane represents a potentially dangerous area during the running of an event, not only because of the racing motorcycles using it but also in view of accidents that may occur owing to motorcycles being on the race track adjacent to it.

In all international circuit events motorcycles using the pit lane, in practice or racing, should not exceed 60 km/hour: this must be applied and checked over the whole length of the pit lane (See Art. 9.4 & 9.5 & 9.7).

9.2 SIGNALING PLATFORM

A platform for teams' and marshals' signaling must be built between the Pit Lane and the verge at the Race Track edge. This platform will be used by the Teams to install their canopies. This temporary set-up will be the main information point for all the team personnel during practice and the race. It will also be the only point of contact between the rider on the track and his team during all sessions.

This platform should respect the following minimum dimensions:

- Width of the verge trackside (2 metres).
- Width of the platform (minimum 1.5 metres).
- Length of the platform (It should cover all the Pit Boxes and it should be extended 25 metres at the Pit Entry side and another 25 metres at the Pit Exit side).

- Level of the ground in the lane (35 cm higher than the Pit Lane asphalt level).
- Protective concrete wall
- Pit Lane Wall (high 1 metre above ground of the platform)
- Thickness of concrete wall (25 cm).

A protection barrier of 65 cm in height is necessary between the platform and the Pit Lane. There must be openings of approximately 80 cm, located at a maximum of every 25 m.

There must be two openings of at least 2 m wide in the wall and in the whole infrastructure of the signaling platform. One of these openings must be located at the level of the Start/Finish Line. It is indispensable that this passage is fitted with a sliding door that must be joined to the wall.

9.3 PIT LANE WALL

9.3.1 Required Facilities

9.3.1.1 Electricity

It must be equipped with electrical outlets at regular intervals minimum 4 sockets in front of each pit box.

Particular measures for Grade A, B and C circuits:

- There should be a minimum of thirty low amperage 220 v double electricity outlets (Schuko), evenly spaced along the Pit Wall (it is recommended that every outlet has its own trip switch - 16 A/300 mA).
- It is highly recommend installing an UPS system in order to protect the power supply in this area.

9.3.1.2 TV Signal

The signaling wall should be cabled in order to allow Teams to receive the TV/Timing feed in their canopies at the signaling wall (two RF outlets close to every electricity outlet).

9.3.1.3 Cable tray

It is highly recommended to fit out a cable tray along the complete Pit Wall for the temporary cabling installations the event organisers may need.

9.3.2 Additional Protective Devices

It is compulsory to install a debris fence or another protective device on the Pit Wall for protection of the people working in the signaling platform and Pit Lane areas.

The structure of this fence should be divided in sections (gaps) through which the teams are able to show the info panels to the riders. Devices other than the debris fence must be previously approved by the FIM. The fence or protective device must be installed throughout the whole pit lane wall.

9.3.3 Lap / Time Counter

An electronic counter above the Pit Wall at the Finish Line and linked with the official Timekeeping service must be installed for rider information during practices and races.

9.4 PIT LANE ENTRY

A continuous white line must be painted across the Pit Lane entry where the pit entry detection loop is installed. The exact location will be decided by the FIM Inspector during the homologation of the circuit.

60 km/h speed limit boards must be placed on the ground on both sides of the white line that delimits the Pit Lane entry.

9.5 PIT LANE EXIT

The Pit Lane exit must be controlled with a set of lights. The lights sequences that will be needed are steady red light, flashing blue light and steady green light.

A continuous white line must be painted across the Pit Lane at the location of the pit exit lights. Crossed out 60 km/h speed limit boards must be placed on the ground at both sides of white line at the location of the pit exit lights.

The FIM inspector will decide the exact location during the homologation of the circuit.

It is recommended that these lights are also controlled from the Race Direction.

9.6 STARTER'S ROSTRUM

The starter's rostrum has to be located between 20 and 50 metres after the Start Line. A structure of at least 2 m higher than the signalling platform, surrounded by a handrail, must be installed. This structure must be built so that the Starter can easily see the complete Starting Grid. The control of the starting lights must be made from here.

Access to this platform is strictly reserved for the Starter and, possibly, his deputy.

9.6.1 Starting Light Control

The Starting Light Control System should be allocated in the Starter's Rostrum. The Starting Light Control should be with a lever and not with push-button (SEE STARTING LIGHT LEVER CONTROL, Art. 11.1.1)

The Starting Light System operated from the Starter's Rostrum must have a separate switching circuit, independent from any connected with Race Control.

As the Starter has to observe the motorcycles on the grid, he cannot look at the push-buttons at the same time, and therefore the lever control system is much safer because the Starter knows, without looking, that turning the lever in a clockwise direction the progression will be, without error, red-off.

The only lights sequences that we will be needed for the Starting Lights are:

- Steady Red Lights on or off: To indicate the start of the race.

The electrical line for the whole system including starting lights and controls should be protected with UPS.

9.7 SPEED CONTROL SYSTEM

Particular measures for Grade A, B and C circuits:

Several induction loops along the Pit Lane will be required in order to control the speed. The organisers' Timekeepers will install and prepare the system and leave them permanently for future events. If the circuit should re-asphalt the Pit Lane before the Event, the organisers must be informed so that they can arrange for the requisite personnel and material. (Please, check Dorna's Data Processing and Timing Manual for more information).

9.8 CLOSED PARK AREA

This closed park, with a 300 m² minimum surface area, must be fenced off and must only have one controlled entrance/exit point.

For Endurance this area must be 600 m².

ARTICLE 10 - MARSHALS' POSTS

10.1 DEFINITION

Marshal post staff provides surveillance of the track and its immediate surroundings. These posts will be located behind the first line of protection close to the service roads. In their simplest form, these posts should provide an adequate, stabilised area for the staff and equipment protected from the competing motorcycles, flying parts, and sheltered from adverse weather conditions. In the interests of visibility for riders and marshals, these posts should be raised in relation to the service road level.

10.2 NUMBER AND LOCATION

The number of personnel (track marshals, flag marshals and paramedics) at each marshal post and its exact location will be defined during the homologation of the Circuit, by the FIM Inspector.

Two maps of the circuit (one for the flags marshals and one for the track marshals) with the location of the posts and the number of marshals per post, will be attached to the homologation report.

It is recommended to attach also a combined table with the position (turns location, numbers and kind of (track or Flag) marshals.

The number of flag and track marshal posts will be decided during the homologation process.

The number of marshal posts for each circuit will be defined in accordance with the racetrack layout and its characteristics.

Also the following conditions should be taken into consideration:

- No section of the road should escape observation.
- Each post should be able to communicate by sight with the preceding and the following one.
- The distance between consecutive posts should not exceed 250 m.
- Each post must be able to communicate verbally with race control.
- Each post should be marked with a sign-board bearing a number of the post.
- The FIM must be notified of any modification in number or location of the posts

For New Circuits it is recommended that the posts be numbered in the following way:

The posts will be numbered in the direction of the track and according to the turn numbers.

The starter rostrum will be post 0.0. After that the first post will be 1.1 then 1.2 and so on. Half way between turn 1 and turn 2 the numbering will change to 2.1 the same will happen throughout the entire circuit. All the posts (flag and marshal posts) will be numbered in this way regardless of the function of the post.

For example there can be flag post 1.1 and if the next post is a track post it will be 1.2 even if it is the first track post. A “T” will be placed before the number of the Track Marshal Post and an “F” will be placed before the number of the Flag Marshal Post.

For existing circuits, the above form of numbering the posts is a recommendation.

10.3 FLAG MARSHAL POST

Each post should be indicated by a signboard clearly visible from the track. A suitable size for this board is: width 40 cm and height 30 cm. Each board will have a yellow background where the number of flag marshal post will be indicated in black writing as follows: “F1.1”.

If protected from the sun or the rain by an umbrella by, it is recommended to be of a grey colour but in any case it cannot be red or yellow.

10.3.1 Equipment

At each post, the following equipment must be available:

10.3.1.1 General Equipment:

- A reliable two-way radio communications system with race control including headsets and microphone.
- 1 set of official flags:
 - The flag dimensions should be 80 cm vertically and 100 cm horizontally.
 - The “Pantone” reference for the colors mentioned in brackets must be respected:
 - 1 green (348 C)
 - 1 with 3 yellow and 2 vertical red stripes (Yellow C, Red 186 C), each stripe with the same width.
 - 1 blue (298 C)

1 white

2 yellow (C)

1 red (186 C)

1 black (black C)

1 black with orange disk (Ø 40 cm) (Black C, Orange 151 C)

1 white with a diagonal red cross (Red 186 C) whose stroke width is between 10 cm and 13 cm

- 1 black board 70 cm wide and 50 cm high that enables the race number of a rider to be attached.
- 3 sets of white numbers whose stroke width is minimum 4 cm and height 30 cm minimum.

10.3.1.2 On the Starter rostrum and at level of the finish line the following equipment is needed:

- 1 “drop of position” yellow board (100 cm horizontal x 80 cm vertical) which enables the race number of a rider to be attached and which can indicate the number of positions to be dropped. A “+” sign as well as one set of black numbers, whose stroke width is minimum 4 cm and height minimum 30 cm, must also be provided.
- 1 ride through yellow board (100 cm horizontal x 80 cm vertical) which enables up to 4 rider’s race numbers to be attached.
- 2 yellow flags
- 1 green flag
- 1 red flag
- 2 Chequered flags
- 1 or 2 blue flag(s)
- Boards - 5 min / 3 min / 1 min / 30 sec
- Count down boards 5 / 4 / 3 / 2 / 1
- Boards for remaining practice time - 3 min / 2 min / 1 min
- “Wet/dry race” board
- “Start delay” board

10.3.1.3 Equipment for Pit Lane Exit:

- Whistles
- 1 set of official flags:
 - The flag dimensions should be 80 cm vertically and 100 cm horizontally.
 - The “Pantone” reference for the colors mentioned in brackets must be respected:
 - 1 green (348 C)
 - 1 red (186 C)
 - Yellow (C) depending on the number of pit lane marshals
- Boards for remaining practice time - 5 min / 4 min / 3 min / 2 min / 1 min
- “Wet/dry race” board
- “Start delay” board
- A countdown clock

10.3.1.4 Equipment for the Starting Procedure:

- Flags:
 - The flag dimensions should be 80 cm vertically and 100 cm horizontally.
 - The “Pantone” reference for the colors mentioned in brackets must be respected:
 - 1 yellow (C) per row
- Number boards row by row
- Ground numbers for starting positions

10.3.1.5 Additional equipment for Endurance races

- SC board at each marshal post: white board with black letters. Minimum dimensions of the board: 80 cm x 60 cm. Minimum dimensions of the letters: 40 cm high.
- 1 red flag (Red 186 C) with a diagonal white cross whose stroke width is between 10 cm and 13 cm.
- 1 yellow board with the word “Push” in black (Black C, Yellow C). For races taking place partly at night, this board must be retro-reflective.
- Yellow flashing lights
- A set of official retro-reflective boards.

All the boards must have the following dimensions: 100 cm horizontal x 80 cm vertical.

The “Pantone” reference for the colors mentioned in brackets must be respected:

- 1 green (348 C)
- 1 with 3 yellow and 2 vertical red stripes (Yellow C, Red 186 C), each stripe with the same width.
- 1 white
- 1 red (186 C)
- 1 white with a diagonal red cross (Red 186C) whose stroke width is between 10 cm and 13 cm.
- 1 white board with the letters “SC” in black (black C).

10.3.1.6 Additional equipment for the Sidecar Races

On the Starter rostrum and at level of the finish line the following equipment is needed:

- 1 per-bend black/white flag

10.3.2 Presentation of the Flag Marshals equipment

During the inspection lap at each day before the first practice session or warm up, the Flags' Marshals must stand at their post, presenting a waved yellow flag and a board indicating a number. The FIM Safety Officer (MotoGP, Superbike, Endurance events) or the Jury President (other World Championship and Prize events) may require extra equipment to be also presented.

10.4 TRACK MARSHAL POST

Each post should be indicated by a signboard clearly visible from the track. The suitable sizes for this board will be: width 40 cm and height 30 cm. Each board will have a yellow background where the number of track marshal post will be indicated in black writing as follows: "T1.1"

10.4.1 Equipment

At each post, the following equipment must be available:

- A reliable two-way radio communications system with race control including headsets with microphone.
- 2 rigid brooms and shovels.
- 1x 15 liter recipient and 2x 4 liter recipients filled with calcium carbonate or similar substance that can absorb oil.
- 5 litres of detergent on hand, with sufficient further supplies available at the circuit (SEE ARTICLE 14.2).
- Absorbent Towels/Roller
- Fire-fighting service:
 - Preferably 2 fire extinguishers of polyvalent powder or ABC type of 6 Kg.
 - 1 fire extinguisher of 1 liter of "AFFF foam spray unit" type is recommended.

- Straps for lifting the motorcycle.
- For wide gravel beds it is recommended to have sleds to move the bikes.
- Minimum of 2 type C protective devices (SEE ARTICLE 4.10.1).

Further recommendations for “Doctor barriers”:

- Recommended dimensions: 100 x 70 x 30 cm
- Recommended weight: Approx. 10 kg
- These “Doctor Barriers” should be covered with a fire resistant material.

10.4.2 Presentation of the Track Marshals equipment

During the inspection lap at each day before the first practice session or warm up, the Track’s Marshals must stand at the edge of the track, in line with their post.

On the first day, 2 units of Type C protective devices have to be displayed at the edge of the track at each post with the presentation on their top of absorbent towels/rollers and a recipient of absorbent powder. After the inspection they must be removed behind the first line of protection.

10.5 MARSHALS’ UNIFORMS

Marshals should not wear clothing similar in color to any signaling flag, particularly yellow and red. The uniform must cover the whole body. It is strongly recommended that the marshals’ uniforms be in white or orange (Ref. Pantone: 151 C) and the raincoat be transparent.

ARTICLE 11 - TRACK SIGNALLING

11.1 BASIC SIGNALLING INSTALLATIONS

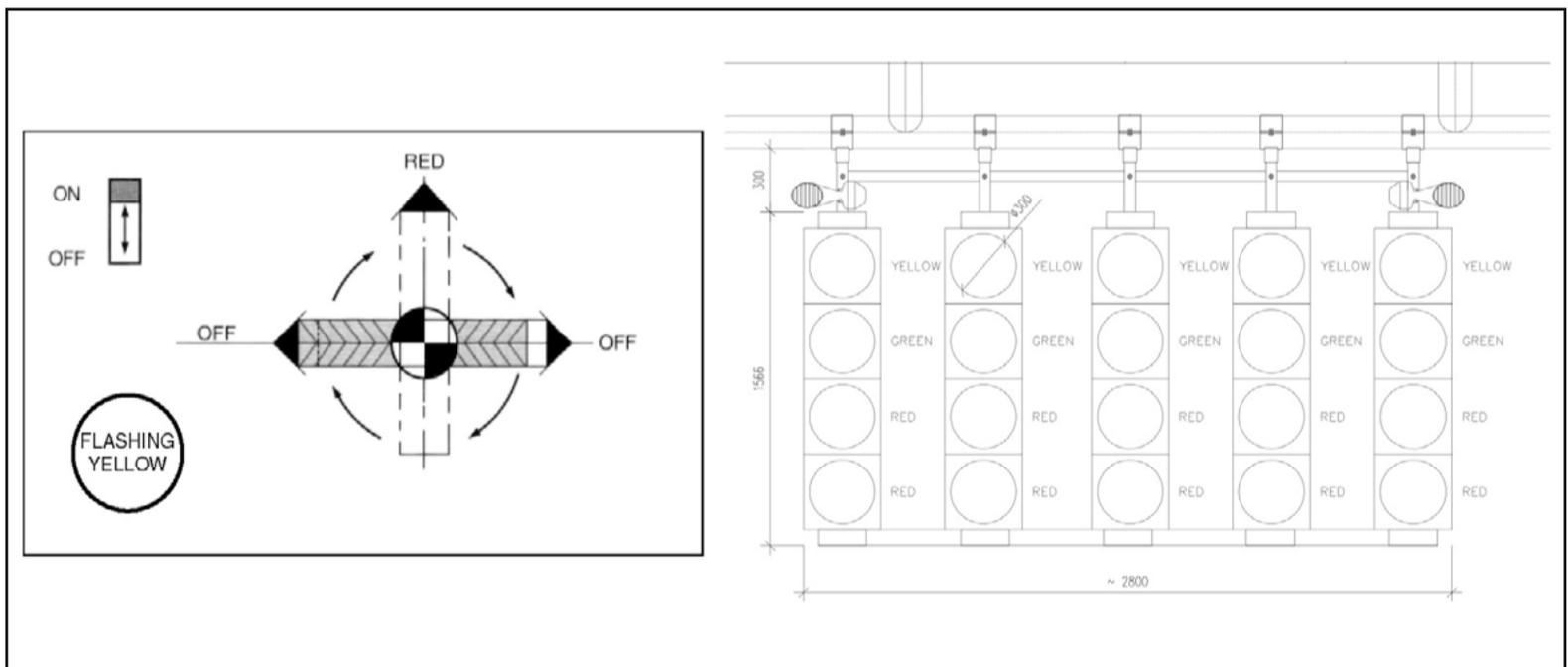
11.1.1 Start Lights

An installation of a minimum of 5 red lights and 5 yellow lights is recommended. The following combinations must be possible:

- All Red lights on
- All Red lights off

For information, the following combinations are requested by FIA and are also accepted by FIM provided that it the FIM regulations are followed:

- Yellow flashing light only
- Red light



These Start Lights have to be protected by UPS.

The Start Lights are placed on a gantry. The gantry must be placed approximately 25 metres in front of the Start line. The exact height of the gantry will be decided during the homologation procedure. In any case the minimum height must allow a truck to pass under it (according to local truck dimensions). The lights will be placed on the gantry with a minimum clearance of 5 metres from the ground level. If the gantry is taller than 5 metres the lights will be hung from so that they are at a height of 5 metres. The final position of the gantry and the lights will be decided during the homologation procedure. It is recommended to place the lights in a central position.

11.1.2 Red lights around the circuit

Only the Clerk of the Course or the Race Director (for MotoGP™, WBSK and Endurance) can switch on these lights to signal that the practice or race is stopped. They will be complemented by the marshals' red flags.

The luminous intensity must ensure good visibility of the lights. In order to avoid sun reflection, it is desirable to cover the top. There must be a minimum of 3 lights around the circuit (plus the start lights). The distance between these lights should be about equal.

11.1.3 Pit-lane exit lights

The pit exit lights are red, flashing blue and green. These signs must be controlled by an official at the pit-lane exit continuously. Each light must work independently. Two lights cannot work simultaneously.

It is recommended that these lights are also controlled from the Race Direction room.

11.1.4 Yellow flashing lights around the circuit

Each circuit on which races taking place partly at night are organised must be equipped with light signals fixed to each marshal's post.

These signals must be controlled by the post on which they depend and by the following post.

This installation may be made of flashing lights, i.e. two lamps that switch on alternatively.

Additional electronic marshalling systems are also acceptable. They will be defined during the homologation procedure.

ARTICLE 12 - RESCUE SERVICES

12.1 INTERVENTION VEHICLES

Intervention vehicles are a fundamental part of circuit emergency equipment. Their crews provide the specialized intervention that may be needed at any accident on the racetrack or in the pits and paddock area.

12.1.1 Duties

Fire-fighting:

- There must be enough fire-fighting vehicles so that no area of the race track is more than 4 minutes away from these vehicles.
- There must also be a sufficient number of fire-fighting vehicles to cover the paddock and the pits, to act as second intervention and to have the means to extinguish the fire completely.
- In any case all of the fire-fighting equipment around the circuit (including track, pit boxes and paddock areas) must comply with national laws.

Medical:

- The quantity varies according to the type of event held.
- These vehicles can be ambulances and/or medical cars.
- Medical (fast) cars are normal cars adapted with medical equipment.

- Both Medical cars and ambulances need to be able to resuscitate and stabilise the condition of an injured rider.

Recovery vehicles:

- Must be able to transport a damaged bike from the service road to the pit boxes.
- Will not enter the racetrack or the run-off areas.
- The Marshals will take the bike from where it has crashed/stopped to the Service Road. From there it will be loaded onto the recovery vehicle and taken to the pits.

Moto-taxi:

- To be able to take uninjured riders back to the pit boxes.
- Injured riders will be taken in ambulances or medical cars to the Medical Centre.

The number and location of all these vehicles will be decided during the homologation process.

12.2 EQUIPMENT IN THE REFUELLING PITS

Each pit must have at least one (1) portable extinguisher. It is also compulsory that in the pit lane in front of every second pit a high volume extinguisher is placed.

12.3 EQUIPMENT IN THE PADDOCK

The paddock area should be provided with sufficient portable extinguishers as well as being easily accessible to fire-fighting vehicles. These should comply with national rules and laws.

ARTICLE 13 - MEDICAL SERVICES AT EVENTS

13.1 GENERAL

The medical services provided should comply with the requirements of the current FIM Medical Code as contained within this article. They must also fulfil the legal requirements in force in each country concerned.

The requirements indicated below apply to the FIM World Championship, Cup and Prize events. The requirements indicated below are strictly mandatory and may on no account be of a conditional nature.

On the occasion of a FIM World Championship event, the FIM has the power to check the organisation of the medical service at any time.

The medical service comprising equipment, vehicles and personnel must be organised in such a way and in sufficient numbers to ensure that an injured rider can be provided with appropriate and all necessary emergency treatment with the minimum of delay and to facilitate their rapid transfer to further medical treatment in an appropriately equipped medical centre or definitive medical care in a hospital with the necessary facilities to deal with their injuries or illness should this be required.

The CMO will therefore determine the number, location and type of vehicles, helicopter, equipment and personnel that are required to achieve this for a specific event taking into consideration the circuit and event location.

The minimum medical requirements will be subject to confirmation and agreement following inspection and review by the Medical Director (GP), FIM Medical Officer (GP), FIM Medical Directors (SBK & EWC) and FIM Medical Representative.

A doctor or doctors must be available to provide initial medical intervention directly or following initial assessment and treatment by the paramedical teams or equivalent.

In all cases the medical equipment and personnel must be capable of providing treatment for both serious and minor injuries in optimal conditions and with consideration for climatic conditions.

In all cases, the transfer of an injured rider to a medical center or hospital either by ambulance or by helicopter must not interfere with the event and the CMO must plan to have sufficient replacement equipment and staff available to allow the event to continue.

13.2 MINIMUM MEDICAL SERVICE REQUIREMENTS

The vehicles that are necessary in a circuit are:

- Vehicle(s) of type A (number and position as per the FIM medical homologation) are to be placed in such a way and in such numbers that a fallen rider can be reached by them with the minimum of delay from their deployment by Race Control.
- Special Measures for FIM WC GP: two FIM Medical intervention vehicles (type A) will be provided by the promoter and must be placed in such a way that a fallen rider can be reached by them with the minimum of delay from their deployment by Race Control.

One vehicle should be located at the end of the pit lane, and will serve as medical car during the first lap of the races. The second should be located in the service road with an asphalt entry to the track, at approximately half the track's distance. In the case of an accident during the warm up lap or first lap of the race, the medical intervention vehicles should not stop unless instructed to do so by the Race Director.

- Vehicle(s) of type B (number and position as per the FIM Medical Homologation) are to be placed in such a way that a fallen rider can be reached and transported with minimum delay after coming to rest with on-going treatment being provided during transport.
- Vehicle(s) of type C (number and position as per the FIM Medical Homologation) are to be placed in such a way that a fallen rider can be transported with minimum delay after coming to rest only if no treatment is required.

The only amendment permitted to this in principle is that a vehicle type C may be replaced by a vehicle type B.

Other medical services required at a circuit are:

- Medical ground posts (number and position as per FIM Medical Homologation) are to be placed in such a way that a fallen rider can be reached and initial assessment and treatment commenced with minimum of delay
- Pit Lane ground post
- A medical centre
- A helicopter, if required (compulsory for FIM GP, SBK & EWC World Championships)
- A method e.g. protective canvas/tarpaulins in order to screen the rider or the accident scene from public view, at least in Type A vehicles and if possible at all ground posts.

13.3 MEDICAL CENTRE

13.3.1 General

- a) Except in the event of a justified special dispensation, a permanent medical centre is mandatory for all permanent circuits wishing to host an event entered on the FIM international calendar; it may be temporary for temporary circuits.
- b) Any medical centre should be built according to the norms set out in the FIM Medical Code and FIM Standards for circuits and its plan should be presented to the FIM Commission of Circuit Racing and the Medical Commission.
- c) Sample drawings of medical centre plans and models (Appendices I and J of the FIM Medical Code) are available from the FIM Executive Secretariat for reference.
- d) Before the construction or modification of a permanent medical centre, the plans must be approved by the FIM. A medical inspection must take place prior to the opening of the centre.

- e) For any international event taking place on a circuit, the minimal medical equipment specified in the FIM Medical Code should be present. In all cases provision should be made for treating both casualties requiring only minor treatment and those requiring intensive care.
- f) All the information and requirements contained herein are compulsory for FIM World Championship Events and are recommended for all other events
- g) Also, it is recommended that a system be set in place whereby an injured rider is effectively screened from view from the moment he enters the medical centre to the moment he is evacuated.
- h) The medical centre should therefore essentially provide two sections, one for intensive care and the other for general treatment with the ability to secure the division between the two sections
- i) While the individual design is optional, it must be functional and include the essential elements set out above.
- j) It must be designed and built in full compliance with the conditions as mentioned above.
- k) In all cases the plans must be approved by the FIM before any construction or modification may begin.

13.3.2 Design of the medical centre

This must be a permanent structure with adequate space to treat injured riders for both major and minor injuries.

A hospital outside the circuit is not an alternative to the medical centre at an event.

13.3.2.1 The medical centre should provide

- A secure environment from which the media and public can be excluded.
- An area for easy access, parking and exit of First Aid vehicles, preferably with a covered unloading area.

- A helicopter landing area nearby.
- One or two rooms large enough to allow resuscitation of at least two severely injured riders simultaneously (resuscitation area).
- A permanent or portable digital X-ray machine appropriate to detect usual bone fractures encountered in motorcycle sport, must be available at FIM World Championship events: GP, SBK and Endurance and is recommended for all other events provided it is not prohibited by national legislation.
- A room large enough to treat more than one rider with minor injuries simultaneously. It is advisable to have temporary separation available in this area, e.g. curtains or screens.
- A reception and waiting area.
- Facilities for anti-doping control
- Doctor's room
- Toilet and shower room with disabled access.
- Medical personnel room for a minimum of 12 persons
- Radio Communication with race control, the CMO, ambulances and ground posts
- If the Medical Centre has a normal electric power supply, it must also be permanently connected to its own UPS (Uninterruptible Power System Supply)
- A water supply, heating, air-conditioning and sanitation appropriate to the country
- A monitor connected to the Closed Circuit Television (CCTV)
- Office facilities
- Dirty utility room
- Equipment storage
- Security fence
- Telephones
- Security Guard
- Parking for ambulances

13.3.2.2 Room requirements

- 1 resuscitation room: or
- 2 resuscitation rooms with a separate entrance away from the general public entrance
- minor treatment room
- x-ray room
- Anti-doping Control Room
- Medical Staff Room
- Wide corridors and doors to move patients on trolleys

Sample drawings of medical centre models (Appendices I and J) are available from the FIM Executive Secretariat for reference.

13.3.2.3 Doping facilities

Doping test facilities will be required, provided by the organisers of the event and should consist of:

One (1) room minimum with:

- a table and chairs
- writing material
- a lavatory in an adjacent room and articles of personal hygiene, private, clean and equipped bathroom/toilet with a wash basin adjacent or as near as possible to the Doping Control station and waiting area

A waiting area with:

- chairs
- adequate supply of drinks which must be in unopened containers and possibly some reading material

The entry to the doping control station would normally be restricted to the following persons:

- Rider and designated accompanying person
- Doping Control Officer(s)
- Chaperones (**min. 6 persons holding the appropriate passes**)
- Interpreter
- FIM Contact Person

13.3.3 Location

The medical centre must be situated in a relatively central location, easily accessible from all parts of the circuit, and installed in closed and guarded premises preferably in a separate purpose-built structure. On no account, unless it is in order to receive treatment, may the public be allowed to enter or cross the area delimited by these premises. It must also be easy to reach from the track and should, unless justified dispensation has been granted, ideally be situated next to the entrance

to the pit lane. When a helicopter is required (FIM World Championships: GP, SBK & EWC) there must be an adjoining helicopter landing area in sufficient proximity to avoid the need for a secondary ambulance transfer to the aircraft from the medical centre.

13.3.4 Medical Centre Equipment

13.3.4.1 Equipment for resuscitation areas

- Equipment for endotracheal intubation, tracheotomy and ventilatory support, including suction, oxygen and anaesthetic agents
- Equipment for intravenous access including cut-down and central venous cannulation and fluids including colloid plasma expanders and crystalloid solutions
- Intercostal drainage equipment and sufficient surgical instruments to perform an emergency thoracotomy to control haemorrhage
- Equipment for cardiac monitoring and resuscitation, including blood pressure and ECG monitors and a defibrillator

- Equipment for immobilising the spine at all levels
- Equipment for the splinting of limb fractures
- Drugs/IV fluids including analgesic, sedating agents, anticonvulsants, paralyzing and anaesthetic agents, cardiac resuscitation drugs/IV fluids
- Tetanus toxoid and broad spectrum antibiotics are recommended
- Equipment for diagnostic ultrasound
- A permanent or portable digital X-ray machine appropriate to detect usual bone fractures in motorcycle sport, must be available at World Championship events (GP, WSBK and Endurance) and is recommended for all other events provided it is not prohibited by national legislation.

13.3.4.2 Equipment for minor injuries area

The area must have beds, dressings, suture equipment and fluids sufficient to treat up to three riders with minor injuries simultaneously. Sufficient stocks to replenish the area during the event must be available and sufficient doctors, nurses and paramedics or equivalent experienced in treating trauma must be available.

13.3.5 MEDICAL HOMOLOGATION OF CIRCUITS

13.3.5.1 Medical Homologation for GP, SBK & EWC

- Circuits for GP, SBK and EWC require medical homologation.
- All circuits which have undergone significant changes in the layout or at the medical centre within the homologated period are required to renew their homologation. The objective is to maintain the highest standard of services for the safety of the riders. These standards and the FIM Medical Code will be used as the reference for the homologation inspections. Any request for renewal of homologation should be made by the relevant FMN.
- The specific requirement for each circuit will be decided by the Medical Director (GP), FIM Medical Officer (GP), FIM Medical Directors (SBK & EWC) and FIM Medical Inspector in collaboration with the Circuit CMO, who has to be present at the medical inspection, according to the requirements of the championship promoters and with reference to the FIM Medical Code.

- The Medical Homologation (Medical Code Appendix K) and the Medical Inspection Reports are completed and signed by the FIM Medical Representative/Inspector. These reports are normally valid for three 1 year provided that during this time the layout and installations of the circuit concerned remain as approved by the FIM Medical Inspector.
- Following homologation, a report of homologation will be issued for a period of 1 year and will include details of the medical service.
- The FIM also reserves the right to review such a homologation at any time.
- For details of the medical homologation procedure, see Appendix Q of the FIM Medical Code.
- The medical homologation is an integral part of the overall circuit inspection and homologation and will be undertaken jointly with the FIM Circuit Racing Commission representatives.

Grading of circuit medical homologations

The medical inspection and homologation will be graded as follows:

A: 1 year

A medical inspection and medical homologation report will be issued.

B: Further improvements to the medical service are required and a further medical inspection is compulsory the following year.

Medical inspection may be required prior to next event.

In the event of two successive inspections resulting in Grade B, the circuit will automatically be downgraded to Grade C as defined below.

C: The medical service provision does not comply with the requirements of the FIM Medical Code and further medical inspections are compulsory prior to any FIM event taking place.

Further medical inspection is required before any FIM event can take place until the circuit obtains at least a Grade B.

13.3.5.2 Medical Homologation for the other Circuit Racing disciplines

Circuits may require medical homologation for:

- Circuits which have undergone significant changes in the layout or at the medical centre since a previous medical homologation are required to renew their homologation. The objective is to maintain the highest standard of services for the safety of the riders. These standards and the FIM Medical Code will be used as the reference for the homologation inspections. Any request for renewal of homologation should be made by the relevant FMN.
- The specific requirement for each circuit will be decided by the FIM Medical Inspector in collaboration with the Circuit CMO, who has to be present at the medical inspection, according to the requirements of the championship promoters and with reference to the FIM Medical Code.
- The Medical Homologation (Appendix K) and Medical Inspection reports are completed and signed by the FIM Medical Inspector. These reports, which will include details of the medical service, are normally valid for three (3) years provided that during this time the layout and installations of the circuit concerned remain as approved by the FIM Medical Inspector.
- The FIM also reserves the right to review such a homologation at any time.
- For details of the medical homologation procedure, see Appendix Q of the FIM Medical Code.
- A CMO Questionnaire and medical plan are to be provided to the FIM at least 60 days prior to the event for consideration by a relevant member of the FIM Medical Commission who will provide advice concerning the proposed medical facilities for the event.

Grading of circuit medical homologations

The medical inspection and homologation will be graded as follows:

A: 3 years

A medical inspection and medical homologation report will be issued.

B: Further improvements to the medical service are required and a further medical inspection may be carried out the following year.

Medical inspection may be carried out before the next event.

In the event of two successive inspections resulting in Grade B, the circuit will automatically be downgraded to Grade C as defined below.

C: The medical service provision does not comply with the requirements of the FIM Medical Code and further medical inspections are compulsory prior to any FIM event taking place.

Further medical inspection is required before any FIM event can take place until the circuit obtains at least a Grade B.

13.4 MEDICAL PERSONNEL

13.4.1 Personnel at the Medical Centre

The following specialists should be immediately available in the medical centre at FIM WC: GP and SBK events and are recommended for all other events:

- Trauma resuscitation specialists (e.g. Anaesthetist, Accident and emergency specialist, Intensive care specialist);
- Surgeons experienced in the management of trauma.

Medical personnel, nurses and paramedics (or equivalent) should be present in a sufficient number and should be experienced in resuscitation, diagnosis and treatment of seriously injured patients.

13.4.2 Medical Ground Posts

These are placed at suitable locations and in sufficient numbers around the circuit to provide rapid medical intervention and if appropriate evacuation of the rider from danger with the minimum of delay. The personnel must have sufficient training and experience to take action autonomously and immediately in case of an accident.

For protection of riders and the ground post staff, the ground post should be equipped with easily movable safety barriers and if possible protective canvas/tarpaulins in order to screen the rider or the accident scene from public view.

13.4.2.1 **Personnel:**

There should be a minimum of three personnel at each medical ground post at least one of whom should be a doctor or paramedic or equivalent experienced in emergency care with the others to assist them, carry equipment and act as stretcher bearers.

Type GP1:

- A doctor experienced in resuscitation and the pre-hospital management of trauma and
- First aiders or stretcher bearers

Type GP2:

- At least one paramedic or equivalent experienced in resuscitation and the pre-hospital management of trauma and
- Two first aiders or stretcher bearers

13.4.2.2 **Medical Equipment:**

Equipment for initiating resuscitation and emergency treatment including:

- Initial airway management
- Ventilatory support
- Haemorrhage control & circulatory support
- Cervical collar



- Extrication device - This should be a Scoop stretcher or if not available a spinal board or equivalent.

Devices such as “NATO” or other canvas stretchers that require the rider to be lifted on to them are no longer acceptable.

Technical Equipment:

- Radio communication with Race Control and the CMO
- Adequate shelter for staff and equipment should be available.

13.4.3 Pit Lane Ground Post

Personnel:

- A doctor and paramedic (or equivalent) experienced in emergency care must be positioned in the pit lane.
- One or more pit lane ground posts, depending on the length of the pit lane are required.

Medical equipment:

- Airway management and intubation equipment
- Drugs for resuscitation and analgesia/IV fluids
- Cervical collars
- Manual respiration system
- Intravenous infusion equipment
- First Aid equipment
- Scoop stretcher or if not available a spinal board or equivalent

Technical equipment:

- Radio communication with Race Control and the CMO

The number, location and type of ground posts will be determined by the CMO appointed to the circuit for the event. This will be subject to confirmation and agreement following inspection and review by the Medical Director and FIM Medical Officer (GP), FIM Medical Directors (SBK and EWC), and/or FIM Medical Representative/Inspector.

13.5 MEDICAL VEHICLES

13.5.1 Definition of vehicles

There are a number of types of vehicle that are required to be provided by the medical service to facilitate the treatment, evacuation and transport of injured riders.

These vehicles would normally use the external and internal service roads to access and transport an injured rider. To allow this the Service Roads must be of adequate width and condition and also kept clear of any obstructions for this purpose. Occasionally it may be necessary for medical vehicles of types A & B to be deployed on the track. The vehicles must not enter the track until specifically instructed to do so by CMO following permission by the Race Director or Clerk of the Course on the advice of the CMO & Medical Director.

The vehicles are defined as follows:

- **Type A:** A vehicle for rapid intervention at accident areas to give the injured immediate assistance for respiratory and cardio-circulatory resuscitation. This vehicle should have “MEDICAL” clearly marked on it in large letters. The type of vehicle used should be appropriate for this purpose in the relevant discipline.
- **Type B:** A highly specialised vehicle for the provision of advanced treatment, transport and can serve as a mobile resuscitation centre.
- **Type C:** A vehicle capable of transporting an injured person on a stretcher in reasonable conditions.

13.5.2 Medical Vehicle Personnel and Equipment

13.5.2.1 Vehicle of Type A (medical intervention vehicle)

Personnel:

- Type A1:
 - a driver, experienced in driving the Type A vehicle and familiar with the course
 - a doctor, experienced in emergency care
 - a second doctor or paramedic (or equivalent), experienced in emergency care

- Type A2:
 - a driver, experienced in driving the Type A vehicle and familiar with the course
 - paramedics (or equivalent) experienced in emergency care

Medical equipment:

- Portable oxygen supply
- Manual ventilator
- Intubation equipment
- Suction equipment
- Intravenous infusion equipment
- Equipment to immobilise limbs and spine (including cervical spine)
- Sterile dressings
- ECG monitor and defibrillator
- Drugs for resuscitation and analgesia/IV fluids
- Sphygmomanometre and stethoscope

Other equipment:

A method e.g. protective canvas/tarpaulins in order to screen the rider or the accident scene from public view.

Equipment should be easily identified and stored in such a way that it can be used immediately at ground level at the trackside.

Technical equipment:

- Radio communication with Race Control and the CMO
- Visible and audible signals
- Equipment to remove suits and helmets

For GP, SBK World Championships:

The minimum number of medical intervention vehicles is 2. In the case of an accident during the warm up lap or first lap of the race, the medical intervention vehicles should not stop unless instructed to do so by the Race Director.

13.5.2.2 FIM Medical Intervention Team vehicle (GP)

The promoter will provide type A vehicles with a professional driver, for which the local medical service will provide the personnel and equipment.

Personnel:

- a driver experienced in driving the vehicle will be provided by the promoter.
- a doctor experienced in resuscitation and the provision of immediate emergency care and a holder of the relevant FIM Medical Intervention Team Licence.
- a nurse or paramedic experienced in resuscitation and the provision of immediate emergency care and a holder of the relevant FIM Medical Intervention Team Licence.

Medical equipment:

- Portable oxygen supply
- Basic and Advanced Airway Management including intubation and surgical airway interventions
- Suction equipment
- Manual ventilator such as BVM and associated equipment
- Equipment for chest decompression
- Equipment for vascular access, infusion, circulatory support and haemorrhage control
- Cardiac Monitor and Defibrillator
- Blood pressure monitoring equipment
- Equipment to immobilise limbs and spine (including cervical spine)

- Sterile dressings
- Drugs for resuscitation, intubation, anaesthesia, sedation, analgesia and intravenous fluids
- Equipment to remove race suits and helmets

The provision of necessary medications and equipment will be the responsibility of the local medical service.

Only material necessary for the provision of medical care is permitted in FIM Medical Intervention Team vehicles. Other materials such as food etc. is not permitted at any time.

Equipment should be easily identified, portable and stored in such a way that it can be used at ground level at the trackside.

The equipment must be presented for review and familiarisation during the afternoon following the track safety inspection.

Technical equipment:

- Radio communication with Race Control, the CMO and Medical Director
- Visible and audible signals

13.5.2.3 Vehicles of Type B

Personnel:

- Type B1:
 - **A driver**
 - A doctor experienced in emergency care
 - Paramedics or equivalent
- Type B2:
 - **A driver**
 - Two paramedics or equivalent experienced in emergency care.

Medical equipment:

- Portable oxygen supply
- Manual and an automatic ventilator

- Intubation equipment
- Suction equipment
- Intravenous infusion equipment
- Equipment to immobilise limbs and spine (including cervical spine)
- Sterile dressings
- Thoracic drainage/chest decompression equipment
- Tracheotomy/surgical airway equipment
- Sphygmomanometer and stethoscope
- Stretcher
- Scoop stretcher
- ECG monitor and defibrillator
- Pulse oximeter
- Drugs for resuscitation, analgesia and IV fluids

Technical equipment:

- Radio communication with Race Control and the CMO
- Visible and audible signals
- Equipment to remove suits and helmets
- Air conditioning and refrigerator are recommended

The number, location and type of vehicles will be determined by the CMO appointed to the circuit for the event. This will be subject to confirmation and agreement following inspection and review by the Medical Director and FIM Medical Officer (GP), FIM SBK & EWC Medical Directors, FIM Medical Representative.

One (1) such ambulance must be on stand by at the medical centre.

13.5.2.4 Vehicles of Type C

Personnel:

- Two ambulance personnel or paramedics of whom one would be the driver and the other would be a person capable of giving first aid.

Medical equipment:

- Stretcher
- Oxygen supply
- Equipment to immobilise limbs and spine (including cervical spine)
- First aid medicaments and materials

Technical equipment:

- Radio communication with Race Control and the CMO
- Visible and audible signals

13.5.2.5 Helicopter

A helicopter, which is normally required must be fully equipped with adequate personnel and equipment and be appropriately licensed for the relevant country and flown by an experienced pilot familiar with medical air evacuation and the potential landing sites. The medical personnel - doctor and paramedic(s) or equivalent - should be qualified in and able to carry out emergency treatment and resuscitation. The helicopter should be of a design and size that will allow continuing resuscitation of an injured rider during the journey. It should be positioned close to the medical centre such that an ambulance journey between medical centre and helicopter is not necessary (compulsory in GP, SBK & EWC) or depending on the legislation of the relevant country and the location of the event be available “on call.”

With the agreement of the Chief Medical Officer, Medical Director, FIM SBK & EWC Medical Director, FIM Medical Officer and Race Director In GP, SBK and EWC, it is permissible for the helicopter to leave the circuit to transfer an injured rider to hospital without the need to stop the event, providing that it will have returned to the circuit within the time required to prepare a further rider for transfer by helicopter. If the distance to hospital by air or severe weather does not permit this a further helicopter “on site” may be required. In these circumstances or if the weather conditions or other factors prevent the use of the helicopter after consultation between the CMO, Medical Director, FIM SBK & EWC Medical Director, FIM Medical Officer and FIM Medical Representative further transfers may be undertaken by road by emergency ambulance providing the hospital is in reasonable distance. The designated hospital should normally be within 20 minutes by air and 45 minutes by road. If the hospital is not within a reasonable distance of the event and transfer by helicopter is not possible, consideration should be given to stopping the event. To ensure the availability of a helicopter at all times during the event, it is recommended that 2 helicopters be available.

13.6 MEDICAL ACCESS AND SERVICE ROADS

A network of access roads both outside and inside the track are required to provide rapid access for medical vehicles to respond to, access and transport riders from the track to the Medical Centre, helicopter and hospital. These roads must therefore provide access to all parts of the track and the service roads must therefore be of adequate width and condition and also kept clear of any obstructions for this purpose.

13.7 MEDICAL SERVICE FOR THE PUBLIC

A medical service for the public, separate from the above services must be provided by the event organisers. This service must conform to any regulation enforced by the relevant country and reflect the number of spectators expected. This service must be controlled by a deputy CMO or other doctor but not directly by the CMO.

13.8 APPROVAL OF NEW FIM EVENTS

Before the first event of one of the championships mentioned above, whether on an existing circuit or a newly built one, a qualifying inspection is organised under the control of the FIM, with the participation of the FIM Medical Representative/Officer and where relevant the Medical Director of the championship concerned.

Essentially, this inspection for approval purposes focuses on the proposed hospitals, the medical centre, the placing around the track of medical ground posts, the evacuation routes, the medical vehicles, the evaluation of the organisation and performance of the evacuation teams.

13.9 LATE CHANGE OF CIRCUIT FROM THE ONE INITIALLY DESIGNATED

If, for whatever reason, an event of one of the FIM World Championships or Prizes on circuits is required to take place on a different circuit from the one initially designated, the following measures must be taken: before the final decision is taken on the date and venue of the event, the designated FIM Medical Representative must, jointly with the CMO appointed to the event and, where appropriate the Medical Director of the relevant championship, ensure the conformity of the medical service with the requirements of the FIM Medical Code and these standards and, if it is deemed necessary, carry out a prior inspection in order to ascertain the feasibility of the event taking place in accordance with the FIM regulations.

ARTICLE 14 - OTHER SERVICES

14.1 CIRCUIT MAINTENANCE

All of the circuit installations and structures must be maintained in good operating conditions. This must be done before and during FIM events.

14.2 TRACK MAINTENANCE

The circuit must be equipped with a cleaning truck or at least 2 mobile high-pressure washers.

Furthermore, the circuit must be equipped with sufficient detergent to be able to quickly dissolve/deteriorate the mixture of oil/fuel/filler in case of an oil spill on track (SEE ARTICLE 10.4.1).

14.3 COMMUNICATIONS SERVICE

The following communications networks must be installed:

- A telephone connection with the outside network from the Race Control post.
- An internal network linking-up the race control with:
 - Flag and track marshal posts
 - The medical centre
 - Medical personnel
 - Recovery vehicles and moto-taxi
 - Medical/safety cars
 - Any other personnel required during the homologation process - or in the promoters manual (if existing).
 - The communication must be efficient. Preferably radio communication must be used. But the exact type of communication will be established in the homologation process or with the event promoters.
 - A public address system. The paddock area must be able to be disconnected without disconnecting the rest of the areas.

ARTICLE 15 - CIRCUIT BUILDINGS AND INSTALLATIONS

A circuit includes various elements and buildings. These can be divided into the following:

Pit Boxes Building: It is highly recommended that this Building include:

- Pit Boxes
- Race Control
- Timekeeping room
- **Safety Officer room**
- It also may include:
 - Podium
 - Media Centre
 - Commentary Booths
 - Official Rooms
 - Circuit's permanent staff offices.
 - Hospitality suites

Medical Centre:

- It must contain all of the items described in article 13.
- The medical centre together with its helicopter pad must be separated from the paddock and spectator areas with a fence.

Paddock:

- It is where the teams' offices and hospitalities are located.
- Also, the organisation's offices are in the paddock.
- Showers & WC will also need to be provided in this area.
- The circuit will need to provide a sufficient area for all of this, and for all that doesn't fit in the Pit Boxes building.

Parking areas:

- It is highly recommended that a circuit plan some areas for parking, especially if it wants to host international events.

Spectator areas:

- Grandstands and general viewing areas are highly recommended. They can be permanent or temporary.
- Giant screens are also recommended, so that spectators can follow the whole race.
- These areas must be separated from the service roads by the second line of protection.
- They must comply with national laws and regulations.

Accreditation centre:

- This is the place where organisation guests and staff as well as journalists collect their accreditations.
- An accreditation centre is highly recommended, especially at international events.

All of these areas have to have toilets, and it is also highly recommended that there be dining facilities.

Please note that for more specific explanations for all of these elements, circuits should ask for the Promoter's event organisers manual (if existing):

- MotoGP™: Dorna Sport S.L.
- World Superbikes: Dorna Sport S.L.
- Endurance World Championship: EEL

Also, please consult FIM environmental code.

15.1 PIT BOXES

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' manual, if existing).

Minimum total surface: 1400 m² Minimum pit size: length 6 m, width 5 m

Recommended: length 12 m, width 7.5 m: 90 m²

15.1.1 Security

Each box should be lockable front and back with a barrier or walling preventing access from adjacent boxes. It is preferable though that these partitions can also be removed to allow teams occupying more than 1 box the possibility to remove partitions.

The boxes should also be secure against the elements and able to prevent wind, rain and surface water from entering.

15.1.2 Electricity and Lighting

Boxes should be equipped with at least 8 electricity outlets per 50 m² of box space. The outlets should be of at least 16 amps, and should be able to meet the current demands made on power through Tyre Warmers etc. It is also desirable to have electricity outlets on the Pit Lane side of boxes to enable teams without boxes access to electricity during the course of practice or race.

It is highly recommended to have a 380 v (32 amp) sockets outside, at the back of the pit boxes for the teams' working trucks, and at the front.

All garages should be well lit, with good quality lighting (minimum 500 lux) throughout the whole garage and be cabled to receive timekeeping and television signals.

It is highly recommended to have a TV socket per pit box connected to the Closed Circuit Television (CCTV) signal, in order to received footage of the races and timekeeping results.

15.1.3 Water, Drainage

Each Pit box should have individual access to water and drainage.

15.1.4 Compressed air

Each Pit Box should also be equipped with a compressed air supply equipped with a humidity extractor in order to release water built up from the compressed air.

15.1.5 Fire-fighting

Each Pit Box shall be equipped with fire-fighting supply (Extinguishers, etc.).

15.2 **PODIUM**

The Podium must be visible and protected at the prize giving ceremony by installing of a temporary protection line quite a distance away from the podium, in order to allow a large number of photographers to work efficiently.

15.3 **TIME KEEPING ROOM**

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' or timekeeping company manual if existing).

The time keeping post must be sound-proofed as much as possible and must allow perfect viewing conditions. It must be equipped with adequate heating or cooling facilities.

The timing equipment must be able to record times on each lap and be accurate to 1000th of a second.

The results office must be arranged in such a way that the time of each rider for each lap may be calculated immediately.

The results office which, if possible, will be situated in a nearby but separated room from the time keeping post, must contain at least one copying machine and a back-up machine.

15.4 MEDIA CENTRE (FOR NEW CIRCUITS)

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' or FIM Press officer manual, if existing).

The press centre must be equipped with adequate heating or cooling facilities.

15.4.1 Location

It is recommended that the press centre be located above the stands so that the start and arrival of the races are visible, together with the activity in the pit-lane. If the press centre is not above the stands, it must be located in the paddock.

15.4.2 Open hours of the press centre

The minimum open hours of the press centre are the following:

Thursday: 14h00 - 21h00

Friday: 08h00 - 22h00

Saturday: 08h00 - 23h00

Sunday: 08h00 - midnight

The open hours of the press centre must be clearly mentioned on a professional board in front of each press centre's entrance.

15.4.3 The press officer's office

This office must be equipped with:

- 1 desk with drawers (preferably lockable)
- 1 item of furniture with lock
- 2 tables measuring together at least 8 m long by 1 m wide
- 1 direct telephone line
- 1 fax machine
- 1 telephone cable (two pairs cased, 4 cables in total) as from the timekeeping room. The cable must be connected to each end. Ways through a generator or amplifier together with connections must be absolutely avoided.

- 1 photocopier
- 1 small refrigerator
- 1 TV monitor at least (preferably a set of 4 TV screens) enough electric outlets for a computer, a charger for walkie talkie, two printers

15.4.4 Space for internet

It must be equipped with:

2 telephone lines (1 line must be of ISDN type in the countries where such service exists). Both lines must be installed in the timekeeping room.

15.4.5 Space for teams' information

Space for teams' information must be provided in the press centre (a table of minimum 10 m long by 1 m wide). This space must be clearly marked with a "teams' information" board.

15.4.6 Reception desk

One reception desk, as near as possible from the press centre's main entrance, near the trays for the results and the official information board (see Art. 15.4.8.7) must be provided.

15.4.7 Working places

- A minimum of 200 working places (tables/desks) must be available. The minimum dimension for each place must be: 100 cm long, 60 cm deep.
- 200 chairs.

15.4.8 Equipment

15.4.8.1 Electricity

The press centre must be equipped with the equivalent of one (1) electric multiple adaptor at least for 3 working places. The best way is to install outlets on the ground and to fix extensions under the tables with a multiple adaptor every two metres. The extensions must not lay on the floor for security reasons.

For events outside Europe, a sufficient number of adaptors for European outlets (at least 50).

15.4.8.2 TV monitors

Each group of monitors includes 5 units. The minimum size of the TV screen must be: 54 cm (21 inches). A lower dimension will not be accepted.

All TV monitors must be placed in order that the channels can be changed with a simple remote control.

The number of TV monitors depends on the size of the press centre. It is recommended that the monitors be hung up on the ceiling.

A connection with the timekeeping room must be provided.

15.4.8.3 Connection with the national TV

The installation of a cable which goes from the TV centre, of which signal comes from, to the press centre is necessary.

15.4.8.4 Video or DVD recorder

A video or DVD recorder must be provided.

15.4.8.5 Photocopier

Three (3) photocopiers able to produce at least 60 copies per minute.

One of these machines at least must be equipped with a sorting machine for minimum 10 copies and if possible with an automatic stapler.

A big table must be installed near the photocopiers.

15.4.8.6 Official information/messages board

- 1 official information board (dimensions of minimum 2 m²).
- 1 board for messages (dimension of one m²).

15.4.8.7 Trays for result sheets

Sufficient trays for result sheets of each class must be placed at the nearest possible of the official information board.

15.4.8.8 Telecommunication installations

- 3 telephone lines minimum (5 of which telephone must be placed in the booths with doors).

It is important that the whole telephones' area be suitably isolated to soundproof.

- 3 fax machines minimum.
- A certain number of converters for telephone/computer connections must be available upon request.
- All the lines must be of optic fibres of very high quality and equipped to ensure transmissions via modem.

15.4.8.9 Direct telephone lines at the working places

It must be possible to install direct telephone lines at the working places if such is the wish of the journalists. All such telephones must be equipped in order to ensure transmissions via a modem.

15.4.8.10 Services for the photographers

An area for photographers must be created near the press centre, but separately. Such area must be equipped with tables and chairs for at least 40 persons.

An official information board and a board for messages must be foreseen, together with a total of 4 TV monitors.

15.5 COMMENTARY BOOTHS

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' manual, if existing).

A minimum of 12 booths must be provided, i.e.:

- A direct and wide view of the track at the start/finish line.
- Commentary boxes spacious enough for two people.
- Two monitors, one for the TV broadcast and the other for the lap by lap positions from the leader to the last rider.

- An immediate relay of press information, simultaneously transmitted to the commentary boxes and to the press-room.
- Direct information (by telephone or radio) from the pit-lane, paddock or medical centre concerning riders who have abandoned. The press officer at the circuit should appoint a few people to relay this sort of vital information as soon as possible during the race.
- Adequate heating or cooling facilities per booth.
- At least 2 chairs and one table per booth.
- At least 2 electric sockets of 200-220 Volts per commentary position.

15.6 OFFICIAL ROOMS

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' manual, if existing). These rooms must be near to the race control post. The rooms must be accessible to riders during the event.

The following equipment must be installed as well:

- 1 TV screen connected (via normal antenna) with the host broadcaster
- 1 monitor connected with the timekeeping
- 1 telephone (direct line with outside national and international calls)
- Enough ADSL internet connections or Wifi
- Table and chairs
- Trays labelled with the name of the persons present
- One refrigerator with soft drinks
- Adequate heating or cooling facilities

15.7 PADDOCK

The specifications and conditions laid down hereafter may vary upon request of the Championships' promoters (see promoters' manual, if existing).

The surface of the paddock must allow heavy motorcycles to circulate on it.

Any demarcation of roadways, unauthorised zones and parking spaces must ensure that motorcycles occupying the paddock are positioned rationally.

If the paddock is situated on the inside of a race track, it should be possible to gain access via a bridge or tunnel (clearance: 4,5 metres) for private cars, ambulances, heavy trucks etc. at all times.

The following minimum installation requirements must be met:

- WCs: 30 including 10 for ladies and 2 for disabled persons (and in any case following local legal requirements)
- Showers with hot water 12 including 4 for ladies and 1 for disabled person (and in any case following local legal requirements)
- A riders' information office
- A first aid post
- A medical service post or Medical Centre (in accordance with the FIM Medical Code).
- Fire-fighting post
- Bar, restaurant facilities are recommended.

15.7.1 Usable areas

• Tractor Unit Park	700 m ²
• Teams Working Area (Minimal Box Space)	5000 m ²
• Major Service Companies	2000 m ²
• Secondary Service Companies	1000 m ²
• Hospitality	5500 m ²
• Living Area	4500 m ²
• Roads	5000 m ²
• Total	23700 m ²

This is only to be regarded as a guideline, as it is almost impossible to account for and utilise every square metre of a paddock.

15.7.2 Electricity outlets

The minimum totals of electricity should be in the following areas:

	220 v (16 amp)	380 v (32 amp)
• Teams Working Area (Minimal Box Space)	55	15
• Major Service Companies	15	5
• Secondary Service Companies	15	5
• Hospitality	40	20
• Living Area	70	20
• Total	195	65

These figures are only guidelines and the greater the number of outlets the easier access can be. It is desirable that no vehicle should ever be further than 50 metres away from an electricity supply. The further leads have to stretch through a paddock the greater the power loss through the cables, as well as a the chance of cable damage and accident.

The total amount of KVA needed is difficult to ascertain, but on average a minimum of 7.5 KVA should be assigned to every vehicle in the paddock making a maximum of 1300 KVA (This does not take into account electricity used within the pit boxes).

Also it should be ensured that a 32 amp or 64 amp 380 v supply is located adjacent to the medical centre (according to the FIM Medical Code).

15.7.3 Water outlets

Teams Working Area (Minimal Box Space)	50
Major Service Companies	10
Secondary Service Companies	10
Hospitality	40
Living Area	70
Total	180

Enough water pressure must be guaranteed at every water outlet distributed along the paddock.

Water should also be available adjacent to the Medical Centre (according to the FIM Medical Code).

15.7.4 **Drainage**

The used water must be evacuated, with no atmospheric contact, through a flexible pipe to the device provided for this evacuation.

15.7.5 **Waste oil / fuel containers**

A total of 8 x 200 litre containers located evenly throughout the working area should be easily accessible to teams area according to the FIM Environmental Code and at least according to the local legal requirements.

15.7.6 **Waste disposal units**

Should be located evenly throughout the paddock area. A special attention needs to be paid to the hospitality area according to the FIM Environmental Code and at least according to the local legal requirements.

15.7.7 **Maintenance**

Waste oil/fuel containers and waste disposal units must be emptied or replaced at least once a day. It is recommended to be done before 8 am and/or after 7.30 pm. The toilets and showers must be kept clean and serviced throughout the event.

A technician for all the main services should remain on site throughout the event and be easily reachable.

15.8 **SCRUTINEERING AREAS**

Inside or near the paddock, a zone must be set-aside for personnel carrying out administrative checks and scrutineering. This zone must have the following specifications:

- It must be fenced and covered
- The surface must be flat
- The area must have a minimum of 100 m²
- Weighing material must be provided
- Access must be strictly controlled.

A board for official notices must be set up on the edge of this zone. The board must have a surface of at least 3 m². Any official notices must be suitably protected from inclement weather.

APPENDICES

Homologation procedure of new additional protective devices.

1. The description of duties can be obtained from the FIM CCR Administration.
2. Performance tests must be carried out in a laboratory by the applicant.

The CCR/FIM will appoint an inspector to assist at these tests.

Requests must be made to the CCR/FIM Secretariat at least 4 months before the tests are due to be carried out.

The applicant must provide an official document attesting that the laboratory proposed by him is approved for these kinds of test.

3. To obtain the homologation, the applicant must submit to the Circuit Racing Commission during a meeting:
 - A module, strictly identical to the one proposed for the homologation;
 - The video recording of the tests performed in the laboratory;
 - Some copies of the report of these tests.
 - The video recording of the fire resistance exercise approved by an approved laboratory.

CO-ORDINATES OF MANUFACTURERS & SUPPLIERS OF ADDITIONAL PROTECTIVE DEVICES:

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P.O. Box 293

Apollo Bay, Vic 3233 - AUSTRALIA

Tel.: +61 (0)417 500 852

Fax: +61 (0)3 8660 2577

www.airfence.com

airfence@airfence.com

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ALPINA SAFETY SYSTEMS GMBH

Bundesstrasse 20

9552 STEINDORF - AUSTRIA

Tel.: +43 4243 2480 0

Fax: +43 4243 2480 5

robert@alpina.at

office@alpina.at

www.alpina.at

Bridgestone Module 1000 & Module 1300

BRIDGESTONE CORPORATION

1, Kashio-cho, Totsuka-Ku,

YOKOHAMA - JAPAN

Tel.: +81 45 825 7641

Fax: +81 45 825 7643

hayas5-m@bridgestone.co.jp

Filling Italiano Protection System (ONDA 27/33-20/26)

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Via Mameli 51

20058 VILLASANTA (MI) - ITALIA

Tel.: +39 039 20 50 999

Fax: +39 039 20 50 977

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LISKI S.r.l. Via Veneto, 8

Brembate (BG) - ITALY

Tel.: +39 0 35 4826195

Fax: +39 035 2283818

info@liski.it

www.liski.it

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PKS PROMOTER SERVICE

Via Michele Angileri 162

91020 PETROSINO (TP) - ITALY

Tel./Fax: +39-0923-986166

pk@ctomline.it

Recticel Safeguard Barrier 1, 2, 3, 4 & RR

The Awning Company

Unit 1 Jubilee Works, Vale Street, Bolton

Lancashire BL2 6QF - GRANDE BRETAGNE

Tel.: +44 1204 544900

www.theawningcompany.co.uk or

www.safeguardbarriers.co.uk

information@theawningcompany.co.uk or

safeguard@theawningcompany.co.uk

SPM AirPADS & Energy Absorber Type A, B1 and C2

SPM SpA
Via Provinciale, 26
21030 BRISSAGO (Varese) - ITALY
Tel.: +39 0332 54 20 11
Fax: +39 0332 57 61 68
sport@spmspa.it
www.spm-sport.com

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TRACKCARE MARKETING AND MAINTENANCE
2 Casaedona Rise
BELFAST BT6 9RA - N. IRELAND
Tel.: +44 1232 791 665
Fax: +44 1232 791 665
info@trackcare.com

CO-ORDINATES OF MANUFACTURERS OF APPROVED PAINTS:**SWARCO LIMBOROUTE Circuit line WBP****SWARCO LIMBURGER LACKFABRIK GmbH (Heidi EHLERT)****Robert - Bosch - Straße 17****65582 Diez - ALLEMAGNE****Tel.: +49 (0) 6432 / 918422****Fax: +49 (0) 6432 / 918418****info.limburgerlackfabrik@swarco.com****SAMOLINE ANTISKID PAINT 8550.050****SAMOLINE STARTING GRID (WHITE 8555.0050 ou BLACK 555.0099)****COLORIFICIO SAMMARINESE SA (Matthew VAGNINI)****Via del Camerario 7 RSM-47891 Falciano - RÉPUBLIQUE DE SAINT MARIN****Tel.: (+378) 05 499 05 515****Fax: (+378) 05 499 08 453****export@colsam.com****09NS-SERIES W/B CIRCUIT MARKING PAINT****DREW PAINTS, INC. (Keith DiBrino) PO Box 29139,****Portland, Oregon 97296-9139 - ETATS UNIS D'AMÉRIQUE****Tel.: (+1) 800 924 7874****kdibrino@drewpaints.com****RACE LINE****ORÉ PEINTURE (Edouard CHAMPALBERT)****ZAC du Bon Puits****49480 St-Sylvain d'Anjou - FRANCE****Tel.: (+33) 2 41 21 14 10****Fax: (+33) 2 41 21 14 18****e.champalbert@ore-peinture.fr****c.dunaye@ore-peinture.fr**



FÉDÉRATION INTERNATIONALE
DE MOTOCYCLISME

FIM-LIVE.com

11, ROUTE DE SUISSE | CH - 1295 MIES

ccr@fim.ch

6510003