



# INDOOR HOCKEY FACILITIES HANDBOOK

**World Hockey**

## Aim of this Handbook

The aim of this handbook is to provide general guidance for the providers of indoor hockey facilities recognising that actual requirements will vary depending on the intended use of the facility and development options available locally.

The specific necessary detail is referenced throughout the text. A directory of large international companies who can supply to the Indoor Sports Hall industry is also provided in the Appendix.

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## Acknowledgements

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## Considerations

- 1.1 A key factor in the development of an Indoor Hockey playing facility is the floor. It determines how enjoyable it is to play or watch the game, the durability of the facility and its cost. This section of the handbook examines broad requirements for a sports floor in addition to requirements which are specific to indoor hockey.
- 1.2 Sports floors must safely withstand the loadings from users and equipment. Six common considerations when determining a suitable sports flooring are:
  - shock absorption
  - energy return
  - slipperiness
  - ball rebound
  - wear resistance
  - regeneration
  - load bearing implications (eg for temporary spectator seating).
- 1.3 Other priority factors which must also be considered when deciding on flooring are:

### i Risk of physical injury

Prolonged, intensive use of the sports floor requires optimal surface characteristics to minimise the potential for injury while allowing maximum sports development. This can generally be achieved through moderate levels of friction, stiffness and shock absorption.

### ii Stable environmental conditions

Many sports flooring systems are susceptible to changes in temperature and relative humidity, and it is essential that any environmental variations likely to occur in the facility are identified to prevent possible irreparable damage.

### iii Internal visual environment

The floor surface 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 surface material need to be carefully considered in order to create an attractive internal environment that gives maximum enjoyment to all users. Whilst there are no specifications for the colour of the floor, the Rules of Indoor Hockey indicate that the ball must be white and World Hockey recommends a blue pitch which is most suitable for televised games. However, other ball and surface colour combinations are feasible within the overall recommendation that the ball is a light/bright colour and that the surface is a dark colour.

#### iv Other safety and ecological issues

It is vital to ensure that the floor surface will not release toxic or carcinogenic substances. The surface should be manufactured from 'green' materials from a sustainable source or from recyclable materials. A positive environmental profile should be sought with consideration given to total energy usage during the lifetime of the floor. Additionally, the floor must be:

- hygienic
- free from dust or vapour
- easy to clean and maintain
- resistant to accidental damage.

### Flooring Surfaces

1.4 The strongly preferred option for permanent Indoor Hockey facilities is a sprung floor, for which there are various construction options. Flooring surfaces that are suitable for Indoor Hockey include:

- timber
- vinyl, linoleum, rubber and composites, in either sheet or tile form
- in-situ polymeric
- textile, including felt, flock, velour and carpet (either fibre-bonded, needle-punched, fine pile, knitted, woven or tufted carpet).

1.5 Indoor hockey can be played on temporary flooring (eg Gerflor Taraflex or Sport Court) provided that the flooring underneath is smooth, flat, level and dry. This type of floor can be laid on hard surfaces eg cement.

### Care and Maintenance

1.6 All care and maintenance should follow the manufactures guidelines. Where these are not prescribed, the surface should be cleaned with a non-abrasive and non-corrosive cleaning agent on a weekly basis.

### Industry Standards

1.7 Many countries and/or regions have their own performance specifications for Sports Hall flooring. Providers should be aware that performance tests and standards data are increasingly being used in personal injury claims. Providers should therefore ensure that sports floors meet any country specific industry standards. Some examples of recognised industry standards for indoor sports floor surfaces are listed below:

- European Standard CEN 217
- German industrial standard, DIN 18032 Part 2
- British Standard 7044: Artificial Sports Surfaces, Part 4 – Specification for Surfaces for Multi-sports Use.

## More Information

- 1.8 Providers should refer to the following documents for specific details on Indoor Sports flooring:
- <http://www.sportengland.org/floors.pdf>
  - European Committee for Standardisation (CEN 217)  
[http://www.cenorm.be/CENORM/standards\\_drafts/index.asp](http://www.cenorm.be/CENORM/standards_drafts/index.asp)

## Suppliers

- 1.9 A list of major suppliers of Indoor Sports Hall flooring can be found in the Appendix: Suppliers Directory. Please note that this list is provided for guidance only. New companies enter the industry regularly and in addition there are often experienced local companies who can fulfil the requisite industry standards.

## 2 Pitch and Equipment Specifications

- 2.1 The “Rules of Indoor Hockey” set out:
- pitch dimensions
  - markings
  - side-board specifications
  - goal specifications including nets
  - team bench and table requirements.
- 2.2 The rules specify pitch length in the range 36 to 44 metres and width in the range 18 to 22 metres. The minimum dimensions are acceptable but wherever possible it is preferable to have a bigger pitch. A bigger pitch provides more space for the game so the pitch is less crowded by players and play can be faster flowing.
- 2.3 The rules are available online at <http://www.worldhockey.org/vsite/vnavsite/page/directory/0,10853,1181-116516-117783-nav-list,00.html>.

### Suppliers

- 2.4 A list of major suppliers of Indoor Equipment can be found in the Appendix: Suppliers Directory. Please note that this list is provided for guidance only. New companies enter the industry regularly and in addition there may be experienced local suppliers.

## 3 Lighting

- 3.1 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.
- 3.2 Lighting criteria which ensure good visibility in sports facilities are:
- horizontal and vertical luminance
  - lighting uniformity
  - glare restriction
  - modelling and shadows
  - colour appearance
  - colour rendering
  - impact resistant
  - grid size.
- 3.3 The lighting should cause little shadowing, be largely glare-free and maintain a marked contrast between ball and background. The solution normally adopted is a regular arrangement of luminaires. Height and design of ceiling determine the choice of luminaires (eg recessed, surface-mounted or pendant).

### Industry Standards

- 3.4 Many countries and/or regions have adopted performance specifications for Indoor Sports Hall lighting. Providers must ensure that lighting attains the correct specifications and industry standards for the location. Some examples of standards for indoor sports hall lighting are given below:
- British Standard for sports lighting, BS EN 12193
  - German industrial standard, DIN EN 12193
  - Japan industrial standard JIS Z 9122:1997 Lighting for Sports Halls – Foreign Standard (this is an official English translation of a Japanese Industrial Standard)
- 3.5 The FIH recommends the following minimum requirements:
- training and local club play: 500 lux
  - major regional and international matches: 750 lux
  - televised matches: 1000 lux.
- 3.6 In relation to televised matches, close liaison must be maintained with the intended broadcaster because requirements vary depending on the type of production envisaged and the type of camera equipment used.

## More Information

- 3.7 A useful publication is the “Guide to the Artificial Lighting of Indoor and Outdoor Sports Venues” published by the General Association of International Sports Federations (GAISFs: see <http://www.agfisonline.com/>) in consultation with Philips Lighting.
- 3.8 In addition, please refer to the following documents for specific details on Indoor Sports lighting:
- sportscotland: Daylighting in Sports Halls:  
<http://daylight.sportscotland.net/New%20Report%202/Index.htm>
  - Fördergemeinschaft Gutes Licht: Good Lighting for Sports and Leisure Facilities:  
[http://www.licht.de/fileadmin/shop-downloads/h08\\_engl.pdf](http://www.licht.de/fileadmin/shop-downloads/h08_engl.pdf).

## Suppliers

- 3.9 A list including major suppliers of lighting systems can be found in the Appendix: Suppliers Directory. Please note that this list is provided for guidance only. New companies enter the industry regularly and in addition there may be experienced local suppliers who can fulfil the requisite standards.

## 4 Stadia

4.1 This section provides guidance for the construction of facilities for holding significant Indoor Hockey events.

### Seating

- 4.2 Spectator requirements should be established at the outset as seating capacity is a major determinant in selecting hall dimensions. Additional space can often be justified to increase income or to add flexibility for both sports and non-sports events.
- 4.3 Spectator provision can take several forms:
- chairs or benches lined along the side of the hall at a distance of at least 3 metres *outside* the sideboards
  - casual viewing via glazed screens or a spectator paddock at hall level
  - retractable units with benching or fold-down chairs mounted in recesses or kept in a separate store. The fold-back units will have a depth of at least 1m which must be added to the hall's dimensions. Seating stores should have external access for delivery and extra high doors may be required.
  - other types of de-mountable seating stored on site or hired when required.
- 4.4 The critical factors in specifying seating are to provide unobstructed viewing and to maintain spectator safety. Specific provision must be included for viewing from wheelchairs.
- 4.5 Health and safety should also be considered in terms of pitch run offs and spectator seating. There is more information on this point in the Rules of Indoor Hockey (see <http://www.worldhockey.org/vsite/vnavsite/page/directory/0,10853,1181-116516-117783-nav-list,00.html>).

### Changing rooms and toilets

- 4.6 The minimum requirement for a tournament is four changing areas each accommodating 10 - 20 people. These changing areas should include sufficient shower and toilet facilities. For large tournaments, increased changing rooms may be required.
- 4.7 There should be a separate changing room for umpires.

### Team Benches and Technical Officials' Table

- 4.8 The Rules of Indoor Hockey specify that a bench (or set of chairs) for each team should be placed outside and along one side of the pitch. Each should have a capacity for 10 people (ie substitutes and permitted team officials). There should be space behind the benches for team equipment such as spare sticks. If space is limited, care must be taken to avoid having

equipment between the benches and the sideboards where it may be a hazard to players on the pitch or to umpires.

- 4.9 A table for timekeeping (and technical officials if any) should be placed outside and at the centre of the pitch on the same side as and between the team benches. If possible, there should be sufficient working space for 3 or 4 officials.
- 4.10 Two chairs for temporarily suspended players should be placed on either side of the technical table.
- 4.11 The safety of players and umpires is paramount when positioning the benches, table and chairs.

### Score Board

- 4.12 Even if the facility is only going to be used for relatively local matches, it is helpful to have a scoreboard which players and spectators can easily see. This can add to the excitement of a match with a close score-line towards the end of full-time!

### Other Facilities

- 4.13 Other facilities and services for players and spectators need to be taken into consideration including disabled access, first aid access, public toilets, storage, parking and viewing balconies.

### Tournament and Event Facilities

- 4.14 If the venue is to be used for major events, other considerations include:
- office space for tournament officials
  - medical and doping control rooms
  - refreshments including hospitality
  - media facilities
  - public address system
  - television camera/team video positions.
- 4.15 Other information about tournament facilities and organisation is available on the WorldHockey website; see <http://www.worldhockey.org/vsite/vnavsite/page/directory/0,10853,1181-145642-162858-nav-list,00.html>.

### Industry Standards

- 4.16 Various standards may apply to the provision of facilities. Providers should check relevant local requirements especially building regulations.

## References

- Fördergemeinschaft Gutes Licht: Good Lighting for Sports and Leisure Facilities  
[http://www.licht.de/fileadmin/shop-downloads/h08\\_engl.pdf](http://www.licht.de/fileadmin/shop-downloads/h08_engl.pdf)
- Philips Lighting – Sports Lighting  
[http://www.lighting.philips.co.in/in/en/Portal?xml=applications/app&fldr\\_id=94&fid=3559](http://www.lighting.philips.co.in/in/en/Portal?xml=applications/app&fldr_id=94&fid=3559)
- Recreation Management magazine  
<http://www.recmanagement.com>
- Sport England: Better Places for Sport  
<http://www.sportengland.org/final-se.pdf>
- Sport England: Floors for Indoor Sports  
<http://www.sportengland.org/floors.pdf>
- Sport England: Optimum Sports Halls  
[http://www.sportengland.org/optimum\\_sports\\_halls.pdf](http://www.sportengland.org/optimum_sports_halls.pdf)
- Sport England: Sports Hall Design  
[http://www.sportengland.org/sportshalls\\_design.pdf](http://www.sportengland.org/sportshalls_design.pdf)
- Sport England: Sports Hall Sizes and Layouts  
<http://www.sportengland.org/sportshalls.pdf>
- World Hockey Tournament Regulations: Indoor Competitions  
<http://www.worldhockey.org/vsite/vnavsite/page/directory/0,10853,1181-145642-162858-nav-list,00.html>

## Appendix: Suppliers Directory

**NB: this listing is not exclusive and inclusion in it does not imply endorsement of the supplier or any of its products or services by the FIH**

Company	Location	Area	Website
Web Directory	Worldwide	General	<a href="http://www.sportsvenue-technology.com/contractors/">http://www.sportsvenue-technology.com/contractors/</a>
Collinson	UK	General	<a href="http://www.collinson.co.uk">http://www.collinson.co.uk</a>
Erhard Sport	Europe	Flooring & Equipment	<a href="http://www.erhard-sport.de">http://www.erhard-sport.de</a>
Continental Sports	UK	Flooring, equipment and maintenance	<a href="http://www.contisports.co.uk/">http://www.contisports.co.uk/</a>
Gerflor	Global	Flooring	<a href="http://www.gerflortaraflex.com">http://www.gerflortaraflex.com</a>
Sport Court	Global	Flooring	<a href="http://www.sportcourt.com">http://www.sportcourt.com</a>
Tarkett	Germany	Flooring	<a href="http://www.tarkett-sommer-sports.com/">http://www.tarkett-sommer-sports.com/</a>
Sports Coatings	UK	Flooring	<a href="http://www.sportscoatings.com">http://www.sportscoatings.com</a>
PU Sport	Europe	Flooring	<a href="http://www.pu-sport.com">http://www.pu-sport.com</a>
Musco Lighting	USA / UK	Lighting	<a href="http://www.musco.com/">http://www.musco.com/</a>
Kingworld Source	China	Lighting	<a href="http://www.kingworldcn.com">http://www.kingworldcn.com</a>
Philips	Global	Lighting	<a href="http://www.lighting.philips.co.in/in/en/Portal?xml=home&amp;lang=in_en">http://www.lighting.philips.co.in/in/en/Portal?xml=home&amp;lang=in_en</a>
Schäper Sportgerätebau	Global	Goals	<a href="http://www.sportschaeper.de/index-en.htm">http://www.sportschaeper.de/index-en.htm</a>
Schelde International	Europe	Equipment	<a href="http://www.scheldeinternational.com">http://www.scheldeinternational.com</a>
Sport Thieme	UK/Germany	Equipment	<a href="http://www.sport-thieme.co.uk/">http://www.sport-thieme.co.uk/</a> or <a href="http://www.sport-thieme.de">http://www.sport-thieme.de</a>
Stadia Sports	UK	Equipment	<a href="http://www.stadia-sports.co.uk">http://www.stadia-sports.co.uk</a>
Universal Services UK	UK	Equipment	<a href="http://www.universalservicesuk.co.uk">http://www.universalservicesuk.co.uk</a>
Hucknet	Europe	Equipment	<a href="http://www.hucknet.co.uk">http://www.hucknet.co.uk</a>