COVERED OUTDOOR CRICKET FACILITIES

DESIGN GUIDE

Version 1
April 2025

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1.0 INTRODUCTION

1.1 ABOUT THIS GUIDE

The Covered Outdoor Cricket Facility is an exciting new structure that can accommodate both cricket practice lanes and match play in a covered environment.

It blends the outdoor and indoor playing environment for less cost per square metre than a new sports hall or indoor cricket centre.

This document assists organisations who are interested in developing Covered Outdoor Cricket Facilities, helping them to understand the considerations and technical requirements needed during the design stage.

You should first read 'Covered Outdoor Cricket Facilities Developing Your Project' which is a companion to this document and provides guidance on the project development journey and how you can identify the right site for your project.

This document then follows once a site (or shortlist of sites) has been identified. It provides guidance to help with spatial and performance requirements while making sure a project provides a design that will be compliant with necessary regulations.

While the concept of a Covered Outdoor Cricket Facility is new, some of the technical requirements are already established in other technical guidance. The information provided in this document should be read in conjunction with:

- ECB's Creating Welcoming Environments
- Sport England's Accessible and Inclusive Sports Facilities.

1.2 WHO IS THIS DESIGN GUIDE FOR?

This guide is intended for anyone involved in the commissioning, design, construction or management of a Covered Outdoor Cricket Facility, including:

- Developers and contractors
- Architects, designers and consultants
- Government bodies
- Local authorities
- Education sector (schools and universities)
- Clients
- Planners

Figure 1. Left hand image shows the Covered Outdoor Cricket Facility being used for match play. Right hand image shows how the facility can be used for net practice

Figure 2. End Elevation of one of the two Covered Outdoor Cricket Facilities at Bradford Park Avenue, Yorkshire.

Figure 3. Side Elevation of the Covered Outdoor Cricket Facility at Bradford Park Avenue, Yorkshire. Constructed and opened in 2023.

1.3 WHAT IS A COVERED OUTDOOR CRICKET FACILITY?

The Covered Outdoor Cricket Facility is an unheated facility with permanent weather protection, meaning that cricket can be played in all weather conditions, but in the winter the playing environment will be close to outside air temperature but warmed slightly by activity, the lighting system and reduced wind chill.

The playing environment is fully enclosed within a tensioned net, with main access points to the rear on both sides. Within the playing environment are retractable lane nets and blinkers. Having an odd number of lanes allows the middle lane to be used as a central wicket in a match play scenario.

A retractable pair of sight screens, behind the bowler, allows for different deployment options, depending upon how the facility is being used. The netting configuration should be designed to provide maximum flexibility in use and encourage use by concurrent groups.

For example, a seven-lane facility should be divisible in such a way that allows for two 3-lane match play scenarios, with an unused safety lane in the middle. Or a match play scenario using the middle lane, with all practice nets retracted and stored behind the batter.

The flooring will be a specialist carpet with painted lines for lane practice, match play and junior formats.

Low energy LED lighting will provide an even light diffusion, minimising shadows and facilitating a high-quality, safe playing environment.

Accessible ancillary facilities, such as reception, changing and toilets can be provided in adjacent buildings or in a dedicated ancillary building, depending on the site.

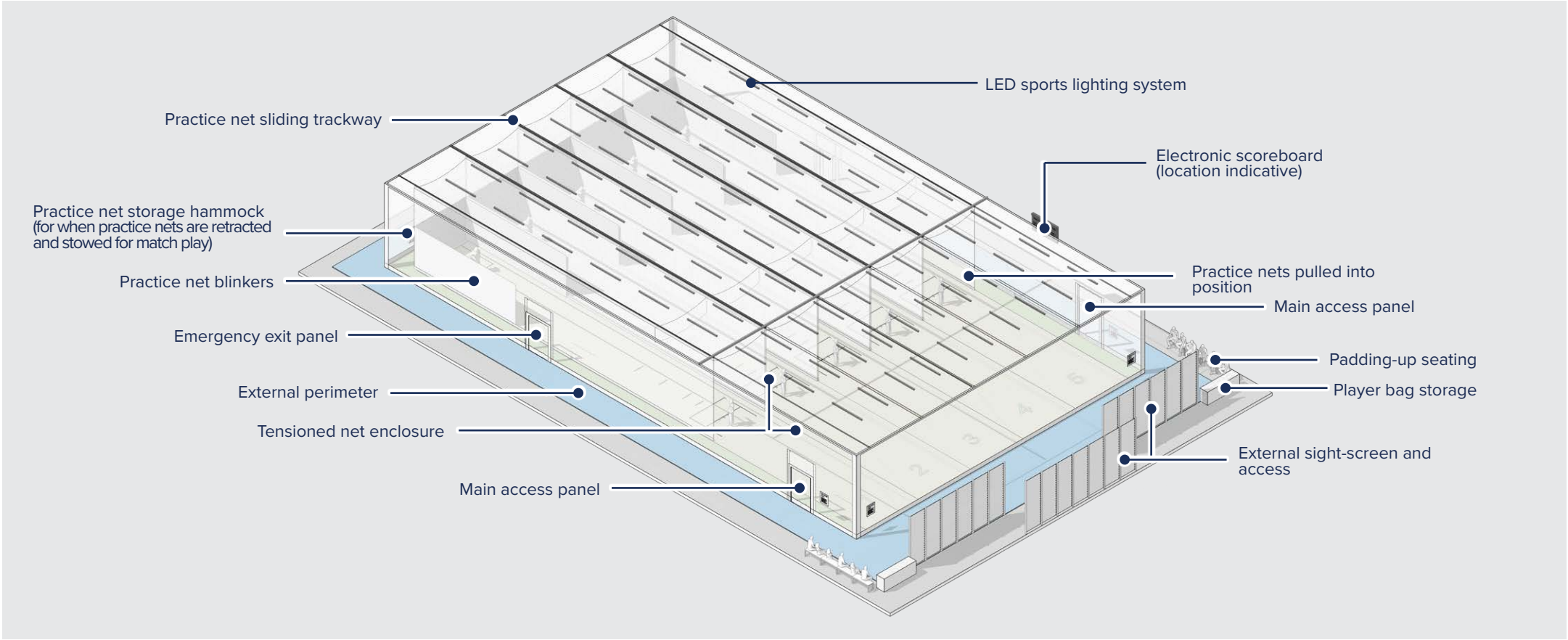


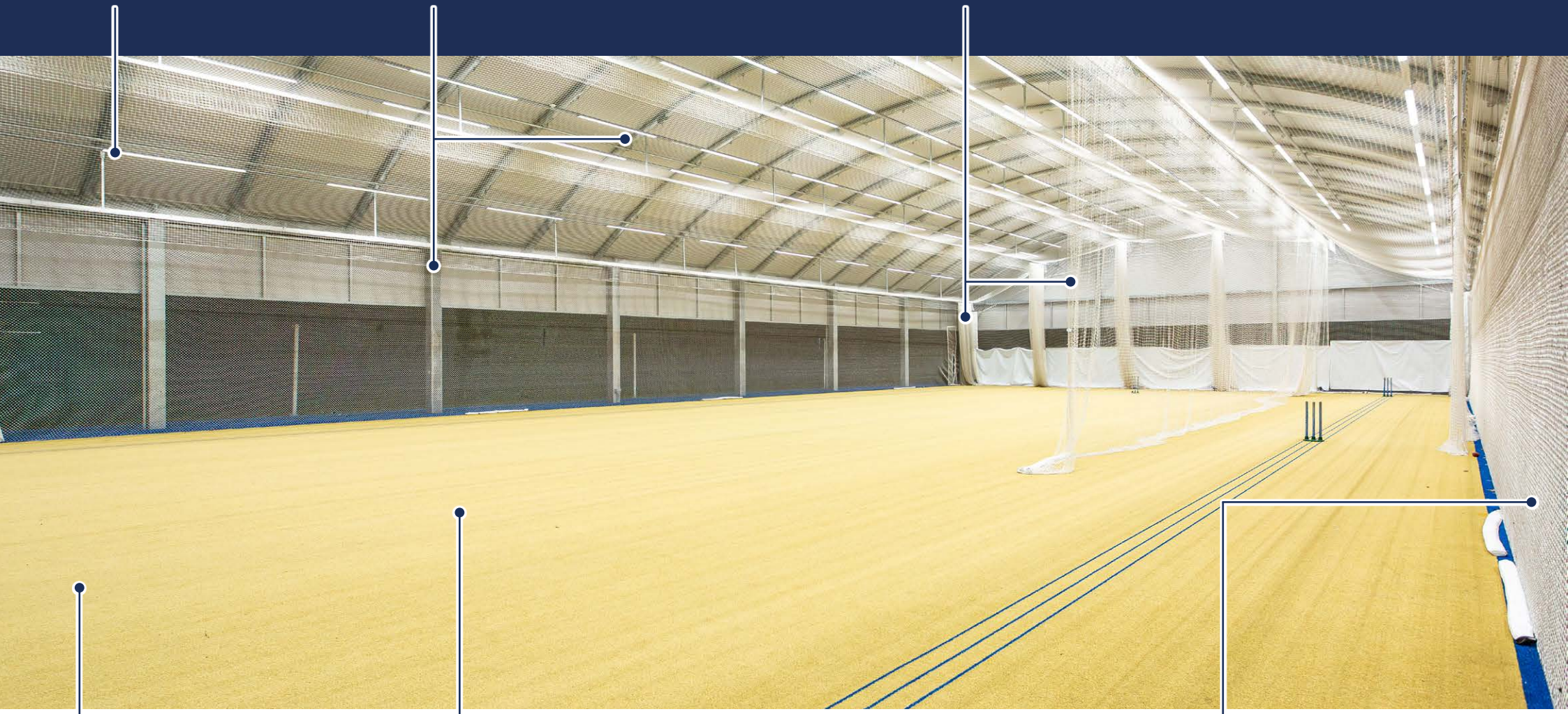
Figure 4. 3D view of beneath the facility superstructure, showing the assembled elements of the Covered Outdoor Cricket Facility. Core elements of the Covered Outdoor Cricket Facility are shown in the figure overleaf

1.4 CORE COMPONENTS OF A COVERED OUTDOOR CRICKET FACILITY

SPORTS LIGHTING SYSTEM - using the latest LED technology and conforming to ECB sports lighting specification the lighting system provides the low-glare, high uniformity, high illuminance lighting required for safe cricket use.

SUPERSTRUCTURE - the over-arching structure that provides the roof and limited side-walls for weather protection, and the frame from which components such as netting and sports lighting can be hung.

RETRACTABLE PRACTICE NETS - these practice nets, conforming to the specifications in ECB TS3, slide on rails hung from the superstructure allowing nets to be retracted for match-play or individually pulled out for net practice (or a combination of net-practice and skills, depending on the size and configuration of the facility). The nets are fitted with canvas blinkers at the batting end to improve safety and net experience for both batter and bowler.



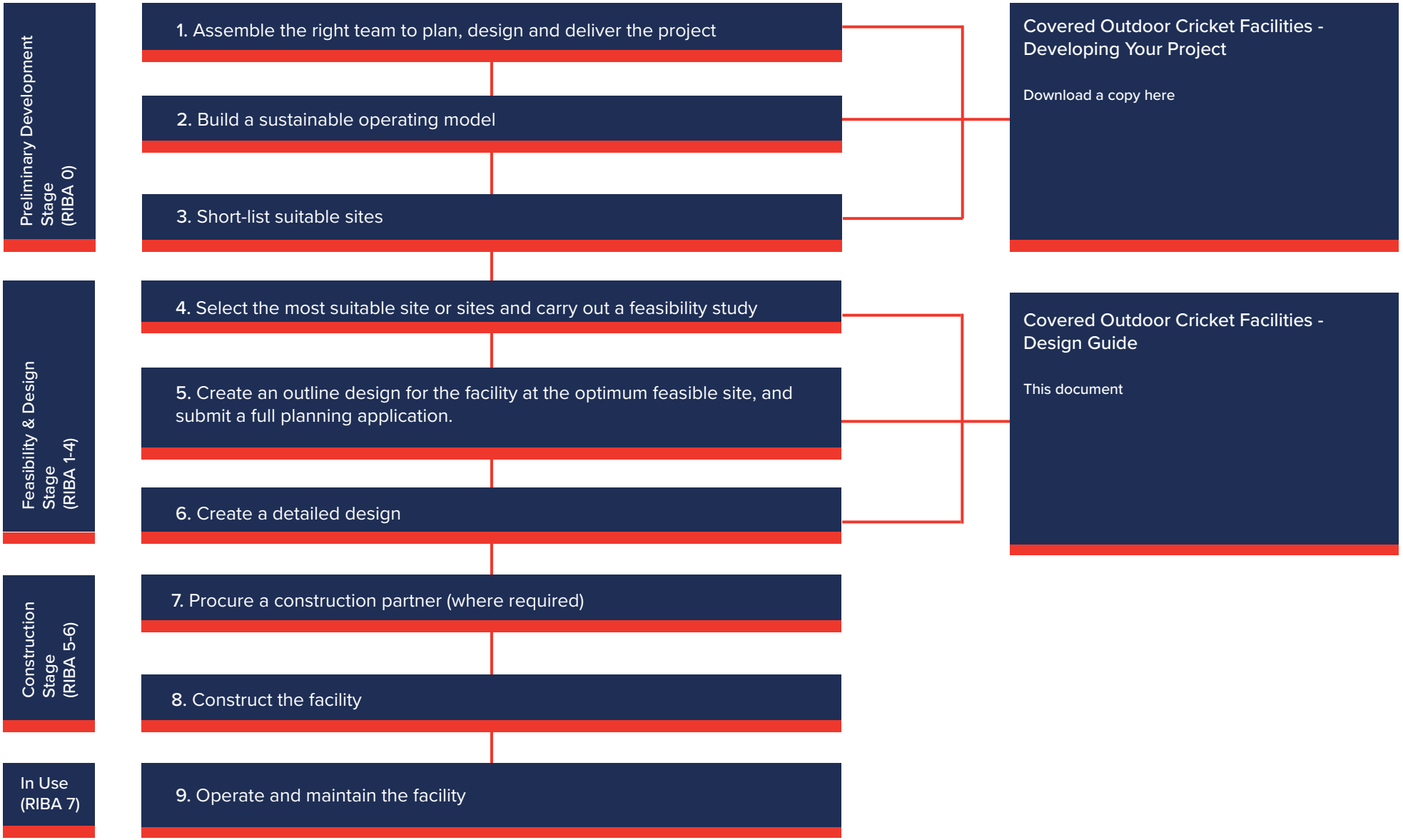
SUBSTRUCTURE (NOT VISIBLE) - provides the foundations for both the superstructure and the playing surface. These typically comprise mass concrete foundations for the superstructure and an engineered porous stone and sports-macadam sub-base laid to tight level and consolidation tolerances for the playing surface.

PLAYING SURFACE - a specialist cricket carpet system conforming to ECB specification TS6 laid over a shockpad, or shockpads, to provide player comfort and suitable ball-surface interaction. The principal playing area is typically green or beige with coloured surrounds to provide contrast and definitions of different areas within the facility. Line markings are used for match-play and net practice.

TENSIONED NET ENCLOSURE - a specialist tensioned net, enclosing the full playing area to contain the cricket ball during both match-play and practice nets. This also maintains safety for spectators and other people nearby.

1.5 NAVIGATING THE DESIGN PROCESS WITH THIS DOCUMENT

This guide is a companion to our 'Covered Outdoor Cricket Facilities - Developing Your Project' document, the two guides manage different parts of the development and design process as follows:
(References to RIBA Stages in Brackets - for information see the RIBA Plan of Work)



2.0 SITE SUITABILITY & FEASIBILITY

'Developing Your Project' provided guidance on identifying and creating a short list of potential sites. Once a preferred site is identified or there are two sites that cannot be separated, then a feasibility study will be required.

2.1 ASSESSING FEASIBILITY

A feasibility study allows you to establish the right sized Covered Outdoor Cricket Facility on the right site, in the right location. A good feasibility study should take place before any detailed design or full planning application.

There is a cost to carrying out a feasibility study. Whilst this is an essential development cost, the feasibility study should be limited to one, or if necessary two sites. Preliminary assessments of dimensions, slope, flood risk buried services and access can help to rule out unsuitable sites before any site investigation is carried out. The aim is to rule out the 'show stoppers' before significant costs are incurred.

This is an essential investment to support the subsequent design and planning application processes which cannot proceed without key information such as the topographic survey and the ground investigation.

This section of this document can be used alongside 'Developing Your Project' to assist with identifying and selecting suitable sites and can be used to provide information on location.

Once suitable sites have been identified a combination of desk study and site investigation will be required for the full feasibility study. Desk studies such as services searches, geological mapping and flood risk mapping should always be carried out first to help limit abortive cost, even at the feasibility stage.

2.2 LOCATION

Whether you consider location or the size of the facility first can be somewhat 'chicken and egg' depending on your project.

In some projects you will already have an identified site and the constraints of that site will determine size.

In other projects you may have a number of sites and selecting which site will require an optimisation process.

However do not jump straight to sizing because you still need to consider the following factors:

- User accessibility
- Noise and light sensitive neighbours
- Space provision
- Existing and adjacent facilities
- Location and orientation
- Habitat, biodiversity and trees
- Trees

Figure 5. An illustration of a Covered Outdoor Cricket Facility, located at an existing urban cricket ground. Any given site may have varying types of access, environment, proximity to neighbours and neighbouring land uses. The example shown is not intended to be a prescriptive location requirement. Pilot facilities have been located at an existing cricket ground, a football facility and a multi-use sports centre. Feasible project sites may include other commercial or industrial locations.

USER ACCESSIBILITY

One of the key considerations for selecting the right site through a feasibility process is access to your users.

It is vital to understand potential users of your facility, where they are and whether they can access your facility in a particular location.

People will access your site through different means:

- By car, requiring good road access and suitable on-site parking of the right number of spaces for the size of your facility.
- By public transport, proximity to bus routes, tram stops or rail stations will all help people access your facility
- By bike, sites which connect to cycle paths, cycle lanes and other cycle routing via roads will enable people to ride to your facility. This also requires safe and secure cycle storage (see Section 5.7).
- On foot, safe well-lit pedestrian access enables people to travel to your facility on foot or complete their journey from a bus stop or other public transport access point.

Look for sites that have a good range of access for all four methods.

Journey time is also important. Locating sites within a 10 minute walk or 20 minute drive time of where your most frequent users live will support more frequent use.

NOISE AND LIGHT SENSITIVE NEIGHBOURS

Viable operating models for Covered Outdoor Cricket Facilities will require evening use to maximise participation. Sites must be selected carefully to consider noise and light sensitive neighbours so that restrictions on operating hours are not required.

Noise and light sensitive neighbours will most likely to be in residential areas. Areas near trees and other foraging habitat will also be more likely to affect light sensitive bat populations. It is recommended that a suitably qualified ecologist is consulted where this is a risk. Retail or light industrial areas will be less sensitive to noise and light.

Careful selection of location will help to maximise hours of operation and capacity. It is recommended that a suitably qualified acoustic consultant be appointed to conduct an environmental noise survey to quantify the noise climate of any proposed sites and provide further guidance on the suitability of a particular site with respect to external noise ingress and any mitigation of noise from the facility.

Design strategies for the minimisation of light and noise issues are in Section 4.13 and 6.6 respectively.

SPACE PROVISION

If you are selecting from a number of site options, or you are identifying what proportion of a site you will require, then you will need to determine an outline footprint for your site. Refer to Section 2.3.

EXISTING FACILITIES

Your Covered Outdoor Cricket Facility will require accessible:

- Changing space
- Toilet facilities
- Storage space
- Reception / booking-in area
- First aid / defibrillator access

Access to existing facilities of this type close to your proposed facility means that it is not necessary to construct new facilities, helping to reduce construction cost.

ADJACENT FACILITIES

In addition to the essential facilities, a location near to other services such as other sports facilities, education sites, entertainment facilities or those providing food and beverage will encourage users to access your facility.

Of course, proximity to other Covered Outdoor Cricket Facilities will also mean competition for the same users and affect your operating model.

LOCATION AND ORIENTATION OF THE COVERED OUTDOOR CRICKET FACILITY

The location and orientation of a Covered Outdoor Cricket Facility on a site will affect the way light and wind impact upon it.

The prevailing wind speed and direction could influence where wind protection is provided and will need to be included in structural calculations.

These are covered outdoor environments and some wind will provide airflow and natural ventilation. Excess wind will move the practice netting (unless ballasted) and can create noise.

Wind needs to be considered alongside rain and snow. Driving rain and snow should be kept out of the playing area as far as possible and wind protection / barriers should be erected to minimise such impacts.

Sun path and the location of the sun when low in the sky should also be considered. Optimum orientation for the playing direction (long axis) is 55° either side of north (305° to 055°). Outside of this orientation look carefully at the design of hanging side coverings and gabling to help mitigate low sun by providing shading/screening. Think carefully about the translucency of the fabric in these areas (see Section 4.9).

HABITAT AND BIODIVERSITY

Where possible avoid damage to existing habitat and biodiversity, which may be subject to protection under various legislation. This should be considered as part of an Environmental Impact Assessment, undertaken at the feasibility stage. The assessment should consider the impact and mitigation of the construction and operation of the facility.

Changes to planning law mean that in England developers will need to plan for Biodiversity Net Gain (BNG), and in Wales, Biodiversity and Ecosystems Resilience (BER).

This places a requirement to enhance biodiversity on development sites, typically by 10%. The type and value of existing habitats and biodiversity should be considered at the feasibility stage alongside opportunities to protect and enhance that biodiversity (including requirements and space). For further information on Biodiversity Net Gain requirements see Section 6.7.

TREES

The impact of trees on the facility development and the impact of the development on trees must be considered at the feasibility stage.

Trees play an important role and should be protected during construction where possible. Where subject to Tree Protection Orders -

However, tree roots can damage playing surfaces and structures, and will need to be managed (including pruning and tree root protection where required). Furthermore tree canopies and leaf fall can damage the structure canopy, create shading and will require additional maintenance to the roof, guttering, netting and playing surface.

Where possible select sites without trees or amend design to avoid trees on site. It may be necessary to carry out works to tree roots and canopies, or remove / re-plant trees during construction. It is recommended that a tree survey is carried out by a suitably qualified specialist, and required local authority permits are secured, before carrying out any works to trees on site.

The position and canopy extent of trees should be included in the topographic survey (see Section 2.5)

Figure 6. Maintaining and enhancing biodiversity is a key requirement under Biodiversity Net Gain legislation. For more guidance on requirements for your project read Sport England's guidance and consult with a suitable ecologist.

2.3 OUTLINE DIMENSIONS & SIZING

When sizing your facility there are six key components to consider:

- The Covered Outdoor Cricket Facility
- Ancillary buildings (including storage)
- Storage
- Access and circulation
- Parking
- Boundary constraints

CAPACITY CALCULATIONS

Practice net lanes: practice net capacities are 6-8 people comprising:

- 1–2 batters
- 1–2 padding up
- 4–6 bowling

This ensures that individuals are able to practise purposefully, and no overcrowding means less likelihood of accidents.

The capacity of any facility should be determined by a site-specific and activity-specific risk assessment.

Match play: indoor match formats are usually 5-8 players per side. It is recommended that no more than 6-a-side cricket is considered in three-lane facilities.

These numbers can increase as part of junior soft ball matches but again should be subject to site-specific and activity-specific risk assessment.

The maximum number of people in the Covered Outdoor Cricket Facility must be considered in the fire evacuation strategy and associated design implications as per Approved Document Part B.

NUMBER OF LANES

Covered Outdoor Cricket Facilities are sized by the number of lanes, which is normally an odd number to allow for central match play (meaning that when the match play pitch is moved centrally, it is not located over a carpet seam).

Typical size configurations are three, five and seven lanes. Three lanes is a minimum, fewer than three lanes will be too small for matchplay.

As the number of lanes increases, the width of the facility increases, along with the capacity. This increases the footprint of the covered facility, the ancillary facilities and the parking.

LENGTH CONSIDERATIONS

The length of the facility is determined by the length of a cricket pitch (fixed) and the length of bowler run-up provided (variable).

Minimum and recommended bowler run-up lengths are detailed in Section 4.2 and should be set in consultation with potential users.

OUTLINE SITE DIMENSIONS

Determining outline site dimensions requires an outline design - refer to Section 4.2

The tables on this page can be used to provide indicative space requirements at the feasibility stage. The tables show dimensions for 3-, 5- and 7-lane facilities at minimum and recommended (Table 1) dimensions.

You will need to add additional space for:

- Any ancillary buildings or facilities
- Parking (including cycle parking)
- Circulation
- Boundary allowances and constraints

Site shape, width and length are key constraints that must be considered at the feasibility stage - not just area. A long thin site or a square site of the correct total area may not be suitable because of constraints on width or length for example.

There are many site and location specific factors that determine detailed facility sizing (such as the local planning authority's requirements for parking, or proximity to residential neighbours) that will affect the total footprint of the site.

If your site is in anyway unusual you should consider carrying out a detailed sizing exercise to scale at the feasibility stage.

Detailed size standards and sizing design method are in Section 4.2.

2.4 SITE GRADIENT

The floor for a Covered Outdoor Cricket Facility should be constructed flat on a single horizontal plane (see Section 4.6).

To achieve these levels, the sub-base build-up of the facility will require the removal of the topsoil and the grading of the subsoil formation level to these tolerances.

The flatter the existing site levels, the less earthworks are required, minimising site footprint. This is because extensive groundworks, including cut-and-fill and retaining walls are expensive and drive-up cost., so sites with excessive slopes should be avoided where possible.

2.5 TOPOGRAPHIC SURVEY

A topographic survey of features, levels and services by a competent surveyor will be required for planning and detailed design.

The level of detail should reflect the site and the design requirements - consult with your surveyor and architect/designer to ensure the right survey is carried out.

The survey should provided to OSGB reference at an accuracy appropriate to the project (see RICS Measured Surveys of Land, Buildings at Utilities). All 2D and 3D information should be provided in a suitable CAD format, in addition to any drawn (paper or PDF) information.

Control points and bench marks should be identified on the survey and on site as this will assist in setting out during the construction phase.

Table 1. Typical outline dimensions of a Covered Outdoor Cricket Facility[1],[2]

	Recreational Cricket Minimum Dimensions			Elite Cricket Dimensions		
Lanes	Width (m)	Length[3] (m)	Area[3] (m^2)	Width (m)	Length (m)	Area[3] (m^2)
3	16.80	36.62 - 41.62	615 - 699	18.00	40.62 - 44.62	731 - 803
5	24.00	36.62 - 41.62	879 - 999	26.00	40.62 - 44.62	1056 - 1160
7	31.20	36.62 - 41.62	1143 - 1299	34.00	40.62 - 44.62	1381 - 1517

[1] These are dimensions for the Covered Outdoor Cricket Facility structure only, you will need to add additional area for ancillary buildings, parking (including cycle parking, circulation, boundary allowances and other considerations, based upon local planning requirements and site factors.

[2] For detail on how these figures are calculated and for reference dimensions, refer to Section 4.2.

[3] Length (and therefore Area) varies with bowler run-up length, refer to Section 4.2.

2.6 GROUND CONDITIONS

PRELIMINARY INVESTIGATIONS

The facility will require foundations to support the roof structure, and it will be important to assess the suitability of the ground to support the playing surface without disturbance of levels.

It is therefore recommended that an outline desk-based assessment of the likely ground conditions for a site is carried out using British Geological Survey data by an appointed structural engineer at the feasibility stage.

Depending on the condition of the ground and the indication of superficial deposits, this will impact the likely suitability of foundations, the cost of the foundations and the depth of playing surface construction.

The preliminary desk-study should determine:

- Bedrock geology
- Superficial deposits
- Borehole records in adjacent area
- Historical landfill or mine workings

GROUND INVESTIGATION

Once a site has been selected, a specialist ground investigation contractor should be requested to provide the following elements:

- Geo-environmental desktop study: this is a desk-based review of local ground conditions to assess the likely contamination of a site based on its prior use and history. The report will also assess the likely ground conditions for the site. Typically, this report will be required to be submitted as part of a planning application to suit the local authority's requirements.

- Ground investigation works on site: depending on the findings of the desk-based assessment either deep or shallow ground investigation works will be required. These include the use of machine and hand excavated trial pits combined with, if required, boreholes or window samples that investigate the ground conditions at depth.

Minimum specifications for these would typically be as follows:

Anticipated good ground at shallow depth:

- Min 3No. trial pits to circa 2.5 m depth with shear vane testing to provide safe bearing pressure values with maximum 25 mm settlement
- Min. 5No. CBR tests to confirm strength of substrate for civil engineering design
- A soakaway test to BRE 365
- A suite of contamination testing for the site.

Anticipated poor ground at shallow depth:

- Min. 3 No. window samples to a suitable depth
- Min. 1 No. borehole to a suitable depth
- Min. 5 No. CBR tests to confirm strength of substrate for civil engineering design
- A soakaway test to BRE 365
- A suite of contamination testing for the site

It is expected that all of the above works are undertaken by specialist ground investigation contractors typically based on specifications provided by a structural engineer. Any design works relating to the structure should be undertaken by a qualified structural engineer.

2.7 FLOOD RISK

In addition to assessing ground conditions it is essential to understand the risk of flooding on the site.

Typically, it will be a requirement of the local planning authority for an application to be supported by a drainage strategy. This is linked to the above NPPF policy relating to surface water drainage and the risk of flooding. For projects in Wales, SAB (SuDS approval body) approval must be sought independently from the planning application in line with local guidance.

The proposed red line boundary for the site should be checked for which flood zone it lies within at https://www.gov.uk/check-long-term-flood-risk

Local flood maps for the relevant local authority should also be checked to make sure that local flood modelling does not contradict the national policy maps.

If the site is within Flood Zone 1 and is less than 1 hectare in area, a Flood Risk Assessment is not required, but a drainage strategy will likely be required for planning.

If this site is larger than 1 hectare or if the site is in Flood Zones 2 or 3, a Flood Risk Assessment will be required for planning together with a proposed drainage strategy.

It is recommended that Covered Outdoor Cricket Facilities should not be constructed on sites at risk of flooding (whether form rivers, sea or surface water). Where this is necessary, and subject to planning conditions, there are a number of design considerations including finished floor level, accessibility and protection of infrastructure (including electrical installations) that will need to be considered.

Figure 7. (Right) Ground investigation, including the excavation of trial pits to understand soil profile and ground conditions is an essential part of site feasibility assessment.

Information determined during the ground investigation will be used by the project engineers to design the substructure, superstructure, playing surface and drainage strategy.

2.8 SERVICES

Utility searches, including electricity, gas, water, sewers, telecommunications / data and other critical or strategic infrastructure should be undertaken with an appropriate searches company.

This is in order to:

- Understand any restrictions or diversions that may be required in the construction phase
- Avoid damage to any existing infrastructure during the construction phase
- Identify which services (and their capacities) are present on site or adjacent to the site and could be used for supply or as part of the drainage strategy

Ensure that there is sufficient electrical power can be provided to the facility. The principal requirements are from:

- The sports lighting system (approximately 2.5 kVA per lane, depending on lighting design).
- Ancillary buildings.
- Any car or e-bike charging

On-site generation from renewable sources such as solar photovoltaics combined with battery storage should be considered, particularly where there is insufficient supply from the local energy distribution network.

Sufficient water allowance should be provided for bottle filling stations and on site cleaning / maintenance tap as a minimum. This does not include any potential requirements for an ancillary reception building, toilets or changing facilities.

A connection to a foul sewer, or cess-pit will be required if toilet and changing facilities are to be provided.

2.9 OUTLINE DRAINAGE STRATEGY

The feasibility study should identify an outline drainage strategy for the site. This will be subject to detailed design at a later stage but should identify a strategy for both surface water drainage (from the Covered Outdoor Cricket Facility and ancillary buildings) and foul effluent (from the changing and toilet facilities).

The quantity and flow rate of surface water reaching the public sewer should be minimised and is subject to consent from the utility provider for new connections.

Consideration should also be given to the use of rainwater harvesting systems that can be used elsewhere on the sports facility; these can assist with the overall surface water drainage management strategy. As a long-term solution, rainwater could be used for toilet flushing in ancillary buildings, and (with suitable treatment) sports turf irrigation for adjacent cricket and sports facilities.

2.10 ANCILLARY BUILDINGS

In considering the location of the covered outdoor cricket facility, it is important that a detailed assessment is undertaken of any existing accommodation and facilities based on the anticipated size of project that could be utilised to support the functioning of the facility.

This includes:

- Reception / booking-in facilities
- Changing rooms
- Toilets
- Car and cycle parking

If any of the above facilities are not available already, or to a suitable capacity or standard, the project will need to either rectify the identified shortcomings, or provide new facilities.

Regardless of any ancillary accommodation, storage space will always be required adjacent to the covered outdoor cricket facility to house equipment relating to the functioning of the facility.

2.11 ACCESS & PARKING

PEDESTRIAN AND VEHICLE ACCESS

Pedestrian access should be encouraged with sufficient, well-lit, pedestrian walkways and safe road crossings to create a welcoming site.

Safe vehicle access needs to be considered including space for reversing and turning of vehicles.

Fire engine access is critical. Road widths should be a minimum 3.7 m between kerbs, with gateway widths being 3.1 m minimum. Additional information can be found in Approved Document B – Access and Facilities for the Fire Service.

PUBLIC TRANSPORT

Location in relation to public transport links such as bus stops, tram stops and train stations, as well as cycle and pedestrian routes must be considered to help people get to use your facility.

Additional paths within the site and gates in the boundary fence should be considered to improve access to those existing public transport connections, and walking and cycling routes.

VEHICLE PARKING

Sufficient vehicle parking should be provided including accessible spaces. This is usually influenced by the availability of good public transport links; if there are fewer links, additional parking may be required.

Parking will be determined through the planning application process and a transport assessment might be required.

Accessible parking must be provided in accordance with Sport England's Accessible and Inclusive Sports Facilities (the greater of 6% of parking or 4 spaces).

CYCLE PARKING

Generous, well-designed cycle parking should be available at every Covered Outdoor Cricket Facility. Good cycle parking encourages people to cycle to your facility, providing an alternative to motorised transport that is healthy and a more sustainable means of transport to the site. Cycle parking should be covered, be located in a prominent location to deter theft and have appropriate secure anchorage.

Provision should also be made for electric bike parking and charging. Electric bikes tend to be larger than standard cycles.The number of cycle parking spaces will normally be determined through the planning application process.

Figure 8 (below) illustrates an example of good practice cycle parking design. However, design requirements will vary on a site by site basis and are depend on factors such as available space, site security and local transport links.

Section 5.6 offers more guidance in the form of dos and don't to consider when designing cycle parking.

2.12 CONSTRUCTION STAGE CONSIDERATIONS

In your consideration of both dimensions (space) and access, you will need to consider how the facility will be constructed.

The construction contractor will require access with heavy good vehicles, cranes and plant to construct the facility so access (including approach roads from main roads) must be suitable.

There should also be suitable space for:

- Construction operations
- Lay-down (including for the superstructure components)
- Storage of materials
- Temporary site and welfare accommodation.

This is not an exhaustive list and practical construction stage considerations should be considered when identifying sites and during the feasibility stage.

2.13 OUTLINE BUSINESS PLAN

The assessments above will identify options on size and site that can be narrowed by consideration of a cost plan and an associated calculation of potential revenue.

This can be prepared by a cost consultant or quantity surveyor and can help to identify the most feasible option to take forward to detailed design and a planning application.

2.14 SUMMARY & NEXT STEPS

Having identified a preferred option (or a shortlist of options) through a feasibility study. More detailed design is required to take the project to a full planning application.

Key performance standards and requirements for detailed design follow in the next section.

Figure 8. Taken from ECB's Creating Welcoming Environments guide this illustration shows good practice in cycle storage design. For detailed design guidance see Section 5.7.

3.0 PLANNING & CONSULTATION

There is a wide range of statutory approvals that might apply when delivering a Covered Outdoor Cricket Facility project. The following summary is an overview of the principal regulatory approvals that will apply to every project.

Other legislation may apply and legislation in England may be different from in Wales. The regulatory approval compliance for every development must be reviewed on a site-by-site, project-by-project basis.

3.1 PLANNING CONSIDERATIONS

APPROACH

Obtaining approval for any form of development can be complex, time consuming and costly. Therefore, to secure the necessary planning approvals in a timely manner and in a form that allows development to proceed, this needs to be considered from the earliest stages of site evaluation.

This section is not meant to be a general 'how to' guide on the planning process - but focuses on those critical elements related to Covered Outdoor Cricket Facilities.

A typical approach will be to submit a pre-planning application, followed by a full planning application - you should discuss this with your Designer (whether an architect, design and build contractor or suitably qualified other), Planning Consultant and Local Planning Authority.

The planning application should be prepared carefully to reduce costly resubmissions and potential delays.

Consider appointing a planning consultant or suitably qualified architect to manage this process.

They will be able to advise on what criteria will need to be met, including the need to provide information on noise, ecology, transportation, external lighting etc.

Also consider undertaking a resident and stakeholder consultation. The success of any proposed sports facility at the planning application approval stage will normally benefit from involvement of local people and user groups.

Public consultation and stakeholder engagement usually help to provide a more positive outlook for these facilities. These sorts of events can help to evidence benefit.

TRANSPORT ASSESSMENT

The evaluations should consider the overall aspiration of decreasing reliance on motor vehicles and encouragement of sustainable travel including the use of public transport, walking and cycling.

They can also contribute to reducing carbon emissions and climate impacts, creating accessible, connected, and inclusive communities, improving health outcomes of the local community and improving road safety.

ACOUSTIC ASSESSMENT

An acoustic assessment and mitigation may be required. For detailed design considerations see Section 6.6.

3.2 PLANNING CONSULTEES

SPORT ENGLAND AND SPORT WALES

Sport England and Sport Wales are statutory consultees on planning applications that are related to or impact sports development in their relevant countries. Part of their work is to provide in-depth technical guidance for those developing sports facilities, which should be reviewed in line with this document.

During the development stage of a Covered Outdoor Cricket Facility project, it is important to contact Sport England / Sport Wales as key stakeholders, to discuss the proposals and to understand if there are any statutory limitations from their perspective.

Both organisations have regional planning teams that can be contacted through their websites or through your local planning authority

As statutory consultees in the planning application process, they can object to proposals if they are ill-considered and counter to best practice technical guidance they (or recognised national governing bodies of sport) have issued.

DEPARTMENT FOR EDUCATION

The Department for Education provides the framework for approvals of works on all government funded schools. If a project is expected to be located on a government funded school site, the Department for Education must be consulted to understand what the limitations or expectations are for developing an area of the site. Note that any change to sporting facilities will be scrutinised to understand if the benefits of the facility outweigh any loss of playing fields.

3.3 BUILDING CONTROL

OVERVIEW

Building control is concerned with ensuring buildings are constructed in accordance with building regulations, where applicable. The regulations are minimum standards for ensuring buildings are safe, inclusive environments for people to live and work in.

Building control encompasses building technology, building standards, fire safety, inclusive environments, energy conservation and much more. Building control approval can be obtained either via the local authority building control department, or an approved inspector.

It is envisaged that the majority of Covered Outdoor Cricket Facilities will be open-sided canopy structures, which are not typically classified as enclosed buildings but It is recommended that the local building control department is contacted during the site assessment process to determine the status of a project in relation to the building regulations and the proposed structure. This will mean that you can incorporate applicable building control requirements to your project.

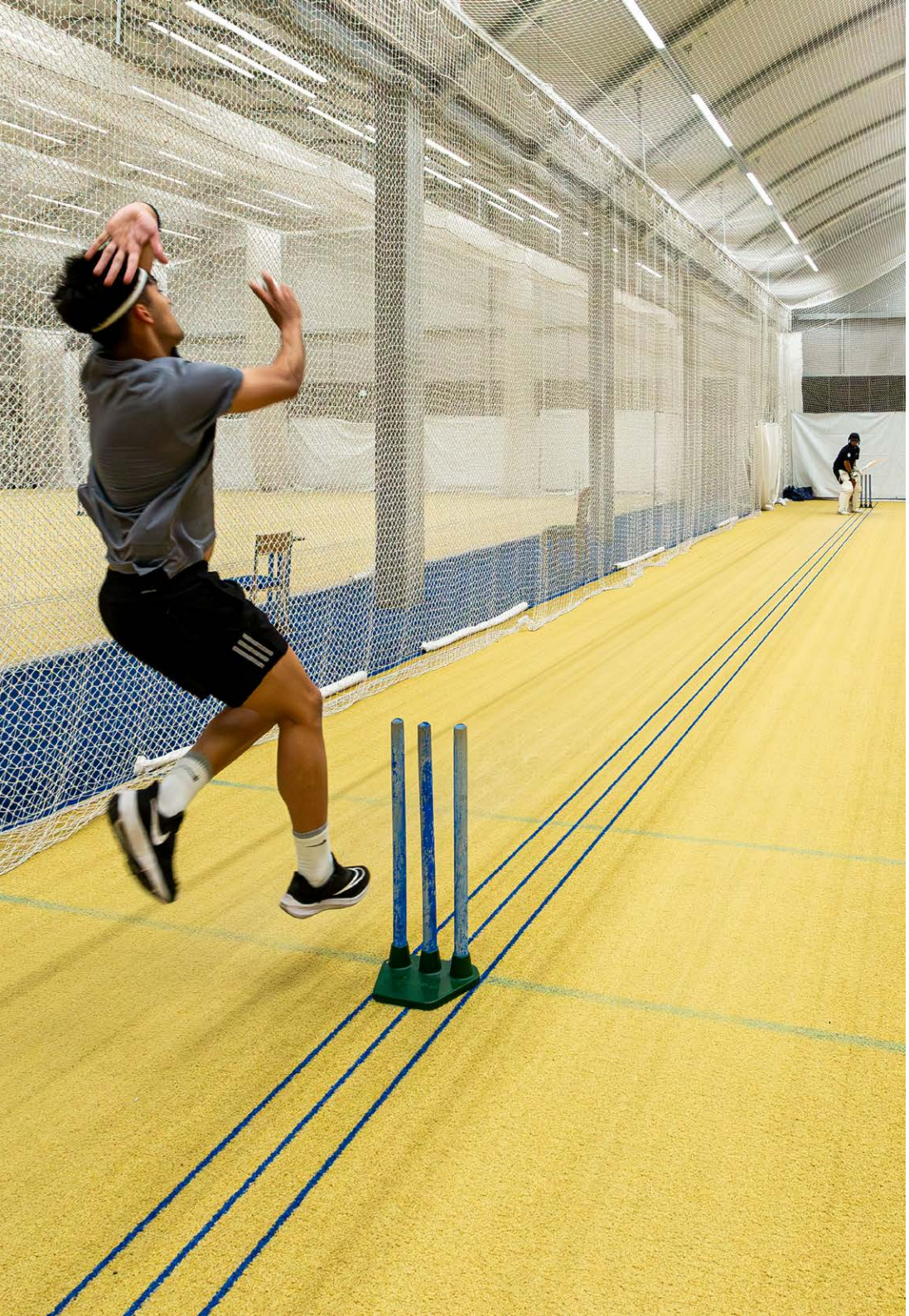
BUILDING REGULATIONS - DUTIES

Following an Amendment to the Building Regulations act in 2023, clients, designers and construction contractors in England have new duties to make sure that the finished project meets the building regulations.

Broadly this requires clients to appoint a competent Principal Designer and a Principal Contractor to safeguard building regulations compliance through the design and construction phases and to maintain records of how that compliance has been assured.

More details are available on the government website here.

Note that these are different roles, requiring different expertise and competencies from the Principal Designer and Principal Contractor under the Construction Design and Management (CDM) Regulations (see Section 3.4).



3.4 CONSTRUCTION HEALTH & SAFETY

The Construction Design and Management Regulations (often referred to as the CDM Regulations) ensure that health and safety issues are properly considered from the outset of project development so that the risk of harm to those who have to build, use and maintain structures is minimised and controlled.

Compliance with CDM Regulations is a statutory obligation and the client carries all responsibilities for compliance unless they have discharged their responsibilities to a responsible person.

A list of client duties under the CDM Regulations is available on the HSE website.

Among those duties is the requirement to appoint a Principal Designer and Principal Contractor to oversee safety coordination through design and construction. Note that the duties of these roles under the CDM Regulations are different from the roles of Principal Designer and Contractor required under the new Building Control regulations (see Section 3.3) as they require different expertise and competencies.

The Principal Designer has a duty to coordinate design throughout the project. This is particularly important when it comes to ensuring that structural engineering calculations are coordinated across the whole project to ensure that loads from netting, lighting and anything else attached to, or encompassed within, the superstructure are included in the structural calculations, alongside site-specific factors as described in Section 4.9.

The regulations require that the Health and Safety Executive (HSE) is notified if construction work is likely to last longer than 30 working days and have more than 20 workers working simultaneously at any point or exceed 500 person days. A Covered Outdoor Cricket Facility project will normally require such a notification.

3.5 CONSTRUCTION PRODUCTS

All construction products should be fit for purpose and be either UKCA or CE marked in accordance with the Construction Products Regulation.

3.6 EQUALITY ACT

The Equality Act is civil rather than building-led legislation and it is the activity that falls under the Act, not the building. The building either enables or disables a person from accessing it.

Achieving building regulation sign off does not necessarily equate to compliance with the obligations and duties set out in the Equality Act. The legislative responsibilities are based upon a number of factors, including the ability to pay, reasonableness, and for public bodies, the obligations of public sector duty.

There are nine protected characteristics covered by the legislation which may have varying considerations for the design, construction and operation of the facility.

Following inclusive design best practice will help to achieve the requirements of the Equality Act - see Section 6.5, ECB's Creating Welcoming Environments and Sport England's Accessible and Inclusive Sports Facilities.

3.7 SUMMARY

The information provided gives a developer the initial guidance for their project. This should help to set up the basis for a project and assess feasibility of a covered outdoor cricket facility on a particular site.

By working through this section with your design team, you will be able to go through the planning process understanding the requirements of the project, but more importantly the requirements of the local authority planning department to work to an approval. It is important to ensure the required consultees are involved as early as possible to provide feedback that may impact the project.

4.0 DESIGNING A COVERED OUTDOOR CRICKET FACILITY

4.1 FACILITY ENVIRONMENT AND SYSTEM DESIGN

With a covered open-sided structure there is natural ventilation of the space, meaning that mechanical heating and ventilation are not required to manage the internal environment. The management of temperature and humidity is passive.

This has the benefits of:

- Reducing construction, operating and maintenance costs.
- Providing a more 'outdoor' playing experience that players prefer.

Whilst the covered structure protects players and the components of the facility from the majority of the adverse effects of precipitation, the components of the facility will need to be of suitable materials, construction and manufacture to withstand the year-round variation in temperature, precipitation, frost, humidity, wind and sunlight that create different environmental stresses such as mechanical load, condensation, material fatigue and degradation, and even some water ingress.

This requires careful product and material selection to provide the required durability over time. This requirements are different from enclosed, fully indoor systems and are detailed throughout Section 4.0.

4.2 SIZE

Sizing the Covered Outdoor Cricket Facility

The size of a Covered Outdoor Cricket Facility can be calculated using a structured method based on the 'inside-out' principle of scaling up from a single net, to a block of nets and so on to the full facility.

The ECB minimum dimensional requirements for recreational and elite cricket are detailed in Table 2.

Application of these reference dimensions to the layout of covered facilities is shown in plan in Section 4.3 and in cross-section in Section 4.4.

MULTI-SPAN FACILITIES

To allow match play, the superstructure needs to be a single clear span. To achieve the required capacity it may be necessary to construct two or more structures on the same site (for example the Bradford Covered Outdoor Cricket Facility comprises two adjacent structures, each with a five-lane capacity).

Where two or more superstructures are to be constructed it is important to consider positioning so as to allow required access (including for wheelchairs) for users and maintenance. A minimum clear unobstructed corridor space of 1.20 m should be established between two adjacent superstructures to allow for wheelchair access.

Table 2. Minimum and recommended dimensions for a Covered Outdoor Cricket Facility

Dim[1]	Component	Recreational	Elite
	Individual Practice Net		
(A)	Net lane width [2]	3.60 m	4.00 m
(B)	Net pitch length (batting stump line to bowling stump line)	20.12 m	20.12 m
(C)	Back of net behind batting stump line	1.50 m	1.50 m
(D)	Length of netting (from back of practice net)	23.00 m	23.00 m
(E)	Run up (bowling stump line to sight screen) [3]	10.00 - 15.00 m	14.00 m - 18.00 m
(F)	Height to underside of practice net	4.50 m	5.00 m
(G)	Minimum height to underside of loft net	4.00 m	4.00 m
	Practice net area		
	Number of practice nets [4]	3	5-7
	Tensioned Net Area		
(H)	Height of tensioned net above floor	4.50 m	5.00 m
(I)	Safety margin between practice net and tensioned net (not required at bowler's end)	1.00 m	1.00 m
	Whole covered area		
(J)	Safety margin around tensioned net [5]	2.00 m	2.00 m

[1] Dimension label - refer to Figures 9 to 14.

[2] In line with existing ECB specifications, minimum lane width is 3.6 m; however a width of 4 m provides more room for players and less interference from the ball in adjacent nets. Furthermore, in a 3-lane Covered Outdoor Cricket Facility, a 4 m net width results in a 14 m wide Tensioned Net Area which provides a better match play experience than the 12.8 m width resulting from 3.6 m wide lanes.

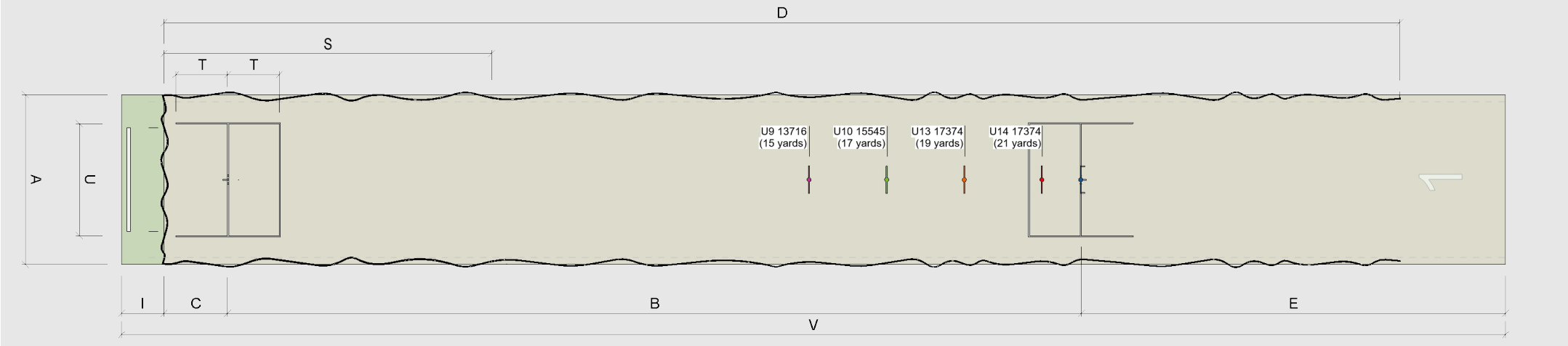
[3] A 10 m run up is minimum. Increasing run up length will provide more typical run up lengths for seam bowlers. Where space allows, run up length should be increased to 14.0 - 18.0 m. In this range, most bowling run ups can be accommodated whilst maintaining a suitable length tensioned net area for match-play.

[4] By using an odd number of lanes, match play can be accommodated on the central lane and will align with sports lighting.

[5] Circulation outside the tensioned net area should allow for unobstructed (for example by structural columns) emergency evacuation as per Approved Document B and the fire safety design strategy. Designers should liaise with Building Control / Approved Inspectors/ Fire Officers at an early stage.

4.3 EXAMPLE LAYOUTS (IN PLAN)

The following layouts show how the dimensions in Table 2 can be used to design facilities using the 'inside-out' principle, starting with a single lane on this page, and then building this up by increasing the number of lanes and run-up length on the following pages.



Legend

Component Dimensions (refer to Table 2)

A - 3.60 m (Recreational) or 4.00 m (Elite) lane width
B - 20.12 m (22 yd) Net pitch length (batting stump line to bowling stump line)
C - 1.50 m Back of net behind batting stump line
D - 29.12 m Extent of net wings
E - 10.00 m (min.) Bowler run up

I - 1.00 m (min.) Safety margin around tensioned net

Overall Dimensions

S - 7.72 m Recommended blinker length
T - 1.22 m (4 ft) Crease depth (refer to Law 7 of Cricket)
U - 2.64 m (8 ft 8 in) Crease width (refer to Law 7 of Cricket)
V - 32.62 m (min.) Playing length

Figure 9. Schematic of general single lane net arrangement showing key pitch markings, including ECB recommended stump positions for junior pitch lengths for junior pitches. All markings to be made using suitable paint rather than cut, inlay and seam, so as not to adversely affect ball bounce.

EXAMPLE 3-LANE FACILITY PLAN

Component Dimensions (refer to Table 2)

A - 3.60 m Lane width (Recreational) / 4.00 m Lane width (Elite)
B - 20.12 m Net pitch length (batting stump line to bowling stump line)
C - 1.50 m (Min) Back of net behind stump line
D - 23.00 m Length of netting (from back of practice net)
E - 10.00 m (Min) Run up (Recreational) / 14.00 m (Min) Run up (Elite)
I - 1.00 m (Min) Safety margin between tensioned net and practice net
J - 2.00 m Safety margin around tensioned net

Overall Dimensions (3.6 m lane width, minimum 10.0 m run up)

V - 32.62 m (Min) Playing length
W - 10.80 m (Min) 3-Lane width
X - 12.80 m Playing width (inside tensioned net)
Y - 16.80 m (Min) Facility width
Z - 36.62 m (Min) Facility length

Overall Area - 615.2 m^2

Overall Dimensions (4.0 m lane width, minimum 14.0 m run up)

V - 36.62 m (Min) Playing length
W - 12.00 m 3-Lane width
X - 14.00 m Playing width (inside tensioned net)
Y - 18.00 m Facility width
Z - 40.62 m (Min) Facility length

Overall Area - 731.2 m^2

LEGEND

Denotes tension net line
Denotes outer floor surface
Denotes internal playing surface

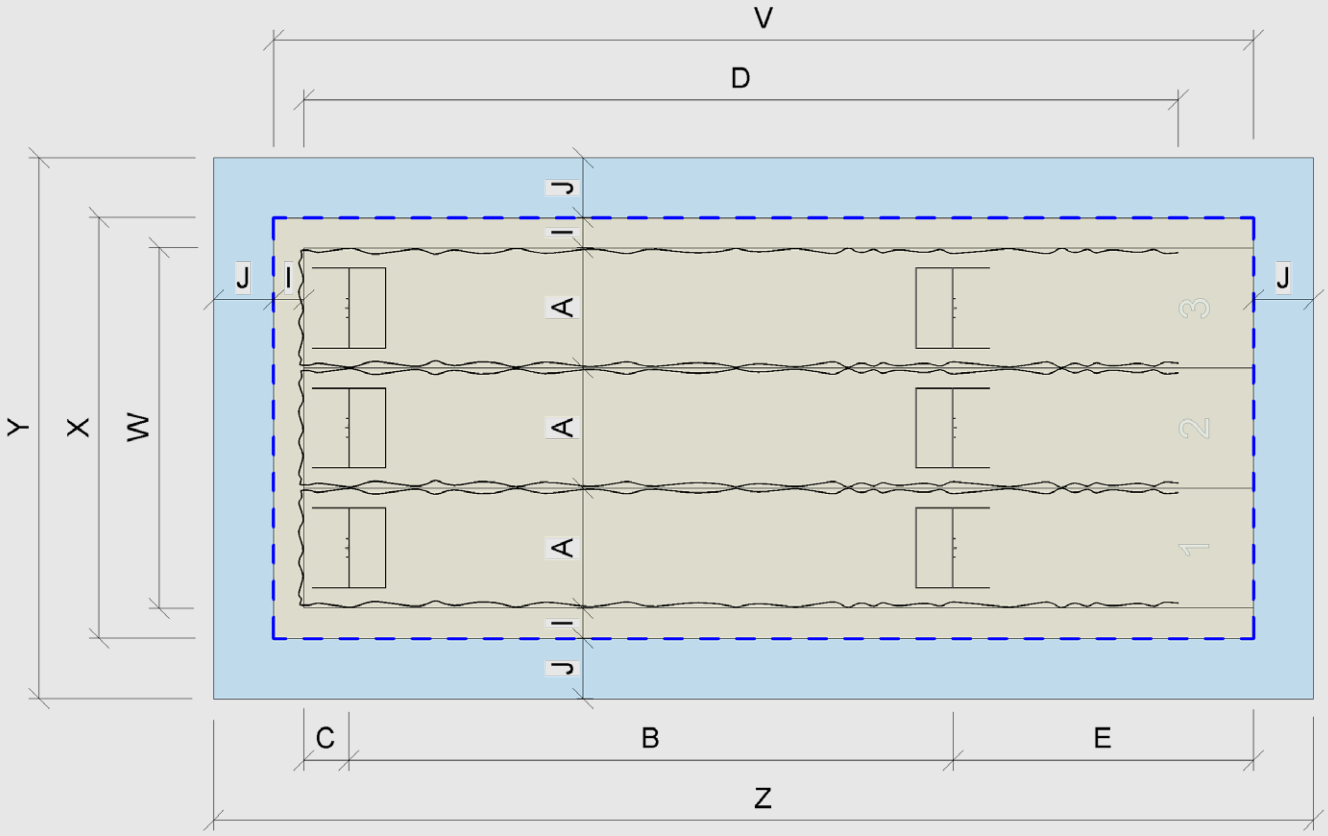


Figure 10. Plan diagram shows an example three-lane Covered Outdoor Cricket Facility with a minimum 10.0 m run up.

EXAMPLE 5-LANE FACILITY PLAN

Component Dimensions (refer to Table 2)

A - 3.60 m Lane width (Recreational) / 4.00 m Lane width (Elite)
B - 20.12 m Net pitch length (batting stump line to bowling stump line)
C - 1.50 m (Min) Back of net behind stump line
D - 23.00 m Length of netting (from back of practice net)
E - 10.00 m (Min) Run up (Recreational) / 14.00 m (Min) Run up (Elite)
I - 1.00 m (Min) Safety margin between tensioned net and practice net
J - 2.00 m Safety margin around tensioned net

Overall Dimensions (3.6 m lane width, minimum 10.0 m run up)

V - 32.62 m Playing length
W - 18.00 m 5-Lane width
X - 20.00 m Playing width (inside tensioned net)
Y - 24.00 m Facility width
Z - 36.62 m Facility length

Overall Area - 878.9 m^2

Overall Dimensions (4.0 m lane width, minimum 14.0 m run up)

V - 36.62 m m Playing length
W - 20.00 m 5-Lane width
X - 22.00 m Playing width (inside tensioned net)
Y - 26.00 m Facility width
Z - 40.62 m Facility length

Overall Area - 1,056.1 m^2

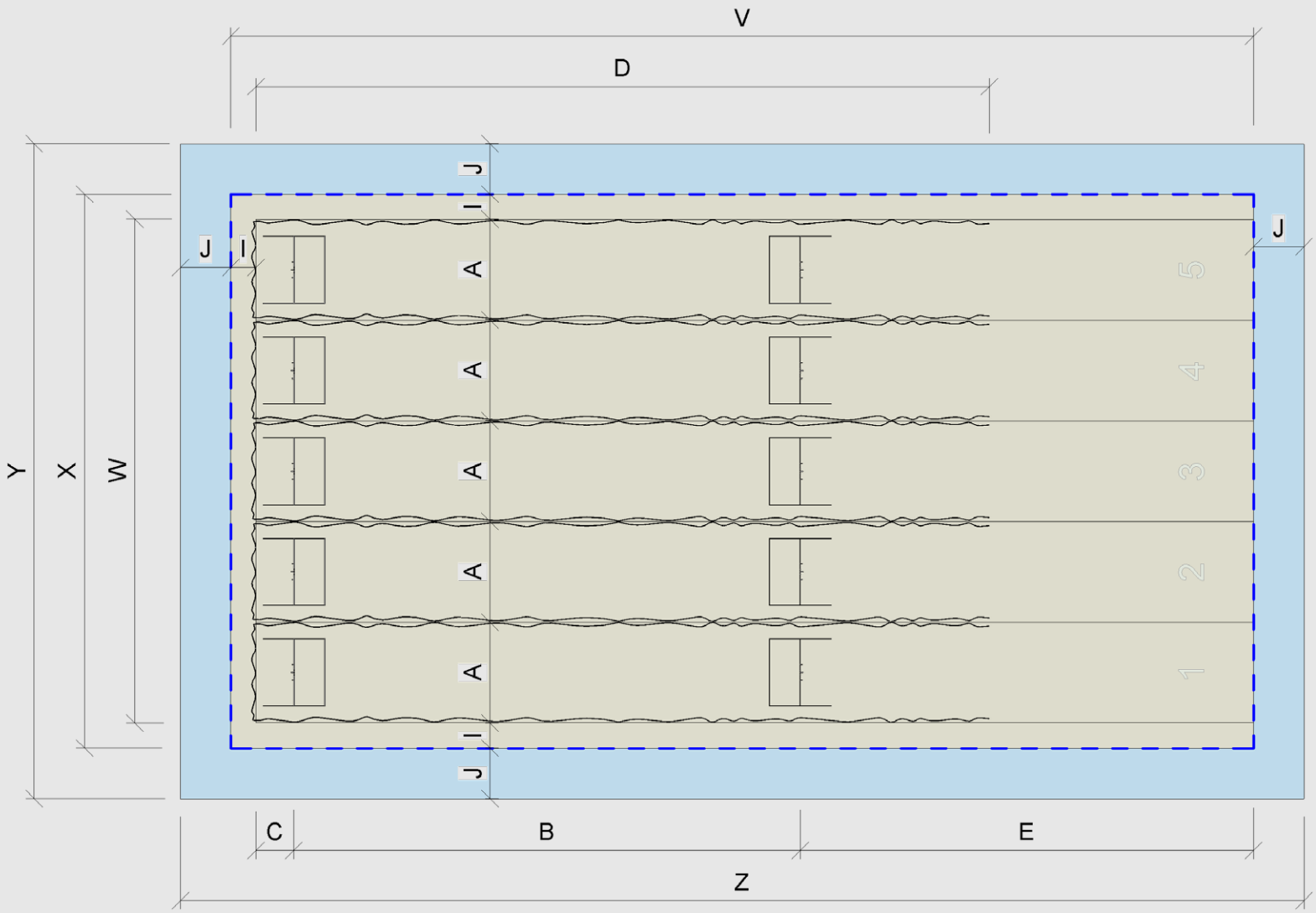


Figure 11. Plan diagram shows an example five-lane Covered Outdoor Cricket Facility with a longer 18 m run up which also creates additional playing space.

EXAMPLE 7-LANE FACILITY PLAN

Component Dimensions (refer to Table 2)

A - 3.60 m Lane width (Recreational) / 4.00 m Lane width (Elite)
B - 20.12 m Net pitch length (batting stump line to bowling stump line)
C - 1.50 m (Min) Back of net behind stump line
D - 23.00 m Length of netting (from back of practice net)
E - 10.00 m (Min) Run up (Recreational) / 14.00 m (Min) Run up (Elite)
I - 1.00 m (Min) Safety margin between tensioned net and practice net
J - 2.00 m Safety margin around tensioned net

Overall Dimensions (3.6 m lane width, minimum 10.0 m run up)

V - 32.62 m Playing length
W - 25.20 m 7-Lane width
X - 27.20 m Playing width (inside tensioned net)
Y - 31.20 m Facility width
Z - 36.62 m Facility length

Overall Area - 1,142.5 m^2

Overall Dimensions (4.0 m lane width, minimum 14.0 m run up)

V - 36.62 m Playing length
W - 28.00 m 7-Lane width
X - 30.00 m Playing width (inside tensioned net)
Y - 34.00 m Facility width
Z - 40.62 m Facility length

Overall Area - 1,381.1 m^2

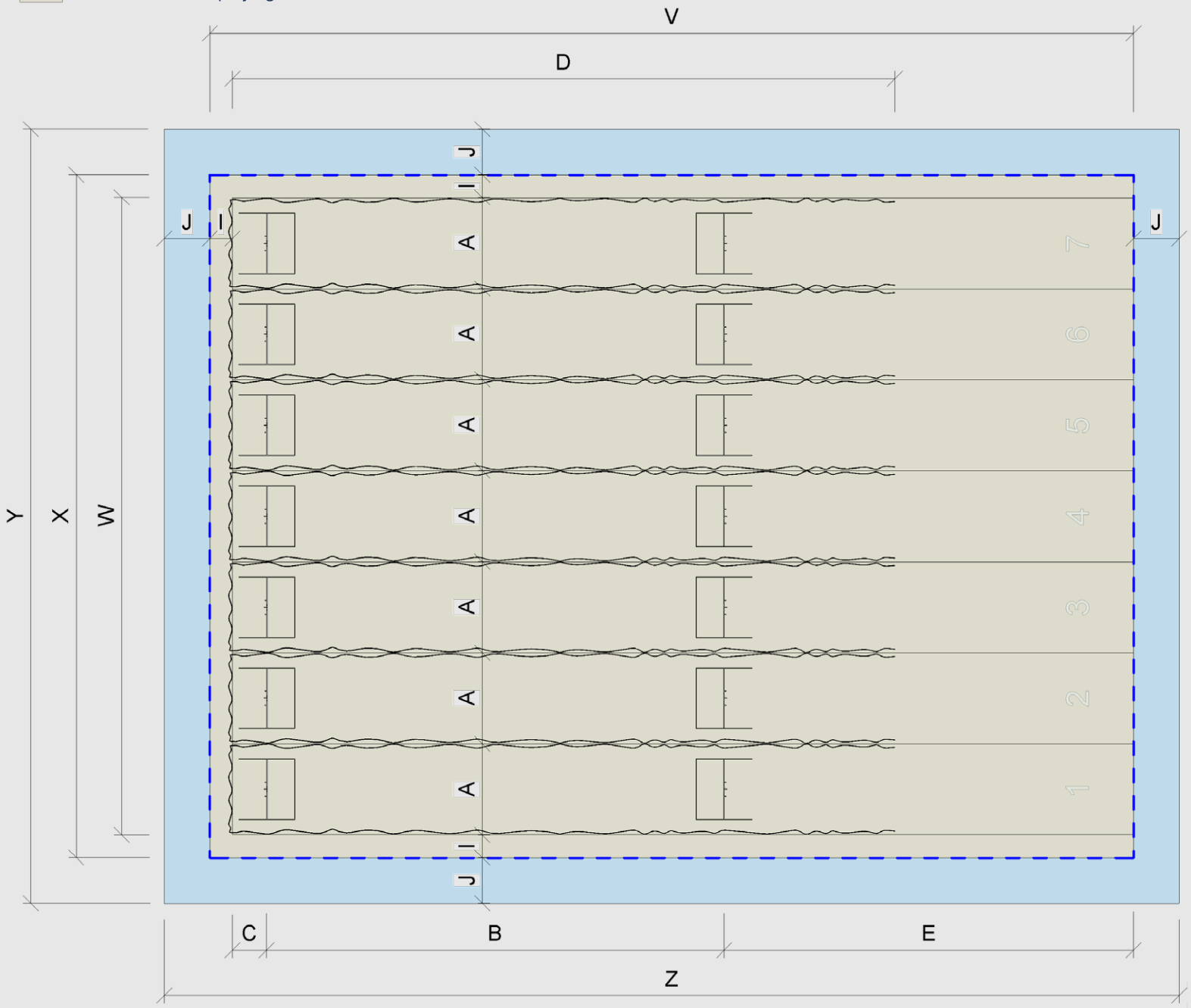


Figure 12. Plan diagram shows an example seven-lane Covered Outdoor Cricket Facility with a longer 18 m run up which also creates additional playing space.

4.4 EXAMPLE LAYOUTS (IN SECTION)

Sections through the facility length and width are shown to illustrate application of the heights in Table 2.

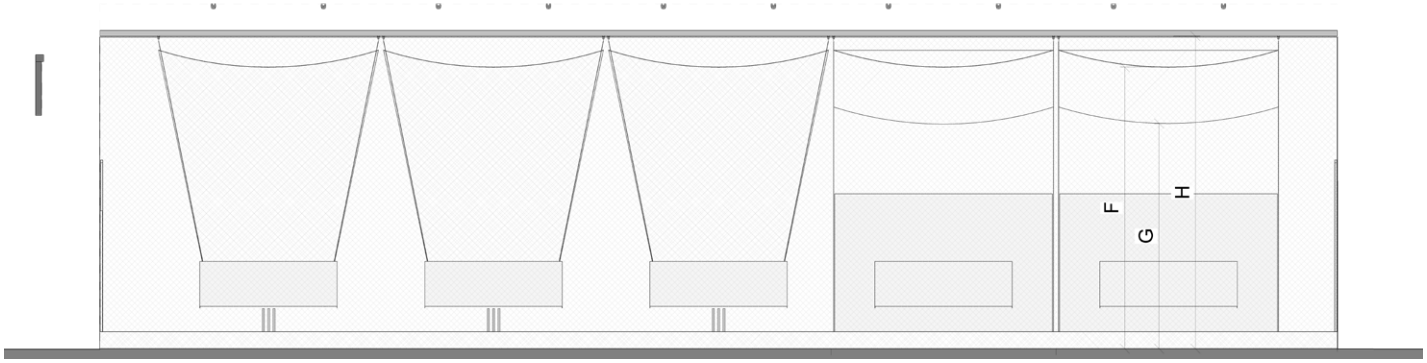


Figure 13. End elevation (rear) of a five-lane facility showing split usage of (from left): matchplay in lanes 1-3, with practice nets stowed and practice in lane 5 with lane 4 used as a safety buffer lane in this configuration. Lane widths are 4 m (minimum 3.6 m)

LEGEND

Dimensions (refer to Table 2)

F - 4.50 m - 5.00 m floor to underside of lane net
G - 4.00 m floor to underside of lofted drive net (minimum)
H - 5.55 m floor to underside of tensioned ceiling net

Components

L - Scoreboard
M - Lane net retracted for match play
N - Stumps set up for match play configuration
O - Canvas hammock housing retracted lane net
P - LED lighting system
Q - Half tone dashed line represents the notional perimeter of the internal space
R - Perimeter tension cable
S - Lane tension cable
T - Tensioned net ceiling panel supported by tensioned cables
U - Lofted drive net
V - Lane net
W - Sight screen rail
X - Sight screen
Y - Rear of lane blinker
Z - Perimeter vermin skirt

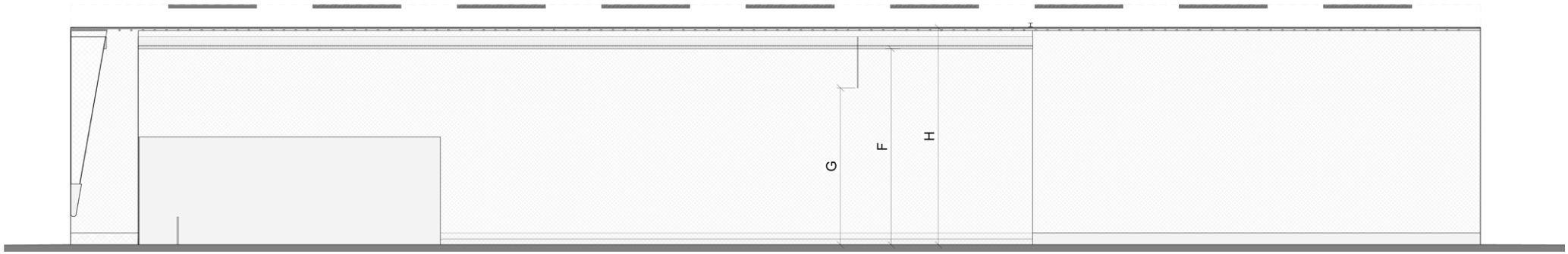


Figure 14. Cross section through the length of the facility showing key elements and dimensions of the facility, the tension net area and the practice netting.

4.5 ADDITIONAL COVERED SPACE

Additional dry space is required outside the tensioned net area for:

- Padding up
- Players' equipment bag storage
- Scoring
- Spectators
- Social, waiting areas for users prior to their booking.

This space should be protected from weather. This can be achieved by the provision of shelters or other roofed structures. Consider extension of the superstructure at the bowlers end, where space allows.

Example layouts showing extension of the superstructure are shown in Figure 15.

PADDING UP

Safe padding-up areas of sufficient size to pad-up are essential. This must be located outside the tensioned net area, be within visible view of the playing facilities for supervision of participants. It is important the design of these areas ensures uninhibited accessibility for all users.

BAG STORAGE

Space should be provided for cricket bag storage that is off the floor, along with smaller safe lockers for valuables.

The location of bag storage is important. Players should feel they can store their bags in a place that is safe and secure. The ideal location for this is within the padding up area to maintain visual and proximal security.

Storage should be available to all users at both high and low level to accommodate all needs. A range of sizes should be provided to accommodate items, from small valuables to clothes and bags.

Valuables storage should be an electronic code system where a new code can be input for each user and reset after use. These are increasingly common in public sports facilities, and are secure and simple to use. Systems should have a supervisor override in case of forgotten codes.

SCORERS

Modern electronic scoreboards will use radio control systems so fixed scorer positions are not required as long as they are in communications range. However scorers will require line of sight to any match play area.

SPECTATORS

Provision should be made for spectators during both lane practice and match play, and will include parents, fellow team members and general spectators. The location and size of spectator provision should ensure safe and easy movement around the site.

To enhance spectator experience, a split sight screen should be provided at the bowlers end so that in a match play scenario, the screen can be seen behind the bowling crease, with spectators to the sides.

EXTERNAL SPACE REQUIREMENTS

Total site footprint will need to include external spaces outside the Covered Outdoor Cricket Facility for the following:

- Ancillary buildings
- Storage
- Perimeter security fencing
- Access and circulation
- Parking
- Boundary considerations

For more information on the design of these components see Section 5.0.

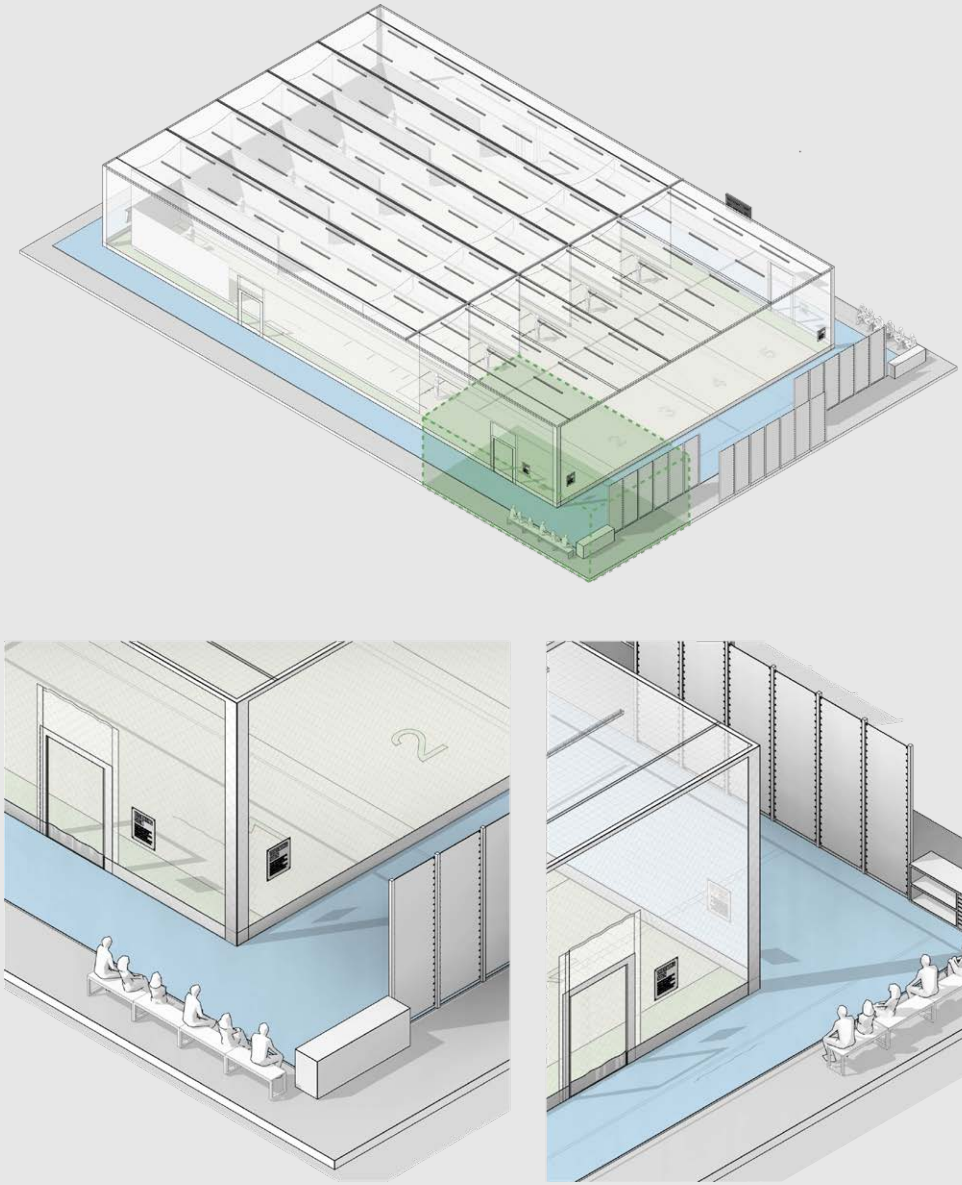


Figure 15. Image shows an example of an external padding up area located outside the tensioned net area in the location shaded in green in the top image. Bag storage is located adjacent to benching to help facilitate padding up.

This area must be outside the tensioned net area, and covered to protect users and their equipment. This can be located under the main superstructure, or in a covered extension at a reduced 'ceiling' height.

4.6 GRADIENT, SLOPE & EARTHWORKS

Covered outdoor cricket facilities should be installed flat on a single horizontal plane.

The facility should therefore be located in an area which requires the minimum amount of ground works (cut and fill) to establish a level construction site.

This is not always possible due to site constraints. Depending on topography, retaining walls may be required in order to provide the level site. It is recommended that these are kept to the minimum height required to achieve ground stability where feasible in order to keep costs down.

Earthworks should be designed to minimise the movement of material off and on to site, where ground conditions allow. Any material off site should be managed in accordance with applicable waste handling legislation by suitable contractors.

It will be necessary to strip topsoil from all areas subject to earthworks and below all structures. Topsoil should be handled and stored in accordance with the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Where possible topsoil should be retained on site and can be shaped into bunded areas.

Earthworks should allow for foundations (see Section 4.8) for all structures and the playing surface.

4.7 BELOW-GROUND DRAINAGE

The civil engineering on site includes the below-ground drainage. This is an important consideration given the size of the roof structure and the hard standing under the lanes.

Information related to the foul water drainage network on the site will be required if the facility is proposed to have a reception building with toilets or other foul drainage requirements.

If there is no reception building, there are unlikely to be any foul water drainage requirements from the facility itself.

Disposal of surface water drainage on the site will be required and should be coordinated with design of gutters and downpipes from the roof drainage.

It is essential that suitable cut off and perimeter drainage is installed to intercept run off from up-slope areas, car parks and adjacent hard standing to prevent water ingress into the covered facility and the playing surface.

All car park drainage should include suitably rated drain covers for the anticipated vehicle loads and hydrocarbon traps to maintain surface water quality.

It is recommended that a below-ground drainage survey of the proposed site and its foul and surface water networks to the point of site discharge is completed alongside topographical and below ground services surveys (see Section 2.0).

If no foul water drainage is present on or near the site of the proposed facility, a local connection to a cesspit may be required.

For surface water, there is general planning policy based on the National Planning Policy Framework (NPPF) for all new developments to seek to adopt sustainable drainage systems (commonly called SuDS) to manage surface water and reduce the risk of flooding.

SuDS re-create the benefits of natural drainage systems and collect, store, slow and treat the quality of surface water to mitigate the impacts of development on run-off rates, volumes and quality. As such, one of the key considerations for a planning application is whether the use of SuDS on the site is feasible.

A soakaway test to BRE365, (see Section 2.6), will be required to assess whether the ground conditions on site can accept surface water infiltrating into the ground.

Typically, cohesive types of soil, such as clays and silts, are less suitable for the adoption of soakaways, whereas granular soils, such as sands and gravels, are good.

If the BRE365 tests on site show that soakaways to ground are not feasible, then the surface water from the facility will likely be required to be attenuated (stored) in below-ground tanks, and the discharge to the mains network controlled to a rate agreed with the local authority.

If the tests show that soakaways are feasible, then these should be located at least 5 m (10 m in certain types of chalk strata) from any proposed structure.

Consideration should also be given to the use of rainwater harvesting systems that can be used elsewhere on the sports facility; these can assist with the overall surface water drainage management strategy. As a long-term solution, rainwater could be used for toilet flushing in ancillary buildings, and (subject to suitable treatment) sports turf irrigation for adjacent cricket and other sports facilities.

4.8 SUBSTRUCTURE

The substructure requirements for a covered outdoor cricket facility will depend on the size, ground conditions, the superstructure, structural material used and other considerations.

The site will require a geotechnical investigation to be carried out as per Section 2.6.

Foundations for the pilot Covered Outdoor Cricket Facilities were mass concrete foundations under each vertical column of the superstructure. However in certain ground conditions, deeper piled or other foundation designs will be required.

It is therefore essential that when organising a project for a covered outdoor cricket facility that a Structural Engineer is appointed to appropriately design the substructure.

The type of foundations required to support the superstructure will depend on the results of the ground investigation. They will need to be designed to accept the loads from the proposed roof superstructure and any resultant uplift forces from wind loading. For this type of structure, the loads will be provided by the superstructure supplier/ designer.

In addition to the foundations for the superstructure, the substructure includes the foundation and sub-base to the playing surface. This component of the substructure is required to support construction loads including access platforms, as well as form a durable base for the specialist playing surface - for more details on the design of this element see Section 4.10.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

Figure 16. Vertical elements of the superstructure at the Bradford Park Avenue Covered Outdoor Cricket Facility are fixed to mass concrete foundations. This image shows the granular fill of the playing surface sub-base prior to the installation of the two layers of macadam.

Figure 17. The superstructure and roof covering at the Bradford Park Avenue Covered Outdoor Cricket Facility.

4.9 SUPERSTRUCTURE AND WEATHER PROTECTION

The purpose of the superstructure is to provide a dry playing environment protected from precipitation, and to provide a framework to which the netting and lighting components are fitted. Where possible, the facility should promote natural lighting of cricket activity until a time of day where additional lighting is required.

Much like the substructure, the superstructure can vary significantly depending on materials and site conditions as long as these principal objectives are achieved.

The design of the superstructure will be completed by the appointed structural engineer and frame supplier, but a basis for understanding is provided within this document. A specialist supplier will provide the design for the roof. The design should be based on the following requirements as a minimum:

TEMPORARY STRUCTURES

ECB does not recommend temporary structures for the purpose of Covered Outdoor Cricket Facilities.

SPATIAL REQUIREMENTS

The superstructure design is to meet the spatial requirements - see Sections 4.2 to 4.4.

LOADING REQUIREMENTS

The superstructure should be designed for all permanent and variable loads. These will include:

- the self-weight of the structure
- the dead and live environmental loads including snow and wind (wind conditions vary significantly across England and Wales and must be determined locally).
- the dead and live loads of the system components including roofing material, nets, the sports lighting and other suspended services
- access for maintenance and
- all other relevant loads.

This requires design coordination between the superstructure, netting, lighting and scoreboard suppliers and any other supplier with components fitted to the structure or installed in proximity to the structure.

Calculations should be completed based on local site conditions and coordinated design for the whole project, and signed off by a qualified structural engineer.

DEFLECTION REQUIREMENTS

The deflection of the superstructure should be limited to the specific requirements of BS EN 1993-1-1:2005 and the relevant National Annex NA to BS EN 1993-1-1:2005.

FRAME MATERIALS

The superstructures for the pilot Covered Outdoor Cricket Facilities were steel frames.

However, materials that achieve the structural and durability requirements set out in this document can be considered. This include the use of timber or composite frames where those materials meet the structural, durability and other performance requirements.

The frame structure should be designed to suit its local corrosivity category assessed in line with BS EN ISO 12944-2.

Steel should be hot-dipped galvanised to BS EN ISO 1461. Marine-grade protection should be provided in coastal areas. Where powder-coated materials are used - these must be shot-blasted and zinc sprayed before powder-coating.

LIGHTNING PROTECTION

The superstructure should have suitable lightning protection to BS 62305.

ROOFING MATERIALS

The cover for the facility should be considered in its surrounding location. Different materials will have different treatment and maintenance requirements. The priority of the envelope is precipitation protection, wind protection and to provide UV protection for those inside.

The roofing for the pilot facilities was tensioned translucent PVC fabric fitted to a steel structure. However, this is one of many approaches that could be used to create a suitable facility that achieves the objectives and purpose of a Covered Outdoor Cricket Facility.

FABRIC ROOFS - TENSIONING

Where tensioned fabric roofs are used there must be sufficient tension in the canopy to ensure that water cannot pond on the canopy and that it does not flap excessively, which can reduce durability.

TRANSLUCENCY

A strong consideration for the roof covering should be the translucency as this will impact both the use of lighting within the space and the impact on the surrounding area of transmitted light after dark (a planning consideration).

Fabric roofs can provide a uniform translucency. Durability and degree of translucency are cost variables. Materials should be selected to provide suitable design life and must be considered in full life cycle costing.

White is the standard colour of translucent fabric roof materials but depending on the site it may be necessary to use a lower visual impact colour such as green.

Colour and the degree of translucency should be discussed with suppliers and the local planning authority to understand preferred materials.

This does not preclude the use of other suitable materials. Opaque, non-translucent materials can be used and may prove more durable, but will require continuous use of the sports lighting system which must be factored into the operating cost model.

Note that non-continuous features such as 'skylights' in otherwise opaque roofs will cause problems with uniformity of light distribution that can be detrimental to playing performance and safety, and should be avoided.

DRAINAGE

The drainage for the roof should be located to the perimeter adjacent to the primary structure. All water should fall to the sides with no opportunity for pooling anywhere on the roof cover.

MAINTENANCE AND REPLACEMENT

While the shape of the roof is not being dictated, the roof should allow for clean, easily maintained spaces which are accessible from the perimeter.

A sinking fund for replacement of the roof once it has exceeded its design life, should be factored into a project based on this full life cycle analysis.

The framing requirements and fixing methods of the envelope will differ between products and so should be discussed with a supplier and a Structural Engineer accordingly.

MAINTENANCE OF FABRIC ROOF SYSTEMS

Some fabric roof systems can be upgraded to a lacquered finish that makes for an easier maintenance strategy, as the lacquer attracts less dirt. This can remove significant outlays for maintenance that involves long reach poles and / or heavy-duty plant to be able to reach areas required.

Intermittent cleaning is suggested using product provided detergent. It is important to follow any required cleaning process provided by the manufacturer to ensure the longevity of the product in its location.

Different systems will have different initial construction costs and ongoing maintenance and replacement costs. It is essential to consider all such costs over the full life cycle of the building. Initially more expensive systems may have lower overall costs over the full life cycle.

WIND PROTECTION TO USERS

Open-sided covered structures help to provide protection from precipitation and provide shade, however they do not enclose the building, fully protecting users from the wind.

Fully enclosing the covered structure to provide wind protection as part of the structure itself would mean that the structure could be consider an enclosed building (with building regulation requirements for heating, insulation and other requirements typical of fully enclosed indoor cricket centres). This is not the intended design or nature of Covered Outdoor Cricket Facilities.

The impact of wind on users and cricket activity can be reduced with suitably designed external structures such as fencing and wind breaks or natural planting, including hedging planted at a suitable distance from the superstructure with appropriate root protection.

Any wind break must be designed for site-specific wind loads and ground conditions and be included in the structural calculations and design for the project.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

Figure 18. Drainage from the roof of the Bradford Park Avenue Covered Outdoor Cricket Facility is collected off the roof in a gutter. These in turn are connected to downpipes, connected to surface water drainage on site.

4.10 PLAYING SURFACE

TECHNICAL REQUIREMENTS

The playing surface shall be an unfilled non-turf carpet type conforming to ECB TS6 Guidance Notes for the 'Provision and Installation of Non-Turf Cricket Pitches and Net Cage Facilities', with the additional provisions that:

- The sub-base shall be an engineered porous macadam type because of their requirement for water to perform, and more complicated maintenance; unbound aggregate 'dynamic' sub-bases are not suitable for Covered Outdoor Cricket Facilities.
- The sub-base will need to be designed to support the playing performance requirements and the construction phase, which will include macadam pavers and platform access equipment.
- The whole playing area (as defined by the area inside the ring beam for the Tensioned Net Area) should be formed of a single playing surface with continuous sub-base, shockpad type and carpet type. There should be no internal kerbs, timber edges or other such structures.
- When tested by the method described in BS EN 13036-7, the maximum undulation of the playing surface shall not exceed:
  In ball pitching areas (wicket-to-wicket in practice net areas and any match pitch areas) 2 mm under a 3 m straight edge.
  In all other areas 2 mm under a 0.3 m straight edge and 6 mm under a 3 m straight edge.

Note that because of these requirements, not all 'ECB Approved Surfaces' will be suitable for use in a Covered Outdoor Cricket Facility. However, the engineered layer, shockpad and carpet must be cricket specific, and the surface should meet the ball-surface and player-surface performance requirements of ECB TS6 and the additional criteria above.

Polymeric/vinyl indoor cricket surfaces are not suitable for Covered Outdoor Cricket Facilities because they can become wet from rain driven in from the sides of the facility, causing insufficient player-surface traction.

BUILD-UP

The build-up will depend on ground conditions and will need to be designed for each scheme, but would typically consist of:

- A synthetic turf carpet over
- A shockpad over
- A porous asphalt wearing course over
- An open graded asphalt binder course over
- Compacted stone over
- Geotextile membrane over suitable ground.

Any design will need to be based on the results of the ground investigation.

DRAINAGE

As an outdoor, covered facility, the flooring and an appropriate sub-base should provide sufficient drainage for an outdoor surface to allow for some rain on the perimeter of the floor.

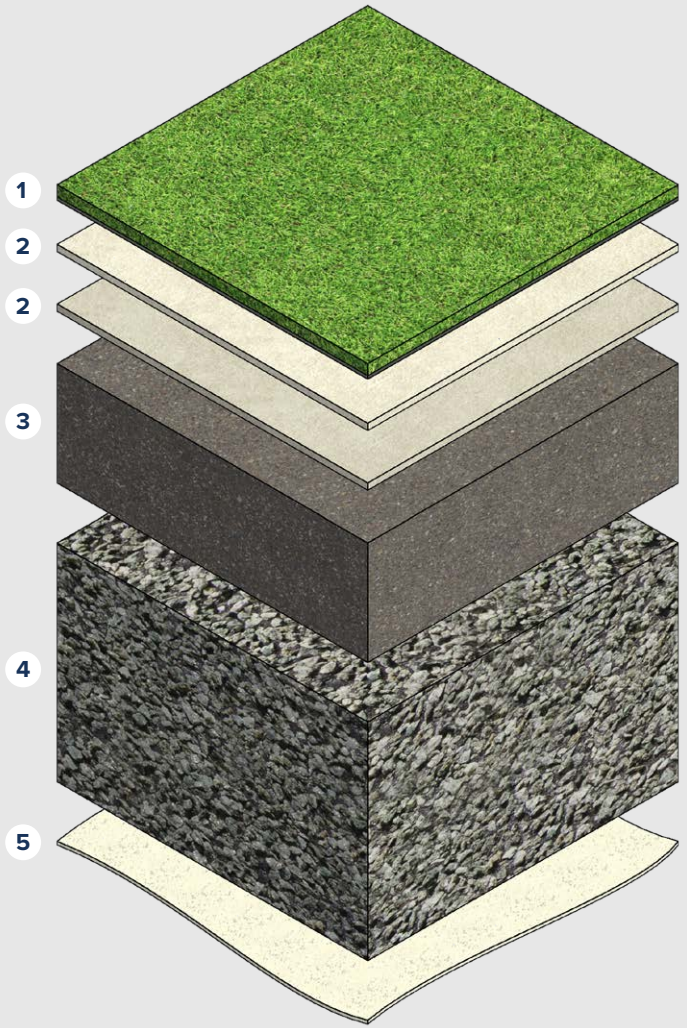
The playing area is covered, so lateral drainage of the sub-base would only be required where shallow groundwater is a concern.

However a perimeter ring drain could be required as part of strategies to intercept runoff before it reaches the playing area.

This should be installed to required depths to achieve outfall under gravity and connected to the wider surface water drainage scheme for the site.

FORMATION

The sub-base should be constructed over a formation level trimmed to the required levels and slopes to achieve design levels at the surface after construction of the full playing surface profile.



Legend

1 - Carpet – specialist short-pile, unfilled carpet cricket playing surface (typically green or beige in the principal playing area, i.e. within the tensioned net cage).
2 - Shock-pad – depending upon the system this could be one or two layers.
3 - Two-layer porous macadam engineered layer – note that granular dynamic sub-bases are not suitable for Covered Outdoor Cricket Facilities.
4 - Angular stone sub-base – designed in accordance with SAPCA Code of Practice to provide foundation for laying of the engineered layer and upper playing surface.
5 - Geotextile – laid and lapped over the finished formation level to provide extra stability and limit fines ingress from soil into permeable layers above.

Figure 19. Indicative surface build up from formation level (subject to approved supplier system design).

The formation level should be prepared in accordance with the SAPCA Code of Practice for the Design, Specification and Testing of Bases for Outdoor Synthetic Sport Areas and informed by the geotechnical survey completed in Section 2.6.

To reduce the risk of differential settlement of the playing surface over time (which is expensive and difficult to rectify), the formation level must be free of:

- Loose, fragmented or soft materials
- Excess moisture and ponding,
- Voids
- Any material that will degrade, including topsoil and organic material such as tree roots, dead or decaying organic materials and some recycled construction materials.

Any such material must be removed and re-packed with a suitable granular fill according to the structural or geotechnical engineer's recommendations.

Any tree root influence in the ground is subject to shrinkage and damage to constructed surface levels from root growth. It is essential that suitable tree root pruning and protection is put in place. These works must not de-stabilise the tree and could require local authority consent (see Section 2.2).

The formation should be consolidated to achieve a California Bearing Ratio (CBR) of at least 5% across the whole area when tested according to BS 1377. In areas of greater risk, such as poor ground conditions or significant fill, a greater consolidation could be required and structural engineer recommendations should be followed.

A suitable geotextile should be laid to protect the sub-base from fines ingress, to reduce the risk of subsoil cracks translating to the sub-base and to provide additional stability.

The sub-base, including perimeter edgings, should be designed in accordance with the SAPCA Code of Practice for the Design, Specification and Testing of Bases for Outdoor Synthetic Sport Areas.

Perimeter edgings should be made from concrete or other durable material. Wood or other degradable materials should not be used in facilities of this type.

The sub-base should be an engineered type, comprising a two-layer porous macadam asphalt engineered layer, over compacted, suitable, frost-resistant virgin aggregate.

Single-layer macadam profiles are not suitable because of the required surface tolerances.

Unbound granular sub-bases are not suitable for Covered Outdoor Cricket Facilities and should not be used.

The sub-base must be of sufficient depth and competence so as not to deform during the machine laying of the engineered macadam layer or installation of components such as the shockpad/carpet layers, netting and lighting systems.

The sub-base should also be of suitable depth and materials to reduce the risk of damage from frost heave and any clay shrinkage/swelling where applicable.

Surface tolerances should be achieved at the surface of the porous macadam wearing course.

CARPET AND SHOCKPAD

The shockpad and unfilled synthetic turf carpet should be supplied and installed to the requirements of TS6.

The playing surface should be contrasting from the perimeter safety zone to ensure all users are able to differentiate between the two spaces.

Carpets should be laid in the direction of play, ensuring that there are no seams in the ball pitching areas, in the bowler take off and landing areas (for both practice lanes and central match pitch locations), and that seams are arranged to facilitate patch repair to high wear areas.

All joints shall be in accordance with the requirements of ECB TS6.

All carpet joints should be fully bonded with no joint failures or gaps. Bonded carpet joints should not have any adhesive beads within the pile of the carpet that may cause ball deviation from the joint or injury to a player. The pile should not be trapped within the joint, nor should any adhesive layers or backing films beneath the carpet cause ridges outside the tolerances stated for surface regularity.

Depending on the facility, clients may want to consider different thicknesses of shockpad in specific areas to allow for fielding practice or 'outfield' spaces that more accurately represent the outfield of a grass pitch. Suppliers can provide different shockpads that can provide increased shock absorption. This will not be relevant to all facilities and is beyond the minimum requirements, with a likely uplift in the project cost.

All such areas should be outside the practice lanes and match pitch(es). Any change in shockpad or carpet type must achieve the surface regularity requirements.

MARKINGS

Main crease and junior marking positions are typically painted on using a standard two-part marker paint suitable for synthetic turf.

Markings should not be 'cut in' and seamed because there should not be any seams or backing tape in ball pitching areas. Lines should be painted on.

The floor markings for the lanes should reflect all age-specific pitch lengths with coloured marker indication. As per Figure 9, the markings for practice nets can be minimal showing only the stump lines and the batting and front creases; return (side) creases are less important for practice.

The assumption is that these facilities will be cricket first, with the potential for alternative sports where required on a site-by-site basis (refer to Section 4.16 – Multi-Sport & Shared Space Considerations).

It should be noted that the specification of the flooring will be for cricket, and any other sports that are played align with the same floor surface. Likewise, any permanent floor markings should be cricket only.

MAINTENANCE

The playing surface should be maintained in accordance with the manufacturer's instructions which must be provided at handover of the project to the client/operator.

- The principal maintenance tasks will be:
- Tidying and general housekeeping to remove litter and other detritus.
- Clean up of spills and other one-off incidents.
- Routine brushing of the carpet surface to clean and maintain the fibre. Depending on the size of the facility, a powered rotary brush may be recommended by the installer. This could require access to power and storage. Alternatively ride-on maintenance equipment can be hired or contracted in as a maintenance service.
- Over-painting/touch up to playing markings which will require paint, painting equipment, a straight edge and suitable storage in accordance with the site COSHH risk assessment.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

4.11 NETTING: TENSIONED NET ENCLOSURE

The Covered Outdoor Cricket Facility requires an appropriate set up for both the tensioned net enclosure (for match play, and general safety to the perimeter of the facility) and lane nets (for individual practice nets).

DEFINITIONS

- **Tensioned nets** - The vertical perimeter nets and horizontal top net forming the **Tensioned Net Enclosure**.
- **Safety margin** - Perimeter zone surrounding the Tensioned Net Enclosure.
- **Net bulge** - The extent to which the vertical net moves from the vertical or the horizontal net moves from the horizontal, when a ball or player impacts it.
- **Ball rebound** - The rebound of the ball off the tensioned nets, forming an integral part of the game of 'Indoor Cricket'.

MATERIAL AND PERFORMANCE REQUIREMENTS

The tensioned net enclosure is expected to be a 4-sided permanent tension net to align with the match play conditions. This also provides a more secure and safe enclosure during lane use, ensuring minimal deflection outside of the nets area.

Material and performance requirements are detailed in Table 3.

SAFETY

It is essential that tension elements do not protrude into the tensioned net area or otherwise cause risk of injury. Particular attention should be paid to the corners of the net cage which should be padded/screened to minimise injury risk and prevent the ball being trapped in the corner during match play (see Figure 21).

NET TENSIONING

The nets are tensioned vertically by means of a wire rope or cable at the base anchored to the floor, and a similar wire rope or cable at the top secured to either the building structure or a supporting structure.

Horizontally, the nets are tensioned to either a steel post or vertical chain at the corners outside the court. The form of the corner is maintained by either a tube on the court side of the nets or a heavy duty sewn seam which in both instances are tied back to the corner structure or chain.

Where a tube inside the court is used, it must be protected with padding to prevent damage or player injury. The fixings required to tension the base wire rope must, for safety, be either protected or outside the line of the tensioned net enclosure.

The internal corners of net should be covered with canvas at an angle (see Figure 21) to reduce the risk of player collision with the corner fixings and to prevent the ball being trapped in the corner in play.

CONSTRUCTION REQUIREMENTS

The tensioned nets must withstand the force of players colliding with the nets during cricket match use, and any other sports played in the facility, whilst retaining the shape of the match play net enclosure.

It has been assumed that the maximum force acting on the nets will be two players colliding with the net simultaneously, requiring a resultant safe working load of 1.8 kN within the construction of the tensioned netting enclosure.

The nets will absorb some of the force and dissipate it across its surface. The remaining force will be transferred to the fixings. The greatest force will be exerted through the fixings closest to the impact, the floor fixings.

Table 3. Material and Performance Requirements for Tensioned Net Enclosure

Material Requirements	Performance Requirements
Vertical Netting	
Knotted coloured 15/24 polythene netting mesh in either a 75 mm full diamond or square pattern. Knotted coloured 3.5 mm braid polythene netting mesh where heavier grade used at base of net to resist wear.	The optimum tension of the vertical nets shall be 25 kg +/- 3 kg measured at a height of 1,500 mm +/- 50 mm pulling the net a distance of 500 mm +/- 10 mm from the vertical. The force required to pull the net should be measured using a hand held electronic hanging scale. Installed nets shall be tested at approximately 5.0 m intervals horizontally in locations a minimum of 2.0 m from court corners and access openings. Permissible higher tensions will be recorded within 2.0 m of the court corners and permissible lower tensions will be recorded around court access openings. The vertical net should be installed as per the dimensions of the covered outdoor cricket facility stated in Section 4.2. If in accordance with the dimensions, these will conform with the necessary requirements.
Horizontal Netting	
Knotted coloured 2mm polypropylene netting mesh in either a 50mm full diamond or square pattern.	The horizontal top net must maintain a consistent clear height over the width and length of the court and limit the net bulge to a maximum of 200 mm when hit by a ball. Note that the horizontal netting can follow the roof line (subject to minimum dimensions, to open up the tensioned net area for match play.

All components should be UV and corrosion resistant and not degrade or weaken as a result of exposure to exposure to outdoor environmental conditions, including sunlight.
All sports hall netting, canvas, storage pouches, etc. should be made of fire retardant material in accordance with BS 5867 Part 2.

The bottom of the tensioned net is fixed to a base wire that runs between the structure.

The vertical tension on the net is significant and requires suitable ground anchorage of the tension wire and floor fixings. Direct fixing into the tarmacadam sub-base is unlikely to provide sufficient anchorage and it will be necessary to install a concrete beam below the line of the tension net perimeter.

To improve cleaning and reduce damage to the nets, consider a plastic 'skirt' that is looped around the base of the net and sewn in place. This reduces the risk of damage caused by vermin and accidental animal entrapment by the netting. In some locations, this may not be necessary but should be considered based on local environment, fencing surrounds etc.

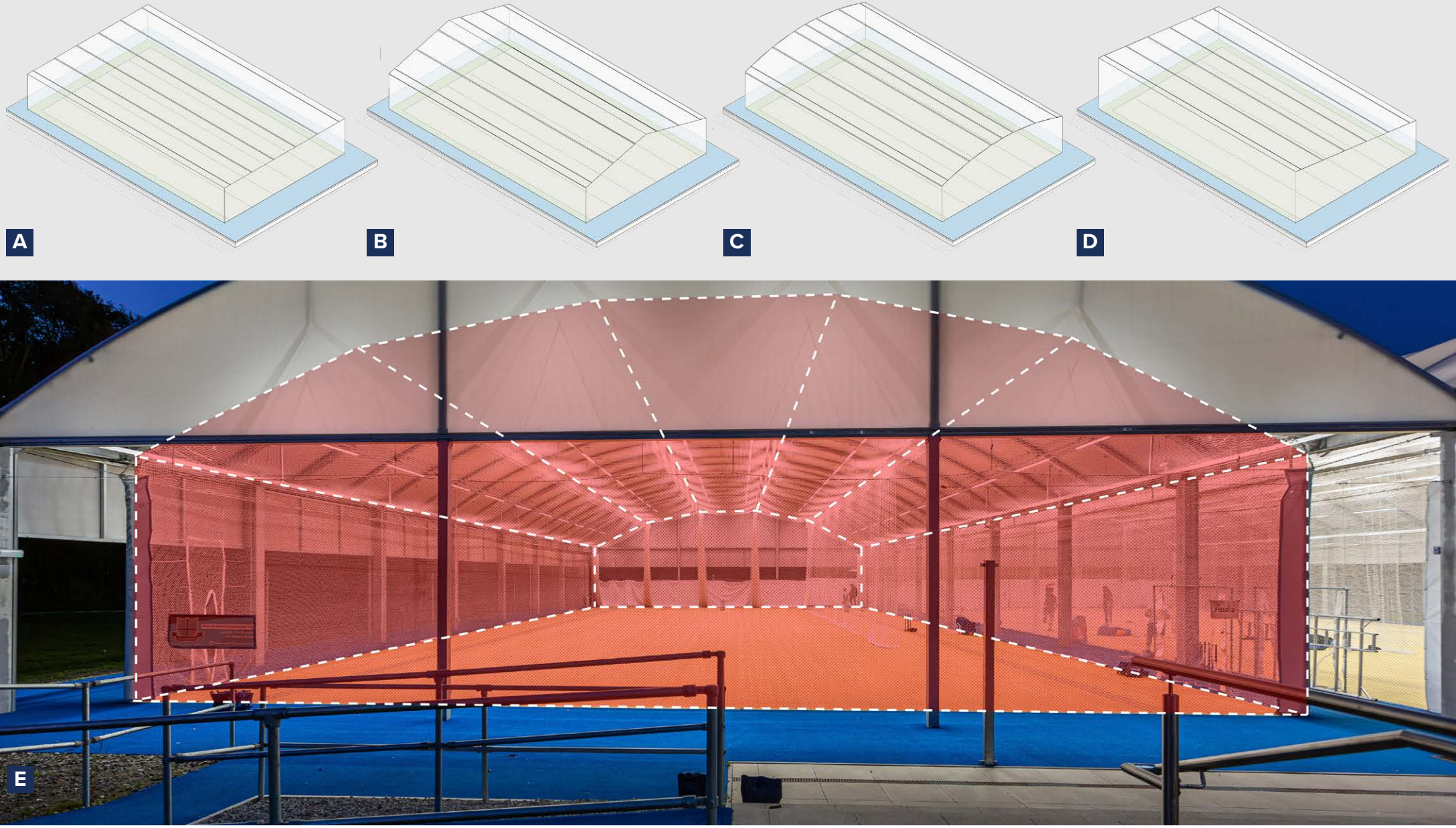


Figure 20. By fixing the roof of the tensioned net area over and around the trackway for the practice nets, the roof line of the tensioned net area can follow the roof line of the superstructure. This can create a better match play experience for users by increasing the volume for lofted straight shots with the bat.

A: The simplest form is a flat roof, forming a cuboid tensioned net area. However because of the need to shed rainfall from the roof, it is not anticipated that many covered outdoor cricket facilities will have a flat roof and therefore this design is likely to waste volume above the tensioned net area, which cannot be used for play.
B: In a double-pitched roof, by working to a fixed height below the roof for the practice net trackway system a greater volume for matchplay can be created, particularly when hitting straight.
C: The same can be achieved with an arched roof (as per the example from Bradford Park Avenue in E).
D: In a single-pitched roof the same approach can be taken but this will not be symmetrical to a centre match pitch and a single height cuboid arrangement as per A could be more effective.
E: Bowling-end elevation of the Bradford Covered Outdoor Cricket Facility highlighting the tensioned net cage within the main superstructure and demonstrating the additional volume created for match play.

Figure 21. Design elements of the tensioned net cage at the Bradford Park Avenue facility: A - the bottom of the net is laced to a tensioned steel wire rope secured to a concrete ring beam in the floor; B - the corners of the tensioned net area are wrapped externally to protect the net and fixings, and internally (not shown) to prevent balls being trapped in the corner during matchplay; C - an external view showing the overlap of the superstructure outside the tensioned net area; D - the corners of the net are attached to the superstructure using tensioned chains and cables; E & F - the horizontal roof net arrangement around the trackway for the pull out practice nets and below the sports lighting system; G - corner protection in place for player safety and to stop balls getting trapped.

ACCESS

Access is required for both players and equipment - including the use of full height bowling machines where available.

Access entrances should be placed to the sides at the bowlers' end to:

- Avoid users entering the facility behind the sight screen.
- Provide access from both sides to limit the disruption to nets adjacent to access points, and to distribute wear across the width of the facility.

As a minimum, entrances should be wheelchair accessible (including in an emergency). Note that sports wheelchairs have a wider wheelbase than standard wheelchairs and a minimum width of 1000 mm (1200 mm preferred) should be allowed for.

The entrance should be fitted with a tensioned cover that can be fixed in place when using the facility is in use keep the ball within the net area and forms part of the live walls during match play (see Figure 22).

This is most commonly achieved using a tensioned cover net but this must be removable to allow wheelchair access and of a sufficient height to allow access for bowling machines - including full height wheeled versions (refer to manufacturers' dimensions).

EMERGENCY ACCESS

In accordance with the requirements of Approved Document Part B, secondary escape openings should be located on both sides of the tensioned net enclosure at the batting end, with a cover net that is used only in the case of an emergency. This is to maintain required safe evacuation route lengths.

Note that suitable evacuation arrangements must be made for individuals requiring assistance to safely enter and evacuate through the access tensioned cover nets when fitted.

MAINTENANCE

For the first 12 months following installation it is the installer's responsibility to ensure that the nets continue to perform accordance with this document. This should form part of the installer's standard maintenance service. The number and frequency of visits should be agreed with the operator.

After the initial 12 months, and for existing tensioned nets installations, the operator is responsible for ensuring that the nets continue to provide acceptable and safe playing conditions.

Maintenance should include:

- Routine (weekly for normal usage) inspection of all components of the tensioned net enclosure, including but not limited to the netting, tensioning restraints, cables and chains and access points to identify and mark components for repair.
- Repair of tensioned net enclosure components to prevent ball escape, maintain enclosure and safe impact. All on an as-required and as soon as identified basis.
- All other maintenance of the tensioned net area as identified in the installer's Operating and Maintenance (O&M) Manual or other maintenance information supplied by the same.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

Figure 22.

The inside of the tensioned net area should be considered a live area with risk of ball strike at all times during play or practice. Users should adopt stand cricket procedures including use of the correct protective equipment and maintaining constant vigilance and awareness of ball strike hazards. However, it is important to isolate this risk to within the tensioned net area.

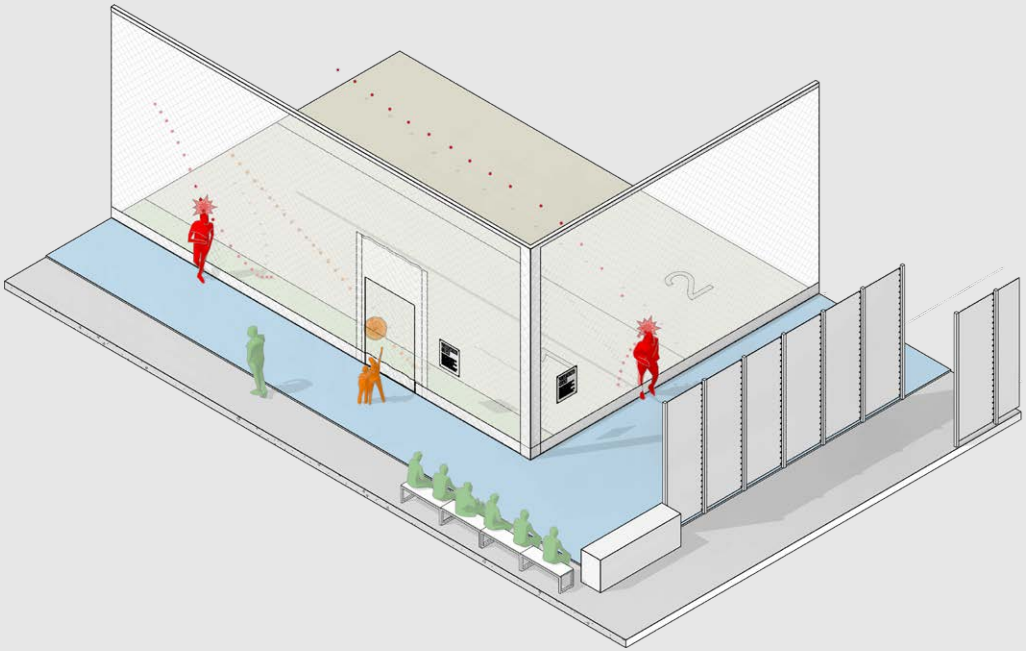
A: **This drawing shows that although the tensioned net will reduce impact velocity, there is a risk of ball strike very close to the net (figures in red). Spectators and other users outside the facility must be warned of this risk on entry to the facility - this can be achieved through signage, pre-arrival communications and by site inductions.**

It is important that users outside the tensioned net area are protected from ball strike by balls escaping through open access points. In this example figures in green are protected by the tensioned net but the children in orange are only protected when the tensioned net cover is fitted across the access door. Without this cover in place, people in the line of the doorway will be at risk of ball strike.

B: **In this example the door covering is fixed back in an open position allowing ambulant and wheelchair access by users.**

C: **Once a person, group of users or team have entered, and before balls are hit, bowled or thrown, the access must be covered with a tensioned net panel that can be fixed to the bottom tension wire with elasticated fixings.**

Adequate supervision and training is required for all users on safe use of access points, including suitable arrangements for everyone during emergency evacuation, for example in case of fire. Because of the nature of the fitting of the door cover panel, individual emergency evacuation plans must be put in place for people requiring assistance to open the access panel.



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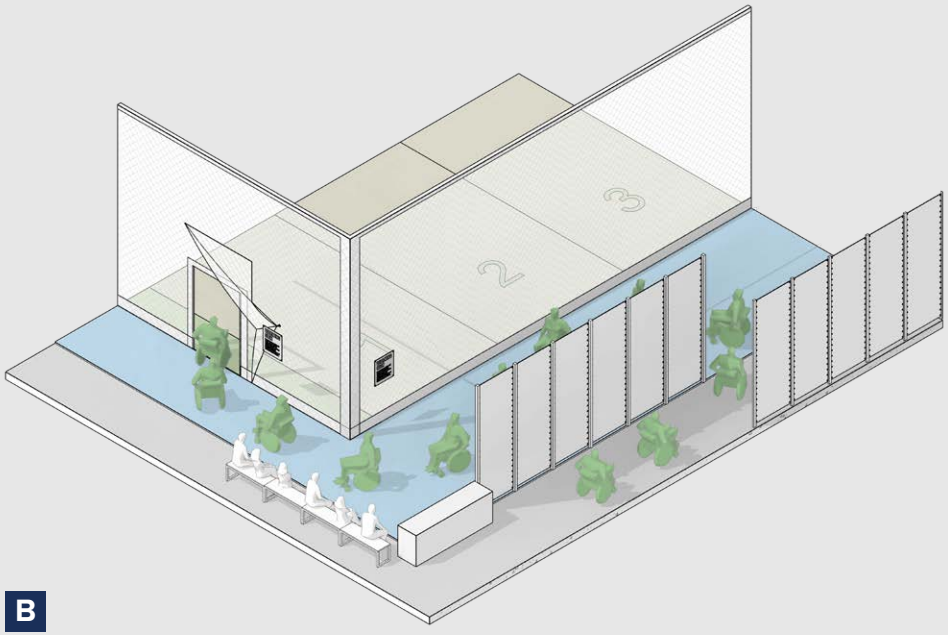

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4.12 NETTING: PRACTICE LANE NETTING

The practice lane nets allow the Covered Outdoor Cricket Facility to be used for traditional net practice on a single or multi-lane basis.

The practice nets should be located towards the batting end in an enclosed 'U' formation, with its own roof, for each lane. This ensures an enclosed space for batting while maintaining a single-track system that can be used for each lane and stored at the rear in lane net hammocks when required.

This provides free access through the bowling end access points but provides sufficient protection against ball movement from the batting end.

Having a system for each lane also reduces the ball impact against the nets between lanes, improving safety provisions.

PERFORMANCE REQUIREMENTS

The practice lane net system shall conform to the requirements indicated in:

- This document.
- ECB TS3 Indoor Sports Halls with Cricket Provision.
- The latest edition of: BS EN 1892 Gymnasium Equipment Part 2. (Particular requirements Section 2.11. Specification for practice and games, netting and tracking).

The structure of the net system nets, blinkers, screening, tracking and fittings should be able to withstand cricket balls hitting the net and supporting structures when subjected to normal use.

The tracking holding the netting should not be damaged by cricket balls impacting it because this will cause damage and obstruct free movement of the nets. This will require physical protection of the tracking.

Balls should not pass under, over, through or between the nets or screens. Horizontal nets should be attached to vertical nets and balls should not pass between them.

Balls should not become entrapped in the net system during normal use. The netting should withstand balls impacting it, and players running into it.

All components should be UV and corrosion resistant and not degrade or weaken as a result of exposure to outdoor conditions, including sunlight.

MATERIAL REQUIREMENTS

It is recommended that white polymer netting is used for the roof netting and it is either sewn or roof fitted with 50 mm knot (knot-to-knot) or 40 mm knot-less (weld-to-weld) square mesh, with the leading edges taped for reinforcement.

All sports hall netting, canvas, storage pouches, etc. should be made of fire retardant material in accordance with BS 5867 Part 2.

CONSTRUCTION REQUIREMENTS

The individual net bay is separated from the adjoining bays by tracked side netting extended from end to end.

The most efficient method for use is independent overhead tracks for each lane, fitted to the superstructure, which allows each net to be drawn independently and which allows for flexible usage.

The load of the practice net system in use, including wind loads, must be accounted for in the design of the super structure (see Section 4.9).

It is recommended that nets be suspended from a heavy-duty, aluminium tracking and trolley system which conforms to BS EN 1892 and that is sufficiently robust to withstand ball impact.

Definitions

- **Net System:** a net system is a single unit from a performance point view.
- **Net Bulge (net billowing):** the extent to which the nets move horizontally from the vertical when an object hits it.
- **Lacing Nets:** the fastening of nets to each other, to supporting frames or structures with a lace threaded and wound through the nets.
- **Ties:** the fastening of nets to each other, to supports, bars and other structures, with individual sections of cord, string, yarn etc.
- **Net Aperture:** the size of the mesh making up the netting.
- **Drag:** the amount of netting which lies on the floor subsequent to the fixing of the netting unit to the overhead tracking.
- **Drape:** netting has a tendency to produce a curtain effect when suspended from tracking or a tension wire.
- **Meshes:** a collection of apertures between the cords making up the net.
- **Net Stretch:** increase in size and length of fibres making up the netting.
- **Fittings:** cables and any other materials used to support the net system.
- **Screening:** a solid curtain manufactured from fibres.
- **Blinkers:** term used for screening.
- **Track:** nets are attached to a track by runners, which allows the nets to be drawn along the track.
- **Fixings:** brackets, bolts, ties, etc. that hold the net system together.

Figure 23. Practice net configuration in the Covered Outdoor Cricket Facility at Bradford Park Avenue, nets shown extended.

The roof netting should incorporate a lofted drive net or drop net, to reduce the risk of high straight drives reaching the back of the nets.

If the practice nets are not provided with individual roof nets fixed to the side net, and instead use the roof of the tensioned net system, the nets cannot include a lofted drive net or drop net. Whilst this style of arrangement may be appropriate where roof height is restricted it should otherwise be avoided.

The side netting should be long enough for at least 0.3 m and no more than 0.5 m of slack/drape to rest on the floor. This creates added weight and prevents the net from billowing out when struck by the ball (a billow of no more than 1.3 m should be achieved when in service) otherwise it will interfere with activities in adjacent nets and walkways forming a potential impact hazard.

The netting shall not be hung too taut to help prevent balls rebounding dangerously.

BILLOW AND WEIGHTING

The nets in a Covered Outdoor Cricket Facility are more susceptible to billow than an indoor cricket environment because of exposure to cross winds.

Billow should be reduced by adding weight to the netting. This can be achieved by adding steel wire rope, weights or other ballast. Additional weights may be required, compared to a fully indoor system.

In addition, ballast weights can be also be used. This method helps to reduce the weight of nets to be handled during stowage but does require ballast weights to be collected and stored so as to avoid a trip hazard during match play.

BLINKERS

Blinkers should be fitted to all practice nets. Materials should be selected to reduce wind billow (e.g. heavy white canvas or polymer).

They should be suspended on lanyard cords threaded through the net (not fixed to the net as this will create sag over time).

The blinkers should form both side and rear nets around the batter/wicket keeper. Side nets reduce distraction and billow lane-to-lane, rear nets allow bowlers and coaches to see the returning ball more easily.

It is recommended that the blinkers extend 5 m in front of the batter (7.72 m from the rear net), and to a height of at least 1.8 m.

SIGHT SCREENS

A sight screen behind the bowler is essential so that the batter can see the ball when bowled against a good visual background.

Experience from the pilots is that a curtain sight screen will blow in the wind and can add a significant wind load, particularly if full width.

For this reason it is recommended that a sight screen is formed from external wind-break or fencing structures designed to withstand associated wind and other structural loads, without blowing or billowing in the wind.

If a white ball is to be used it will be necessary to cover these structures with a dark material to provide suitable contrast.

MAINTENANCE

It is important to ensure that users understand how to use the nets appropriately. Improper use can impact the nets and the tracks overhead, and reduce the life cycle of the product.

For both the tension net and the lane nets, on site cleaning isn't possible or effective; the only way to try to clean them is with a damp cloth (no chemicals or abrasives). Too much water can lead to water marks on canvases.

Off-site cleaning means downtime would pose potential downtime challenges for the practice nets.

Regular and proper cleaning of the floor could help protect the lower part of the nets from dirt and grime as they drag on the floor.

Depending on usage of the nets, an annual high-level service provided by the net installer is advised as a minimum. For high usage venues that get used all day, every day, this should be completed in 6 monthly intervals. If the services are twice-yearly, they are preferred to be April and September. For each service, April is usually a more substantial service after heavy winter usage and September being a lighter service, so they are ready for the winter use. Services should include:

- A thorough check of the net and track system
- Lubricating runners
- Minor tweaks and realigning track joints
- Minor patch repairs to nets
- Levelling of sight screens.

The service is usually completed in a day, assuming consistent servicing biannually.

For financial reasons, a facility may find it beneficial to organise a replacement strategy for the lane nets. This could reduce significant financial outlays in one go, with a consistent cost for replacing the nets accumulated through annual or biennial payments to a replacement fund.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

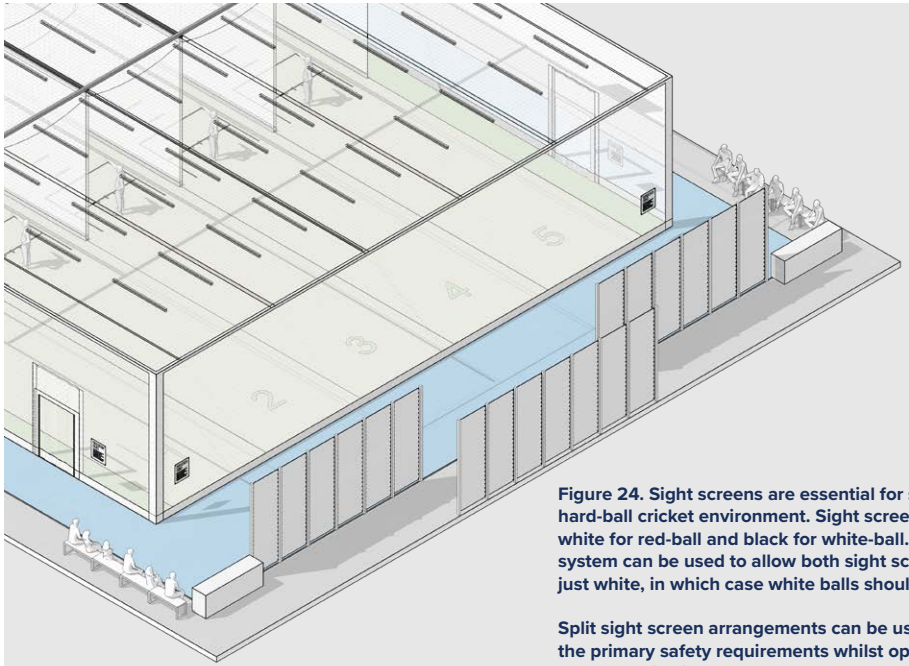

Figure 24. Sight screens are essential for safety in any hard-ball cricket environment. Sight screens should be white for red-ball and black for white-ball. A trackway system can be used to allow both sight screen colours (or just white, in which case white balls should not be used.

Split sight screen arrangements can be used to balance the primary safety requirements whilst opening up spectator viewing.

STORAGE OF PRACTICE NETTING

All practice netting should be able to be stored safely to avoid a trip hazard during matchplay. This can be in the form of synthetic or canvas textile (or other suitable material) hammocks or bags (Figure 25 A&B).

Stowage of practice nets should be loaded onto the superstructure (and this load accounted for in the superstructure design - see Section 4.9). Stowage solutions should not add additional load to the tensioned net system such that the tensioned net system sags or is damaged by stowage.

Consider safe manual handling at the design stage to ensure that stowage of nets can be achieved safely. Methods for reducing risk include the use of pulley or winch systems. Where stowage requires more than one person this should be stated clearly in the operating and maintenance (O&M) manual.

SEPARATION AND FLEXIBILITY

In addition to the practice nets, consider whether the netting system can support division of the tensioned net area into separate practice areas to support coaching (Figure 25 C&D). This is particularly applicable to larger 5 or 7 lane net facilities, where a full-length slack net that divides the facility into separate areas widthways so that the space can be used for match play; with an unused lane for safety, and either 1 or 3 additional lanes that can then be used for training.

Alternatively, or in addition, a cross-net splitting the space in half, perpendicular to the lanes can be installed using a track system that allows nets to cross in different directions. This net would split a 3-lane facility in half lengthways, or in quarters for a 5 or 7-lane facility. This can be used for fielding practice whilst net practice continues with shorter run-ups, or a number of junior matchplay training games at the same time (for different age or ability groups, for example). All dividing nets must be stowed safely for match play.

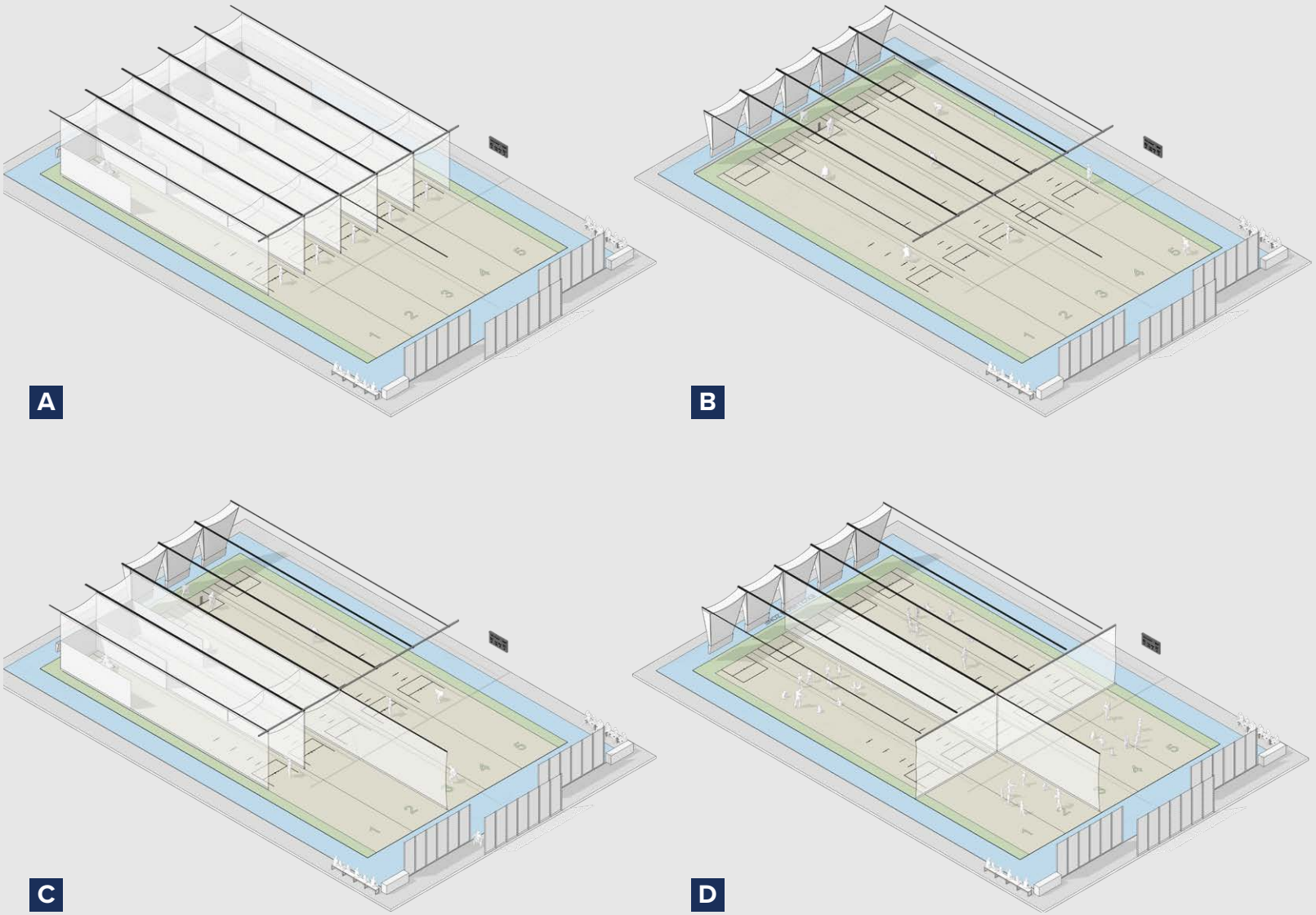

Figure 25. A - shows full practice net configuration with nets pulled to full length and sight screens in place across full width. B - shows matchplay configuration with practice nets fully retracted and stowed safely. C - shows an extended net between lanes 2 and 3, allowing lane 1 to be used for practice, lanes 3-5 for matchplay (with lane 2 unused for safety). D shows how a cross over in the netting trackway can be used to provide a two/three/four-way division of the tensioned net cage area for a mix of small sided practice games, drills (and even net-lane practice). The exact position of the side-to-side net can be determined at the design stage to create the right balance of bowler run up and practice area (depending on the anticipated users) Note that configurations C and D must provide safe storage of the extension and perpendicular nets when configuration B is used.

4.13 LIGHTING

Provision of suitable overhead sports lighting is critical for safe and enjoyable cricket in a Covered Outdoor Cricket Facility.

Depending on the design of the superstructure, it is anticipated that lighting will only be required in evenings, as the structure should allow sufficient light levels during the day through the translucency of the envelope of the facility.

The lighting system needs to provide sufficient and suitable light such that players, coaches, match officials spectators and other users can all track the relatively small, fast moving, hard cricket ball when in play.

This is not just a question of achieving enough light, but also a high standard of uniformity, without structural shadows and without excessive glare that could endanger players.

Modern lighting systems will need to be LED to comply with applicable legislation and to achieve optimum energy efficiency and environmental sustainability.

The benefit of modern LED sports lighting systems is that they are easily dimmable using a control system.

Sports lighting must be provided so that users can see the ball safely when ambient lighting conditions are insufficient. All usage should be suspended where lighting conditions are unsafe (due to system breakdown, power cut or not having access to the control system for example).

GLARE AND LED LIGHTING

Unless designed with care, LED lighting systems can have much higher glare than older (and now obsolete) fluorescent lighting. This can reduce user comfort and increase the risk of injury if players are temporarily dazzled by looking directly at high intensity luminaires and then cannot see the ball clearly until their eyes recover.

There are a number of lighting design strategies that can be employed to reduce glare:

- Using a larger number of lower intensity luminaires to achieve sufficient illumination. This reduces the risk of glare and can increase uniformity.
- Using low glare luminaires that set each LED deeper into the light fitting reducing the angles from which the LED can be seen.
- Using luminaires with inbuilt diffusers.

Note that glare will increase with average illuminance and therefore systems should be designed to achieve the required uniformity and unified glare rating (UGR) at the enhanced mode (1500 lux) illumination standard (see Table 4).

LIGHTING DESIGN AND POSITIONING

Guidance to support lighting designers is provided in the ECB Guide to Sports Lighting for Indoor Cricket Centre and Covered Outdoor Cricket Facilities.

Note that there are specific requirements for lighting cricket environments and general sports lighting design (as per Sport England guidance) is not suitable for this purpose.

The preferred position for luminaires is on both sides of each batting lane. This can help to reduce the players looking into luminaires directly when following a ball vertically upwards (for a catch or when falling off the horizontal roof net for example). Lighting is required on both sides of the lane to achieve the specified uniformity and to reduce shadowing from the netting trackway.

Figure 26. The lighting system in the Covered Outdoor Cricket Facility at Bradford Park Avenue designed to the performance specification. Uniformity is achieved by a line of lighting on each side of each net lane. This high uniformity with minimal shadowing.

Figure 27. The lighting system should be at least 500mm above the horizontal roof net to protect luminaires from ball strike. The lighting design must be coordinated with the netting design to help minimise shadows from trackway, netting etc.

PERFORMANCE REQUIREMENTS

The selection and design of the lighting system should give due consideration to the average illumination at floor level, uniformity, colour rendering and control of glare within the Covered Outdoor Cricket Facility.

The lighting system shall meet all the requirements of the latest version of the ECB Guide to Sports Lighting for Indoor Cricket Centre and Covered Outdoor Cricket Facilities. This should include all aspects of design, review, testing and commissioning and reporting as required by any funding agreement or Local Authority Planning Condition.

Note that because there are no side walls from which to reflect light, the performance requirements for Covered Outdoor Cricket Facilities are different from Indoor Cricket Centres and are summarised in Table 4 and Table 5.

Two modes are used, standard and enhanced, depending on time of day, ambient light conditions and the speed of bowling / hitting (faster bowling or more powerful hitting will require enhanced mode lighting).

The lighting products used must conform to all relevant British and European Standards.

The designed lighting system must be tested to work within the operating parameters of the supplied LED technology, photometrically tested by an independent laboratory, and be constructed to an IP and IK rating commensurate with installation in a covered but essentially outdoor system to ensure safety and longevity of the system. The system and external infrastructure must be protected from flooding and flood damage.

The LED technology shall provide good colour rendering and optical control, be energy efficient and supplied/or licensed from a patent holding LED manufacturer. The minimum LED characteristics detailed in Table 5 must be met.

CONTROL

Lighting installations should be provided with simple, individually zoned control systems that can be operated locally in order to achieve a good level of energy efficiency. The use of occupancy sensor control systems would be appropriate in most instances but must not turn of lighting when the facility is in use.

Control panels, timers, switches, etc. for lighting installations should be located within a central management area, usually behind the reception or bar, which is easily accessible to the staff on duty.

Circulation areas around the facility could be illuminated by light spill from the facility only.

If other sports are to be accommodated within the facility, then the lighting design should reflect the specific requirements of identified sports. This can be achieved through zoning and the use of sports-specific ‘scenes’ in the programmable control system.

Suitable access and lighting control arrangements should be in place to ensure that the facility cannot be used without the sports lighting being on in unsuitable light conditions.

EXTERNAL LIGHTING

There must be sufficient external lighting to allow facility users to navigate the site safely. This includes lighting of padding up areas, waiting and spectating areas, car parks and pedestrian routes. This should also provide for safe egress from site once the covered facility is closed at the end of a day and the sports lighting is dimmed or off.

SPILL

Light spill from the facility should be minimised so as not to cause a nuisance to neighbouring properties and wildlife. Priority should be given to selection of sites without light-sensitive neighbours (see Section 2.2).

Table 4. Sports lighting requirements for sports lighting in covered outdoor cricket facilities.

Usage mode	Horizontal illuminance, E_h (average maintained)	Vertical illuminance. E_v (average maintained)	Uniformity (E_h min/E_h ave)	Unified Glare Rating (UGR)
Practice net mode	1500 lux	750 lux	0.8	≤ 22
Matchplay mode	1000 lux	500 lux	0.8	≤ 19

Table 5. Luminaire LED technology requirements for covered outdoor cricket facilities.

Parameter	Requirement
Colour temperature	<4,000 K
Colour rendering (CRI)	Ra>80 (all maintained - R9 value ≥ 50)
Colour consistency (MacAdam Ellipse)	SDCM 3 (or better)
LED efficacy	150 lumens/W
Luminaire efficiency	120 lumens/W
Service life	L80/B10 at 50,000 hrs
Operating temperature	35°C

Figure 28. An aerial view of the Bradford Park Avenue Covered Outdoor Facility showing external lighting and controlled horizontal light spill.

The type of downward directed LED sports lighting used can help to minimise spill, however for light-sensitive sites, the translucency of roofing and side-wall materials can be adjusted by material selection to reduce and control spill.

EMERGENCY LIGHTING

An emergency lighting system that operates fully automatically in the event of a power failure is required to provide sufficient illumination to enable evacuation of all occupants safely.

Emergency lighting should be installed to comply with relevant legislation, including Building Regulations, Construction Products Directive, Approved Document B Fire Safety, the Regulatory Reform (Fire Safety) Order 2005 (in England and Wales) and BS5266-1.

It is essential that a design risk assessment is carried out and that this ensures that the emergency lighting is suitable and fit for purpose, and that it is handed over to the client in a suitable and fit for purpose working order.

Clients and operators should establish a routine testing and maintenance programme for the emergency lighting as part of their fire risk assessment and associated operating procedures.

Note that placement of emergency lighting should consider the lighting of escape routes, open areas and any other risks associated with evacuation.

This is likely to mean that emergency lighting is placed above the tensioned net area and therefore the demounting and remounting of netting must be considered in the maintenance and operation of the lighting system.

It is for this reason that it is best practice to include an external backup battery supply to the emergency lighting supply, rather than back-up batteries located in individual luminaires above the tensioned net area. (Figure 30).

The back up battery system should be suitably designed, housed and maintained.

Where a timer is in place as part of lighting control system (for example to manage a lighting curfew or as part of booking management):

- It must not interfere or override in anyway the emergency lighting, and
- It should provide safe egress from the building for a sufficient time after the booking to allow safe exit.

CABLING

Cabling should be installed in accordance with applicable legislation. Cables should not run inside the concrete ring beam for the tensioned net area and should be installed in suitable ducting, with draw pits under all engineered surfaces and hard landscaping.

METERING

The power supply to the Covered Outdoor Cricket Facility should be sub-metered. This will allow the operator to:

- Track, analyse and minimise energy usage to support financial and environmental sustainability.
- To onward charge operators where this is part of a multi-facility site.

FURTHER INFORMATION

Guidance to support lighting designers is provided in the ECB Guide to Sports Lighting for Indoor Cricket Centre and Covered Outdoor Cricket Facilities. Additional information on sports lighting can be found in Sport England Artificial Sports Lighting document.

DESIGN LIFE & WARRANTY

Please refer to Section 6.1.

Figure 29. Bradford Park Avenue Covered Outdoor Facility showing external lighting and controlled horizontal light spill.

4.14 OTHER MEP REQUIREMENTS

ELECTRICAL

In addition to the power requirements of the sports and emergency lighting systems, power is also required for:

- Scoreboards
- Bowling machines
- Other coaching equipment
- Maintenance equipment.

Whilst any permanent equipment such as scoreboards should be fix wired, the facility to plug in equipment is essential. In-floor power supplies are not recommended because although sheltered from precipitation, the facility is not ‘water-tight’.

Instead suitably IP rated 13A and 16A outdoor power supplies can be positioned on the structure to facilitate such use.

Note that the tensioned net aperture is smaller than typical plug dimensions and access

Figure 30. Installing an external battery system for emergency lighting means that the emergency lighting system can be built into the sports lighting system without needing to demount the netting system to test and replace emergency lighting batteries.

points will need to be provided to pass cables through to plug in points. Such access needs to allow plugs through but not allow balls to escape. This approach is preferable to locating sockets within the tensioned net area that could cause an injury hazard.

WATER

Access to a water supply close to the facility is required for bottle filling stations and for maintenance equipment such as pressure washers.

4.15 EQUIPMENT

PLAYING AND COACHING EQUIPMENT

The operator will need to provide stumps for practice and playing use. These can comprise spring-back or weighted-base type of metal, wooden or durable plastic.

There should be a set of stumps for the batting and the bowling end of each practice lane. Consider a spare set in case of damage. Note that stumps come in two sizes - adult and junior. Adult stumps can be used in most practice situations but there should be a set of junior stumps and a set for each match-play pitch.

Depending on your operating model, other coaching equipment such as cones and batting tees may need to be provided and stored; consult with potential users on requirements for both provision and storage.

To help support wider access to cricket, you might consider providing a 'kit bank' or loan playing equipment such as bats, balls, gloves and pads - for more information on this - see Section 5.5.

SCOREBOARD

The scoreboard should be located as shown in Figure 4. This location means that it is visible to players and officials during match play.

The scoreboard should be fixed to the structure and located outside the tensioned net area to provide protection from ball strike

Scoreboards should not be obstructed by the practice nets when they are in their stowed position.

Locating it towards the centre of the facility, positioned to either side, will provide overlap with the practice nets, providing additional protection.

Think carefully about spectators when positioning the scoreboard - for example if spectators are likely to stand on one side, the scoreboard should be located on the opposite side.

The position of the scorer and umpire should be considered when locating the scoreboard at either side.

The scoreboard should be wired mains operated with a remote control to manage the scoring (this will need storing appropriately).

BOWLING MACHINES

A primary purpose of the Covered Outdoor Cricket Facility is to provide a training facility with access to practice lanes. It is expected that bowling machines may be required as part of this training.

Bowling machines come in several formats; tripod mounted, full size wheeled and column standing. These machines all require a mains power source, so should have a suitably IP rated external power source within the facility (see Section 4.14).

While these machines require some understanding of how they work, it is anticipated that they could be hired out as part of the lane booking system. This should be discussed with a booking system provider if it is appropriate for the location, and user training and induction provided. Only trained users should operate bowling machines.

Figure 31. Bowling machines are a common sight in cricket practice facilities, requiring access, storage and power.

Bowling machines will need to be stored outside of the tensioned net area. Suitable storage is required (see Section 5.5) and access through the tensioned net (see Section 4.11).

MAINTENANCE EQUIPMENT

Maintenance equipment will be required in accordance with suppliers maintenance instructions. The principal requirement will be for the maintenance of the playing surface (see Section 4.10).

4.16 MULTI-SPORT & SHARED SPACE CONSIDERATIONS

With the practice nets fully retracted, the Covered Outdoor Cricket Facility is a covered, well-lit sports facility within a large and relatively long, tensioned net.

This overarching facility is combined with a level, un-filled short pile carpet playing surface with relatively few markings, making the facility suitable for other sports as well as cricket.

Examples include indoor short form and carpet bowls, mini-tennis, hockey, baseball and other sports suited to the playing surface.

Enabling multi-sport usage creates sustainable opportunities for activity and income.

There will be locations that require additional sports to allow for additional revenue or flexibility, such as in schools or universities.

The following information provides guidance feedback on potential sharing of space, viability of different sports, and where additional consideration is needed.

CONSULTATION

At an early stage in the feasibility and design process, speak to local sports groups to see how the facility could provide for them.

It might be that their needs can be met by a design for cricket, or you could consider changes in length, height or width to accommodate their specific needs.

DESIGNING FOR OTHER SPORTS

Flooring and Netting alternative sports will need to be compatible with the flooring and netting systems required for cricket without alteration.

Dimensions can be increased to accommodate sports that require wider, longer or higher spaces. Changes in dimensions should be based upon consultation with relevant sports and associated governing body requirements for dimensions. Note that these requirements are often based on match play and there is greater flexibility for training facilities.

The internal height of the cricket playing environment can be increased to include other sports. For example, increasing the height of the netting from 4.5 m to 5.0 m or 5.5 m, could make a facility more suitable for other sports such as mini tennis or indoor netball.

Sports lighting design can be adapted. Cricket lighting systems provide high uniformity, relatively high illuminance achieved with an array of luminaires across the facility. Modern LED lighting systems offer greater flexibility of control and different settings using dimming and inclusion/exclusion of individual luminaires can be used to adapt lighting among different sport requirements.

Storage capacity will need to be increased to meet the requirements of other sports to store equipment. This should be considered as additional to all cricket related storage.

Floor markings should be marked temporarily so as to not cause confusion with cricket markings. This should be discussed with the playing surface supplier for their recommendations.

Figure 32. Non-cricket use such as activities and other sports can benefit from the flat, weather protected, enclosed and well-lit environment.

NON-SPORT USE

Any non-sport use of the space, such as for meetings, events or examinations, must safeguard the condition, performance and safety of the facility, in particular the flooring and netting systems.

Floor protection is essential for any activity where there will be point loads (for example furniture legs or heeled footwear) or concentrated traffic.

Such use will need to be factored into the design of access (including into the tensioned net area) and storage.

SUPPORTING INCLUSION

Experience from the pilot projects has shown the value of having a secure, enclosed well-lit safe environment for sport and participation by women and girls for a range of activities.

When consulting on potential users and uses for a Covered Outdoor Cricket Facility make sure that you extend that consultation as widely as possible to support inclusion - this will be into communities and activities that you may not normally engage with or have conceived as potential users of the facility.

Effective and purposeful community engagement will inform good facility design.

IMPACT ON DESIGN LIFE & WARRANTY

Including additional sports and other non-cricket usage could affect design life and warranty. This should be discussed with component suppliers when considering how to achieve recommended design life and warranty periods (see Section 6.1).

5.0 ANCILLARY BUILDINGS & EXTERNAL WORKS

A Covered Outdoor Cricket Facility does not stand alone and will require access, parking, storage and in many cases an ancillary building.

It is important to consider the whole user journey to, through and from your facility, and the diversity of users and their needs of your facility.

Two key references when designing your facility and ancillary buildings are:

- Sport England's Accessible and Inclusive Sports Facilities (AISF) guidance, which outlines key areas that require consideration in ancillary accommodation
- ECB's Creating Welcoming Environments guidance, which describes design approaches to inclusive and accessible facilities for cricket

See also the 'Accessible and Inclusive Design' section (Section 6.5) of this document.

5.1 REQUIREMENTS

ESSENTIAL (WITHIN 40 m)

In addition to the Covered Outdoor Cricket Facility itself, essential requirements in close proximity to the facility (within 40 m) are:

- An accessible toilet or toilets (number based on the size of the facility, anticipated need and statutory requirements). Note that temporary facilities are not suitable for this purpose.
- A drinking water supply for users
- Site-wide signage including emergency, directional and informational types.
- First aid / defibrillator access
- Any other requirement essential to the safe operation of the facility

These facilities should be provided in line with applicable legislation and regulations.

ESSENTIAL (WHERE NOT PROVIDED ELSEWHERE ON SITE)

- Reception facility (if not provided elsewhere), including suitable accommodation for any employed staff. This space should include a mixed height reception desk for wheelchair users with enough space for appropriate circulation for all users. These spaces should also provide a hearing loop as standard. It is beneficial to have visibility through the reception facility, particularly from the desk to the entrance door to provide passive security, access control etc. through the building. This would ideally include the access to the facility to ensure passive security to all areas of the facility (see Section 5.2)
- Security perimeter fencing and access control

ADDITIONAL PROVISION (WHERE REQUIRED)

- Storage
- Social space
- Multi-faith and/or quiet spaces

5.2 ANCILLARY BUILDING

Your Covered Outdoor Cricket Facility will require accessible:

- Changing space
- Toilet facilities including at least one accessible toilet
- Storage space
- Reception / booking in area
- First aid / defibrillator access

Access to existing facilities of this type close to your proposed facility means that it is not necessary to construct new facilities, helping to reduce construction cost.

However, where such facilities are not provided by adjacent existing buildings, an ancillary building will be required for these purposes.

DESIGN AND CONSTRUCTION CONSIDERATIONS

The building should be designed to meet all applicable legislation and the requirements set out in this document.

It is recommended that the structure to this building is kept simple and cost effective using, for example, either timber framed or masonry construction, and off-site volumetric (modular) construction.

The provision should be scaled to the size of the Covered Outdoor Cricket Facility and the maximum number of users expected on site. Peak occupancy is likely to occur in overlap periods between bookings as one group arrives in preparation for their session and another is packing up and socialising following their session.

All facilities should be compliant with Building Regulations as a minimum but should improve on the minimum requirements as to provide sufficient comfort levels for all users.

LOCATION

The ideal location for a reception building is at the bowlers' end, but this will need to be determined on a site-by-site basis. If a reception building is located at the bowlers' end, weather protection for the building could be provided by an elongated dome structure. If the reception building is located outside the footprint of the structure appropriate weather proofing will need to be provided.

TOILETS

These should be accessible from the external edge of the building to ensure access even if the 'reception' facility is closed.

This should include (as a minimum) individual toilets for:

- An Accessible WC,
- 1no. male, and
- 2no. female WCs

The accessible WC should also be stoma & period friendly, with a hook on the door, shelf, mirror, bin / sanitary bin, and sanitary product vending machine as a minimum.

As highlighted in ECB's 'Creating Welcoming Venues' documents, accessible WCs are important in ensuring the accessibility of all users within cricketing facilities. This is as much the case with training facilities as it is for stadia.

An accessible WC will provide facilities for all users without prejudice. The requirements in Sport England's Accessible and inclusive sports facilities (AISF) guidance (specifically fig. D17 & 18), Approved Document M and BS8300 should be followed when designing and installing accessible WCs.

In a location where WC numbers are limited, an accessible WC should be prioritised as a larger cubicle to provide sufficient access for users.

CHANGING FACILITIES

Changing facilities – accessibility of changing facilities should be considered. Consider bench and mixed height hooks for the walls to assist with changing. It is assumed users will take their personal possessions with them to store in separate locations (bag or small secure locker storage).

RECEPTION FACILITIES

Reception space should include a mixed height reception desk for wheelchair users with enough space for appropriate circulation for all users.

These spaces should also provide a hearing loop as standard.

It is beneficial to have visibility through the reception facility, particularly from the desk to the entrance door to provide passive security, access control etc. through the building. This would ideally include the access to the facility to ensure passive security to all areas of the site.

SPECTATOR FACILITIES

The provision of spectator space within the covered outdoor cricket facility itself has been discussed in Section 4.2.

Spectators should also be considered in the provision of toilets and reception facilities as described above.

The location and size of spectator provision should meet Approved Document M (accessible by all, providing level access, and accessible circulation routes to spectator areas).

In the scenario where a more significant building is required than a standard reception building, there may be the potential for first-floor level viewing to be provided with clear vision of the playing environment over the rear sight screens, superstructure height and clearance of sight lines.

Note that this is not a minimum requirement, could be site specific and is optional for those looking to develop a covered outdoor cricket facility. If first floor facilities are provided a passenger lift will be required. Any lift installed should align with Sport England guidance. Sport England Accessible and inclusive sports facilities (AISF) should be referred to for understanding of lift requirements in sports facilities.

MULTI-FAITH AND QUIET SPACES

The ECB encourages the inclusion of multi-faith spaces within pavilion and ancillary buildings. Designed carefully (and paying particular attention to storage and the avoidance of fixed religious symbolism) this can be combined with a Quiet Room to support people with sensory requirements and neurodiversity - see Sport England Accessible and Inclusive Sports Facilities (Part C) for detail.

MECHANICAL, ELECTRICAL, PLUMBING

The ancillary building will require:

- Space allocation for plant where required.
- Connection to mains water supply, to meet building requirements, for drinking/ eating, toilet flushing, hand-washing and showering.
- Connection to foul and surface sewers (or on-site alternative in accordance with the drainage strategy).
- Connection to electricity supply for heating space and water in the building, lighting, mechanical ventilation (where required) and for operational use such as reception equipment, equipment in changing spaces, user equipment and access control systems.
- Emergency lighting and signage as required by law.
- Any passenger/access lift system.
- External lighting - as part of creating a 'welcoming environment', external lighting should be provided to the entrance and to primary external walkways for all users to ensure safe visibility. Location of this lighting and the route for any electrical supply is important.
- CCTV - While this may not be necessary for all sites, this should be a consideration. This may not require any mains electricity if battery and app operated, but may be necessary for more permanent security options.
- Solar photo-voltaic panel installation and design – the location of any renewable energy sources needs to be considered at design stage. These could be on the roof of the facility or adjacent flat land.
- Emergency equipment charging such as Automated External Defibrillators.

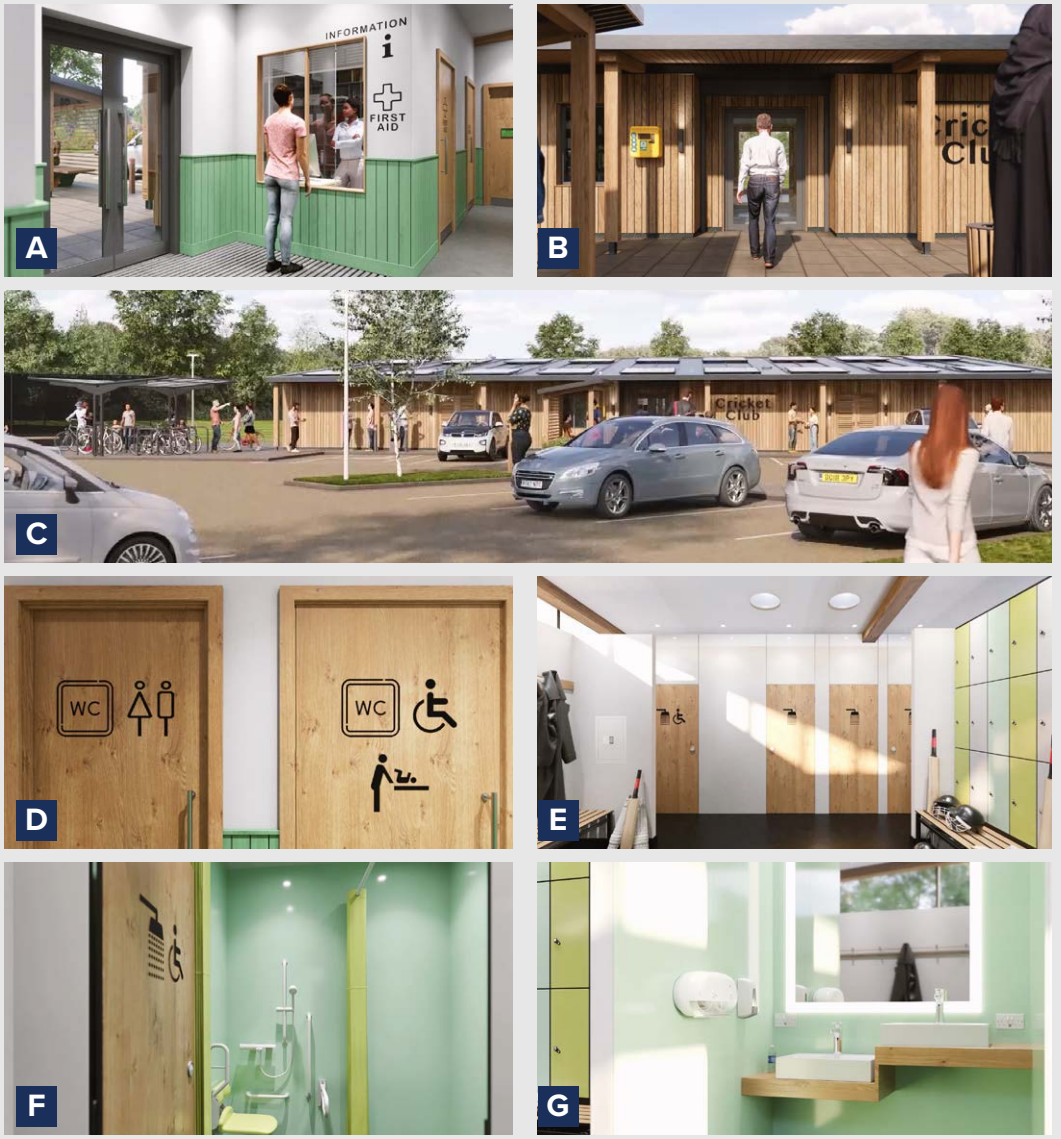

Figure 33. Extracts from ECB's Creating Welcoming Environments that show a coherent user journey through a cricket pavilion but that can be adapted to an ancillary building at a Covered Outdoor Cricket Facility (credit: Seven Architecture).

A: An accessible reception area/office.
B: An accessible and welcoming approach to the building entrance (note also sight lines through to the playing facility, externally accessible AED, lighting, signage and security shuttering.
C: Well lit, well landscaped, accessible car and cycle parking adjacent to the facility.
D: Clear signage on toilet doors indicating a unisex toilet (left) and an accessible WC with baby changing (right). Toilet signage should be raised from the door level to create tactile signage for people with visual impairment.
E: Bright, well lit changing area. For a Covered Outdoor Cricket Facility, team changing is not required and this can be scaled down. Doors to individual showers are shown, including to an accessible shower.
F: Accessible showering within an accessible changing space.
G: Sinks at different heights to support accessibility and junior use.

5.3 FIXTURES, FITTING & EQUIPMENT

For many of these facilities, spectator and secondary fixtures will be required to provide a comfortable, usable space. Below are some suggestions of items that should be considered for the facility (whether under the superstructure or in external provision):

- Padding up benches should be provided within each padding up zone. These should be near cricket bag drop shelves so that storage is easy before and after padding up.
- As referenced in Section 5.5, lockers and bag drop shelves should be provided. It would be expected that these are fixed items so that there is no risk of damage.
- The facility may require secondary seating and furniture for those seated around the facility, or for within the reception space as desks and chairs for offices.
- Vending machines should also be considered to provide snacks where necessary.
- The site will be expected to provide a bottle refill station.

5.4 FIRST AID & DEFIBRILLATOR (AED) EQUIPMENT

All Covered Outdoor Cricket Facilities must provide access to:

- A well stocked first aid kit that is routinely inspected and re-stocked in line with operator first aid procedures
- An automated external defibrillator (AED) suitable for adult and junior use.
- Both the first aid kit and the AED must be accessible at all times when the facility is in use. If access to ancillary buildings might be closed whilst the Covered Outdoor Cricket Facility is in use - external access must be provided.

Routine inspection and maintenance of the first aid and AED equipment should be carried out in line with manufacturer/supplier instructions and records of these inspections and any actions taken should be kept.

5.5 STORAGE

Whether provided in an ancillary building or as separate storage facilities, the following will require secure, dry storage that is easily accessible from the Covered Outdoor Cricket Facility.

Roller shutters might provide better access to storage space as door swings don't need to be accommodated in the layout, making the site more efficient and safer.

The following are examples of storage required, it is not an exhaustive list but is likely to include:

BOWLING MACHINES

Bowling machine equipment should always be stored separately with controlled access. A damp environment can affect the electronics of bowling machines.

The storage environment for these machines should provide:

- A heated space, with ventilation in line with the bowling machine manufacturer's recommendations via an appropriately designed system.
- Level threshold flush with external paving to minimise damage to machines while moving in and out the storage space and to improve manoeuvrability by operators. Depending on the location of the of this store, drainage to the door threshold to manage water ingress, such as a threshold drain might be required.

A typical single wheeled bowling machine is 1.6 m length, 0.95 m wide, by 2.5 m height. Therefore, the minimum suggested storage space for this would be 2 m length, 1.2 m width by 2.65 m height.

If storage is anticipated to be included as part of a larger building, considerations must be made for manoeuvrability of larger bowling machines.

PLAYING AND COACHING EQUIPMENT

Storage should be sufficient to support the anticipated formats of cricket defined in the demand analysis, such as junior, soft ball, white ball, red ball, visual impaired cricket etc. It might also be necessary for dedicated users' storage for local cricket clubs, schools etc.

Coaching equipment could include a wheeled whiteboard able to be moved in and out of the tensioned net area without difficulty.

It may be beneficial to have discussions with coaching staff to understand the requirement for these and any other on-site equipment.

All storage should be accessible by the facilities manager, but individual storage areas might have keys for dedicated user groups, e.g. a cricket club. This would control access to, and manage the use of, the equipment. This requires the storage provision has a master key facility.

PLAYING EQUIPMENT LOAN SCHEME

There may be users of the facility that do not have access to their own cricket playing equipment.

There is value to providing an equipment loan system whereby those who do not have their own equipment can borrow from the facility.

This may be as simple as providing cricket bats and balls or training cones, but could extend to the provision of some protective equipment such as gloves and pads.

The provision of any playing equipment must include a risk assessment and suitable control measures including routine inspection of condition and an assessment of suitability (requiring a range of sizes, left hand and right hand equipment and instructions on selection, fitting and use).

Note that for health and safety reasons abdominal protectors (boxes) and helmets (because if subjected to impact they could need replacement) should not be provided.

How this is organised is to be proposed by the facilities management, such as via a booking system (with the lane booking system) or via a separate management process.

Storage should be adjacent to the Covered Outdoor Covered Cricket Facility and ideally built into the other storage required on site.

MAINTENANCE AND CLEANING EQUIPMENT

Storage should also accommodate maintenance equipment e.g. carpet cleaning. The design of this space will be site specific and reflect different manufacturers' recommendations for specific equipment.

The design of all maintenance storage should be based on a risk assessment of the equipment to be stored (including manual handling, COSHH - control of substances hazardous to health and fire hazards).

5.6 SOCIAL SPACE

Whilst provision for social space is not an essential requirement (as it is in standard cricket pavilion design), provision of social space could provide a community space.

Our research shows that social spaces could facilitate community programmes where food is served or distributed such as schemes for providing food for children.

5.7 CAR PARKING & CIRCULATION

PARKING PROVISION

The National Planning Policy Framework provides a flexible approach to car parking, moving away from rigid standards and emphasising sustainability. Local authorities hold significant discretion to set context-specific standards within their Local Plans. These standards vary widely, influenced by factors like location, public transport, and local traffic conditions.

Councils aim to balance parking needs with promoting sustainable transport, often using travel plans and considering electric vehicle infrastructure. Therefore, consulting the relevant Local Plan is crucial for understanding specific parking requirements.

Parking is likely to be scrutinised as part of a planning application and may require the services of a specialist transport consultant.

ACCESSIBLE PARKING

As a minimum, accessible parking spaces should be provided for 6% of available parking or four spaces as per Sport England Accessible and Inclusive Sport Facilities. Accessible parking should be designed to BS8300.

All accessible parking should be adjacent to the sports facilities and be connected to the facility by hard surfaced pathway of sufficient width. Gravel or other loose material pathways are not suitable.

CYCLE PARKING

Secure, dry and well lit cycle parking should be provided close to the facility.

Steel 'Sheffield Cycle Hoops' should be provided at 1.0 m spacing, to allow cycle users to lock their bikes securely on both sides of the hoop.

Consider providing charging points for e-bikes.

CIRCULATION

Vehicle circulation should be suitably constructed and surfaced and should meet relevant standards (see Section 5.7).

All pedestrian access should be designed in accordance with Approved Document Part M, paying particular attention to gradient, length and rest areas on any change of elevation.

Pathways should be hard surfaced and non slip and suitably drained. Gravel and other loose material surfacing should be avoided as it is unsuitable for wheelchairs, mobility scooters, prams and other wheeled equipment.

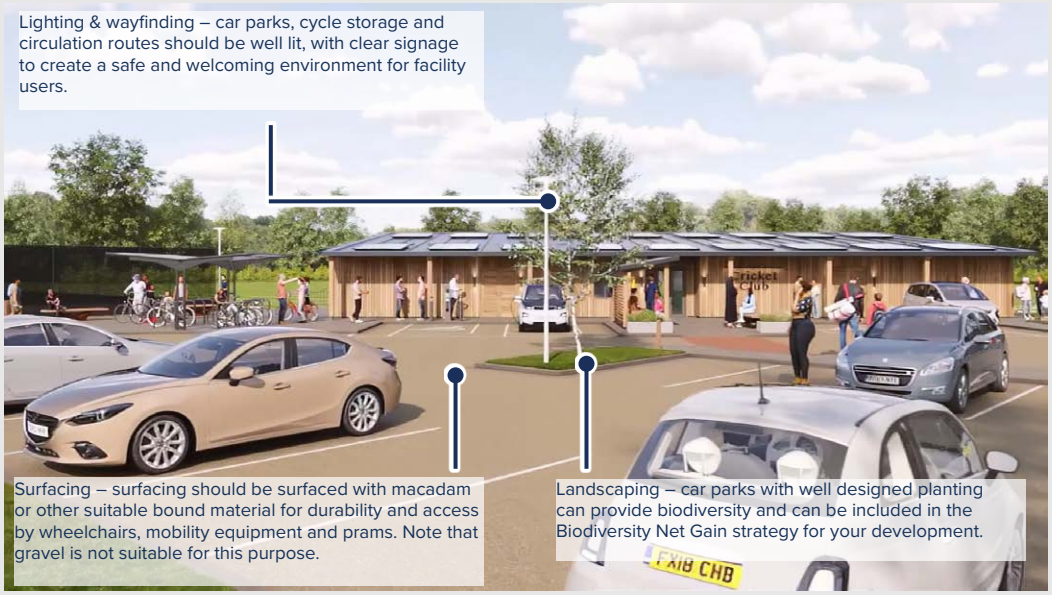

Figure 34. Example of car parking taken from ECB's Creating Welcoming Environments Guidance

CYCLE PARKING TIPS

DO

- ✓ Provide an appropriate number of cycle parking spaces
- ✓ Place cycle parking as close as possible to the primary entrance
- ✓ Ensure that there is adequate oversight lighting
- ✓ Provide secure locking points. Steel Sheffield Hoops concreted into the ground or Cyclepods.
- ✓ Provide a shelter where possible
- ✓ Provide appropriate signage
- ✓ Ensure that cycle parking is considered as part of the overall access control and monitoring systems
- ✓ Publicise your cycle parking and encourage active travel routes
- ✓ Ensure that cycle parking is factored into your maintenance schedule

DON'T

- × Assume the number of cycle parking spaces required
- × Forget to include a provision for adapted cycle parking
- × Place cycle parking around the rear or side of a building out of sight
- × Secure cycle stands to the ground using only bolts
- × Place cycle stands in a position overly exposed to inclement weather
- × Assume that bicycles are unlikely to be stolen or damaged based on your site location
- × Neglect to maintain your cycle parking

5.8 SECURITY, FENCING & ACCESS

ECB's Creating Welcoming Environments guide helps outline ways to improve the access to and use of a cricket facility.

PEDESTRIAN ACCESS

Pedestrian access should be encouraged with sufficient, well lit, pedestrian walkways and safe road crossings to create a welcoming site.

Additional paths within the site and gates in the boundary fence should be considered to improve access to existing walking, cycling and public transport route

VEHICLE AND EMERGENCY VEHICLE ACCESS

Safe vehicle access needs to be considered including space for reversing and turning of vehicles.

Fire engine access is critical. Road widths should be a minimum 3.7 m between kerbs, with gateway widths being 3.1 m minimum. Additional information can be found in Approved Document B – Access and Facilities for the Fire Service.

FENCING

To reduce the risk of vandalism and to ensure the physical safety of all users, as a minimum, the ECB would expect to see a perimeter fence with controlled access, leading to a secure and safe space for only those who are booked in to use the playing environment or to spectate.

This may be directly surrounding the facility or the site within which the facility is located.

Fencing should be anti-climb, and sufficiently robust so to discourage damage or tampering, and of sufficient height that it prevents climbing.

The fencing should be specified in accordance with a site safety risk assessment and mitigation strategy developed in consultation with site owners and operators at the design stage.

Refer to SAPCA Code of Practice for the Construction and Maintenance of Fencing Systems for Sports Facilities.

ACCESS CONTROL

Controlled access is required to ensure a safe and secure environment for all users. The controlled access solution is likely to be different for each site.

As part of access control, a booking system is required which will mean only those who are booked to access the facility for a particular net session or match play can access the site.

The time slots for this booking system should be considered, with the potential for cross over time to allow for those leaving the site to do so before the next group arrive.

It should also be possible to book the whole facility for those user groups who require additional privacy and security.

The primary choice for access control is between staff-managed or electronic 'smart' access control (using an app or access control code).

The access control system could include access via a keypad, swipe card or reception point with a barrier, gate or door.

Linking an online or app-based booking system to the facility access controller can simplify day to day management.

Consideration should also be made for alternative methods of access and booking for disabled users. This could be a printable code, app or online and should be discussed with operators and equipment suppliers.

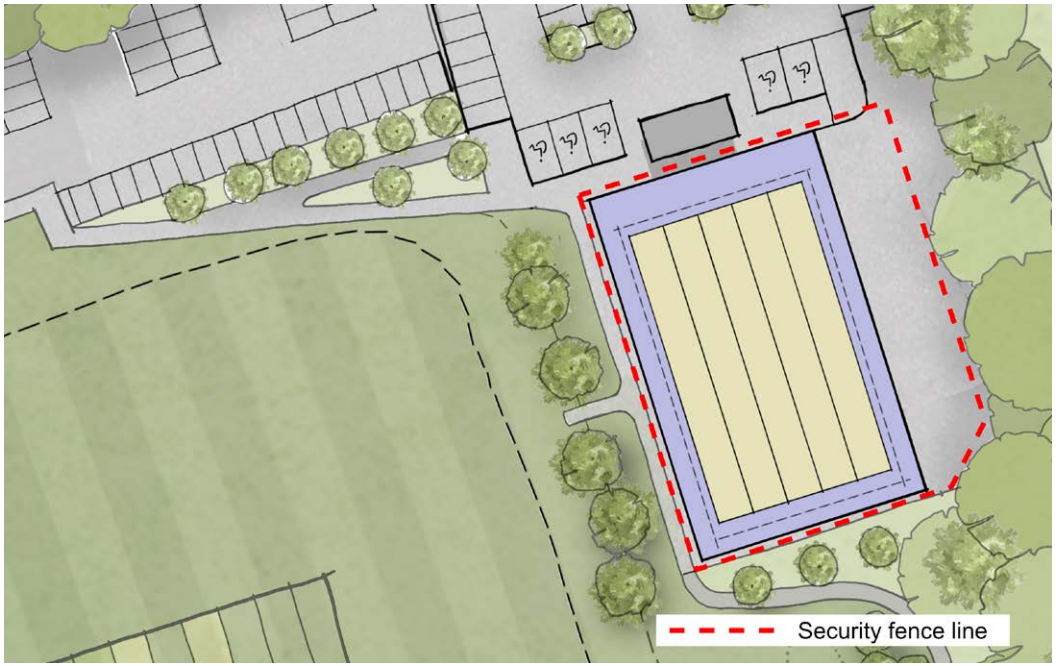

Figure 35. Indicative fencing layout around a Covered Outdoor Cricket Facility. In this example additional spectator and storage space is encompassed to the east of the facility. Depending on wider site usage the ancillary building could be included in the fence line, but that will vary site to site.

All access control systems should be coordinated with lighting and emergency lighting systems.

CCTV

While there might be background surveillance from any reception building or staff on site, CCTV should be installed to important areas of the facility. These will include areas such as the main entrance to the site, any entrances/ exits for a reception (if there is one), and several viewpoints of the facility itself.

Recording should be standard.

Any CCTV should be evidence quality recording, with on- and off-site recording (cloud automatic upload as an option). Note that any CCTV should be in main areas and not for changing areas or WCs to ensure participants are protected but privacy is maintained.

There should be a relay feed from the playing environment into any reception facility or site manager office. In the event that any site manager or site staff are not on site / elsewhere on site remote access should be provided.

5.9 SIGNAGE AND WAYFINDING

See Section 6.2.

5.10 DESIGN LIFE & WARRANTY

See Section 6.1.

6.0 ESSENTIAL DESIGN CONSIDERATIONS

6.1 DESIGN LIFE & WARRANTY

DESIGN LIFE AND LIFE CYCLE

Maximising design life of the facility will maximise the benefit of investment and minimise life cycle costs to both financial resources and the environment.

Recommended minimum design life and warranty periods for a Covered Outdoor Cricket Facility are in Table 6.

Design life varies with function, materiality, cost and usage. Components such as the structure and substructure have a longer design life than components such as the sports lighting and higher wear components such as the netting and playing surface.

It is expected that during the full facility life cycle, replacement of canopy roofing fabrics and in particular the playing surface will be required. Full life cycle cost analysis should be carried out at both feasibility and design stages when selecting materials, systems and products.

For any particular system, replacement cycles are a function of environment, usage (both intensity and type of sport) and maintenance.

Operating models must include appropriate sinking funds to replace these and other components. The size of these sinking funds must reflect anticipated replacement cycles based on these factors.

WARRANTY

Quality contractors and product suppliers will provide product and workmanship warranties for their products and construction projects based on minimum life cycle periods, durability and the quality of their work. Generally, better quality products and work will carry longer warranties, but these will vary with construction type and supplier.

Recommended minimum warranty periods are shown in Table 6.

Pay careful attention to what is covered and whether there is any depreciation over time when comparing warranties from different suppliers.

Warranties for the superstructure must include a structural warranty that covers collapse of the structure, not just materials and quality of construction work.

Table 6. Recommended Minimum Design Life and Warranty Periods for Covered Outdoor Cricket Facility Components

Component	Minimum Design Life	Minimum Warranty
Superstructure[1]		
Frame and foundations	25 years	20 years
Roofing/canopy material	20 years	10 years
Playing surface		
Sub-base	25 years	15 years
Shockpad and carpet	8 years	5 years
Tensioned netting (whole system)	10 years	5 years
Practice netting (whole system)	10 years	5 years
Sports lighting		
Luminaires	20 years	10 years
Cabling	20 years	20 years
Control and protection systems	20 years	10 years
Ancillary buildings		
Structure and fabric	25 years	25 years
Plant	5-10 years	Varies
Fixtures and fittings	10-15 years	Varies

[1] Warranties for the superstructure must include a structural warranty that covers collapse of the structure, not just materials and quality of construction work.

6.2 SIGNAGE & WAYFINDING STRATEGY

A coherent and effective signage and wayfinding strategy is an essential component in delivering positive user experiences at your venue.

Signage is used to provide information to visitors to your facility whether they are participants, coaches, match officials, spectators, maintenance contractors or emergency first responders.

It is also important in establishing your brand and those of any commercial partners.

Wayfinding signage is an essential component in making visitors to your facility feel welcome. This could be a direct 'Welcome!' sign but wayfinding signage is focussed on helping people navigate their way around your venue, perhaps for the first time. Being able to do this can prevent disorientation which can cause anxiety, particularly in those with sensory needs.

Wayfinding signage also helps to create and maintain good flow around your facility, which can help to ease queuing, and improve user experience.

ACCESSIBILITY

Signage, and accessibility to signage is essential for a welcoming facility. Sport England point out that 'People with sensory conditions such as hearing, sight or speech impairments, learning disabilities, or sensory processing difficulties rely on clear signage to move around and use a facility independently'.

Anyone who is lost or disorientated is likely to become anxious, particularly if they have a sensory condition. Clear, high contrast, effective and accessible signage that uses a combination of symbols and words enables everyone to independently access and enjoy your venue.

IMPORTANCE OF STRATEGY

Signage will need to support wayfinding by:

- Orientating (maps and directional signage to help locate and orientate).
- Direct (indicating direction to something).
- Locate and identify (signage that confirms place or facility).
- Inform and comply (with law or facility rules such as footwear, equipment etc).
- Emergency evacuation (as required by law).

A good signage and wayfinding strategy will provide coherence for signage of different types throughout your facility and is as critical as the content of the signs themselves.

KEY REFERENCES

Two essential best-practice guides on the design of effective and accessible signage for sports facilities are:

- Part E 'Wayfinding and signage' of Sport England's Accessible and Inclusive Facilities guidance
- The Sign design guide+: a guide to designing inclusive wayfinding information, published by the Sign Design Society (2024) provides

Refer to these documents when designing your signage and wayfinding strategy.

6.3 DESIGNING FOR SAFETY

IDENTIFYING AND MANAGING HEALTH AND SAFETY RISKS

Good design will minimise the risk of harm during both construction and operation of any sports facility.

Where these risks cannot be eliminated, the designer has a duty to minimise and control these risks to as low as practicably possible. This is referred to as 'residual risk' and under the Construction Design and Management Regulations, the designer is required to communicate the residual risks to both the construction contractor and to the operator.

This is often achieved by the designer carrying out a Residual Design Risk Assessment and this being included in both the pre-construction documentation (to inform the contractor) and in the Health and Safety File at practical completion of the project (to inform the client and/or operator).

Figure 36. Example net safety signage from the Indoor Cricket Centre at Lord's. This is an example of 'Inform and Comply' type signage that helps to convey key safety information and sets out key hazards and what behaviours are required for safe facility use and to control risk.

CRICKET-SPECIFIC CONSIDERATIONS

Whilst the general principle of minimising and controlling risk that cannot be eliminated applied to the whole project, there are cricket specific risks that need to be considered by the designer and the operator.

Ball strike is the primary risk in cricket. This occurs because the ball is hard and can be bowled and hit at relatively high velocities.

Two key controls are behaviour and environment, and the designer has influence over both and should work with the operator to minimise risk.

Cricket protective playing equipment, and established and common cricket behaviour (when training and playing cricket) is designed to minimise this risk.

It is essential in all cricket environments that suitable protective equipment is worn and that players are continually watching the ball (including those in adjacent nets), particularly when a hard ball is used.

The design approach to Covered Outdoor Cricket Facilities has taken this into account and is designing to mitigate against risks through the appropriate design of the facility, and control behaviours.

The design approach of including practice netting, tensioned netting, blinkers, sight screens and performance sports lighting minimises this risk to players, spectators and others in the vicinity of the facility.

However, the designer should consider that the risk of ball strike is highest:

- As people either enter or exit the playing environment (because their focus is not (the tensioned net area)
- When spectators are stood too close to perimeter netting (particularly during matchplay).

Consideration of the way in which people will circulate around the facility is therefore paramount.

SAFETY ZONES

Designers can use signage and changes in surface colour to indicate where risks have changed. Physical barriers such as fencing can also be used to indicate changes between areas where ball strike risk is increased.

Outside the tensioned net a 'safety zone' of a minimum 1 m width prevents anyone getting hit by a ball. This is an important safety feature, and it should be delineated visually to discourage those nearby to avoid standing within it.

Note that this will need to be increased to at least 2 m to allow safe emergency evacuation from the batting end of the facility.

SIGNAGE

Signage plays a critical role in both emergency evacuation and safe enjoyment of the facility.

Safety risk can be controlled by a combination of:

- Emergency evacuation signage,
- Informational signage ('beware you are entering a live cricket ball area', 'bag drop area'), and
- Instructional signage (e.g. 'do not pad up inside the playing area', 'pad up here')

Signage should be accessible. See Section 6.2.

INDUCTION

It is recommended that you have a facility induction for new users.

This should cover safe entry and exit to the space, the use of protective equipment during play or practice scenarios, distinctions between live and dead ball scenarios, and any other facility-specific safety issues.

This could be organised as a face-to-face talk or a video for new users, with additional signage around the facility. This is an important aspect to add to any risk assessment and health & safety strategy for the facility.

PLAYER COMFORT

The facility environment considerations of open sided covered structures without mechanical heating and ventilation are detailed in Section 4.1.

Participants will also need to adapt to these changing conditions, for example clothing in winter temperatures.

Be aware that temperatures will affect different participants differently – for example, during the winter, players running around will be able to keep warm more easily than coaches who are more static. This is reversed during high summer temperatures when all users will benefit from shade and reduced UV exposure, but players will be heating up more through exertion than coaches.

6.4 DESIGN FOR SAFEGUARDING

All children and adults have the right to be safe from abuse and protected from harm. This principle is enshrined in ECB Safeguarding Strategy.

Facility designers must consider safeguarding in their design. Key considerations for safeguarding are:

- Maintaining line of sight wherever possible so that coaches and other responsible adults can maintain a view of those in their charge.
- Containment - without prejudicing emergency evacuation procedures and reasonable access - protecting site users from intruders and helping coaches and responsible adults to contain young children within the facility is important.
- It is also important that children and vulnerable adults do not inadvertently access the tensioned net area whilst live cricket sessions, particularly with a hard ball, are in progress.
- Control can be supported with fencing, access control, signage, induction and operating controls for users.
- Privacy where appropriate - all changing and toilet areas should provide privacy and be operated in accordance with ECB Safeguarding systems - for more information see online resources here
- Note that some users may require privacy for padding up (particularly insertion and removal of abdominal guards and thigh padding). Changing space should be made available for this purpose.
- Operating procedures and signage should be based upon best practice guidance see here.
- Managed bookings - some groups will prefer dedicated sessions, for example women-only sessions or sessions for children with neurodiversity.

A combination of flexible booking systems, access control systems and retractable privacy screening can be used by operators to provide such sessions. Operators should allow suitable overlap periods between restricted and other sessions.

6.5 ACCESSIBLE AND INCLUSIVE DESIGN

Accessible and inclusive design is core to all ECB facilities guidance. ECB is working to improve accessibility of spaces, through guidance like Creating Welcoming Environments.

Core to our approach is the Social Model of Disability in which it is the environment, systems and behaviours of society that limit accessibility - rather than the Medical Model of the individual's particular disability(ies).

Twenty-five percent of the UK population has a disability. By adopting inclusive design practices, designers can help to make facilities accessible to as many people as possible from the outset.

In addition to Creating Welcoming Environments three other key references for accessible and inclusive design are:

- Sport England's Accessible and Inclusive Sports Facilities.
- Building Regulations Approved Document Part M.
- BS8300 (Part 1 External Environment and Part 2 Buildings).

All facilities should be developed with the principle that they are independently accessible to all members of the community.

Below are some areas of consideration for the facility which can be covered by selection of the right fixtures, fittings or equipment:

VISUAL IMPAIRMENT

Colour contrasting should consider structure such as walls, doors and floors within any facility and reception (if required), in line with building control Approved Document M requirements. All seating and sanitary facilities should contrast with their background. Further guidance can be found in BS8300.

Where Visual Impairment Cricket is to be played, appropriate acoustic mitigation should be in place to allow for match play and training for visually impaired players to be able to hear the ball and surroundings in a safe environment

HEARING IMPAIRMENT

The use of hearing loops within a reception facility is required. Consider a combination of visual and audible alarms in emergency systems.

WHEELCHAIR USERS

Level access is a priority for sites, but where necessary ramped areas could be provided as per Approved Document M.

Wheelchair users should feel comfortable and able to independently access all parts of the site. Changes in level should be kept to a minimum, with no more than 1.2 m for independent use. Where the rise is 300mm or more then alternative steps are required.

NET ACCESS FOR WHEELCHAIR USERS AND PEOPLE WITH AMBULANT DISABILITIES

To allow for wheelchair users and people with ambulant disabilities, the access points to the nets must be made to allow for open safe access without the use of 'slip' points (highly elasticated nets entrances that need to be pushed or leant into to gain access) which are considerably less accessible. See Section 4.11 for more detail.

NEURODIVERGENCE

A quiet room can be provided as a calm environment to escape and for regeneration. It should be designed as a low stimuli quiet space with higher stimuli optional additions by choice.

Figure 37. With inclusive design your facility will be accessible to participants, spectators and visitors with disabilities

For more guidance on quiet rooms and sensory spaces see Sport England's Accessible and Inclusive Sports Facilities.

They should be designed with flexibility to allow the user to adjust key elements to their sensory needs, particularly the level of stimulation with finishes and fittings that should not overstimulate the senses and through lighting adjustments and removal of some visual aspects.

Storage should be provided to remove clutter. It should be in a location free of odours and low background noise.

AGE, CULTURE, RELIGION

The demographic of the users should be strongly considered during the design but should be made accessible to all. The use of privacy screening, level access, individual gendered and universal WCs and changing will all provide more widely usable space for those who want to use it.

The ECB encourages the inclusion of multi-faith spaces within pavilion and ancillary buildings. Designed carefully (and paying particular attention to storage and the avoidance of fixed religious symbolism) this can be combined with a Quiet Room - see Sport England Accessible and Inclusive Sports Facilities (Part C) for detail.

6.6 ACOUSTIC CONSIDERATIONS

KEY ACOUSTIC REQUIREMENTS

Covered Outdoor Cricket Facilities are by design open. This means that there are acoustic considerations that should be included at the design stage.

Figure 37 illustrates how these acoustic considerations can be categorised into two types:

1. **As a Noise Receiver:** ensuring that noise from external noise sources does not adversely impact and limit the use of the facility, particularly for noise-sensitive users.
2. **As a Noise Source:** ensuring that noise from the facility does not adversely impact nearby noise sensitive receivers.

Both are governed by site selection. Noisier sites are likely to prove more challenging in the first case, whereas quieter sites are likely to make adhering to the second point more challenging, particularly where there are noise-sensitive neighbours that should be considered. Both require careful consideration to ensure the successful operation of the facility.

The following section outlines key design considerations and references to additional documents which should be referred to for appropriate guidance.

Acoustic considerations can be very site-specific and it may be necessary to appoint an acoustic consultant at the design and planning stages to determine suitable mitigation solutions.

NOISE INGRESS

The facility is not considered to be especially sensitive to noise with respect to disturbance, however as the facility is used predominantly as a sports facility and is used by groups of two or more at a time per lane, the need for clear speech communication between users is the key requirement to ensure the facility is fit for purpose.

Speech intelligibility is a function of the strength of the speech signal against the ambient noise in the climate. As the signal is limited by the vocal power of users, the only other factor that can be influenced by the design of the facility is therefore the ambient noise levels, which are the noise levels the facility will experience.

Acoustics of Schools: A Design Guide provides guidance on suitable noise levels within playing fields where it states that “Noise levels in unoccupied playgrounds, playing fields and other outdoor areas should not exceed 55 dB $L_{Aeq,30min}$”.

It is therefore recommended that ambient noise levels do not exceed 55 dB $L_{Aeq,30min}$ to ensure that reasonable levels of speech intelligibility can be achieved.

This will be dependent on the type of site, and proximity to surrounding ‘noisy’ areas, so some sites may not be suitable, or may need additional mitigation to provide a suitable facility for visually impaired cricket.

As the facility is likely to feature a lightweight tensile fabric roof, rain noise onto the canopy could result in a significant rise in noise within the facility during rainfall.

This will increase background noise levels, reducing speech intelligibility and the distances over which speech can be clearly heard between users. Users are naturally likely to raise their voices to overcome this to a degree, but this is effectively a limitation of this type of facility.

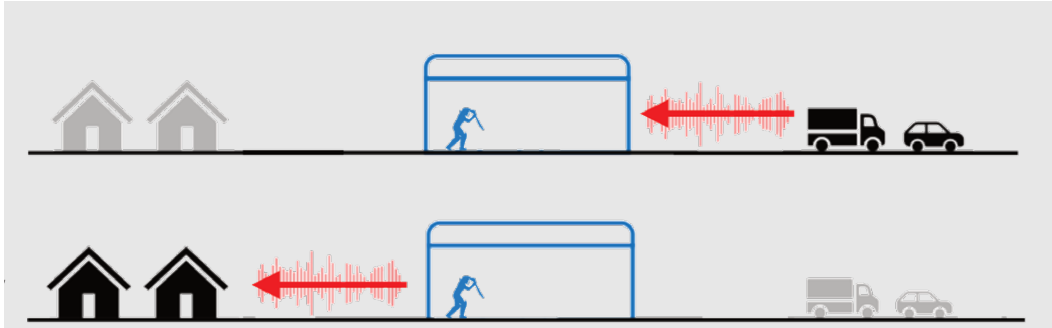

Figure 38. The two principal noise considerations are: 1. (top) The facility as a noise receiver, in which external noise adversely affects participation, coaching or spectator experience; and 2. (bottom) As a noise source, in which noise from the facility could adversely impact nearby noise sensitive receivers.

VISUALLY IMPAIRED CRICKET

It is important to consider the use of the facility for visually impaired cricket. While the above section provides standard acceptable noise levels for school design, visually impaired cricket requires a lower noise level for the ball to be heard during play without ambient noise disruption.

NOISE POLLUTION

In a case study of an existing Covered Outdoor Cricket Facility at Park Avenue Cricket Club in Bradford, noise from the facility has been observed predominantly to be made up of the following:

- Bats striking balls
- Balls either struck or missed striking the surrounding netting
- Verbal instruction between bowlers and batters and general vocal noise within and between groups of users

The sound of balls being struck by bats is subjectively the most distinctive sound characteristic associated with the facility.

As this is impulsive and intermittent in nature it is likely to remain subjectively audible in the majority of local noise climates immediately around the facility.

The sound of balls both struck by the bat missed then making contact with the blinkers or netting, exhibits similar characteristics. Subjectively this has been observed to be much quieter and does not typically occur as frequently.

Vocal noise between bowlers and batters and other groups of users is another part of the noise climate observed to be typical of many other outdoor sports facilities.

NOISE SENSITIVE RECEIVERS

A noise sensitive receiver is any nearby building or area that has the potential to be adversely affected by noise pollution from the proposed development. This can include, but is not limited to, any of the following:

- Residential dwellings
- Schools
- Offices
- Hospitals
- Place of Worship
- Parks

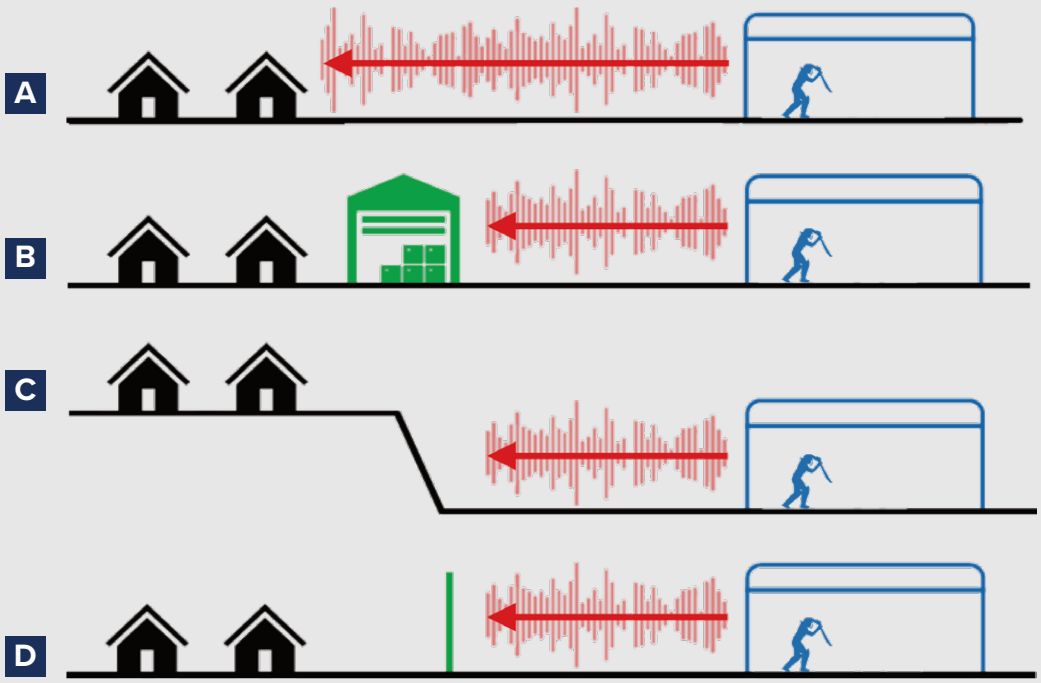

Figure 39. Example noise mitigation strategies for a Covered Outdoor Cricket Facility.
A - unacceptable noise breakout adversely impacting upon neighbouring noise sensitive receivers.
B -acceptable noise breakout where a non-sensitive building forms an acoustic screen to neighbouring noise sensitive receivers.
C - Acceptable noise breakout where topographical features form an acoustic screen to neighbouring noise sensitive receivers.
D - Acceptable noise breakout where a proprietary acoustic fence forms a screen to neighbouring noise sensitive receivers.

ASSESSMENT AND CRITERIA

An acoustic assessment and mitigation strategy may be required by the local planning authority.

The National Planning Policy Framework (NPPF) in England and Planning Policy Wales (PPW) should be referred to for guidance.

Additionally, many local authorities will have specific conditions and guidance relating to noise pollution from sports activities, therefore, any local authority requirements relating to the assessment of noise pollution from sports facilities should be considered for this type of a facility and assessed where necessary and compliance with these requirements should take priority.

In the absence of any other guidance, however the WHO Guidelines for Community Noise recommend an upper noise limit of 50 dB $L_{Aeq,1hour}$ in residential properties and external living areas such to avoid moderate annoyance in the daytime and evenings.

Noise breakout from the proposed development should be assessed by a suitably qualified acoustic consultant in line with the methodology provided in Sport England Acoustic guidance.

MITIGATION STRATEGIES

Whilst the selection of an appropriate site is the key requirement for the facility, there are a number of mitigation strategies that can be employed to increase the feasibility of certain potential sites, support the use of the facility, and reduce any disturbance to nearby noise-sensitive receivers.

It should be noted that all of these strategies will work in both directions: they can be used to both reduce noise impact on the facility, and reduce the impact the facility has on nearby noise-sensitive receivers.

1. Distance – as distance increases the sound from any given noise source reduces. Therefore, greater distances from a noise source will result in lower noise levels at any given receiver.

On larger sites this should be considered first of all, where the facility should be situated as far from a dominant noise source or a noise-sensitive receiver as practically possible.

2. Screening – screening between a noise source and a receiver can reduce the propagation of noise. Whilst screening can take many different forms, the aim is to break the direct line of travel between a noise source and a receiver.

Screens are most effective when they are close to either the noise source or the noise-sensitive receiver because the attenuation provided is a function of the path difference between the direct sound path and the path that sound now has to travel to pass over the top of the screen

Screens can take variety of forms, such as:

- Significant changes in topography
- Buildings
- Proprietary acoustic screening such as acoustic fencing

FURTHER GUIDANCE

In addition to the guidance outlined above and appointing a suitably qualified acoustic consultant to support the development of nay new schemes, the documents below which have been referred to within this guide are recommended for further guidance.

- Sport England – Artificial Grass Pitch (AGP) Acoustics – Planning Implications
- Acoustics of Schools – A Design Guide
- WHO Guidelines for Community Noise
- BS8233:2014 Guidance on sound insulation and noise reduction for buildings

6.7 SUSTAINABLE DESIGN

Tackling climate change, managing resources sustainably and protecting and enhancing the natural environment are key priorities of the ECB Environmental Sustainability Plan for Cricket.

We encourage all designers and developers to make their cricket facilities sustainable.

Within this guidance, we have reviewed numerous aspects of the Covered Outdoor Cricket Facility and made recommendations on ways to minimise environmental harm and maximise environmental benefits.

LIFE CYCLE ASSESSMENT AND MATERIAL SELECTION

When considering the sustainability of a facility, it should be viewed over the whole life cycle of that facility from the source materials, through construction, to use and ultimately end of life.

Whilst detailed life cycle analyses often require teams of people tracing the source of every component - a broad life cycle analysis is a useful sustainable design tool.

The aim is to establish the environmental impact from 'cradle to grave'. This requires an understanding of how materials are sourced, manufacturing processes, the construction process itself, how maintenance affects life span and what happens to components at end of life - can they be reused, recycled, or do they have to be disposed of in landfill or waste-to-energy plants.

Sustainability can be improved by:

- Using materials that are sustainable and from sustainable sources.
- Maximising the lifespan of component materials and the facility.
- Reusing or recycling materials at end of life.

When designing a Covered Outdoor Cricket Facility, it is important to consider the environmental impact of the materials used. These impacts can come from the nature of the materials themselves, their sourcing, their manufacture or how (and how far) they are shipped to your project site.

Careful selection of materials in the playing surface, super structure frame and the roofing/ envelope can reduce environmental impacts.

Work with material suppliers to assess sustainable solutions that meet the technical requirements. Where possible source locally to minimise and reduce transport distances from source to site.

There are key components of the system that because of their materials, or their scale (whether area, volume or mass) should be the main focus:

- Substructure – in particular the concrete foundations but also the mineral and macadam components.
- Superstructure and envelope which can include both steel and PVC elements
- Playing surface and netting.

Maintenance and usage both affect life cycle and are interrelated - with more usage requiring more maintenance.

It is vital that facility operators follow maintenance schedules provided in the Operation and Maintenance (O&M) manual provided at handover (practical completion) of the facility construction. Not having, and following, a maintenance strategy can significantly reduce life span of the facility and its components.

The more a facility is used, the more maintenance is required, and there is an increased frequency of replacement over time. For example, the playing surface will receive more wear from more frequent foot fall and ball impacts.

It is important to respond to the needs of the specific facility and generate a strategy for maintenance and replacement following discussions with the specific manufacturers.

A sinking fund will be required to ensure this is covered.

WHOLE LIFE CARBON

A whole life carbon assessment is a particular form of life cycle assessment that calculates the embodied carbon at key design and life cycle stages.

The Royal Institution of Chartered Surveyors (RICS) sets out an industry recognised standard for carrying out these calculations and the Institution of Structural Engineers has an embodied carbon calculator that enables to engineers to carry out whole life carbon assessments of your project.

The calculations can be used as a basis for assessing the embodied carbon in the project and allowing alternative, more sustainable materials to be adopted should these be cost effective.

ENERGY EFFICIENCY OF STRUCTURES AND BUILDINGS

Structures and buildings should consider the method of construction, materials used and operation to maximise energy efficiency. Energy efficiency can be enhanced by:

- Including effective thermal insulation in the building fabric, particularly walls, ceilings and roofs.
- Selecting energy efficient windows and doors.
- Effective and efficient sealing of the building.
- Installing energy efficient and low carbon water and space heating technologies such as air-source heat pumps and heat recovery systems.

These approaches can help to reduce greenhouse gas emissions, the embodied carbon associated with the building and operating costs (such as heating bills).

RENEWABLE ENERGY

On site renewable energy generation should be considered where practical. Solar Photovoltaic (PV) systems can be used to supplement external energy supply to the site.

As the UK national grid continues to de-carbonise, the proportion of electricity supplied to a site that is from renewable sources is increasing. Operators can consider electricity supply contracts that are from 100% renewable sources.

SUSTAINABLE TRANSPORT PLANNING

Transport to site is an important aspect of social and sustainable considerations.

Thinking beyond the car and car parking, the proximity and connection to more sustainable transport solutions will increase access and help to reduce greenhouse gas emissions. Examples include:

- proximity and access to public transport networks,
- connection to cycle routes and access to cycle storage / locking facilities
- Safe, well-lit pedestrian access.

For more information see Sections 2.2 and 2.11

Figure 40. Bradford Park Avenue: ECB Inaugural Pilot Covered Outdoor Cricket Facility

FLOODING, RAINWATER HARVESTING AND SUDS

It is recommended that Covered Outdoor Cricket Facilities should not be constructed on sites at risk of flooding (whether form rivers, sea or surface water). Where this is necessary, and subject to planning conditions, there are a number of design considerations including finished floor level, accessibility and protection of infrastructure (including electrical installations) that will need to be considered.

Nor should the facilities contribute to flooding down stream by increasing rates of drainage discharge to local water networks.

Refer to Section 2.7 for more information on flood risk assessment at the site selection stage.

SUDs and Rainwater Harvesting should be considered by the project civil engineer and MEP engineers where viable.

Section 4.7 provides details on how to incorporate attenuation and other sustainable urban drainage solutions (SUDs) into the drainage strategy for your project. This will help to slow the rate at which drainage water reaches wider networks such as surface water sewers and watercourses, reducing the risk of flooding downstream.

Rainwater harvesting can be used to make use of drainage water on site. This could be to flush toilets in changing facilities or to provide irrigation to adjacent natural turf sports facilities on site for example.

BIODIVERSITY NET GAIN (BNG)

Added to the National Planning Policy Framework in 2024, biodiversity net gain (BNG) is an important consideration for any potential site.

As part of the planning process, applicants will have to provide a biodiversity net gain assessment to prove that they are improving the biodiversity by at least 10%. Government guidance describes three ways in which developers can achieve this 10% improvement:

- Developers can create biodiversity on-site (within the red line boundary of a development site).
- If developers cannot achieve all of their BNG on-site, they can deliver through a mixture of on-site and off-site. Developers can either make off-site biodiversity gains on their own land outside the development site, or buy off-site biodiversity units on the market.
- If developers cannot achieve on-site or off-site BNG, they must buy statutory biodiversity credits from the government. This should be a last resort. The government will use the revenue to invest in habitat creation in England.

An environmental / ecological consultant will be able to make recommendations on on-site options and where necessary off-site solutions and credits. There are several ways that this can be done and should be discussed with a landscape architect when required prior to planning.

Refer to Sport England Guidance on achieving Biodiversity Net Gain compliance on sports facility development projects.

6.8 ECB TECHNICAL SUPPORT

For more information on the design and development of Covered Outdoor Cricket Facilities contact:

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The ECB gratefully acknowledges the following contributions to the development of this guidance:

gcp Chartered Architects (project lead)
Skeletal Consulting Engineers
Jane Simpson Access Ltd
Ridge and Partners LLP
MACH Acoustics
Qualitas Compliance

ECB