BADMINTON TECHNICAL GUIDANCE NOTES

INTRODUCTION

In accordance with the Badminton Facilities Strategy the BAofE has introduced criteria for **High Performance Centres, Performance & Development Centres and Development Centres.** It has also introduced an accreditation system for special badminton centres, which enables any sports centre to be assessed by the BAofE and if achieving the required standard awarded an accreditation as a specialist badminton centre in one of the aforesaid three categories.

These guidance notes are written in two sections A and B – **Section A** being dedicated badminton halls, where no other sport is played and would normally be a High Performance Centre or a Performance & Development Centre. **Section B** being multiuse halls in which badminton is played these may be Performance & Development Centres and Development Centres.

These notes have been written specifically with badminton in mind. The modern game demands special playing conditions that many halls could easily provide at the design stage but would be expensive to alter at a later date.

Although some technical terms are used throughout this document they have been kept to the minimum so that the professional designer and the club player can both gain from this information.

Badminton is one of the most popular sports in the U.K. and is often the single most popular sport in multi-sport halls. Sports halls are often built using the badminton courts as a standard to produce the size of the building i.e. a four court hall will accommodate other sports within this area such as netball, basketball, five-a-side football, volleyball and cricket practice nets.

Badminton has the most exacting visual requirements therefore the section on lighting is more detailed than other sections.

The game requires that players are able to sight a fast moving shuttlecock against a suitable background, which can be varied by lighting and colour. Badminton requires space and “run-off” similar to other sports but requires different lighting and greater height than most other sports.

Badminton requires a properly lit hall with no daylight and a suitable background for sighting the shuttle. The hall should be warm with controlled ventilation and a resilient floor to prevent injuries.

Contact:
The Badminton Association of England Limited, Development Department, National Badminton Centre, Bradwell Road Loughton Lodge, Milton Keynes, MK8 9LA. Tel: 01908 268400.

DEFINITIONS OF HALL USE

PERFORMANCE	BAofE DEFINITION	LEVELS OF PLAY
CLASS 1	**High Performance Centre**	**Suitable for competitive play and training up to National level**
CLASS 2	**Performance & Development Centre**	**Suitable for competitive play and training up to Junior National and Senior County**
CLASS 3	**Development Centre**	**Suitable for competitive play and training up to Junior County, Local League/Club and Recreational play**

SECTION A

DEDICATED BADMINTON CENTRES

These centres would be to the highest standard and would have to comply specifically with the requirements of the Badminton Association of England Ltd

A1. FLOORING

1) The performance standard and testing method for sports floors is covered by British Standard 7044: Artificial Sports Surfaces, Part 4 – Specification for Surfaces for Multi-sports Use. This is a wide specification and the BAofE prefer to be more specific in the type of floor used.

2) The preferred flooring for playing badminton is a sprung floor covered with a vinyl absorbent covering. This being an area elastic floor covered with a point elastic covering; this being referred to as a floor with combi-elastic deflection. A description of this floor would be as follows:-

> A combined area and point elastic sports floor comprising a 22mm thick plywood decking secured to preservative treated battens supported by shock absorbent cradles. The playing surface to comprise a 6.5mm thick close cell foam backed sheet floor covering.

(The BAofE offers a generic specification for this type of floor).

3) The other type of sprung floor commonly used and accepted by the BAofE is a sprung floor covered with hardwood strip flooring.

4) The finish to the flooring should be matt to avoid any glare and the overall effect dark in colour. The floor colours reflectance value should be within 20 to 40%.

SECTION A – Dedicated Badminton Centres (cont'd)

A2. SPACE AND LAYOUT

Schedule of Court sizes

The schedule of sizes are for a four court hall but some centres may have more courts in which case the minimum dimensions and spaces should be maintained

HIGH PERFORMANCE CENTRES	MINIMUM SPACES AROUND COURTS			
New Build Hall size – Ht. 9.1 metres	**Between Courts (No curtain)**	**Between Courts if curtain required**	**Sides at End of Hall**	**End of Court**
Length 33 metres	1.72m 1.5m	2.6m	1.72m 1.5m	
Width 18 metres				2.3m
Recommended New Build Hall size for tournaments and accommodating spectators				
Length 34.8 metres	2.08m 2.0m	3.2m	2.08m 1.6m	
Width 21 metres				3.8m

Notes:

- The dimension of 2.6m between courts is the absolute minimum when a curtain divides the courts; this maintains the 1.3m at the sides of each court affected.
- The dimension of 3.8m at the ends of the court is when additional space can be provided for spectators. In this situation it is more practical to provide 2.3m at one end and 4.3m at the other end for spectator seating, circulation and umpires/lineman's chairs

Height Requirements

The heights indicated in the schedule are the minimum heights, which should be over the whole of the court area, and are below any obstructions such as beams, basketball backboards, cricket net rails and lights, etc.

Layout of Courts

1) Court markings should be 40mm wide and should be of a contrasting colour to the floor but it is usual for these lines to be matt white; they may be applied by paint or tape.

2) Should the courts be laid out "end to end" then there should be a curtain between the ends of the courts and it is essential that the minimum dimension is maintained on both sides of the curtain (i.e. 2.3metres). To avoid any distractions caused by movement and lights from the other courts, the curtain dividing the courts **should be solid**; netting will not be sufficient.

Full details of the layout of a badminton court may be obtained on the Badminton Association of England Limited's website www.baofe.co.uk (click on Development and then Facilities)

A3. WALLS AND CEILINGS

Walls

1) A background against which a fast moving shuttle can be seen easily is critically important for the successful playing of the game.

2) The ideal badminton hall has four plain walls with no windows or roof lights. There should be no distracting attachments, particularly brightly coloured items. There should be no ledges or other projections likely to trap shuttles.

3) Very careful thought should be given to the design of spectator galleries, these can sometimes create difficulties and distractions when viewed from the court. These areas need to be of similar colour to the walls and the lighting should be subdued and carefully hidden when viewed from the court. Windows and doors at the rear of the spectators' galleries should be curtained or designed so that no light can be seen from the court. If the spectator areas are glazed then specialist advice should be obtained from the Glazing Association so that no interference is caused by lights or reflection of activity from the playing area.

4) Walls should be finished in medium to dark shades and have a matt surface. This applies just as much to sidewalls as to the end walls since many shots are played looking towards the side of the court. Walls can be built of many different types of material but it should be borne in mind that acoustics play an important part in the enjoyment of the hall. Colours with a reflectance value of 30-50% were found to give the best playing conditions - green (Dulux Colour dimensions code 30 GG 45/362) or an equivalent blue (86 BG 43/321). Any doors or coverings should be finished in the same colour as the walls.

5) Where curtains are drawn at the ends of the courts, such as in a hall that has the courts laid out "end to end", the material should be "solid" and the same colour as the surrounding walls.

Ceilings

The ceilings in sports halls are often the underlining to the roof, which is usually of a sandwich construction. The underlining can be of an acoustic material and as with the walls this is very important to the environment of the hall. Sometimes the self-finished acoustic lining is an ideal colour for the ceiling and complies with the required reflectance values of 70–90% - colours in excess of 90% i.e. white causes visual problems and should not be used.

Footnote:

Glass & Glazing Federation, 44, Borough High Street, London, SE1 1BX Tel: 0207 403 7177

A4. ENVIRONMENTAL SERVICES

Lighting

Introduction

1) Lighting for badminton, as with most other activities, involves subjective opinions that may fluctuate in respect of the degree of acceptability of a lighting installation. The aims and objectives in lighting a badminton court must take into consideration the requirements for provision of:

- A safe environment for players
- An effective illumination of court markings so as to aid player information and to assist match officials in the execution of their duties
- A suitable and sufficient lighting for spectators

2) In accordance with BS EN 12193 (1999) - Sports Lighting, three area dimensions are described i.e. principal area (PA), total area (TA) and reference area. The principal area is the actual playing area required for the performance of a sport. The total area comprises the principal area plus any additional safety area outside the principal area. The reference area is that area on which the main lighting requirements apply.

3) The respective dimensions for badminton court lighting are given as PA = (13.4m x 6.1m) and TA (Max) = (18m x 10.5m).

4) When designing the lighting for badminton halls it is useful to appreciate how the game is played. The shuttle can move at very fast speeds over the net requiring maximum light reflecting from the white feathers of the shuttle. The shuttle can best be seen when illuminated in this way against a dark background, therefore the rear does not need to be lit to such a high level as the centre of the court; in fact very little lighting is required at the rear.

5) Players must be able to follow the flight of the shuttle against the background without being troubled by glare or having their attention distracted by bright light sources. Badminton requires very carefully designed lighting to enable the game to be played at a high standard. It is often thought that badminton requires very high illuminance levels but this is not the case, badminton requires lighting to be concentrated in certain areas but not in others.

6) Lighting is one of the most important requirements in the design of a hall where badminton is played but is so often ignored. It is essential to consider lighting early in the design stage so that the lamp type can be co-ordinated with the court layout and the background colours. Lighting and colours should be considered as an entity.

7) On no account must luminaires be directly positioned over the court. Doors and windows to other lit areas are all distracting and arrangements should be made for such light sources to be temporarily screened or switched off.

Lighting (Cont'd)

8) It is important to appreciate that the background and the lighting should be considered as an entity as both can alter the playing conditions. The walls need to be of a colour giving a reflectance value of not more than 50% and the ceilings 70% – 90%. It has been found that not all colours give the best background, even when all colours selected were 50% RV; green and blue were the preferred colours. With regard to the ceiling the reflective value may be higher if the luminaries are suspended further from the ceiling - alternatively if the luminaries are positioned nearer to the ceiling then the ceiling fabric must be darker with a lower reflectance value.

9) The shuttle is also hit very high and over some distance, which demands a degree of uplighting to pick up the shuttle in flight. Preferred lighting conditions are obtained when the luminaires are suspended from the ceiling, as much of the game is spent with the players looking up at the ceiling to follow the flight of the shuttle.

10) The luminaires should be set at 5 metres from the floor and no closer than one metre from the side of the court. Luminaires should be concentrated from the midcourt to the centre; one positioned level with the net and the others positioned three metres in both direction and level with the midcourt area (see diagram on page 7). This layout has been proven to give suitable playing conditions and avoids situations where a player may be dazzled.

11) It is important that an appropriate type of luminaire is selected that allows a degree of shielding and/or diffusion to prevent the player looking into a direct light. Good lighting conditions have been obtained by using compact fluorescents – high frequency luminaries.

12) If a curtain is used between the courts then lighting is required on both sides of the curtain to maintain the same level of lighting.

ILLUMINANCE TO BS EN 12193 (1999)

The level of illuminance required for many sports is influenced by the standard of play and is set out in BS EN 12193 (1999) as Class I, II & III. Notwithstanding this recommendation the level of illuminance required for badminton should be the best possible irrespective of standard. The illuminance plot on page 7 shows the recommended level.

LUMINAIRES & GLARE CONTROL

1) The total elimination of glare in sport is seldom achieved due to the ever-changing directions of view of participants. Nevertheless measures should be taken in an attempt to minimise glare that may affect the visual performance of participants. To this end downlighter luminaires should be used that incorporate glare control.

2) In sporting environments similar to indoor working conditions, glare should be calculated using the unified glare rating (UGR) method and limiting values used shall be those specified in prEN 12464.

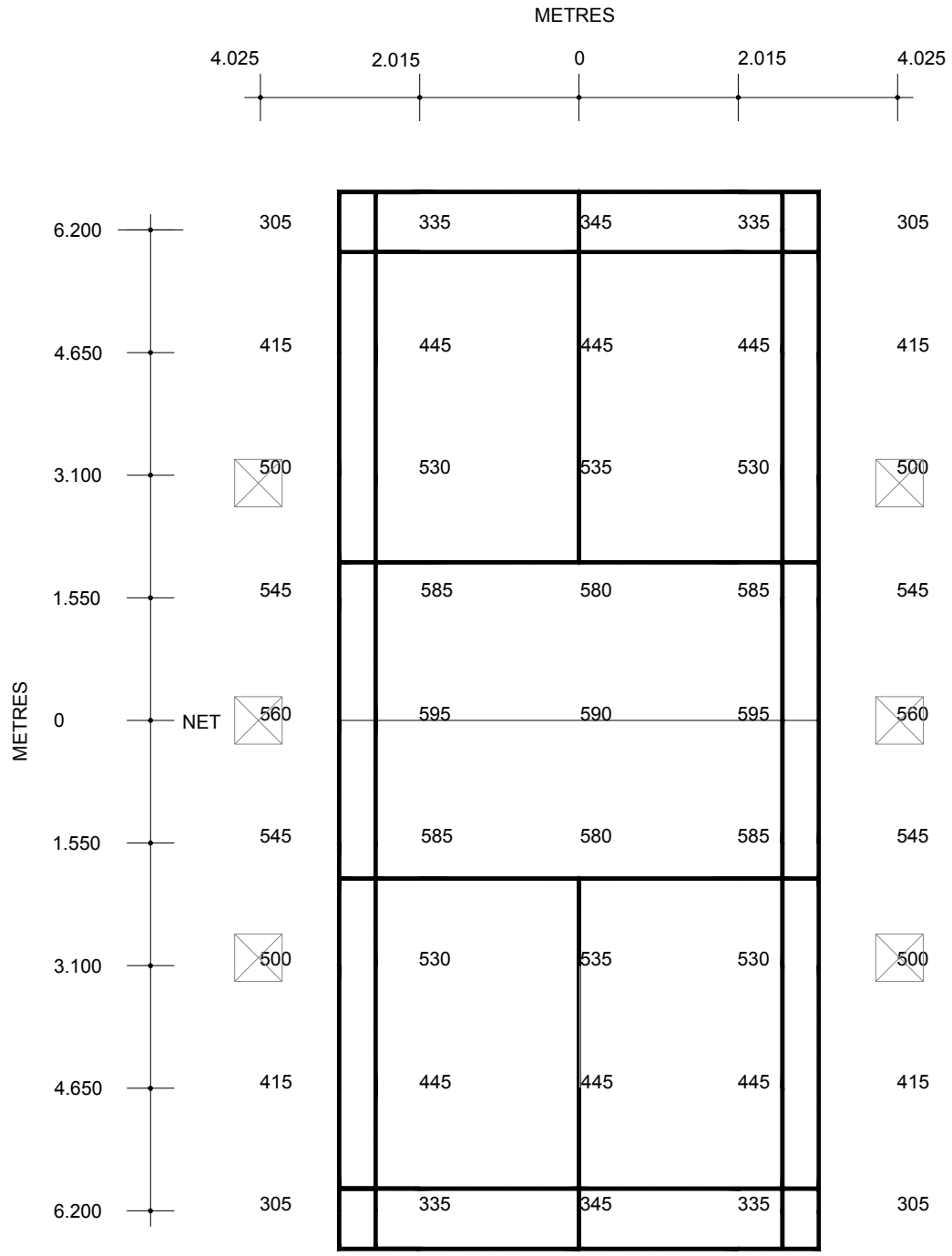
A4. ENVIRONMENTAL SERVICES (Cont'd)

Lighting (Cont'd)

Typical lux readings for a dedicated badminton court – luminaires to be 5 metres above floor level, 1 metre from the edge of the court and no luminaires extending more than 3 metres from the net line at the centre of the court.

ILLUMINANCE PLOT with luminaires at 5 metres above floor level

Average illuminance	**474 lux**
Minimum illuminance	**305 lux**
Maximum illuminance	**595 lux**



Lighting (Cont'd)

MAINTENANCE & MONITORING

A programme of cyclic maintenance should be operated whereby: -

- Luminaires shall be cleaned at a frequency in keeping with the activities performed within the environment.
- Lamps should be changed in accordance with manufacturers' recommendations
- Records shall be kept of maintenance performed
- Individually failed lamps shall be replaced as a matter of urgency – since an inoperative luminaire will present a 'dark patch' when players are looking upwards which is likely to result in difficulty in following the trajectory and velocity of the shuttle

A4. ENVIRONMENTAL SERVICES (Cont'd)

Heating & Ventilation

1) The design temperatures should be between 16 to 19 degrees Celsius, which is accepted as the comfort zone for playing the game. It is recommended that no less than1.5 air changes per hour be made.

2) Any heating or ventilating system that moves the air can deflect the shuttlecock therefore it is important that heating and ventilation systems are designed taking this into account. The location and protection of all air input and extraction grilles or openings must be carefully considered – particularly in relation to the flight path of the shuttlecock. It is better if ventilation systems are designed to operate around the perimeter of the hall to limit air movement over the court. The air velocities within the playing area should not exceed 0.1 metres per second.

3) The system most commonly used where badminton is played is high-level radiant panels fitted to the walls in conjunction with a controlled ventilation system. Traditional low pressure hot water radiator systems or under floor heating could be used if appropriate to the type of flooring. Heating by warm air is not recommended, as it is difficult to control the air movement when the heating is operating.

A5. OTHER ACCOMMODATION & FACILITIES

Badminton does not require large storage facilities for equipment in dedicated badminton centres as the posts and nets are permanently positioned in the floor of the hall. The only other items of equipment may be shuttles and umpires chairs.

Other facilities required are as follows:

- Changing rooms with showers for both male and female
- Restaurant
- Physio/medical room
- Meeting/seminar room for 15 to 20 people
- Access to Weights/CV training equipment
- Area for waiting/resting players
- Residential Accommodation for 20 people
- Office with telephone to accommodate two people
- Car parking

Footnote:

See also Sport England Guidance Note Ref: 864 Sports Halls: Design
See also Sport England Guidance Note Ref: 886 Car Park and Landscape Design.

SECTION B

BADMINTON CENTRES IN MULTIUSE HALLS

These centres would most likely be in sports centres, schools or universities and may be classified as Performance & Development Centres or Development Centres

It has been found that the advice given in these notes, by the Badminton Association of England Ltd (BAofE), will provide the best conditions for playing the game. Professional designers may well consider that there are other ways of achieving the same result and the BAofE would consider alternatives but these should first be approved by the Association.

B1. FLOORING

1) The performance standard and testing method for sports floors is covered by British Standard 7044: Artificial Sports Surfaces, Part 4 – Specification for Surfaces for Multi-sports Use. This is a wide specification and the BAofE prefer to be more specific in the type of floor used.

2) The preferred flooring for playing badminton is a sprung floor covered with a vinyl absorbent covering. This being an area elastic floor covered with a point elastic covering, this being referred to as a floor with combi-elastic deflection. A description of this floor would be as follows:-

> A combined area and point elastic sports floor covering comprising a 22mm thick plywood decking secured to preservative treated battens supported by shock absorbent cradles. The playing surface to comprise a 6.5mm thick close cell foam backed sheet floor covering.

(The BAofE offers a generic specification for this type of floor).

3) The other type of sprung floor commonly used and accepted by the BAofE is a sprung floor covered with hardwood strip flooring.

4) In existing halls solid floors are often used i.e. concrete, screed or composition flooring this is not acceptable for the playing of badminton and injuries can be caused with this type of floor. It is appreciated that existing centres and halls may have this type floor but they can be improved by covering the existing hard floor with laminated timber planks on rubber strips or a foam-backed cushioned sheet material. Halls modified in this manner would be an improvement but would not be considered for accreditation. It should be noted that this will not comply with Part 4 of the British Standard 7044 therefore a detailed risk assessment will need to be carried out. Anything less than Part 4 is not suitable for the playing of badminton

5) The finish to the flooring should be matt to avoid any glare and the overall effect dark in colour. The floor colours reflectance value should be within 20 to 40%.

B2. SPACE AND LAYOUT

Schedule of Court sizes

DEVELOPMENT CENTRES	MINIMUM SPACES AROUND COURTS			
Existing Hall size - Ht.6.7 metres	**Between Courts (No curtain)**	**Between Courts if curtain required**	**Sides at End of Hall**	**End of Court**
Length 32 metres	1.52m 1.4m	2.4m	1.52m 1.2m	
Width 16.4 metres				1.5m
New Build Hall size - Ht. 7.6 metres				
Length 33 metres	1.72m 1.5m	2.6m	1.72m 1.5m	
Width 18 metres				2.3m

PERFORMANCE & DEVELOPMENT CENTRES – MINIMUM SPACES AROUND COURTS				
Existing Hall size – Ht. 7.6 metre	As Development Centres			
New Build Hall size – Ht. 9.1 metres	**Between Courts (No curtain)**	**Between Courts if curtain required**	**Sides at End of Hall**	**End of Court**
Length 33 metres	1.72m 1.5m	2.6m	1.72m 1.5m	
Width 18 metres				2.3m
Recommended New Build Hall size for tournaments & accommodating spectators				
Length 34.8 metres	2.08m 2.0m	3.2m	2.08m 1.6m	
Width 21 metres				3.8m

Notes:

- The dimension of 1.2m at the sides of the court is the absolute minimum for safety and this must be maintained when a curtain is introduced.
- The dimension of 2.4m between courts is the absolute minimum when a curtain divides the courts; this maintains the 1.2m at the sides of each court affected.
- The dimension of 3.8m at the ends of the court is when additional space can be provided for spectators. In this situation it is more practical to provide 2.3m at one end and 4.3m at the other end for spectator seating, circulation and umpires/linesman's chairs.
- The BAofE recognises that not all existing halls will be able to provide the minimum dimensions but safety should be considered at all times, the absolute minimum for recreational play would be 1.2m at the sides, 1.5m at the ends and a height of 6.100. The applicant would need to carry out a detailed risk assessment.

B3. SPACE AND LAYOUT (Cont'd)

Height Requirements

1) The heights indicated in the schedule are the minimum heights, which should be over the whole of the court area, and are below any obstructions such as beams, basketball backboards, cricket net rails and lights, etc.

2) Halls below 7.6m would be unsuitable for play at a high level (County or National) but would be adequate for local league or club matches as doubles is predominantly played rather than singles when the greater height would be desirable. It would also be suitable for Adult Education, recreational or children's' play.

3) A height of 6.1m is the recommended absolute minimum for small community centre halls designed only for recreational play.

Layout of Courts

1) Court markings should be 40mm wide and should be of a contrasting colour to the floor but it is usual for these lines to be matt white; they may be applied by paint or tape. Where a sports centre is accredited by the BAofE then the badminton lines should be dominant.

2) Should the courts be laid out "end to end" then there should be a curtain between the ends of the courts and it is essential that the minimum dimension is maintained on both sides of the curtain (i.e. 1.5m and 2.3m). To avoid any distractions caused by movement and lights from the other courts, the curtain dividing the courts **should be solid**; netting will not be sufficient.

Full details of the layout of a badminton court may be obtained on the Badminton Association of England Limited's website www.baofe.co.uk (click on Development and then Facilities)

B4. WALLS AND CEILINGS

Walls

1) A background against which a fast moving shuttle can be seen easily is critically important for the successful playing of the game.

2) The ideal badminton hall has four plain walls with no windows or roof lights. There should be no distracting attachments, particularly brightly coloured items. Basketball practise backboards behind a court should be removable. There should be no ledges or other projections likely to trap shuttles.

3) Very careful thought should be given to the design of spectator galleries, these can sometimes create difficulties and distractions when viewed from the court. These areas need to be of similar colour to the walls and the lighting should be subdued and carefully hidden when viewed from the court. Windows and doors at the rear of the spectators' galleries should be curtained or designed so that no light can be seen from the court. If the spectator areas are glazed then specialist advice should be obtained from the Glazing Association so that no interference is caused by lights or reflection of activity from the playing area.

4) Walls should be finished in medium to dark shades and have a matt surface. This applies just as much to sidewalls as to the end walls since many shots are played looking towards the side of the court. Walls can be built of many different types of material but it should be borne in mind that acoustics play an important part in the enjoyment of the hall. Colours with a reflectance value of 30-50% were found to give the best playing conditions - green (Dulux Colour dimensions code 30 GG 45/362) or an equivalent blue (86 BG 43/321). Any doors or coverings should be finished in the same colour as the walls.

5) Where curtains are drawn at the ends of the courts, such as in a hall that has the courts laid out "end to end", the material should be "solid" and the same colour as the surrounding walls.

Ceilings

The ceilings in sports halls are often the underlining to the roof, which is a sandwich construction. The underlining can be of an acoustic material and as with the walls this is very important to the environment of the hall. Sometimes the self-finished acoustic lining is an ideal colour for the ceiling and complies with the required reflectance values of 70–90% - colours in excess of 90% i.e. white causes visual problems and should not be used.

Footnote:

Glass & Glazing Federation, 44, Borough High Street, London, SE1 1BX Tel: 0207 403 7177

B4. ENVIRONMENTAL SERVICES

Lighting (Please also refer to paragraphs 1-12 in Section A)

In a multi-use hall where badminton is played the ideal conditions would be for the centre lights to be lowered to 5 metres on a rise and fall gantry system (allow sufficient cable for maintenance). If this is not possible then it is important that the switching should be arranged so that all the luminaires at the rear of the courts can be switched off, thereby creating a darker background. In this instance it is better to have five luminaires suspended between the courts and wired so that those at each end of the court can be switched off and the three centre luminaires left on for playing. This will give acceptable conditions where dedicated badminton lighting cannot be used.

ILLUMINANCE TO BS EN 12193 (1999)

The level of illuminance required for many sports is influenced by the standard of play and is set out in BS EN 12193 (1999) as Class I, II & III. Notwithstanding this recommendation the level of illuminance required for badminton should be the best possible irrespective of standard. The illuminance plot on page 16 shows the recommended level.

LUMINAIRES & GLARE CONTROL

1) The total elimination of glare in sport is seldom achieved due to the ever-changing directions of view of participants. Nevertheless measures should be taken in an attempt to minimise glare that may affect the visual performance of participants. To this end downlighter luminaires should be used that incorporate glare control.

2) In sporting environments similar to indoor working conditions, glare should be calculated using the unified glare rating (UGR) method and limiting values used shall be those specified in prEN 12464.

FACILITIES FOR VISUALLY IMPARED/ PARTIALLY SIGHTED PARTICIPANTS

1) When visually impaired or partially sighted participants play sport (including badminton) increased illumination may improve their performance and enjoyment. However, depending upon the nature of the pathology of the participant, increased levels of illuminance may adversely affect the performance and enjoyment.

2) By using the high frequency fluorescent lighting systems described previously, court level illuminance values can be varied, typically between 50% and 150% of the normal design lighting requirement. For those participants without visual impairment, the illuminance level can be adjusted so as to provide a 100% output. Where variation from the normal illuminance level is required when visually impaired or partially sighted individuals are playing badminton, the light output from the installation can be controlled accordingly depending upon the pathology, and subsequent lighting requirements, of the participants. It will be evident that individuals with mixed visual abilities are unlikely to participate on the same court simultaneously.

3) In all situations it is essential to ensure conformity with the terms specified in the UK Disability Discrimination Act 1995 together with any other current relevant legislation.

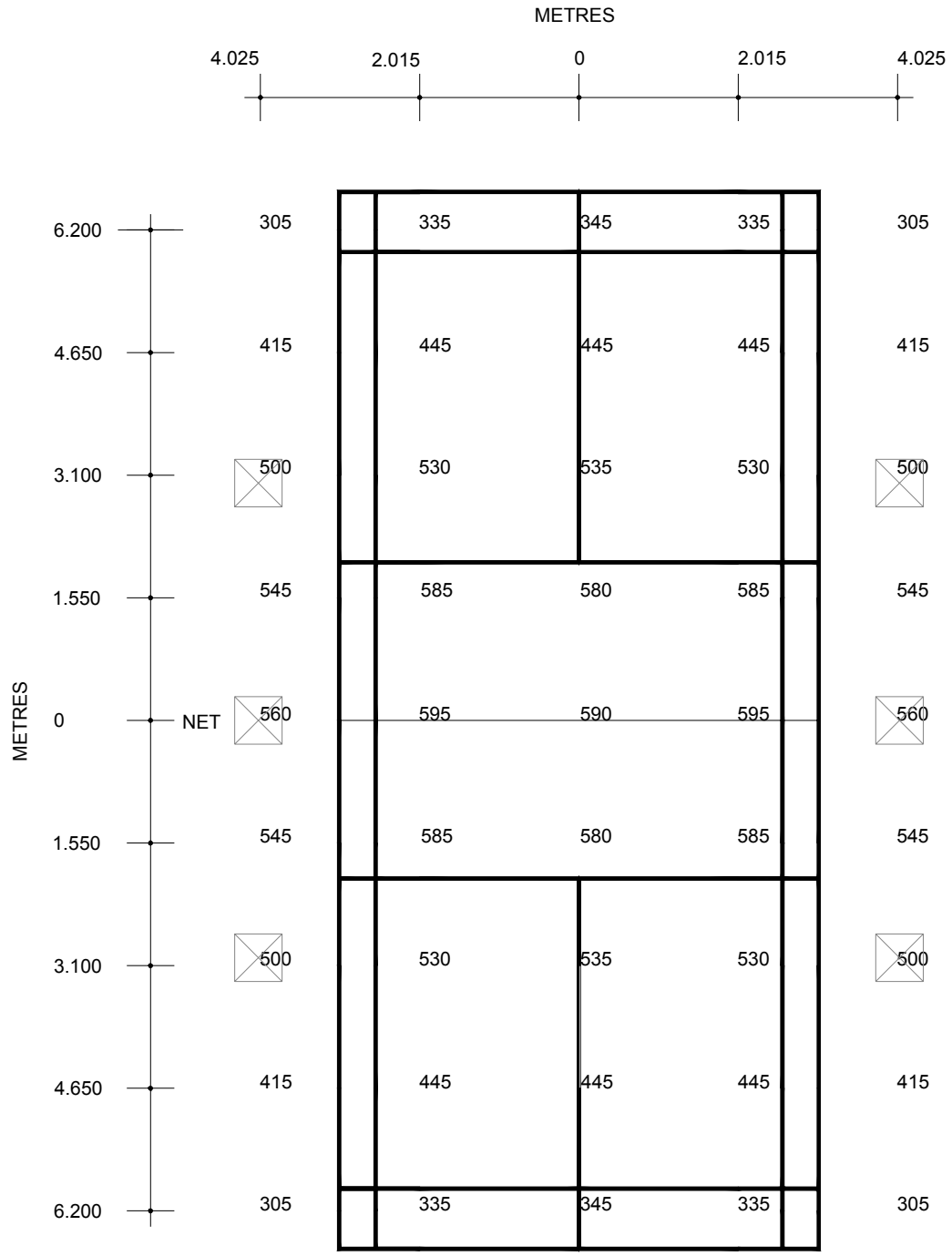
B4. ENVIRONMENTAL SERVICES (Cont'd)

Lighting (Cont'd)

Typical lux reading for a badminton court with ideal lighting conditions – luminaires to be 5 metres above floor level, 1 metre from the edge of the court and no luminaires extending more than 3 metres from the net line at the centre of the court.

ILLUMINANCE PLOT with luminaires at 5 metres above floor level

Average illuminance	**474 lux**
Minimum illuminance	**305 lux**
Maximum illuminance	**595 lux**



Lighting (cont'd)

MAINTENANCE & MONITORING

A programme of cyclic maintenance should be operated whereby: -

- Luminaires shall be cleaned at a frequency in keeping with the activities performed within the environment.
- Lamps should be changed in accordance with manufacturers' recommendations
- Records shall be kept of maintenance performed
- Individually failed lamps shall be replaced as a matter of urgency – since an inoperative luminaire will present a 'dark patch' when players are looking upwards which is likely to result in difficulty in following the trajectory and velocity of the shuttle

B4. ENVIRONMENTAL SERVICES (Cont'd)

Heating & Ventilation

1) The design temperatures should be between 16 to 19 degrees Celsius, which is accepted as the comfort zone for playing the game. It is recommended that no less than1.5 air changes per hour be made.

2) Any heating or ventilating system that moves the air can deflect the shuttlecock therefore it is important that heating and ventilation systems are designed taking this into account. The location and protection of all air input and extraction grilles or openings must be carefully considered – particularly in relation to the flight path of the shuttlecock. It is better if ventilation systems are designed to operate around the perimeter of the hall to limit air movement over the court. The air velocities within the playing area should not exceed 0.1 metres per second.

3) The system most commonly used where badminton is played is high-level radiant panels fitted to the walls in conjunction with a controlled ventilation system. Traditional low pressure hot water radiator systems or under floor heating could be used if appropriate to the type of flooring. Heating by warm air is not recommended, as it is difficult to control the air movement when the heating is operating.

B5. OTHER ACCOMMODATION & FACILITIES

Badminton does not require large storage facilities for equipment only sufficient room for wheel-away posts, nets and shuttles.

Other facilities required for **Development Centres** as follows:-

- Changing rooms with showers for both male and female
- Catering – Basic i.e. vending
- On site first aid
- Provision for hire of playing equipment
- Car parking

Other facilities required for **Performance & Development Centres** as follows:-

- As for a Development Centre

In addition:

- Physio/medical room
- Meeting/seminar room for 15 to 20 people
- Access to Weights/CV training equipment
- Area for waiting/resting players

Footnote:

See also Sport England Guidance Note Ref: 864 Sports Halls: Design
See also Sport England Guidance Note Ref: 886 Car Park and Landscape Design.