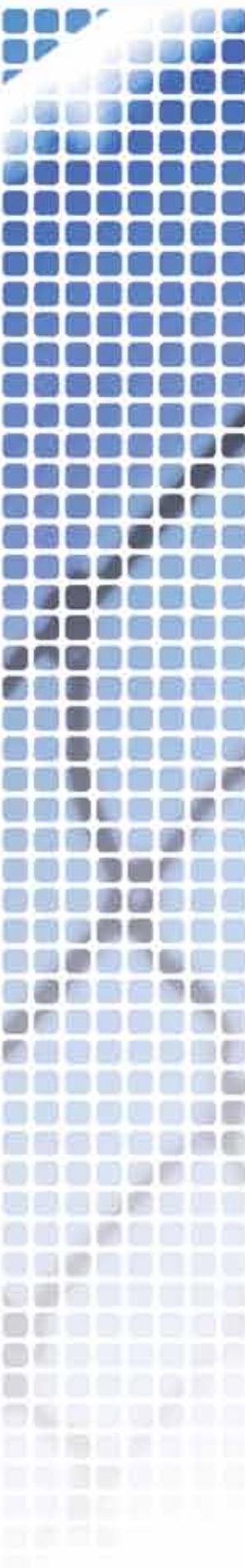




facilities strategy
technical guidelines



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Figures 3a,3b,4,6 courtesy of Schelde Sports



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Volleyball England Strategic Plan 2009/13

We are now entering a new phase for Volleyball in England with the kick off of the new Volleyball England Strategic Plan 2009/13. We have received an increase in funding from Sport England and welcome the additional support given to drive our game forwards. **Our mission - Volleyball England is committed to leading the growth of, and excellence in all disciplines of volleyball in England.**

The vision towards 2013

- Volleyball England will lead by creating innovative, exciting new opportunities for people to enjoy volleyball.
- Volleyball England will respect the diverse communities within the game and will be ethically driven.
- Volleyball England will develop world class structures and events to enable those with the potential to succeed.
- Volleyball England will celebrate, support and develop staff and volunteers through all levels of the game.
- Volleyball England's image will be recognised and respected by stakeholders.

Our values **Active Inclusive Innovative Positive Competitive Supportive**

- Volleyball is an Active, exciting game played by all ages.
- Volleyball is Inclusive in all opportunities that are offered.
- Volleyball initiatives and programmes are Innovative in their approach.
- The Volleyball experience is Positive for all who take part in or contribute towards it.
- Volleyball is Competitive in all its forms, sitting, beach, outdoor and indoor.
- Volleyball England is Supportive of all our staff and volunteers.

And what will success look like for Volleyball England in 2013?

- Over half a million people experiencing volleyball for the first time.
- 4 world class CEV/FIVB events delivered.
- 10 permanent beach volleyball facilities established.
- 8,000 young people enjoying volleyball in clubs.
- 10,100 more adults competing weekly in volleyball.

VOLLEYBALL ENGLAND FACILITIES AND EQUIPMENT SPECIFICATION

EXECUTIVE SUMMARY

Volleyball is one of the most popular sports in the world for both men and women and has a universal appeal at all ages. It is an established Olympic sport since 1964, with indoor, grass and beach versions of the game as well as a sitting version for disability sport, included in the paralympics since 1980.

- Volleyball is played worldwide and along with football and basketball is ranked in the top three most popular sports
- Volleyball is played in 30% of schools (Dept. of Education)
- Beach Volleyball has an increasingly high profile and a financially lucrative professional World Tour
- Sitting volleyball exists as a version for persons with disabilities

The sport was established in Britain in 1955 and is now established in all versions throughout Great Britain. In common with other major indoor sports such as basketball, the growth of the sport has been limited by the availability of both suitable facilities and equipment in British sports halls.

The standard sports hall currently* recommended by Sport England is 18m x 33m x 7.6m and designed around the minimum playing space required for Badminton of 18m. While this suits the demands of that sport it is a very unproductive use of space for other ball court sports such as volleyball and basketball. The effect of this is to severely limit the development of these sports both within schools and the adult community. For badminton it is also an inefficient use of space.

Allied to the development of more appropriate size facilities is the installation at the time of construction of integrated volleyball equipment.

* Sport England due to review guidance (2009)

Recommendations

- All volleyball equipment should comply with the requirements of BS EN1271:2004(E)
- All volleyball equipment should be marked as complying with BS EN1271:2004(E)
- All new build facilities should incorporate socketed posts for match play and provision for teaching volleyball using either wall or socketed nets down the length of the hall.
- Current design standards for sports hall sizes are a major barrier to the development of volleyball and other indoor ball sports. The minimum width of standard sports halls should be raised to 20m from the current 18m, to allow two practice courts in a single hall. This increase also benefits basketball and netball.
- Larger sizes of halls should be based round 20m wide modules to enable multiple courts to be installed for tournament play.
- All retrofit equipment provision should have bolt down match play posts and wall mounted teaching nets.
- Indoor posts kept upright by weights or guys must not be used and are banned by Volleyball England.
- Specialist official's stands must be provided for game play.
- Posts should be capable of being used to provide nets at sitting volleyball height.
- Permanent posts should be installed wherever practical on public beaches and parks.
- Consideration should be given to the provision of indoor and inland beach courts.

The objectives of the Technical Guidelines are:

- to provide advice on the facility specifications required for the playing of volleyball at various levels, including suggesting ways of making best use of space.
- to provide advice on the equipment required for the playing of volleyball at all levels and in all formats.
- to encourage the building of new facilities to build up a network of provision.
- to encourage venues to upgrade their facilities to make them compatible with volleyball usage.
- to encourage management arrangements to increase access and usage to the community.
- to identify requirements for specific centres - mass participation, tournament play, spectator venues, indoor and outdoor beach, and high performance.
- to ensure that requirements for the safe playing of the sport are met.

This technical guidance particularly identifies

- alternative sports hall sizes and layouts that will encourage the development of ball court sports and at the same time provide increased facilities for badminton. These facilities are more cost effective and will generate greater usage and income than current recommended sizes.
- the equipment requirements for new build facilities and suggests ways of providing safe and versatile volleyball equipment in existing facilities.

OVERVIEW

THE GAME CHARACTERISTICS

Volleyball is a sport played by two teams on a playing court divided by a net. There are different versions available for specific circumstances in order to offer the versatility of the game to everyone.

Essential rules

- The object of the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent.
- The team has three hits for returning the ball. The ball is put in play with a service; hit by the server over the net into the opponents court.
- The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly.
- In Volleyball, the team winning a rally scores a point (Rally Point System). When the receiving team wins a rally, it gains a point and the right to serve, and its players rotate one position clockwise.

Key elements

- The nature of volleyball is such that the game is not bounded by the dimensions of the court and sufficient space must be allowed around the court to retrieve the ball whilst still in play.
- Indoors, the other major factor is that of uninterrupted clear space above the court i.e. the height of the lowest part of the hall. The parameter of height can vary according to the standard of play but for general competition and training it should be a minimum of 7.6m.
- Players frequently have to look up to judge the flight of the ball. Both the positioning and type of lamps are critical.

Safety

For safety reasons and to comply with the international rules of the game indoor posts must

- preferably be socketed, or
- when fitted into an existing hall be bolted to floor anchors through a small base plate which needs to be covered with padding or
- for teaching purposes bolted directly to the wall.

In the event of injury during play or setting up/taking down, caused through the use of posts or fittings of this type Volleyball England will refer plaintiffs and defence to this statement.

Playground type posts inserted in large plastic bases filled with water or sand are acceptable for primary teaching of small sided games.

Volleyball is a contact sport in so far as players will fall or dive onto the floor to play balls as part of the normal game. They also will jump and land frequently during the attacking phase of the game. In sitting volleyball contact with the floor by the buttocks is a central element of the rules. It is therefore important that the flooring in the sports hall is compatible with this use.

It follows that the games prerequisites are;

- adequate space around the marked court;
- an adequate ceiling height;
- non glare light sources;
- a suitable floor surface and
- socket, floor or wall fixings allowing for different court layouts to be used safely without resort to portable posts.



INDOOR VOLLEYBALL

INDOOR VOLLEYBALL

The match court and its equipment

The playing area includes the playing court and the free zone. It shall be rectangular and symmetrical. Below are relevant extracts from the FIVB rules that apply to all national, regional and local volleyball. There are some amendments to the free zone, free playing space and additional temporary lines for substitutes/coaches for international level matches. Details of these can be obtained from Volleyball England or www.fivb.org

DIMENSIONS

The playing area is a rectangle measuring 18 x 9 m, surrounded by a free zone which is a minimum of 3 m wide on all sides. For Volleyball England national league fixtures a 5m free zone at the end of the court is recommended. (see fig 1).

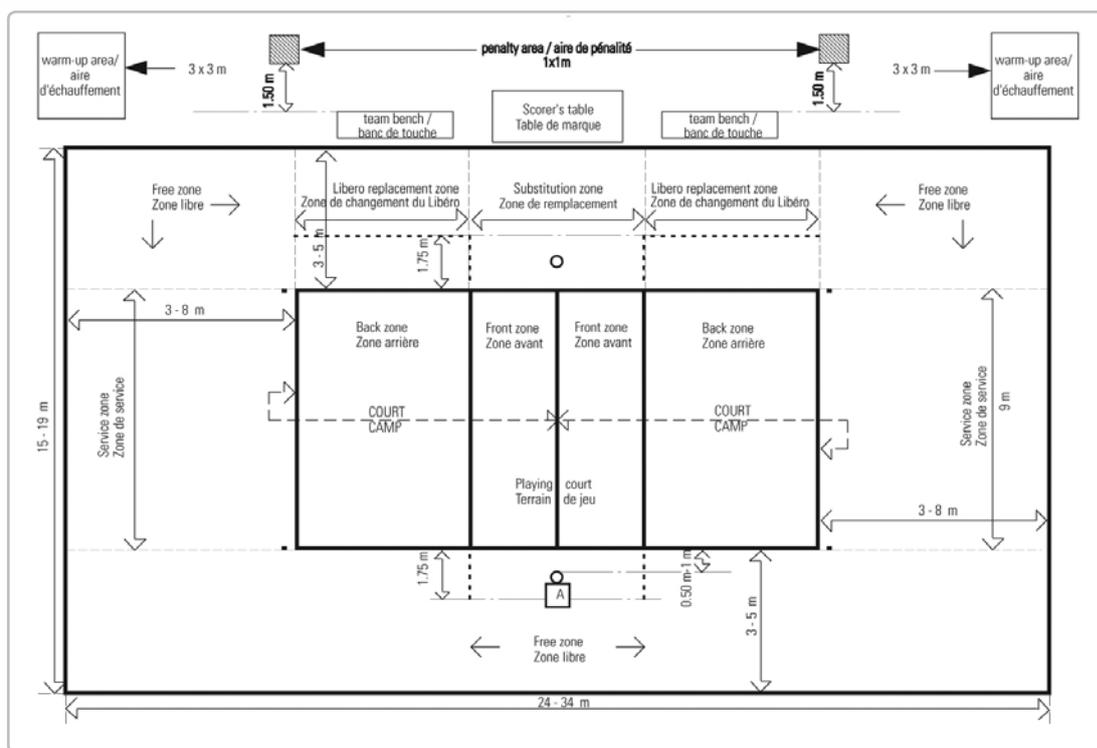


Figure 1.

The free playing space is the space above the playing area which is free from any obstructions. The free playing space shall measure a minimum of 7.6 m in height from the playing surface.

LINES ON THE COURT

The markings on a playing court are shown in figure 2. All lines are 5 cm wide. They must be of a light colour which is different from the colour of the floor and from any other lines. (*The standard colour for volleyball is green*). Where volleyball usage is likely to be high there is a preference to lay down markings over others so that lines are continuous and uninterrupted.

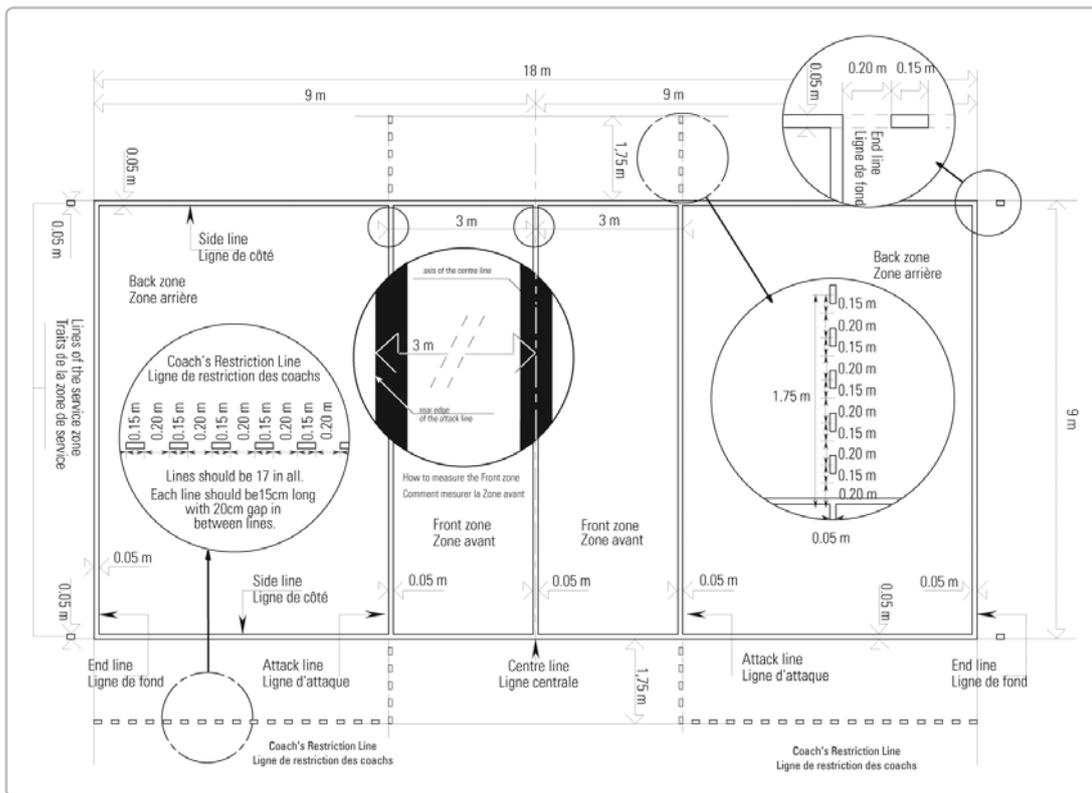


Figure 2.

Boundary lines

Two sidelines and two end lines mark the playing court. Both sidelines and end lines are drawn inside the dimensions of the playing court. In matches balls contacting the lines are considered “in court”.

Centre line

The axis of the centre line divides the playing court into two equal courts measuring 9 x 9 m each; however the entire width of the line is considered to belong to both courts equally. This line extends beneath the net from sideline to sideline.

Attack line

On each court, an attack line, whose rear edge is drawn 3 m back from the axis of the centre line, marks the front zone.

Substitution Zones

The attack line is extended beyond the normal boundary lines using a dashed line (1.75m) and marks the substitution zone.

Service zone

The service zone is a 9 m wide area behind each end line.

It is laterally limited by two short lines, each 15 cm long, drawn 20 cm behind the end line as an extension of the sidelines. Both short lines are included in the width of the service zone.

In depth, the service zone extends to the end of the free zone (3-8m as highlighted above).

For training and local league purposes the rear free zone may be reduced subject to this zone being free of obstructions. These would be applicable in the hall sizes shown on page 35.

Space requirements at varying levels of play are shown in **Table 1** (page 22).

POSTS

The provision of equipment that is both safe to use and fit for purpose is essential. All volleyball equipment must conform to the following standard **BS EN 1271:2004 (E) Volleyball equipment - Functional and safety requirements, test methods.**

To assist purchasers, manufacturers should mark their equipment to show that it conforms to this standard. Purchasers should obtain written confirmation of conformation where this is not stated in sales literature or marked on the equipment.

In brief, the key points in the standards for volleyball posts are;

TYPE	DESCRIPTION OF POSTS	METHOD OF FIXING
1A	International events conforming to FIVB requirements	Ground sockets
1B	National competitions conforming to Volleyball England and other national volleyball federation requirements. These include national, regional and local leagues, cup competitions, age group events and tournament	Ground sockets or floor fixings
2C	Practice and school sport	Floor fixings

It is important that architects, specifiers and purchasers consider what level of volleyball will be played. In the vast majority of cases the minimum requirement will be Type 1B

Type 1A equipment must have the following components:

- One post with a means of tensioning the top net and an attachment point for the bottom line of the net
- One post with an attachment point for the headline and one for the bottom line of the net.
- 2 post pads
- Both posts must be inserted into sockets in the playing surface.
- A maximum mass of 20kg

Type 1B equipment must have the following components

- One post with a means of tensioning the top net and an attachment point for the bottom line of the net
- One post with an attachment point for the headline and one for the bottom line of the net.
- 2 post pads
- Both posts must be either inserted into sockets in the playing surface or have a base with floor fixing devices.
- A maximum mass of 20kg or if equipped with wheels 30kg

Type 2C equipment must have the following components:

- One post with a means of tensioning the top net and an attachment point for the bottom line of the net
- One post with an attachment point for the headline and one for the bottom line of the net.
- 2 post pads
- The base plate shall be protected with padding because of the risk of hazards during the game.
- A maximum mass of 20kg or if equipped with wheels 30kg

BS EN 1271 2004(E) provides manufacturers with further details on tensioning devices, post deflection and testing procedures.

Volleyball posts are subject to considerable strain when the net is fully tensioned for play. It is vital that the method of floor fixing used, whether with sockets or floor anchors, meets the testing requirements of BS EN 1271 2004(E) so that the posts will not deflect or damage the floor while in use.

Drop in floor sockets are the recommended choice for all new build projects and a structural engineer should be consulted during the design phase for the sports hall floor (figure 3a).

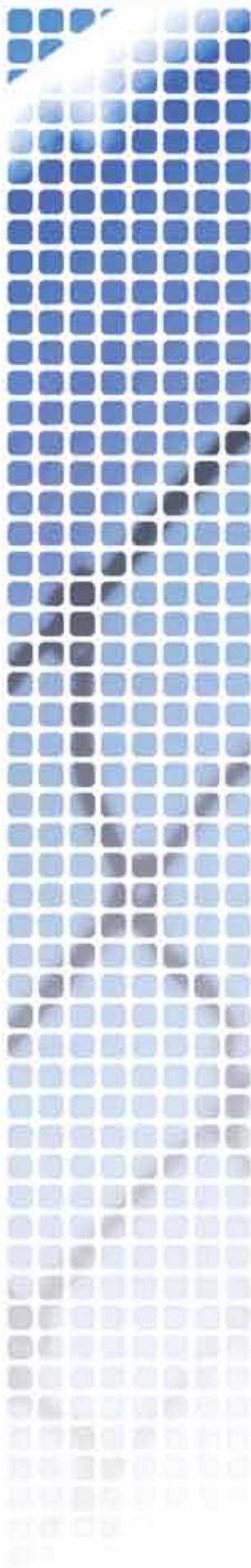
Match play

The posts supporting the net must be placed at a distance of 1.00 m outside the sidelines.

Posts are to be no higher than 2.55 m and preferably adjustable.

The posts are rounded and smooth, and preferably insert into floor sockets or fixed to the ground without wires. There shall be no dangerous or obstructing devices.

For safety reasons and to comply with the international rules of the game indoor posts must



- preferably be socketed, (figure 3a) or
- when fitted into an existing hall be bolted to floor anchors through a small base plate which needs to be covered with padding or
- for teaching purposes bolted directly to the wall. (figure 4)

Posts supported by weights or tensioned by ropes or wires to the floor or wall are unsafe, do not comply with the rules and must not be used.

- Moving the weights to and from the posts poses risks to those handling them and can damage the floor.
- Posts supported in this way are not stable and can be pulled down during play causing injury to players.
- The weights themselves cause an obstruction to players chasing balls during play and can trip and injure them.

In the event of injury during play or setting up/ taking down, caused through the use of posts or fittings of this type Volleyball England will refer plaintiffs and defence to this statement.

Playground type posts inserted into large plastic bases filled with sand or water are acceptable for primary teaching with small sided games.

Sports halls are used for teaching, training and competition. Providing for these needs requires posts or fittings in several positions.

The ideal provision for a new build facility is a combination of socketed competition posts and a wall slider or, where socketed netball posts are installed, a post using the netball socket for teaching purposes.

All sockets or covers must be flush fitting when closed so that they do not injure players through tripping or when they contact the floor during a game.

Teaching volleyball

A single match play court does not provide sufficient net space for class teaching. Volleyball is taught using small sided games and courts. A net set up down the length of a sports hall is the ideal teaching layout. By using bands and markers small courts can be set out for teaching.



Figure 3a.



Figure 4.

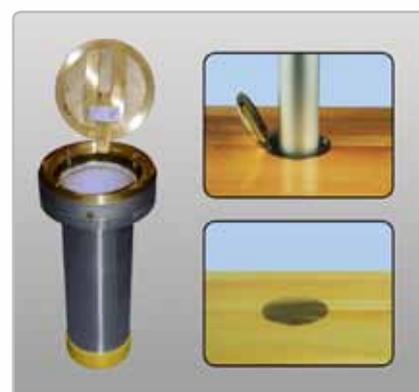


Figure 3a.

A wall slider also offers the opportunity to put the net at the correct height for sitting volleyball, short tennis and badminton. A multi purpose provision for a sports hall that aids all-round teaching.

If netball is to be provided in a new build hall the ideal provision is with socketed posts rather than wheel away. Using a specialist volleyball post these sockets can be used to attach a full length net. An additional socket half way down the hall will help reduce net sag.

Wall sliders should preferably be recessed in blockwork during construction or can be wall mounted with padding in existing halls or gymnasia (figure 4).

HEIGHT OF THE NET

Placed vertically over the centre line there is a net whose top is set at the height of 2.43 m for men and 2.24 m for women. Lower heights are used for young people and are shown in Table 1 (page 22).

The height is measured from the centre of the playing court. The net height (over the two sidelines) must be exactly the same and must not exceed the official height by more than 2 cm.

NET STRUCTURE

The standard match play net is 1 m wide and 9.50 to 10 metres long (with 25 to 50 cm on each side of the side bands), made of 10 cm square black mesh. (figure 5).

At its top a horizontal band, 7 cm wide, made of two-fold white canvas, is sewn along its full length. Each extreme end of the band has a hole, through which passes a cord fastening the band to the posts to keep the top taut.

Within the band, a flexible cable fastens the net to the posts and keeps the top taut. At the bottom of the net there is another horizontal band, 5cm wide, similar to the top band, through which is threaded a rope. This rope fastens the net to the posts and keeps its lower part taut.

During play the ball can hit the net and still be played provided not all the three touches have been used. It is essential that the net is both constructed and tensioned to allow the ball to rebound from the net during play.

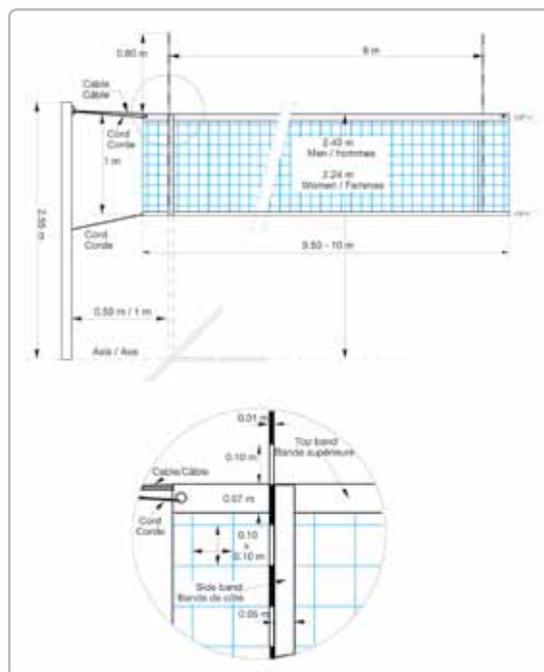
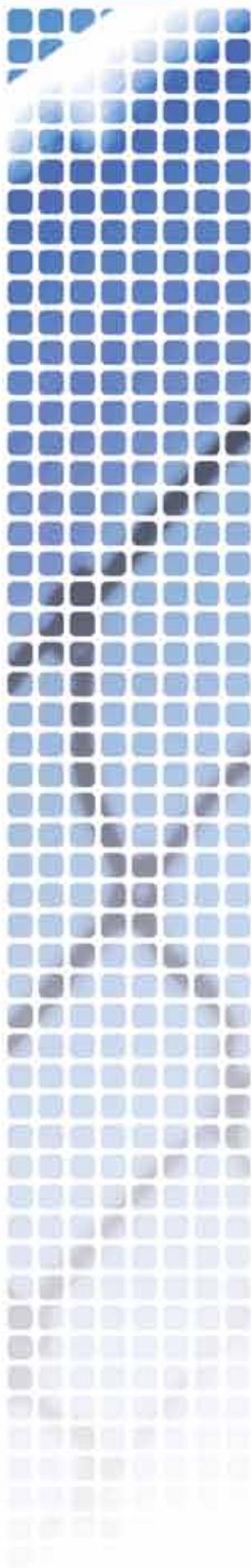


Figure 5.

SIDE BANDS

Two white bands are fastened vertically to the net and placed directly above each sideline.

They are 5 cm wide and 1 m long, and are considered as part of the net.



These indicate to the match officials and players the boundary of the court.

ANTENNAE

An antenna is a flexible rod, 1.80 m long and 10 mm in diameter, made of fibreglass or similar material.

An antenna is fastened at the outer edge of each side band. The antennae are placed on opposite sides of the net.

The top 100 cm of each antenna extends above the net and is marked with 10 cm stripes of contrasting colour, preferably red and white.

The antennae are considered as part of the net and laterally delimit the crossing space. Contact with the antennae by ball or player is a fault.

POST PADS

The posts can be protected with removable PVC covered foam padding attached with Velcro strips. (figure 6)

Should a player make contact during play with the net he/she will not be injured by the net tensioning device or attachments.

If the post has a base plate through which it is attached to the floor the manufacturers should supply a protective pad to cover the base plate and fixings.

MATCH OFFICIAL'S STANDS

The first official is positioned on a stand above the court and directly perpendicular to the centre line/net. From this elevated position they can see all the court and determine touches of the top net band by players and the ball.

It is not acceptable or safe to expect the official to stand on a chair, table or piece of gymnastic apparatus in order to officiate the game. There will be times when players chasing or playing a ball may be close to the net and the official has to be protected from collision.

Wheel away specialist stands are made by a number of manufacturers and should be supplied as part of the volleyball equipment package.

ENVIRONMENTAL CONDITIONS

Lighting - these recommendations apply equally to Indoor and Sitting volleyball. Volleyball as with all indoor sports requires consistent, glare free lighting. This can only be achieved within a "black box" environment. Although it is recognised that for sustainability reasons the use of natural light is advantageous, it is unable to provide the correct playing conditions. Modern compact fluorescent lighting systems with switchable illumination levels are able to provide a low cost lighting system that meets the requirement of indoor sports.

Volleyball is particularly sensitive to direct overhead lighting, especially over the net area. Players need to look up to watch the descent of the ball and lighting



Figure 6.

in the net area can be blinding if badly placed or inappropriate light sources are used.

Compact fluorescent lighting is preferred

It is essential to consider lighting early in the design stage so that layout and lamp type can be co-ordinated with the courts and background colours. If used, fluorescent lighting should be set up out of phase to reduce stroboscopic effects of the ball passing before lights.

The current recommended lighting levels are

- 1,000-1,500 lux for play at international level,
- 500 lux at club and county level and
- 300 lux for recreational play.

In each case the uniformity (minimum to average) ratio should be a minimum of 0.7. Technical guidance notes produced by the English Sports Council recommend that the levels for multi-purpose halls should also be increased to 500 lux, and the fittings switched to provide for 2 or 3 lower levels of illumination.

All lighting must be protected against ball impact.

Heating and Ventilation

The temperature should not be below 10°C for any level of play with the minimum for International competitions being no lower than 16°C and the maximum no higher than 25 °c.

FLOORING

Volleyball is a contact sport in so far as players will fall or dive onto the floor to play balls as part of the normal game. They also will jump and land frequently during the attacking phase of the game.

Selection of a suitable flooring material for volleyball is important at the design phase.

The composition and surface of the floor is a key element in the sport and its importance must not be underestimated. The floor may be made of wood or synthetic material.

Shock absorption in the floor construction is critical in the prevention of injuries, as is a high degree of elasticity and energy restitution. Point elasticity as well as area elasticity is important. The very minimum requirement would be the New European Sports Flooring Standard - EN 14904 which supersedes BS 7044.

The main aims in volleyball are to hit the ball down into the opponents' court and defensively to prevent the ball from touching the floor. In so doing the players will come into contact with the floor with more than one part of the body when retrieving the ball. It must, therefore, provide not only a shock absorbent platform but also a safe surface which is designed to take into account contact with skin and playing uniform.

The floor should not be slippery or abrasive, and if wooden it must be splinter proof. The frictional qualities of the floor need to be such that it will allow for

firm footing, but also for diving, sliding without abrasive skin contact. The floor will require flush-fitting sockets to receive and secure the posts and no other intrusions into the playing surface should be allowed.

Roll down polymeric sheets are used when setting up temporary courts in large arenas for National and International matches. Special care and training is required in the laying of temporary courts for major events to ensure a secure even surface, and account must be taken of the weight of the flooring, to minimise risk to the floorlayers.

Volleyball England is conscious of the need for good facilities and equipment for Volleyball competition and training. It wishes to improve playing conditions and recommends that suitable flooring materials are used. Taraflex Sport M and Taraflex Sports Performance flooring are approved by the FIVB and are recognised by Volleyball England as providing a suitable surface.



SITTING VOLLEYBALL

LINES ON THE COURT

All lines are 5 cm wide. They must be of a light colour which is different from the colour of the floor and from any other lines. Where volleyball usage is likely to be high there is a preference to lay down markings over others so that lines are continuous and uninterrupted.

Boundary Lines

Two sidelines and two end lines mark the playing court. Both sidelines and end lines are drawn inside the dimensions of the playing court.

Centre line

The axis of the centre line divides the playing court into two equal courts measuring 6 m x 5 m each; however the entire width of the line is considered to belong to both courts equally. This line extends beneath the net from sideline to sideline.

Attack line

On each court, an attack line, whose rear edge is drawn 2 m back from the axis of the centre line, marks the front zone.

Substitution Zones

The attack line is extended beyond the normal boundary lines using a dashed line (1.75m) and marks the substitution zone.

Service zone

The service zone is a 6 m wide area behind each end line. It is laterally limited by two short lines, each 15 cm long, drawn 20cm behind the end line as an extension of the sidelines. Both short lines are included in the width of the service zone. In depth, the service zone extends to the end of the free zone ie. 3m.

TEMPERATURE

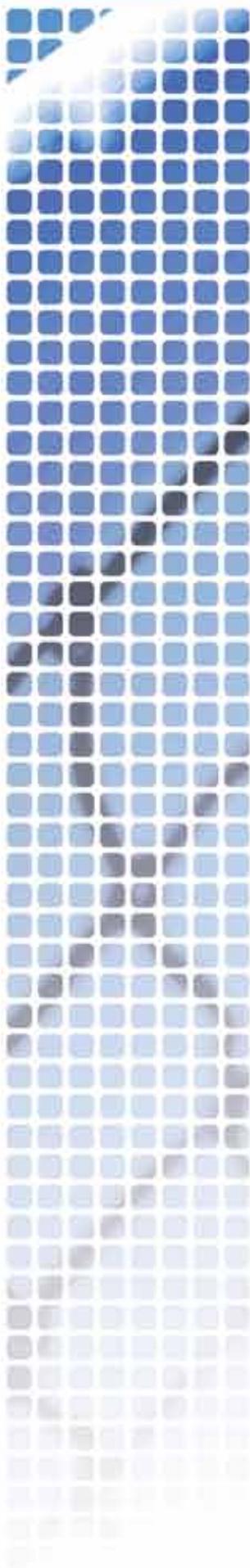
The minimum temperature shall not be below 10° C (50° F).

For WOVD, World Competitions and Zonal Championships, the maximum temperature shall not be higher than 25° C (77° F) and the minimum not lower than 16° C (61° F).

NET AND POSTS

POSTS

The posts supporting the net are placed at a distance of 0.50 - 1.00 m outside the sidelines. They are 1.25 m high and preferably adjustable.



For WOVD, World Competitions and Zonal Championships, the posts supporting the net are placed at a distance of 1 m outside the sidelines.

The posts are rounded and smooth, fixed to the ground without wires. There shall be no dangerous or obstructing devices.

For safety reasons and to comply with the international rules of the game indoor posts must:

- preferably be socketed or
- when fitted into an existing hall be bolted to floor anchors through a small base plate which needs to be covered with padding or
- use an existing set of standard posts that can lower the net to the correct height.

HEIGHT OF THE NET

Placed vertically over the centre line there is a net whose top is set at the height of 1.15 m for men and 1.05 m for women.

The height is measured from the centre of the playing court. The net height over the two sidelines must be exactly the same and must not exceed the official height by more than 2 cm.

STRUCTURE

The net is 0.8 m wide and 6.50 to 7 metres long (with 25 to 50 cm on each side of the side bands), made of 10 cm square black mesh. See figure 8.

At the top a horizontal band, 7 cm wide, made of two-fold white canvas, is sewn along its full length. Each extreme end of the band has a hole, through which passes a cord, fastening the band to the posts for keeping the top taut.

Within the band, a flexible cable fastens the net to the posts and keeps its top taut.

At the bottom of the net there is another horizontal band, 5 cm wide, similar to the top band, through which is threaded a rope, or only a rope threaded through the meshes. This rope fastens the net to the posts and keeps its lower part taut.

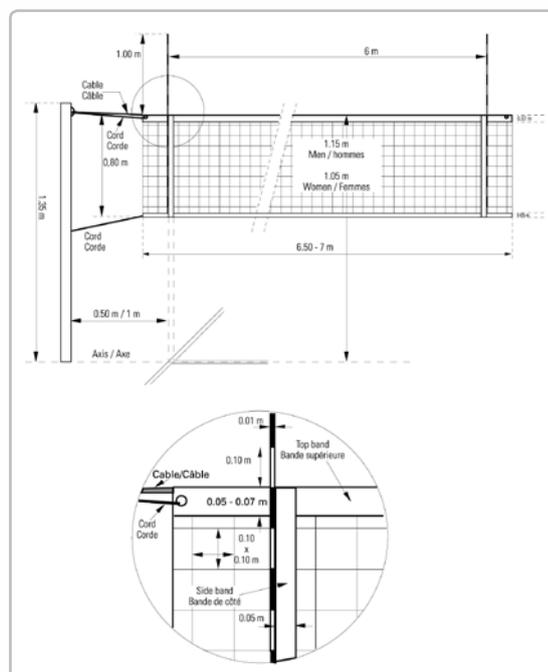


Figure 8.

SIDE BANDS

Two white bands are fastened vertically to the net and placed directly above each sideline.

They are 5 cm wide and 0.8 m long, and are considered as part of the net.

ANTENNAE

An antenna is a flexible rod, 1.80 m long and 10 mm in diameter, made of fibreglass or similar material.

An antenna is fastened at the outer edge of each side band. The antennae are placed on opposite sides of the net.

The top 100 cm of each antenna extends above the net and is marked with 10 cm stripes of contrasting colour, preferably red and white.

The antennae are considered as part of the net and laterally delimit the crossing space.

ENVIRONMENTAL CONDITIONS

Lighting and flooring requirements are as Indoor Volleyball . See pages 14 and 15.

THE IMPORTANCE OF SPORTS HALL SIZE

The capital investment in an indoor sports hall is substantial and it is appropriate to examine the “sports return” per sq metre. Major retailers set great store by the potential earnings capacity of every sq m of a store. Given their high capital and operational costs the same principle should be applied to Sports Halls.

The very first sports centres built in Britain in the 1960's were 60' x 120' and with metrication became 18m x 36m. At the time they were designed, virtually the only indoor sport in Britain that was played on a large scale was badminton. The requirements of badminton therefore dictated the size of the sports hall. Indeed hall sizes are still described by Sport England in terms of badminton courts accommodated. As Sport England hall sizes increase they are still based around the 18m width module.

Sports such as volleyball and basketball can be accommodated within the 18m module but this is not particularly suitable for developing and playing these sports. Considering the worldwide popularity of these games the relatively slow progress made in establishing them in Britain is largely due to facility restrictions.

Volleyball England in conjunction with RH Partnership Architects of Cambridge, have developed proposals for hall sizes and layouts that offer increased development potential for indoor sports and improve operational sustainability, these are shown in appendix 1.

The majority of sports halls are built in schools where the limitations of the size are very noticeable. An increased module width of 20m would mean a single hall becomes a double hall in PE lessons with a teaching court for volleyball and basketball in each half.

A small increase in overall size and capital investment that is not only justified by the additional flexibility but it also provides a better return on the initial capital employed.

In recent years the length of the hall has reduced from 36m to 33/34m. Again this reduction has been driven by the needs of badminton. Four courts with the spacing required to play County badminton matches can be fitted into 33m. However, not every sports hall will be used for county badminton. By increasing the hall length by 4.5m to 37.5m and using the minimum permitted spaces between courts five courts can be laid out.

Badminton is the most sought after activity in community sports centres and this change increases the capacity by 25%. The revenue effect from this change is considerable.

Combining the two changes a hall 20m x 37.5m will have a 25% capacity increase for badminton and a 50% increase for volleyball and basketball training/teaching. A much better return on capital employed and advantageous for sports development.

The provision of volleyball and basketball training courts that only use two badminton courts transforms the economics of those sports making them much more affordable. In the standard Sport England 18m x 34m hall these sports have to hire the whole hall for an activity that may only involve 10 - 12 players. With ball court charges based on badminton courts occupied that makes it cost prohibitive to start up these activities. The training courts not only become affordable they will enable hall operators to increase the diversity of sports and users hiring the space.

Volleyball England suggests that the case for revising a 50 year old size standard can be made on cost effective, sports development and increasing sports diversity grounds. It recommends that the standard hall module should be 20m.

Table 1 shows the court requirements for play at varying levels.

Table 2 shows the courts that can be provided in various hall sizes and the equipment that would be required.

Tournament Play

A feature of volleyball is day or weekend tournaments with multiple courts and teams. Facilities such as the Sportspark at the University of East Anglia have shown that with good design, multiple courts can be provided in larger halls that will drive both local and regional participation through tournaments and central leagues.

Each region of the country needs at least four halls with a minimum of two courts (e.g. minimum 37m x 40m) and one facility (e.g. minimum 54m x 33m) with 4 - 6 courts. This would have a major impact on the development of the sport in Britain.

TABLE 1 SPACE - MINIMUM REQUIREMENTS

	Internat- ional	National	Local	Training	Sitting Volleyball	U/16	U/15	U/13	U/11
Court Length	18m	18m	18m	18m	10m	18m	14m	12m	12m
Court Width	9m	9m	9m	9m	6m	9m	7m	6m	4.5m
Clearance Height	12.5m	7.6m	7.6m	7.6m	7m	7.6m	7.6m	7.6m	7.6m
Free space - side	5m	3m	3m	3m	3m	3m	3m	3m	3m
Free space - end	8m	3m	3m	1m	3m	3	2m	2m	2m
Overall dimension	34mx19m	24mx15m	24mx15m	24mx15m	16mx12m	22mx15m	18mx11m	16mx10m	16mx8.5m
Net height - male	2.43m	2.43m	2.43m	2.43m	1.15m	2.35m	2.15m	2.15m	2.15m
Net height - female	2.24m	2.24m	2.24m	2.24m	1.05m	2.24m	2.15m	2.15m	2.15m

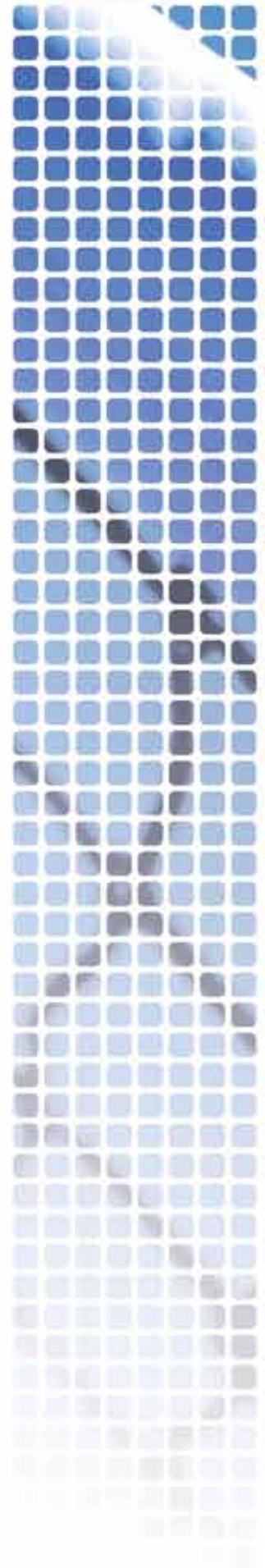


TABLE 2 Courts available and equipment required for various sports hall sizes

Size	Sport England Descriptor	Sq Metres	Wall slider & Net	Match post pairs	Volleyball Courts			Net	Antennae (pairs)	Post padding (pairs)	Officials Stand
					Local	National	Intl				
33m x 18m	4 court	594	1	1		1	1	1	1	1	
33m x 20m		660	1	2	2	1	1	2	2	2	
37m x 20m	5 court	740	1	2	2	1	2	2	2	2	1
34m x 27m	6 court	918	1	2	2	1	2	2	2	2	2
37m x 34m	8 court	1258	2	2		2	2	2	2	2	2
40m x 37m	10 court	1480	2	4	4	4	4	4	4	4	4
51m x 27m	9 court	1377	3	3		3	3	2	2	2	2
54m x 33m	12 court	1782	3	4	4	3	4	4	4	4	4
60m x 37m	15 court	2220	3	6	6	3	6	6	6	6	6

■ A wall slider need not be provided if one of the posts on each of the training courts was "a centre post". These posts have net attachment points that would support a net strung between two courts to provide net along the full length of the hall.

■ Volleyball England recommended hall sizes are shown in grey. These represent the potential best sports provision per sq m. All sports not just volleyball benefit from these adjustments to the traditional sizes.



OUTDOOR VOLLEYBALL

OUTDOOR VOLLEYBALL

Grass Volleyball

In order to encourage the spread of the game throughout the year Volleyball can be played in parks or on grass pitches using portable temporary posts and nets. Grass Volleyball provides an excellent outlet for participation especially during the summer period. It can be a summer pastime for either the recreational player or the more serious volleyballer taking a break from the indoor winter season.

In most cases the rules governing grass volleyball are similar to those utilised for the indoor game. In Britain various game formats are used with the most popular being 4v4 and 6v6. The Volleyball England Whole Sport Plan highlights a number of initiatives designed to promote the internationally recognised 4v4 outdoor game.

Grass Volleyball requires a flat grassed area without undulations, preferably enclosed to the extent that the ball can easily be retrieved if it goes beyond the playing area, and sheltered from the wind. Line marking can be done by pegged down cloth tape or chalk line marking as on tennis courts. If the court is of more permanent status - then care must be taken to restore the areas worn away, especially near the net, at the end of each summer season. Care must be taken about access to the area and unwanted objects on the ground e.g. glass, sharp stones, dog faeces. Changing space and showers in the locality is also an advantage.

The posts by the nature of the format have to be portable. Posts are usually made in sections so they can be dismantled easily for storage and removal. They are kept upright using guy ropes staked into the ground. For safety reasons metal or plastic stakes that can be hammered flush with the surface should be used. Wooden tent stakes remain proud of the ground and are too dangerous to use.

The match officials are normally at ground level and remain in the post area and can provide some safety support if a player gets too close to the guy ropes.

Commonly nets are integrated with the posts which when initially placed in the ground and set at full width provide the initial tension for the net. A secondary tightening of the net headline using a clamp on the post is then carried out.

Grass Volleyball tournaments provide outlets for a large number of competitive, recreational and casual players. They can vary in size from single court events to ones which have over 50 courts. Venues include local authority parks, rugby club playing fields and other open spaces.

Volleyball England coordinates a nationwide series of mass participation grass tournaments called "Volleyfest" that are nominated regionally. They are a combination of well established tournaments some of which have been running for over 25 years attracting up to 2000 players each weekend. These events are attended by a wide range of ages and both genders. For a two day event players will use local or special camp sites as well as B&B/Hotels.

The Association is looking to invest heavily in the expansion of grass tournaments and seeks to develop some at major visitor attractions such as stately homes and music festivals.



BEACH VOLLEYBALL

BEACH VOLLEYBALL

The popularity of the beach version of volleyball has increased markedly. The first representation at Olympic level in Volleyball by this country was in the inaugural beach event at Atlanta in 1996.

Organised Beach Volleyball activity in England takes place mainly on coastal areas in the south, with established Volleyball England Beach Tour venues at Weymouth, Bournemouth, Brighton, Poole, Great Yarmouth and Margate.

A commercial permanent outdoor Beach Volleyball centre, Yellowwave, has operated successfully since 2007 on the foreshore at Brighton. This venue hosted the World U21 Championships in 2008 and a round of the European Beach tour was played in a specially constructed temporary stadium on Blackpool beach also in 2008.

Permanent courts already exist at various locations inland and on the coast at Shoreditch Park, London; Canterbury; Bournemouth, Brighton and Croyde, North Devon. A number of commercial operators are investigating the development of permanent indoor venues in major cities.

Beach Volleyball is also played at inland venues often in City Centres on temporary courts. This pattern has been followed for the Urban Beach Tour which has visited Birmingham, Milton Keynes and Portsmouth. Central venues in London are also being examined, though the footprint required for a CEV or FIVB tournament incorporating up to six courts is large.

Essential rules of Beach Volleyball

- The Olympic version of Beach Volleyball is a sport played by two teams of two players each on a sand court divided by a net. There are different versions available for specific circumstances in order to offer the versatility of the game to everyone. 3v3 and 4v4 are popular recreational formats.
- The object of the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent.
- The team has three hits for returning the ball (including the block touch).
- The ball is put in play with a service: hit by the server over the net into the opponent's court. The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly.
- In Beach Volleyball, the team winning a rally scores a point (Rally Point System). When the receiving team wins a rally, it gains a point and the right to serve. The serving player must be alternated every time this occurs.

OUTDOOR BEACH

The Playing Requirements

PLAYING AREA

The playing area includes the playing court and the free zone. See figure 9.

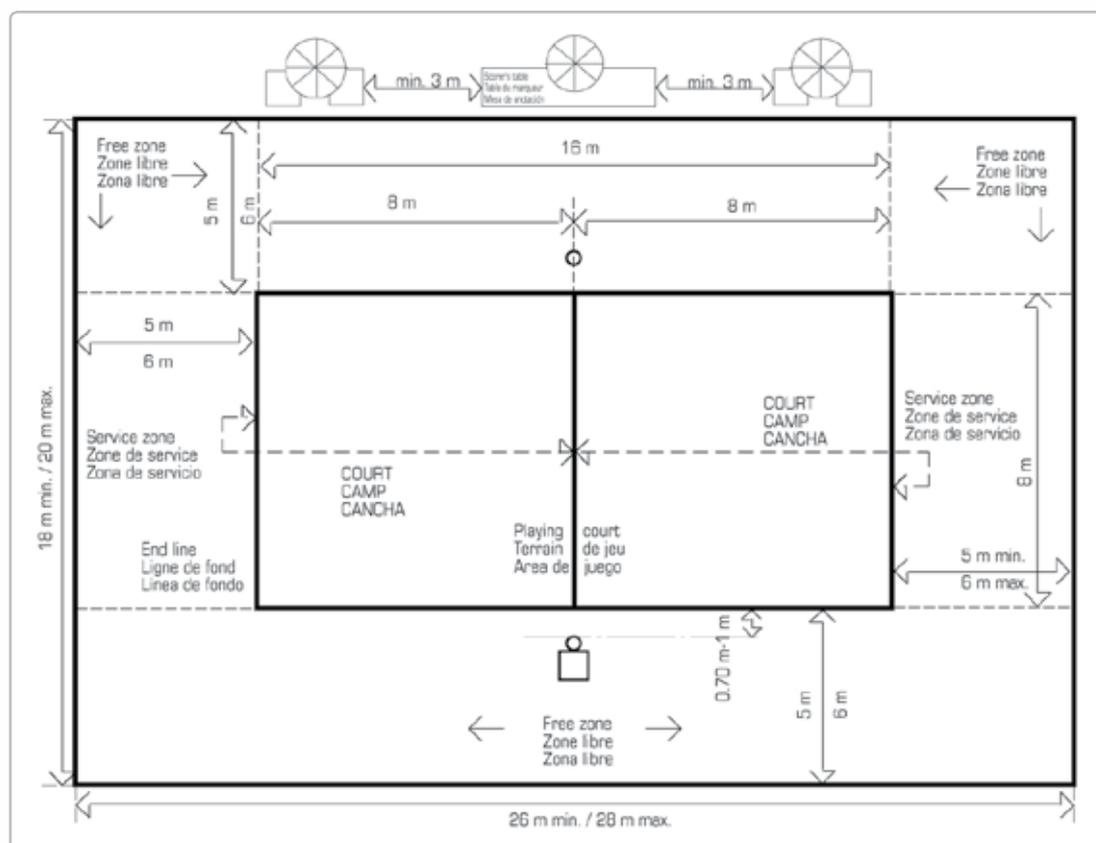


Figure 9.

DIMENSIONS

The playing court is a rectangle measuring 16 x 8 m, surrounded by a free zone with a minimum of 3 m wide and with a space free from any obstruction up to a height of a minimum of 7 m from the playing surface.

PLAYING SURFACE

The terrain must be composed of levelled sand, as flat and uniform as possible, free of rocks, shells and anything else, which can injure players.

The playing surface must not present any danger of injury to the players.

The sand variety is of high importance to the overall quality of the facility: too fine and it will stick together and dry hard as it compacts, builders' sand is too coarse and could cause injuries.

A minimum depth of 400mm of sand is required.

Artificially crushed material is unacceptable.

During the winter and periods when the court is not in use a cover (such as those used to cover swimming pools) will prevent wind blown migration and contamination of the sand.

LINES ON THE COURT

Two sidelines and two end lines mark the playing court. Both side and end lines are placed inside the dimensions of the playing court.

There is NO centre line.

All lines are 5-8 cm wide.

The lines must be of a colour, which contrasts sharply with the colour of the sand.

Court lines should be ribbons made of a resistant material, and any exposed anchors should be of a soft, flexible material.

SERVICE ZONE

The service zone is the area behind the end line and between the extensions of the two sidelines. In depth, the service zone extends to the end of the free zone.

NET AND POSTS

NET

The net is 8.5 m long and 1 m (+/- 3 cm) wide when it is hung taut, placed vertically over the axis of the centre of the court. (figure 10)

It is made of 10 cm square mesh. At its top and bottom there are two 7-10 cm wide horizontal bands made of two-fold canvas, preferably in dark blue or bright colours, sewn along its full length. Each extremity of the upper band has a hole through which passes a cord fastening the upper band to the posts to keep the top of the net stretched.

Within the bands, there are: a flexible cable in the upper one and a cord in the bottom one for fastening the net to the posts and keeping its top and bottom taut. It is permissible to have advertising on the horizontal bands of the net.

SIDE BANDS

Two colour bands, 5-8 cm wide (same width as the court lines) and 1 m long, are fastened vertically to the net and placed above each sideline. They are considered part of the net. Advertising is permitted on the side bands.

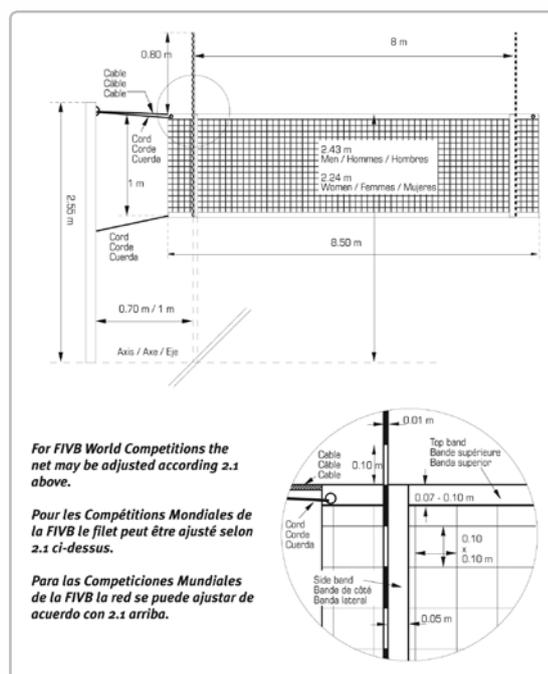


Figure 10.

ANTENNAE

An antenna is a flexible rod, 1.8 m long and 10 mm in diameter. It is made of fibreglass or similar material. Two antennae are fastened to the outer edge of each side band and placed on opposite sides of the net (Diagram 2).

The top 80 cm of each antenna extend above the net and are marked with 10 cm stripes of contrasting colours, preferably red and white.

The antennae are considered part of the net and laterally delimit the crossing space.

HEIGHT OF THE NET

The height of the net shall be 2.43 m for men and 2.24 m for women. It is measured from the centre of the playing court with a measuring rod. The two ends of the net (over the side lines) must both be the same height and may not exceed the official height by more than 2 cm.

Note: The height of the net may be varied for specific age groups as follows:

Age Groups Females / Males

16 years and under 2.24 m / 2.24 m

14 years and under 2.15 m / 2.15 m

12 years and under 2.15 m / 2.15 m

POSTS

The posts supporting the net must be rounded and smooth, with a height of 2.55 m, preferably adjustable. They must be fixed to the ground at an equal distance of 0.7-1 m from each sideline to the post padding. Fixing the posts to the ground by means of wires is forbidden. All dangerous or obstructing devices must be eliminated. Posts must be padded.

The technical details for constructing a beach facility, including quality and depth of sand can be found by visiting www.volleyballengland.org.

Specialist posts and nets are manufactured for Beach Volleyball. One variety is heavy duty and uses sockets kept in place under the sand by using stabilising lengths of heavy timber. Otherwise portable posts similar to those used for grass volleyball are used.

In all cases the court should be enclosed or demarcated to prevent easier retrieval of the ball, separating the area from sunbathers and eliminating dog fouling. Changing space and showers in the locality is also an advantage. In coastal areas tides and other warnings must be noted. Areas of shade should also be provided to prevent ill effects from continuous exposure to the sun.

The provision of beach courts in inland locations can be relatively easily achieved with minimal outlay. Some local authorities have replaced redundant tennis courts with beach volleyball courts. The rising popularity of Beach Volleyball needs to be accommodated throughout the country with the provision of outdoor court(s) in all counties, linked to existing volleyball clubs.

GUIDELINES FOR CONSTRUCTING AN OUTDOOR BEACH VOLLEYBALL FACILITY

Orientation

The courts should be positioned on a North/South, axis to minimise the impact of the sun on player's vision.

Size

Minimum dimensions for a Beach Volleyball court are 22m x 14m. This includes playing court of 16m x 8m and a free zone of 3m each side and end.

It is advantageous to link beach volleyball facilities with other beach sports such as soccer, rugby and badminton. A 52m x 36m area will accommodate 4 volleyball courts plus space for soccer and rugby.

Playing surface

The terrain must be composed of levelled sand, as flat and uniform as possible, free of rocks, shells and anything else, which can represent risks of cuts or injuries to the players.

The playing surface must not present any danger of injury to the players.

The sand variety is of high importance to the overall quality of the facility: too fine and it will stick together and dry hard as it compacts, builders' sand is too coarse and could cause injuries.

A minimum depth of 400mm of sand is required.

Artificially crushed material is unacceptable.

During the winter and periods when the court is not in use a cover (such as those used to cover swimming pools) will prevent wind blown migration and contamination of the sand.

Drainage

When a competition court is constructed on an existing beach natural drainage should be adequate.

For all constructed courts a geotextile membrane should be laid below the top playing surface. This has the dual purpose of preventing the growth of vegetation and preventing the downward migration of the top playing surface. All seams should be overlapped and sewn in conjunction with instructions from a structural engineer. The sides of the membrane should be brought up to surface level behind the court retaining surround.

It is important that the court does not become sodden as this adversely affects player movement and play. Advice from a suitably qualified engineer should be taken on the provision of a drainage system on a court not constructed on an existing beach.

Safety

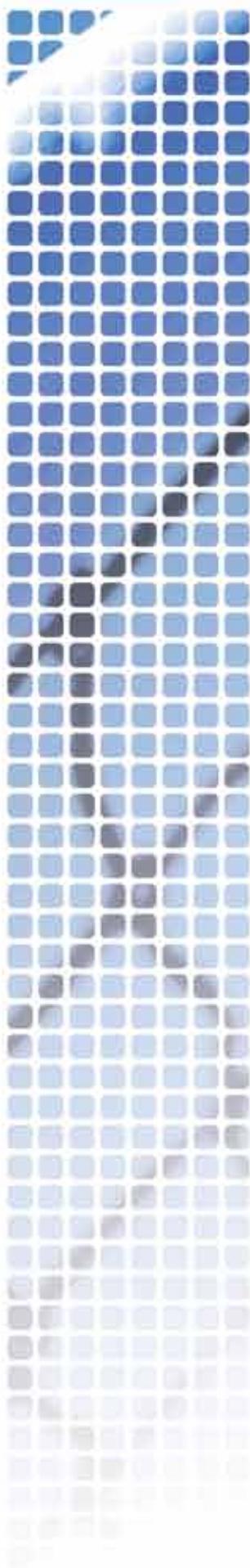
The sand must be kept clean and free of stones, all forms of litter and animal droppings. In some areas this may necessitate surrounding the court with boundary netting. The netting must be outside the free zone area. Netting height should be a minimum of four metres.

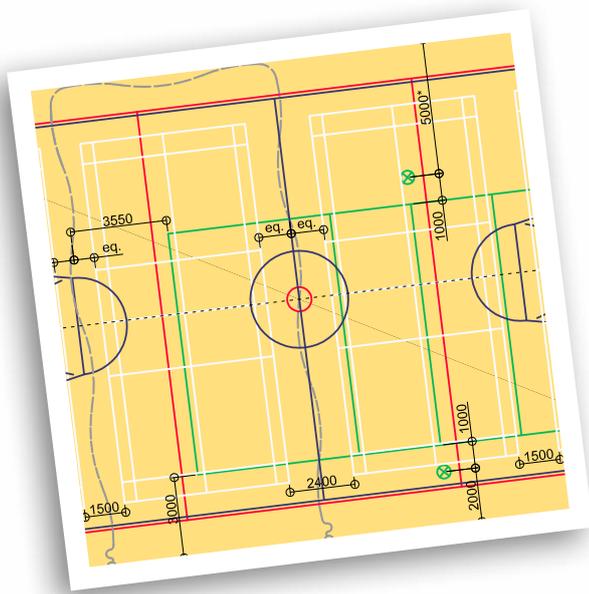
On a constructed court the boundary kerbing/edging should preferably be rubber topped to prevent injury.

Indoor Beach

Weather conditions in this country, even in the height of summer, are not always conducive to this activity! In order to compete internationally indoor training facilities need to be provided. This would preferably accommodate two courts with adequate heating and lighting as well as the normal facilities - showers, etc. Such facilities exist extensively on the continent. The location of indoor facilities is not encumbered by geography and could be provided at an economic cost in any region. Similar height, lighting and environmental requirements apply to indoor beach volleyball as for indoor volleyball.

A network of indoor Beach courts is an aspiration of Volleyball England in order to complement the playing of the sport outdoors in the summer months and by providing specialist facilities during the winter. Other countries with similar or harsher climates have achieved this e.g. Norway and Sweden.





Appendix 1

COURT

DIAGRAMS

COURT DIAGRAMS

HALL SIZES AND COURT LAYOUT

Volleyball England has produced these recommended sports hall sizes and court layouts. These layouts maximise the teaching, development and playing opportunities for indoor sports as well as increasing the potential revenue stream.

They detail the positioning of sockets for drop in volleyball posts and also for netball posts as these sockets can be used instead of wall sliders to support full hall length netting.

The positioning of basketball court marking and backboards is also shown. Badminton courts and the layouts for netball are shown for illustrative purposes.

SPORT ENGLAND BASIC MODEL - 33M X 18M

The positioning of the volleyball court has been adjusted to provide space for courtside officials (page 39).

VOLLEYBALL ENGLAND RECOMMENDED MODELS

MODEL 1 - 33M X 20M

This adds 2 training courts for both volleyball and basketball as well as one match court (page 40).

MODEL 2, BASIC MODULE - 37M X 20M

This model has the increased width of Model 1 plus a slight increase in length to add an extra badminton court. This is the most efficient of the three single hall modules in terms of usable and income generating space (page 41).

MODEL 3, DOUBLE MODULE - 37M X 40M

Linking two basic modules provides four tournament or two match or one international court or 10 badminton courts (page 42).

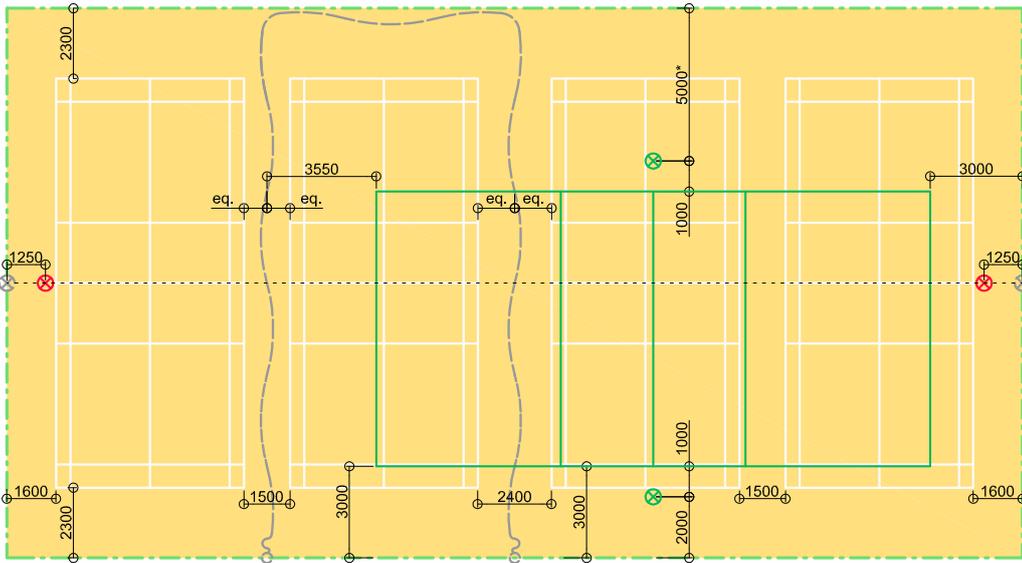
MODEL 4 - 54M X 33M

This arrangement of volleyball court markings provides the option of four match courts for tournaments when the rebound boards are removed and the division netting is rearranged (page 43).

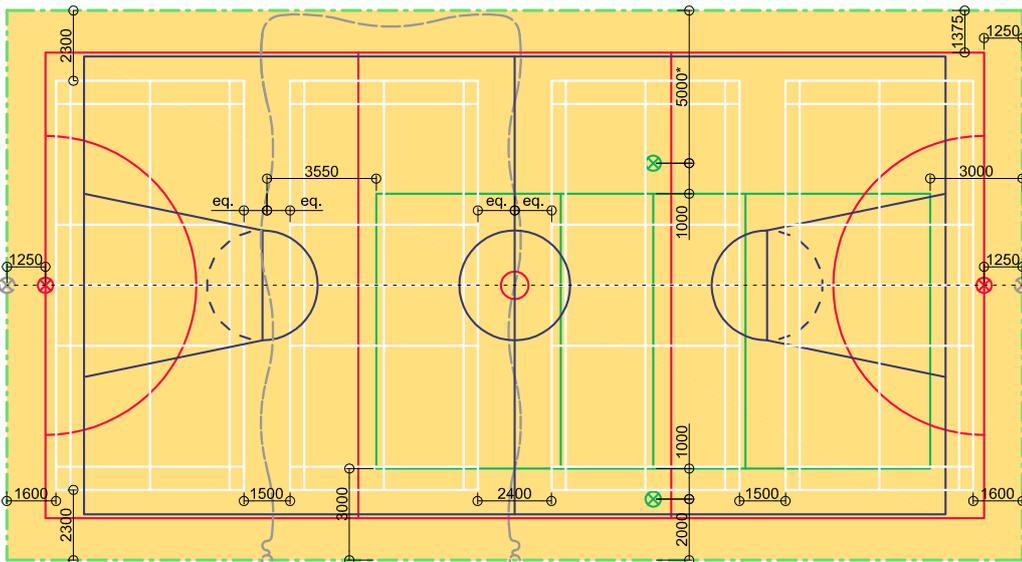
MODEL 5, TRIPLE MODULE - 37M X 60M

The relatively small increase in size from the Sport England Model 5 provides six tournament courts or 15 badminton courts. A much improved option for sustainable and efficient use of space (page 44).

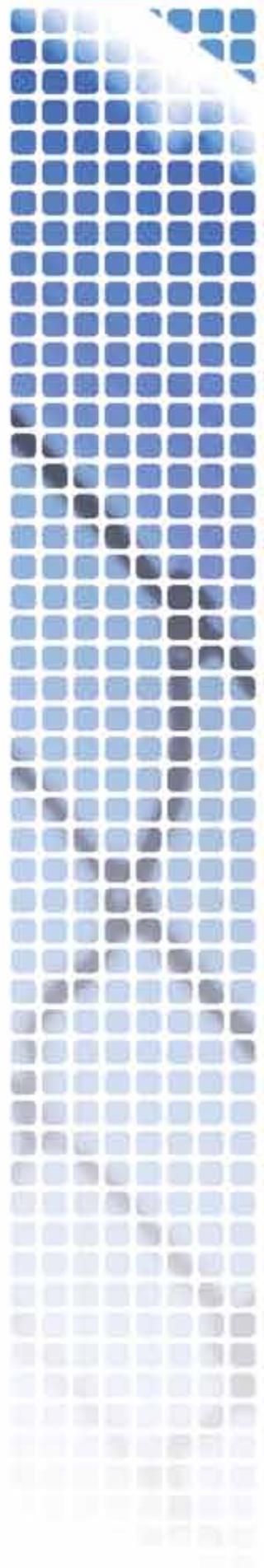
Current Sport England recommended size 33m x 18m 594sq m



Badminton, volleyball & netball posts
 (*Volleyball court off centre to make space for scoring officials and team benches)



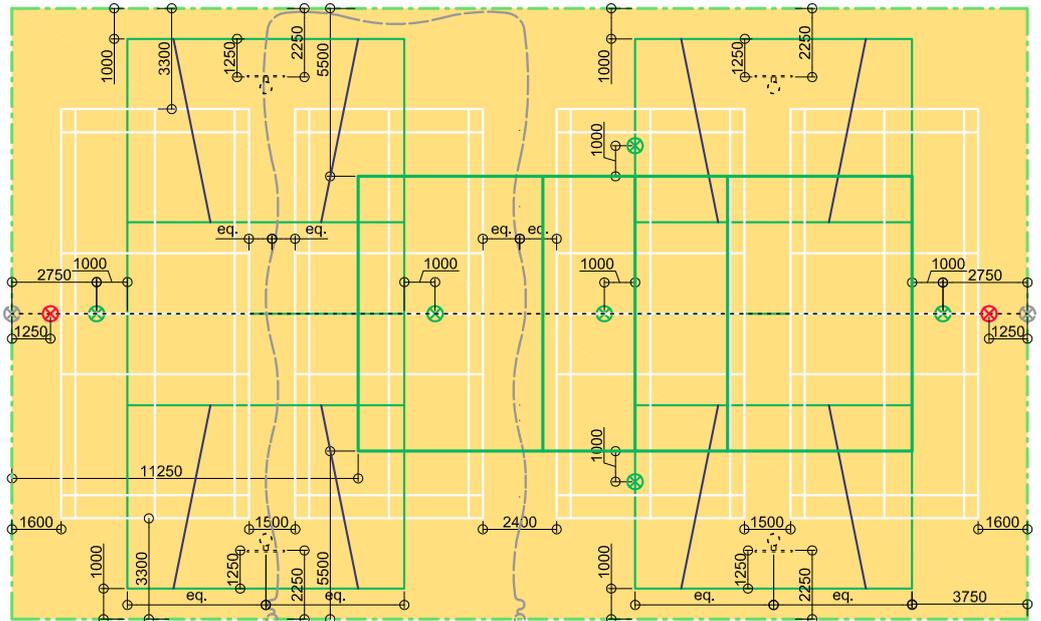
Badminton, basketball, netball & volleyball
 (*Volleyball court off centre to make space for scoring officials and team benches)



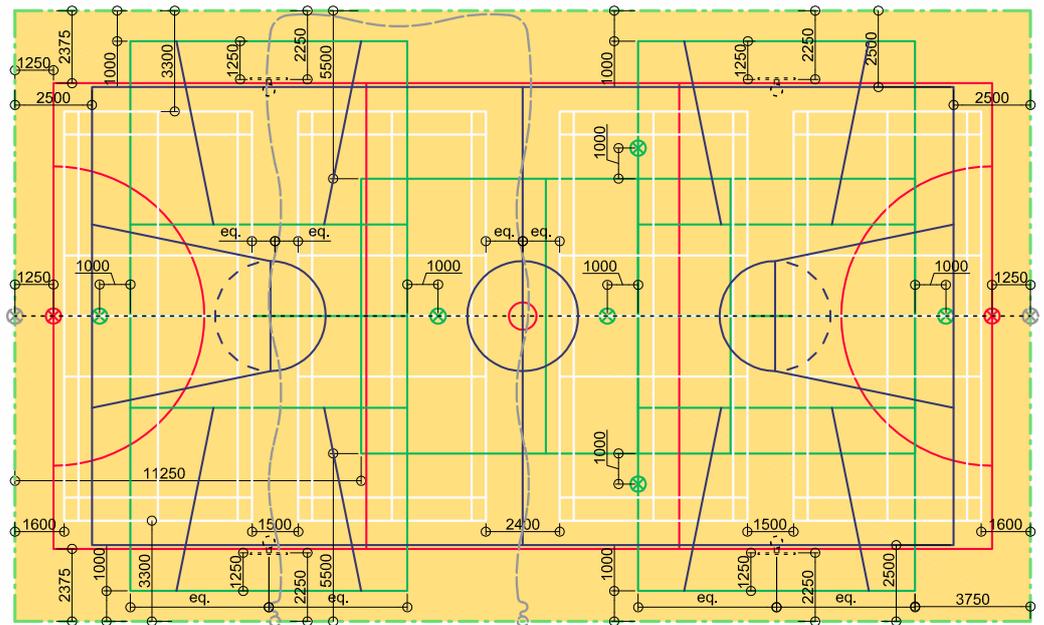
VOLLEYBALL ENGLAND RECOMMENDED - MODEL 1

This adds two training courts for both volleyball and basketball as well as one match court.

33m x 20m Hall 660sq m



Badminton, volleyball, basketball half courts & netball posts

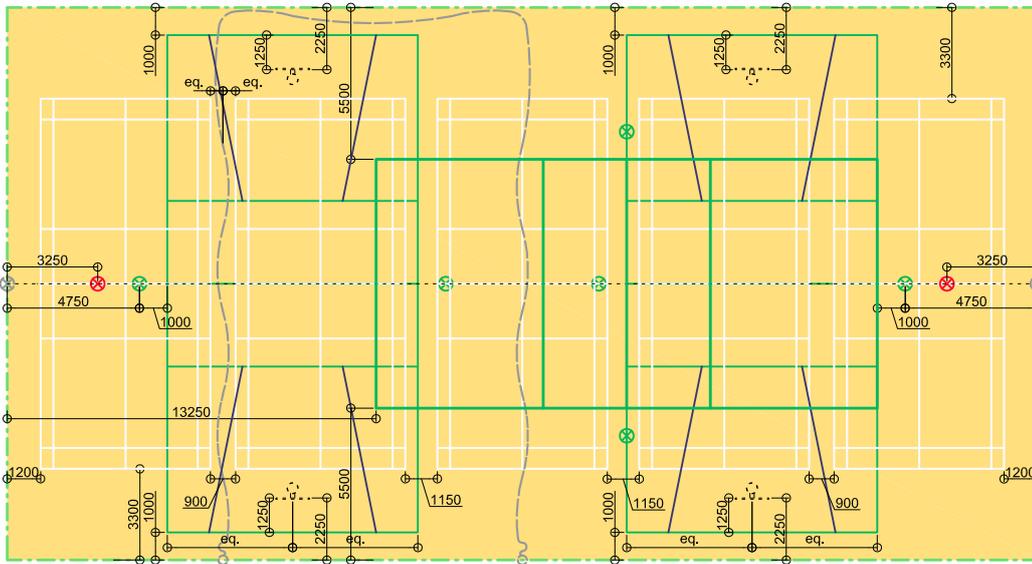


Badminton, basketball, netball & volleyball

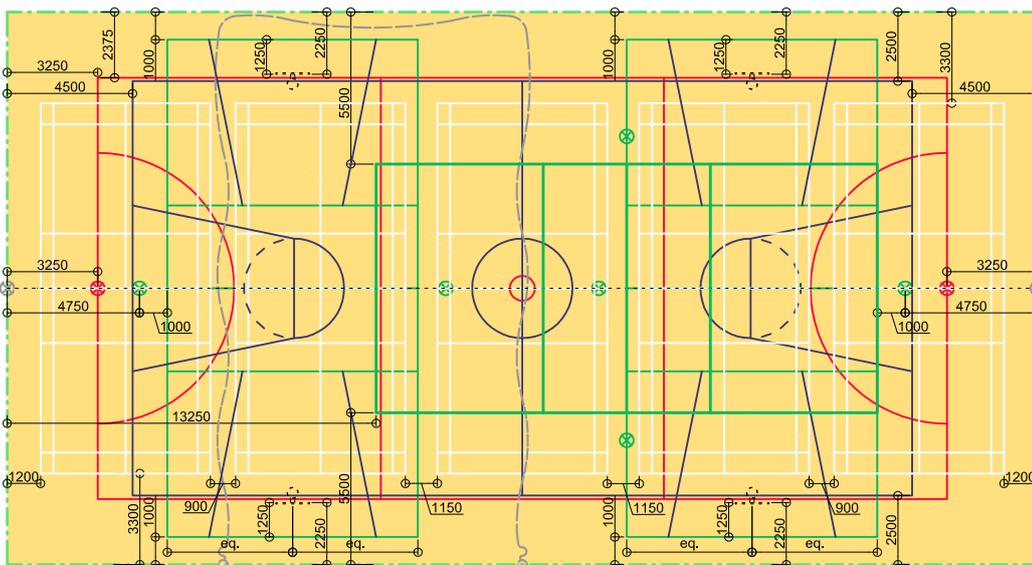
VOLLEYBALL ENGLAND RECOMMENDED - MODEL 2

This model has the increased width of model 1 plus slight increase in length to add an extra badminton court. This is the most efficient of the three single hall modules in terms of usable and income generating space.

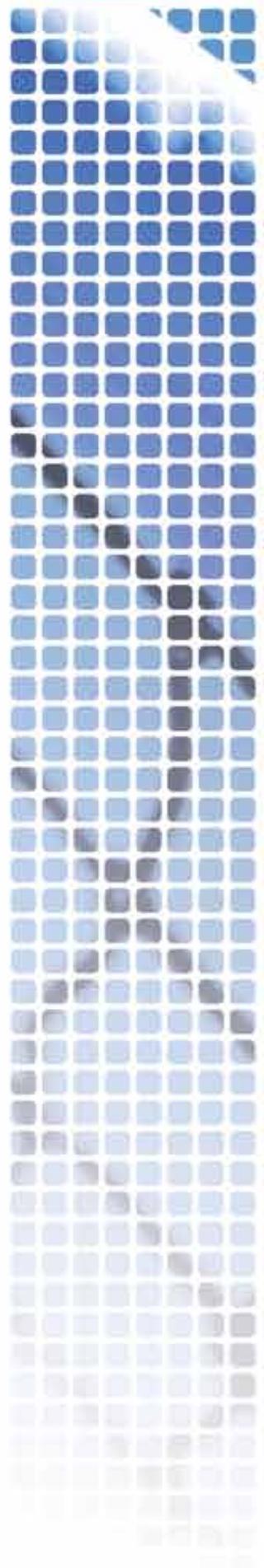
The proposed basic module 37m x 20m 740sq m



Badminton, volleyball, basketball half courts & netball posts



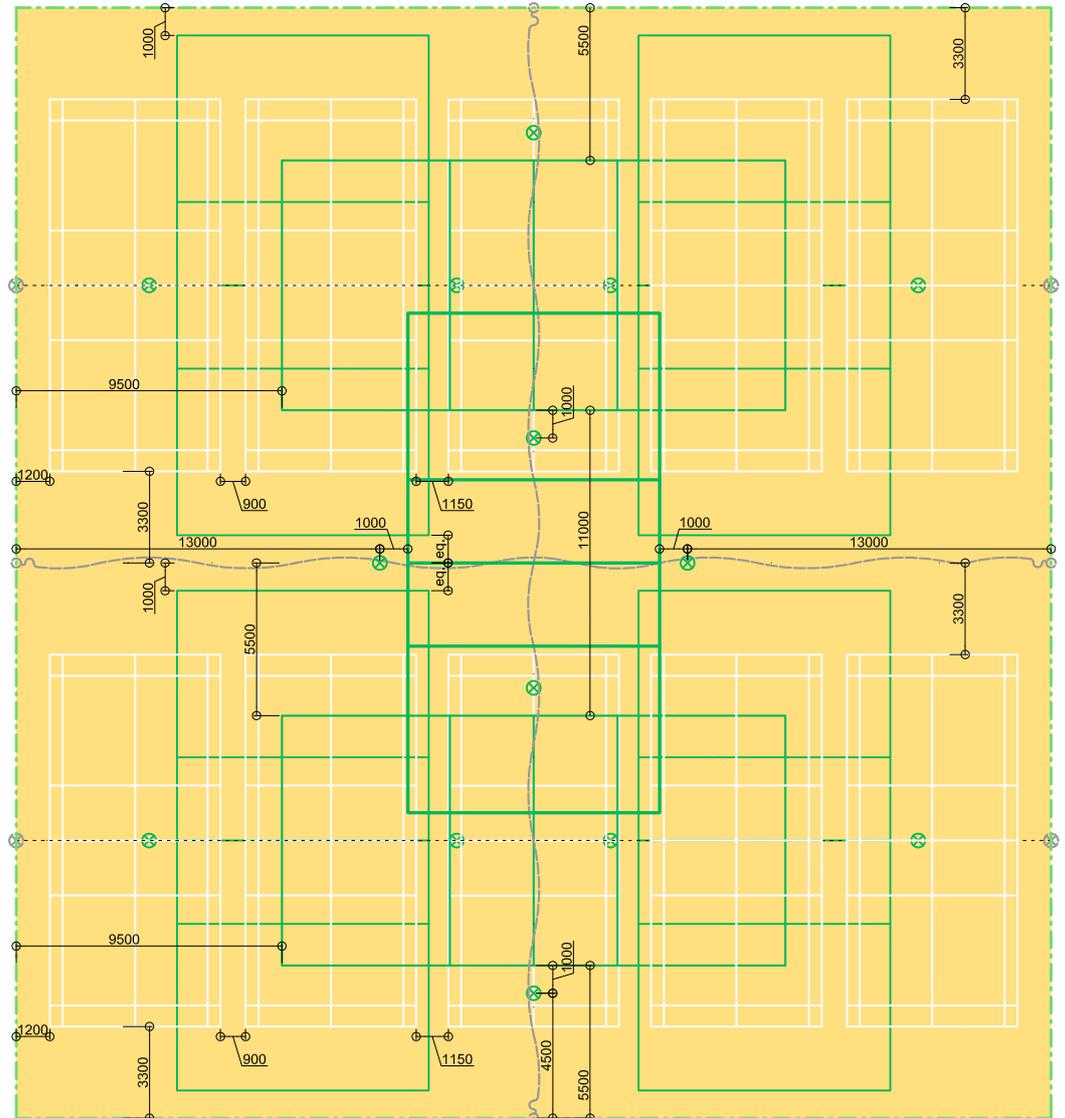
Badminton, basketball, netball & volleyball



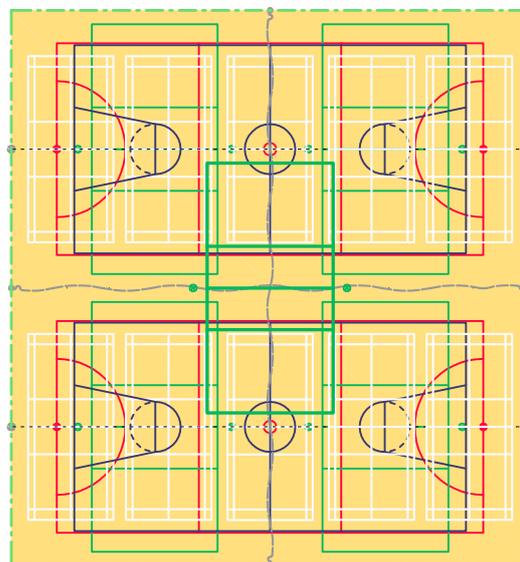
VOLLEYBALL ENGLAND RECOMMENDED - MODEL 3

Linking two basic modules provides four tournament or two match or one international court and ten badminton courts.

Double module hall 37m x 40m 1480sq m



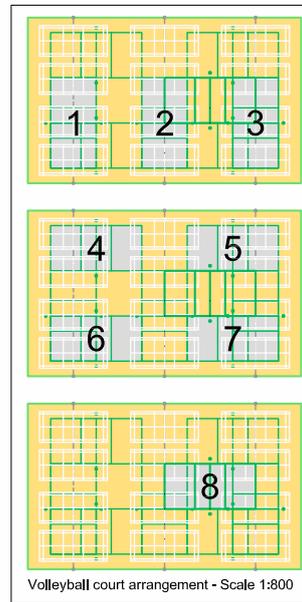
Badminton & volleyball
An international volleyball court is shown in the centre of the hall.



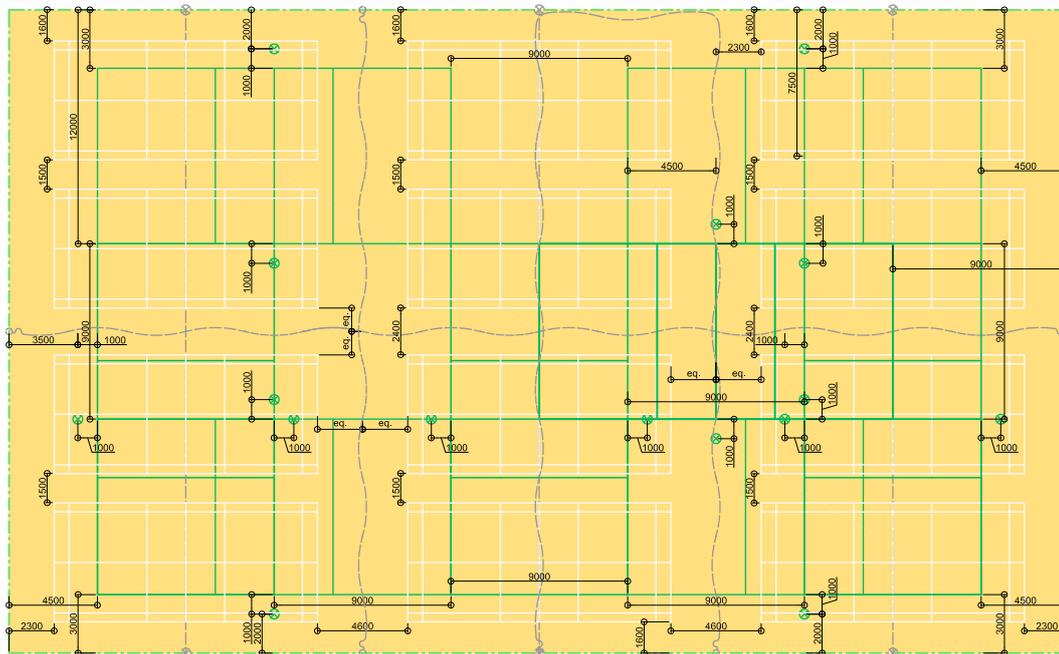
Badminton, basketball, netball & volleyball - Scale 1:400
For clarity, training basketball courts not shown.
Training BB goals need to be suspended.

VOLLEYBALL ENGLAND RECOMMENDED - MODEL 4

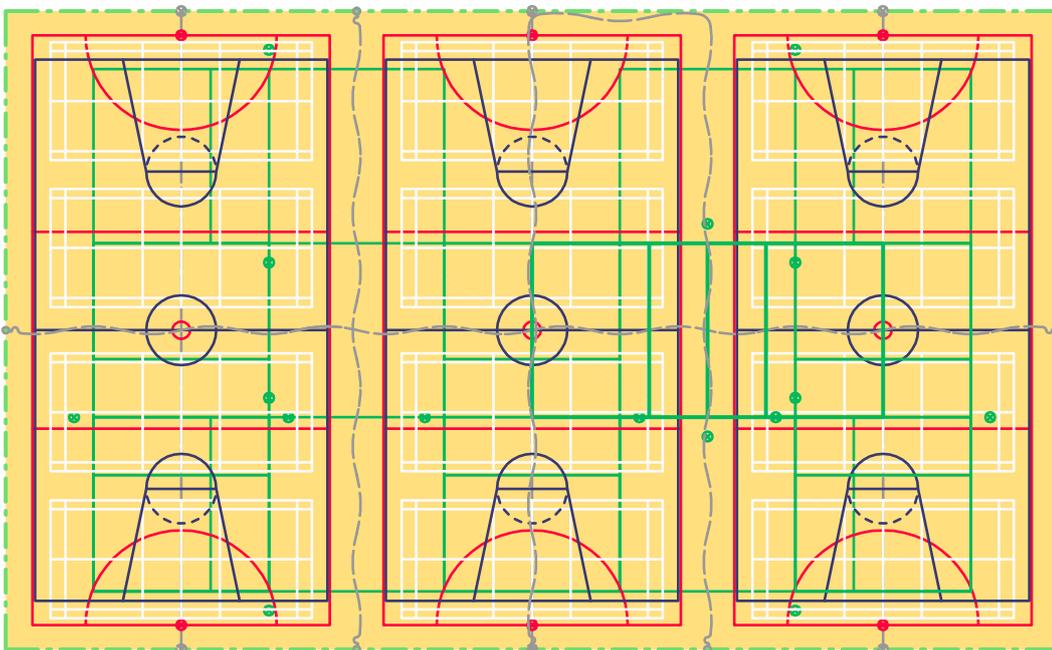
This arrangement of volleyball court markings provides the option of four match courts for tournaments when the rebound boards are removed and the dividing netting is re-arranged.



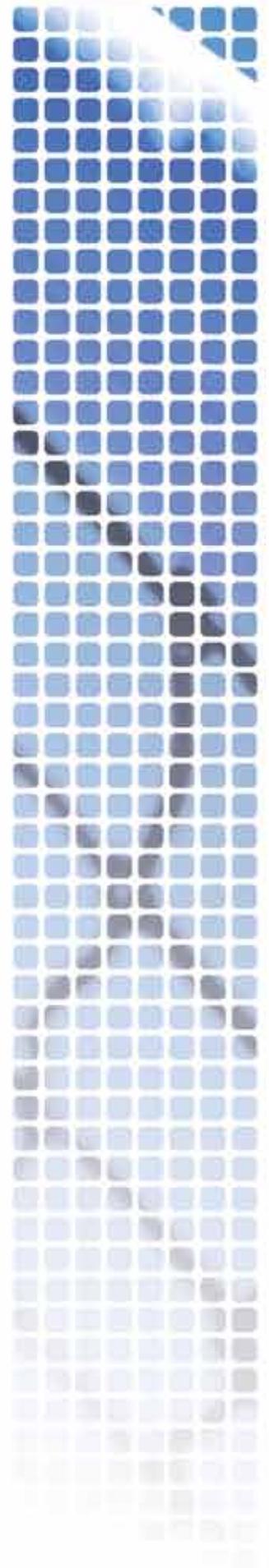
Sport England standard size 54m x 33m 1782sq m



Badminton, & volleyball
For regional tournaments, 4 courts can be provided; one International court is provided in the centre.



Badminton, basketball, netball & volleyball - Scale 1:400

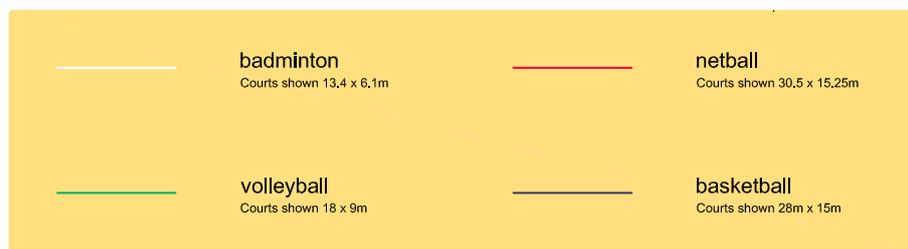
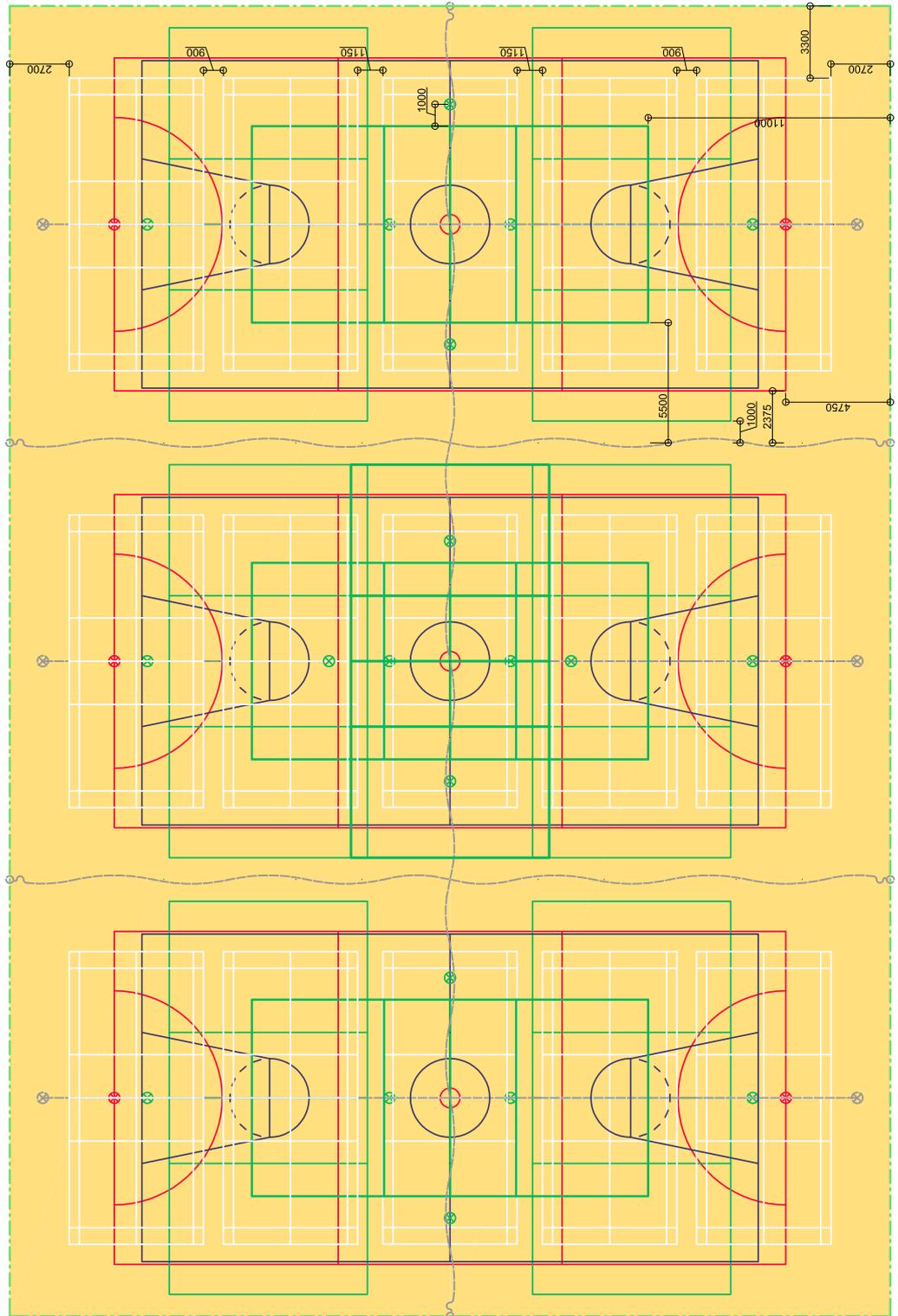


VOLLEYBALL ENGLAND RECOMMENDED - MODEL 5

The relatively small increase in size from the standard Sport England model provides six tournament courts or fifteen badminton courts.

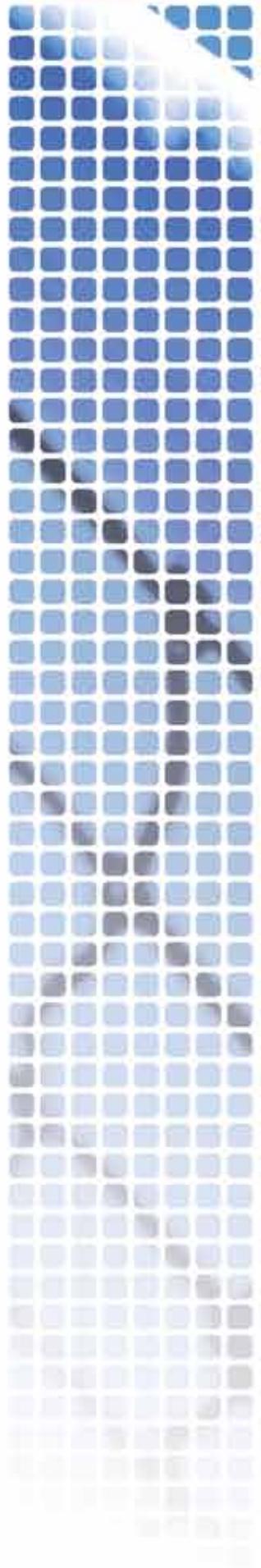
Triple module hall 37m x 60m 2220sq m

For clarity, training basketball courts not shown. Training BB goals need to be suspended.



NOTES

A series of horizontal dotted lines for taking notes, spanning the width of the page.





www.volleyballengland.org