



## **The SAPCA Code of Practice for the Construction of Padel Courts**

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## The Sports and Play Construction Association

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### The LTA

The Code of Practice for the Construction of Padel Courts has been produced in consultation with the LTA and is recognised and supported by the LTA for the construction of padel courts in the UK. The LTA are the officially recognised national governing body for padel.

The LTA provides free advice and guidance on tennis facility development. For further information, please contact the LTA on 020 8487 7000.

### Disclaimer

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# The SAPCA Code of Practice for the Construction of Padel Courts

## Definition of terms

<b>The padel court</b>	A padel court is defined as an area 20m long x 10m wide enclosed above ground with either solid rebound walls and mesh panels, or more commonly now a combination of glass and weld mesh rebound wall and fence panels, supported on steel or aluminium posts fixed to a concrete foundation with an artificial turf playing surface.
<b>Total playing area</b>	20m x 10m (excluding the 'out of court' area)
<b>Out of court area</b>	Additional playing area outside the total playing area adjacent to the net, on either one side or both sides of the court.
<b>Formation</b>	The prepared natural ground on which the court is built.
<b>Base</b>	The foundation of the court, normally formed from graded aggregates over a geotextile membrane.
<b>Drainage</b>	The system of underground pipework designed to remove surface water from the playing surface and sub-base construction to a suitable outfall or external drainage system.
<b>Asphalt binder course</b>	A layer of coarser asphalt that is laid on the base to provide stability and strength to the finer grade asphalt laid on top of it; used to be known as the base course.
<b>Asphalt surface course</b>	A layer of 6mm asphalt laid either as the playing surface or as the receiving layer for a synthetic surface; used to be known as the wearing course.
<b>Artificial turf</b>	A sand dressed, or sand filled carpet manufactured from polyethylene or polypropylene yarn, normally of tufted construction.
<b>International Padel Federation</b>	The world governing body for the sport of padel
<b>Enclosure or superstructure</b>	The above ground level part of the padel court that surrounds the court.

## Preamble

The Sports and Play Construction Association (SAPCA), in conjunction with the LTA, has produced this document to provide prospective clients, designers and specifiers with guidance on the basic construction requirements and specifications currently employed in building padel courts. The standards outlined throughout the document have been recognised and supported as the minimum level for the construction of padel courts in the UK.

The document calls on the experience of SAPCA member companies, who have constructed a wide range of installations for a variety of clients over many years. The requirements of the various sports' governing bodies and the relevant standards organisations are incorporated, where appropriate, in the document.

While it is not intended that this document should become part of a contract, it is believed that it will prove useful in the selection of an appropriate padel structure and playing surface and form a useful reference in the design and construction process.

### Notes to be read in conjunction with the Code of Practice.

- This Code of Practice is intended for use by tennis and padel court contractors, sports facility design professionals and padel court purchasers and owners. The Code of Practice should not be used as a substitute for carrying out appropriate surveys and obtaining professional advice in individual circumstances. Although the Code of Practice has been produced by reference to padel courts constructed under normal climatic conditions in the United Kingdom, the Sports and Play Construction Association cannot accept any responsibility whatsoever for any loss, damage or injury howsoever caused arising from reliance on the specifications within the Code of Practice.
- The Code of Practice provides a minimum standard of specification and proficiency which members of the Sports and Play Construction Association are committed to meeting. As guideline specifications, however, they do not supersede a reasonable interpretation of the specification and terms of contract applied in each contract. For individual projects, variations in climate, soil conditions, topography and other site-specific conditions may necessitate standards of specification greater than those recommended within the Code of Practice.
- Parties not experienced in padel court construction are strongly advised to consult qualified contractors and/or sports construction consultants. Details of experienced padel court contractors and sports construction consultants can be provided by the Sports and Play Construction Association.
- The term “asphalt” is the internationally accepted technical name for all surfaces which are composed of a mixture of bitumen and stone.
- In accordance with common practice within the construction industry, the depth of any individual construction layer is specified within the Code of Practice as the nominal compacted depth. The nominal depth can be regarded as the design depth of a layer of construction within a tennis/padel court, within the applicable tolerances’ margins.
- In the interests of clarity and consistency, the minimum compacted depth is also specified, to define the tolerance on the design depth that is considered acceptable. It is intended that the consistent use together of the terms “nominal compacted depth” and “minimum compacted depth”, by contractors and consultants alike, will help to avoid any confusion when competitive quotations are being examined.
- The information contained within the Code of Practice, while accurate at the time of publication, may be subject to change at a future date. Due to changing technologies and new developments in construction methods, revisions to the recommendations are likely and only the most recent edition of the Code of Practice should be used.
- SAPCA will keep under review the use of the Code of Practice and will consider any suggestions for amendment, which should be addressed to the Chief Executive, The Sports and Play Construction Association, The Hexangle, Stoneleigh Park, Warwickshire, CV8 2LG. Revision to the Code of Practice will be made when such action is considered appropriate.

## The Sports and Play Construction Association (SAPCA)

As the recognised UK trade association, SAPCA fosters excellence, professionalism and continuous improvement throughout the sports and play construction industry, ensuring provision of high-quality facilities necessary for the success of British sport.

### SAPCA's Aims and Objectives

- To promote high standards of design, construction and workmanship for sports facilities in the UK.
- To regulate the industry through the vetting and monitoring of SAPCA members.
- To participate fully in the development of British, European and other standards for the construction and performance of sports facilities, for all levels of play.
- To liaise closely with the governing bodies of sport, both nationally and internationally.
- To encourage the use of new technology in the design and construction of sports facilities.
- To provide and support training and education for the industry's workforce.
- To provide a strong voice for the sports construction industry in the UK.

### [www.sapca.org.uk](http://www.sapca.org.uk)

The SAPCA website ([www.sapca.org.uk](http://www.sapca.org.uk)) provides a wealth of valuable information for anyone involved in the development of sports facilities.

### Further information

SAPCA operates through its own full-time administration. For further information, including a list of members, please contact SAPCA at the headquarters address below.

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## Introduction

From the first considerations regarding the construction of a padel court through to completion, a clear understanding is required of the process. The processes and decisions that need to be made can be complex and will depend upon many contributing factors.

- Section one details the construction guidelines for a padel court from design through to construction. It covers such detail as dimensions, orientation, topography, drainage, base, foundations for the enclosure and type of playing surface that should be considered when constructing a padel court. It also specifies the requirements for the enclosure and the combinations of glass panels, weldmesh and rebound fencing. The general requirements of the playing surfaces are also detailed: evenness, porosity, shock absorption and rotational friction. The diagram on the following page outlining the project journey is designed to help potential clients make the correct decisions at the right times by looking at the ideal routes a project may take from proposal to completion and the information required at each stage.
- Section two considers the sports lighting requirements for padel courts.
- Section three considers the requirements for indoor structures or coverings for padel courts such as a canopy.
- Section four details a checklist to consider when designing and constructing a padel court.

## Construction of a Padel Court

### Project brief

This phase reviews the project brief and considers factors such as location, usage, funding, procurement and project management.

### Project feasibility

This phase can include the development of a business plan, planning application and if required funding applications. A consultant can be appointed during this phase if required, this will normally be for a large project.

### Site investigation

Prior to the design phase a detailed site investigation is required. This includes topographical, geotechnical, electrical and drainage surveys. This may not all be necessary on a small project.

### Design specification

This phase includes the production of full design specifications and technical drawings.

### Appointment of contractor

In this phase a review of submissions is undertaken. This includes evaluation and contractor selection.

### Construction period

This phase includes the construction of the facility. If required, independent quality control is undertaken to assess build quality and design specification conformity.

### Project completion

This phase includes handover of the completed project. If required, performance testing may be undertaken to ensure compliance. A maintenance regime should be provided by the installer.

### Aftercare

Includes the ongoing maintenance programme and warranty period of the installation. If required, performance tests are undertaken to monitor surface behaviour.

## 1 Section One – Construction guidelines

### 1.1 Site considerations

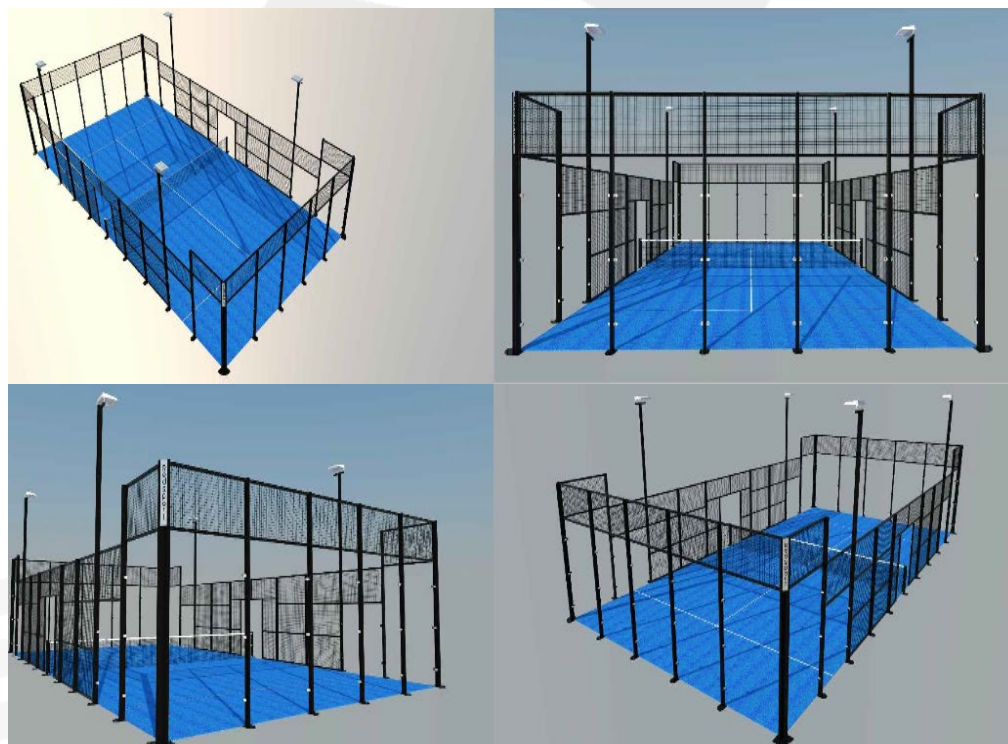
#### 1.1.1 General

Selecting the correct site for a padel court is a major factor in determining not only the costs of construction, but also the quality of the playing experience and the maintenance needs of the court. Where possible, the location of the court should be sympathetic to its surroundings and adjacent infrastructures. Ideally, it will be sited on relatively flat land that is not too close to boundaries or trees. Access should be easy for players (including disabled players) and suitable for maintenance and construction equipment (all courts will require resurfacing at some point; a factor often overlooked).

It is likely that, in a number of cases, the padel court will be constructed in the location of existing tennis courts. In this case, while it is likely that the existing court construction should be a suitable base on which to locate and construct a padel court, an assessment of the sub-base construction should be made by a competent designer to ensure that the base is suitable.

Compliance with the Equality Act (2010) is an obligation for clubs, schools and other organisations. Consideration should be given during the design stages of a project as to how disabled players will be able to use the organisation's courts.

Figure 1 below highlights some imagery of a standard padel court layout.



## 1.1.2 Planning

The construction of a Padel court, whether totally new on a green field site, or over an existing tennis court, constitutes development and therefore requires formal planning consent to be sought from the relevant local authority. The design layout for a padel court is shown in Figure 1 and the glass wall or mesh fencing (3.0m and 4.0m in height) and proposed sports lighting posts and fittings (6.0m above the playing surface) will require planning consent prior to the commencement of the construction work. The site owner or client will be responsible for obtaining planning consent and may wish to appoint a consultant to prepare and submit the application on their behalf.

Careful consideration for the proposed location of the padel courts should be given in relation to the impact of noise on adjacent residential properties. If a residential property is within 30.0m of the padel court, then it is advisable that a formal noise assessment is undertaken by a specialist consultant prior to making a planning application. Based on the findings of this report, mitigation measures may be required within the scheme design, such as acoustic fencing or barriers to reduce the travel of sound down to an acceptable level. It may even be a requirement from the Planning Authority to move the court to a more appropriate location. In some contentious locations adjacent to residential properties, planning authorities may stipulate a planning condition that a further noise assessment is carried out once the court is in use.

## 1.1.3 Ground conditions

The cost of constructing a padel court can be greatly influenced by site conditions. Costs will be much higher for engineering a difficult site (i.e., poor ground conditions, high clay content or historical landfill) and it should be recognised that some sites are not cost effective to develop. A designer should consider several factors, including topography, access, site drainage, trees when choosing a location.

Before commencing with a detailed design, the designer will require as much information as possible about the site and its surroundings. Allowing sufficient resources for initial information gathering greatly reduces the risk of unforeseen problems (and increased costs) during construction or post construction. While on many sites an experienced contractor will be able to assess the requirements of the ground, on more complex projects a specialist geotechnical survey is the best way of ensuring a full understanding of the site.

## 1.1.4 Trees

Trees and their roots can constitute a threat to the court itself (by distorting or cracking of the surface), especially strong-rooted varieties such as poplar, sycamore and willow. Where such a threat exists, preventative action will be necessary, such as tree surgery and/or the construction of a root barrier to inhibit the ingress of tree roots onto the tennis court site. This is usually done by digging a trench, cutting any roots in the process and removing them as far as possible to a depth of at least 500mm, but more commonly 1.0m or more. The wall of the trench is then lined with suitable material, such as root control sheeting before backfilling. Alternatively, the trench can be filled with concrete and the excavated material removed.

Branches that overhang a padel court are usually a cause of various problems, such as the continuous dripping of water, secretions and bird droppings. It is strongly recommended that overhanging branches be pruned back beyond the court fence line and kept trimmed back as part of the maintenance programme.

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**HOWEVER:** Before cutting any tree roots it is important to check that this is not going to destabilise the tree such that it might fall. **And** prior consent will need to be obtained from the local authority before any branches or roots are cut if the tree is protected (TPO) or within a Conservation Area. It is illegal to undertake any works to a tree, its branches or roots without first obtaining such consent in these circumstances.

## 1.1.5 Services

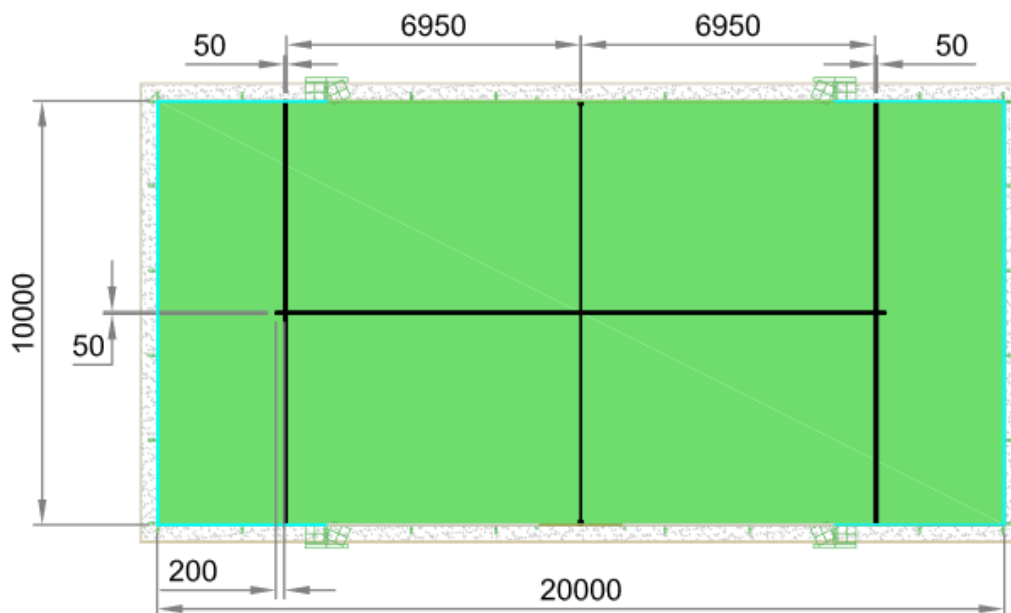
When selecting the site for a court, consideration should be given to the existing services around or under the court area and the utility services that will be required for the court.

Many sites will require some form of drainage and the design should consider if the ground is suitable for a soakaway or if there is a suitable storm water sewer, ditch or other outlet that can be used. For an area the size of a padel court perimeter, drainage would normally be considered acceptable and be preferable to a series of lateral drains. Typically, the perimeter drain would run at or below formation level along the lowest long side of the court and discharge through the foundation for the enclosure in a pipe to a suitable outfall.

The LED sports lighting for a padel court will require a single-phase electrical supply and ideally the location of the court(s) will be as close to the supply as possible. Dependent on the system of lighting installed, the power requirements will typically range from 1.2 – 2.4kW per court.

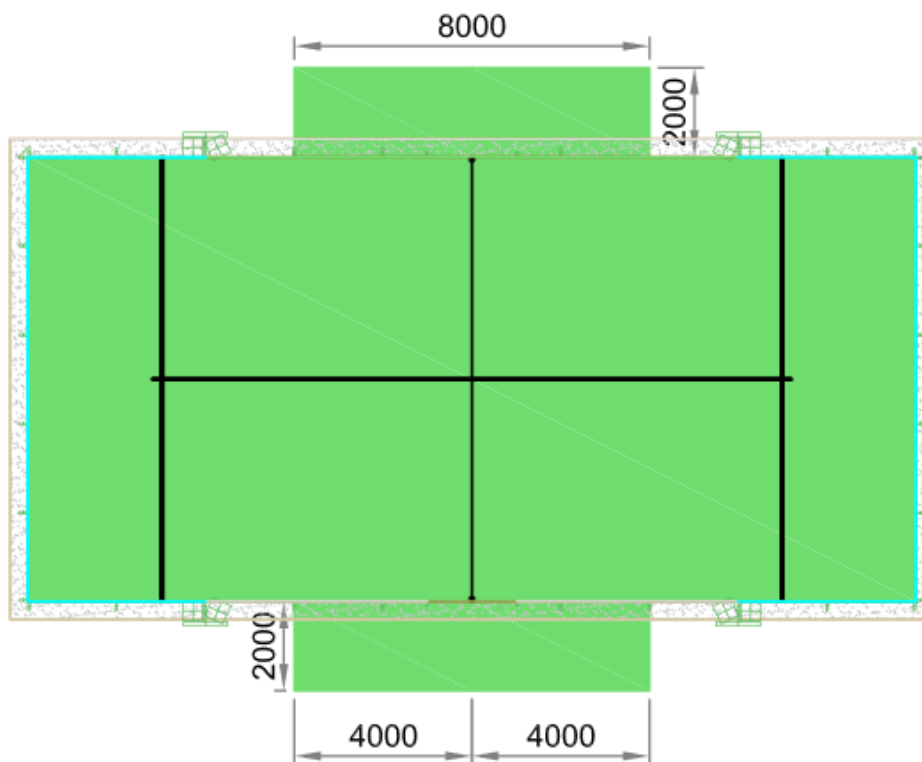
## 1.2 Dimensions & arrangement

The padel court's internal playing area is 20.0m x 10.0m wide and should be marked with two service lines and a centre line that crosses over the service line by 200mm, as indicated in Figures 2 and 3 below and on the following page. The two halves of the court should be symmetrical. All line markings should be 50mm in width and should be coloured white.



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It is likely that most padel courts will be constructed using the layout in Figure 2 on the previous page, where out-of-court areas are not included in the court layout. Access points to the court can either be on both sides or a single side adjacent to the net, with access to both sides of the court. Consideration should be given regarding wheelchair access to the court. To facilitate wheelchair access there should be a minimum distance of 1.2m between the net post and the enclosure.



For out-of-court play, as shown in Figure 3, each side of the court should have two central access points (one to each side of the court). There should not be any obstacles outside the court within a distance of 2.0m wide (3.0m for some competition purposes) and 4.0m long on either side of the court and a minimum of 4.0m high.

There should be a clear unobstructed height above the enclosed playing area of a minimum of 6.0m, including to the underside of any sports lighting overhanging the playing area.

A secondary option is a total unobstructed height above the enclosed playing area of 8.0m, which can also be considered if this is a feasible option from the perspective of both planning approval and cost.

All padel courts have a requirement for the inclusion of rebound ends at either end of the court to a total height of 4.0m. The first 3.0m, from playing surface level, can comprise any transparent or solid material (glass, bricks, etc.) which does not affect ball rebound, with the upper 1.0m comprising weldmesh fencing 50mm x 50mm mesh with the inner face being the horizontal mesh. The mesh should be either 3mm or 4mm diameter for consistent rebound properties. The transition between the glass internal surface and the metal fencing should finish flush and neither surface should protrude further than the other to prevent irregular ball rebound response.

Figure 4 below highlights a typical arrangement for the rebound ends for a padel court.



### 1.3 Construction guidelines

The padel court is an area 20.0m long x 10.0m wide, enclosed above ground with either solid rebound walls and mesh panels, or more commonly now a combination of glass and weld mesh rebound wall and fence panels, supported on steel or aluminium posts fixed to a concrete foundation with a synthetic turf playing surface. The construction of a new padel court, up to and including the playing surface, follows the methodology of the construction of a tennis court, building in defined stages from the formation layer to the playing surface. For a padel court, the construction of the concrete foundation to the enclosure and the erection of the enclosure needs to be factored into the construction stages.

These various stages can be outlined through the following reference points:

- the formation: this is the prepared natural ground on which the court is built.
- the enclosure foundation: this is the in-situ reinforced concrete ring beam or suitably designed alternative, that the padel enclosure is secured to. This also forms the perimeter of the padel court construction.
- the sub-base: carefully graded aggregates which are laid to provide load bearing and stability for the playing surface and to protect, as far as possible, the formation from the effects of rain and frost.

- asphalt base: bitumen bound aggregate that forms the base on which the playing surface is laid or in the case of an asphalt court, forms the playing surface. Asphalt to be porous on all outdoor courts.
- playing surface is sand-dressed or sand filled synthetic turf.
- padel enclosure formed by the erection of support posts with glass and weld mesh infill panels.

## 1.4 Excavations

Turf, vegetation and topsoil should be removed to a depth of at least 75mm. If greater depth of topsoil is present, containing significant quantities of vegetable or organic matter, then all such soil should be removed.

Excavations to achieve the required gradients (if any at formation level) are normally carried out on the “cut and fill” principle, i.e., excavating in the higher areas and using the resulting excavated material to fill the lower areas. When using this method, all filling should be carried out in layers not exceeding 150mm, each layer being thoroughly compacted.

When excavating the site by “cutting to the solid”, excavated material is removed from the area of the works and not reused. Any filling that may be necessary should be achieved using selected, suitable material, which can be readily compacted and will not be subject to future settlement.

The formation should be fully compacted and accurately levelled to a tolerance of +25mm/-50mm and should provide a stable base for the foundation layer. Any soft spots that are evident should be removed and backfilled with appropriate compacted material as described above.

It will be necessary to excavate and remove additional material (or add a subbase of suitable aggregate) when there is a requirement for the playing surface to be at a specific level. In such circumstances the formation level (top of subbase) will be the playing surface level, less the combined depth of the court construction. This may be lower (or higher) than the level resulting from a simple topsoil strip and subsoil levelling exercise.

Tree roots should be removed during excavation and the resulting holes from these or other underground obstructions should be carefully backfilled with suitable material, as described above.

The gradient of excavated or filled banks should not exceed the angle of slope suitable for the excavated material (rarely more than 1:2). Should limitations of space dictate steeper angles, and/or reduced shoulders at the top of banks, then suitable support should be provided such as retaining walls or buttressing.

## 1.5 Weed killing

Residual acting weed killers are no longer acceptable on environmental grounds.

Weeds visible prior to excavation works should be pre-treated with a systemic weed killer.

It is not possible to guarantee that all weeds have been killed, nor that re-growth will not occur after construction. Some weed growth may occur, but this usually represents little more than a temporary inconvenience.

Wind-blown seeds can land on any tennis or padel court surface, wash into the porous construction and then germinate. If weeds appear on finished surfaces, they should not be pulled out if they have penetrated the asphalt surface, but treated immediately with weed killer, allowed to die, and then removed.

### **1.6 Surface drainage**

Drainage from an outdoor court's playing surface is provided by percolation through the porous construction (artificial grass/ asphalt/ aggregate base).

#### **1.6.1 Surface gradients**

When constructing a new court(s) the playing surface and enclosure foundation (ring beam) should be constructed level (flat). This ensures that the bottom of the glass panels can finish flush with the ring beam asphalt layer with no requirement to step the panels.

To assist the drainage of the area, if required, new-build padel courts may be constructed to level with a gradient of 1:100 established to the formation level. This should ensure that water percolating through the surface will find the perimeter drainage outfall.

Where a padel court is being constructed over an existing tennis court, careful consideration of the existing gradients, surface tolerance of the existing surface and the accurate positioning of the new padel court is required. As such, a detailed gradient survey of the existing tennis court would be required prior to proceeding with the project.

To aid the construction of the enclosure and the potential change in levels between the existing court construction, the enclosure foundations and the new playing surface, where applicable, the enclosure foundation and new playing surface should be constructed level. Where this is not possible, very minor stepping of the enclosure panels may be achievable but is not a desired solution. The contractor should highlight the impact of any potential gradient issues with the existing court at the time the design is being developed, therefore ensuring that the client is prepared to accept the consequences of this compromise.

#### **1.6.2 Sub-court drainage**

Perimeter drains located inside a perimeter ring beam (if this is the enclosure foundation design) with an outlet through the ring beam are necessary on poorly draining sites.

Porous foundations should be constructed to allow egress of water into the perimeter drain. UK outdoor padel courts should be constructed with porous sub-base construction. The perimeter drain should be connected to an outfall pipe running through the concrete ring beam to ensure that water can pass away from the padel court and not be retained within the confines of the ring beam.

Permanently covered courts with side protection, to prevent ingress of driven rain (so not to include open sided canopies), may be constructed with non-porous sub-base construction.

Catchwater drains should always be installed wherever there is a danger of water flowing onto the court from surrounding areas. They are particularly important for canopies and at the foot of cut banks formed during the levelling operation.

Drains should consist of perforated plastic pipes, laid in the bottom of well-formed trenches, backfilled with clean, graded stone aggregate or similar suitable material. Drains should be laid to falls of not less than 1:200 and be connected to soakaways or other suitable drainage system.

The drainage trenches should be lined with a geotextile membrane.

Catchwater drain trenches should be filled with clean stone to the surface.

### **1.7 Design of the foundations for the court enclosure and perimeter edging**

The foundations for the court enclosure must be designed by a structural engineer (with a suitable cross section profile) with due consideration of the wind loads for the locality of the site and any other relevant loads.

Where a perimeter in-situ formed reinforced concrete ring beam is used it provides a solid surface for securing the base plates of the enclosure's support posts for the glass panels, weldmesh fencing and the net posts. The ring beam will also act as the retainer for the court construction, with the porous asphalt surface course finishing flush with the ring beam, allowing the synthetic turf playing surface to be confined within the glass and mesh panels.

The use of concrete pad foundations to secure the base plates of the enclosure can also be an option. If this design is adopted, consideration should be given to retention of the sub-base material and the synthetic turf playing surface between the pad spacings.

The foundation should be designed with suitable reinforcing incorporated, to exceed the expected wind load calculated, and to allow the enclosure to be bolted down using suitable anchors, securing it, in line with the structural engineer's calculations. The design must be backed by the structural engineers' professional indemnity insurance.

If a client employs a contractor for both the design and construction (or where this is implied), then the contractor should also carry their own professional indemnity insurance in relation to the design foundation.

Maximum wind loadings applicable to the surrounding enclosure supporting steelwork should be stated by the padel court manufacturer to aid the design of the foundations.

Figure 5 on the following page indicates the levels relationship between the top of the foundation / perimeter edge detail, the enclosure and the court surface.



### 1.8 Court surface foundations

A correctly designed and well-engineered sub-base is essential for the performance and durability of a padel court. Failure to provide a suitable foundation layer may result in severe undulations, cracking or premature breakup of the playing surface.

Certain sub-soils are far more prone to the two main causes of serious problems – frost heave and clay shrinkage – and clearly it is important to determine site conditions before designing the construction.

The stone foundation layer should be constructed using hard, clean, well-rounded, non-frost-susceptible aggregates. These are typically a reduced-fines grading of the MOT Type 1 aggregate mix or a 28mm - 50mm clean stone material, capped with a 10mm chipping as a blinding layer. If recycled material or other variations in the stone foundation material are to be considered the designer or contractor should be requested to provide technical reasoning for this choice and ensure the material is both suitable and free of contaminants.

The depth of the stone foundation layer should be determined using the guidance defined in Clause 2.12 of the SAPCA Code of Practice for the Construction and Maintenance of Tennis Courts (3<sup>rd</sup> Edition, April 2018). If site-specific geotechnical information is available, then this should be considered when designing the depth of the base. If this information is not available, the 'soil type' table in clause 2.12 can be used as a guideline.

### 1.9 Geotextiles

Geotextiles are recommended when installing new padel courts. These are water-permeable fabrics that are laid in sheet form beneath the foundation to provide several benefits, including:

- isolating the foundation and preventing infiltration and contamination by a silt or clay sub-soil.
- increasing of the load-bearing and structural strength of the foundation.

- the provision of a “slip sheet” to help to prevent cracks from transmitting from the sub-soil to the surface.
- Inhibiting, but not eliminating, possible weed growth from the sub-soil zone.

### 1.10 Sports lighting ducts

Ducting should take the form of either a partial or fully ducted system, depending on the layout of the padel court(s) and any surrounding structures.

Sports lighting to padel courts would usually be facilitated by extended support posts from the enclosure. In some cases, however, there will be a need to erect the sports lighting on stand-alone columns located outside the perimeter of the enclosure. In both cases the structural design of the foundation for the enclosure or columns should be carried out by a structural engineer or an expert in padel court design.

Padel court lighting should be cabled on the basis of one or two looped circuits, with the ducting either positioned totally outside the perimeter foundations or cast into the ring beam and run under the playing surface depending on the circuit arrangement.

Ducting should be formed from plastic pipework and should be installed at a depth of at least 450mm beneath a court surface to avoid damage if drainage holes are installed during subsequent resurfacing work.

Draw-pits may be required to allow the future cabling and re-cabling of the lighting posts. If required, they should comprise prefabricated plastic sections that link together to form the chamber with the cover of the draw-pit finishing flush with its surrounding surface level.

### 1.11 Porous asphalt base

#### 1.11.1 General

Asphalt is laid over the stone foundation layer. This will form the platform base on which the synthetic surface will be laid. For new-build padel courts the asphalt should be laid in two courses, a binder course followed by a surface course. If a padel court is being constructed over an existing tennis court with a suitable base, a single surface layer may be sufficient, although two layers will almost always be preferable.

**IMPORTANT NOTE** - For outdoor padel court playing surfaces, the base should be open graded porous material.

#### 1.11.2 Binder and surface course

The asphalt binder and surface courses should be produced, transported and laid in accordance with clause 2.14 of the SAPCA Code of Practice for the Construction and Maintenance of Tennis Courts (3<sup>rd</sup> Edition, April 2018).

The binder course should be laid to a compacted depth of 40mm and the surface course laid to a compacted depth of 25mm.

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If the padel court is a new construction (on virgin ground) it should be built with two asphalt layers to satisfy the necessary drainage, stability and regularity requirements for artificial grass playing surface in full accordance with this Code of Practice.

If an existing tennis court is being converted to a locate a padel court some preparatory works are likely to be required. The base on which the padel court is to be laid should be checked for regularity and drainage. To aid the drainage of the new surface, the existing asphalt tennis surface will need piercing to improve drainage for the padel playing surface. Piercing involves punching holes through the asphalt surface to form a drainage link to the sub-base and underlying ground. The holes, typically 25mm diameter, are back filled with chippings or pea gravel. The surface should be pierced at 450mm centres across the total area of the padel court.

Piercing the base will, however, result in small holes and there is a possibility that these holes will reflect through to the new playing surface. If this occurs, the aesthetics of the court can be damaged and, more importantly, ball rebound may be unpredictable as a result of the ball striking the edges of holes.

As a minimum scope of works, a new single layer surface course would be required as a suitable base to lay the new padel court synthetic turf surface with the enclosure constructed on the engineer designed foundation set into the surrounding court surface.

## 1.12 Playing surface – general requirements

The correct installation of the playing surface is essential if a court is to provide a satisfactory playing environment and meet players' expectations.

### 1.12.1 Regularity or evenness

The surface regularity of a new or resurfaced padel court should conform to the following:

At no point on the court area should there be any bump, hollow, ridge, joint or textural variation sufficient to cause reasonable expectation that a ball in play might be deflected from its true path; or expose a player to a significantly increased risk of injury within the perimeter of the court. Subject to the above, the surface should be laid to a tolerance of  $\pm 6\text{mm}$  as a maximum permitted undulation under 3m straight edge.

Ideally there should be no undulations greater than 6mm at any point on the court area. If two layers of asphalt form the sub-base, however, then two permitted deviations are allowed and on a single asphalt later up to four deviations are allowed. Undulations more than 1000mm in length are considered to be multiple deviations (e.g., a 1.8m long ridge is considered to be two deviations – one of 1m length and one of 0.8m length).

*Notes:*

*Regularity should be measured in accordance with BS EN 13036 Part 7 by placing a 3m straightedge at any position on the surface of the court (excluding and the area around court fittings such as net posts) and measuring the gap at any place between the points at which the straightedge is in contact with the surface.*

*The variation in allowable tolerances reflects the relative difficulty of achieving superior surface levels with certain types of surface and construction, such as single layer asphalt.*

### 1.12.2 Water permeability

Porous surfaces when newly laid (but after an initial period of weathering) should be free draining and can be expected to be clear of surface ponding within fifteen minutes of rain ceasing. BS EN 12616 defines a method of test for assessing the in-situ water infiltration rate of sports surfaces. Suppliers will typically design and test around laboratory values for vertical permeability as in EN13108.1.13.

### 1.13 Artificial grass

#### 1.13.1 General

The padel court playing surface should comprise a single tone sand-dressed or sand filled artificial grass (with a preference for monofilament yarn) loose laid onto the asphalt base and dressed/filled with silica sand in accordance with the manufacturer's guidance. The artificial grass surface should be designed specifically for padel and should have the following product specification or similar.

Product Specification	
Characteristic	Property
Pile Height	10 mm – 15 mm
dtex	9,000 – 10,000
Yarn Type	Monofilament (preferred), Fibrillated (acceptable)
Infill Material	Silica Sand
Primary backing	Polypropylene
Secondary backing	Latex
Stitch rate	40,000 – 60,000

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The playing surface should comply with UNE 147301: 2018 Sports surfaces for the practice of padel (Requirements) for the sports performance requirements shown in the table below. This standard is a Spanish National Standard, and the requirements have been adopted by the International Padel Federation. Padel surfacing products should be tested in the laboratory for these requirements to ensure compliance with the standard in both dry and wet conditions. It would not normally be considered a requirement to carry out these tests on an installation unless specified within a tender document.

Property	Test Method	Requirement
Shock Absorbency (Force Reduction)	EN 14808	15 – 25%
Rotational Resistance	EN 15301-1	25 – 50Nm
Ball Rebound	EN 12235	≥80%
Water Permeability	EN 12616	≥500mm/hr

### 1.13.2 Weather considerations

Artificial grass surfaces can only be laid in certain weather conditions. This is because the adhesives used to join the rolls of carpet may not fully bond if laid in very cold or wet conditions and the need for the carpet and sand infill to be dry to allow the sand to flow into the pile of the carpet. Surfaces should only be laid when conditions satisfy those stipulated by the adhesive and carpet manufacturers. This is very much a case of the experienced contractor knowing best and they should not be pressurised to lay a surface in less-than-ideal conditions just to complete the work on time.

### 1.13.3 Carpet installation

Prior to laying out the artificial grass carpet the base should be swept to ensure there are no loose stones or other debris lying on it. The artificial grass carpet should then be rolled out in the configuration shown on the seaming plan and the rolls checked for any signs of damage or defects.

Following the checking of the roll, the edges should be overlapped by an amount sufficient to allow trimming and the edges trimmed to produce a good butt joint. After trimming, the gap between the edges should be no more than the distance between each tuft row.

The carpet should then be turned back from the trimmed joint and a carrier tape positioned on the joint line. The tape should be positioned centrally to give a bond width in accordance with the manufacturer's instructions. A water-based "tacky" adhesive may be used under the tape to prevent movement.

### **1.13.4 Sand application**

The surface will not perform, and its durability will be compromised, if the carpet is not correctly sand dressed or filled prior to play. This part of the installation is, therefore, crucial.

Before infilling, it is recommended that the entire surface is brushed to aid the turf fibre to stand upright.

The correct grade of sand should be applied evenly in stages, ensuring that the sand is brushed into the pile in such a way that the pile remains upright. Extreme care and attention should be taken when applying the sand. The dressing must be finished to a constant depth within the base of the pile. Experience has shown that some grades of sand used in continental Europe would be considered too fine for the UK climate. Therefore, suppliers and installers should ensure that a suitable grade of sand infill is used for the UK climate.

If using a wheeled vehicle to transport sand across the surface, make sure that the tyres are smooth – tyres with treads, such as herring bone tyres, will permanently mark the playing surface. The recommended ground pressure of tyre to turf surface is between 8 and 11 pounds per square inch. Drive with care over previously sanded areas and do not make sharp turns or stop suddenly.

It may be necessary to return to site to top up sand levels after installation. The amount needed for top dressing can only be determined on an individual basis.

### **1.14 Surrounding enclosure and rebound walls**

The surrounding enclosure and rebound walls to a padel court should be formed of a combination of a transparent or solid material (glass, rendered blockwork) which does not affect ball rebound. The transition between the glass (solid) internal surface and the metal panels should finish flush and neither surface should protrude further than the other to prevent irregular ball rebound response.

#### **1.14.1 Supporting posts**

The enclosure should be supported using steel or reinforced aluminium box section posts. If steel is used the posts should be galvanised and zinc coated. The UK experiences higher corrosion rates than in Continental Europe and in some areas, this can be considered severe. If the enclosure is being sourced outside of the UK, no non-galvanized steel posts should be installed. All steelwork should be pre galvanised with subsequent zinc electro plating after fabrication. The use of non-ferrous metals, such as aluminium, should also be considered and should be designed to suit the UK climate.

The posts should be fabricated with suitable base plates to allow the posts and the subsequent enclosure to be fixed to the foundation.

## 1.14.2 Glass rebound panels

Glass rebound panels should comprise either 10mm or 12mm toughened glass to give a solid structure with high quality ball rebound characteristics. Where region wind loading requirements stipulate, 12mm glass panels should be adopted within the design. Glass rebound panels should incorporate counter sunk fixings to prevent irregular ball responses. Toughened (or tempered) glass panels should be used as the glass is treated so it will break into small blunt pieces under pressure making it much safer than shards of normal glass.

All glass panels should be individually kite marked to the relevant European Standard. Glass manifestations should be included at the bottom of the panels and at a height of between 850mm and 1000mm for health and safety reasons. The manifestations should take the form of small spots or balls and should not take the form of larger stickers or advertisements which may compromise the toughened glass shattering.

If further information is required, please refer to Part K of the building regulations.

## 1.14.3 Weldmesh fencing

The weld mesh sections of the surround walls should comprise weldmesh fencing 50mm x 50mm mesh with the inner face being the horizontal mesh within the mesh. The mesh should be either 3mm or 4mm diameter for consistent rebound properties. The fabrication of the weldmesh should also follow the principles specified in section 1.14.1 for corrosion protection.

## 1.14.4 Openings (court entry point)

The side elevation(s) should incorporate a central opening for player access on one or both sides of the padel court with access to both ends of the court from the central location. For competition courts the 'out of court play area' 4.0m x 2.0m (or 4.0m x 3.0m) either side of the net (8.0m x 2.0m or 3.0m overall) should be incorporated into the design of the enclosure on both sides of the court.

To allow wheelchair access to either end of the court, the spacing between the net post and the enclosure should be a minimum of 1.2m on either side of the court.

## 1.14.5 Nets and posts

The net should be 10m in length, 0.88m high at the centre, rising to 0.92m at the ends, with a maximum tolerance of 5mm.

The net should be suspended by a metal cable with a maximum diameter of 10mm and the ends attached to net posts. It is considered the norm that most padel court designs will use base plated posts rather than using the enclosure to support the net. The net should comply with BS EN 1510.

## 2 Section 2 – Sports lighting

Padel courts should be floodlit using two methods to support the required luminaires to light the court.

Method 1 uses the court enclosure by extending the posts supporting the enclosure and fitting a bracket to mount either one or two luminaires depending on the lighting design. The extended posts should be configured such that the luminaires are located 4.0m from the back of the court into the side elevations to give a side lit lighting arrangement.

Method 2 uses stand-alone floodlight columns located outside of the padel court enclosure to mount the luminaires, adopting a more traditional sports lighting layout.

When developing the lighting design, considerations should be given to the number of padel courts to be lit, the complexities of the site and whether there are residential properties near the court location. These site-specific requirements can often dictate which luminaires can be used in the design to potentially control lux level spillage or reduce glare.

All light fittings should be manufactured to the relevant British and European standards with the associated CE marking. If the padel court is being supplied as a 'package kit' from the manufacturer of the enclosure, then all the electrical components should be detailed with a suitable lighting design prior to placing any order for the works.

All light fittings should be installed ensuring a 6m high clear space above the padel court playing area.

Padel court lighting designs should be produced using dedicated software by competent persons (designers, consultants, manufacturers or contractors) with relevant experience in lighting designs and local authority planning policy.

The lighting performance standards for padel courts in the horizontal plane at ground level are defined below.

### Outdoor and indoor courts requirements: Minimum illumination at ground level ( $Z=0$ )

National and International Competition

500 lux ( $E_{av}$ ) with 0.7 uniformity

Regional competition, school & recreational use, indoor courts

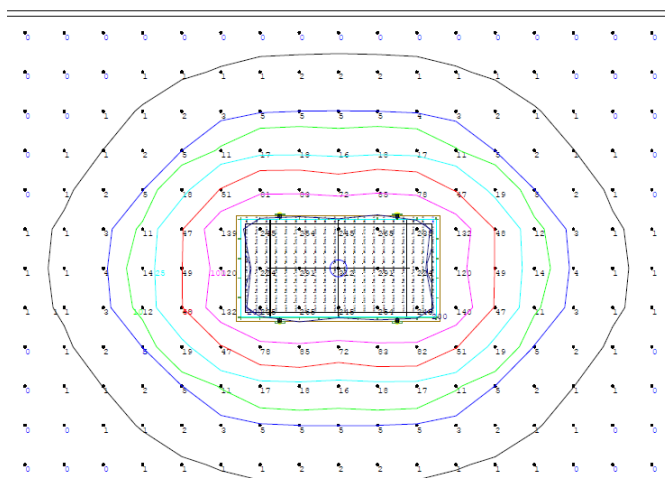
300 lux ( $E_{av}$ ) with 0.5 uniformity

A 10% over-performance should be taken into consideration when undertaking the initial design (i.e. 0.9 maintenance factor).

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When a lighting design is being produced, the designer should use a suitable calculation grid spacing (i.e. 1.0m x 1.0m as indicated below) over the playing area centred on the net line position of the court. This removes the potential for any 'dark or over lit' patchy areas to be located within the overall playing area of the court.

The calculation grid spacing for the overall area affected by the floodlighting should be at a maximum spacing of 5.0m.



A detailed lighting design using this type of software and design grid is particularly important when considering the use of low cost, low wattage LED fittings. These fittings commonly use a symmetrical (rather than asymmetric) optical distribution as they are designed for lighting general amenity areas and are not sport specific products.

Lighting designs for padel courts should provide calculations for both lux and candela when adjacent to domestic dwellings. This will ensure that the design is in accordance with the requirements of the ILP Guidance Notes for the Reduction of Obtrusive Light 2020.

On padel courts – as play involves the use of the ends and side walls – additional vertical lighting calculations may also be requested by planning authorities.

Where padel courts are to be incorporated into existing floodlit areas then consideration should be given to maximise the existing lighting provision in relation to the current positions of columns, fittings and potential conflict with underground service cabling.

## 3 Section 3 - Covered facilities



There are a range of closed or open-sided structures available, which can be used to cover padel courts at a more economical cost than a traditional building, tensile structure or airhall. Typically, they comprise steel or timber portal frames constructed with a single or double skin membrane roof. Some structures come in with a fully enclosed roof and walls, others as a canopy type design, shown in the images above. The supporting frame (legs) sits outside the padel enclosure and it is feasible for the sports lighting fittings to be incorporated into the structure.

When selecting a structure to cover a padel court, consideration should be given to the overall minimum height of the structure and the location of the supporting columns, so as not to interfere with play or the out of court area (where incorporated) or restrict the provision for wheelchair access.

For covering a single padel court, the type of structure shown may suit as an affordable option with a simple design. If your project is looking to cover more than a single padel court, then consideration should be given to the layout and shape of the structure across multiple courts. It may be more cost effective for the structure to cover the entire area.

All steel supporting components for structures and canopies in the UK should be hot dip galvanised for maximum longevity and protection against the climate. The structure and its foundations should be designed by a structural engineer. Planning approval will be required for the development of an indoor structure or canopy in line with UK planning laws. Building control will be required for fully enclosed indoor structures and may also be required for canopies, to sign off the design and installation of the structure and its foundations.

Canopy roof and wall membranes should have a minimum design life of 15 years.

## **4 Section 4 – Considerations for developing a project**

### **4.1 Project checklist**

Key points to consider before proceeding with a padel court project:

1. Location for proposed padel court should be considered in relation to noise and light disturbance to the surrounding environment and neighbourhood.
2. Position of padel court and its surrounds suitable for player access (including wheelchair users) and ongoing maintenance, including glass cleaning on both faces.
3. 'Out of court' play area considered in the design. Is it needed? Is there sufficient space?
4. Future or current requirement for padel court to be covered, with consideration given to the need for additional footprint and access to the area.
5. Planning consent for the proposed scheme will be required.
6. Acoustic assessment report may be required to support the planning application.
7. All metalwork components to be designed and manufactured for the UK climate with sufficient warranty from manufacturer in place.
8. Site specific concrete foundation for the padel enclosure, designed by a structural engineer and covered by PI insurance.
9. 10mm or 12mm kitemark glass to be specified within the design.
10. Player access arrangement (including disabled access) for the court (on one side or both).
11. Sports lighting design to achieve or exceed minimum performance criteria for the level of usage, with details also given for luminaire mounting and height.
12. Site specific foundation requirements for the indoor structure or canopy designed by a structural engineer and covered by PI insurance.
13. Court surface product designed for padel tennis.
14. Confirmation of the source of padel court fabricator / manufacturer established before an order is placed, with certificate of origin to be provided prior to completion of the project.

Care should be taken in selecting a padel court manufacturer as their warranties do not always cover structural failure of the enclosure, only failure of the individual components in terms of wear and corrosion. A minimum 10-year warranty should be established for all installations in respect of structural failure of the enclosure.