QUALITY PROGRAMME

ENGINEERED FOR HOCKEY

Hockey Turf & Field Standards

PART 2 –HOCKEY FIELDS

Construction & performance requirements

VER. 02

INTERNATIONAL HOCKEY FEDERATION
FÉDÉRATION INTERNATIONALE DE HOCKEY

fih.ch/qp

Foreword

Hockey is the world's third most popular team sport; the *2018 Global Hockey Survey* conducted by the FIH, showed that there are now over 30 million people playing hockey. Fast, technically skilful, and requiring good levels of personal fitness, the sport is renowned for its social inclusiveness, gender equality, and ability to attract players of all ages.

During much of the 20th century, hockey was played on natural grass, and even today this is till the surface used by many. In 1976, however, our sport was transformed when elite level hockey was played on synthetic turf for the first time.

Today synthetic turf, and especially the versions produced specifically for hockey (which we now call hockey turf) has allowed the game to develop into the fast, technically skilful, and exciting sport we know today.

Not all hockey turfs are the same and selecting the most appropriate type for the grades of hockey that will take place on a field is important. Therefore, to help guide those planning a new hockey facility we have produced our *Facilities Guidance – Outdoor Hockey Surfaces,* which may be downloaded at www.fih/ch/qp.

When determining which form of surface is the most appropriate for a specific facility it is very important that the requirements of the various competitions that will be held on it are considered, as well as the policies and recommendations of the National Hockey Association.

FIH Quality Programme

People need suitable facilities to play, but these require major investment, so it is very important that hockey courts are designed and constructed correctly. To help ensure this occurs, the FIH has developed its FIH Quality Programme. The programme provides guidance and quality assurance through internationally recognised standards. These are based on over 40 years' experience and have been developed to ensure the appropriate levels of performance and durability are achieved by a facility, irrespective of whether it is intended for community hockey, international competition, or anything in between.

The FIH Quality Programme also endorses companies that manufacture high quality hockey surfaces, and contractors that have a proven ability to build great hockey facilities.

FIH Preferred Suppliers are companies that manufacture hockey turf products and build hockey courts allowing customers to benefit from a one-stop approach to the construction of their new hockey facility. FIH Preferred Suppliers have a global commitment to work with the FIH to provide high-quality hockey facilities suitable for international, national, club, and development hockey.

FIH Certified Manufacturers are companies that specialise in the manufacturing of hockey turfs. These companies have a proven ability to produce surfaces to the standards the

game requires, whilst operating quality management systems that ensure consistency in their products.

FIH Certified Field Builders are companies that specialise in building hockey fields. Due to the nature of hockey, a small ball moving quickly across the surface, the tolerance to which a facility needs to be constructed are much more demanding than those required by large-ball sports. FIH Certified Field Builders have a proven ability to construct fields, and HOCKEY5s courts, to the standards the game requires.

The FIH recommends that whenever you are planning a new hockey field you always:

- select an FIH approved hockey turf
- appoint either an FIH Preferred Supplier or FIH Certified Field Builder to design and build the field.

Details of FIH Approved Products, FIH Preferred Suppliers and FIH Certified Field Builders can be found at www.fih.ch/qp.

1 Scope

This Standard specifies the quality, performance and construction criteria required for 11 a-side hockey fields (pitches). It becomes effective from January 2021 and replaces the 2017 edition.

All new fields requiring FIH certification from June 2021 should be design and tested in accordance with this Standard.

Note – If a currently certified field needs to be re-certified it should be tested and comply the Standard that was applicable when it was built.

Other FIH reference documents

This Standard incorporates the requirements of the following FIH publications, which can be downloaded at www.fih.ch/qp:

- FIH Hockey Turf and Field Standards – Part 1 FIH Approved Hockey Turfs
- Facilities Guidance– Hockey Field Irrigation
- FIH Approved Field Equipment – Hockey Goals
- FIH Approved Field Equipment – Team Shelters
- Facilities Guidance Sports – Lighting for Non-Televised Outdoor Hockey (2021 edition)
- Facilities Guidance – Sports Lighting for Televised Outdoor Hockey (2021 edition)

2 Definitions

The following definitions apply to this Standard:

Competition regulations – specific requirements for a competition or tournament, issued by the Event's organising committee.

EN – Standard published by the European Standards Organisation (CEN).

FIFA TM – test method specified by FIFA in their Handbook of Test Methods for Football Turf.

FIH Approved – a product that has been tested and certified in accordance with the *FIH Hockey and Field Standard*s part 1 – FIH Approved Hockey Turfs

Field – as defined in this Standard and the Rules of Hockey.

Field of play – the area within the side lines and back lines.

Hockey Turf Global category – FIH Approved non-filled wet synthetic turf designed to be irrigated prior to use.

Hockey Turf National category – FIH Approved sand dressed or non-filled synthetic turf that does not require irrigating prior to use.

Hockey Turf Community category – FIH Approved sand filled synthetic turf or textile sports surface.

Hockey Turf Gen 2 Category – modified FIH National or FIH Community category surface designed to also allow other sports such as tennis, netball, futsal, etc to be played.

Hockey Turf 3G Multi-Sport Category – FIH Approved long pile synthetic turf. These surfaces are primarily designed for football but may also be used for lower level hockey.

ISO – standard published by the International Standards Organisation.

Run-offs – a margin outside the field of play that provides an area for players to run onto without the risk of colliding with any permanent or temporary structures.

Shockpad or elastic layer – prefabricated foam or elastomeric sheets, tiles or insitu laid elastomeric granulate and binder mixes, underlayer, that is designed to aid the provision of the required sport's performance.

3 Categories of field

This Standards defines the requirements for five categories hockey field. They are:

Intended use	Type & category of hockey turf	
Category 1 field		
International Tier 1 televised hockey	FIH Global	Non-filled wet turf
Category 2 field		
National & Tier 2 international competitions and training	FIH Global	Non-filled wet turf
Category 3 field		
National & local competitions, and training	FIH National FIH Global	Sand dressed synthetic turf Non-filled wet turf

Category 4 field		
Community and education sector competitions, and training	FIH Community	Hockey Plus – sand filled synthetic turf or textile sports surface Gen 2 – sand dressed synthetic turf or textile sports surface
Category 5 field		
Multi-sports fields primary designed for large ball sports, with hockey as a secondary sport	FIH Community	3G Multi-sport – long pile synthetic turf

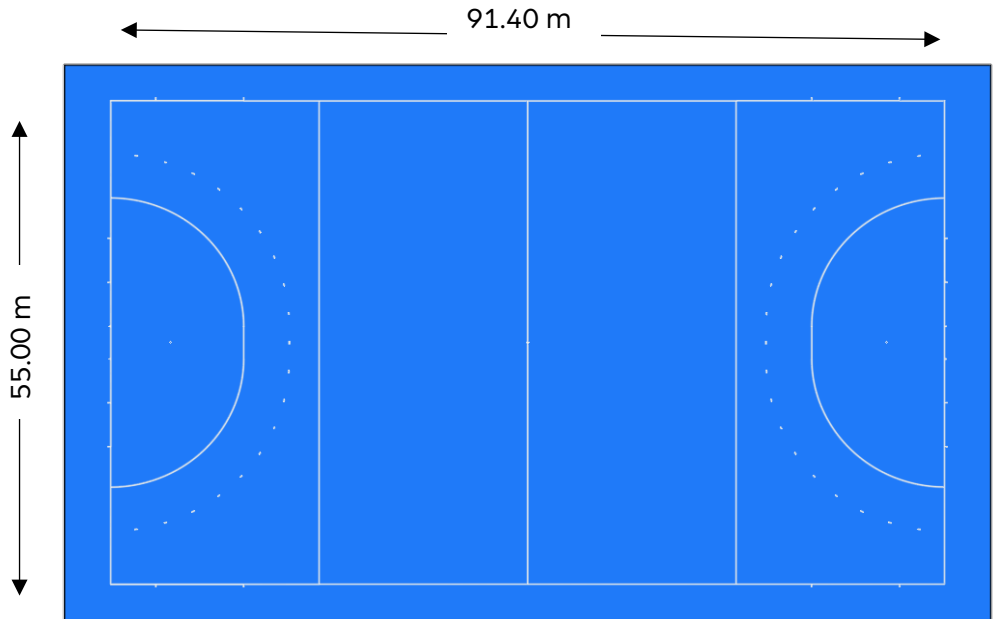
Note: The use of long-pile synthetic turfs in national/regional/local competitions is prohibited in some countries. You should always check with your National Hockey Association before building a field with this type of surface

The specific layout, construction and performance requirements for each category are detailed in Appendix A.

4 Construction criteria

4.1 Layout and dimensions

A field comprises the field of play (FOP) and perimeter run-offs. The FOP measures 91.40m by 55.00m.



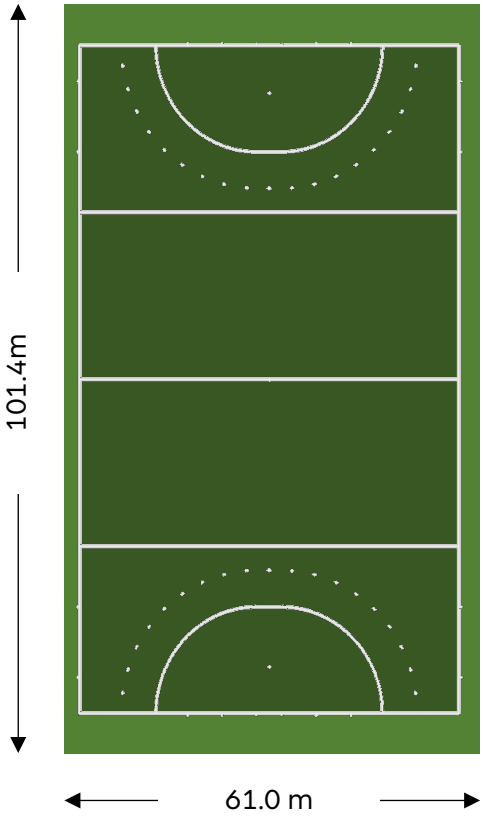
The FIH has established preferred and minimum run-offs. The preferred run-offs should be used on all categories of field, whenever possible, and are mandatory for Category 1 fields. The design of the field must ensure that there are no structures or fixtures located on the run-offs.

Note – Fields that do not have at least the minimum run-offs will not qualify for FIH field certification.

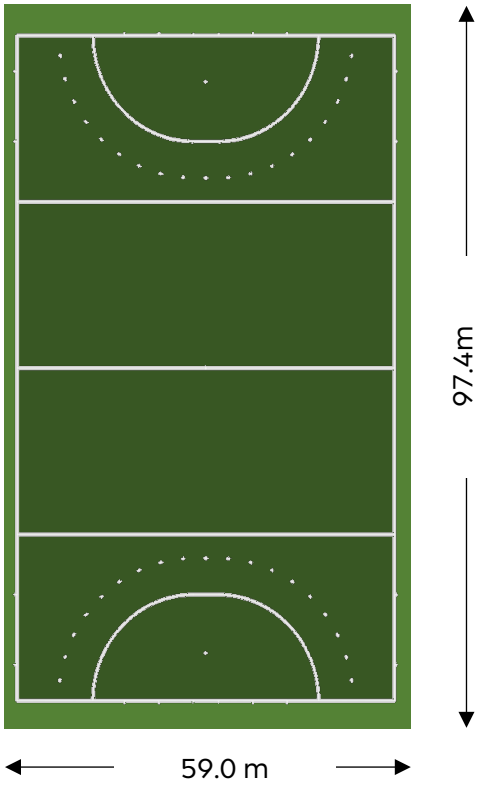
Depending on the category of field, the run-offs may be surfaced entirely with hockey turf (same quality as the FOP) or have a combination of hockey turf and some form of paving on the outer run-off. If hard paving is used, the transition between the two surfaces should be smooth and not create a trip hazard. Both surfaces should be laid with the same gradients.

Note – A slotted drain may be laid between the hockey turf and hard paving, if required, providing it also does not create any form of hazard to players.

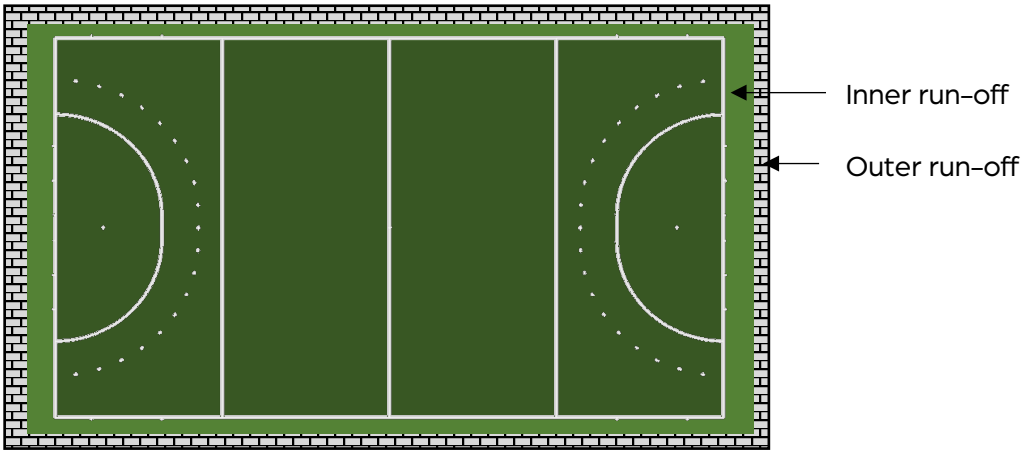
Field with Preferred Run-offs, fully surfaced with hockey turf



Field with Minimum Run-offs, fully surfaced with hockey turf



Field with Minimum Run-offs. Inner run-off in hockey turf, outer run-off hard paving



		Inner run-off (hockey turf)	Outer run-off (hockey turf or paving)	Total
Ends	Recommended	3.0 m	2.0 m	5.0m
	Minimum	2.0 m	1.0 m	3.0 m
Sides	Recommended	2.0 m	1.0 m	3.0 m
	Minimum	1.0 m	1.0 m	2.0 m

4.2 Field profile and gradients

Hockey desires a field to have unbiased performance and therefore consistency requirements are included in this Standard for certain sports properties. One of these is ball roll, which relates to the speed of the surface. A field with a pronounced slope will give different ball roll results depending on whether the ball is rolling up or down the slope. Therefore, keeping the field as flat as possible will help ensure unbiased ball roll. Fields need, however, to be built in regions that are subjected to intense rainfall and often have to be constructed using materials that have low water infiltration rates. In these cases, a field needs to rely on horizontal drainage to allow water to discharge from the playing surface, and to achieve this, an adequate slope is required. To address these two conflicting requirements the FIH has established preferred and maximum gradient or slope requirements. In all cases the ball roll consistency criteria take precedence over the slope requirements and it is the field designer's responsibility, in conjunction with the hockey turf manufacturer, to determine the acceptable balance between these two parameters.

FIH Preferred Gradients

Longitudinal gradients along the length of the field	≤ 0.2%
Lateral gradients across the width of the field	≤ 0.4%

FIH Maximum Gradient

The maximum gradient in any direction (including diagonal and combined gradients, etc.) shall not exceed 1.0%.

Notes:

1 Experience shows that the latest types of Global category hockey turfs based on texturised-monofilament pile yarns are particularly sensitive to gradients over 0.6% and the advice of the hockey turf manufacturer should always be sought before designing a category 1 or 2 field that do not use FIH Preferred Gradients.

2 The FIH do not wish to deter those wishing to lay non-filled (wet) hockey turfs onto existing bases. If an existing field that has gradients greater than 0.2% longitudinally and 0.4% laterally is being resurfaced, the ball roll consistency requirement for a Category 2 Field will be relaxed to ≤ 15% of the overall mean. This dispensation does not apply when the base of a field is being reconstructed.

3 The FIH will consider granting dispensation to existing fields that have slopes that exceed the maximum gradient criteria on a case-by-case basis.

4 When refurbishing an existing field, the gradient requirements of this Standard need not apply outside the inner portion of the run-offs, to allow a smooth transition from a new construction to existing field edgings, etc.

Field Profile

A number of different field profiles are used including single planes (end-to-end, side-to-side, and diagonal falls), envelope and ridge profiles, etc.

Category 1 and 2 fields should have profiles that do not cause the surface to dry unevenly across the field.

When envelope or ridge profiles are used, the change in grade shall not adversely affect the consistency of the ball roll or exceed the requirements for surface regularity.

Note – Historically in some countries, fields have been built with a ridge profile. If the ridge is pronounced it can result in a field not satisfying the surface regularity requirements of this standard. As the FIH has no desire to prevent existing fields from continuing to be used, such fields can be certified providing the ridge does not cause a ball travelling at speed to lift from the hockey turf. This should be assessed by the Test Institute witnessing balls being hit at high speed in varying directions across the ridge and reporting their observations.

4.3 Sub-base & base construction

The base on which the hockey turf is laid should be designed and constructed to:

- provide adequate stability so that the playing surface does not move outside the requirements for surface regularity over a period of at least 10 years;

- resist the effects of frost or drought that may be expected to occur in a return cycle of once every 30 years.

To ensure compliance of the playing surface, the base, should not have any undulations exceeding 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.

Notes

1 To ensure the compliance of the playing surface with the surface regularity requirements of this Standard it is recommended the base is surveyed prior to installation of the shockpad.

2 Compensating for undulations in a base by localised adjustments to the thickness of an in-situ laid shockpad can result in variable and unacceptable sports performance.

3 When applying for a field to be certified under the FIH Quality Programme the applicant is deemed to be confirming that these requirements have been satisfied, unless written confirmation from the field owner is supplied acknowledging, that for whatever reason, non-compliance with this requirement was accepted at the design/contract stage of the field's construction.

4.4 Drainage

The field's drainage system (vertical or lateral) should be designed and installed to:

- ensure that all surface water is removed at a rate that ensures that no surface flooding will occur during heavy storms, or the facility will not be lost either through rain at the highest intensity which may be expected to occur once every five years.

- protect the installation from the effects of ground or surface water flowing from the areas surrounding the field.

- ensure no water remains present in the base that may result in a reduction of the load bearing capacity of the formation or damage to the construction from the actions of frost.

The field should have a water permeability rate of 150mm/h or greater. When required (in cases of concern, etc.) this should be measured using the procedure described in EN 12616 to verify compliance.

Note – When applying for a field to be certified under the FIH Quality Programme the applicant is deemed to be confirming that these requirements have been satisfied, unless written confirmation from the field owner is supplied acknowledging, that for whatever reason, non-compliance with this requirement was accepted at the design/contract stage of the field's construction.

This requirement does not automatically apply to existing fields that are being resurfaced or upgraded unless it is included in a contract specification.

Note: The FIH recommends inspections be made at key stages through construction of a base and drainage system to verify the installation is proceeding to the agreed design and specification.

4.5 Shockpad installation

The shockpad or elastic layer should be installed to provide a uniform and consistent under-layer on which the hockey turf is laid.

There should be no variations in quality or installation that adversely affect the performance of the field, so it falls outside the requirements of this Standard.

Insitu elastic layers should be made from materials, and be laid in accordance with, the hockey turf manufacturer's instructions and specifications.

Prefabricated shockpads should be laid in accordance with the manufacturer's instructions; including the taping of all head and side joints, as required.

4.6 Carpet installation

The hockey turf surfacing should be free of manufacturing and visual defects. It should be laid in full width rolls running across the field (side line to side line) without head seams.

Non-filled hockey turfs should either be loose laid, tensioned and clamped along their side boundaries, or bonded to the underlying shockpad to minimise the risk of dimensional movement.

Notes:

1. Good quality shockpads should be usable under at least two carpets. If a carpet is bonded to the shockpad, the shockpad might be damaged when the carpet is lifted for replacement. Therefore, the longer term implications of bonding the carpet to the shockpad need to be considered when deciding if the reduced risks provided by bonding are justified.

2. If the carpet is bonded to the shockpad, the adhesive used should be in accordance with the hockey turf manufacturer recommendations.

3. The FIH also recommends the tensioning and clamping or bonding of sand dressed hockey turf carpets.

There should be no carpet rucks, wrinkles, or any other form of installation defect within the playing area or run-offs.

All carpet joints should be fully bonded/stitched with no joint failures. The gap at the top of the carpet pile, on any carpet joint or any in-laid markings, should be no wider than the carpet's stitch gauge plus 2mm.

Bonded carpet joints should not have any adhesive beads within the pile of the carpet that may cause a ball to lift or deviate as it passes over the joint. Stitched joints should not cause a ball to lift or deviate as it passes over the joint.

The pile of the carpet either side of a joint should be consistent with the remainder of the field. The pile should not be trapped within the joint, nor should any adhesive layers or

backing films beneath the carpet cause ridges outside the tolerances stated for surface regularity.

Repairs to the hockey turf should only be permitted if:

- They have no adverse effect on the performance or consistency of the field. When inspecting a field for FIH certification, the Test Institute should check this and report accordingly;

- On new fields, the specification and turf colour of any repair matches the surrounding area, and visually the repairs do not undermine the integrity of the FIH Quality Programme. When inspecting a field for FIH certification, the Test Institute should check this and report accordingly;

- On new fields, the field owner is willing to accept such repairs and confirms this (in writing) to the Test Institute.

4.7 Use of existing shockpads/elastic layers

Whenever an existing field is being resurfaced, the existing shockpad or elastic layer should ideally be reused, providing it is in a suitable condition for a further 8–10 years use.

FIH Approved hockey turfs comprise a synthetic turf or textile carpet and a shockpad or elastic layer. When only the synthetic turf or textile carpet is being replaced, the FIH consider it acceptable to incorporate an existing shockpad or elastic layer into the approved hockey turf product providing:

- the generic type (not brand) of shockpad is similar to that used in the hockey turf system that will be laid;

- the shock absorption of the existing shockpad or elastic layer is within $\pm$ 5% of the value measured when the proposed hockey turf was approved;

- the vertical deformation of the existing shockpad or elastic layer is within $\pm$ 3mm of the value when the proposed hockey turf was approved;

- the water permeability of the shockpad or elastic layer is greater than 150mm/h when tested in accordance with EN 12616;

- the surface regularity of the shockpad or elastic layer complies with the requirements of this Standard.

Compliance with the above requirements does not override the need for the resurfaced field to fully satisfy the requirements of this Standard.

Note – The condition and performance of an existing shockpad or elastic layer should be assessed in advance of any tender or bidding process to allow companies to determine if the existing shockpad

is similar to one used in their approved hockey turf products. It is also recommended that samples of the existing shockpad are also tested to ensure the tensile strength is in accordance with the requirements detailed in *FIH Hockey Turf and Standards Part 1 – Approved Hockey Turfs.*

4.8 Field markings

The field should be marked in accordance with the latest edition of the *Rules of Hockey*. Markings may either be incorporated into the hockey turf during production, be made with cut-in markings, or be painted onto the surface using paints approved by the hockey turf manufacturer.

All lines should be 75mm wide.

For Category 1, 2 and 3 fields the markings should be white in colour, for category 4 and 5 fields, white is the preferred colour, especially when hockey is the principal sport being played on a field.

Inlaid or tufted line markings and any logos (within the FOP or inner run-off) should be manufactured from the same hockey turf as the main field. All yarn colours should meet the criteria for Resistance to Artificial Weathering and Toxicology defined in the FIH *Hockey Turf and Field Standards – Approved Hockey Turfs.*

Line marking should not depart from the dimensions specified in the *Rules of Hockey* by more than the following tolerances.

Length of straight lines	± 50mm
Width of lines	± 10mm
Radius of circle arcs	± 30mm
Position of penalty spots	± 30mm
300mm external field markings	± 30mm
Difference between field diagonals	< 300mm

Lines intended to be straight should not show sudden deviations or irregularity greater than 10mm along a string line pulled over a distance of 30m.

Notes:

1 Where field markings have been tufted into a field and a change to the *Rules of Hockey* makes the markings redundant, the redundant markings may be painted out and any new markings painted on or inserted into the carpet.

2 Guidance on whether other sports markings are permitted on a field is given in the individual field category requirements in Appendix A.

5 Perimeter fencing

Most hockey fields are enclosed by a perimeter fence. This ensures balls do not leave the field, stops unauthorised use, and helps protect the hockey turf from wildlife, etc. The fencing should be designed and constructed in accordance with local standards and industry guidelines.

Fence heights should be determined after assessing the potential for a hockey ball to leave the boundaries of the field and cause injury or damage. With the exception of Category 1 fields, the FIH do not set specific requirements for fencing. Typical heights used are:

End of field – width of shooting circle	4.5 m
End of field – outside shooting circle	3.0 m
End of fields – tiered spectator seating	7.0 m
Sides – no spectator viewing	3.0 m
Sides – spectator viewing	min. 1.0m

Fencing is often based on weld-mesh or twin-bar panels. Ball catch netting can also be used, especially for higher sections behind the goals. The fence must not allow hockey balls travelling at speed to pass through it, so a 45 mm mesh-size is often used.

To protect the bottom of the fencing from being damaged by the repeated impact of balls hitting it, kick-boards (often 250 mm – 300 mm high) are normally fitted to the bottom of the fencing. These boards also help contain any fibre debris or infill that has left the FoP and prevent it migrating into the surrounding environment.

If temporary division nets are installed to split a field into sections for cross pitch play, they should be at least 3 m high and have sufficient excess skirt to ensure balls cannot pass under them. Experience also suggests that fitting a weighted band to the bottom of the net helps prevent it billowing in windy conditions.

6 Sports Lighting

It is recommended that lighting of fields that are not intended to host televised competitions is in accordance with the *FIH Facilities Guidance – Sports Lighting for Non-Televised Outdoor Hockey* (2021 edition). The category of lighting should be in accordance with the recommendations and regulations of the national hockey association.

Lighting of fields intended to host televised competitions should be in accordance with the *FIH Facilities Guidance – Sports Lighting for Televised Outdoor Hockey* (2021 edition). The category of lighting should comply with the broadcast requirements of the televised/streamed competitions that will be held on the field.

7 Field certification

To ensure that hockey fields are being built to the required standards and that the playing surfaces are being installed correctly, the FIH Quality Programme includes the inspection, testing and certification of hockey fields.

An FIH certified field is independently tested by an FIH Accredited Test Institute to ensure it meets the requirements of this Standard. Tests include measurements of how the ball interacts with the playing surface, and verifies adequate comfort and protection is being provided to players. Field Certification also includes a comprehensive series of quality control checks to ensure the playing surface has been installed correctly and is the same as the FIH approved product; ensuring manufacturing and installation mistakes do not go undetected.

The FIH recommends that all new hockey fields are tested to allow FIH certification.

As the performance and quality of a surface will deteriorate with time and through use, it is important that it is periodically rechecked to validate it is still suitable for hockey. Having a field re-tested as each certification period expires allows a field owner to satisfy their duty of care obligations and demonstrate that they are managing their facility responsibly.

7.1 Sports lighting

FIH Certification is primarily an assessment of the playing surface and its suitability for hockey. If required, certification may be expanded to also include an assessment of a field's lighting, providing it is designed to satisfy the appropriate FIH lighting guidance.

7.2 Certification criteria

For a field to qualify for certification it should satisfy the following conditions:

7.2.1 Playing surface

The field must be surfaced with an FIH approved hockey turf. The category of hockey turf must be as specified for the required category of field.

7.2.2 Sports performance & player welfare properties

The sports performance & player welfare properties of the installed playing surface shall comply with the requirements detailed in Appendix B.

7.2.3 Layout and construction

The layout and construction of the field should be as detailed in this Standard.

7.2.4 Field equipment

Fields should have the following field equipment available at the time they tested:

Field Category	Goals x 2	Team Shelters x 2
1	FIH Approved Type 1	FIH Approved – 11 seats
2	Required *	Optional**
3	Required *	Optional**
4	Required *	Optional**
5	Required *	Optional**
* it is recommended FIH Approved goals be used ** it is recommended FIH Approved team shelters be used		

7.2.5 Field assessment test methods

The field should be tested using the following test methods:

Ball Rebound	EN 12235 using an acoustic timer and an FIH Approved Class 1 hockey ball. When tested on concrete the ball shall have a rebound of 800 ± 50mm.
Ball Roll	EN 12234 using an FIH Approved Class 1 Hockey Ball. Three tests shall be made in each direction/position of test
Ball Roll Deviation	FIH Hockey Turf and Field Standards Part 2 – clause 7.3
Shock Absorption	CEN TS 16717
Vertical Deformation	CEN TS 16717
Shoe – Surface Friction	EN 15301-1 using the dimpled test sole
Water Permeability	EN 12616
Surface Regularity	FIFA TM 12 – Any localised ridges or hollows identified during the 3m straightedge survey of the field should also be checked using a 300mm straightedge.

7.2.6 Field assessment test positions

Tests shall be undertaken in a minimum of five locations, as specified below. However, the Test Institute is responsible for adequately assessing the whole field's condition; therefore, testing personnel may increase the number of test locations at their discretion to present a more complete picture of the field's condition.

If the client commissioning the tests is concerned about the performance of particular areas of the field, they may ask the test institute to conduct additional tests in those areas.

Figure 1 illustrates the possible positions for the spot tests.

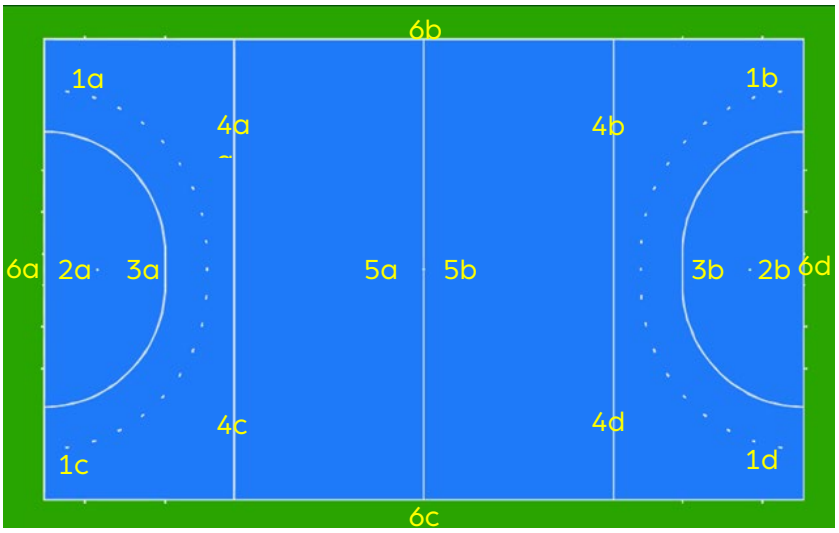


Figure 1 – Test positions

Test Position 1	This position is within the field of play and not more than 3 metres from the corner flag. Any one of the four marked positions may be chosen.
Test Position 2	This position is midway between the penalty stroke mark and the centre of the goal. Either of the two marked positions may be chosen.
Test Position 3	This position is a maximum of 1 metre inside the circle on the extended line from the centre of the goal-line through the penalty stroke mark. Test positions 2 and 3 must not be in the same circle.
Test Position 4	This position is within the field of play not more than 6 metres nor less than 4 metres from the side-line and on the 23 metre lines. Any one of the four marked positions may be chosen.
Test Position 5	This position is within 3 metres of the centre of the centre-line. Either of the two positions may be chosen.
Test Position 6	At least one test position should be chosen in the field run-off areas. Ball rebound is not required in this position.

Ball roll tests

Ball roll tests shall be undertaken in the positions and directions shown on Figure 2. Each position shall be selected to ensure the ball comes to a complete rest within the field of play.

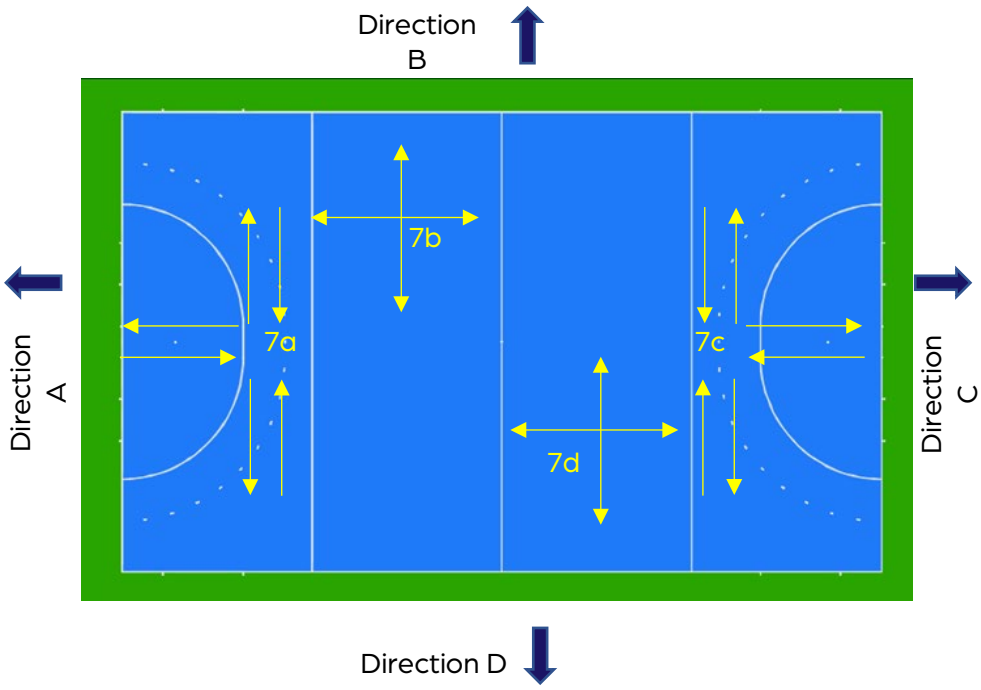


Figure 2 Ball roll tests directions

The gradients and profile of the field shall be determined in the positions shown on the Figure 3. Measurements shall be made using a surveyor's level and staff, or equivalent technique. When lines are bonded into place the measurements shall be offset by the width of the jointing tape if this is noticeable.

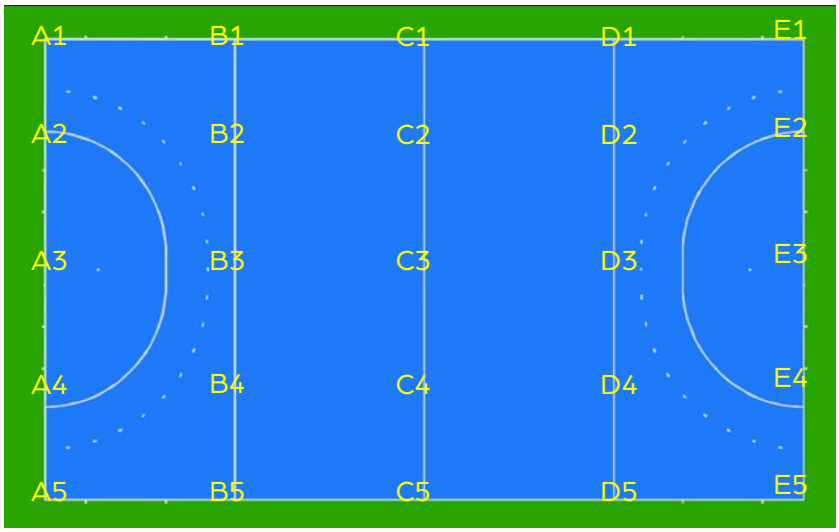


Figure 3 – grid positions for measuring field profile & gradients

7.2.7 Test conditions

A field shall be tested under the condition(s) for which it was designed to be used, as specified below, and the conditions prevailing at the time of test.

Field category	Irrigated	Dry	Wet / Damp
1	X		
2	X		
3	Optional	X	X
4		X	X
5		X	X

Hockey turf products that are required to be irrigated prior to play shall be watered using the procedures specified for match play. This should evenly apply a volume of water that is equal to or similar to that used to irrigate the product when it was tested for approval (and as specified in the FIH Product Approval test report). Following irrigation, the field should be left for 15 ±1 minutes before the tests commence. Tests should then be undertaken in the following order:

- Ball rebound. Tests shall be completed in all five positions within 30 minutes of the tests commencing.
- Shoe – Surface friction

A further application of water shall then be applied if the surface is becoming dry. If required, this shall be determined by re-measuring the ball rebound in the first test position. If the value differs by more than ± 15% of initial value, the surface shall have another half cycle of irrigation applied, before the following tests are undertaken:

- Ball Roll & Ball Roll Deviation
- Shock Absorption and Vertical Deformation

If required by the field owner, fields having a National category approved hockey turf and an irrigation system, may have the field tested after it has been irrigated.

Tests should be conducted during a period of commonly prevailing climatic conditions. Wherever possible, tests should be made when wind speeds are less than 5m/s.

Note: A drying field or strong winds cannot be used to justify acceptance of a non-complying field.

7.2.8 Hockey turf quality identification

To verify that the hockey turf supplied to a field is the same as the Approved Product, representative samples of the installed synthetic turf or textile surface, shockpad and any infill materials should be characterised by the Test Institute using the test methods detailed below. The following samples should be tested:

- Sample representative of the synthetic turf or textile surface laid on the playing area
- Sample representative of the synthetic turf or textile surface laid on the run-offs, if applicable, and different to the playing area
- Sample representative of the synthetic turf or textile surface for each colour of in-laid or tufted line marking
- Sample representative of the installed shockpad
- Sample representative of any infill used within the playing surface

By including the results of the product identification tests in the Field Test Report the Test Institute is deemed to be confirming the samples tested are representative of the materials installed on the field. They should take all necessary steps to ensure this is correct.

The results obtained should comply with the manufacturer's product declaration, as detailed in the product approval test report, subject to the tolerances specified in Appendix C.

7.2.9 Polymeric infills – polycyclic aromatic hydrocarbons (PAH) content

PAHs are a widely occurring group of chemicals present in natural and man-made materials, including some rubbers and plastics used to make infills for synthetic turf sports surfaces. Prolonged exposure to unacceptably high concentrations of PAHs can be harmful to human health, so it is important that any polymeric infill does not contain concentrations.

The European Union and other countries are establishing legislation that will limit the PAH content of infill materials. As these will be legal requirements compliance will be mandatory in the regions in which they apply. In countries where there are no legal restrictions the FIH recommends the European Union's limits, detailed below, are applied to all new hockey fields containing polymeric infills.

European Union REACH Regulation requirements The sum of the content of the eight PAHs listed below shall be ≤ 20.0 mg/kg:			
PAH	CAS Registry No.	PAH	CAS Registry No.
Benzo[a]pyrene (BaP)	50-32-8	Benzo[b]fluoranthene (BbFA)	205-99-2
Benzo[e]pyrene (BeP) C	192-97-2	Benzo[j]fluoranthene (BjFA)	205-82-3
Benzo[a]anthracene (BaA)	56-55-3	Benzo[k]fluoranthene (BkFA)	207-08-9
Chrysen (CHR)	218-01-9	Dibenzo [a, h] anthracene (DBAhA)	53-70-3

When fields containing polymeric infills are first tested (see note 3 below) for FIH Field Certification it is recommended the field test also includes an optional test to verify that the

infill installed complies with these requirements. If verification testing is requested, it should be undertaken as follows:

1. Sampling of the infill to be undertaken in accordance with EN 17409 *Surfaces for sports areas – Code of practice for the sampling of performance infills used within synthetic turf surfaces*, including preparation of the samples in accordance with clause 9 and Appendix A.

2. The PAH content of the samples shall be determined in accordance with AfPS 2019:01 PAK, published by the German Federal Institute for Occupational Safety and Health.

Notes:

1. Testing to demonstrate compliance with this requirement shall be undertaken by an independent test laboratory accredited to ISO 17025 for the specified procedure. If the FIH accredited test institute wishes to sub-contract this test they shall seek approval from the FIH in advance.

2. Compliance with this requirement demonstrates that the PAH content of the polymeric infill used when the synthetic turf surface was installed was in accordance with the threshold limits developed by the European Chemical Agency. These requirements are intended to protect players from exposure to materials containing unacceptably high levels of PAHs.

3. During the life of the playing surface top dressing with additional infill will be required. In many cases this will not be supplied by the company that built the court. Additionally, the field may be exposed to localised contaminates (atmospheric pollution, etc) that may change the PAH content of the infill layer. Therefore, the field operator should make periodic checks to ensure the PAH content of the infill on their field does not exceed the recommended limits.

7.2.10 Assessment of field irrigation systems

If the field has an irrigation system to wet the hockey turf it should be tested using the procedure detailed in the *FIH Facilities Guidance – Hockey Field Irrigation.*

7.2.11 Reporting

The results of a field test should be reported on an official FIH Test Report prepared by an FIH Accredited Test Institute.

The completed test report should be sent to the FIH (facilities@fih.ch) for review. If the review concludes the field meets the requirements of this Standard, the FIH will issue a Certificate of Field Certification and a copy of the test report to the following:

- Field Owner
- FIH Preferred Supplier or FIH Certified Manufacturer.
- FIH Preferred Supplier or FIH Certified Field Builder
- National Hockey Association
- Continental Federation

The FIH will also place the field on the list of Certified Fields on the FIH Website (www.fih.ch/qp).

Field test reports should be submitted to the FIH by the FIH Accredited Test Institute within three months of the date of the field test. If reports are submitted outside this timeframe the FIH reserves the right to reject the report, meaning a new test will be required.

7.2.12 Period of Field Certification

Initial field test

Providing the field is less than 12 months old at the time it is first tested, it will be certified by the FIH for a period of three years from the date of the test. If the field is more than 12 months old when first tested the certification is for two years.

Re-certification – Category 1 fields

If a field is re-tested towards the end of its initial period of certification and found to still comply with the requirements of a Category 1 field, it will be re-certified for a further two years.

Note: As fields with hockey turfs over five years old are unlikely to satisfy the aesthetic requirements of an FIH Tier 1 televised event FIH Category 1 certification is not normally awarded to fields that will be more than five years old during the period of certification. Older fields can, however, be certified as Category 2 fields for as long as they continue to comply with the specified requirements.

Re-certification – Category 2 - 5 fields

If a field is re-tested towards the end of its initial period of certification and found to still comply with the relevant requirements, it will be recertified for a further two years.

For category 2 – 5 fields re-certification is valid for two years and can be renewed as many times as the field is tested and shown to still comply with the relevant requirements for the category of field.

Conditions

1. Whenever the hockey turf surface is replaced, the field automatically loses its certification, and a new test is required.

2. When applying for a field to be certified, the field owner is deemed to be granting the FIH the right to commission a spot test (at the FIH's expense) at any time (subject to scheduling), to verify compliant performance is being maintained.

3. If the manufacturer of the installed hockey turf ceases to be a member of the FIH Quality Programme for hockey turf for any reason, this will not prevent a field owner from applying to have their field re-certified when a current certificate expires.

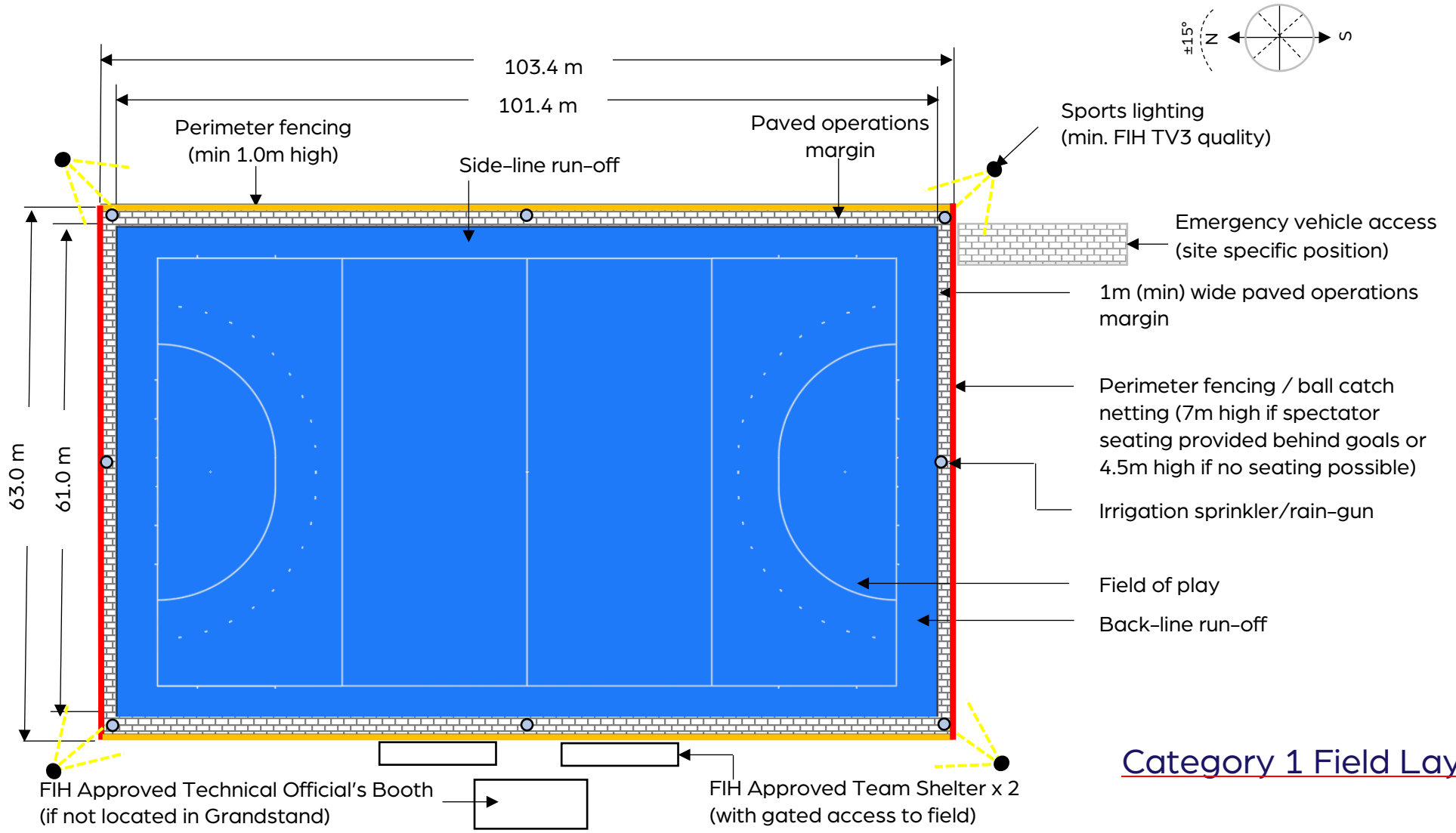
Appendix A – Field specific requirements

Intended use	Venues designed to host international Tier 1 televised hockey[1] Certification of Category 1 fields includes an assessment of the field of play and the permanent supporting infrastructure
Field layout and dimensions	
FOP size	91.40 m x 55.00 m
Perimeter run-offs	Ends of field: minimum 5.0 m at either end
	Sides of field: minimum 3.0 m on either side
	The run-offs should be fully surfaced with hockey turf
Operational zone	Outside of the run-offs, but inside the perimeter fencing, there should be a (minimum) 1 m wide operational zone on all four sides of the field (for media, TV cameras, etc). The zone may be surfaced with hockey turf or hard paving (asphalt, etc). It should be laid to the same profile as the adjacent run-off and there should be a smooth transition from one surface to the other.
Field orientation	North/South, with a maximum deviation from North of $\pm$ 15^0
Playing surface	
Category of hockey turf	Global: non-filled, wet hockey turf manufactured with a crimped monofilament pile yarn, produced using a texturising or a knit-de-knit manufacturing process.
Sports performance	As detailed in Appendix B

[1] Formerly described as a FIH Global Elite category field

Hockey turf colour	RAL Classic designation & RAL colour codes:			
	Ultramarine Blue	RAL 5002	Traffic Blue	RAL 5017
	Signal Blue	RAL 5005	Capri Blue	RAL 5019
	Gentian Blue	RAL 5010		
	The FOP and perimeter run-offs should be the same colour.			
Line markings	Colour	White		
	5m dashed circles	Required		
	Additional line markings	None		
Logos within the FOP	There should be no logos on the FOP unless required by FIH commercial agreements.			
Logos within run-offs	A FIH Quality Programme logo (nominally measuring 1.5m x 1.5 m) should be incorporated on at least one outer side run-off. It should be positioned so it is visible from the main TV camera position. Non-commercial logos may be incorporated on the outer run-offs, subject to specific event/competition regulations.			
Field construction requirements				
Field gradients	See clause 4.2. FIH Preferred gradients should be used wherever possible. The profile should be symmetrical around the central axis of the field.			
Field irrigation	In accordance with the *FIH Facilities Guidance – Field Irrigation*			
Surface regularity	There must not be any undulations that exceed 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.			
Perimeter fencing				
Back-line fencing	Venues with provision for seating behind goals (including temporary seating): 7.0 m for full width of the field			
	Venues with no provision for permanent or temporary seating behind goals: 4.5 m for width of the shooting circle			

Side–line fencing	Minimum 1.0m high
Emergency vehicle access to field	Required
Sports lighting	
The field shall have permanent lighting that at least complies with the FIH TV3 category as detailed in the *FIH Facilities Guidance – Sports Lighting for Televised Outdoor Hockey* Note – it is recommended that venues wishing to host FIH Tier 1 events (World Cups, etc) install or make provision for temporary overlays to have lighting that complies with the FIH TV1 category	
Field equipment	
Hockey goals	Required – FIH Approved Class 1
Corner flags	Required
Team shelters	2 x FIH Approved Team Shelters (minimum 11 seats per shelter). Each shelter should be installed on the same side and be within 5m of the Centre line and in view of the Technical Officials Booth. They should be screened from the FOP with low perimeter fencing, fitted with an access gates to allow easy movement of players on and off the field
Technical Officials Booth	Required – FIH Approved Class 1 – unless the Technical Officials Booth is permanently located in a spectator stand
Hockey turf maintenance equipment	
Flexible or movable sprinklers/hoses	In addition to the permanent irrigation system the field shall have large bore hoses or portable sprinklers to allow manual localised watering as required.
Maintenance equipment	The field must be equipped with the maintenance equipment recommended by the hockey turf manufacturer.



Category 1 Field Layout

<table>
<tr><td colspan="2">
</td><td colspan="2"> </td></tr>
<tr><td>Intended use</td><td colspan="3">Hockey fields designed to host national & international matches[2]

Certification of Category 2 fields is an assessment of the field of play. Field owners should consult with their National Hockey Association to determine what (if any) additional infra-structure requirements are required to satisfy local/regional competition regulations</td></tr>
<tr><td colspan="4">Field layout and dimensions</td></tr>
<tr><td>FOP size</td><td colspan="3">91.40 m x 55.00 m</td></tr>
<tr><td>Perimeter run-offs</td><td colspan="3">See section 4.1. If the field is likely to host level international matches the run-offs should be to the recommended sizes.</td></tr>
<tr><td>Field orientation</td><td colspan="3">Wherever possible the field should be aligned North/South, with a maximum deviation from North of $\pm$ 15^0. If the field is likely to host televised hockey matches this orientation may be a requirement for broadcasting.</td></tr>
<tr><td colspan="4">Playing surface</td></tr>
<tr><td>Category of hockey turf</td><td colspan="3">Global: non-filled, wet hockey turf</td></tr>
<tr><td>Sports performance</td><td colspan="3">As detailed in Appendix B</td></tr>
<tr><td rowspan="2">Hockey turf colour</td><td>Field of play</td><td colspan="2">Any shade of blue approved for televised hockey (see Category 1 courts for details)

Any shade of green (field green, olive green, etc)</td></tr>
<tr><td>Run-offs</td><td colspan="2">No restrictions, although the use of light colours that can discolour is not recommended</td></tr>
</table>

[2] Formerly described as a FIH Global category field

Line markings	Colour	White
	5m dashed circles	Required
Additional line markings	The presence of cross pitch markings for hockey training will not prevent a field being FIH Certified, but they may exclude the field from being used for certain categories of competition. The field should not have markings for other sports.	
Logos within the FOP	There should be no logos on the FOP.	
Logos within run-offs	Logos may be incorporated on the outer run-offs, subject to specific event/competition regulations.	
Field construction requirements		
Field gradients	See clause 4.2. FIH Preferred gradients should be used wherever possible. The profile should be symmetrical around the central axis of the field.	
Field irrigation	In accordance with the *FIH Facilities Guidance – Field Irrigation*	
Surface regularity	There must not be any undulations that exceed 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.	
Sports lighting		
FIH Field Certification is primarily an assessment of the playing surface and its suitability for hockey. If required, certification may be expanded to also include an assessment of a field's lighting, providing it is designed to satisfy the appropriate FIH lighting criteria		
Field equipment		
Hockey goals	The field should be fitted with two hockey goals. It is recommended that they are FIH Approved goals.	
Corner flags	Optional – depending on local competition rules	
Team shelters	If the field is fitted with Team Shelters, it is recommended they are FIH Approved Team Shelters	
Hockey turf maintenance equipment		
Maintenance equipment	The field should be equipped with the maintenance equipment recommended by the hockey turf manufacturer.	

<table>
<tr><td colspan="2">
</td><td colspan="2"> </td></tr>
<tr><td>Intended use</td><td colspan="3">Hockey fields intended for national & local competitions, and training[3]

Certification of Category 3 fields only includes an assessment of the field of play. Field owners should consult with their National Hockey Association to determine what (if any) additional infra-structure requirements are required to satisfy local/regional competition regulations</td></tr>
<tr><td colspan="4">Field layout and dimensions</td></tr>
<tr><td>FOP size</td><td colspan="3">91.40 m x 55.00 m</td></tr>
<tr><td>Perimeter run-offs</td><td colspan="3">See section 4.1.</td></tr>
<tr><td>Field orientation</td><td colspan="3">Wherever possible the field should be aligned North/South, with a maximum deviation from North of ± 15^0.</td></tr>
<tr><td colspan="4">Playing surface</td></tr>
<tr><td>Category of hockey turf</td><td colspan="3">National: sand dressed hockey turf

Global: non-filled, wet hockey turf (the field should also have a means of watering the surface to ensure satisfactory playing conditions)</td></tr>
<tr><td>Sports performance</td><td colspan="3">As detailed in Appendix B</td></tr>
<tr><td rowspan="2">Hockey turf colour</td><td>Field of play</td><td colspan="2">Any shade of blue approved for televised hockey (see Category 1 courts for details)

Any shade of green (field green, olive green, etc)</td></tr>
<tr><td>Run-offs</td><td colspan="2">No restrictions, although the use of light colours that can discolour is not recommended</td></tr>
</table>

[3] Formerly described as a FIH National category field

Line markings	Recommended colour	White
	5m dashed circles	Optional
Additional line markings	The presence of other sports markings prevent a field being FIH Certified, but they may exclude the field from being used for certain categories of competition.	
Logos	Logos may be incorporated in the FoP subject to specific event/competition regulations. All logo yarn colours should comply with the HTFS. Logos may be incorporated on the outer run-offs, subject to specific event/competition regulations.	
Additional line markings	The presence of markings for hockey training and other sports will not prevent it being certified, but they may exclude the field from being used for certain categories of competition.	
Field construction requirements		
Field gradients	See clause 4.2. FIH Preferred gradients should be used wherever possible. The profile should be symmetrical around the central axis of the field.	
Surface regularity	There must not be any undulations that exceed 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.	
Sports lighting		
FIH Field Certification is primarily an assessment of the playing surface and its suitability for hockey. If required, certification may be expanded to also include an assessment of a field's lighting, providing it is designed to satisfy the appropriate FIH lighting criteria		
Field equipment		
Hockey goals	The field should be fitted with two hockey goals. It is recommended that they are FIH Approved goals.	
Corner flags	Optional – depending on local competition rules	
Hockey turf maintenance equipment		
Maintenance equipment	The field should be equipped with the maintenance equipment recommended by the hockey turf manufacturer.	

<table>
<tr><td colspan="2">
</td><td colspan="2"> </td></tr>
<tr><td>Intended use</td><td colspan="3">Hockey & multi-sport fields intended for community and school competitions, and training</td></tr>
<tr><td colspan="4">Field layout and dimensions</td></tr>
<tr><td>FOP size</td><td colspan="3">91.40 m x 55.00 m</td></tr>
<tr><td>Perimeter run-offs</td><td colspan="3">See section 4.1.</td></tr>
<tr><td>Field orientation</td><td colspan="3">Wherever possible the field should be aligned North/South, with a maximum deviation from north of ± 15^0.</td></tr>
<tr><td colspan="4">Playing surface</td></tr>
<tr><td>Category of hockey turf</td><td colspan="3">Community: sand filled hockey turf or Textile Sports Surface

Gen 2: modified FIH National or FIH Community category surface designed to also allow other sports such as tennis, netball, futsal, etc to be played.

National: sand dressed hockey turf</td></tr>
<tr><td>Sports performance</td><td colspan="3">As detailed in Appendix B</td></tr>
<tr><td rowspan="3">Hockey turf colour</td><td>Field of play</td><td colspan="2" rowspan="2">No restrictions, although the use of light colours that can discolour is not recommended</td></tr>
<tr><td>Run-offs</td></tr>
<tr><td>Line marking</td><td colspan="2">White, yellow or any other colour allowed by local competition rules</td></tr>
<tr><td>Additional line markings</td><td colspan="3">No restrictions</td></tr>
<tr><td>Logos</td><td colspan="3">No restrictions</td></tr>
</table>

Field construction requirements	
Field gradients	See clause 4.2.
Surface regularity	There must not be any undulations that exceed 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.
Sports lighting	
FIH Field Certification is primarily an assessment of the playing surface and its suitability for hockey. If required, certification may be expanded to also include an assessment of a field's lighting, providing it is designed to satisfy the appropriate FIH lighting criteria	
Field equipment	
Hockey goals	The field should be fitted with two hockey goals. It is recommended that they are FIH Approved goals.
Corner flags	Optional – depending on local competition rules
Team shelters	If the field is fitted with Team Shelters, it is recommended they are FIH Approved Team Shelters
Note: There must not be any sockets for tennis posts, netball posts, etc within the hockey field of play. All equipment for other sports must be free standing.	
Hockey turf maintenance equipment	
Maintenance equipment	The field should be equipped with the maintenance equipment recommended by the hockey turf manufacturer.

<table>
<tr><td colspan="2">
</td><td colspan="2"> </td></tr>
<tr><td>Intended use</td><td colspan="3">Multi-sports fields primarily intended for large ball sports, but also used for school and foundation level hockey</td></tr>
<tr><td colspan="4">Field layout and dimensions</td></tr>
<tr><td>FOP size</td><td colspan="3">91.40 m x 55.00 m</td></tr>
<tr><td>Perimeter run-offs</td><td colspan="3">See section 4.1.</td></tr>
<tr><td>Field orientation</td><td colspan="3">Wherever possible the field should be aligned North/South, with a maximum deviation from north of $\pm$ 15^0.</td></tr>
<tr><td colspan="4">Playing surface</td></tr>
<tr><td>Category of hockey turf</td><td colspan="3">3G Multi-sport</td></tr>
<tr><td>Sports performance</td><td colspan="3">As detailed in Appendix B</td></tr>
<tr><td rowspan="3">Hockey turf colour</td><td>Field of play</td><td rowspan="2">No restrictions, although the use of light colours that can discolour is not recommended</td></tr>
<tr><td>Run-offs</td></tr>
<tr><td>Hockey line marking</td><td>White, yellow or any other colour allowed by local competition rules</td></tr>
<tr><td>Additional line markings</td><td colspan="3">No restrictions</td></tr>
<tr><td>Logos</td><td colspan="3">No restrictions</td></tr>
<tr><td colspan="4">Field construction requirements</td></tr>
<tr><td>Field gradients</td><td colspan="3">See clause 4.2. FIH Preferred gradients should be used wherever possible. The profile should be symmetrical around the central axis of the field.</td></tr>
</table>

Surface regularity	There must not be any undulations that exceed 6 mm under 3 m straightedge, or 3 mm under a 0.3 m straightedge.
Infill containment	To minimise the risk of polymeric infill material migrating from the field into the surrounding environment and becoming a source of microplastic pollution, the field should have the containment and decontamination measures described in the European Standards Committee Technical Report 17519 *Surfaces for sports areas — Synthetic turf sports facilities — Guidance on how to minimize infill dispersion into the environment.* Further information can also be found at https://www.estc.info/knowledge-centre/.
Sports lighting	
FIH Field Certification is primarily an assessment of the playing surface and its suitability for hockey. If required, certification may be expanded to also include an assessment of a field's lighting, providing it is designed to satisfy the appropriate FIH lighting criteria	
Field equipment	
Hockey goals	The field should be fitted with two hockey goals. It is recommended that they are FIH Approved goals.
Corner flags	Optional – depending on local competition rules
Team shelters	If the field is fitted with Team Shelters, it is recommended they are FIH Approved Team Shelters
Hockey turf maintenance equipment	
Maintenance equipment	The field should be equipped with the maintenance equipment recommended by the hockey turf manufacturer.

Appendix B – Sports performance and player welfare properties

	Category 1 field	Category 2 field	Category 3 field
Hockey Ball Rebound	100 mm – 400 mm	100 mm – 400 mm	100 mm – 425 mm
Hockey Ball Rebound consistency	≤ 10% of overall mean	≤ 10% of overall mean	≤ 20% of overall mean
Ball Roll	≥ 10.0m	≥ 10.0m	≥ 9.0m
Ball Roll consistency	≤ 10% of overall mean	≤ 10% of overall mean	≤ 20% of overall mean
Ball Roll Deviation	≤ 0.50 m @ 9.5 m	≤ 0.50 m @ 9.5 m	≤ 0.45 m @ 8.5 m
Shock Absorption	45 % – 60 %	45 % – 60 %	45 % – 65 %
Shock Absorption consistency	≤ ± 5 %SA from overall mean	≤ ± 5 %SA from overall mean	≤ ± 5 %SA from overall mean
Vertical Deformation	4 mm – 9 mm	4 mm – 9 mm	4 mm – 9 mm
Shoe – Surface Friction	25 Nm – 45 Nm	25 Nm – 45 Nm	25 Nm – 45 Nm
Shoe – Surface Friction consistency	≤ ± 5 Nm from overall mean	≤ ± 5 Nm from overall mean	≤ ± 5 Nm from overall mean

	Category 4 field		Category 5 field
Type of field	Community – Hockey Plus	Community – Gen 2	3G Multi-sport field
Hockey Ball Rebound	100 mm – 450 mm	≤ 500 mm	≥ 75 mm
Hockey Ball Rebound consistency	≤ 20% of overall mean	≤ 20% of overall mean	≤ 20% of overall mean
Ball Roll	≥ 8.0 m	≥ 8.0 m	≥ 5.0 m
Ball Roll consistency	≤ 20% of overall mean	≤ 20% of overall mean	≤ 20% of overall mean
Ball Roll Deviation	≤ 0.40 m @ 7.5 m	≤ 0.40 m @ 7.5 m	not applicable
Shock Absorption	45 % – 70 %	30% - 60%	55% - 70%
Shock Absorption consistency	≤ ± 5% SA from overall mean	≤ ± 5% FR from overall mean	≤ ± 5% FR from overall mean
Vertical Deformation	4 mm – 10 mm	2 mm – 9 mm	4 mm – 12 mm
Shoe – Surface Friction	25 Nm – 45 Nm	25 Nm – 45 Nm	25 Nm – 50 Nm
Shoe – Surface Friction consistency	≤ ± 5 Nm from overall mean	≤ ± 5 Nm from overall mean	≤ ± 5 Nm from overall mean

Optional additional tests for Community Gen 2 fields	
Tennis ball rebound (EN 12235)	> 80 % (112 cm)
Netball slip resistance (EN 16837) – tests to be undertaken dry and wet conditions, weather permitting	≥ 75
Netball & Tennis Rotational Resistance (EN 15301-1[1]) – tests to be undertaken under dry and wet conditions, weather permitting	15 Nm – 45 Nm

[1] Using the smooth rubber test sole

Appendix C – hockey turf product verification

Component / property	Characteristic	Requirement
Carpet type	Synthetic turf or textile surface	Same as Approved Product
Method of manufacture	Tufted, Woven, Knitted or Needle-punch	Same as Approved Product
Carpet pile colour – Playing area, line markings & run-offs	RAL Classic number	Same RAL number(s) as Approved Product
Carpet pile type	Straight, curled, monofilament, split film	Same as Approved Product
Shockpad	Type of construction / manufacturer	Same as Approved Product
Infill	Type / composition	Same as Approved Product

Notes

1 The number of filaments per square metre shall be calculated by multiplying the number of tufts per square metre by the number of filaments per tuft; this figure being the mean value of 20 tufts extracted at random from a 200mm x 200mm sample

2 If it is not possible to extract tufts from the carpet backing (e.g., when there is an integral shockpad or the carpet is of a knitted construction, etc.) the pile weight per unit area above the substrate shall be determined in accordance with ISO 8543. This shall be noted in the test report

Component	Characteristic	Test Method	Tolerance compared to manufacturer's declaration / approved product
Properties of synthetic turf carpet	Pile height above backing	ISO 2549	± 10%
	Tufts per unit area	ISO 1763	± 10%
	Filaments/m^2	See note 1	± 10%
	Pile weight	ISO 8543 – see note 2	± 10%
	Pile dtex	FIFA TM 23	± 10%
	Pile Thickness	FIFA TM 25	≥ 90%
	Pile Profile	FIFA TM 25	Same profile
	Pile polymer characterisation	FIFA TM 22	Same polymer DSC profile ± 3 °C (mean peak)
	Carpet mass per unit area	ISO 8543	± 10%
	Water permeability of carpet	FIFA TM 24	≥ 90%

Component	Characteristic	Test Method	Tolerance compared to manufacturer's declaration / approved product	
Properties of shockpads and elastic layers	Thickness	EN 1969	90% – 130%	
	Mass per unit area	ISO 8543	± 10%	
	Shock Absorption	EN TS 16717	± 5% SA	
	Water permeability	FIFA TM 244	≥ 90%	
Properties of infills	Particle Grading	EN 933–1 / FIFA TM 20	80% between d and D	≤ 5% passing 0.150 mm
	Particle Shape	EN 14955	Similar shape	
	Bulk density	EN 1097–3	± 15%	
	Polymer composition (polymeric infills only)	FIFA TM 11	Same polymer (TAG ± 15%)	
Properties of textile carpets	Thickness of pile above substrate	ISO 1766	≤ 10 %	
	Fibre polymer characterisation	FIFA TM 22	Same polymer DSC profile ± 3 °C (mean peak)	
	Carpet mass per unit area	ISO 8543	≤ 10 %	
	Water permeability	FIFA TM 244	≥ 90%	

Use of this Standard

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, any party who makes use of any part of the Standard in the development of a hockey facility shall indemnify the International Hockey Federation (FIH), its servants, consultants or agents against all claims, proceedings, actions, damages, costs, expenses and any other liabilities for loss or damage to any property, or injury or death to any person that may be made against or incurred by the FIH arising out of or in connection with such use.

Compliance with the requirements detailed in this Standard by a User does not of itself confer on that User immunity from their legal obligations but does constitute acceptance of the terms of this disclaimer by that User.

FIH reserve the right to amend, update or delete sections of this Standard at any time, as they deem necessary.

Any questions about this Standard should be addressed to facilities@fih.ch

FIH facilities guidance – helping you win

This Standard is part of a series of facilities documents produced by the FIH. Other information that might assist you is available at www.fih.ch/facilities. It includes:

- Facilities Guidance – Outdoor Hockey Facilities
- Facilities Guidance – GEN 2 multi-sports areas
- Facilities Guidance – HOCKEY5s Courts
- Facilities Guidance – Sports Lighting for Non-Televised Outdoor Hockey
- Facilities Guidance – Sports Lighting for Televised Outdoor Hockey
- Facilities Guidance – Hockey Field Irrigation
- Facilities Guidance – Indoor Hockey

- Hockey Turf and Field Standards – Part 1 FIH Approved Hockey Turfs
- Hockey Turf and Field Standards – Part 2 - 11 a-side hockey fields
- Hockey Turf and Field Standards – Part 3 – HOCKEY5s courts
- Hockey Turf and Field Standards – Part 4 – Temporary Overlay Pitches (Tops)
- FIH Approved Field Equipment – Hockey Goals
- FIH Approved Field Equipment – HOCKEY5s Rebound Boards
- FIH Approved Field Equipment – Team Shelters
- FIH Approved Field Equipment – Technical Officials Booths
- FIH Approved Field Equipment – Indoor Hockey goals
- FIH Approved Field Equipment – Indoor Hockey side-board

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