

THE DESIGN AND USE OF SPORTS HALLS FOR VOLLEYBALL AND OTHER INDOOR TEAM GAMES

In this paper, the current availability of indoor facilities in England for sports like volleyball, basketball, and handball is examined. The author argues that the lack of such facilities can be attributed to the country's historical emphasis on outdoor sports in its sports culture. This lack of understanding and experience with indoor sports among those responsible for funding and sports administration is impeding progress. To tackle this issue, the author suggests the development of a Sports Development Strategy specifically for indoor sports, which will identify and overcome obstacles to progress. It is proposed that the governing bodies of indoor sports collaborate with Sport England to create a promotional strategy and funding program for specialised facilities. In the meantime, Volleyball England and volleyball clubs should focus on maximizing the use of existing halls by converting them into two-court facilities. The paper provides detailed information on equipment selection, floor anchor installation, and various approaches to achieving a two-court facility. Additionally, it includes references to companies that manufacture volleyball equipment and offer floor anchor installation services. The paper concludes by providing information on potential local funders for equipment and links to videos and facility design guidelines from Volleyball England. The views expressed in this paper are entirely those of the author.

About the author

Keith Nicholls, a former PE teacher and University lecturer, has made notable contributions to the design and management of indoor sports facilities in Britain. He played international volleyball for Great Britain and England and also coached international teams at World, European and Commonwealth Championships. He is the author of two best selling coaching books in the sport. Over many years he has been a volunteer administrator for Volleyball England including serving as President. His contributions have been recognised by the award of the Peter Wardale Cup, inclusion the 'Hall of Fame' and made an Honorary Life Member.

He has used his expertise and passion for volleyball to bring about significant changes in Sport England recommended sports hall sizes. He created the Sportspark in Norwich one of the largest community and university sports centres in the UK that acts as a model for both design and management. Keith Nicholls has shared his knowledge and insights at both national and international conferences on sport facility design and management. He has been made an Honorary Fellow of the University of East Anglia in recognition of his significant contribution to sport at the University and within the community. As a sports consultant, he has worked with many local authority and university developers of indoor sport complexes. He offers valuable services such as concept design validation, reviewing building design, developing the business model and philosophy, and validating the business plan. For further information, please refer to his contact details provided.



THE FACILITY CRISIS FOR VOLLEYBALL AND OTHER INDOOR TEAM SPORTS

Volleyball is one of the world's most widely played games and we can say the same for basketball and handball. Yet none of these sports has made a similar inroad into the British sporting scene. Yes, all three are played here, but none has either the numbers or status of the traditional outdoor sports.

Culturally, Britain is a country focused on outdoor team sports and games. It has developed facilities to host these over a hundred plus years. There is a significant infrastructure to support their development. In every city, town, and village, there are outdoor pitches and tennis courts. Local authorities, schools, and some established clubs meet the capital and maintenance costs. Over the years, Sport England has also made capital grants available.

The national and local focus on investment and development of facilities has been on these outdoor sports. This is understandable, but in terms of providing sporting access for all the community, it is not acceptable. Despite our sporting history, a large section of the population does not want to take part in these outdoor sports. "Active Lives", Sport England's annual review of sport demonstrates this decline in participation. Even so, around 3 million people regularly play these sports. They belong to clubs that offer social benefits, which help them stay interested and engaged in the activity.

However, many individuals now prefer individual activities like running, cycling, swimming, or visiting fitness gyms, although they may not sustain long term interest in these activities.

It's disheartening that indoor sports opportunities are being overlooked, despite the desire to promote regular participation. Although there have been investments in indoor facilities in schools and local authorities, there is a lack of research on how these facilities impact participation and promote equal opportunities for indoor sports.

Despite the construction of indoor facilities, there is a lack of a strategy for their use. There is a lack of consideration for sports development strategy in management and timetabling, with the focus being on maximising bookings and revenue and not increasing participation.

We build sports halls with a height that enables sports to be played and dimensions that broadly meet the rules of indoor sports. Yet in practice, the timetables of many are filled with indoor football, martial arts, and fitness training etc. Indoor team sports like basketball, volleyball, handball, and netball face difficulty in getting allocated time for practice and development.

Nobody asks "Why, are we spending a lot of money building a hall 7.6m high (Sport England recommendation) for activities that only need a hall with a height of 4.5m?"



How has this situation developed?

There is no single reason.

The sporting background in Britain is outdoors. Most of the major outdoor sports were founded and codified in Britain. Facilities for them are regarded as essential and widely provided in the educational, local authority, amateur club and private sectors.

There are few people in charge of funding or sports administration who have first-hand knowledge of indoor team sports. This is understandable considering our sporting heritage

For most people, badminton is the only indoor sport they have experience of. Without any “champions” for indoor sport in the higher echelons of sports administration and management, it is unsurprising there has been little focus on this sector.

But it has to be said the governing bodies of indoor sports appear to have accepted this position and have made no concerted effort to bring about a change of attitude or personnel at the top. They appear not to have jointly promoted the need for better facilities and management plans for existing ones.

There have been massive changes since the 1960’s that individually and collectively have had a negative impact on sports development. Many were inevitable due to circumstances at the time and few saw what the combined effect over time on sport would be.

I trained as a PE teacher on a 3 year course at a specialist PE Teacher Training College. During those three years I learnt initially how to play a wide range of indoor and outdoor sports and then to both teach them in class and coach in team situations. At that time volleyball became established as many specialist teachers became familiar with the game and introduced it in schools.

The impact of Sport England’s Facility Planning Model (FPM)

- Developers rely on the Sport England Facility Planning model. This is used to assess the need for facilities in a local area. It bases this on three elements that work against indoor team sports.
- Firstly, it has been using a formula to estimate the demand for indoor facilities based on the local population using census surveys divided by a figure, derived from historical research, of so many badminton courts per head of population. They count the local courts including those community centres, village halls where there may only be one court. This is divided by four to produce a figure representing the current provision of sports halls. Clearly, this ignores the fact that none of the single or double courts in halls etc can accommodate indoor ball sports, so the existence of these badminton courts adversely impacts on the need assessment for full sports halls. For badminton they are useful facilities but aggregating them and considering them as one sports hall is untenable and skews the model’s prediction for the number of 4/5 badminton court sports halls capable of hosting the indoor ball sports needed in an area. The FPM estimates the number of visits that could be accommodated in existing facilities during normal peak periods and calls this the “supply”.



Furthermore, the model does not take into account any verification of their projected value for visits with the actual facilities. They do not compare management returns with the model's forecasts. It is purely a desk investigation.

As an example, when I managed a triple court hall at the UEA Sportspark and applied for planning approval for another double court hall, the FPM model inaccurately stated that the existing hall had only a 60% occupancy, suggesting that there was no need for additional space. At no point did anyone check this figure despite contacting them several times. However, the actual usage of the hall from 8:30 am to 10:20 pm, seven days a week, exceeded 85%. The new double hall also achieved the same high level of occupancy. This highlights the problem of making decisions about the demand for halls based on an unreliable model.

➤ Secondly, and I quote from the FPM;

“it prescribes an appropriate level of provision for any defined area in relation to demand – this reflects national expectations and policies. Because the demand parameters are based on achieved levels of participation, we believe this level of provision represents good practice... this is because the levels of use/demand/throughput visits are what could be produced based on what has been observed at existing facilities”.

Note it says “demand parameters are based on achieved levels of performance” One would assume that the achieved levels of performance are obtained by actual usage surveys of existing facilities in the area being modelled.

That is not the case. Sport England carry out an annual ACTIVE LIVES SURVEY that samples the population according to age and sub sets of gender, social and economic status etc. In the 2021-2022, 177,000 people completed the survey giving information about their sporting/activity participation. From the perspective of the indoor team sports it is worth noting that 50% of that total were aged 54+, a group that would not be expected to have a high participation in indoor team sports. The % participation figure produced in the survey covers not just the likely age group but the whole age spectrum which raises questions about methodology and conclusions.

The survey the data is broken down both into small geographical areas as well as by sport or physical activity.

The survey concludes that from the 177,000 responses a certain percentage of the population involved took part in an activity or sport. It then uses this data in the context of the demographics of a local authority to assess demand, on which future plans proposed by the FPM are based.

Different sports require different facilities that may or may not exist in an area, so those sports have not been able to establish themselves. It is clear when talking about outdoor pitches or swimming pools which sports are being played. When you talk about a sportshall it could host

badminton, basketball, handball, netball, and volleyball clubs as well as the frequent use by activities that do not need a specific area or ceiling height.

What all this actually means is that Sport England's Facility Planning Model assumes that according to the Active Lives data these sports currently have only limited activity and there will be limited future growth in these sports, so no significant demand for any additional provision. Linked with a lack of a realistic Sports Development Strategy that means the status quo will never change!!

The Active Lives survey is a very valuable insight into activity and participation trends. However, it is questionable how valid the data is as a means of assessing supply and forecasting demand.

I fully accept that before investing millions of pounds in new facilities there needs to be a proper assessment of overall and specific need for facilities. Many times, I have raised the concerns detailed above with those closely involved with the FPM. Privately, they have accepted there is some validity in them but without significant funding to review and re-write the funding model they must make the best of it.

The FPM is at the heart of the problem for indoor sports and is further evidence that at the highest levels there needs to be a greater understanding of the needs, opportunities and potential of indoor sports in improving the health and social welfare of the nation.

What action has been taken to improve the situation?

In 2009, I arranged a meeting with representatives from various sports organisations on behalf of Volleyball England to discuss altering sports hall sizes and standards. I gave a presentation titled "Sports halls for the 21st Century", a copy is downloadable from www.ruthnichollsvolleyball.com. Following this an Indoor Sports working group was established in collaboration with Sport England. The group jointly developed a new recommendation for sports halls, specifying a minimum width of 20m to accommodate netball and basketball requirements and allow for multiple practice courts. This initiative on behalf of Volleyball England marked the most significant change in sports hall design in 45 years.

The new guidance published in 2012 aimed for all new halls to be built around a 20m width module, which included a double hall of 40m and a triple hall of 60m. Download a copy here. [Sports halls | Sport England](#). The Education Department opposed the wider hall, arguing for an 18m width to meet school requirements and save costs. It suggested if a hall was to be increased in size, the community should fund the extra capital cost.



The lack of adherence by architects and developers to the Sport England recommendations when building sports halls, often results in courts and equipment not meeting the standards. This has been observed in multiple halls built in the last five years, leading to facilities with volleyball markings unusable for volleyball due to the absence of floor fittings or posts, often due to the installation of underfloor heating. These shortcomings represent wasted investments that deprive the local community, including pupils, of the opportunity to play volleyball.

Furthermore, the working group responsible for addressing these issues was disbanded due to internal reorganisation within Sport England, resulting in a lost chance of developing an inclusive indoor sporting infrastructure.

Over the years, I have looked at models of development in other European countries. In these countries indoor sports are high profile and are the basis for community sports clubs that also provide a social life linked to sport.

They build specialist halls for volleyball, basketball, and handball where a club, or clubs, can base a programme for both genders, all ages, and all levels of play. In some instances, the town, or city will allocate individual school or community halls to specific sports. The sport then bases clubs in these halls. Clubs can have a whole evening to run teams and train.

However, in England, clubs struggle to secure bookings due to competition from various activities and users. They often get limited access, such as a two-hour session once a week. This limitation prevents the team from developing and the club from expanding, adding more players, forming new teams, or starting junior programs. In contrast, outdoor sports that have dedicated pitches and venues do not face the same restrictions.

The “structure” supporting sport has been dismantled over the years. Previously, when the Local Education Authority owned and managed schools, it was easier to apply for space in sports halls. The authority also offered lower fees for junior clubs, making it more affordable. The opportunity existed then to develop a promotional strategy for indoor sports. Local councils, which owned and managed facilities, had sports development departments. I recall successfully applying to them for space, funding, and promotion for my new club.

Local authorities have delegated the management of their sports facilities to companies that adhere to a standardised formula, rather than tailoring them to local requirements. The emphasis is more on fulfilling the financial terms of the contract rather than taking a comprehensive approach to the local sports community.

Each authority creates a Leisure/Sport strategy that promotes partnerships across all levels and with all individuals but lacks a driving force and a source of funding. As a result, these strategies become dormant documents that merely gather dust until the time for review. The previous leadership demonstrated by councils and chief leisure officers has been replaced by roles focused on client management, rather than inspiring development.

Now the absence of a central “organiser” for access and use of school sports halls and local community facilities has led to each school having its own management. This decentralised



approach results in sports facilities being perceived as a means of generating extra revenue. However, the charges imposed on users do not accurately represent the actual cost of providing these facilities. Sports hall rental fees are unreasonably high compared to fees for other school facilities used by groups like meeting or drama groups.

I recall a meeting attended by the Sport England Chair, CEO and many of the senior management team where there was a discussion about how to increase the number of clubs as a means of increasing sports participation. The Sport England group showed little understanding of the challenges involved in setting up a new club, including finding a facility, covering hire costs, and determining the contractual length. The financial risks of establishing a new club or sport, as well as issues related to access to on-site equipment, were not adequately addressed. Additionally, they were unclear who would fund the initial costs of equipment such as balls and how the club would be promoted.

The challenges of starting a new indoor sports club include limited availability and high cost of courts, as well as funding expensive equipment such as Mikasa balls, compared to affordable options for football clubs by example. These issues hinder the expansion of indoor sports compared with football clubs, making it difficult to reach the same level of popularity in most countries.

Without a major policy review and change of philosophy the contributions of indoor sports to developing physical activity, increasing diversity of sporting options and building social cohesion will remain unnecessarily constrained.

New thinking and a new direction are needed by those involved in sports policy.

A NATIONAL WAY FORWARD FOR DEVELOPING INDOOR SPORTS.

No one Governing Body will have the impact on improving the situation that could be achieved by NGB's working together.

- The Governing bodies of the indoor team sports, volleyball, basketball, Handball, Netball and Badminton should join together and focus on the long-term development of a facility infrastructure and strategy to promote and develop indoor sports.
- Any business will tell you that to sell your product, you must establish a sound and widespread infrastructure. Indoor sports have not worked together to build one.
- Proper access to up-to-date specification indoor halls will increase the opportunity for significant increases in participation and ultimately performance in these sports will be achievable.
- Work with Sport England to review the existing Facilities Planning Model that perpetuates the existing status quo instead of determining the sports development potential alongside a facility need requirement.



- Although there is a focus on promoting individual activities such as cycling, running, and the gym, these rarely result in the social benefits that can come with membership of a club. Clubs have a social benefit as well as physical.
- The importance of developing specialist indoor centres for each and all of those sports must be promoted along with the notion of multi club sharing of these centres in one location.
- The case for Lottery/Sport England funding of pilot development for each of the sports should be prepared.
- In conjunction with Sport England and Active Partnerships explore the possibilities of a pilot project to create, in conjunction with the local sport associations, specific sport bases in local facilities to assist in the development of indoor sports.
- Work with the private companies managing sports hall on behalf of local authority to examine ways they can give a focus on developing clubs based in their halls.
- Work with the major UK based equipment manufacturers, distributors, and retailers to the education and local authority markets to get them to advise architects and facility developers on making full provision for every sport. Let's stop building inadequate halls with poor basic equipment.
- Lobby the Royal Institute of British Architects (RIBA) to get them to inform their members of the availability of technical advice available from Sport England and NGB's.
- **Indoor sports must have a united voice to lobby for greater recognition of the contribution they make and the potential impact on participation, performance, and community building.**

WHAT CAN VOLLEYBALL ENGLAND AND INDIVIDUAL CLUBS DO NOW TO IMPROVE THE SITUATION?

It would be helpful and productive if Volleyball England took proactive measures to introduce change, and support clubs in implementing various solutions to optimise the full utilisation of their current facilities.

In 2009 I wrote the **Facilities Strategy and Technical Guidelines for Volleyball England**, and in 2010 the **Design Guide for Beach Volleyball Courts**. Both have detailed specifications for equipment, flooring/sand, lighting, with various layouts including dimensions according to the size of hall or beach courts.

Currently, they are not visible on the Volleyball England website. These documents need to be widely advertised, circulated and promoted to individuals, architects, developers, and manufacturer/retailers. Copies can be downloaded from www.ruthnichollsvolleyball.com



WHAT CAN CLUBS DO?

After discussions with lots of clubs, I am more convinced than ever that the biggest restriction on increasing participation in volleyball- and therefore meeting the Sport England targets- is facilities.

- Most of the existing sports halls are single court and don't have adequate posts for the game. By contrast equipment for the other indoor court games of badminton, basketball and netball are provided in every sports hall.
- Net sliders have proved especially useful for teaching situations but are not suitable or designed for adult play.
- An internal Sport England research paper on the facility stock highlights that a sizeable proportion is nearing the end of its life, most is not "fit for purpose" and the supply of new facilities is slowing dramatically with the end of Building Schools for the Future (BSF) and the recession. The outlook is increasing pressure on space.
- There is little spare capacity in existing halls and all indoor and some outdoor sports are pushing- for participation number reasons- new indoor modes of their sports. This will increase pressure on stock and make volleyball expansion extremely difficult.
- Despite Sport England changing the recommended size for the basic 4 court hall from 18m to 20m width, many new schools have the old size and layout sports halls.
- As a single court limits the number of active players, clubs cannot increase membership or develop additional sections for youngsters/women/sitting volleyball.
- The impact of having 20m halls and additional capacity on participation development is clearly demonstrated by the incredible growth in Norwich where four courts are used two nights a week by clubs and leagues.
- We must find a way of making more effective use of existing stock. If Sport England is serious in expecting us to increase participation with the current facility stock, then we should seek ways of convincing them to support a programme of increasing capacity.

With little chance of new facilities, Volleyball England must "think outside the box"

We need to see how we can use current and future Sport England funding streams to:

1. Remark and equip existing 12 badminton court halls to 4 court tournament halls as per Sportspark in Norwich.
These will provide opportunities for regional and local leagues to have a central venue.
2. Upgrade existing 18m halls to have two cross court practice courts – albeit only 18m wall to wall.
This will double the net training capacity for clubs, provide space for increased membership, lowering playing costs and provide a single training court at the hire charge of two badminton courts.



Purists will no doubt see providing wall to wall courts as heresy, but sticking to our guns and trying to soldier on with a single court in a hall will lead to stagnation rather than expansion.

CLUBS -MAXIMISE YOUR PLAYING SPACE

Most halls have a single court in the centre of the hall or towards one end. Just one net and a fair amount of unused space. Usually, 12-15 players share the cost of one hours hall hire. Making minor adjustments to add cross courts will allow a club to accommodate 24 or more players during training nights, which boosts the club's membership and financial viability.

In my own Club Norwich Spikers, we use the UEA Sportspark where one double hall provides four courts. On a training night there are around 60 players training per hour. This is achieved by using two cross hall courts in each hall. Apart from activities such as circuit training this is the most intensive use of the Sports hall.

To do this you will have to firstly persuade the hall management that this is in the interests of both the centre's participation targets and the development of the club.

How to provide two courts in a single hall

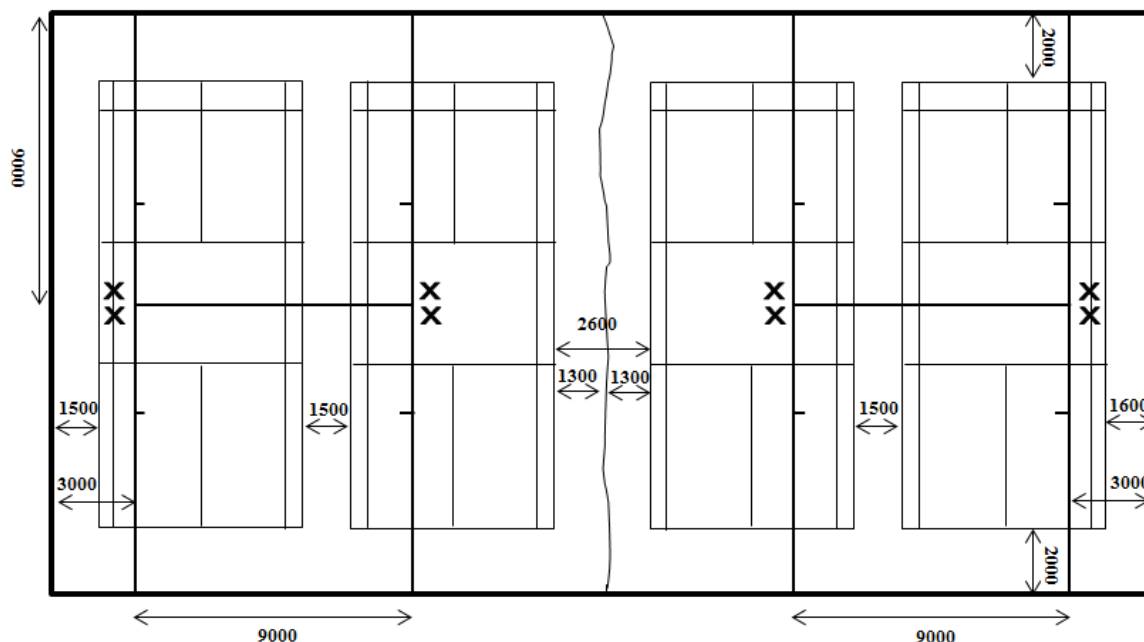
In standard 33m x 18 sportshall only one match court is provided. This is set out lengthways. For training and development purposes this provides limited net space for practices and restricts the numbers able to practice.

By putting two courts across the hall the net space is doubled and many more students can take part. Although wall to wall the court is only 18m this is acceptable for training purposes. The space at the sides of the courts is a minimum of 3m which is the standard required.

If the hall is 20m wide there will be one metre behind the baseline. A server can serve with one foot in court. Court layouts such as this are successfully used by a number of local leagues and tournaments.



Hall dimensions and court layouts



PROPOSED LAYOUT OF VOLLEYBALL TRAINING COURTS

For standard Sport England 18m x 33m 4 Badminton Court Hall

Location of 8 (eight) new floor anchors is shown by XX

Posts to be set a minimum of 50cm from outer edge of court side and floor anchors positioned to suit posts.

The **XX** show the positions of floor anchors for two pairs of standard posts. **There are a number of alternative arrangements that can be used to achieve two courts.**

You need to find a way of attaching a net at each end of the hall so a full length, or two single nets can be installed at the appropriate height with at least enough tension to train.

Below are some suggestions of how you might achieve this. In individual cases you may find it cheaper or more convenient to “mix and match” the suggestions.

Alternative 1

Installing net sliders

By running a net down the middle of the hall you can provide extra net space for most elements of volleyball training. Although when measured across the width the wall to wall court will be 18 metres it will be the full 9m width and effectively full length.

The net slider is a device I designed in 2010 that can be attached to end walls to fit and adjust a tensioned net up to a height of 2m 50. It is easily removable for storage and has padding for safety. The initial version was produced by Universal Services, and four hundred units were provided free to schools through a Sport England grant. Other manufacturers also make similar sliders. To prevent any sag in the net, a central “prop” is used, which is manufactured by Universal, as well as Harrod Sport.



Photo R Harrod Sports. Wall slider with external padding.

Follow the link below to a video I made explaining how the sliders are installed and used.

[Wall sliders presentation.mpg - YouTube](#)

Net sliders “hang” on a wall bracket and do not require floor anchors. The installation of the expanding rawlbolts that secure the bracket to the wall can be done by any local builder. At floor level a small 50mm plate is let into the floor for the post to rest on.

Alternative 2

Net sliders are perfect for schools where the long net can be used for badminton, tennis and sitting volleyball.

However, if you do not want that flexibility consider a pair of wall mounted posts (Universal Services). These are also demountable and have adjustment for different heights but are cheaper than sliders. As with the sliders they hang on a wall bracket and do not need floor anchors.



Photo: Universal Services Sports Equipment wall mounted post

These, or Sliders, can be combined with a double post in the centre of the hall (available from Universal services). You will then be able to have two nets fully tensioned. for training across the hall. This double post will require 2 floor anchors.



Photo Universal Sports Equipment Ltd- Central double sided post



Alternative 3

To save on purchasing additional sliders or wall posts fit two floor anchors at each end of the hall so you can use your existing posts. Use a long net to link the two posts with a central “prop” or, if affordable, add the central double sided post to get maximum tension on the net. Two floor anchors will be needed. This will then give you two fully tensioned nets for the cross courts.



Alternative 4

Use your existing match posts to make one court, 2 new floor anchors will be needed and also purchase a pair of Club model posts (cheaper than match posts) for the other court. See above.

Alternative 5

If the badminton posts in your hall drop into floor sockets Continental Sports make extended post that fit these sockets that cover two badminton courts. You can then have two training courts.



Photo Continental Sports Ltd extended socketed badminton posts

Alternative 6

Continental Sports make wall mounted posts. These are secured into four flush mounted wall anchors. They are demountable when not in use. These can be used with their multi post system to provide multiple courts along the hall.

The long nets are supported by intermediate free standing posts. The nets are attached to the wall posts. An additional cord is attached between the two free standing posts for stability.

The free standing posts are adjustable for height and the wall posts have attachment pints at different heights to suit.



Continental Sports Multi post system – photos by Continental

Make your own net.

A full hall length net can be extremely expensive.

To make a long net without purchasing a costly full hall-length net, use a strong cord to create a head and bottom line. Opt for a durable Kevlar or similar type cord for longevity. Attach two inexpensive volleyball nets or four badminton nets to this makeshift headline. Once the headline is tensioned, position the nets to form the desired courts. For clubs, use two volleyball nets, and for schools, use four badminton nets—one over each badminton court.

Run a second cord through the bottom of the nets and tie to the sliders. To stop the nets moving out of position the simplest way is to tie string between each net when they are in position and leave this string in place. When you have attached and tensioned the net just pull the nets until the string is taught.

HOW TO INSTALL YOUR VOLLEYBALL POSTS USING FLOOR SLEEVES OR FLOOR ANCHORS

Volleyball England prohibits freestanding volleyball post/ nets supported by weights or cables to the floor or wall due to safety concerns. Such setups pose risks of injury from falling posts, dropped weights, or contact with cables while moving to a ball or landing from a block or smash.

The base of the post must not protrude more than five centimetres in front of its leading edge.

Some retailers/manufacturers still sell unsecured combined badminton and volleyball posts that rely on weights or protrude into the playing area. These products are dangerous, non-compliant with FIVB and VE regulations. This would make the “owner” liable for damages in case of an injury. If your school or sports hall has these posts, you are strongly advised to inform the owner about the associated dangers and potential legal issues.

POSTS CAN LEGALLY BE SECURED IN THREE WAYS.

1. Dropped into a floor socket, set into the floor. When not in use, a removable bushing disc of the same surface covers the socket. The bushing disc is lifted with a rubber plunger to disclose the circular or rectangular socket.
2. Bolted to the floor using a “Tee bar” that screws through the baseplate into threaded anchors inserted in the floor. They can be flush with the floor, or beneath a removable bushing disc.
3. Attached to the wall on either side of the court for match play, or on the end walls to provide a lengthways teaching/training net.

It is essential that provision for volleyball posts is made at the time of construction even if posts are not required initially. This avoids the difficulties of retro fitting.

Floor bushings





Floor bushings are fitted by cutting a hole in the floor surface, then inserting and securing the outer ring. The inner disc is removed with a rubber plunger to expose the floor anchor or sleeve. The bushings are made to match the floor surface.

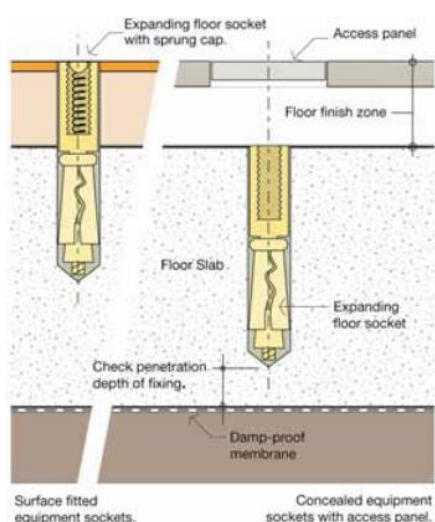
Floor sleeves

Posts that drop into the floor require metal sleeves inserted into a concrete plinth under the floor. These posts have a large load when fitted and in use. They cannot be retrofitted. At the time of construction, a concrete plinth, 500mm x 500mm x 450mm deep needs to be cast in the required location. It is vital that the constructor and the facility owner contact the equipment supplier before the floor design is finalised.

Floor anchors (sometimes called sockets)

These are used with posts designed to be screwed to the floor. In most cases they can be fitted after construction. Unfortunately, where underfloor heating has been installed you will not be able to fit floor anchors after construction has been completed.

Floor anchors are of different lengths to suit different flooring systems. Where a sprung wooden floor is used there is a gap between the floor surface and the floor slab. A longer anchor is needed to bridge that gap. When installed the floor socket expands as it tightens.



Section through floor slab: typical equipment anchor sockets set into sports floor.

Diagram Sport England Flooring Guide

The Tee anchor shown below is a typical floor anchor. A hole is drilled in the floor and slab and the anchor dropped in until the metal anchor into which the Tee bar screws is flush with either the slab, where a bushing is used, or the floor without a bushing.

With the anchor in the hole the installer will use the Tee bar to pull up an integral “wedge” (in the gold section shown below) that expands the anchor so that it grips the hole firmly. The installer will often use epoxy resin as well to fix the anchor.



The photos above (courtesy Harrod Sports) shows a floor anchor and an anchor installed in a wooden floor with a void.

HOW MANY ANCHORS PER POST

There must be two anchors for each post. A single socket cannot handle the tension on the posts plus the occasional contact by a player and it is likely that at some point the floor anchor will become insecure, and the posts unusable. There is a potential at this point that the post may collapse, leading to injury.

UK manufacturers make provision for two anchors in the bases of their posts.

N.B. some imported products sold through sports retailers supplying the UK market do not require two floor anchors per post. Purchasers should be aware of potential dangers.

WHAT TO CONSIDER WHEN BUYING VOLLEYBALL POSTS AND NETS

The old maxim you get what you pay for is true in respect of equipment.

Steel is a durable but heavy material, while aluminum is lighter and more expensive. Drop-in socket posts are practical but require sleeve fitting during construction (see page 17).

Manufacturers offer Club and competition models, with Club models being less expensive. Club models are suitable for school and recreational use but not for adult competition. Try to think long term; saving money now may leave you with a need to change at a later date with added cost.

Competition posts are stronger, offer better height adjustment and tension systems, making them ideal for schools and clubs with competition play.

Referee stands can be freestanding wheelaway or inverted L-shaped platforms.

Nets vary in price and quality, with 2mm twisted polyethylene nets being suitable for recreational play and 3mm braided polyethylene nets more durable for club and competitive play. Higher standard nets have fibreglass or wooden dowels at the ends with rings for even stretching and attachment to posts.

Plastic-covered wire is the standard for headlines, but a more expensive and durable option is a Kevlar headline. These are available from net manufacturers, but you need to specify length

Antennae sheaths, 5mm wide with a pocket for the antennae, are required and can attach to the net with velcro or lacing. From personal experience the sheaths that require lacing to the net are awkward to fit and once fitted it is difficult to adjust them. You have to move the whole net along the head line. Sheaths that have velcro attached and are fitted by passing a band over the net and combining the two velcro strips on the other side are easier to fit, can be moved quickly and last longer.



UK POST MANUFACTURERS (listed in alphabetical order!)



CONTINENTAL SPORTS

Hill Top Road,
Paddock, Huddersfield,
West Yorkshire, HD1 4SD
Telephone 01484 542051
Email: sales @contisports.co.uk
www.continentalsports.co.uk

Continental are manufacturers and offer a nationwide installation service.

Products

1. Multinet system. Where existing badminton posts have drop in sockets, the system uses these to span two badminton courts with a net. The posts can have eight different height settings.
2. "International" volleyball posts are supplied as a pair, complete with nets and integral wheeling system. Suitable for NVL Play. A referees stand that attaches and post padding also available. Need floor anchors.
3. Club Model Volleyball Posts are Continental's most popular school model volleyball post. They supply the posts as a pair, complete with a steel headline volleyball net and integral wheeling system. These posts have alternative net fixing heights for junior, women's and men's volleyball. Suitable for club play but not NVL, Need floor anchors.
4. Schelde international standard posts. Lightweight aluminium adjustable for all heights with tension control. Drop into floor sleeves. A special surface base can be purchased that requires floor anchors.
5. Post padding and umpires posts available.
6. Floor anchors.





HARROD SPORTS

1-3 Pinbush Road, Lowestoft,
Suffolk, England, NR33 7NL

Telephone 01502 583515

E-mail: sales@harrod.uk.com

www.harrodsport.com

Harrod Sport are manufacturers who supply most of the major sports retailers. Installation is carried out through the retailers and not directly by HARROD SPORT. They will sell direct for installation by others.

Products

1. Match Play Volleyball Posts. These are adjustable for height. Suitable for club play but not NVL. They require floor anchors.
2. Sportset Competition posts. Suitable for NVL. They can be drop in or floor mounted with anchors. Adjustable for all heights with micro net adjustment.
3. Wall mounted net sliders. Can be varied to provide all volleyball heights plus badminton. Usually used to provide a long net down the centre of the hall to give training courts.
4. Floor fixed school volleyball pots. They require floor anchors. Not suitable for NVL and club play.
5. Sportset outdoor volleyball posts. Portable set for grass and beach competition.
6. Sport Beach competition posts.
7. Sitting volleyball posts.
8. Referee stands and floor anchors.





UNIVERSAL SERVICES (sports equipment)

Universal Services (Sports Equipment) Ltd
 Beckingham Business Park, Tolleshunt Major, Maldon, Essex CM9 8LZ, England
 Tel: 01621 868700
 Email: info@universalservicesuk.co.uk
www.universalservicesuk.co.uk

Universal are manufacturers and offer an installation service.

Products

1. Club volleyball posts. These posts have alternative net fixing heights for junior, women's and men's volleyball. Suitable for club play but not NVL. Need floor anchors.
2. National model. Suitable for NVL. Suitable for NVL Play. A referees stand that attaches and post padding also available. Needs floor anchors.
3. A drop in version is also available.
4. Wall mounted Club Volleyball Posts. Removable posts using a wall mounted system that does not require floor sockets. Given the distance between sports hall walls, they are not suitable for match play but will provide for training/teaching purposes.
5. Wall mounted net sliders. Can be varied to provide all volleyball heights plus badminton. Usually used to provide a long net down the centre of the hall to give training courts.
6. Double sided volleyball posts. Required floor anchors. Can be used in conjunction with net sliders or wall mounted posts at each end of the hall to provide two volleyball courts playing across the width of the hall. Not suitable for NVL but club play.



SERVICE AND INSTALLATION COMPANIES.

These companies can supply and fit equipment from a number of manufacturers. They will often fit floor and wall anchors in schools and sports halls.

Some are regionally based, and others offer national coverage. In listing these companies, I am not making any recommendations just providing the contact information. All can be found via their websites.

- Sportsafeuk.com
- Sportsfacilityservices.co.uk
- Sportsequip.co.uk
- Sportplay.co.uk
- Sportsplayservices.co.uk

USE THESE LINKS TO IDENTIFY POTENTIAL GRANTS.

[Small Grants Programme | Sport England](#)

[Grant & Funding Finder Tool — Volleyball England Foundation](#)

Use Google to find your local Community Foundation for grants by councils and companies

Small local grants from supermarkets and stores

[Apply for a grant \(tescostrongerstarts.org.uk\)](http://tescostrongerstarts.org.uk)

[Foundation Grants | Asda Foundation](#)

[Co-op \(coop.co.uk\)](http://coop.co.uk)

[John Lewis & Partners | Homeware, Fashion, Electricals & More](#)

www.ruthnichollsvolleyball.com

Contact your County Active Sports for advice and local knowledge of possible grants

In most cases, you will need to emphasise increasing participation, opportunities for young people, especially those disadvantaged, a sport bringing different sections of the community together.

Contact VE for advice on preparing your application for a Sport England grant.

USEFUL REFERENCES

Downloads

[Wall sliders presentation.mpg - YouTube](#)

Sports halls for the 21st century pdf

Facilities strategy technical guidelines for Volleyball England

Design Guide for Beach Volleyball Courts

Sports halls design guidance notes – Sport England



Keith Nicholls Sport Consultancy

Keith Nicholls is a former PE teacher and University lecturer with a passion for volleyball and indoor sports facility design. Through various roles and achievements, he has significantly impacted indoor sports facility design and management in Britain, including changes to recommended sports hall sizes and the successful self-financing and expansion of the Sportspark in Norwich. His expertise and contributions in the intersection of design and management have been recognised through speaking engagements at national and international conferences on sport facility design and management.

As a PE specialist and University lecturer, he has devoted his career to advocating for the advancement of volleyball and the design of indoor sports facilities. His educational journey took him through St Mary's College, London, and Leeds University before returning to St Mary's as a lecturer. In 1972, he made a significant move to Bristol Polytechnic, where he not only obtained loans to construct self-financing squash courts, a fitness centre, and accessible changing rooms but also ensured these facilities were open to the public.

His dedication to volleyball extended beyond mere interest; he played and coached internationally, leading to induction in the Volleyball Hall of Fame. His influence was not confined to the court, as he held various positions within Volleyball England, including the prestigious role of President. In recognition of his lifelong commitment to volleyball, he was honoured with the Peter Wardale Cup, the highest award bestowed by Volleyball England.

The University of East Anglia awarded him a Honorary fellowship for his significant contribution to sport at the university and in the community.

Not content with leaving his mark solely in the realm of sport, Nicholls directed his attention to the often neglected domain of indoor sports hall design and management in Britain. His efforts led to tangible change, as evidenced in 2011 when he orchestrated the cooperation of multiple sports associations to revise the Sport England recommended dimensions of indoor sports halls. This initiative aimed to better accommodate sports such as volleyball, basketball, badminton, and netball.

Subsequently, his role as a Director of the SE Trust gave him experience of the national Sports Centres, and he also functioned as a contributing member of the Indoor Sports Working Group and Technical Advisor to Volleyball England. In 1990, he was appointed Director of PE & Sport at the University of East Anglia in Norwich, where he devised a comprehensive development plan involving partnerships with local authorities, a school, a Sports Trust, and Sport England. This collaboration culminated in the establishment of new facilities with year-round community access, including two artificial turf pitches and the success of a Lottery bid for the Sportspark. The Sportspark, a large wet and dry indoor complex, was made possible through funding from various stakeholders. www.sportspark.co.uk.

A condition attached to the Lottery award demanded that the Sportspark operate on a self-financing basis without grant support, a challenge that Nicholls embraced. His innovative business model not only attracted over 1.2 million visits annually but also generated a surplus that fuelled the continuous expansion of the Sportspark. This meticulous approach resulted in the creation of additional facilities, turning the Sportspark into one of Britain's largest community sports facilities that continues to operate on a self-sustaining basis.

His experience is highly relevant, particularly in the current climate where sports investment requires a blend of increased participation and financial viability. His involvement in any project from its inception promises to marry the crucial elements of design and



management effectively. By emphasizing the importance of good design in reducing management costs and the impact of a robust management philosophy in boosting revenue, he underscores the significance of providing affordable access and a diverse range of activities.

With this experience in design and management his expertise has been widely used as a consultant to a wide range of organisations including those below.

Hertfordshire Sports Village, Gelderstone Developments, British Council, Danish Sports Council, Wuhan China 50m Pool, Ruth Gorse Academy Leeds, Luton Council and the universities of Birmingham, Nottingham, Winchester, Warwick, and the Highlands & Islands.

He is happy to meet to discuss your project and suggest ways in which his skills and expertise can be brought to the project.

Areas of consultancy

Concept design validation

Working with the client and architect to map out the requirements, dimensions, and building layout from the management and user perspectives. The aim will be to maximise the activity space available within the budget while providing easy to manage reception, booking and management space.

Review building design

With the client and architect review the detailed design plans before going to tender to ensure they are both efficient and compliant with national standards.

Building the business model and philosophy

Working with the client identify the function of the facility and set the management philosophy. This will guide decision making on marketing, bookings, and pricing strategies. It will take into account the financial requirements of the client and produce a business model that meets both those requirements without compromising sporting participation.

Validating the Business plan

Working with the client to identify gaps and shortfalls in the local market that can provide regular footfall. Identify way of maintaining use across the full year and not just the sporting season. Develop a realistic prediction of usage and link with a pricing strategy. Identify costs particularly a cost effective staffing plan. Review the outturn in relation to the client's financial budget.

Contact details

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Norwich
Norfolk
NR2 2Ah

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All fees are donated to the Ruth Nicholls Volleyball Foundation

