



ENGINEERED
FOR HOCKEY

Facilities guidance

INDOOR HOCKEY

VER. 01

Welcome

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.

The game of Indoor Hockey is played by two teams of six players, using a small sized pitch which has boards along each side to keep the ball in play, creating a fast, flowing, and exciting game. The game can be played at venues used only for Indoor Hockey but is also commonly played in multi-sports halls.

Indoor Hockey tournaments are often played on a temporary pitch laid in a sports arena, convention centre or other similar venues.

This guide has been written to help you provide Indoor Hockey facilities that allow this great game to be played.

Pitch layout & dimensions

Figure 1 shows the dimensions and layout of an Indoor Hockey pitch. The recommended size is 44.0 m by 22.0 m. When space is limited, and local competition rules allow, smaller pitches may be used. The minimum acceptable size 36 m x 18 m.

The sides of the pitch are bound by side-boards and the ends by back-lines.

Outside the boundaries there should be safety run-off margins. These should measure at least 3 m at either end and 1 m on each side.

Ceiling height

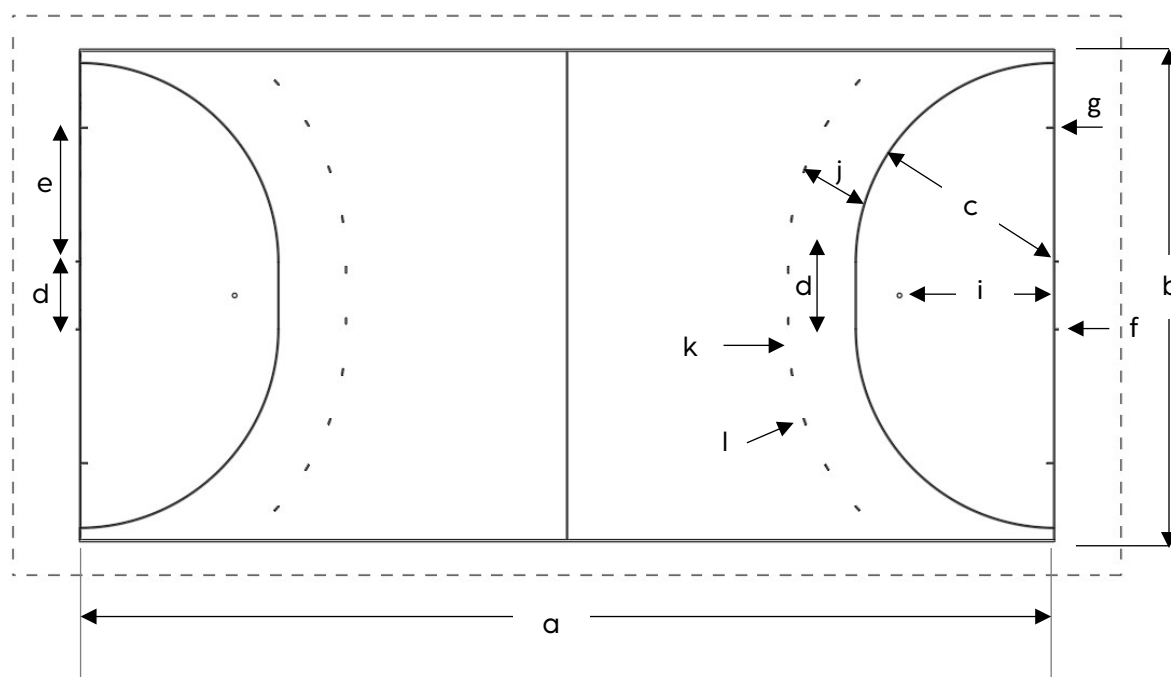
Experience suggests that to provide a satisfactory playing environment the minimum ceiling height (playing surface to ceiling) should be 7.6 m.

Line Markings

Figure 1 shows the layout and markings of an Indoor Hockey pitch. Side-boards mark the longer perimeters of the pitch; backlines mark the shorter perimeters.

The goal-lines are the parts of the back-lines between the goal posts. A centre-line is marked across the middle of the pitch. Areas referred to as the circles are marked inside the pitch around the goals and opposite the centres of the backlines. Penalty spots, 100mm in diameter, are marked in front of the centre of each goal with the centre of each spot 7 metres from the inner edge of the goal-line.

For top tier international matches there are also broken circle lines with their outer edges 3 metres from the outer edge of each circle-line; each broken line should start with a solid section at the top centre of the circle-line and each solid section should be 300 mm long with 2 metres long gaps between the solid sections. The



broken lines are not normally marked on multi-sport floors to reduce the overall number of markings.

Figure 1- pitch line markings

a	44.0 m	b	22.0 m	c	9.0 m	d	3.0 m
e	6.03 m	f	150 mm tab	g	300 mm tab	h	Ø 100 mm
i	7.0 m	j	3.0 m	k	2.0 m space	l	300 mm dash
End run-off min. 3.0 m				Side run-off min. 1.0 m			

When smaller pitches are used, the external measurements should be scaled down, but the run-offs and all internal markings should remain as for a full size pitch.

The line markings should be a light colour which contrasts with the playing surface and are a different colour to any other lines on the floor. For higher level competitions, or when there are no other markings, the lines should be white. All lines should be 50 mm wide.

Playing surfaces

There is a very wide range of playing surfaces used for indoor sports. Some are more suited to Indoor Hockey than others. To provide the playing characteristics Indoor Hockey needs, the surface should:

- allow the ball to move quickly, smoothly (without bobbling) and predictably
- provide adequate grip to allow players to run, turn and stop safely, but without being excessively abrasive
- ideally, provide adequate impact protection to minimise the risk of injuries when players fall

Experience has shown that the use of vinyl, polymeric and sprung timber surfaces are best suited to the needs of Indoor Hockey. Interlocking plastic tiles are also used (often as a temporary overlay).

The surface should be smooth (not heavily embossed or textured) and have an impacting absorbing or cushioning underlayer or structure, that ensures adequate comfort and protection to players falling over. The level of impact protection provided, will depend on type of surface selected. There are four generic categories of surface:

Low-impact absorbing surfacing

For sports such as tennis the need for the ball to bounce is paramount and this means the playing surface is normally very firm and offers little protection to athletes falling onto it. Although Indoor Hockey is not a contact sport, players will fall and therefore the use of low or non-impact absorbing flooring is not recommended if alternative surfaces offering more player protection are available.

Point elastic sports floors

Point elastic sports floors comprise an upper surface that overlays a shock absorbing under-layer, which provides cushioning at the point of impact. They typically provide moderate levels of protection to players.

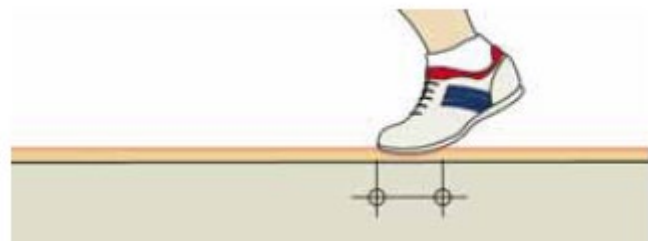


Figure 2 – Point elastic sports floor
(Drawings courtesy of Sport England)

Examples of point elastic floors include vinyl sheet surfaces that have a foam under-layer, and polymeric surfaces that are applied on-site to a rubber or foam under-layer.

Area elastic floors

Area elastic floors are designed to provide enhanced levels of protection by transmitting the impact forces created by a player running or falling to a sub-assembly that dissipates the energy.

Area elastic floors provide higher levels of protection than point elastic floors.

The upper surface of an area elastic floor is often timber but may also be a vinyl or polymeric material laid on boards that are mounted on the sub-assembly. Although offering very good impact properties, area elastic floors can feel quite firm underfoot.

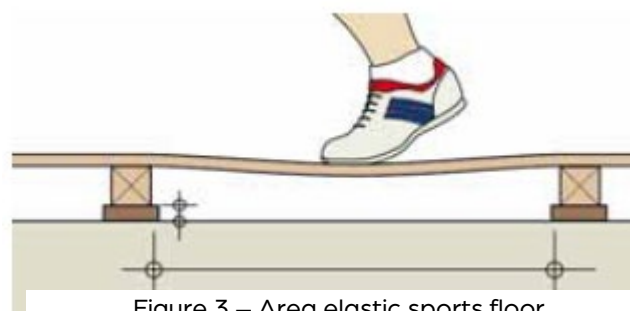


Figure 3 – Area elastic sports floor

Combined elastic floors

Combined elastic floors incorporate the cushioning aspects of a point elastic surface and the higher impact absorption properties of an area elastic floor. These enhanced properties do, however, come at a high compared to the other types of floor.

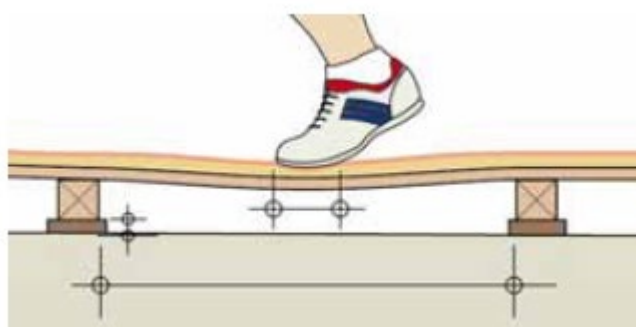


Figure 4 – Combined elastic sports floor

Combined elastic, area elastic and point elastic floors are all successfully used for Indoor Hockey. Whenever possible, the FIH recommends international matches are played on either combined elastic or area elastic floors, but this does not preclude the use of venues that have point elastic floors.

To ensure a new indoor sports floor is suitable for Indoor Hockey (and any other sports that will be played on it), it is recommended that the floor complies with the requirements of European Standard EN 14904¹

Sports floor colours and finishes

The floor is a major visual element in the sports facility and will have a significant impact on the internal environment. The colour, reflectance and other characteristics of the floor's surface therefore need to be carefully considered to create an attractive internal environment that gives maximum enjoyment to all users.

¹ EN 14904 Surfaces for sports areas – Indoor surfaces for multi-sports use – Specification

Experience, especially when games are to be televised, suggests that surfaces with a low gloss or matt finish are preferable. The floor colour should also be selected to create an integrated design with the facility's wall reflectance (the walls should ideally have a 40–50% light reflectance) and lighting scheme.

Whilst there are no FIH specifications for the colour of the floor, a blue pitch (RAL colour code 5007 or similar) with a white ball is considered most suitable for televised games. Other ball and surface colour combinations are used within the overall recommendation that the ball is a light/bright colour and that the surface is a dark/matt colour.

Surface cleaning

Providing the sports floors is rated as being suitable for Indoor Hockey by the manufacturer, playing the sport should not cause dents or structural damage. Like many sport activities, however, some marking of the floor may occur. These marks can normally be removed through an appropriate cleaning regime, recommended by the surface manufacturer. It is important that the recommendations are followed, as some surfaces and any applied finishes can be adversely affected by inappropriate cleaning products.

It is also important to ensure that the cleaning requirements do not involve harmful materials that may adversely affect the environment.

Sustainability

Global awareness of the impact human activity is having on our planet is rightly growing and we need to ensure that Indoor Hockey is minimising its impact. Many sports floors are made from rubber or plastic materials, and like any man-made product, it is very important that when the floor reaches its end of life it can be disposed of responsibly. Increasingly, the option of sending products to land fill is being banned or made very expensive, to encourage recycling.

When selecting a new sports floor its suitability for recycling should be considered, and everyone purchasing a new floor is encouraged to ask challenging questions of the supplier about how their surface can be disposed of when it reaches the end of its usable life.

Similarly, those considering a timber floor are encouraged to ensure the timber is sourced from sustainable sources and the coatings and treatments required are not harmful to the environment.

Sports hall sub-floor

Most sports halls are built with either a concrete or asphalt base. These should be designed and constructed in accordance with local building codes and regulations. When designing the base, the recommendations of the sports surfacing manufacturer should always be considered. Some surfacing systems require specialist final treatments or prolonged curing periods before the sports surface can be laid.

It is also important that the base provides a suitable platform for Indoor Hockey, as the sports surface will not normally be able to mask any imperfections. Specifically, the base should be laid flat and not have undulations or high spots that exceed 6 mm under a 3 m straightedge or 2 mm under a 300 mm straightedge.



Lighting

Indoor hockey is a fast game played with a small ball and, as such, places high demands on players in terms of visual performance. Good lighting intensity and uniformity are therefore essential.

The lighting should not cause shadowing, be largely glare-free and maintain a marked contrast between ball and background. The solution normally adopted is a regular arrangement of luminaires. The height and design of the ceiling will determine the choice of luminaires (e.g. recessed, surface-mounted or pendant).

It is recommended the lighting system is designed and complies with the requirements of European Standard EN 12193.

The following minimum lighting levels are recommended:

Type of play	Minimum maintained average illumination	Minimum uniformity Emin/Ēm
Training and local club play	500 lux	0.7
Major regional and international matches (non-televised)	750 lux	0.8
Televised matches	1000 lux	0.8

Emin = minimum illumination Ēm = average illumination



Sports furniture

Goals

Indoor Hockey goals are smaller than those used for 11 a-side hockey (they are similar to the goals used for handball). The goal comprises the goal frame, a net and either (subject to competition rules) side-boards and back-boards, or side and back bars. The net should be securely attached to the back and side boards or bars to prevent balls exiting the goal.

The goal post and cross bar should be white or other approved colours. The net mesh should be a maximum of 45mm, and it should be loosely fixed to avoid balls rebounding out from the goal.

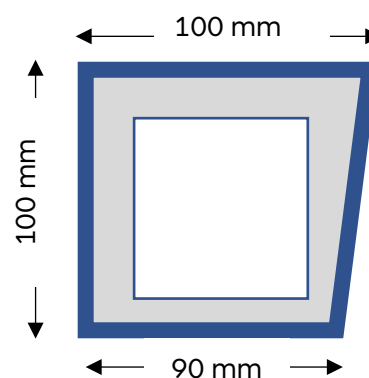
The goals are positioned outside the pitch at the centre of, and touching, each back-line.

It is important that goals do not create hazards or cause injury. They should also be anchored in accordance with the manufacturer's instructions, and due to entrapment risks, cup hooks should never be used to attach the goal net. **FIH Approved** Indoor Hockey Goals are independently tested to ensure they are robust, good quality, safe goals. It is recommended that whenever new Indoor Hockey goals are being purchased, they are FIH Approved. Details of FIH Approved goals can be found at www.fih.ch/ap.

Side boards

Side-boards define the long perimeters of the pitch and are based on a square 100 mm cross-section, but with the upright surface facing the pitch having an incline of 10 mm towards the pitch.

Side-boards may be made of aluminium, MDF, timber or materials with similar physical properties. They should have an interlocking mechanism that keeps the boards aligned, but they must not have fittings or supports that create a danger to players or umpires.



FIH Approved Indoor Hockey side-boards are independently tested to ensure they are robust and good quality. It is recommended that whenever new Indoor Hockey side-boards are being purchased, they are FIH Approved. Details of FIH Approved side-boards can be found at www.fih.ch/qp.

Spectator ball catch netting

If spectators are to be seated behind the end-lines, ball catch netting should be suspended behind the run-offs to prevent balls leaving the pitch and striking the spectators. The netting mesh size should be no greater than 45 mm. The height of the netting should be determined after undertaking a risk assessment of the venue. When tiered seating is being used the netting will often be at least 5 m in height.

The repeated impact of balls striking the walls, particularly behind the goals, can cause damage. If nets are not suspended behind the goals, consideration should be given to placing protective padding against the walls.



FIH Facilities Guidance

Whilst every effort has been made to ensure the accuracy of the information contained in this guide, any party who makes use of any part of the guide 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.

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

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