

## Sports Halls: Sizes and Layouts



### Requirements to build a badminton facility

As the governing body of the sport in Ghana, we want the sport of badminton to be enjoyable as possible and the following are the recommendation for the design of your badminton hall.

## Introduction

This Guidance Note recommends minimum dimensions for the design of multi-sports halls. As well as being the Ghana's most popular indoor sport badminton has the most demanding requirements for a number of functional elements including lighting and associated roof structure, background colours and air velocities. For these reasons the overall dimensions of the five halls shown are derived from the optimum arrangement of badminton courts compatible with the minimum spatial requirements of other indoor sports.

The space required for most games depends on the standard of play; generally the higher the standard the larger the space. The playing area is usually the same size but increased safety margins and clear height may be required. For most competition play an extra zone is required for team benches and an officials' table and a further security zone between teams and spectators may be required for major events. Adding these margins around the playing area produces the critical overall space – the minimum safe area for each standard of play.

In specialist halls individual requirements, particularly for sports that need a larger pitch such as handball, hockey and korfbal, may overrule the modular method in favour of the key sport's critical dimensions. Other factors which may militate against the modular method include:

- dedicated extra space – for example a sprint chute for indoor athletics
- additional spectator seating
- where a large hall serves as a regional sports arena
- to adjust to structural and key building component sizes
- non-sports events that require increased space
- where a multi-sports hall is designed for District or national standard play in one or more sports.

## Which sports – how many courts?

Guidance on selecting a hall size to accommodate a range of sports at different levels of play is shown in the table. It covers the sports that require line markings and confirms the number of courts and pitches for each size of hall. The table omits sports that need less space for which all the sizes noted have ample capacity and sufficient clear height. The abbreviations used denote:

R	recreational
p	practice
c	club
LD	lower divisions,
TD	top divisions/local league
cy	District
Rg	regional
N	national/international

A few three-court halls have been built, but with an area only 20% less than four-court halls and because of the restrictions imposed on most team games they are not considered to represent value for money. However, three-court (27 x 18 x 7.6m), two-court (17 x 18 x 6.1–7.6m), and one-court (10 x 18 x 6.1m) sports halls are covered in the Guidance Note *Village and Community Halls*.



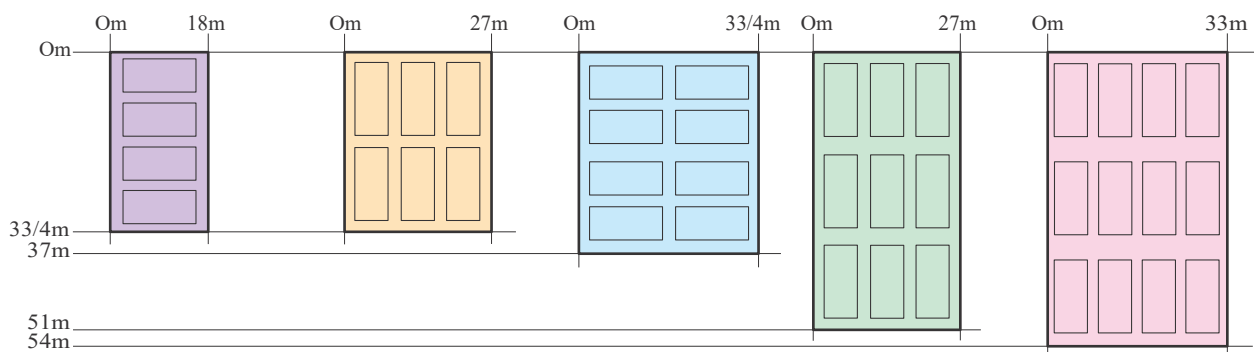
**Sports hall structure, lights and division netting must be aligned between badminton courts.**

	<b>Four-court hall</b> 33 x 18 x 7.6m 594m <sup>2</sup>	<b>Six-court hall</b> 33/4 x 27 x 7.6m 918m <sup>2</sup>	<b>Eight-court hall</b> 37 x 33/4 x 7.6/9.1m 1221m <sup>2</sup>	<b>Nine-court hall</b> 51 x 27 x 7.6/9.1m 1377m <sup>2</sup>	<b>Twelve-court hall</b> 54 x 33 x 9.1m high 1782m <sup>2</sup>										
Sport	Standard of play			Standard of play			Standard of play			Standard of play			Standard of play		
	c	cy	N	c	cy	N	c	cy	N	c	cy	N	c	cy	N
Badminton and short tennis	4	-	-	6	3	3	8	3/6*	3/6*	9	6	6	12	6/9*	6
				9.1m ht			9.1m ht								
Basketball	C(LD)	-	-	C(TD)	C(TD)		C(LD)	C(TD)		C(LD)	C(TD)		C(LD)	C(TD)	
	1	-	-	1	1	1	2	1	1	1/2P	1/3P	1	3	1/2*	1/2*
				2P	2P		-	2P							
Gymnastics	P	-	-	P	-	-	1	P	-	2P	1	1	3P	1	1
Five-a-side football	1	P	-	2	1	-	2	1	-	3	1	P	3	3	1
Handball	1	-	-	1	-	-	2	1	-	2	1	1	3	1	1
	Mini						9m ht			9m ht 9m ht					
Indoor hockey	1	-	-	1	-	-	2	P	-	2	1	1	3	1	1
	Unihoc														
Korfball	P	-	-	P	-	-	1	-	-	1	1	1	3P	1	1
								2P		9m ht 9m ht					
Netball	P	-	-	P	-	-	2P	1	-	1/2P	1	1	2P	1/2*	1/2*
Volleyball	1	1	-	2	1/2P	-	2	2	1/2	4	2/3*	1/3	4	2/4*	2/3
							10.5m ht			10.5m ht			10.5m ht		
Sports hall athletics	P	P	-	P	1	-	2P	1	1	1	1	1	2P	1	1

Notes

\* Maximum number of courts, without spectator seating, for preliminary rounds

P Below space standard for competition play recommended by the governing body, but suitable for practice and training



Modular incremental sports hall dimensions.

**Four-court hall**

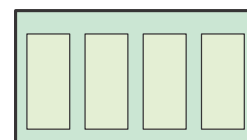
The critical minimum dimensions for this most popular size of sports hall are 33 x 18 x 7.6m. Main structure must always be aligned between the badminton courts to create four bays. Extra width can be considered to enable cricket nets to be hung alongside rather than over the badminton courts and to provide an extended spectator zone. An extra 1.5m added to the length and 0.25m to the width allows for a full-size netball court with side and end margins.

**Notes**

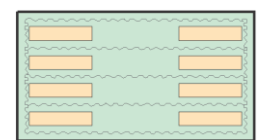
- A minimum height of 7.6m must be provided over the whole badminton court area and 7m minimum for most team games including basketball and volleyball.
- The 33 x 18m dimensions allow four doubles play badminton courts with a central division net.
- District standard badminton requires a length of 34.8m and a height of 9.1m.
- The 18m width is ideal for several of the smaller space sports. A full-length fencing piste, short mat bowls carpet and up to four table tennis tables can be accommodated across the width of the hall.
- Badminton courts can be central in the hall or offset to provide a narrow circulation zone to the entrance side of the hall.
- Bagged cricket and hall division netting can be stowed outside the critical play areas for most sports but for five-a-side football which utilises the whole space nets must be hoisted above shoulder height.
- Basketball benefits from an increase in width to 19m to allow full side margins or, alternatively, the minimum margins plus officials' space.

The diagram on page 5 shows the full markings typically used in a four-court hall with key setting out dimensions. Recommended line colour is shown on a background that denotes a

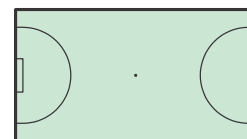
beechwood floor. Preferred positions for door openings and viewing panels are included around the perimeter. The netball play area is shown reduced to allow full safety margins. Smaller scale diagrams for individual sports are shown later in the Guidance Note. They provide background on the possibilities and restrictions inherent in planning multi-purpose spaces but do not show all line markings. **Consult governing body handbooks for this level of detail.**



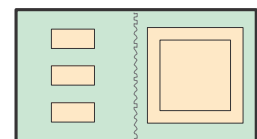
Badminton



Cricket nets



Team games



Trampoline/judo

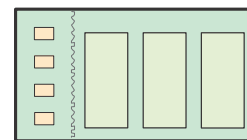
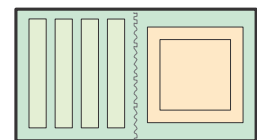
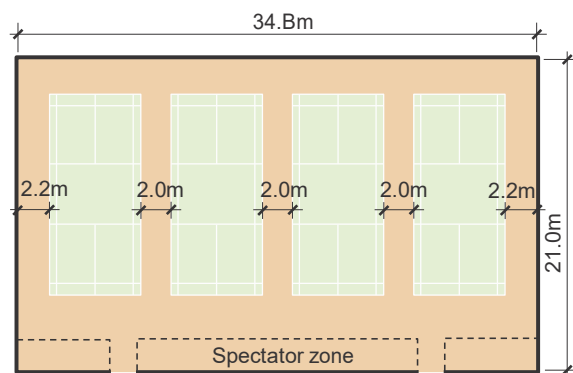


Table tennis/badminton

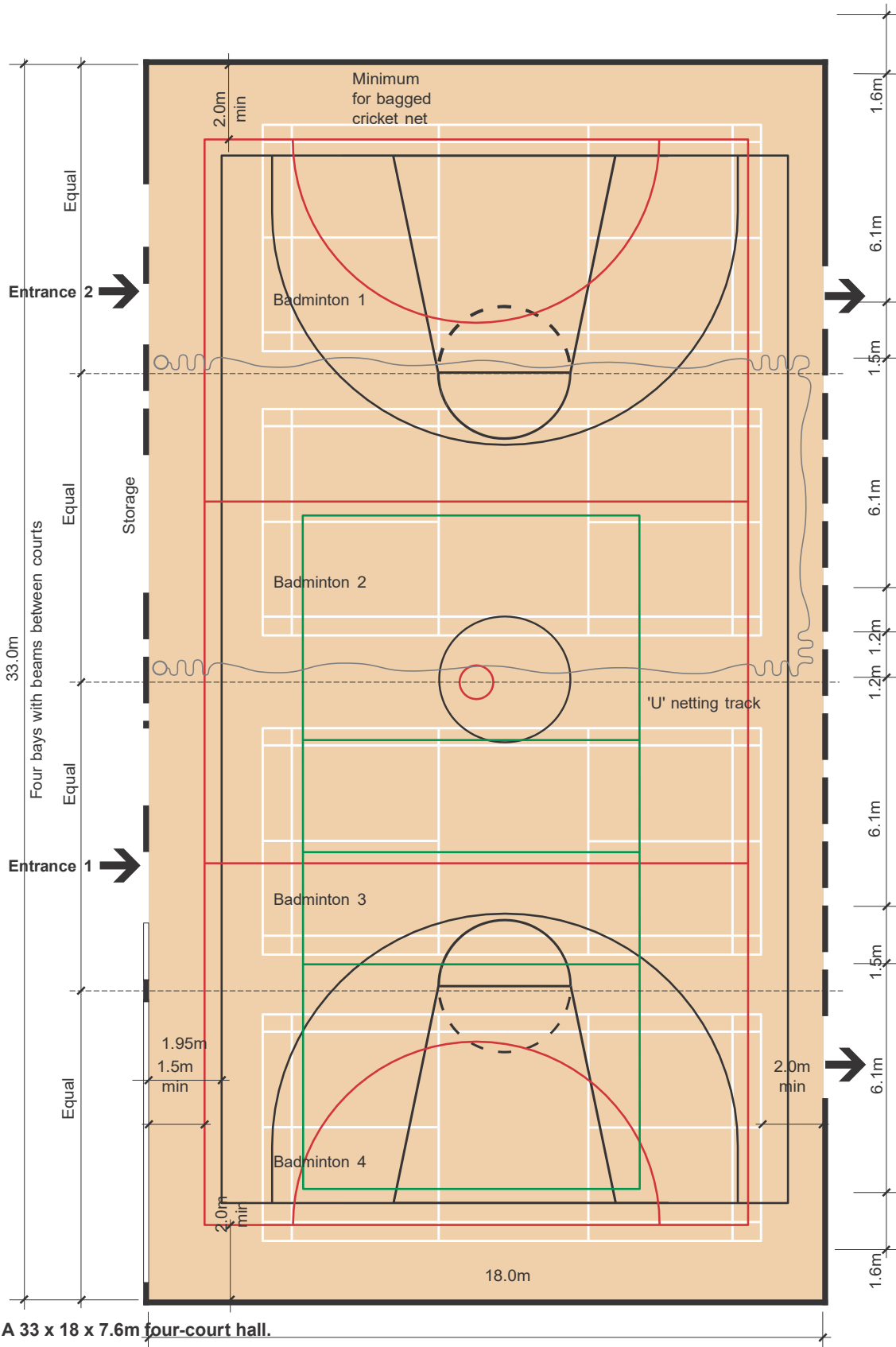


Short bowls/gymnastics

**Different uses of a four-court hall.**



**An example of enhanced dimensions for District level badminton – also ideal for netball.**



A 33 x 18 x 7.6m four-court hall.

**Six-court hall**

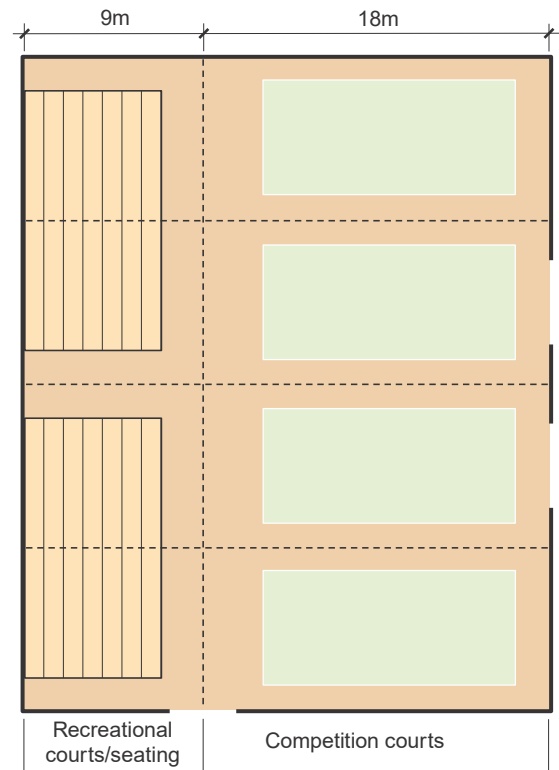
The 33/34 x 27 x 7.6/8.4m hall creates two team sports zones or a competition play area aligned with spectator seating. The 3 + 3 badminton court arrangement is recommended in preference to the 4 + 2 layout originally used in this type of hall. The 34m length provides the required safety margin behind the badminton courts. Further increases in length will be required for District standard play.

**Notes**

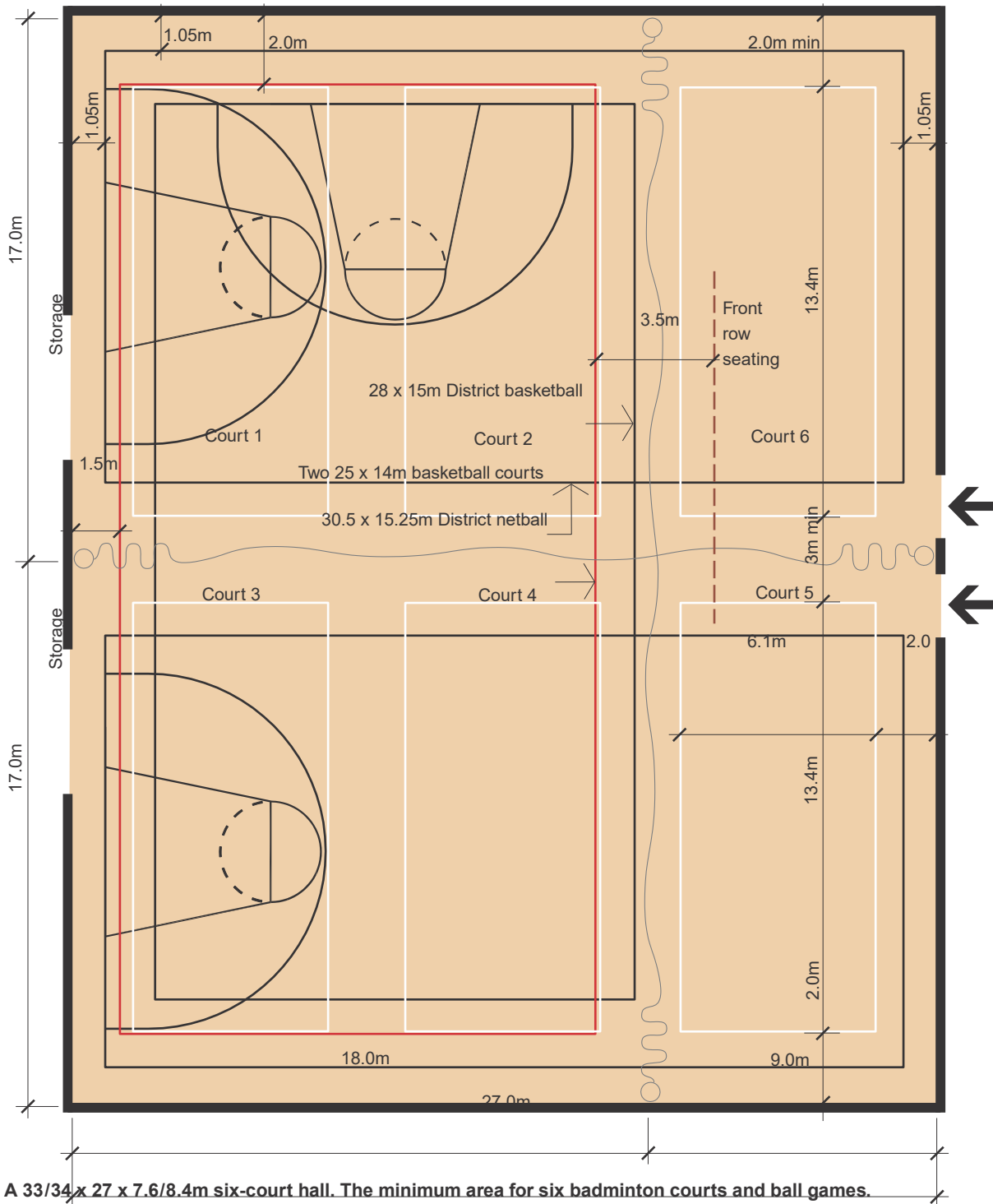
- Align structure between badminton courts to provide three full-span bays or introduce a primary beam across the centre of the hall.
- Division netting is hung between the three rows of courts. It can also be considered between two end courts but this zone is usually designated for retractable seating.
- A height of 9.1m and extra length is required for District standard badminton.
- Two standard basketball courts or two reduced five-a-side football courts can be laid across the hall with modified 'D' end markings.
- Wider pitches for recreational handball, hockey and korfball are possible in the six-court hall as well as more space for sports hall athletics.
- The 4 + 2 badminton court arrangement requires a four-bay structure to ensure that lighting and transverse netting accord with the four primary courts.
- In the 4 + 2 layout shown there is insufficient length to accommodate the full run-back to end-on courts in the 9m zone.



Large halls can be divided into two or more team game or competition zones.



The traditional 33 x 27m layout gives a longer competition court for team games but structure must run between the four primary badminton courts.





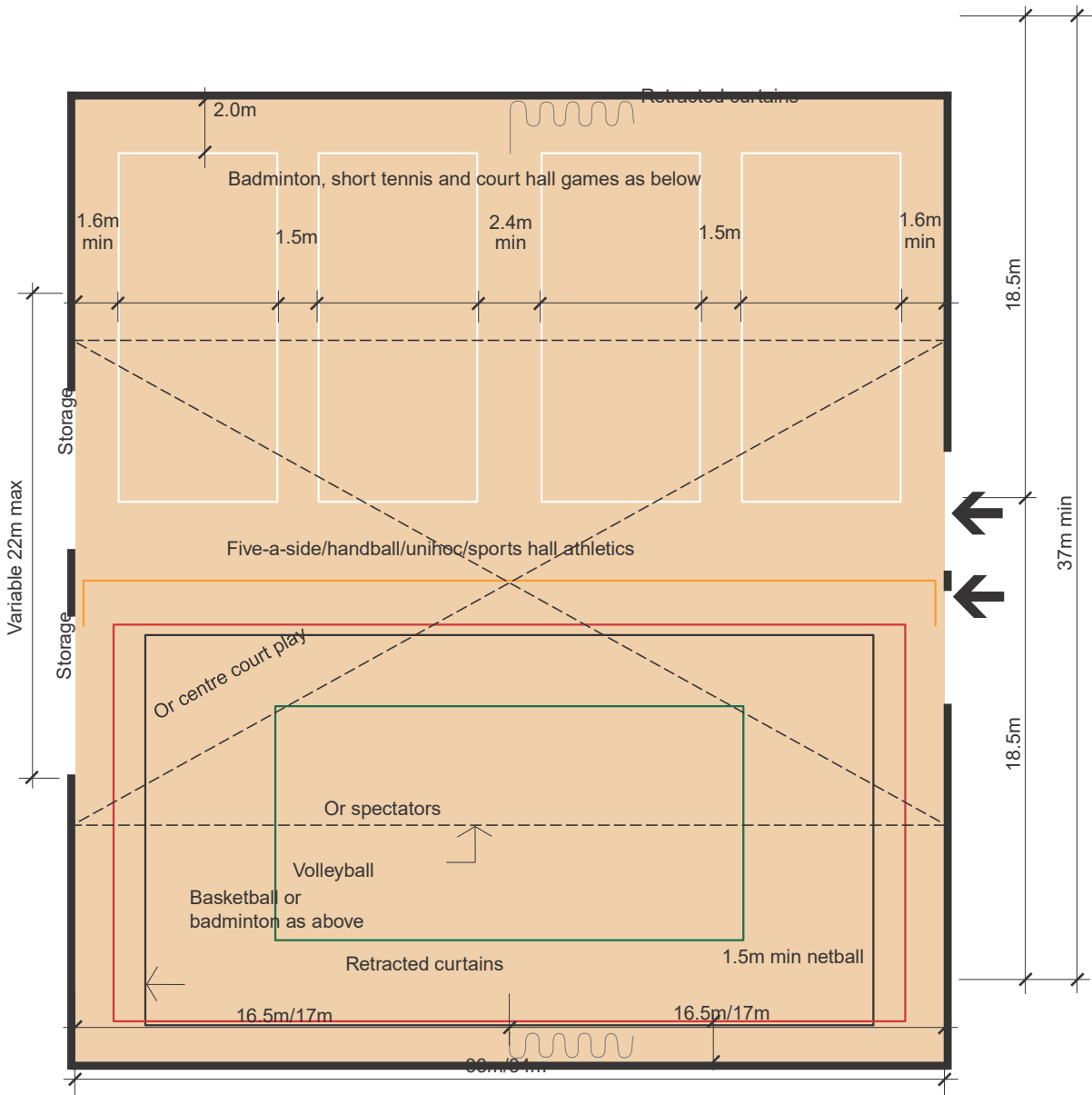
### Eight-court hall

The critical dimensions are 37 x 33/4 x 7.6 or 9.1m. This hall can be divided into two full-size play zones for most sports' hall team games. Height requirements become more demanding as hall size increases and the environmental impact of extra high halls has to be weighed against more restricted use and possible ball damage in too low a hall.

#### Notes

- This size is particularly suitable for District netball and top division basketball. For netball the court would be marked out to take advantage of the 37m dimension or, preferably, width would be increased.
- Align structure between badminton courts to provide four full bays or introduce a central primary beam.
- Four District standard badminton courts can be marked out or rolled down and require a clear height of 9.1m.
- To accommodate a minimum size indoor hockey pitch, handball or korfbal, length must be increased to 39m.
- These halls can seat upwards of 1,000 spectators for a table tennis final or for other sports with limited space requirements. Escape routes from the hall must take this capacity into account.
- Invariably, eight-court halls are used for non-sports events and access for users and equipment requires extra consideration. An increase in overall area is sometimes justified.





A 37 x 33/34 x 7.6/9.1m eight-court hall. The minimum area for two full zones for ball games. District standard badminton courts would align along the hall length.

### Spectator seating

Spectator requirements should be established at the outset as seating capacity is a major determinant in selecting hall dimensions. Additional space can often be justified to increase income or to add flexibility for both sports and non-sports events. Spectator provision can take several forms:

- Chairs or benches lined along the side of the hall and outside the critical overall sports space.
- Casual viewing via glazed screens or a spectator paddock at hall level.
- Retractable units with benching or fold-down chairs mounted in recesses or kept in a separate store. The fold-back units will have a depth of at least 1m which must be added to the hall's dimensions. Seating stores should have external access for delivery and extra high doors may be required.
- Other types of demountable seating stored on site or hired when required.

The critical factors in specifying seating are to provide unobstructed viewing and to maintain spectator safety. Specific provision must be included for viewing from wheelchairs.



**Bleacher seating:** mobile pull-out units can be arranged around different competition court layouts.

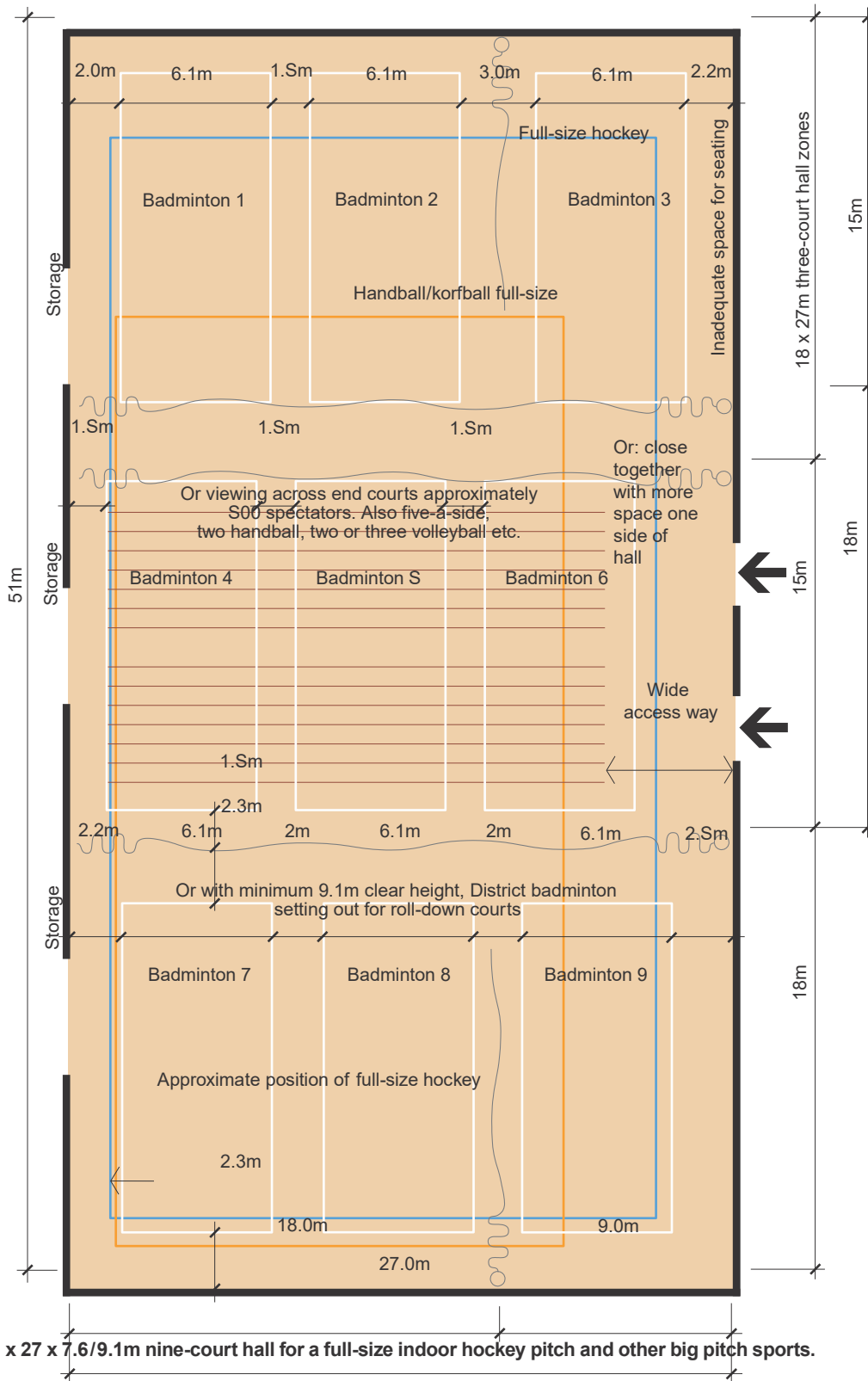
### Nine-court hall

This 51 x 27 x 9.1m high hall is suitable for club standard indoor hockey, handball, korfbal and five- or six-a-side football. Its elongated dimensions also provide more scope for sports hall athletics and gymnastics. Spectator capacity within the hall is limited for long pitch games when extra width may be considered worthwhile.

A smaller hall 47m in length would be suitable for a full-size indoor hockey pitch with 1.5m end run-outs but does not provide such a space-efficient layout for badminton.

#### Notes

- Hall area is 11% greater than the eight-court hall but there is greater sports capacity and, essentially, space for the three long pitch games.
- Run main structure to divide the hall into three zones with secondary structure between badminton courts.
- It can provide three to six activity zones with good access from a circulation route down the length of one side of the hall.
- There is space for six District standard roll-down badminton courts with seating for approximately 500 spectators in the central zone.
- The 27m width does restrict flexibility in laying out the smaller team games and results in more courts being run lengthwise down the hall.
- Narrower dimensions than for the eight-court hall can result in a more economical structural design.



A 51 x 27 x 7.6/9.1m nine-court hall for a full-size indoor hockey pitch and other big pitch sports.

### Upgrading sports halls

Some sports halls built during the past 30 years do not conform to current recommended dimensions. Increasing the length is sometimes possible but it is unlikely that the width or clear height can be economically increased. It is never worth spending large sums of money on upgrading halls of substandard size or surrounding them with new accommodation. If they are too small they need to be replaced.

The following notes are offered as a guide to determining the viability of older halls:

- Check clear dimensions. Take site measurements rather than relying on old drawings then compare with current recommended standards.
- If the hall is undersize determine whether a revised court layout will permit current safety and officials' zones to be achieved.
- If clear height is significantly compromised consider a replacement hall as the first option. Anything below 7m over the playing area is now regarded as unsuitable for all but recreational levels of play for sports with specified height requirements.
- Check that safety margins can be met each side of division netting.

If hall dimensions appear suitable check that the following features already exist or can be incorporated:

- area elastic floor to conform to BS 4077: Part 4
- flush wall surfaces from floor to ceiling without recesses or projections and with 50% light reflectance
- outward opening doors flush with the surrounding wall surface
- compact fluorescent light fittings mounted between badminton courts.

### Twelve-court hall

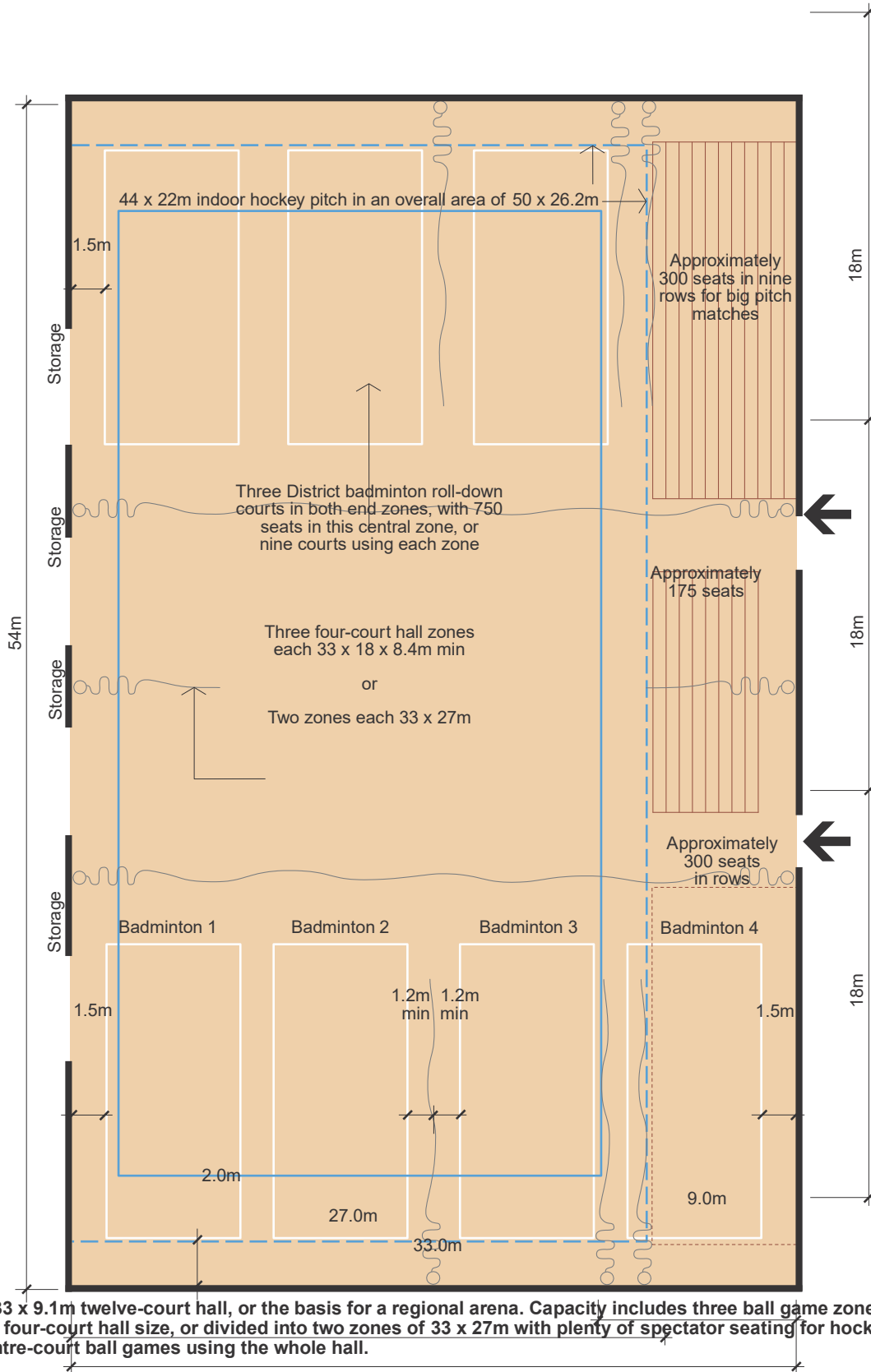
At 54 x 33 x 9.1m this size has the capacity of a small regional arena, a spectator venue for local and District level competition. It is a larger version of the nine-court layout.

#### Notes

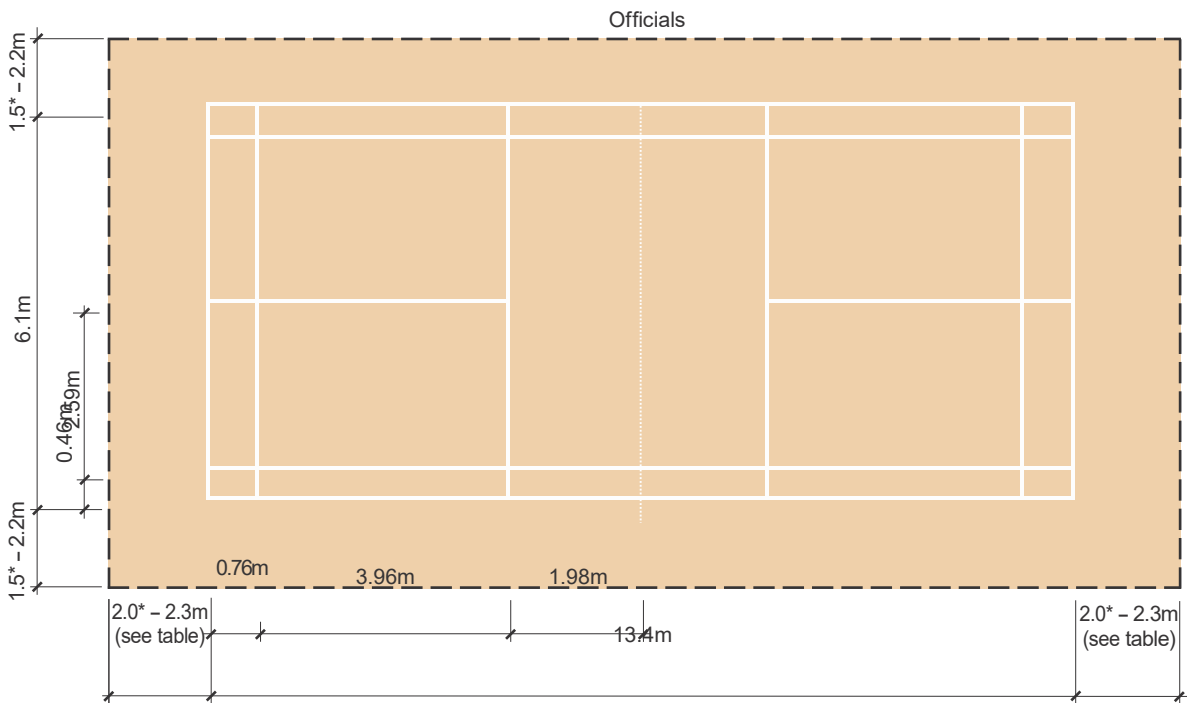
- Three modules of the four-court hall can be arranged by dividing the length into 18m (and variable) width zones or two six-court hall zones.
- Primary structure should run between these zones with secondary structure between badminton courts.
- Extra flexibility is provided by lengthwise subdivision.
- Over 700 seats can be aligned along one side of the hall for handball, hockey or korfbal spectators and more for other sports or entertainment events.
- An increase in width permits banks of seating to each side and possibly also to each end of the competition pitch.



**A first generation sports hall with lighting and structure that would be difficult to upgrade to meet current standards.**



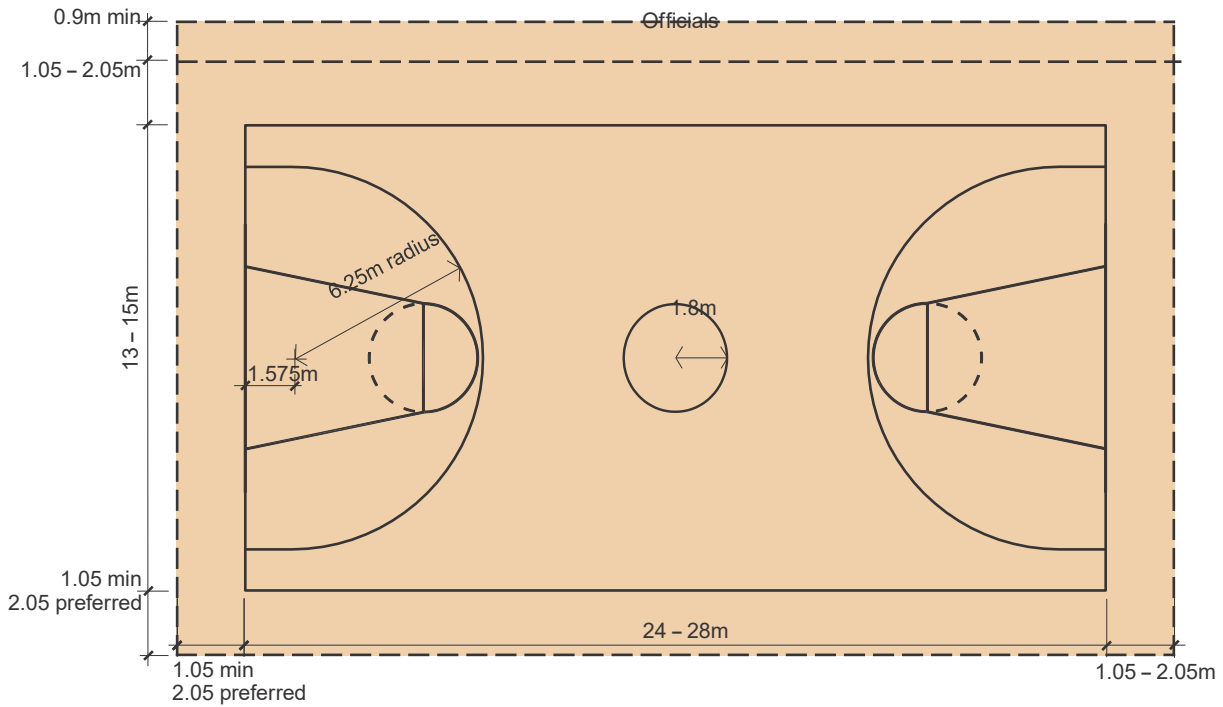
**Dimensions for individual sports**



Dimensions of a badminton court.

	Recreational/ Club	District/ Regional	National/ International
Minimum height over court	7.6	9.1	9.1
<b>Playing area (doubles court)</b>			
Length	13.4	13.4	13.4
Width	6.1	6.1	6.1
Wall from baseline, min	2.0*	2.3	2.3
Wall from sideline	1.5 min	2.2	2.2
Between parallel courts, min	1.5*	2.0	2.0
<b>Minimum overall area</b>			
For a single court	17.4 x 9.1	18 x 10.5	18 x 10.5
For a parallel pair	17.4 x 16.7	18 x 18.6	18 x 18.6
For each additional court	+7.6	+8.1	+8.1
*Baseline to division netting 1.5 min; sideline to division netting 1.2 min			

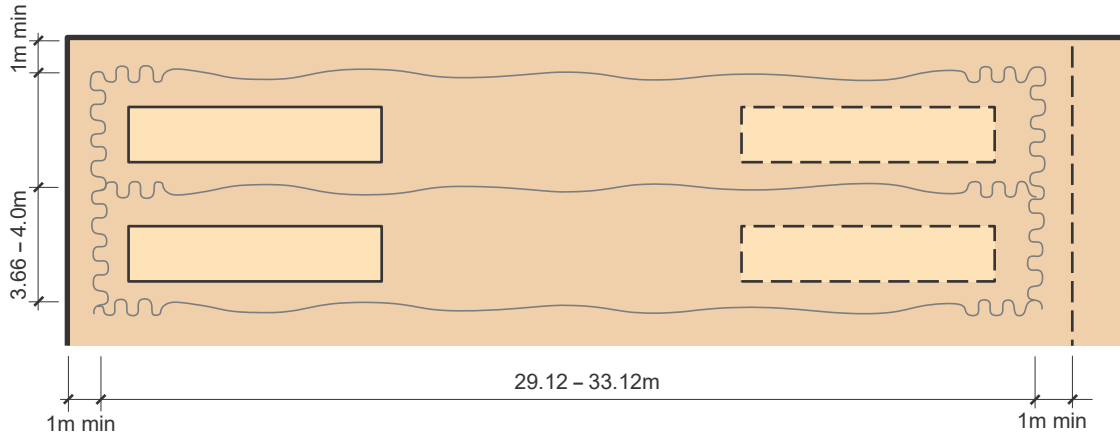
Badminton space requirements (m).



Dimensions of a basketball court.

	Recreational/ Club	District/ Regional	National/ International
<b>Playing area</b>			
Length	24-28	24-28	28
Width	13-15	13-15	15
Out-of-bounds surround	1.05 min	2.05	2.05 min
Extra one side for officials and team areas	0.9 min	3.0	3.0
<b>Minimum overall space</b>			
Area	R: 20.1 x 12.1 C: 30.1 x 18 to 26.1 x 16	32.1 x 22.1 to 28.1 x 20.1	32 x 22.1
Height	R: 6.7 C: 7.0	7.0	7.0

Basketball space requirements (m).



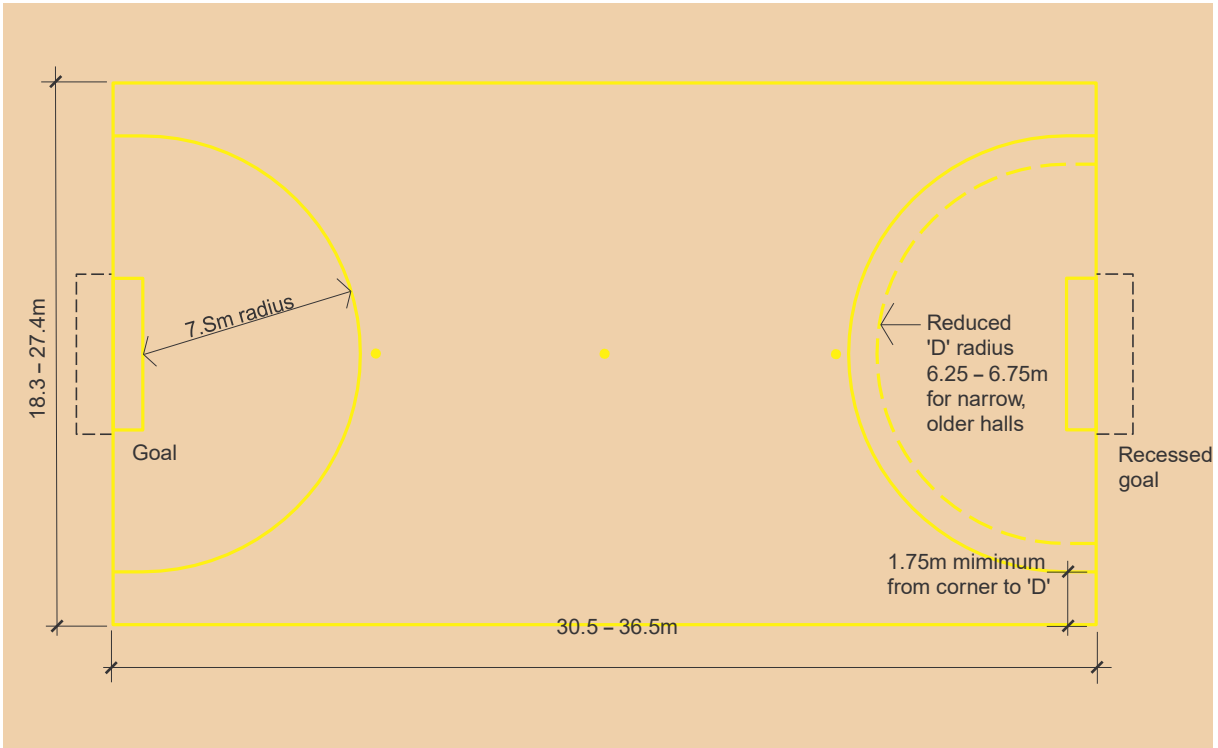
Dimensions for cricket practice.

	Minimum	Recommended maximum
Length	29.12	33.12
Width	3.66	4.0
Height of horizontal top net	4.0	4.5
Safety margin surrounds	1.0	

Cricket practice space requirements (m).

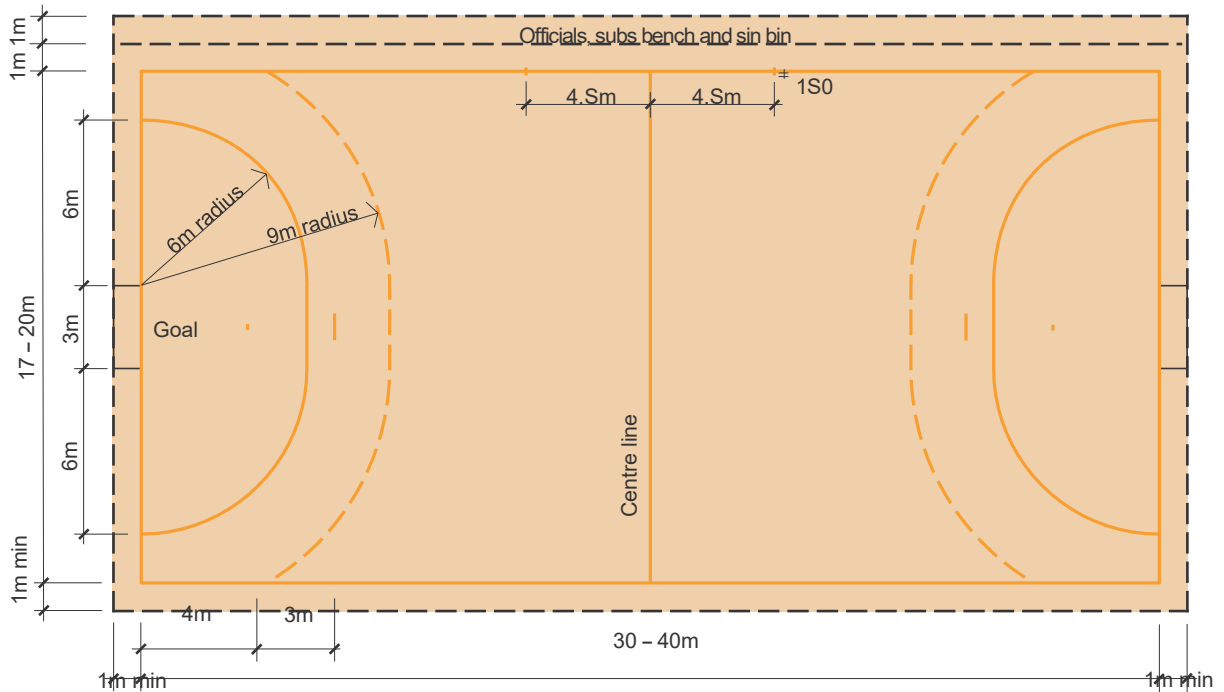






Dimensions of a five-a-side football pitch.

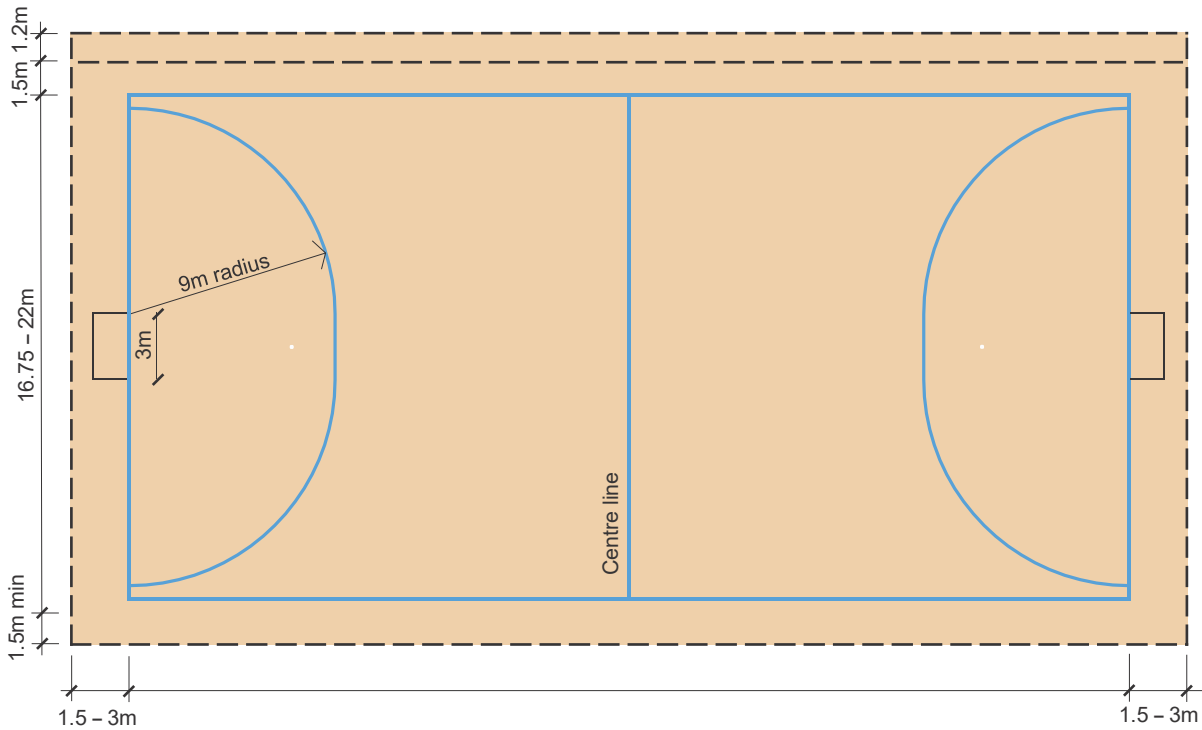




Dimensions of a handball court.

	Recreational	Club/ District/ Regional	National/ International
<b>Playing area</b>			
Length	30	34.5-40	40 min
Width	17 min	18-20	20
Side margins, min	None	1.0	1.0
Officials/team bench space, additional one side	-	1.0	1.0
End margins, min	-	1.0	1.0
<b>Minimum overall space</b>			
Area	32 x 17	36.5-42 x 21-23	42 x 23
Height	6.7-7.6	7.6-9.0	9.0

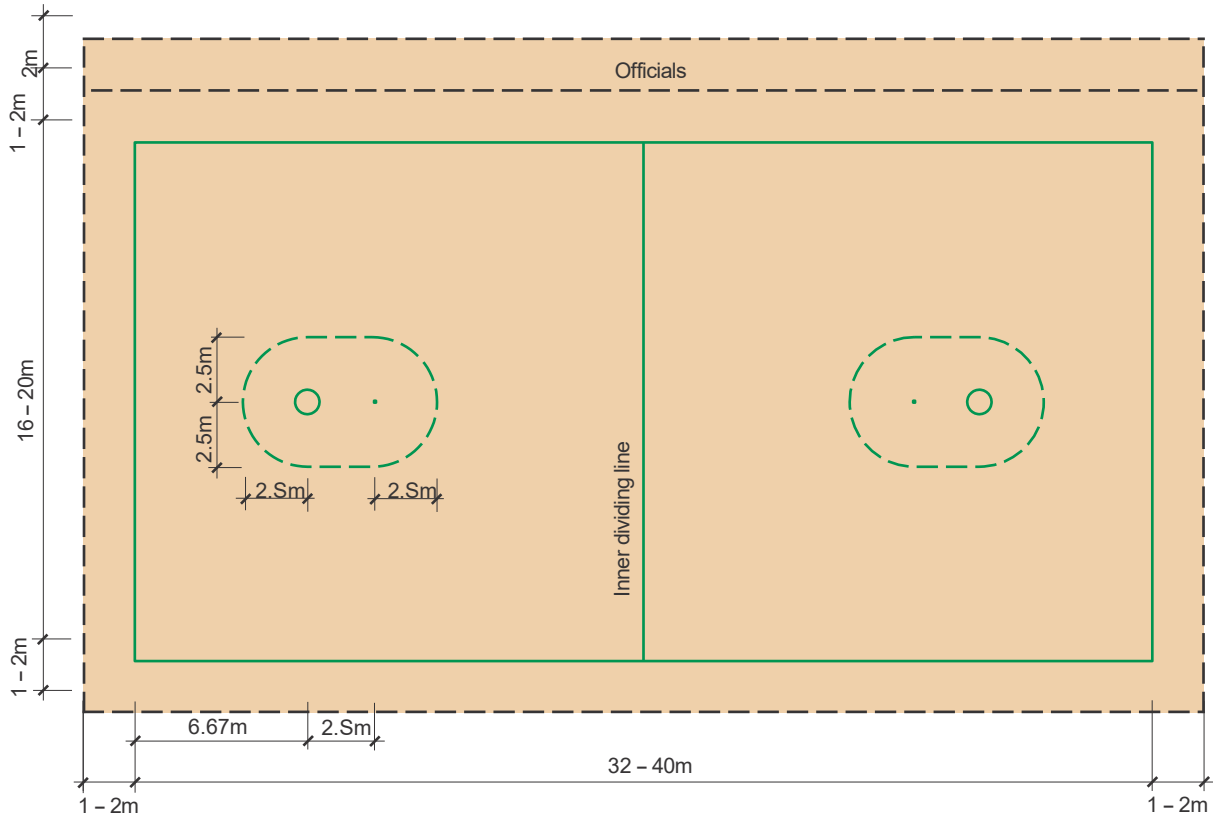
Handball space requirements (m).



Dimensions of a hockey pitch.

	Recreational	Club/ District/ Regional	National/ International
<b>Playing area</b>			
Length (including back lines)	2:1 length/width	36-44 or 33.5	36-44
Width (including 100 x 100mm side boards)	18-22	18-22 or 16.75	-
Run out behind back lines	1.5	1.5-3.0	3.0
Clearance outside side boards	-	1.5 min	1.5 min
Officials' table and team benches (additional clearance on one side)	-	1.2	1.2
<b>Overall area</b>	2:1	39-50 x 22.2-26.2 or 36.5 x 21	42-50 x 22.2-26.2
Height	No prescribed minimum height		

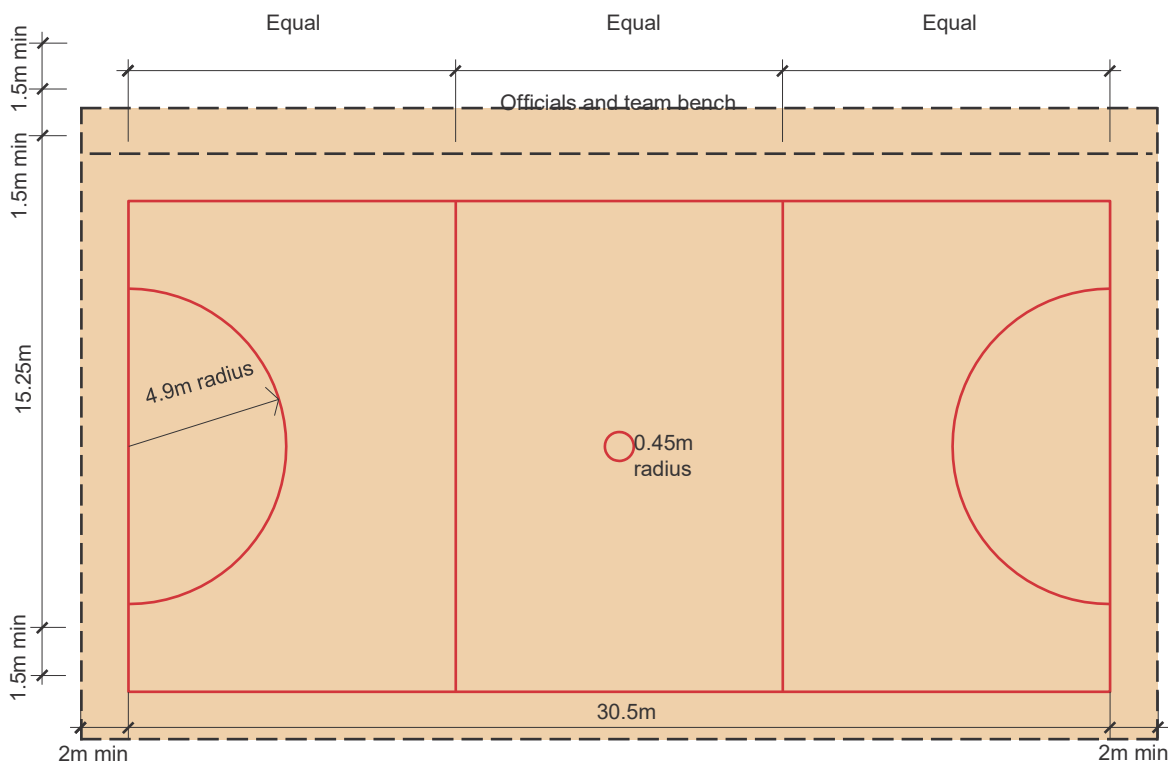
Hockey space requirements (m).



Dimensions of a korfball pitch.

	Recreational	Club/ InterDistrict	National/ International
<b>Playing area</b>			
Length	32-36 min	36-40	40
Width	16-18 min	18-20 min	20
Side margins	1-2.0	2.0	2.0
Extra margin for table and bench	-	2.0	2.0
End margins	1-2.0	2.0	2.0
<b>Minimum overall space</b>			
Area	34 x 22 to 49 x 22	40 x 22 to 44 x 26	44 x 26
Minimum height	7.0	9.0	9.0

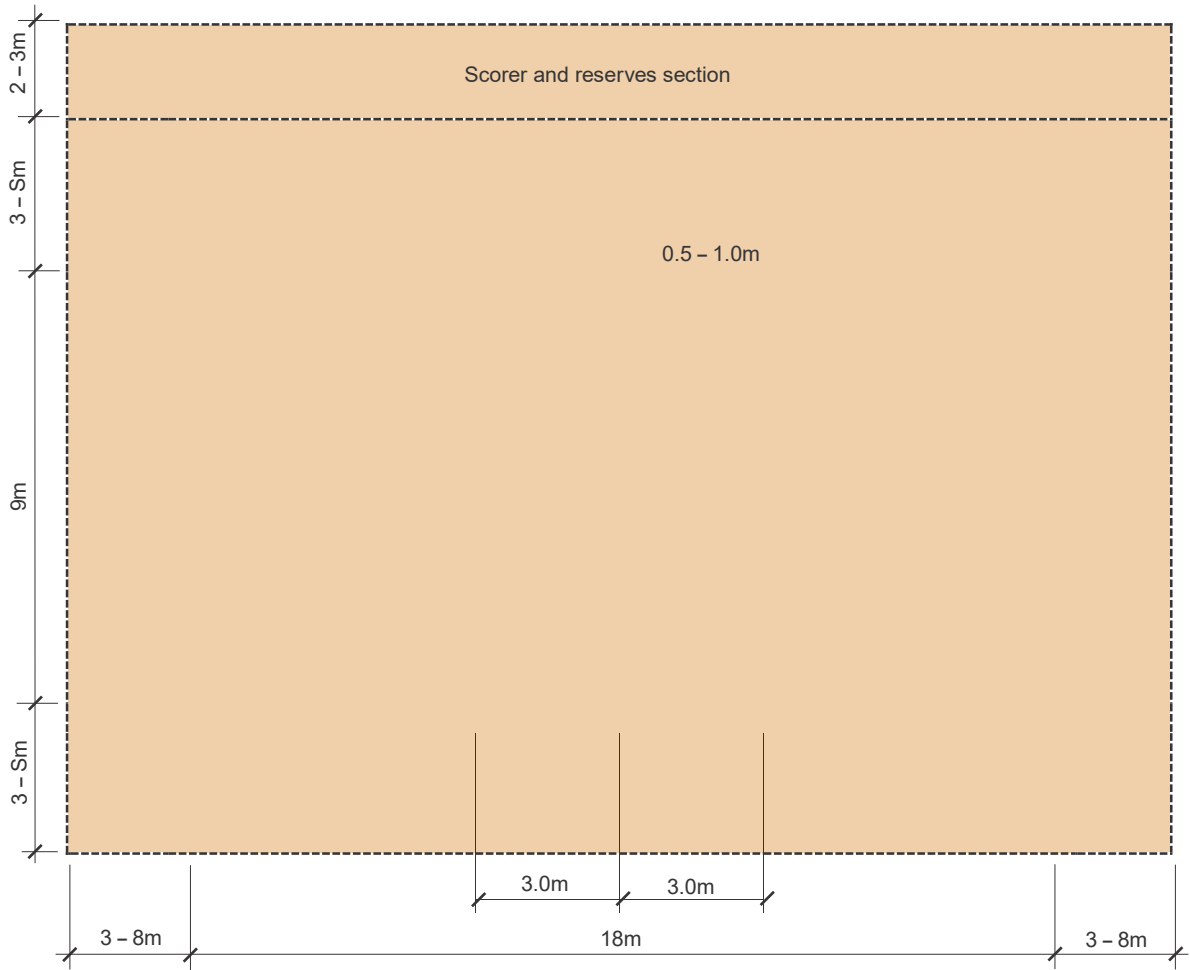
Korfball space requirements (m).



Dimensions of a netball court.

	Recreational	Club	District	Regional/ National
<b>Playing area</b>				
Length	30.5	30.5	30.5	30.5
Width	15.25	15.25	15.25	15.25
Margin along sidelines	1.5*	1.5*	1.5*	1.5–2.0*
Extra margin for match tables and team benches	–	–	1.5 min	1.5
Margin space behind goal lines, min	2.0 <sup>+</sup>	2.0 <sup>+</sup>	2.0 <sup>+</sup>	2.0 <sup>+</sup>
<b>Overall area</b>	34.5 x 18.25	34.5 x 18.25	34.5 x 19.75 min	34.5 x 19.75–20.75
Minimum height	6.7–7.0	7.0–7.6	7.6	7.6
* 2m between parallel undivided courts + 3m between end-on courts				
Note: In standard and undersize sports halls, court size must be reduced to maintain minimum run-off margins.				

Netball space requirements (m).



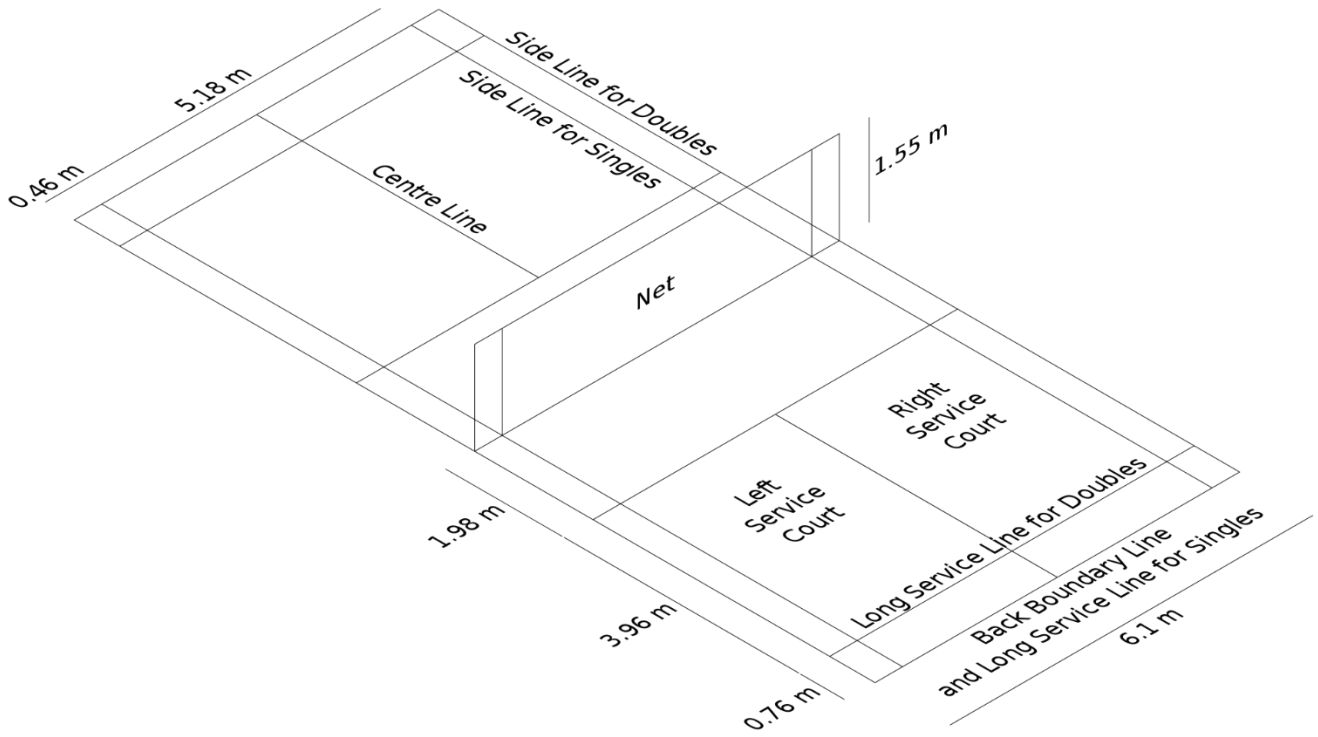
Dimensions of a volleyball court.

	Recreational	Club/ District/ Regional	National	International
<b>Playing area</b>				
Length	18.0	18.0	18.0	18.0
Width	9.0	9.0	9.0	9.0
Backline clear space	3.0	3.0	5.0	8.0
Sideline clear space	3.0	3.0 min	3.0 min	5.0
Officials' space (additional on one side)	-	2.0	2.0	3.0
Spectators' margin (additional on the other three sides)	-	-	2.0	3.0
<b>Minimum overall space</b>				
Area	24 x 15	24 x 17	28 x 19	40 x 25
Clear height	7.0	8.0	10.5	12.5

Volleyball space requirements (m).



Court markings show up well on this beech floor and the badminton court zones are clearly defined.



**HEIGHT**

- ◆ Minimum height for international play is 9 meters (30 feet), minimum height is desirable for all Badminton facilities
- **BACKGROUND AND LIGHTING**
  - ◆ Wall colours and background cannot be white
  - ◆ Lighting must be a minimum of 800 LUX for local tournament and 1000 LUX for national/international events
  - ◆ Ideally lighting is offset (not directly over the court)
  - ◆ No natural light from window – or the ability to block out natural light with a blind system
- **FLOORING**
  - ◆ Sprung wood floor is ideal
  - ◆ Recommended at least two meters (6 ½ feet) clear space surrounded all the outer lines of the court; also required between any two courts marked out side by side
  - ◆ If painted lines, badminton must be the top level of lines painted. No breaks in the badminton lines.

Ghana Badminton aims is leading the development of sport in Ghana by influencing and serving the public, private and voluntary sectors. OFur aim is:

**more people involved in sport**

**more places to play sport**

**more medals through higher standards of performance in sport**

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## **What Do We Do as Your National Governing and Supervisory Body of Badminton in Ghana**

We are Ghana Badminton, -the Governing Body of Badminton in Ghana formed in 1962. With Olympic success at the heart of our ambitions, we are investing our knowledge and expertise in rebuilding build a quality future for our sport by strengthening and developing the domestic game and developing talent to achieve success on the international stage, inspiring the next generation of players and local fans and corporate community. With Olympic success at the heart of our ambitions, we are investing our knowledge and expertise in rebuilding build a quality future for our sport by strengthening and developing the domestic game and developing talent to achieve success on the international stage, inspiring the next generation of players and local fans and corporate community in line with the global vision of giving every child a chance to play for life by leading and inspire all stakeholders; to deliver entertainment through exciting events to drive fan experience; and to create innovative, impactful and sustainable development initiatives. We do this by preparing and implementing a vision and strategic plan for the national *sport* and determine how it will be implemented nationally, regionally and *local*.

### **What Do We Do as Your National Governing Body?**

#### **Represent Every Member of The Badminton Community in Ghana**

- Provide a well governed, compliant, and inclusive global sport
  - Represent you at Government level ensuring as many policies and players as possible can return to Badminton awareness
  - Representation of circa 52 Community Clubs and 2M Community players in increasing the number of facilities and courts nationwide
- **Protect The Sport and Everyone Involved**
    - Protect children and vulnerable family adults through our safeguarding measures
    - Work to provide insurance protection for every affiliated club and member in good standing
  - **Create A Pathway from Grassroots to The National Team**
    - Select teams to represent Ghana at African and the World Multi-Sport Level
    - Manage the Olympic and Paralympic Programme on behalf of Ghana
  - **Grow The Sport and Develop Our Coaches and Players**
    - Organize a broad range of programmes, technical courses, tournaments and events
    - Quality community coaches and teachers
    - Secure more courts and court time for clubs and players
    - Provide a pathway from community badminton to the high performance environment
  - **Provide Exciting National and International Competition**
    - Manage the rules and regulations of its sport, including anti-doping, child protection, sport management and equality.
    - Implement a governance framework for its sport
    - Sanction events organized by affiliates institution and clubs
    - Work to provide a calendar of circa 100+ tournaments a year for recreational and professional players of all levels
    - Work to provide a national ranking system for more than 100,000 players across our ecosystem