

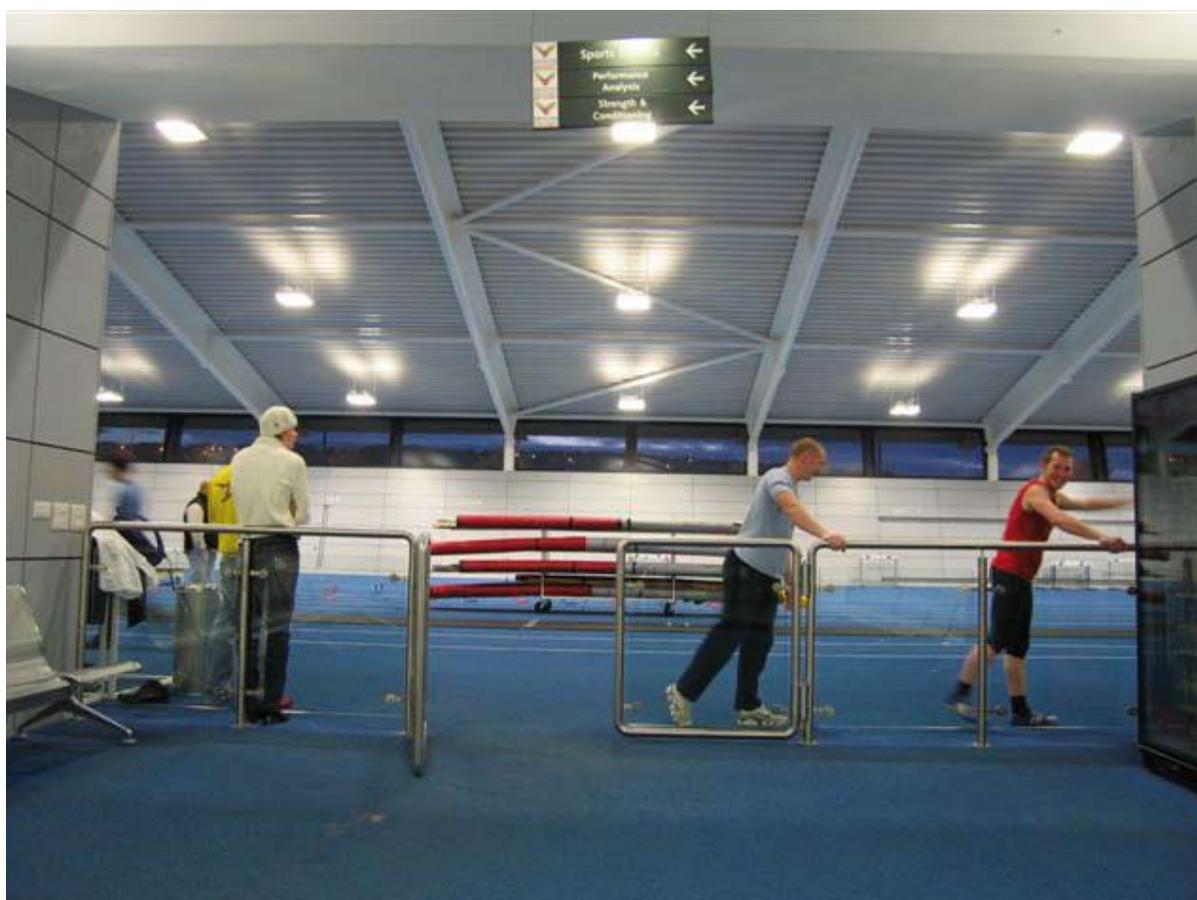


**Updated
guidance
inside**

Athletics

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1 Introduction

This guidance note has been compiled with reference to and in accordance with the National Athletics Facilities Strategy 2007-2012 (the Strategy). With the support of Sport England, the Strategy was commissioned by the sport's two governing bodies – England Athletics, and UK Athletics (formerly the British Athletics Federation). The Strategy sets out the requirements for athletics facilities throughout England, with the exception of international outdoor competition stadia.

The guidance is aimed at those who may be considering the provision and design of an athletics facility. While not exhaustive, it is a comprehensive briefing document designed to prompt the right questions and to inform the decisions that formulate the project and design briefs.

Specialist professional consultants should be appointed at an early stage of project development to provide the necessary level of expertise on the design, management and maintenance of athletics facilities.

Before considering the provision of a new facility to host athletics competitions, train elite athletes or encourage and develop talent in athletics it is vital that you contact the governing bodies of the sport:

- UK Athletics
- England Athletics

The England strategy was updated in 2002 to embrace the whole of the UK. This is currently being reviewed and a new strategy, to cover the period up to, and including the London Olympic Games of 2012, will become operational in January 2007.

2 Provision for Athletes with a Disability

The Great Britain Paralympic Athletics Team is one of the most successful in the world. The continued international success of our athletes with disabilities has significantly raised awareness of and demand for fully accessible facilities.

All sports facilities must be fully accessible to people who have a disability, and this means more than just being able to get through the front door and use the toilet facilities. Accessibility means that everyone can make full use of the facility as a participant, spectator or member of staff.

Achieving this may not mean more costly solutions. If integrated into the design and development process, the requirement for full access can be achieved easily and the result will be a better facility for everyone.

Provisions should reflect the strategy and hierarchy in Sections 2 and 4 and so it is important that designers consult with UK Athletics Regional Facilities Managers at an early stage to establish the relevant criteria.

Access and Participation For All

All sports facilities must be designed to allow everyone to participate, and access and participation audits are an essential part of the



design process. Decisions made by the design team, client and users will fundamentally affect the accessibility of the building. Effective and carefully considered management of the facilities is essential to allow access and participation for everyone.

The design and management audit of athletics facilities should be split into two sections:

Designing for Accessibility

General accessibility guidance is widely available and covers many aspects of building design including car parking, routes to and around the building, ramps and steps, entrances and reception areas, door widths, circulation spaces, floor/wall surface colour and texture, lifts, toilet provision, counters, signage, telephones, alarms, lighting and acoustics.

For further information on providing people with disabilities with full access to sports facilities, refer to Sport England Design Guidance Note *Access for Disabled People*.

<http://www.sportengland.org/disabled.pdf>

Designing for Participation

Many aspects of designing for access will facilitate participation. Simple analysis of the likely patterns of use and routes around the facility, from arrival to participation and then departure, will highlight potential difficulties that can easily be designed out.

The range of disabilities, coupled with the variety of athletics disciplines, makes it difficult to provide definitive guidance for all eventualities. It is therefore essential to consult the UK Athletics Facilities Manager throughout the design process and ensure that the views of end users, athletes and their coaches are considered.

Designated areas should be provided where technicians, competitors and coaches can maintain and repair sports chairs, other mechanical sports aids, equipment, prostheses and so on.

For changing, showers and toilet provision refer to section 7.

3 Hierarchy of Provision

The Strategy refers to a hierarchy of provision for competition and training purposes for indoor and outdoor facilities.

At the top of the hierarchy is the English Institute of Sport supported by a network of national High Performance Centres.

Specialist indoor training centres and outdoor synthetic tracks will address regional and county needs. Local needs will be met by multi-use sports halls (with a suitable surface for athletics) and outdoor training facilities including a sprints straight and bend, pole vault run-ups, high jump beds, long and triple jump runways and sandpits and throwing areas.

Competition Venues

The Strategy recommends that three indoor 200m tracks with spectator seating for 500–1,000 people be built in England, preferably at national High Performance Centres.

The Strategy suggests that there is no overall shortage of outdoor competition venues at any level in the competition structure. However, to ensure nationwide coverage some new tracks may be required in specific areas.



Athletics Centres

These centres are designed to meet the needs of elite performers as well as being focal points for the sport in the region in which they are located:

Bath University, Birmingham, Gateshead, Brunel University, Lee Valley Regional Park Crystal Palace, Loughborough University, Manchester and Sheffield.

Regional/Local Specialist Indoor Training Centres

The Strategy's criteria are:

- There should be 545,000 people living within 30 minutes' travel time (45 minutes for rural locations).
- The centre should be integrated into a new or existing sports complex.
- The centre should be close to an outdoor track.
- Large and successful athletics clubs and World Class programme-standard coaches should be located within the catchment area.
- There should be a sports performance centre within the catchment.
- The centre should be staffed and promoted in a professional way with an athletics development manager. At least 18 hours per week should be allocated to indoor athletics.

The outline schedule of accommodation and facilities for a local indoor centre is as follows:

- 60m/6-lane straight (82m overall)

- 58m runway and pit
- 45m pole vault runway with appropriate height (which could be combined with)
- high jump area and 25 x 18m approach
- throwing circle for shot with 25 x 15m throwing area
- throwing cage for discus
- weights and conditioning room with direct access to training hall
- photo finish and timing equipment.

Layouts for indoor facilities can be found in section 10.

Wherever possible, indoor training provision should be developed adjacent to new or existing outdoor facilities.

Endurance Training Centres

The National Endurance Centre is located at St Mary's University College at Strawberry Hill in Middlesex. Others may follow.

Outdoor Training Facilities

At outdoor facilities 400m synthetic tracks are used for both training and competition.

The Strategy also refers to 'outdoor training facilities' and states that 'in less populated areas, where an outdoor synthetic 400m track cannot be justified, every encouragement will be given to lower key training facilities.' This may include 300m tracks as well as straight and training tracks.

Design issues are explored in section 10.



4 Local Training Facilities

This section focuses on some of the issues that require detailed consideration when determining the project brief for local training facilities.

Athletics is unique in that it encompasses many different disciplines. This means that training provision for individual disciplines has often, by necessity, been developed in an innovative way, adapting whatever facilities exist to meet the needs of local athletes. Similarly, the needs of a whole club and the disciplines within it can often be difficult to fulfil without considerable compromise.

This need to compromise has proved that training areas for athletes do not necessarily require a full 200m (indoor) or 400m (outdoor) track. Many events can be simulated indoors or outdoors for training purposes.

This guidance note does not seek to provide universal solutions to the provision of local training facilities but rather to establish a thought process in order to define a schedule of facilities based on the clearly identified needs in a locality.

Since the specialist use of athletics facilities may change over time, local authorities need to be advised of the implications of multi-use.

How Many Local Training Areas?

The Strategy, while recognising the need for local training facilities, does not define any population or catchment criteria to map their location.

This is because, in order to determine the need for a local facility, it is essential first to identify the gaps in athletes' opportunities to train. The following questions need to be answered:

- Where do people train at the moment?
- Which disciplines are involved?
- What is the age range?
- What coaching skills and experience exist locally?

Once the gap in opportunity has been considered it is possible to carry out a simple but thorough investigation or audit of the facilities that already exist in the area,

together with a realistic analysis of their potential use as athletics training facilities.

Having established the sporting need and identified what facilities already exist, the next stage is to consider the mix of facilities necessary to deliver the required sporting outputs.

Defining The Scope And Scale Of Facilities

When considering the mix of facilities there are some important issues to take into account:

- Access to existing changing facilities or the provision of new ones is very important. The volume of users and patterns of use determine the numbers of changing spaces, showers and toilets required.
- Some form of floodlighting should be provided to allow optimum use and availability of the facility. Refer to section 11 for further details.
- Does the club need access to indoor facilities? Clubs may have access to some form of indoor training facilities, such as a sports hall or gymnasium.

Non-specialist facilities provide useful winter practice opportunities for athletes although



these may be limited by the need to compromise regarding floor finishes, space and programming.

It is therefore essential to consider carefully the possible utilisation of existing facilities wherever practical. For this to happen, athletes and facility managers must be prepared to accept some degree of compromise. Some of the issues to consider are listed below:

- Sports centres experience greatest demand for indoor space during the winter.
- Athletics training programmes require relatively long periods of exclusive use.
- Athletics training requires a relatively large space for a small group of athletes.

Equipment for Local Training Areas

It is important to give full and careful consideration to the type of equipment that will be needed for a training area, to make a realistic estimate of the cost and to consider where such equipment will be stored. Here is a checklist of the type of equipment that may be required:

- starting blocks
- hurdles
- javelins
- long jump and triple jump take-off and blanking boards
- high jump stands
- pole vault stands
- crossbar
- height gauge
- landing area mats
- shot
- discus
- hammers
- relay batons
- measuring tapes



Throwing Training Areas

It may not always be possible to provide the large spaces required for full throwing fans. Whether indoors or on a restricted outdoor site, throwing walls and cages can enable athletes to learn, practise and improve technique in a safe enclosure. The most important aspects of the design of such areas are their structural stability and their ability to safely stop projectiles. The areas must be included in the facilities maintenance programme. (See Section 12).

The exact requirements for a specific site will relate to local needs and as such will be bespoke. All layouts must be designed to allow easy supervision with ample safety margins for each event. The training area will be used simultaneously by different groups for different activities, so it is essential that the facilities be designed with supervision and control in mind. A detailed management plan may need to be considered to optimise use of an indoor facility.

Table 1 indicates appropriate types of indoor and outdoor provision for various levels of training.

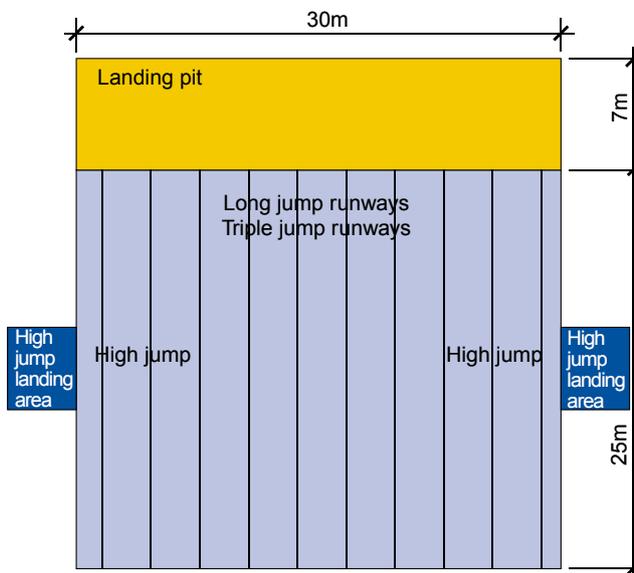
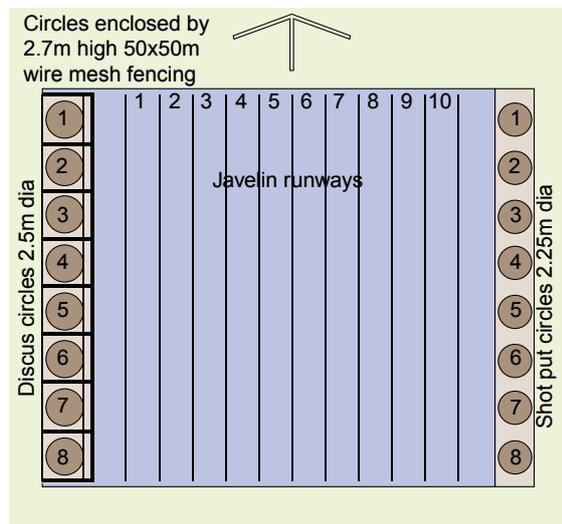
| | |
|---|--|
| Level 1 Provision: School training (possible club use) See Figures 1,2,3 | |
| Indoor Sports hall/gymnasium use | Outdoor Hardstanding practice areas, throwing nets, artificial turf pitch marked out for 200m track and straight and jumps pit, throwing areas for shot, discus and javelin |
| Level 2 Provision: School/club training See Figure 4 | |
| Indoor Sports hall/gymnasium use | Outdoor 4-lane 300m track, 4- or 6-lane 80m/100m straight/110m hurdles, throwing areas for javelin, shot and discus, jumps areas for high, triple, long jump and pole vault |
| Level 3 Provision: School/club training See Figure 5 | |
| Indoor 6-lane 60m track for sprints and hurdles, throwing wall, practice nets | Outdoor As above plus 4-lane 300m synthetic surface track, 200m bend and straight |
| Level 4 Provision: Club training (possible school use) See Figure 6 | |
| Indoor 6-lane 60m straight, throwing area, throwing cages, full indoor track and field facilities | Outdoor As above plus 6-lane 300m synthetic surface track for middle and long distance training |
| Level 5 Provision: Club training and competition See Figure 11 | |
| Indoor 6-lane 60m straight, throwing area, throwing cages, full indoor track and field facilities | Outdoor 6-lane 400m synthetic surface track and full track and field facilities |
| Level 6 Provision: Regional training and competition | |
| Indoor 6-lane 200m with full track and field facilities | Outdoor 8-lane 400m synthetic track with full track and field facilities |

Table 1 Levels of Training Provision

Surface finishes:

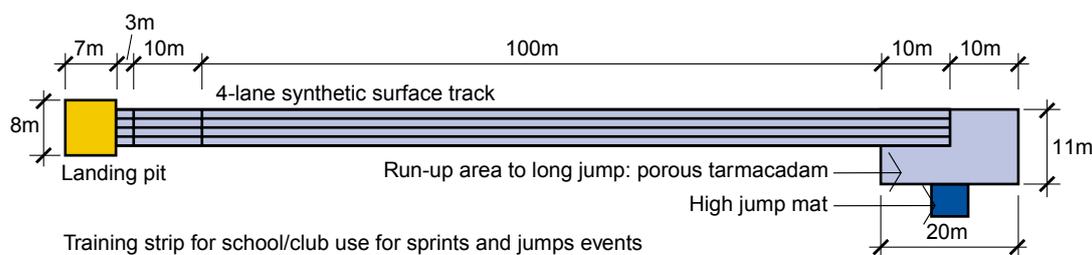
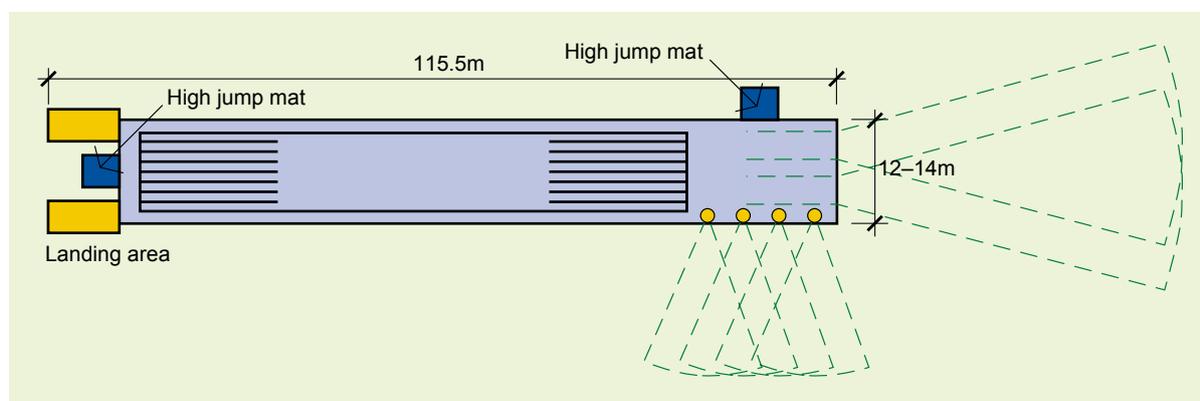
- Finish long jump, triple jump and javelin runways with a synthetic surface able to withstand a 6mm spike.
- Finish shot and discus circles with trowel finish sand/cement screed.

0 1 2 3 4 5 10



NB See section on landing mat systems in Section 10

Figure 1 Examples of hardstanding areas for multiple throws/jumps training – outdoor



NB See section on landing mat systems in Section 10

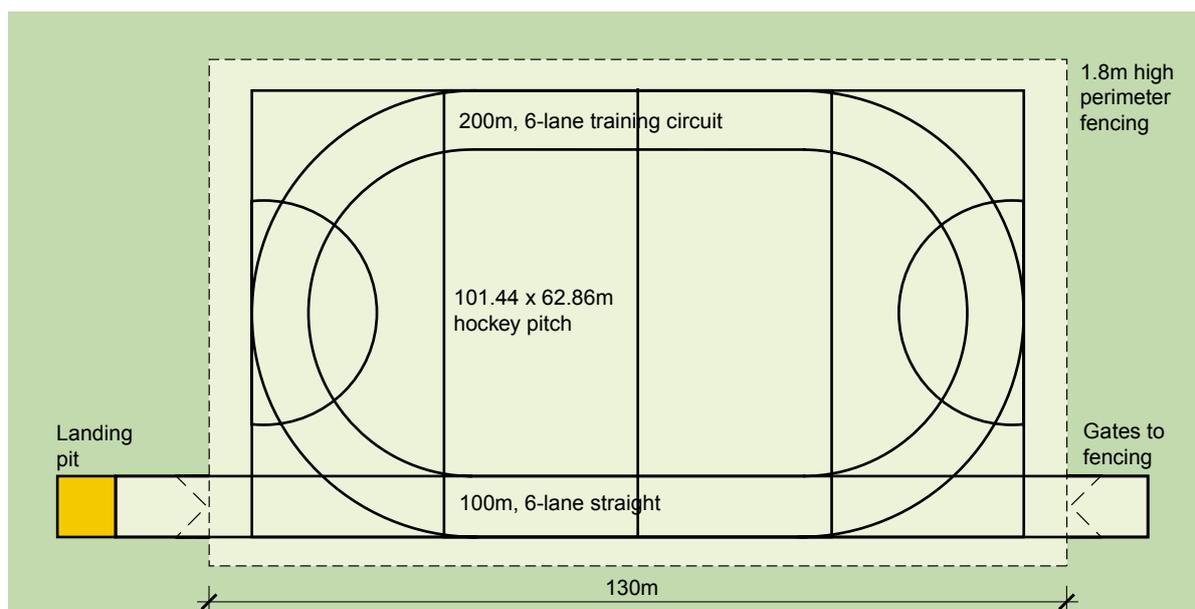
Figure 2 Examples of training strip for school/club use for sprints and jumps events – outdoor



Figure 3 demonstrates the potential for greater use of artificial turf pitches for athletics training:

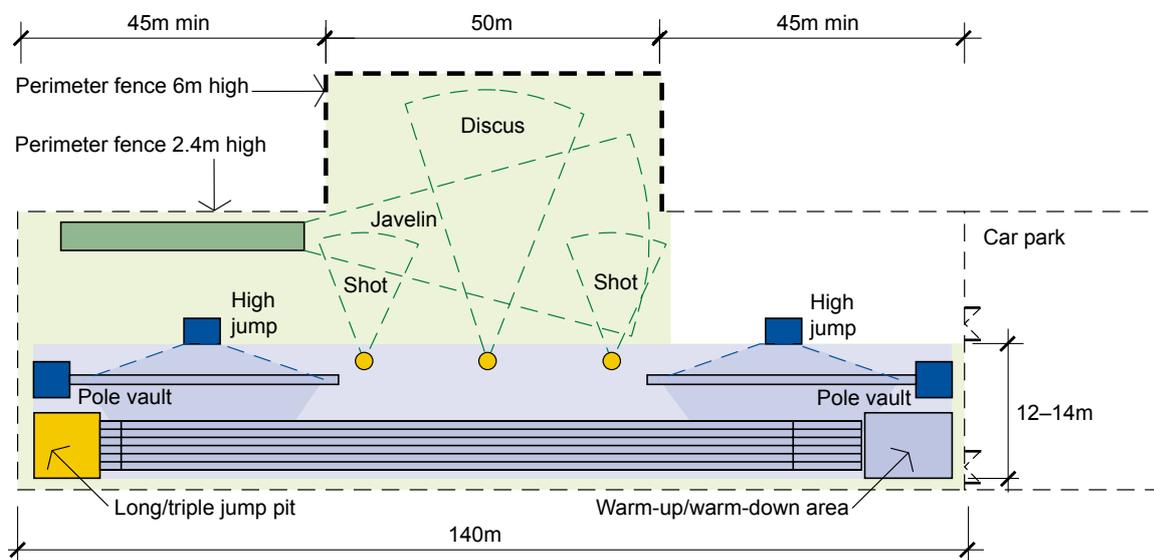
- hockey pitch enclosure (62.86 x 101.44m)
- 200m, six-lane marked training circuit
- 100m, six-lane straight and gates to the perimeter fence to access run-off and landing pit areas

The principle could equally well be applied to a multi-use games area development.



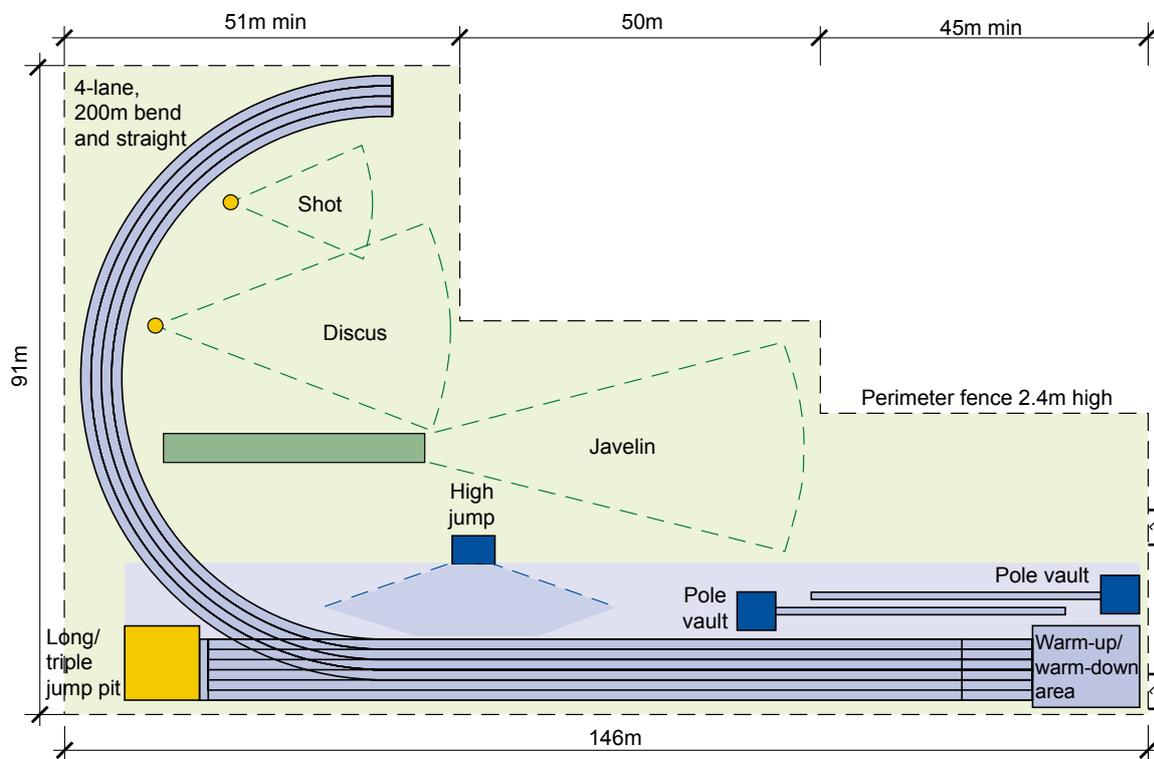
NB See section on landing mat systems in Section 10

Figure 3 Level 1 provision: School training (possible club use) – outdoor



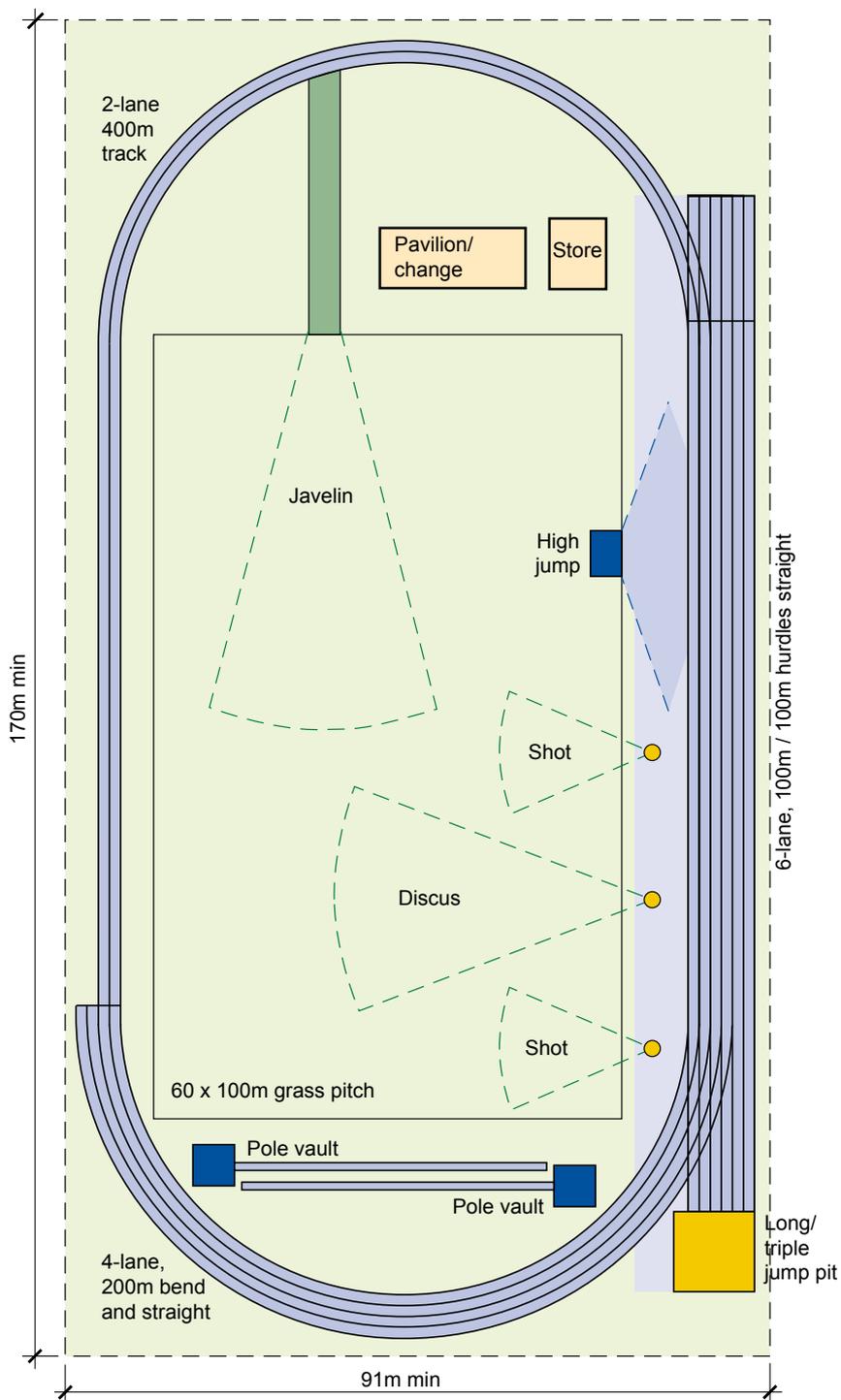
NB See section on landing mat systems in Section 10

Figure 4 Level 2 provision: School/club training – outdoor



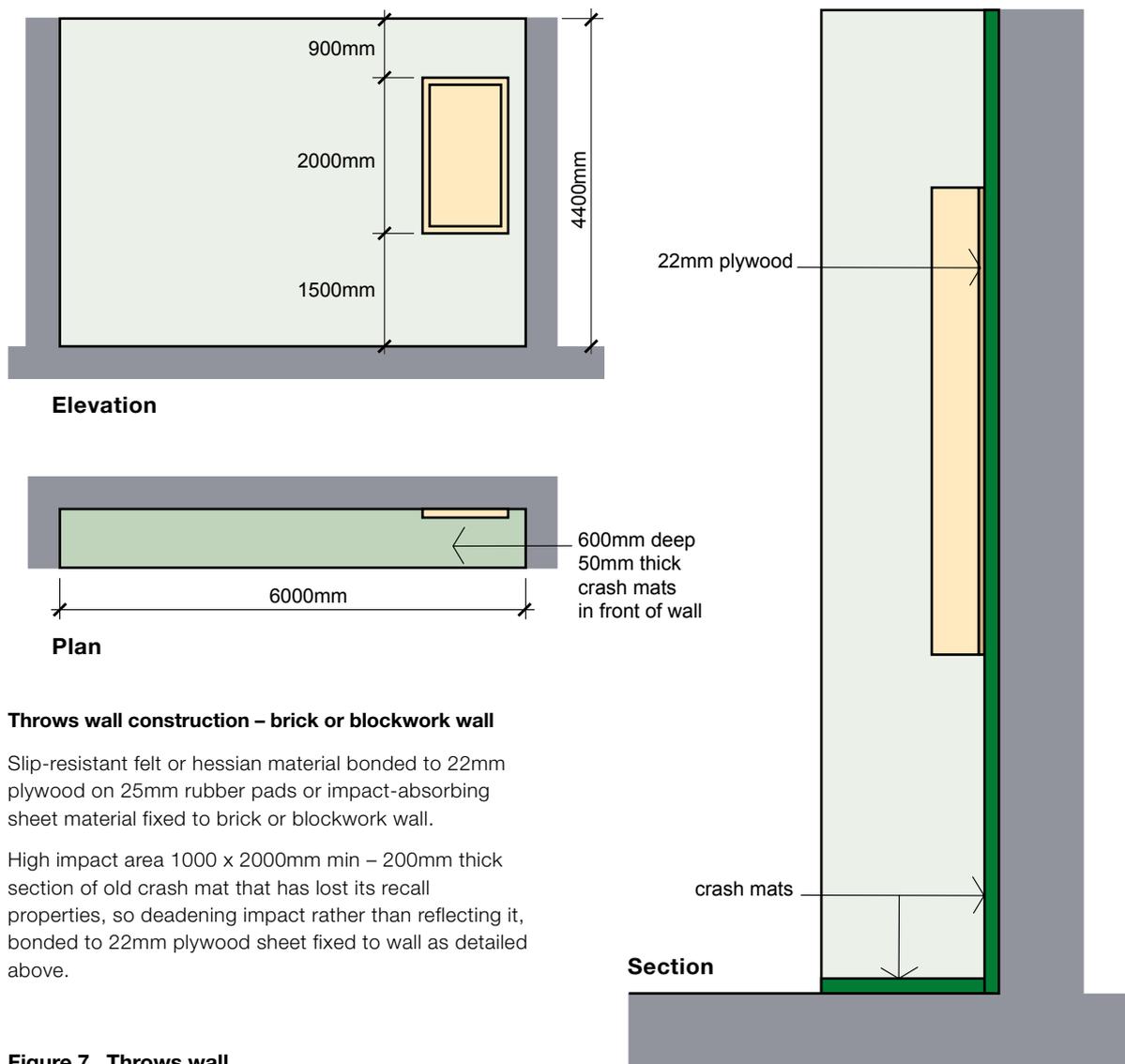
NB See section on landing mat systems in Section 10

Figure 5 Level 3 provision: School/club training – outdoor



NB See section on landing mat systems in Section 10

Figure 6 Level 4 provision: Club training (possible school use) – outdoor



Throws wall construction – brick or blockwork wall

Slip-resistant felt or hessian material bonded to 22mm plywood on 25mm rubber pads or impact-absorbing sheet material fixed to brick or blockwork wall.

High impact area 1000 x 2000mm min – 200mm thick section of old crash mat that has lost its recall properties, so deadening impact rather than reflecting it, bonded to 22mm plywood sheet fixed to wall as detailed above.

Figure 7 Throws wall



5 Sportshall Athletics

Athletics for young people in multi-use sports halls or dedicated training areas has been developing since 1976, both as a foundation for young people and as a source of vital competition for young athletes during the winter period.

Sportshall athletics is organised for fun and to encourage team participation. Many of the events are unique to sportshall athletics, with some based on obsolete events. An example is the standing long jump, which used to be an Olympic discipline and is the forerunner of modern long jumping.

Specifically designed equipment that is bright, colourful and safe for use by young people indoors is used enabling a positive and enjoyable introduction to athletics. The principal age groups for regional and national competition are under-13 and under-15, though local leagues involve other age groups. Fun in Athletics festivals cater for under-11s and help to emphasise the importance of taking part and working together.

Many schools, clubs, organisations and local authorities use sportshall athletics as an ideal way to introduce young people to the sport.

Critical Factors

- Participation should be fun in order to attract young people.
- Layout and dimensions must afford appropriate safety distances and margins.
- Lighting must meet recommended standards.
- Footwear is not spiked so a multi-sports surface is satisfactory, but grip and shock absorbency are important criteria.

Specifications for Various Disciplines

A full range of track and field events are detailed and illustrated in the Sportshall Athletics Rules of Competition. A wide range of competition formats have been developed catering for different age groups. Details of these, together with suggested layouts, may be obtained from Sportshall Associates.



Equipment and Storage

The most significant items of equipment used for track events are reversaboard. These are placed at each end of a lane and athletes use them for turning in much the same way as a swimmer uses the wall of a pool to push off for the return length. These require solid walls clear of all obstructions, doors, etc. A typical Sportshall track would be between 30m and 35m long, i.e. wall to wall and require a minimum width of 18 metres.

A reasonable amount of other equipment must be stored securely or brought in from other facilities. Further information on storage is given in Section 7.

Further Information

Sportshall Associates Ltd oversee the management of the national competition programmes and advise on the development of Sportshall Athletics. Their website, rulebook and key documents are currently being rewritten but further advice, including detailed equipment lists, advice on storage, and general recommendations may be obtained from Sportshall Associates.

[Http://www.sportshall.org](http://www.sportshall.org)

6 Indoor Facilities

Indoor athletics facilities are functional spaces with stipulated setting out and safety clearances for track and field disciplines, and with unobstructed clear height requirements.

Facilities may consist of:

- Competition facilities that provide for the full range of competitive indoor disciplines with spectator provision.
- Training facilities intended for full indoor competitions, or limited competitive use, with or without spectator provision. They are best provided at or adjacent to outdoor tracks.
- Sports hall athletics described in Section 5.

Multi-Sports Athletics Centres

A further important distinction is between specialist and multi-sports indoor facilities in which athletics is one of many sports sharing spaces.

Some specialist centres may only have intensive use by high performance athletes for six months of the year and in order to maximise the benefit from



any financial investment, consideration should be given to planning new facilities for a range of sports, and for use by community and school groups. This will affect the design of the sports areas and the extent of ancillary accommodation.

Multi-Sports Halls

The increase in the provision of multi-sports halls, particularly in secondary schools, and the indoor versions of outdoor games has an important impact on athletics.

Multi-sports halls can be used not only for sports hall athletics, but also for athletics training where athletes and management are prepared to exercise some degree of compromise. Where floors are unsuitable for spiked shoes, roll-out strips can be provided.

Guidance information on the requirements for specific sports is given in Sport England Design Guidance Notes and in National Governing Bodies' publications.

For general recommendations on multi-sports halls refer to separate Sport England Design Guidance Notes *Sports Halls – Design, Sports Halls – Sizes and Layouts and Floors for Indoor Sports*.

http://www.sportengland.org/sportshalls_design.pdf

<http://www.sportengland.org/sportshalls.pdf>

<http://www.sportengland.org/floors.pdf>

http://www.sportengland.org/alert_d0002-bs7044-070806.pdf

Critical Design Factors for Indoor Athletics Halls

Structure

- Space requirements and safety clearances for each discipline relevant to the competence level of the athletes as recommended by UK Sport or IAAF.
- Structural columns must not be located in sports activity spaces.
- Adequate height for high jumps and throws, and increased height of pole vault run-ups.

Floors

- The finish of the running track must provide a uniform surface suitable for the standard of practice or competition for which it is intended.
- The floor finishes of areas off the track can be of different materials.
- Careful consideration must be given to the specification of compatible finishes in multipurpose areas used for both athletics and other sports.
- Pressure plates, sockets and services boxes in floor finishes must be robust, secure, and flush fitting.
- Floors may need to be reinforced locally to accommodate fixings for gymnastics and disabled athletes' equipment.
- Spike resistant flooring is essential in specialist athletics centres.
- Floor finish need not be athletics specific.
- Consider position of long jump pit and control of sand spread/ containment.
- Floors in throws enclosures should be protected with flame retardant PVC covered gym matting min. 40mm thick.

Walls and Ceilings

- Walls and ceilings in sports facilities receive strong mechanical impact and should have appropriate material, construction, and surface finishes to withstand these stresses.
- Roofs and walls must be designed to support rigs for special apparatus and nets.
- Mechanical and electrical services, sports equipment and nets suspended from soffits, must all be carefully coordinated with roof structures.
- Wall surfaces must be flush, with no projections or indentations and be closed, non-splintering and smooth.



- Doors, sports equipment, fixtures and installations of all kinds (hinges, door handles, switches and accessories such as break-glass alarm points) must be flush fitted, to a minimum height from finished floor level of 2.00m in dedicated athletics centres, and 3.00m in multi-sports facilities.
- Should wall bars be located in main activity areas, they must fold away clear of flush wall zone, or be protected with flush panelling when other sports activities are taking place.
- Access doors must not open into sports competition or training areas, sports halls, or areas that might constitute a risk to athletes.
- Panic bars to fire escape doors in sports areas must be detailed to be flush with internal walls.
- Fire extinguishers and other hand-held fire fighting apparatus in sports activity areas must be housed in flush wall cabinets.
- Make provision for acoustic absorbency. Reverberation time should not exceed 2 seconds at mid-frequency.
- Glass must be impact resistant toughened and include manifestations in floor level glazed screens.

Protective Netting and Safety Padding

- Adequate protective netting for throwing enclosures must be provided. Further information is given in Section 9.
- Flame retardant safety padding should be provided to safety barriers, brake walls at the end of straights and run-throughs, and unavoidable exposed corners.
- Beyond the finishing line of the sprint track there should be a minimum safety run-through zone of 15m with a padded brake wall or barrier capable of withstanding the horizontal impact stresses of athletes

Environment for Indoor Athletics

The main purpose of indoor training provision is to protect athletes from climatic extremes.

A minimum ambient design temperature of 15°C in winter is generally acceptable. Humidity should be kept at a reasonable level and 40-50% relative humidity will generally be acceptable. Satisfactory ventilation is essential to maintain a fresh environment but it must not give rise to high air velocities near to high jump and pole vault bars.

In multi-sport centres, other temperatures and ventilation rates may apply, and air velocities across badminton playing areas must not exceed 0.1 metres per second.

A general lighting level of 200 lux is adequate for athletics training requirements but the layout of luminaires must be planned to avoid glare, particularly for athletics field disciplines such as throwing, high jump and pole vault. (Similar considerations apply for other sports such as badminton, netball and volleyball where played in multi-use centres).

Additional requirements apply in multi-sport centres. Illuminance levels and layout of luminaires must be suitable for the particular sports to be played, and so careful consideration must be given to lighting at an early design stage to ensure that there are no clashes with other services, and structures, tracks and equipment at high level.

The levels of illuminance required for many sports is influenced by the standard of play and is set out in:

BS EN 12193 (1999) and CIBSE *Lighting Guide 4: Sports*, 1990, issued October 2006.

Lighting luminaires and other services must be carefully positioned to allow adequate clearance of track and field disciplines so as not to pose a safety risk to athletes. Consideration must be given to the safe access to, and maintenance of, high level luminaires and other services.

The Chartered Institute of Building Services Engineers publishes detailed guidance on building services.

<http://www.cibse.org>

Sport England is currently preparing a guidance note on sports lighting that will be available to download when completed.

http://www.sportengland.org/index/get_resources/resource_downloads/facilities_guidelines.htm

Daylighting

The extent of daylighting, if any, to be incorporated into a multi-purpose sports facility is a primary decision and should be taken at an early stage of the design process. The utilisation of daylight within a sports area can reduce energy costs and have positive psychological effect upon participants.

But the sun or bright sky seen through windows or by reflection from a glossy surface can cause unacceptable levels of disability or discomfort glare that can affect participants' concentration and performance.

The use of daylight in activity areas requires very careful consideration and skilful design. It is usually necessary to introduce special design features to create a glare-free daylit environment, and cost, maintenance and Health & Safety implications should also be considered.

It should be noted that athletes generally use indoor tracks for training in the winter months when daylight alone may be insufficient to provide adequate illuminance.

7 Ancillary Accommodation

Changing

Changing rooms are essential areas in all athletics facilities and must be designed and built at the same time as the track and field facilities.

Where athletics facilities form part of a larger scheme involving other sports and activities, the requirements of the athletes must be carefully integrated into the project to ensure best use of the accommodation.

Consideration should be given to the installation of changing rooms surfaces that are 'spike friendly' though not necessarily to the full specification required for a full athletics surface.

For further information please refer to Sport England Design Guidance Notes – Changing and Lockers, Sports Halls – Design, and Floors for Indoor Sports.

http://www.sportengland.org/changing_and_lockers.pdf

http://www.sportengland.org/sportshalls_design.pdf

<http://www.sportengland.org/floors.pdf>

Determining Changing Provision

When considering the number and size of the changing rooms, the following questions must be asked:

- Will the facility be used purely for training?
- Will the facility be used for competitions?
If so how many, on what scale and how often?
- Will the facility be used for any school events?
If so how many, on what scale and how often?
- Based on the answers to the above questions, what is the anticipated maximum number of athletes who will use the facility at any one time?
- How often is this maximum occupancy likely to occur?
- What are the probable patterns of occupancy at these peak times? Is it likely that all the athletes will change at the same time (at a school event) or will athletes come and go throughout the meeting?

Having determined the frequency of the maximum occupancy level and the pattern of use, it is possible to make considered judgements on the scope and scale of changing provision.

For example, if it is probable that the facility will be used primarily for training, with a small-scale competition held twice a year, it is logical to calculate the maximum requirement for training and then devise a contingency plan for the biannual event. This could mean using other changing facilities on the site or providing temporary accommodation.

If it is probable that some kind of competition will be held every month, it is logical to base the calculation for provision on the optimum occupancy for these regular events.

- There must be a space allowance of 1.2m² and 500mm bench space per athlete.
- Provide one locker 900mm high x 300mm wide x 450mm deep per athlete.
- Provide at least one shower for every 10 athletes and one WC for every 20 athletes.

Occasionally a greater proportion of changing space may be required for one or other of the sexes. To allow a degree of flexibility it is advisable to provide 'buffer' changing areas with doors between the changing rooms that can be locked or opened as necessary.



Example 1**Monthly events with full track and field programme**

- total number of athletes attending = 300
- proportion of male: female = 50:50 to 20f:80m
- pattern of use, that is the number of athletes who will use the changing facilities at one time = 100
- $1.2\text{m}^2/500\text{mm}$ of bench per athlete = $120\text{m}^2/50\text{m}$ bench length.

This would suggest four team changing rooms of 30m^2 with lockable connecting doors, with three showers and three WCs per changing room and 300 lockers.

Example 2**Changing pavilion with training facilities for club with 240 members**

- training three times a week with approximately 80 people attending each session
- proportion of male: female members approximately 50:50
- pattern of use: 50% use the changing facilities at one time = 40 people
- $1.2\text{m}^2/500\text{mm}$ bench length per athlete = $48\text{m}^2/20\text{m}$ bench length.

This would suggest two team changing rooms of 25m^2 and locker provision for 80 people.

Changing for Athletes with Disabilities

Changing provision for athletes with disabilities can be approached in different ways. Separate, specific accommodation could be included that provides for wheelchair users.

The changing provision should be designed to be wheelchair accessible with wider corridors, lobbies and door openings and the inclusion of larger toilet cubicles and suitable shower areas with modesty curtains, seats and lowered showerheads.

Discrete rooms for use by athletes who prefer greater privacy or may require assistance should complement this type of provision.

<http://www.sportengland.org/disabled.pdf>

Religious and Cultural Considerations

It is important that designers consider carefully the religious and cultural implications of their proposals and consult closely with local users. For example, a scheme serving a Muslim community will have aspects of toiletry and hygiene that require careful design. Communal shower/changing facilities and urinal troughs would be unacceptable given the requirement for

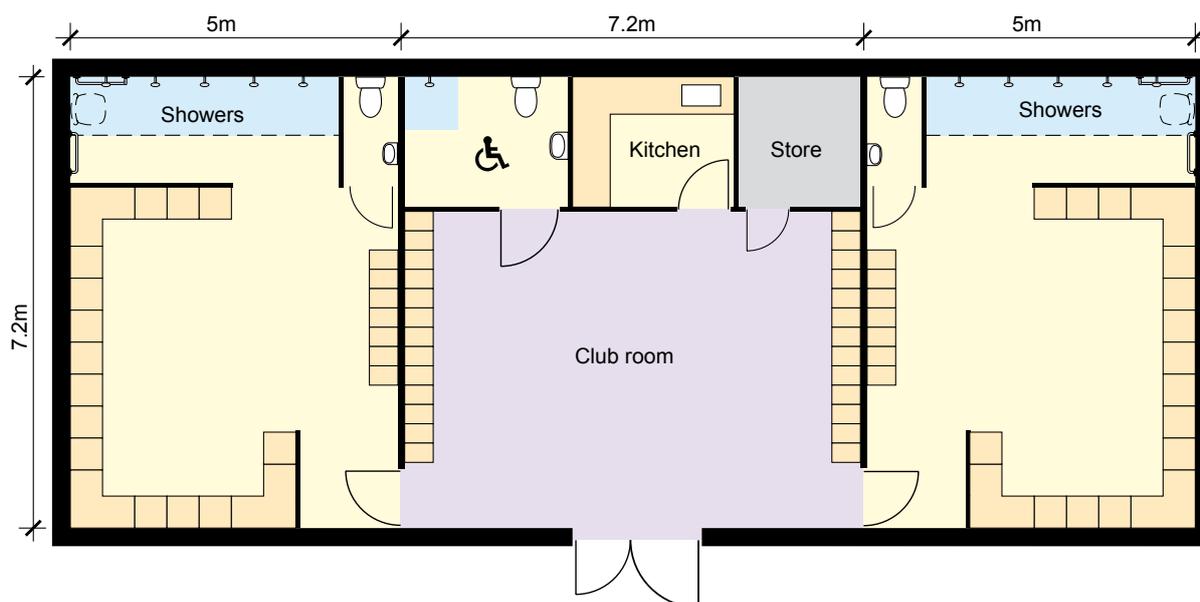


Figure 8 Changing pavilion for an athletics club (indicative)

complete visual privacy and there might be a need for ancillary facilities, such as a bidet or other sluice arrangements. Additionally, the orientation of facilities could be critical.

Changing in Multi-Sports Centres

The patterns of use of specialist athletics centres differ from multi-use facilities which may be used by school and other community groups playing a range of sports within closely managed timetables. It is important to consider the activity that involves the greatest number of participants on a regular basis to avoid a mismatch in changing provisions while achieving best value. A 'rationale', that relates demand to provisions, should be prepared.

Further information is given in the Sport England Design Guidance Note – *Changing Rooms and Lockers*

http://www.sportengland.org/changing_and_lockers.pdf

Child Protection

Where both children and adults will use the sports facilities at the same time, child protection will be an important planning and management consideration.

The Children Act 2004 specifies the duties on organisations to safeguard and protect children and young people. Guidance on child protection matters is given in:

http://www.sportengland.org/index/about_sport_england/equality_standard_for_sport/equality_legislation.htm

http://www.sportengland.org/index/about_sport_england/equality_standard_for_sport/equality_best_practice.htm

<http://www.thecpsu.org.uk>

Toilets

Toilet provisions should be determined on the pattern of use, and the frequency of the maximum occupancy level. Recommendations on the design and scale of sanitary provisions in sports facilities are given in:

BS 6465-1 *Sanitary Installations, Part 1: Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated*

appliances. (This document is currently being redrafted).

It is desirable to plan toilet accommodation in such a way that spectators and other visitors do not have to pass through changing areas. This is particularly important in multi-use centres where there will be a range of users including school groups. Further guidance on the layout of changing rooms is given in the Sport England guidance note *Sports halls – Design*.

http://www.sportengland.org/sportshalls_design.pdf

Main Entrance, Reception And Office Accommodation

The design requirements for entrance and reception areas depends on the type of centre and the sports played, the range of user groups, peak numbers of people, and times of use. The design should allow staff to closely control those entering the centre, particularly if spectators are to be catered for.

Specialist Accommodation

An elite athletics centre will require specialist accommodation for physiotherapy, sports science and injuries. Weight training/ fitness areas will be required and may be one of the facilities provided in multi-use centres. UK Athletics Facilities Manager, coaches, development officers and other governing body representatives must all be consulted for guidance on specialist



Therapy baths in elite centre

accommodation. Such areas, especially in multi-sports centres, must be carefully managed.

Further guidance is given in the Sport England guidance note Sports halls – Design.

http://www.sportengland.org/sportshalls_design.pdf

First Aid

First aid provision will vary according to the size and use of the facilities. In all but very small buildings, a shared use room such as an office or physio room away from the main entrance, with space to manoeuvre a stretcher, could be used for first aid treatment. In larger sports centres and facilities used by large numbers of participants or spectators, a dedicated, fully equipped first aid room should be provided. 'The Health and Safety (First-Aid) Regulations 1981 Approved Code of Practice and Guidance' governs management obligations for first aid provisions.

<http://www.hse.gov.uk/firstaid/information.htm>

Indoor And Outdoor Storage

Adequate, secure storage space must be allowed at the design stage for the range of outdoor and/ or indoor equipment - javelins, shot, discus, landing mats, nets, overlay rollout strips, and so on, and the associated transport carts and trolleys. In multi-purpose halls the security of weights and equipment should be considered.

Storage should be provided to meet the needs of the specialist disciplines, as well as for the needs of schools and community groups to avoid operational problems.

Training items should be kept separate from competition equipment and there may be a need for separate storage for schools and community groups.

Storage should be light, airy, temperate and dry. A damp corner under the stand is not satisfactory for outdoor facilities and significantly reduces the life of the equipment. For new provision the minimum ceiling height is 4m. Racks should be provided for bulky items. Doorways must be large enough to accommodate the largest equipment.

Ample storage space for hurdles and bulky equipment is essential, and should be additional to separate accommodation supplied for the groundsman's equipment.

The need for, and secure storage of, tractors, mowers and other maintenance equipment and materials is an important consideration. The requirement for this type of equipment is determined by the scale and mix of proposed facilities and the maintenance schedule.

In indoor facilities, adequate storage space is important to avoid safety hazards that could arise if equipment were left out around playing courts or on circulation routes.

Schedules of equipment should be prepared to determine the storage space requirements for athletics.

Specifications for Individual Items

Storage requirements for individual items of equipment are as follows:

High jump stands

- minimum ceiling height: 3m
- floor space for two sets of stands: 6.5m².

Pole vault stands

- minimum ceiling height: 4m
- floor space if stacked horizontally: 30m².

Landing areas

- available in various sizes
- space requirements depend on whether or not the units can be stacked vertically – check with the manufacturer.

Care must be taken to ensure that the units are securely fastened together in accordance with the manufacturer's instructions.

Weatherproof covers are necessary if the units need to be left outside for any length of time (see Fire precautions).

Hurdles

Adjustable hurdles with hinged legs will fold to 1.2m x 700mm. Fixed-leg types should be stacked accordingly. Allow space for 90 hurdles.

Javelins

Store javelins vertically, suspending them in rubber supports inserted in holes drilled in a shelf. A portable stand is also advisable so the javelins can easily be transferred to the throwing area.

Hammers

A mobile stand can be manufactured to accommodate hammers during competition and for use in the storage area.

Discus and shot

Purpose-made trolley storage is recommended.

Fire Precautions

Very bulky soft landing beds for high jump and pole vault, and other mats contain foam filling, which is a fire hazard. In outdoor facilities these may be stored in secure outhouses, steel containers or cabins. Specialist mobile covers are available, but it is important to consider health and safety issues and how the covers will be moved away from the mattresses prior to use. The covers must be completely clear of the landing area and there must be sufficient room to 'park' them.

However the mattresses are stored, particularly if indoors, there is a need for separate, fire-resistant and ventilated storage. In indoor facilities, the minimum recommended protection is 60 minutes fire resistance. Foam beds must not be 'stored- out- in- use' in multi purpose halls.

Pole vault and high jump beds need about 50m² of space and should be stored no more than 1.5m from fire sprinkler nozzles.

Fire Strategy

The layout of the indoor facilities, the design of the building structure, the uses and occupancy patterns of the building, materials and equipment, should all be considered in a fire engineering strategy which should be discussed with the local authority building control department at an early design stage.



Portable hammer throw stand



Portable discus and shot storage



Portable hurdle storage

8 Layout Guides

This section covers the general principles to be considered in the layout of athletics facilities. Further guidance on Safety is given in Sections 6 and 12.

Size, Shape and Topography of the Site

The layout of a training area will be determined by the nature of the available site. The example layouts provide configurations based on a standard 400m track that could suit a variety of sites of different shape and size. In each of these examples, however, consideration must be given to overall space requirements, including the necessary safety zones for throwing areas.

In some circumstances, for example on a smaller site and after consultation with UK Athletics and England Athletics, a 300m track layout may be considered appropriate.

The existing features and levels of the site can be incorporated in the layout of the facilities. For example, the site may have a level area

bordered by a steep bank or bund or area of uneven and uncultivated land, which could be effectively used as the target area for throwing events.

Likewise it may be appropriate to consider an external throwing cage formed from high fencing and layers of catch netting. In some instances the track and field events may need to be on separate but adjacent sites.

School Sites

The Building Schools for the Future programme will rebuild or refurbish every secondary school in England. Many schools projects will involve the development or relocation of large areas of sports grounds. The optimum location of grass and synthetic pitches and athletics tracks may have a significant bearing on the overall layout and landscaping of schools, and so the technical aspects of sports facilities, such as space, gradients, as well as ancillary equipment storage and changing accommodation, must be considered at the briefing and early design stages. Replacement tracks should be upgraded to meet current UK



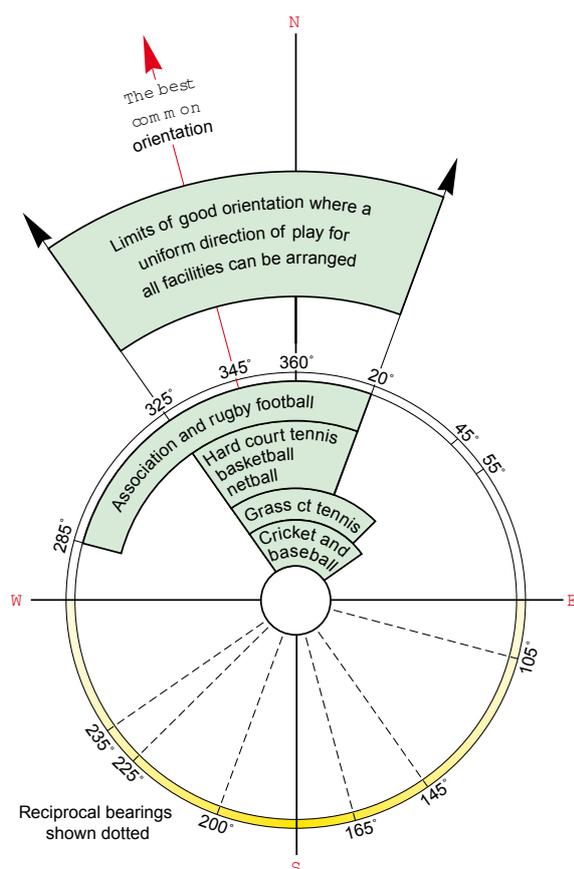
Athletics standards and specifications rather than simply replacing at the same standard of the original track.

Improvements to Existing Tracks

Proposals for remodelling and improving an existing track and field facility must ensure that all the standards set out in this guidance note are taken into account when considering redesign or resurfacing proposals.

Orientation of Outdoor Facilities

It is often difficult to reconcile the constraints of wind direction with the need to avoid an approach into the setting sun. Where possible, alternative directions for running, jumping and throwing should be provided. The following guidelines may help to reach an acceptable compromise:



Goal to goal, wicket to wicket, or baseline to baseline orientation diagram. From the National Playing Fields Association's original.



Evening sun

The following should not be facing the setting sun at 225–315° of the compass:

- runners' and hurdlers' approach to the finish line
- approach to the jump landing areas
- spectators in the main stand.

If the central winter games pitch is for football, its long axis should be within the arc 285–20°.

The effective screening of the sun in the west by buildings, trees or high ground may help to ease these constraints, especially for pole vault.

The orientation of any glazed areas in indoor facilities must be carefully considered.

The National Playing Fields Association's diagram has been generally accepted as the definition of acceptable orientation.

Prevailing wind

Avoid an exposed site with strong prevailing winds. The potential problems caused by strong winds are worse than the inconvenience caused by the setting sun.

Athletes approaching the finish line should not have to contend with strong winds. Pole vaulters should not be exposed to crosswinds or a strong opposing wind. The discus is best thrown into a headwind.

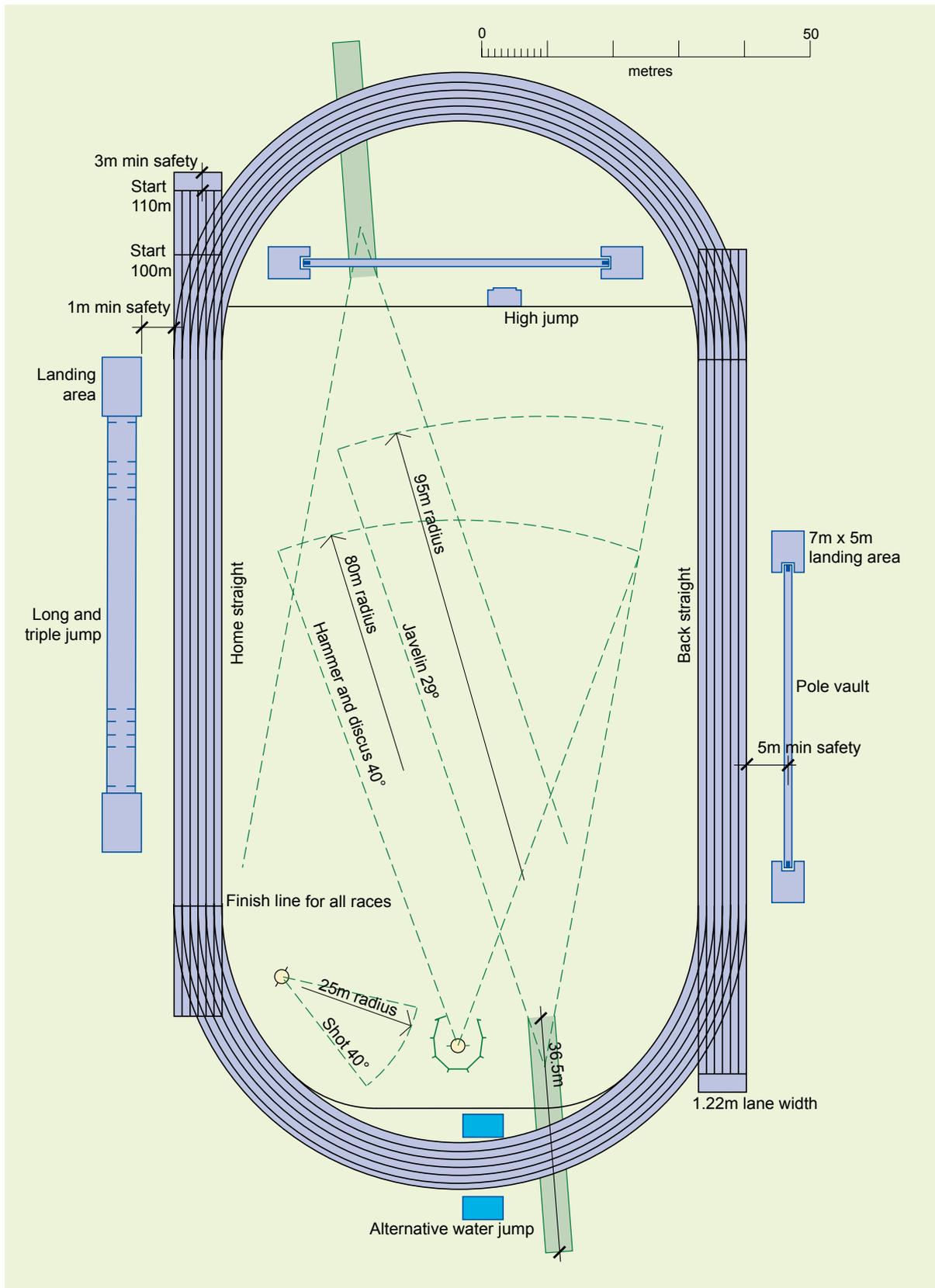


Figure 9 Standard six-lane track – outdoor

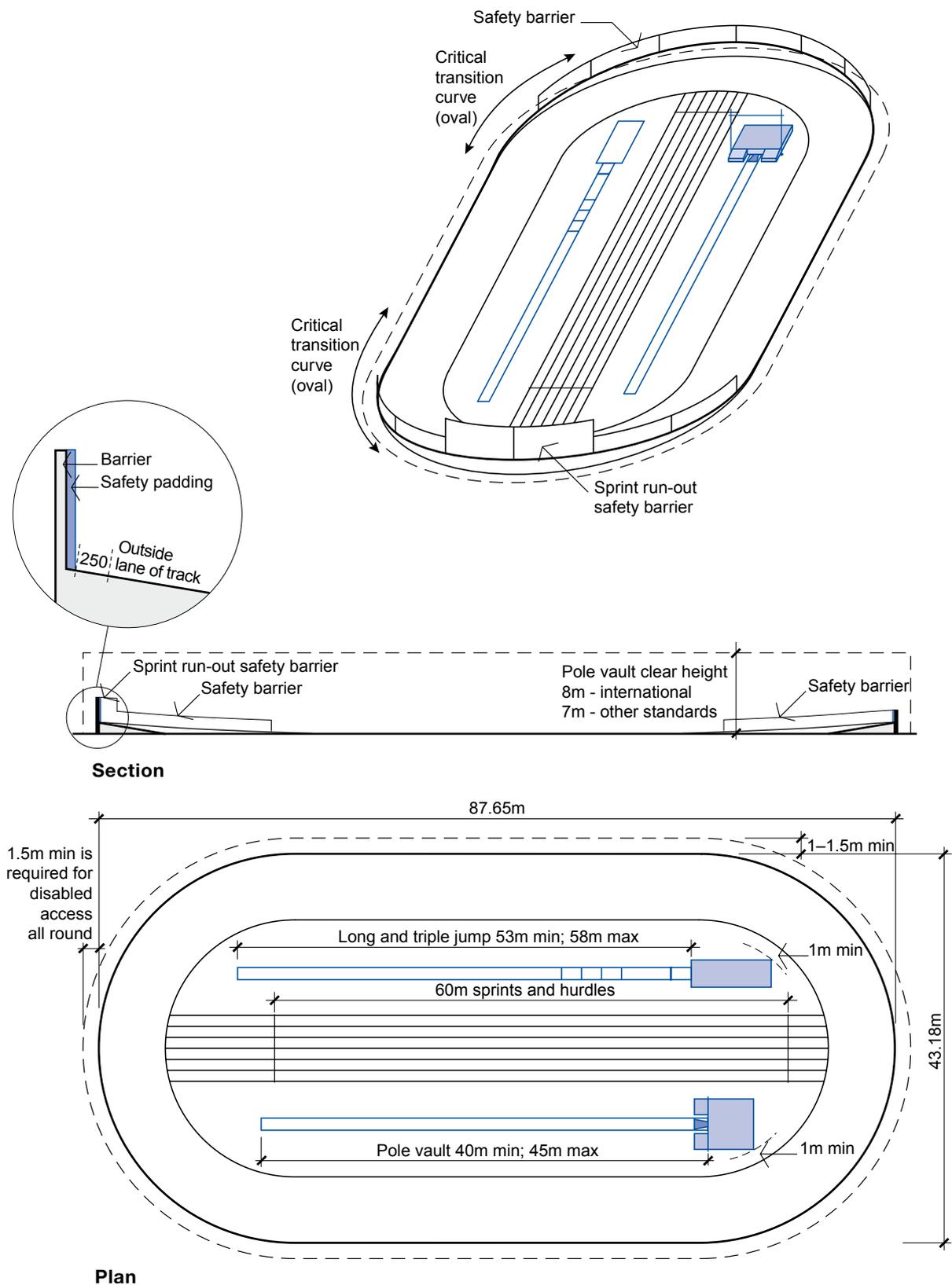


Figure 10 Athletics space diagram for a 200m four-lane oval track – indoor

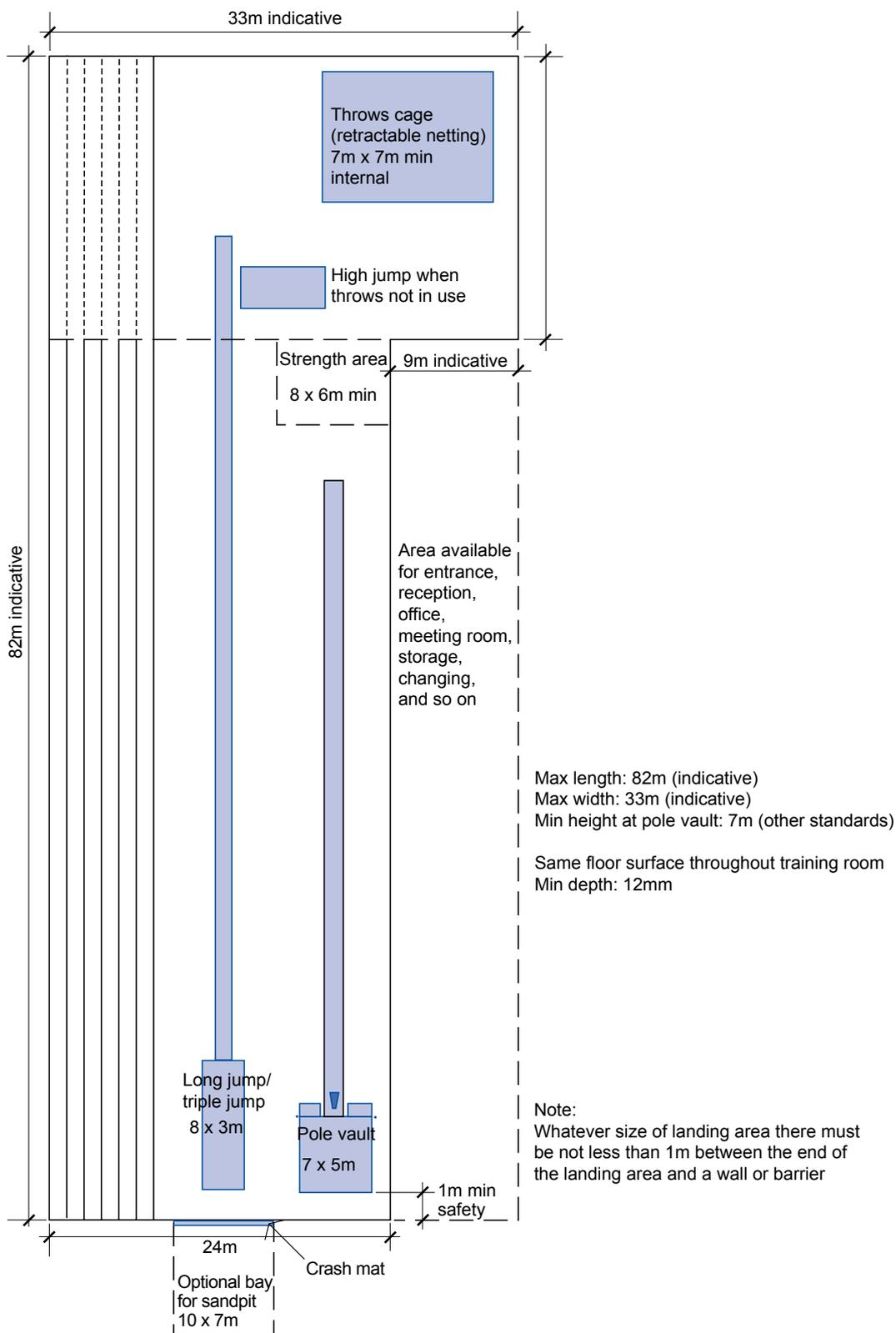


Figure 11 Regional indoor athletics training centre

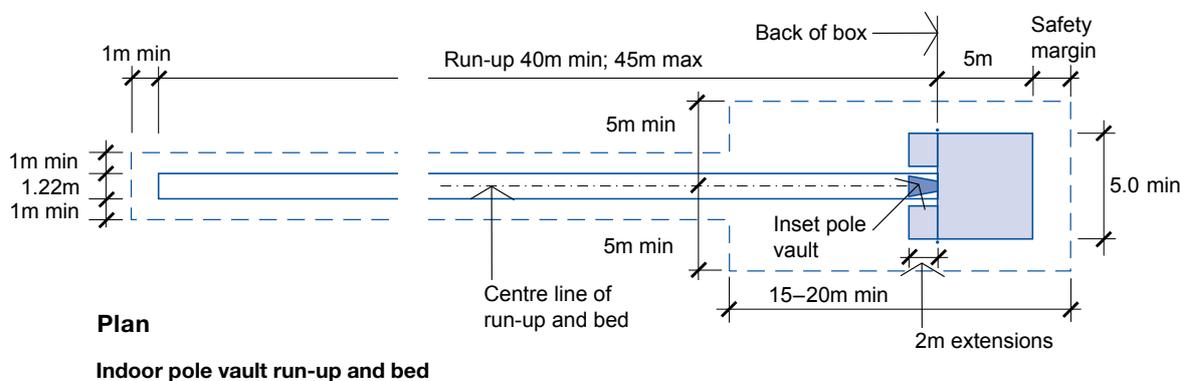
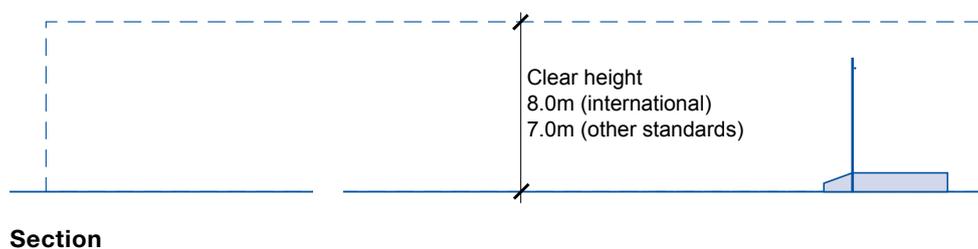
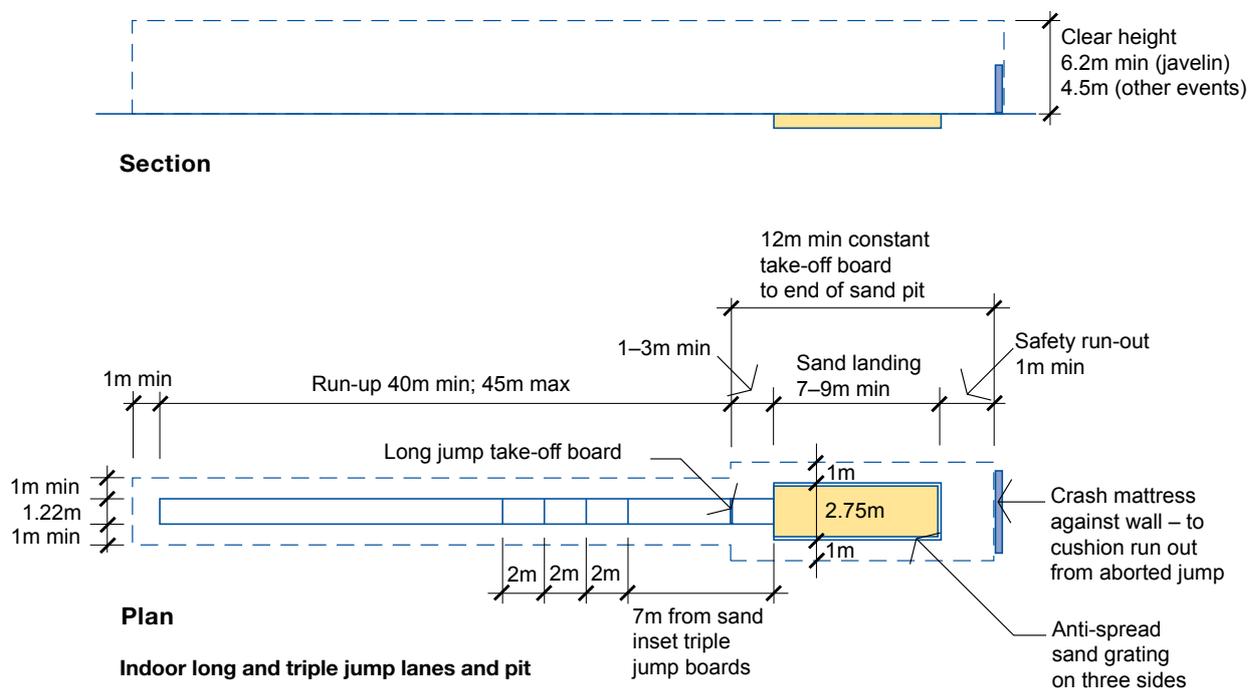


Figure 12 Indoor jump facilities

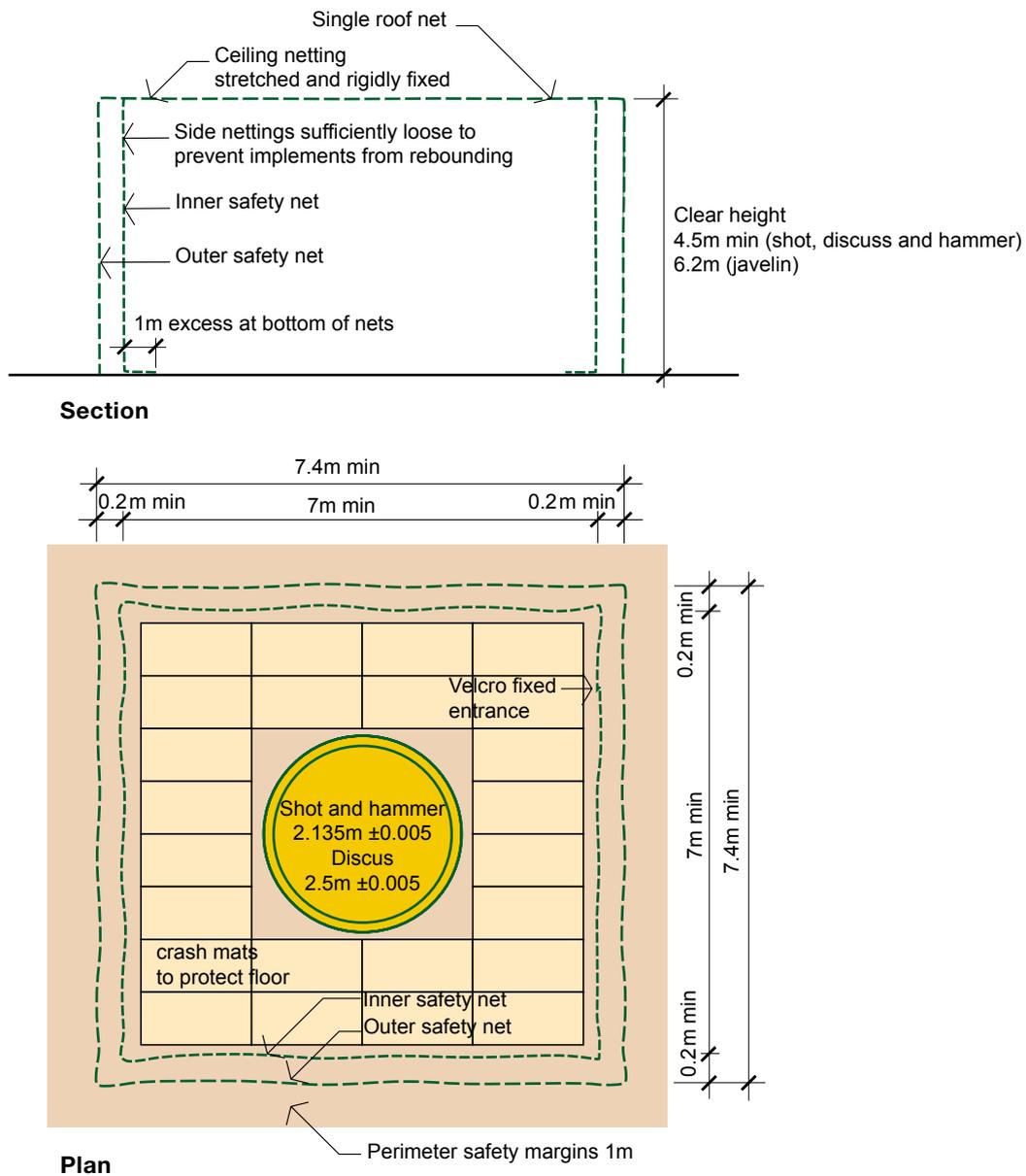
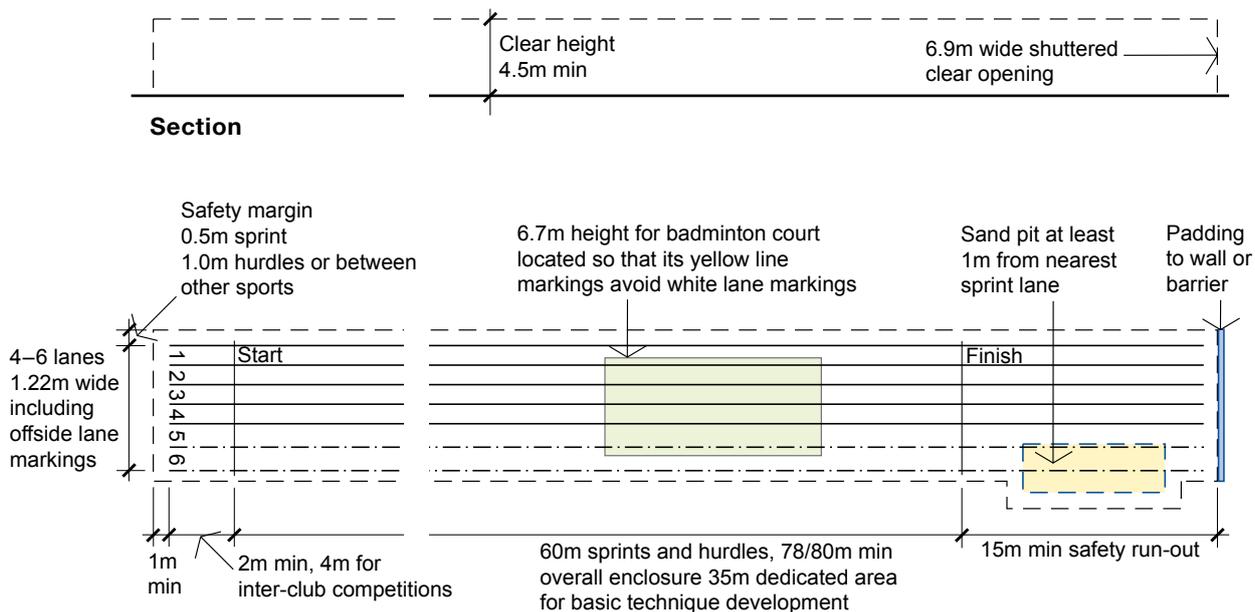


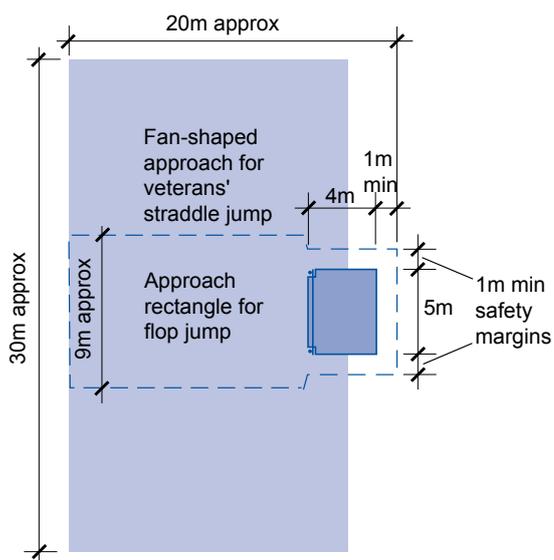
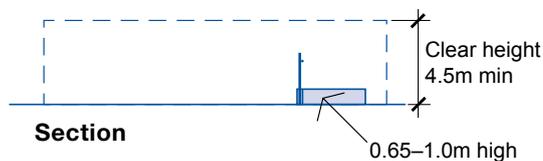
Figure 13 Indoor throwing enclosure for shot, discuss, hammer and javelin





Plan

Six-lane, 60m indoor training area for sprint and hurdles



Plan

Indoor high jump bed in preferred bay location

Figure 14 Indoor training areas for sprint, hurdles and high jump

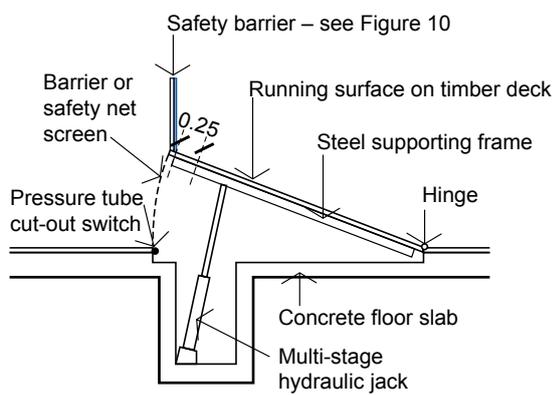


Figure 15 Typical section showing hydraulic bend

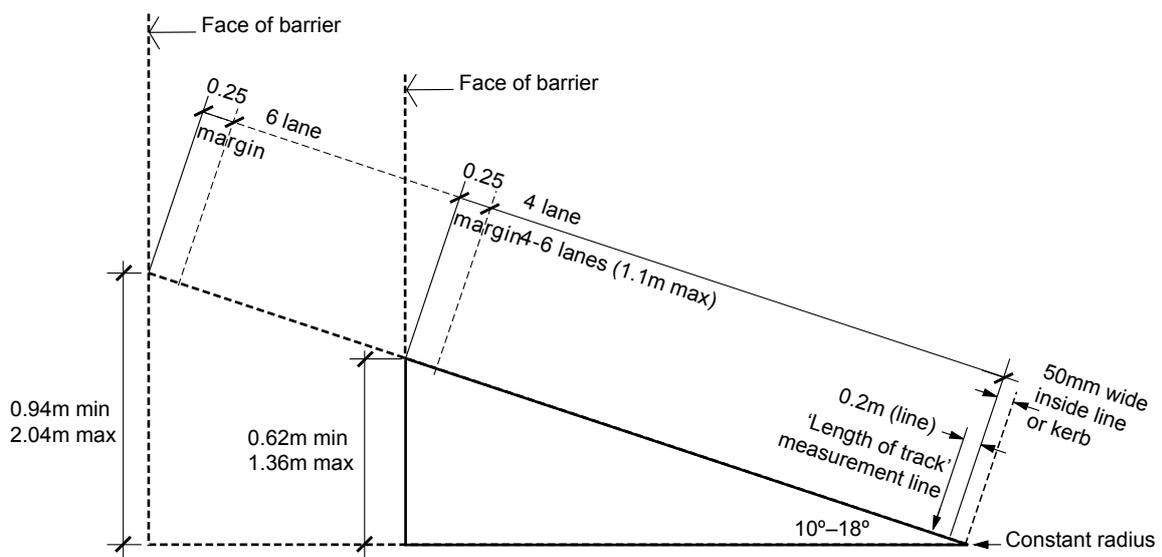


Figure 16 Profile through the summit of a banked bend

9 Additional Guidance for Indoor Field Event Areas

Indoor Throwing Enclosures

- Enclosures may be circular or square, the latter are now preferred
- Minimum internal measurements must be 7m x 7m.
- Double netting must be used for front and sides. Single netting should be used for the roof.
- Ensure that netting is sufficiently loose to prevent implements from rebounding.
- The centre of the circle should be at least 3.50m to the netting.

Positioning of Throwing Circles

The position of the throwing circle will depend largely on the dimensions of the throwing enclosure. It should be positioned in such a way that:

- The thrower will not damage the tracking or runners.
- The implement will not rebound on to the thrower.
- The implement will not damage any object outside the netting. i.e. walls

In general the higher the roof netting the further from the front netting the throwing circle can be.



Throwing enclosures for shot, discus, hammer and javelin

| | |
|-----------------------------|--------------------------|
| 1. Inner net | 7m x 7m min |
| 2. Outer net | 7.40m x 7.40m min |
| 3. Internal height | 4.50m (Javelin 6.20) min |
| 4. Gap between nets | 200mm min |
| 5. Excess at bottom of nets | 1m |

Conversely the lower the roof netting the closer to the front netting the throwing circle will be.

- As a guideline if the roof netting is 6.20m the centre of the throwing circle should be approximately 5m from the front netting. In a smaller enclosure (7m x 7m) with a height of 4.50m the throwing circle should be 3.50m from the front.

With the javelin in an enclosure with a height of 6.20m there should be a hatched area for the release of the javelin 5m to 6m from the front netting. Care should be taken that throwers do not follow through closer than 4m to the front netting.

Additional Information

- Consideration must be given to the protection of runners, track way and other net fittings.
- The throwing circle must be positioned in such a way that any implement thrown will release into the front or side netting rather than the roof netting or the netting protecting the runners and track way.
- The javelin release point should be approximately 5m from the receiving netting or at a distance such that the javelin will strike the front netting rather than the roof netting or the netting protecting the runners and track way.
- A moveable circle is generally recommended and consultation with UK Athletics is advised in the case of a fixed circle.
- Ensure that there are no gaps between the runners and the netting.
- Flush anchor points must be provided for disabled athletes.

Netting for Enclosures

- All throwing enclosures and circles must have double netting for front and sides.
- Single netting should be used for the roof.
- The netting, which forms the entrance into the circle or enclosure, must not be exactly opposite but should be offset to each other and the entrance netting should overlap by a minimum of 1m.
- In addition there should be an effective method of preventing a gap forming at the entrance.

Specification of Netting

- Min. 4mm synthetic, knotless or woven.
- 40 x 40mm - 45 x 45mm mesh size
- Flame retardant BS 5867: Pt.2 type B performance
- Front netting receiving javelins should be special blanket or archery netting which conforms with BS 1892: Pt.2 section 2.11.
- Roof netting should only deflect by one half the distance between the netting and the nearest obstruction.
- There should be a safety zone of at least 2m beyond the outer netting.
- Consideration must be given to the protection of runners, track way and other net fittings.
- Ensure that there are no gaps between the runners and trackway and the netting.
- Both inner and outer nets should be weighted at the bottom and must be secured either by permanent fixings on the floor or by heavy objects such as sandbags.
- It is recommended that the inner netting should be sufficiently loose to prevent implements from rebounding and that the outer netting should be angled out such that the gap between the nets is maintained with a minimum distance of 30cm and secured such that minimum deflection is possible.



Floor Protection

The floor protection should be 40mm minimum flame retardant PVC covered gym matting.

Equipment

- No outdoors javelins should be used indoors, only indoor javelins or javelins specifically modified for indoor use.
- Shots must be indoor shots.
- Modified hammers may be used.
- Outdoor disci may be used.
- All equipment should be checked before use.
- Track and lifting equipment must confirm to industry standards and be annually certified.

10 Athletics Tracks and Outdoor Field Areas

This section is intended to provide general guidance on the choice, specification and maintenance of surfaces and components. It is essential that experienced, professional consultants be appointed at an early stage of project development to provide the necessary level of expertise for designing athletics tracks and field areas.

Site Conditions

Crucial to the success of new track construction is a site that is stable, not a landfill site, and where there has not been a substantial degree of cut and fill to achieve the formation level.

Ground condition surveys should be carried out to ensure that the proposed site is appropriate for athletics facilities and that excessive abnormal costs will not be incurred.

The quantity of water run-off from a new impervious track is substantial and can cause flash flooding if due consideration is not given to the adequacy of the outfall provision. It is important to consult the local authority drainage departments at an early stage since it may be unwilling to accept surface water outfalls from a new sports facility.

General information on factors to be considered for grassed areas are given in the Sport England Design Guidance Note – Natural Turf for Sport.

<http://www.sportengland.org/naturalturf.pdf>

An athletics track must be:

- dimensionally accurate
- of sound construction
- finished with a surface that can withstand 8mm shoe spikes, and that has an allowance for wear and weathering
- durable
- slip-resistant
- impact-resistant.

Dimensional Accuracy

The International Association of Athletic Federations (IAAF) produces detailed guidance setting out information for all track and field events in its Track and Field Facilities Manual. (The indoor guidance is currently being updated).

The layout diagrams in section 8 of this guidance note provide the general arrangements and overall sizes necessary for the initial design of athletics facilities.

Construction

UK Athletics in conjunction with SAPCA has developed a *Code of Practice for the Construction and Maintenance of Athletics Tracks with Synthetic Surfaces*.

<http://www.sapca.org.uk/downloads/publications/TrackCoP05.pdf>

UK Athletics : UKA Track & Field Facilities Guide

The IAAF Track and Field Facilities Manual publishes detailed guidance on the construction of track and field facilities. Not all tracks are required to conform to IAAF construction details and so it is important that designers consult with UK Athletics Regional Facilities Managers to establish the relevant criteria.

There is a wide variety of synthetic materials but all rely on a good standard of base construction for their overall performance and longevity.

There are very tight tolerances for the gradients and flatness of the finished surfaces and the foundation layers of a track will be expected to last well in excess of 25 years without showing signs of settlement or heave. During this time the top surface may be replaced two or three times.

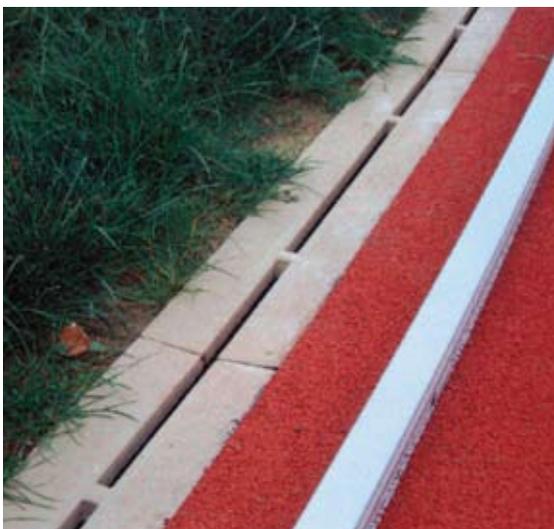
For these reasons the quality of the design, engineering and site operations is critical to the performance and lifespan of the track.

The foundation must transfer vehicle and plant loads used during construction and in use without deformation or exceeding the ground-bearing capacity. It must also be engineered to cope with the effects of ground water and sub-soil ground movement, and have enough porosity to allow free drainage into sub-soil or drainage systems.

A geotechnical survey of the whole site is essential to determine feasibility and the precise construction specification required. A typical sequence of site operations would be:

- removal of vegetable soil to a firm load-bearing strata
- rolling or other testing to identify soft spots
- excavation, replacement and compaction of soft spots
- drainage installation to sub-soil/sub-base
- laying and compaction of crushed, frost-resisting stone (or other suitable material) to a thickness of about 200mm and graded to falls
- blinding of the stone with a finer graded crushed stone
- laying and compaction of a second layer of stone
- blinding of the stone with crushed stone, sand or ash
- laying and compaction of a bitumen-bound base and wearing course. The thickness, composition and tolerances of this layer are dependent on the synthetic surface to be used. It may be that corrective work will be required to this layer in order to achieve the required tolerances.

Note: Central areas should be completed before synthetic finishes are installed.



Surface Layers

There are three basic types of track surface:

- synthetic
- unbound mineral cinder. (Very rarely used since it is more costly than synthetic).
- grass

Modern synthetic surfaces have progressively replaced cinder and grass tracks for many competition and training purposes although the other two are still widely used.

A large market has grown for synthetic surfaces and with it a plethora of proprietary products. All manufacturers have designed and marketed their products to provide a unique selling proposition. Most are based on the same technology and all are heavily dependent on carefully controlled site operations to ensure a successful result.

Prefabricated Systems

Various impervious prefabricated sheet products are available that are bonded to a carefully prepared sub-base using a high-quality adhesive. The sheet is factory-produced and laid in strips with sealed joints between each strip. The sub-base has to be prepared extremely accurately as there are limited means of rectifying irregularities during the installation of the sheeting. As the sheet is factory-produced the thickness of the material can be accurately controlled to produce the appropriate force reduction.

Composite systems using prefabricated sheet as a base layer with a poured, in situ top layer are also available.

Solid Pu (Polyurethane) Systems

Applied to the asphalt base as liquid polyurethane resins these systems are, to a certain extent, self-levelling, allowing minor irregularities in the base to be overcome. Using rubber crumb as a filler, the surface is built up in layers with the textured finish being achieved by the application of EPDM rubber granules into the top layer prior to cure. Solid PU systems are sometimes referred to as 'cast elastomers' and are non-porous, thus surface water must be shed from the system using falls.

Resin-Bound Rubber Crumb Surfaces

Applied as a viscous screed comprising black rubber granules with a textured surface coating of rubber granules in a pigmented polyurethane binder. This top coating is designed to provide traction, slip-resistance and ultraviolet protection. These surfaces are porous which means that they are more forgiving if areas are not laid to the correct falls, thus helping to prevent 'ponding'.

Composite (or Sandwich) Systems

A combination of the two systems above, using the base of the resin-bound crumb system and the surface of the solid PU system. The cost of this system falls between the cast elastomer and the porous resin-bound rubber crumb systems.

All surfaces require a comprehensive maintenance schedule to ensure that they are kept in a safe condition and to maximise the lifespan of the product.

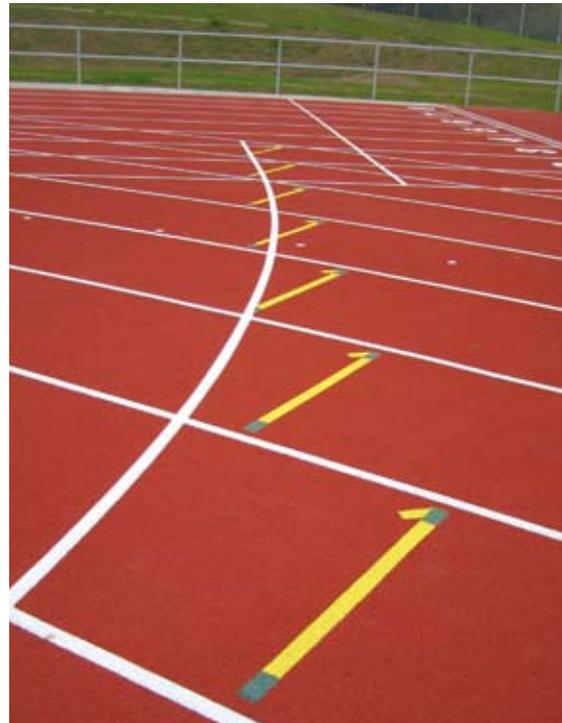
Manufacturers will provide advice on how often the surface should be cleaned, which chemicals and equipment should and should not be used and the best way to carry out repairs.

When selecting a material, system or product, considerations such as the cost of ongoing maintenance, feasibility, ease of repair, lifespan of the product, and environmental impact of disposal at the end of life must be set against initial capital cost.

Durability

All athletics tracks have to contend with compaction, abrasion and spike damage. Outdoor tracks have to withstand the additional rigours of ultraviolet light, wind, rain, heat and frost. With or without careful management, tracks are prone to uneven wear with certain lanes and runways receiving greater footfall.

Careful attention to the specification of these high-use areas by designer, contractor and manufacturer, together with proactive management, can minimise this problem.



The durability of a synthetic surface is directly related to its thickness. If the surface is too thin it will be hard and unyielding underfoot, more likely to deform and less able to absorb the damage and wear of spikes and the effects of weathering.

To get the best compromise between durability, comfort and cost, the optimum thickness of the surface layer should be 12mm. In areas of particularly heavy wear, such as pole vault, javelin, triple jump runways and high jump and water jump landing areas, the surface thickness should be increased to 25mm.

Facility managers should be alert to the issue of uneven wear and should section off inside lanes or 'favoured' runways in order to reduce the effect.

A softer track is more suitable for school children and young people, and for training, whereas, a firmer track is more suitable for adults and elite, and for competition. The specialist consultant should advise on this matter. A specific force reduction range should be specified to achieve a high standard of installation.

Slip-Resistance (Friction)

Surfaces should be slip-resistant whether they are wet or dry. Slip-resistance is achieved by giving the surface a textured or embossed finish.

The IAAF stipulates and tests for a coefficient of dynamic friction (slip-resistance) of 0.5 under wet conditions.

Materials providing greater friction are more suitable for sports wheelchair users.

Impact-Resistance (Force Reduction)

It is possible to formulate synthetic surfaces that will favour one type of event over another. The IAAF standards attempt to assess the ability of the surface and substrata materials to absorb or reflect the energy of an athlete's foot.

All surfacing systems are a compromise between the various needs of different athletics events. Add to this the changes in the properties of the surface materials due to temperature, and it is apparent how much of a compromise this can be.

In situations where athletics is just one of a number of sports using the facilities, it is necessary to prioritise the use in order to select the most appropriate surface for the top priority sport, while considering the compromises required by other sports.

Temporary, rollout spike-resistant runway surfaces are available for indoor use but consideration must be given to the practicalities of use and storage as they are very heavy to move.

More information on the selection of floors for indoor sports is provided in a separate Sport England guidance note. See Section 6.

Academic institutions and sports colleges carrying out research may require Force Plates to be installed in indoor tracks. The force reduction tests of the finished surface must have the same performance before, after and in the middle of the plate.

Long, Triple Jump and Pole Vault Runways

Must be positioned either across the 'D' at either end or outside the track. They must never be positioned along the sprint straight on the inside of the track.

Construction of runways should be the same as that of the running track.

Long and Triple Jump Landing Pits

UK Athletics' rules require that new pits must have a uniform depth of sand (soft, non-abrasive and non-binding) both indoors and outdoors of at least 300mm that finishes level with the runway surface. Landing areas should be edged with plastic or rubber, or a round-edged profile to prevent injury. To prevent migration of the sand, a mat or grating should be fitted along the sides and back of the pit.

When not in use sandpits should be protected by a pit cover to prevent unsupervised use and contamination.

Landing Mat Systems

Where landing areas comprise a number of separate units, these must be securely fastened together and the entire area covered in a spike-proof wear sheet attached to the units. Particular care should be taken with the older type of wear sheets, which have skirts and are not attached to individual units. With these, extra vigilance should be taken to ensure that individual units bind securely together.

All landing areas must be regularly inspected to ensure that wear sheets are in good condition, the covers to individual units are not torn thereby exposing foam and the foam is in good order to ensure that athletes are given maximum protection on landing. Discrepancies should be rectified immediately.



Water jump

Where landing areas are placed on pallets these should be no more than 100mm high and must not protrude beyond the edges of the landing areas.

Place on a suitable proprietary or custom-made platform or decking that raises the mats 50–100mm from the floor to prevent water damage. To further protect them from the elements and from vandalism, provide a fibreglass or rigid plastic slide-off protective cover.

The sizes indicated in the layout guides in section 8 are those determined by the IAAF. In practice, many proprietary systems far exceed these minimum requirements. In all instances it is important that the various mat sections are securely strapped together before use.

High jump

Stands must remain stable.

Crossbars must be in good repair and damaged or splintered bars must be replaced.

The area within 1m of the landing area should have no obstructions onto which an athlete might fall. Hard surfaces, for example tarmac or concrete, should be covered with rubber matting or rubber safety surfacing to a critical fall height of 1500mm.

Pole vault

Stands must be in good working order, securely anchored and move readily in the required horizontal plane. The rails or other apparatus must be securely fixed to the ground. It is recommended that suitable padding protect the base of the stands.

Where the landing area is placed on pallets the front surface of the pallets beyond the take-off box must be blocked off so that there is no possibility of the pole penetrating underneath.

The area from the centre of the back of the box 5m to the front and sides and 7m to the rear of the box should have no obstructions onto which an athlete might fall. Hard surfaces, for example concrete or tarmac should be covered with rubber matting or rubber safety surfacing to a

critical fall height of 1500mm. Existing fences within this area should be either relocated or covered in suitable padding.

There must be no obstructions within 1m of the landing area.

Shot, Discus and Hammer Circles

Circle sizes are:

- shot: 2.137m
- hammer: 2.137m
- discus: 2.5m.

Circles should be topped with a 25mm thick sand/cement screed. Ideally this should have a steel trowel finish for shot and combined facilities, and a wood trowel finish for discus. For hammer a smoother finish is required with greater traction, which is achieved by adding 3mm granite chippings to the steel trowel finish.

Concrete when placed should not have an excess of water which would otherwise come to the surface and create a weak surface.

Water/cement ratio should not exceed 0.4. Concrete should be well tamped to remove all voids.

A curved toe board is required for shot. Include flush fixing ring bolt anchor points for disability throwers.

Ring bolts able to take dog clips on the ratchet straps should be provided for disabled athletes.

High priority should be given to hammer events.



Throwing cage

Throwing Cages

For the protection of spectators, officials and athletes during competition, all hammer and discus throws must be made from a cage. The most economical approach is to use concentric circles, with the hammer circle insert sections temporarily fitted inside the discus circle.

The IAAF stipulates performance criteria and dimensional requirements for throwing cages. All cages must be designed, manufactured and, most importantly, maintained so that they adhere to these criteria.

As well as determining shape, size and opening size, the standards relate to the potential hazards of hammer and discus projectiles that weigh as much as 7.26kg and travel at up to 29m per second.

11 Floodlighting

Floodlighting is essential to maximise the use of tracks and training areas.

Training areas should be available throughout the year and be as low maintenance as possible.

Floodlighting provides opportunities to maximise income by allowing greater programming flexibility and optimum use of the facility. However, it is important to balance these benefits against the initial expense, ongoing energy and maintenance costs and the implications for the management and supervision of the facility.

To inform this decision a realistic assessment should be carried out of the probable patterns of use. A simple programme of use will identify when training sessions and events take place and help to determine whether the facility can operate effectively without the extended hours of use that floodlights will provide.



The other major consideration is the requirement and likelihood of obtaining planning permission for floodlights. In some cases floodlighting may be considered inappropriate by the local planning authority due to proximity to housing, possible increase in noise and traffic or because of the visual intrusion of the lighting columns.

For these reasons early consultation with the local planning authority is essential.

An illuminance level of 100 lux would be sufficient for an athletics training area. For club competition and regional events this should be increased to 200 lux and to 500 lux for top-level competition at national and international levels. Switching will allow appropriate illuminance to be provided for particular events and will reduce unnecessary use of energy, and low spillage luminaires will minimise light pollution and nuisance.

The lighting design should ensure that the required illuminance levels are achieved throughout the sports facilities, not only on tracks, but also in the centre of the field where it is critical that projectiles can be seen along their full path, for both performance and safety reasons. Lux levels should be checked in the centre of the grass area after the initial fall off.

For discus, Javelin and Hammer special precautions should be taken to ensure the safety of spectators and other persons in outdoor facilities since the object being thrown may travel above the line of sight and hence be invisible during part of its flight.

Sport England and SAPCA are preparing guidance notes on sports lighting that will be available to download from their websites when completed.

http://www.sportengland.org/index/get_resources/resource_downloads/design_guidelines.htm

<http://www.sapca.org.uk>

12 Management of Athletics Facilities

Ideally, athletics facilities should be located on school sites and used by one or more local clubs. They should be arranged to allow for a full programme of training for many disciplines.

At an early stage in project development, a joint management committee should be established, with a clear, negotiated partnership agreement that represents all the user groups, to manage the facilities. The agreement would set out rules for access and use of the site, together with the duties, roles and responsibilities of each party for the running, upkeep and maintenance and eventual replacement of the facilities.

It is important that training facilities are well used and well managed and this may mean clubs sharing of facilities. Consequently, links between athletics clubs, other sports clubs and educational establishments should be encouraged.

To assist in the development of the project brief, the UK Athletics Facilities Manager, coaches, development officers and other governing body representatives must all be consulted.





Safety

The provision of a safe environment for athletics track and field events and other sports activities is a primary consideration in all facilities. It is essential that the recommended safety margins, safety run-offs and other safety measures be achieved in the design of facilities. It should be noted that safety clearance recommendations are the minimum to be achieved.

Adequate safety measures are imperative at all times. This applies particularly to throwing and jumping events. For example, although the safety distance for throws may be less than the requirement at national level, safety arcs must remain constant. Ample space should be left at the end of the straight for runners to pull up after passing the finish line.

There must be no permanent fence or other obstruction within 5m of the pole vault box.

There must be no obstructions within 1m inside and outside of the track. In indoor tracks this distance can be reduced to 250mm to safety barriers.

Where spectator accommodation is part of the facility and where spectators have access to the track area, a protective barrier should be erected around the track. This should be at least 1m from the outside edge of the outside lane line and 1.1m high, and be strong enough for

spectators to lean on it. This also applies to indoor facilities where spectators are often closer to the track and seating is at a steeper rake. Barriers should have no sharp edges and may need padding locally, such as at the end of finishing straights.

UK Athletics' *Code of Practice for track and field training and competition sessions and events* is an essential point of reference for matters of safety, together with the UK Athletics Rules and Regulations for Competition.

UK Athletics' Code of Practice, *The Safe Conduct of Track and Field Events*.

<http://www.ukathletics.net/vsite/vfile/page/fileurl/0,11040,4854-136356-137664-35362-0-file,00.pdf>

In order to discharge the duty of care to provide a safe environment it is necessary for the project team and managers of facilities to identify hazards, assess the associated potential risks, then take action to eliminate the hazard, or failing this, take action to either eliminate the risks or reduce them to an acceptable level.

Further guidance on risk assessments is available in the UK Athletics' Code of Practice and Sport England Information Sheet '*Health & Safety - Hazards, risk assessments, method statements & COSHH*'.

http://www.sportengland.org/02_hazards_ras_mss_coshh.pdf

To ensure that all potential safety hazards were considered during design development, it is recommended that periodic inspections be undertaken at key construction stages of new athletics facilities.

For other safety protection features in indoor facilities see Section 6.

Maintenance

To achieve a successful and sustainable project, it is essential to understand the requirements for future maintenance when planning outdoor sports facilities. This is of particular importance when sports areas will be used for both athletics and other sports.

The design team should prepare a fully specified maintenance schedule that will ensure that all sports areas, including tracks, track equipment, equipment for field events, throwing walls and cages are maintained in accordance with design requirements.

The report should include recommendations for appropriate maintenance equipment and any special training that may be required. The report must indicate likely maintenance costs and the capital cost of purchasing the equipment.

Protection should be provided to athletics tracks where pedestrians and maintenance machinery cross to central grassed areas. Where inside track areas are used for other sports such as soccer, the track surface must not be contaminated by mud from boots. All grass cuttings should be collected and taken away.

Further information on the maintenance of athletics tracks and equipment is given in the SAPCA *Code of Practice for the Construction & Maintenance of Athletics Tracks with Synthetic Surfaces*.

<http://www.sapca.org.uk/downloads/publications/MaintCoP04.pdf>

Further information on the maintenance of grass areas is given in the Sport England Design Guidance Note – *Natural Turf for Sport*, and from the Sports Turf Research Institute.

<http://www.sportengland.org/naturalturf.pdf>
<http://www.stri.co.uk/>

The IOG represents groundsmen and other professionals involved in greenkeeping, horticulture, turficulture and amenity management.

<http://www.iog.org>



13 Sustainable Development

The design team should follow best practice in sustainable development and whole life design. Buildings should have a high environmental performance, particularly in terms of materials, energy, water efficiency and waste management.

The design team must ensure that all timber is acquired from sustainable and legal sources, and that suppliers provide independent verification of this.

Ideally, facilities should be accessible by public transport. Indoor and outdoor facilities should be managed on sustainable principles.

Further information on sustainable development is available from:

<http://www.defra.gov/environment/internat/csb/forests/index>

<http://www.sustainable-development.gov.uk>

<http://www.culture.gov.uk/>

<http://www.culture.gov.uk>

Energy Efficiency

Consideration should be given to energy efficiency when designing new facilities:

- The position and orientation of the building on the site, the selection of materials, and the choice of heating and ventilation systems will all contribute to energy efficiency throughout the life of the building.
- Requirements for active cooling can be reduced by the correct orientation of the building and the use of solar shading to windows.
- Energy-efficient lighting sources should be used whenever practicable.
- The ventilation system should have a method(s) of heat recovery, particularly in larger centres.

Effective controls should be provided for all environmental systems.

14 Further Reading

Amateur Athletic Association of England, British Athletic Federation, McAlpine, Thorpe and Warrier, English Sports Council

National Athletics Facilities Strategy 1998–2004 Full report.

Birmingham: Amateur Athletic Association of England, 1998

UK Athletics, Northern Ireland Athletic Federation, Scottish Athletics, Welsh Athletics, AAA of England

UK Athletics

Athletics Facilities Strategy for the United Kingdom 2002-2006-02-02

www.ukathletics.net

Approved Code of Practice – The Safe Conduct of Track and Field Events

International Association of Athletics Federations

Track and Field Facilities Manual 2003 edition.

Sport England

Access for Disabled People

Better Places for Sport

Car Parking and Landscape Design

Changing and Lockers

Floors for Indoor Sports

Natural Turf for Sport

Sports Halls – Design

Sports Halls – Sizes and Layouts

The above are all free-to-download from:

http://www.sportengland.org/index/get_resources/resource_downloads/design_guidelines.htm

Sports and Play Construction Association, UK Athletics

Code of Practice for the Construction and

Maintenance of Athletics Tracks with Synthetic Surfaces

London: Sports and Play Contractors' Association, 2001

Sports Hall Athletics Association

Rules of Competition

15 Contact Addresses

England Athletics

Athletics House, Central Boulevard, Blythe Valley Park,
Solihull, West Midlands B90 8AJ
Tel: 0870 998 6700
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East Midlands

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Loughborough LE11 3TU
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Manager: Alison Wyeth

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England Development Office, Marathon House,
4th floor, 115 Southwark Street, London SE1 0JF
Tel: 0207 902 0218
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Gateshead International Stadium,
Neilson Road, Gateshead NE10 0EF
Tel: 0191 420 0553
Manager: Richard Hunter

North West

Sportcity, Gate 13, Rowsley Street, Manchester M11 3FF
Tel: 0161 230 8184
Manager: Michael Hunt

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The South East Region is divided into two sub regions:
Sussex, Surrey and Kent

Broadbridge Heath Leisure Centre, Wickhurst Lane
Broadbridge Heath, Horsham RH12 3YS
Tel: 01403 259583
Sub Regional Manager: Elspeth Turner

Hampshire and the Isle of Wight, Berkshire,
Buckinghamshire, Oxfordshire and the Channel Islands

Wessex House, Upper Market Street,
Eastleigh, Hants SO50 9FD
Tel: 02380 610550
Sub Regional Manager: Christine Benning

South West

Exeter Golf and Country Club,
Topham Road, Exeter, Devon EX2 7AE
Tel: 01392 879733
Manager: Sonya Ellis

West Midlands

Alexander Stadium, Stadium Way, Off Walsall Road
Birmingham B42 2LR
Tel: 0121 356 8849
Manager: Paul Bearman

Yorkshire & Humberside

English Institute of Sport, Coleridge Road, Sheffield S9 5DA
Tel: 0114 242 3831
Manager: Kristine Monaghan

Chartered Institution of Building Services Engineers

222 Balham High Road, London SW12 9BS
Tel: 020 8675 5211
Fax: 020 8675 5449
www.cibse.org

English Federation of Disability Sport

Manchester Metropolitan University, Laager Campus
Hassall Road, Alsager, Stoke-on-Trent ST7 2HL
Tel: 0161 247 5294
Minicom: 0161 247 5644
Fax: 0161 247 6895
www.efds.co.uk

British Paralympic Association

40 Bernard Street,
London WC1N 1ST
Tel: 020 7211 5222
Fax: 020 7211 5233
www.paralympics.org.uk

International Association of Athletic Federations

17 Rue Princesse Florestine, BP 359, MC 98007, Monaco
Tel: 00 377 93 10 88 88
Fax: 00 377 93 15 95 15
www.iaaf.org

Institute of Groundsmanship

28 Stratford Office Village, Walker Avenue, Wolverton
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Fax: 01908 311140
www.iog.org

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Sports and Play Construction Association

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Stoneleigh Park, Warwickshire CV8 2RF
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www.sapca.org.uk

Sportshall Athletics Association

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www.sportshall.org

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Based upon original document prepared by Sport England © July 2002
Design concept by GDA Creative Solutions. Produced by NBA Tectonics
Document re-branded and typeset by S&P Architects

Acknowledgements:

Sport England is indebted to the many individuals and organisations who have contributed to this update with excellent advice, information and photographic material. Photography by Alan Edwards, Richard Sowersby, Sports and Play Contractors' Association, Sports Hall Athletic Association and also Dave Young and Peter Sutcliffe (of UKA) and Phil Johnson for their valued contributions. Photography on pages 21 and 37 by kind permission of Gill Athletics, Figure 16 reproduced by kind permission of Norman Lindsey.

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Issue Tracker

002 – Updated and Amended Publication: March 2008
001 – Initial Publication: July 2002

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