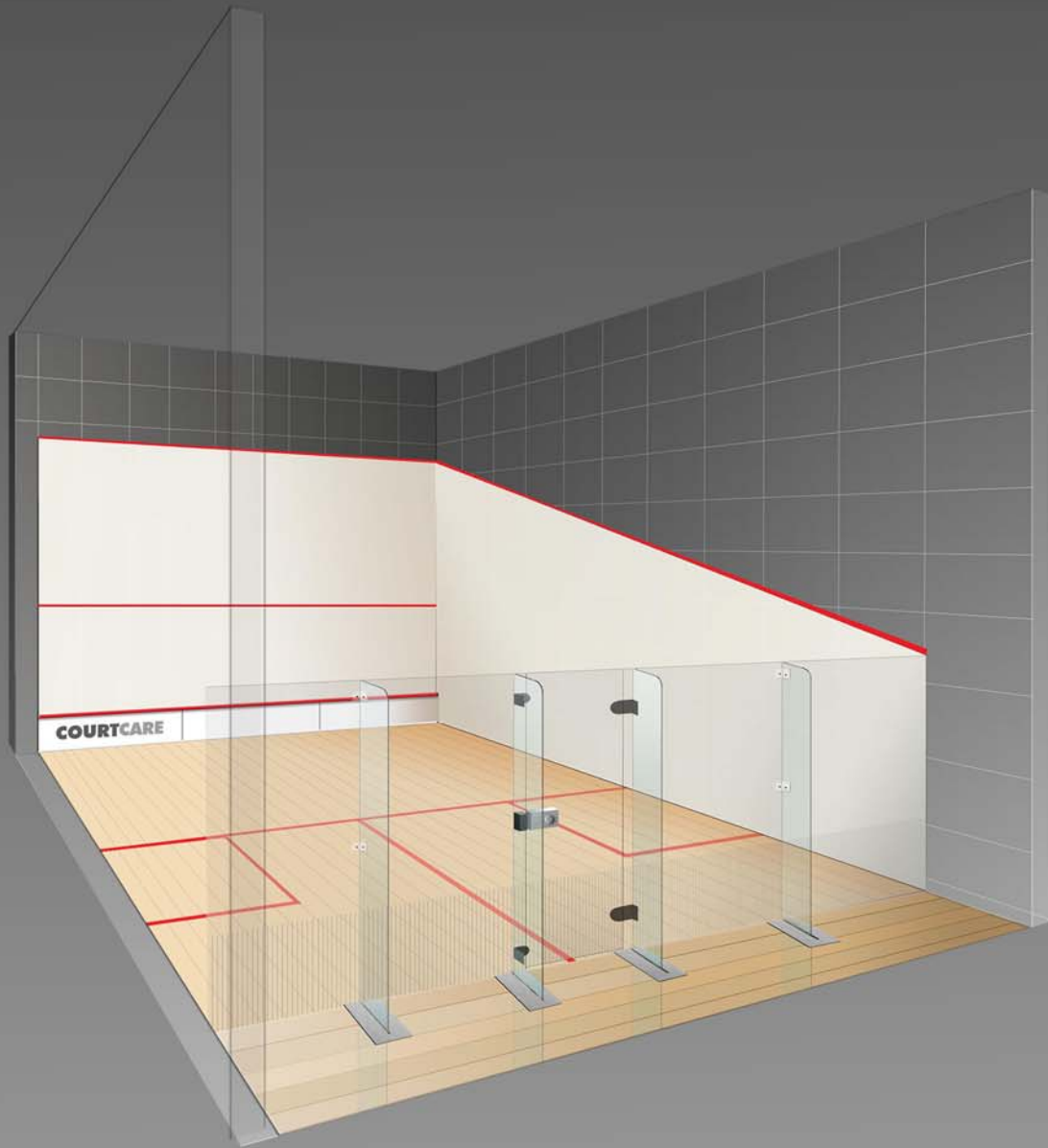


COURTCARE

Squash Court Specification



for traditionally-constructed squash courts

SQUASH COURT SPECIFICATION

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Introduction

This Specification is intended to provide useful information for architects and builders to design and construct traditionally-built squash courts with masonry walls, in accordance with the specifications and requirements of the governing bodies of Squash:

- The World Squash Federation (WSF) and member federations
- England Squash & Racketball (ESR) – the English governing body

(A separate appendix is available for solid-backed squash courts and for CourtTech panel system courts.)

Advice is provided on construction techniques, materials and tolerances suitable for specialist squash court finishes: court plaster; glass-back walls; floors; and court accessories, in accordance with manufacturers' technical literature.

Central importance must be given to the choice, design & construction of substrates so that the specialist finishes perform their function properly. To withstand the constant impact of balls, rackets and players without deterioration, wall and floor surfaces should be constructed accurately of durable and robust materials.

This includes designing out potential problem areas such as expansion joints in corners where plaster will break down following building settlement, or avoiding the use of stanchions or beams in walls which would be difficult to plaster over. Good trade practice and high standards of workmanship must be observed in wall and floor construction, in accordance with recognised British Standards.

All of the products used by CourtCare are WSF & ESR approved and well known for quality and durability. Each product has been rigorously tested to comply with required technical standards and subjected to a monitoring and evaluation process over many years.

Basic Principles

A squash court is an artificially-lit rectangular room 9.75m long, 6.4m wide and with a minimum height of 5.64m, which has line markings on walls and floors to indicate the playing and ball serving areas of the game. Until recent years all squash courts had white walls, red playlines and natural wood floors. Pastel coloured walls are now accepted although decreasing in popularity in recent years. Some courts – especially tournament ones – have coloured floors and glass side and front walls.

When designing or building squash courts it is important to design “from the inside out”, choosing construction materials and techniques which enable the specialist finishes to perform their function and which do not promote premature breakdown.

The court walls must be as near perfectly vertical, flat and true, and floors as near perfectly flat and level as possible – so that ball response is consistent and predictable. Whether coloured walls are chosen or not, all of the out-of-play areas: ceilings and other building elements should be light coloured so that the fast-moving ball can be clearly seen in flight.

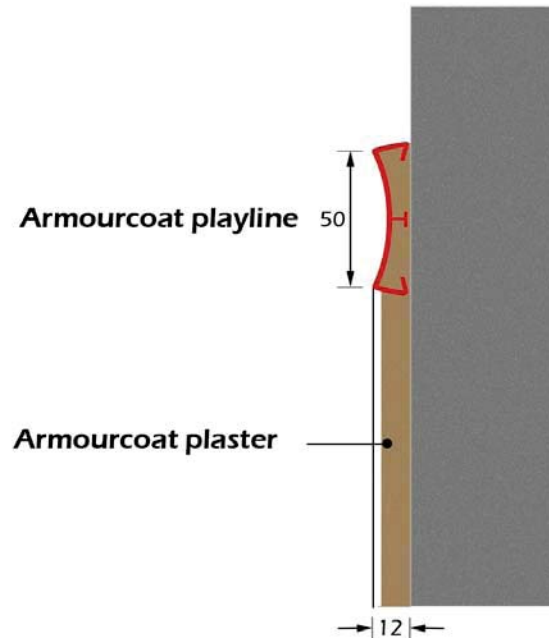
1. WALLS: Armourcoat Plaster

Armourcoat plasters are 2-coat resin-modified gypsum plasters specifically developed to comply with the WSF requirement for a “hard, smooth finish” combining ease of application with accuracy, durability and toughness, and ease of maintenance. The 2-coat application (12mm nominal thickness) ensures accuracy in application, whilst the gypsum formulation guarantees dimensional stability and a smooth cleanable finish.

Armourcoat plaster is self-finished white, and does not need to be painted. *Armourcoat* cleans back to pristine condition. *Armourcoat* comprises 9mm of basecoat and 3mm of finish coat. Playlines and court accessories are red.

1.2 Out-of-playlines

These delineate the boundaries of the plastered wall playing surfaces and should be “...so shaped as to deflect any ball striking (them)” (WSF Specification). *Armourcoat* playlines are manufactured from extruded plastic in a concave profile, 50mm wide, coloured red. The playlines are fixed onto the walls before plastering is commenced and together with the glass-back wall side channels (see section 2.2 below), form permanent grounds for the plasterer to work to.



The quality of the finished plaster and the straightness of the playlines will be largely determined by the quality and accuracy which the builder can provide in constructing the walls. Plumb walls are particularly important for the playlines since they cross diagonally over many courses of block or brickwork on the sidewalls: from 2.13m at the back to 4.57m at the front.

1.3 Wall construction

Walls must be constructed to accurate tolerances using suitable materials which are dense and strong: as squash court plasters are strong, the compressive strength of the wall substrate must be high otherwise drying shrinkage will create stresses which will break away the background surface resulting in bond failure.

Substrates should not be too dense (semi-engineering bricks, for example) otherwise background suction will be too low and special bonding agents may be necessary, as the risk of delamination is high.

It is important that good site practice is followed in wall construction, generally in accordance with BS 8000 Workmanship on building sites Part 3: Code of Practice for masonry (2001), and that the recommendations of the brick or blockwork manufacturer are followed. Additional guidance may be obtained from:

- The British Standards Institution (BSI) www.bsi-global.com
- The Concrete Block Association www.cba-blocks.org.uk
- The Brick Development Association www.brick.org.uk
- The Building Research Establishment (BRE) www.bre.co.uk

1.3.1 Suitable materials

- LBC plain Fletton clay bricks (frog up). Compressive strength 27.5N/mm², or similar common bricks

- Dense aggregate concrete blocks (solid or hollow) type “A” to BS 6073 pt 1 (1981) minimum compressive strength 7N/mm²

In-situ concrete walls are not normally suitable because of the need to introduce expansion joints to accommodate thermal movement. If unavoidable the surface should be scabbled to remove laitance and provide a mechanical key (a bonding agent will still be necessary), or formwork treated with a retarding agent so that the surface can be brushed down to expose aggregate for a key.

1.3.2 Unsuitable materials

- Weak or porous materials, such as aerated lightweight or gas concrete blocks, clinker blocks, hollow terra cotta blocks or bricks. This includes weak mortars.
- Reject facing bricks (cause difficulties with differential suction)
- Semi-engineering bricks (low-suction causes plaster bonding problems)
- High iron content common bricks (for example “Scotch” commons, which cause rust-staining)
- Mixed materials (cause difficulties with differential suction)

Although 7N/mm² versions of aerated concrete blocks are available, we strongly recommend that their use be avoided in squash courts. The use of lightweight load-bearing blocks normally requires the introduction of movement joints every 6000mm. More importantly, the surface of the block surface is soft, forming a weak bond with the specialist plaster, which can be weakened further by repeated ball impacts. This type of block also contains a high proportion of large air pockets – some very close to the surface – which can cause delamination and plaster breakdown under impact, particularly on front walls.

1.3.4 Drying out

All substrates must be completely dried out prior to plastering and completely free from soluble salts or other deleterious matter which could cause defects or blemishes in the finished plaster (which is **not** painted after installation).

1.3.5 Stanchions, beams, columns & expansion joints

These should be strictly avoided as they introduce weaknesses into the squash court plaster, which will result in cracking over joints. Columns should be concealed behind or inside diaphragm or cavity walls to allow continuous unbroken block or brickwork panels with solid corners. Internal front corners should be bonded if possible, and not butt-jointed with expansion joints. Butt joints might allow for shrinkage and expansion, but will result in cracking and delamination of the plaster in the corners over such joints at some future stage. It is inadvisable to introduce plaster stop-beads in an attempt to combat this because the constant force of ball impacts in the vulnerable area will again result in delamination and cracking.

1.3.6 Damp proof course

To prevent seepage of ground water and any subsequent damage to plaster, or leaching out of soluble salts, it is essential that DPC be incorporated into each wall.

1.3.7 Position of DPC

When the squash court sidewalls are plastered, the plaster will extend past finished floor level (normally SSL +75mm) to enable the floor to be finished incorporating a 6mm gap against each wall (this is called the “nick” and is in-play). There are no skirting boards in squash courts, which means that the gap and the plaster remain visible. For this reason DPC should be incorporated at structural slab level and not at finished floor level, which might conventionally be the case (see appendix for details).

1.3.8 Construction tolerances

The WSF stipulates that the finished walls of a squash court should:

- *“...be vertical to within $\pm 5\text{mm}$ in a height of 2 metres when measured: within 250mm of each corner of the court; and at three additional points evenly spaced along the length of each wall.”*
- *“...be straight to within $\pm 15\text{mm}$ in the length...when measured horizontally at a height of 1 metre above finished floor level.”*
- *“...have no variations from the true surface of more than 3mm when measured in any direction with a 1800mm long straightedge.”*

To enable the finished plaster to achieve this, the walls should be constructed very accurately: uniformly square and absolutely straight and plumb, to a tolerance of $\pm 6\text{mm}$ in 2000mm.

1.3.9 Mortar & mortar joints

Mix design should be suitable for the type of block or brick specified. Wide mortar joints should be avoided, 10mm being the expected thickness, consistent with standard trade practise. Excessively wide joints may form a potential weakness resulting in poor plaster bond strength and possible delamination. Joints should be flush-pointed, with mortar ironed into the joints to eliminate voids. Raking out is not necessary as Armourcoat has excellent adhesion without the need for a mechanical key. Raking out should also be avoided because may also cause pattern staining.

Ideally side walls should be built in two leaves of stretcher-bond, allowing the bricklayer to provide a plumb surface on both sides. This also facilitates bonded corners with any necessary expansion joints in the front walls being formed to coincide with the cavity between each of the leaves on the sidewalls.

1.3.10 Court dimensions

See drawing above for finished sizes. Add 12mm per wall for building sizes. Standard construction court width is 6425mm $\pm 10\text{mm}$ (finished size 6400 $\pm 10\text{mm}$).

1.3.11 Out of play area

The side and front walls of a glass-back court are normally built up to ceiling height, but need not be solid masonry unless structurally necessary (load-bearing walls e.g.). Nylon mesh netting or another form of partition may be used, although this may cause maintenance problems in later years. England Squash & Racketball (ESR) does stipulate, however, that walls must be solid to a minimum of 300mm above the playline on the sidewalls and 1380mm above the playline on the front wall (for ball-sighting purposes).

1.3.12 Finishes to out-of-play areas

It is not necessary to plaster the walls above the playlines, although it may be preferred from an aesthetic viewpoint (although it is an unnecessary expense). Out-of-play areas are normally fair-faced block or brickwork painted matt white. All other building elements in the courts should also be non-reflective light colour to enable the ball to be seen in flight and to avoid visual distractions to players.

2. GLASS-BACK WALLS

This specification is based on the use of World Squash Federation approved Ellis Pearson freestanding glass walls (type EP200) which are 2.13m high, and which comprise four glass panels and a glass door supported by glass fins (see |Squash Court Layout drawing for co-ordination details).

Alternative configuration fixed-head glass walls are also available which have been designed for use in situations where a structural soffit is intended over the glass wall. Aluminium posts support this type of wall, rather than glass fins and it is particularly suitable for situations where corridor space is limited and where glass fins might present a pedestrian safety hazard.

2.1 Construction dimensions for glasswalls

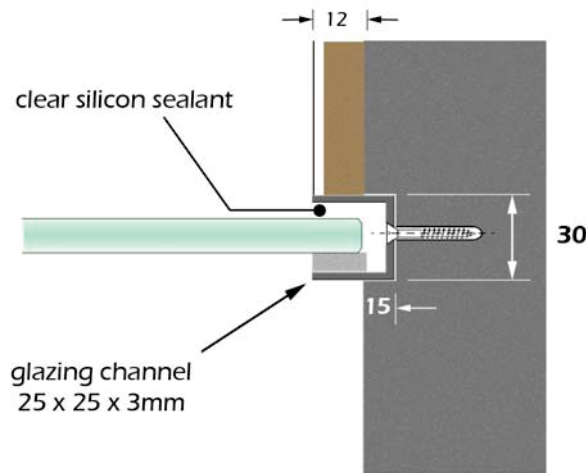
The standard court width should be constructed at 6425 ±10mm to provide a finished width after plastering of 6400 ±10mm. For courts over or under these sizes arrangements can normally be made to manufacture over or undersize glass doors to compensate for the difference, although it should be noted that courts under 6390mm or over 6410mm wide will not comply with WSF or ESR standards.

2.2 Fixing details

All glass wall panels are located into 25 x 25mm aluminium channels fixed into the sidewalls and the sub-floor.

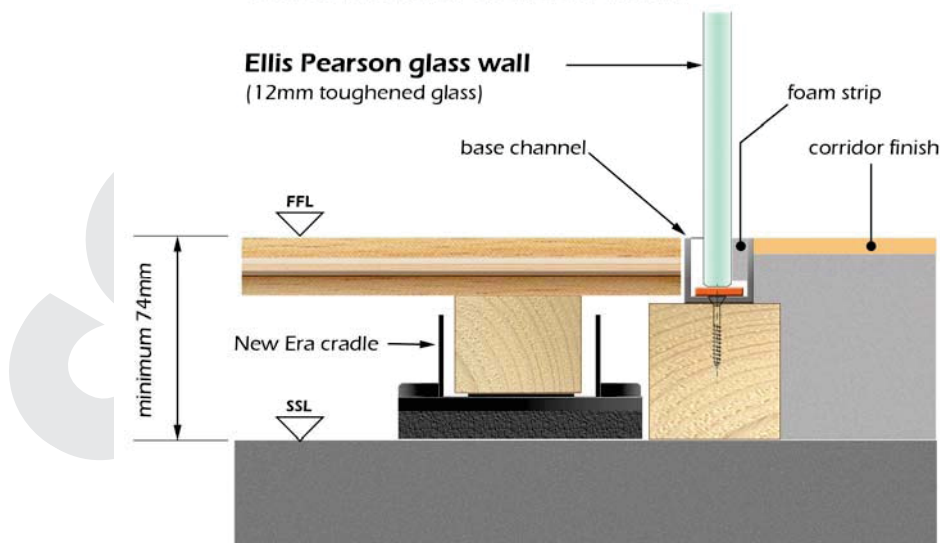
Side channels are fixed into vertical chases cut by the Main Contractor into the sidewall masonry. The channels are fixed immediately prior to plastering and form permanent grounds for the plaster at the side wall/glass wall junction. This operation is carried out by the plasterer at the same time as the playlines are fixed.

Sidewall glass detail



Glazing channels supporting the base of the glass wall are screwed onto treated softwood bearers, which are plugged and screwed to structural concrete and packed level. The top of the base channel will be set at finished floor level, as illustrated below. The glass support fins are bolted to an angle bracket assembly which itself is bolted to structural concrete using M16 anchor bolts. It is essential that structural concrete is at least 100mm thick and has a minimum compressive strength of 25N/mm.

Glasswall base channel detail



2.3 Use of pre-cast concrete floors with glass-back walls

Where floors are constructed using PC units, or “plank and pot” systems, special arrangements need to be made to ensure adequate fixings can be made for the glass fin and bracket assembly; bolting through, for example; or filling voids with concrete. See Ellis Pearson glass wall drawing EP200 for details.

2.4 Floor & glass wall base channel

The standard glass fin & bracket assembly co-ordinates with batten system hardwood floors, which have overall depths in the range 70-80mm. Special arrangements for builder’s work will be necessary for floor thicknesses less than 70mm (cutting out concrete beneath the fin brackets, for example).

2.5 Finishes adjacent to glass-back walls

England Squash recommend that the sidewalls of the squash courts be extended at least 900mm beyond the glass wall: either *“as part of the structure or (as) a flush faced panel 900mm wide the full height of the glass wall ... painted white”* (ESR Information Sheet 10:Glass-back walls). These wall extensions act like sightcreens to prevent sight of the ball being lost in play, and prevent the glass acting as a mirror.

3 FLOORS

The WSF stipulates that: *“The floor shall be hard, smooth, able to absorb small amounts of moisture without becoming slippery, have limited spring and provide a firm footing in normal play.”* In practice squash court floors have traditionally been constructed from light coloured hardwoods – usually beech or maple – that is secret-nailed to a semi-sprung batten to provide the resilience required. A number of proprietary brands of flooring batten are available, all of which have a resilient strip or pad fixed to their underside. This forms a permanent cushion between the floor and the sub-floor, which minimises physiological damage and prevents player fatigue.

3.1 England Squash updated requirements for squash court floors (May 2008)

ESR Technical Information Sheet no.1a (updated May 2008) stipulates that *“All new squash court floors must comply with European Standard EN14904.”* This is the latest harmonised performance standard for sports & activity floors, which supersedes older national standards such as BS 7074: Part 4 (1991). Hardwood sports floors such as those used for Squash are categorised as Area Elastic floors. This category is sub-divided into two types: A3 and A4 (the latter being the higher standard of the two), depending upon test results obtained for characteristics such as shock absorption, friction and vertical deformation. All of the floors provided by CourtCare comply with BS EN14904:2006

3.2 Junckers SylvaSquash beech

Junckers *SylvaSquash* beech has distinct advantages over competitive products:

- WSF and ESR approval
- Compliance with EN14904:2006 (type A3 or A4 depending on system chosen)
- Precision engineered pre-finished boards, manufactured to a tolerance of 22mm ±0.2mm
- Light, even, consistent grain and colour
- Grown in sustainable managed forests: FSC, PEFC, Chain-of-Custody certified
- Standard length boards (3700mm long), enabling every heading-joint to be laid on and supported by a batten – minimising the risk of board breakages. (Maple, by contrast, comes in random lengths and is prone to board breakages between battens).
- Boards are factory-finished with a slight texture (sealed or unsealed), removing the need for post-installation sanding or sealing.

- Long minimum life-cycle: as boards are solid timber and not laminated, SylvaSquash floors can be sanded down for maintenance up to 15 times before needing to be replaced, as compared with structured or laminated boards

3.3 Undercarriage & batten systems

Junckers boards are secret-nailed to a system of battens which are laid at 411mm centres, so that the end of each board is supported by batten. Junckers offer a range of undercarriage systems suitable for use in squash courts. Some - such as Junckers Unobat 50 - whilst complying with type A4 of the new performance standard, are not suitable for use in glass-back courts because of their low elevation: because a minimum floor depth of 75mm is recommended to co-ordinate with glass wall fins and base channels (see section 2 above). Junckers standard batten system is *Blubat* which complies with type A3 of EN14904 (the lower of the two standards).

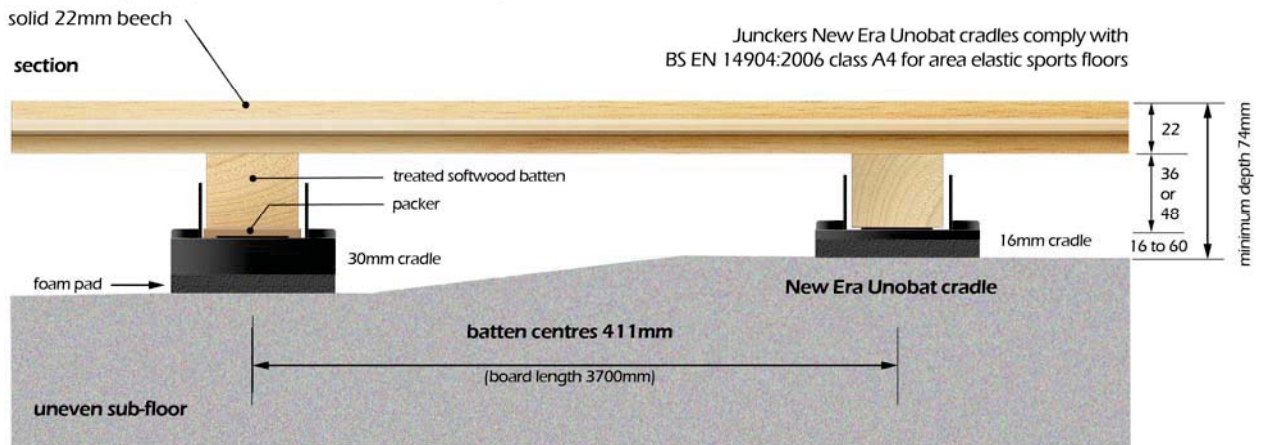
3.4 Sub-floor tolerances for the Junckers Blubat system

Blubat battens have been designed for use on sub-floors which are flat and level, and which comply with BS 8024 Pt1 (1987) Code of Practice for concrete bases and screeds to receive in-situ flooring, with an SR1 flatness tolerance (not exceeding 3mm under a 3000mm straightedge). Single batten systems of this type cannot be packed to level because the foam compresses over packing pieces to create “dead” spots. In practice, most floors do not reach this degree of accuracy and scabbling and/or latexing is necessary to achieve the required tolerance, which can be expensive. The practical low-cost solution to this problem is to use a cradle levelling system, which also achieves a higher A4 rating.

3.5 Junckers New Era Unobat cradle levelling system

Cradle systems have been designed to resolve the problem of out-of-tolerance sub-floors in a more practical and economical way than expensive concrete remedial techniques. Manufactured from high-impact grade polypropylene, New Era Unobat levelling cradles have a resilient impact pad fixed to the underside, in contact with the sub-floor. The cradles are set at specific centres (varying according to batten thickness) and softwood battens are laid in them. Packers are then placed inside the cradles under each batten to provide a perfectly level undercarriage system onto which the Junckers boards are nailed in the conventional way.

Junckers SylvaSquash with New Era cradle system



3.6 Pre-cast concrete floors

If a PC unit or ‘plank & pot’ floor is planned, levelling screeds may be omitted (as long as they are not structurally necessary) and cradles specified as an alternative: this is normally cheaper and more convenient, removing the need for a wet trade. Cradles are available in different thicknesses to provide a range of floor depths, and are normally at least 50% cheaper than screeds. Electrical and other services can also be fed between and underneath cradles.

3.7 System thicknesses

The standard *SylvaSquash Blubat* system:

Beech strip:	22mm
Blubat batten:	57mm
Total:	79mm

The standard *SylvaSquash* cradle system:

Beech strip:	22mm
Plain batten:	36mm
New Era Levelling cradle:	16mm or 30mm (excluding packing) N.B. deeper cradles are available
Total	74mm -104mm

3.8 Damp proof membranes

Where concrete sub-floors are in direct contact with earth a primary damp proof membrane will be necessary in compliance with Building Regulations. The use of a secondary membrane is also advisable. Visqueen or plastic sheeting is not advisable as the low surface friction allows battens or cradles placed on them to slide about, resulting in joints opening up, or even entire sections of floor moving.

3.9 Finished floor tolerances

The WSF stipulates that:

- "The floor shall be level to within $\pm 10\text{mm}$ in the length, width and on the diagonals of the court".
- "Any joint in the floor finish shall be plane to within 0.25mm. Any open joint shall not be more than 2mm..." (with the exception of the expansion gap at the wall junction which may be 6-9mm).
- "The floor surface shall be true to within $\pm 3\text{mm}$ in 3 metres."

3.10 Floor finishes outside the court

It is important that the glass-back wall not be allowed as a mirror and to prevent this adjacent finishes should not be dark. England Squash recommend (Technical Information Sheet No.6) that:

"The floor area behind the glass back wall should be the same colour as the court floor for a distance of 900mm."

This finish need not be the same material as the court floor, but needs to be at least as light a shade. Quite often a pre-sealed version of Junckers beech is specified to achieve this effect, with the boards laid parallel to the glass wall, at right angles to the squash floor.

3.11 Floor/glasswall co-ordination

Whatever type of floor finish is specified it is important to ensure that the finish outside the court is absolutely flush with the court floor: to ensure that there is no trip hazard and because the hinge side of the some makes of glass doors overhang into the corridor by 40mm when in an open position.

4. COURT ACCESSORIES

4.1 Playlines

See section 1 above, dealing with plaster.

4.2 The “tin”

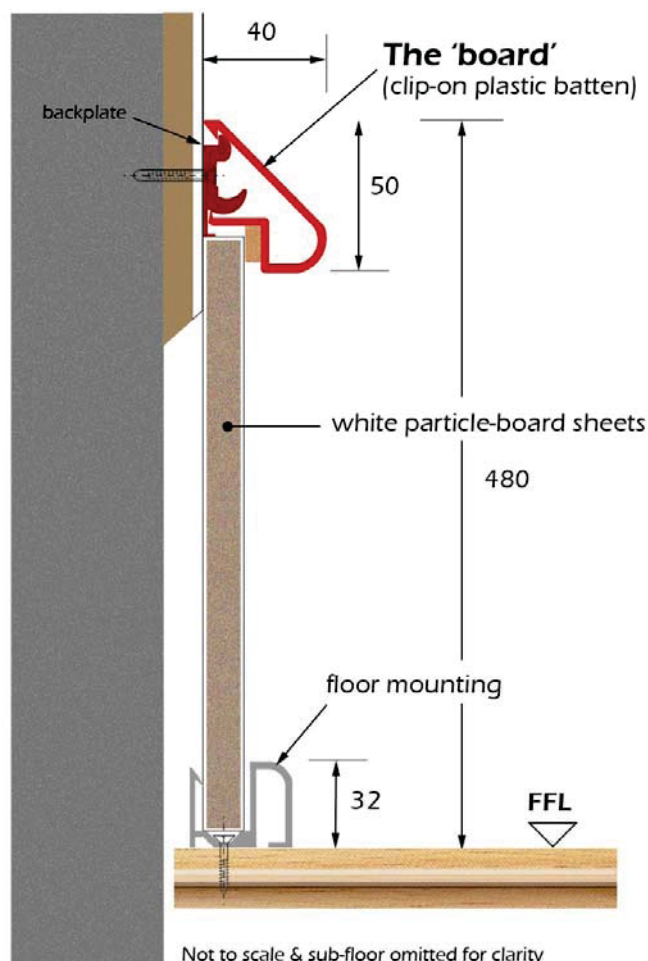
Although not made of metal any longer for safety reasons, the front wall sounding board or telltale is conventionally called “tin”. It is located along the full width of the court along the bottom of the front wall, installed on top of the floor. The top batten of the tin (the “board”) is splayed to deflect the ball to denote it is out of play, or “down”, when struck. The tin itself is made from white particle-board or other sheet material, with a void behind it so that a hollow sound is made when it is struck to denote the ball is out of play. The “tin” is fixed after the floor installation is completed.

4.3 The Armourcoat Tin

The “board” and bottom cover moulding are made from durable extruded plastic and designed for secret fixing to wall and floor. The “board” colour matches the playlines – red. The floor mounting is white. The sounding boards themselves are white melamine-faced particle-boards which are located into the floor mounting and retained at the top by the splayed and rebated “board” which is clipped onto a plastic backplate.

Ventilation can be achieved by drilling a simple pattern of holes into the sounding boards on site opposite air-bricks after fixing. If specific drilling patterns are required (for H+V systems or airflow requirements), laminated plywood or perforated metal sheets may be specified for extra strength as an alternative to particle boards, which will smash with ball impacts if too many holes are drilled into it.

The Armourcoat ‘Tin’



4.4 Court markings

See Court layout drawing on page 2 for court markings, which should be applied in red line-marking paint to the floor and front wall. The use of line marking tape is not recommended for squash court floors as it is considered a safety hazard (players can slip on tape if sweat drips onto it), although tape may be used for the 'cut-line' on the front play wall. All markings must comply with WSF and England Squash requirements, and be 50mm wide.

5. Other design considerations

Although outside the scope of this specification, there are other important factors which specifiers and designers need to take into account:

5.1 Lighting

A lighting layout drawing recommended by England Squash can be found in the Appendix. This reproduces the current recommendations, based on six twin 70W fluorescent luminaires with Tri-phosphor 4000K lamps, and will achieve:

"...an average of 400 lux measured 1000mm above the floor. This figure is subject to the reflectance of the ceiling, walls and floor and a maintenance factor of 0.85 based on a white playing surface."

This figure is likely to be reduced in Colorcourts because of lower reflectance values, and can be adversely affected by other factors such as ceiling height and other court features. If a greater level of illumination is required, the number of fittings may be increased to nine. Readers are advised to contact the Technical Department of England Squash or download their Technical Information Sheet No.8 (May 2008), which lists manufacturers of suitable systems.

The World Squash Federation stipulates a recommended standard of 500 lux, with a minimum standard of 300 lux (*WSF Squash Court Specification*, January 1999, section 11 p.14):

"The walls of the courts shall be lit in such a way as to appear evenly and uniformly illuminated and the lux levels shall not vary at any point by more than 15% from the average level of illumination."

5.1.1 Lighting for glass-back courts

Where spectator seating is planned outside courts, lighting levels should be provided to the same standard as inside the courts, to prevent the glass walls acting as a mirror when viewed by players from inside.

5.2 Adjacent finishes

Wall surfaces behind and next to glass-back walls should also be painted white for the same reason. (See also sections 2 & 3 dealing with glass walls and floors).

5.3 Ceiling finishes

These should be white or light coloured so that the ball can be seen in flight, the level of illumination of the ceiling being not less than 25% of the court lights (WSF Specification). Ceilings may be constructed of lay-in grid tile systems, plasterboard or metal decking, as long as the materials chosen are sufficiently robust to withstand ball impacts. Structural beams, trusses and any other feature against which players may have to sight the ball should be white or light coloured and as well lit as the ceiling.

5.3.1 Minimum height

All new courts should have a minimum height from finished floor level to underside of lights (or any other court feature) of 5.64m.

5.4 Heating and ventilation

ESR Information Technical Information Sheet No. 3 (Squash Court Flooring) states that:

“... a squash court should not be allowed to become damp for any length of time, as the moisture in the air will eventually enter the (floor) boards and produce buckled or cupped strips. It is important to limit the variation in the air temperature of a court to $15^{\circ} \pm 3^{\circ}\text{C}$ ($60^{\circ}\text{F} \pm 5^{\circ}\text{F}$) and ensure the provision of a regular airflow of not less than 4 air changes per hour.”

Junckers technical literature reinforces this point suggesting a relative humidity range for their floors of between 35 and 65% and advising that temperature extremes be avoided. Timber is a hygroscopic material and will expand and contract in proportion to the moisture in the atmosphere. Court builders are advised to ensure that provision is allowed for adequate heating and ventilation to avoid condensation and floor problems.

6. Maintenance

Squash Court components need to be taken care of to maintain their effectiveness: court walls need to be cleaned; floors sanded and re-marked. Given the right kind of maintenance and care, the specialist products in this Specification will have a life expectancy of many years. Court owners and operators should budget for regular maintenance. CourtCare offer this service on a one-off or regular contract basis. See our website for details: <http://www.Courtcareuk.com>

7. Governing Bodies

The WSF publish a *Squash Court Specification* which provides the basic recommendations for standardised dimensions and tolerances etc. The website lists WSF approved products, and has links to approved suppliers and downloadable technical information.

World Squash Federation
Innovation Centre, Unit 14
Highfield Drive
Churchfields
St Leonards –on-sea
TN38 9UH

Tel: 01424 858288
Fax: 01424 858287
email: admin@worldsquash.org
website: <http://www.worldsquash.org/>

The Technical Department of the England Squash (the brand name of The England Squash Rackets Association Ltd.) publishes useful Information Sheets relating particularly to heating, lighting and flooring, and also publish lists of approved products and suppliers. Clubs may become affiliated and membership also has other benefits, such as receipt of newsletters and magazines. The website has links to approved suppliers and downloadable technical information (to be found under SUPPORT >TECHNICAL AND MEDICAL).

England Squash & Racketball*
National Squash Centre
Rowsley Street
Manchester
M11 3FF

Tel: 0161 231 4499
Fax: 0161 231 4231
email: enquiries@englandsquashandracketball.com
website: <http://www.englandsquashandracketball.com>

*formerly England Squash

8. Key Suppliers

Armourcoat Limited

Tel: 01732 460668
Fax: 01732 450930
email: sales@armourcoat.co.uk
website: <http://armourcoat.com>

Prospec Limited (Ellis Pearson Glasswalls)

Tel: 01709 377147
Fax: 01709 375329
email: squash@prospec.co.uk
website: <http://prospec.co.uk>

Junckers Limited

Tel: 01376 534700
Fax: 01376 514401
email: enquiries@junckers.co.uk
website: <http://junckers.co.uk>

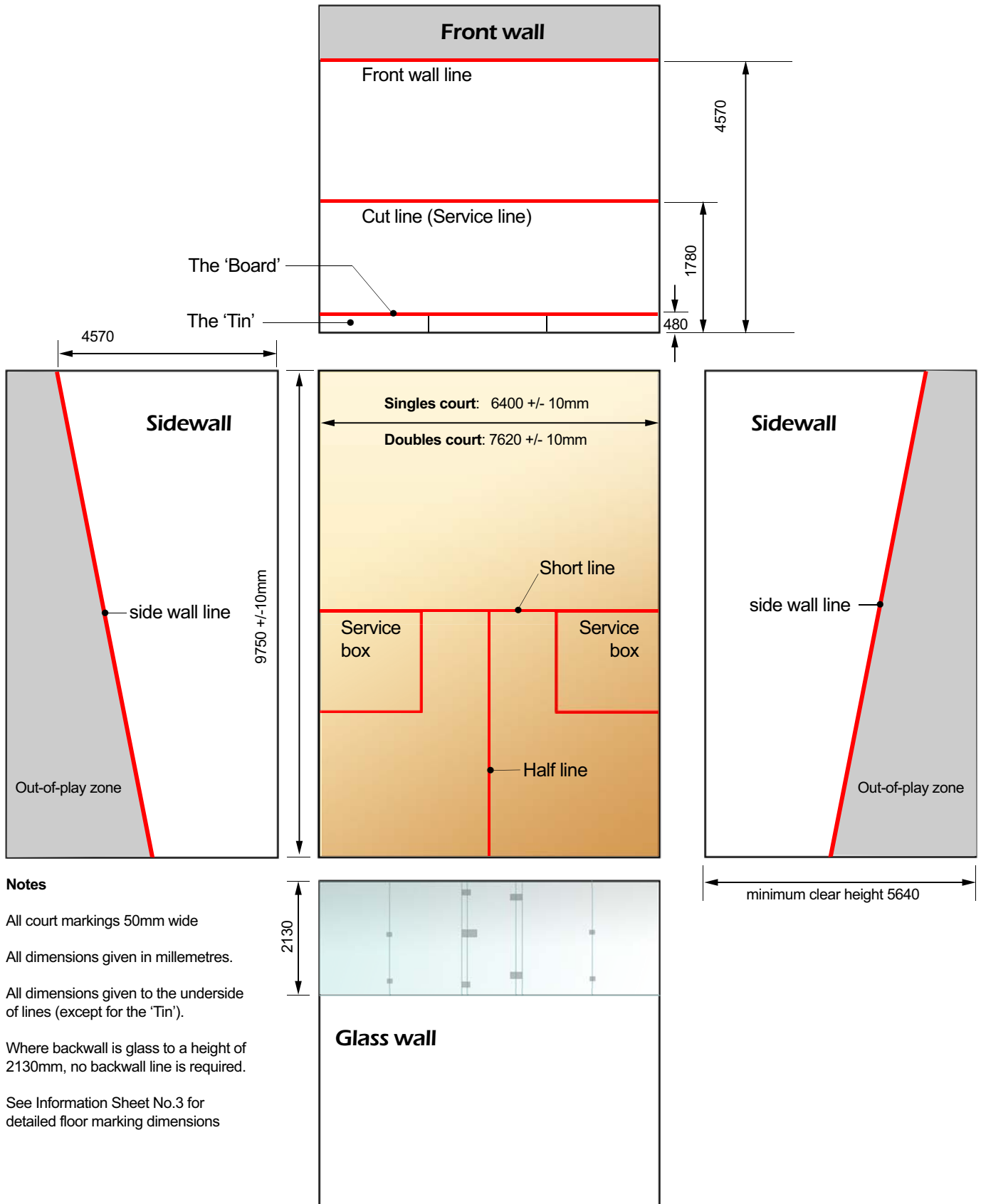
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Squash court layout & dimensions

with glass back wall



Notes

- All court markings 50mm wide
- All dimensions given in millimetres.
- All dimensions given to the underside of lines (except for the 'Tin').
- Where backwall is glass to a height of 2130mm, no backwall line is required.
- See Information Sheet No.3 for detailed floor marking dimensions

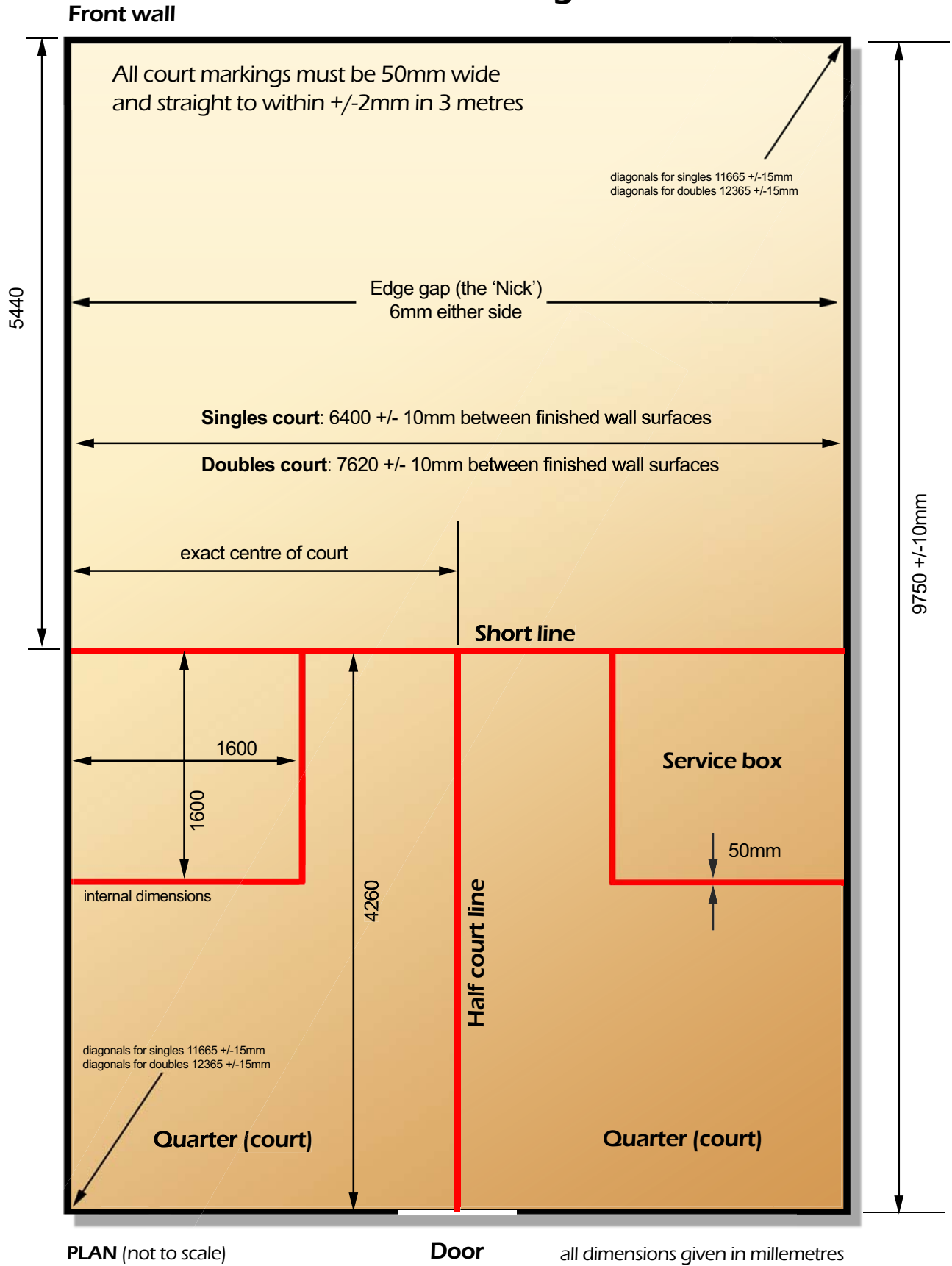


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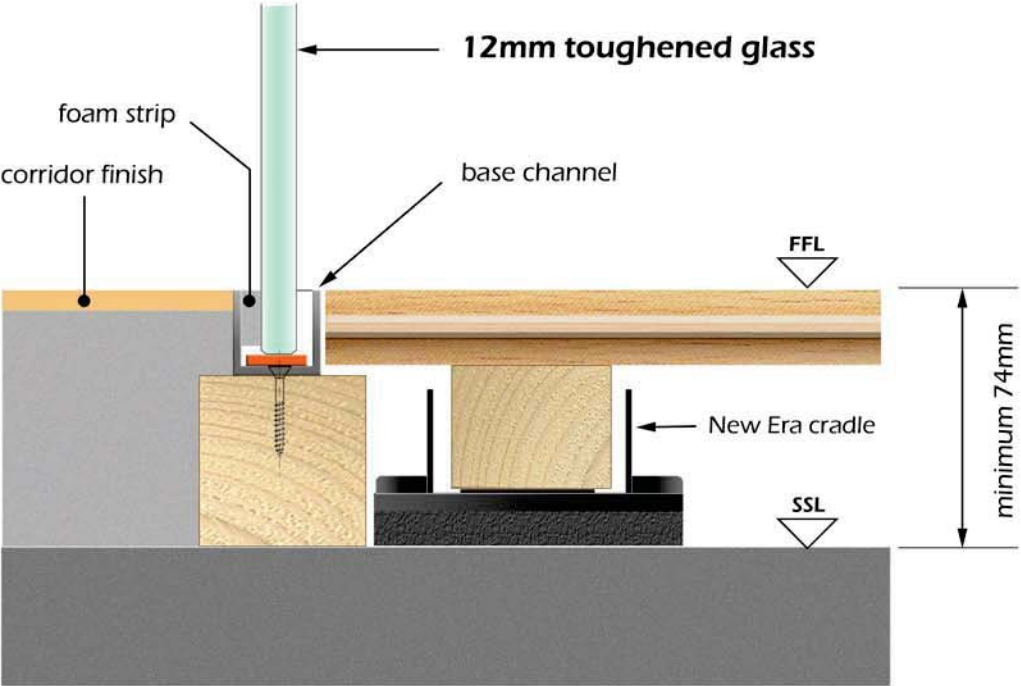
Tel: 01260 545008 Fax: 01260 298841

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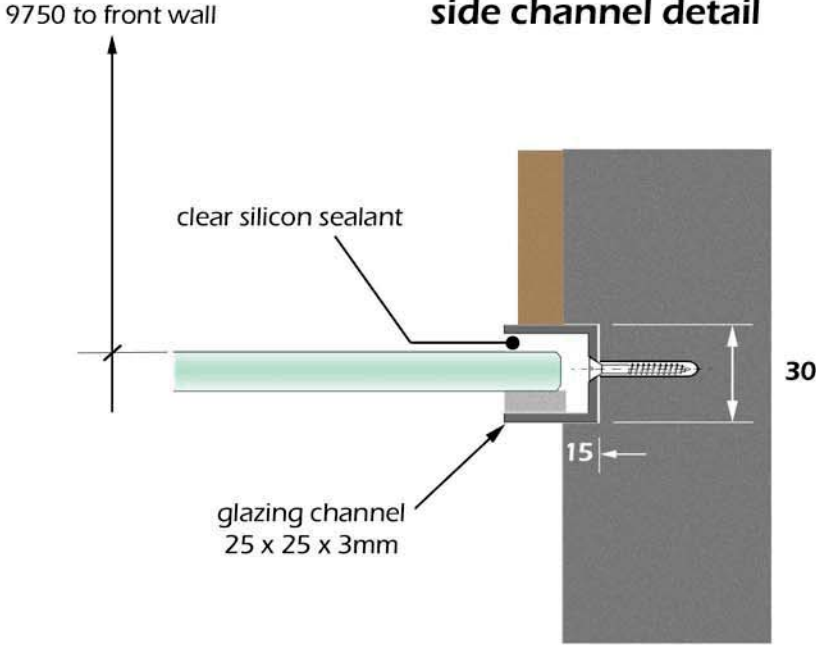
Squash court dimensions & floor markings



SQUASH COURT GLASSWALL DETAILS



base channel detail



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SPORTS & ACTIVITY FLOORS

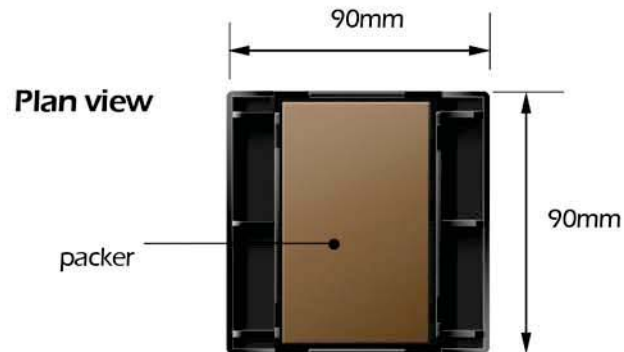
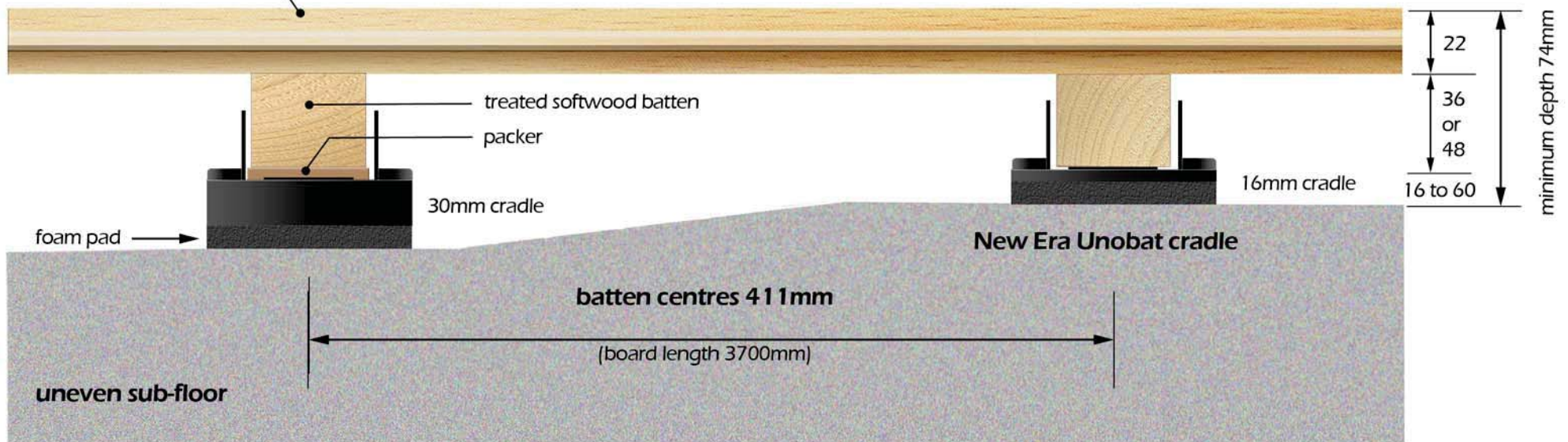
Junckers New Era cradle system for use with uneven sub-floors



SylvaSport or SylvaSquash
solid 22mm beech

Junckers New Era Unobat cradles comply with
BS EN 14904:2006 class A4 for area elastic sports floors

section



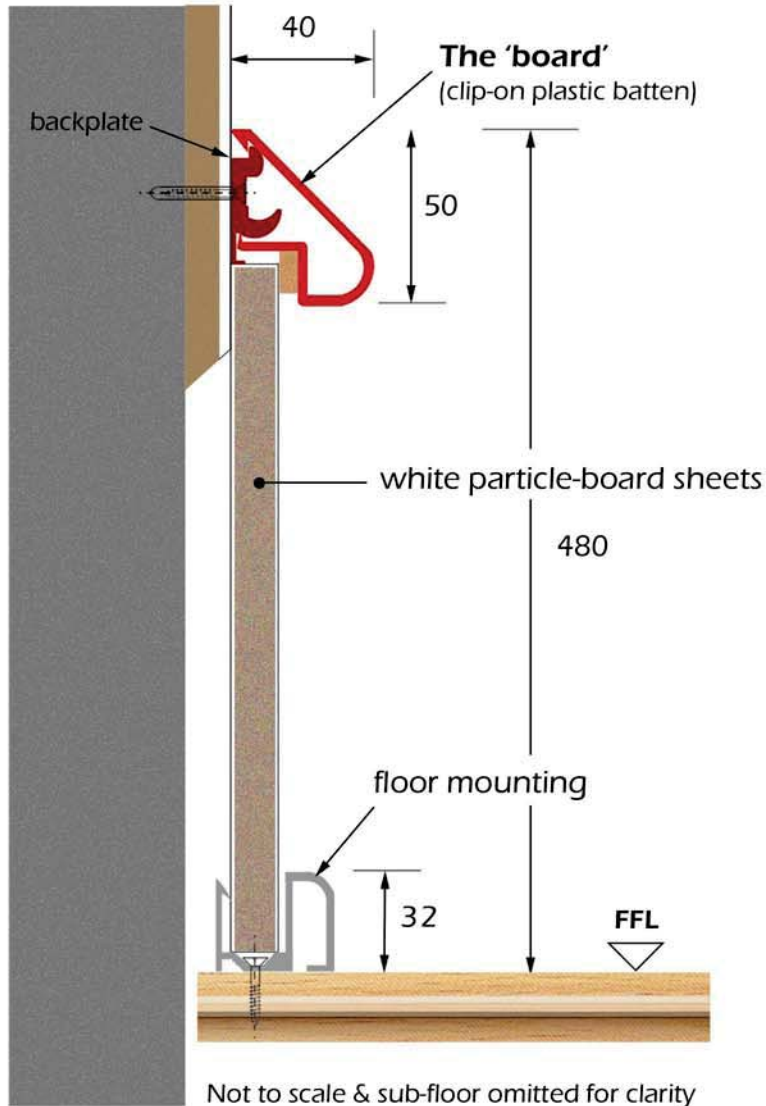
Batten sizes available: 36 or 48mm
Basic cradle heights: 16, 30, 45, or 60mm

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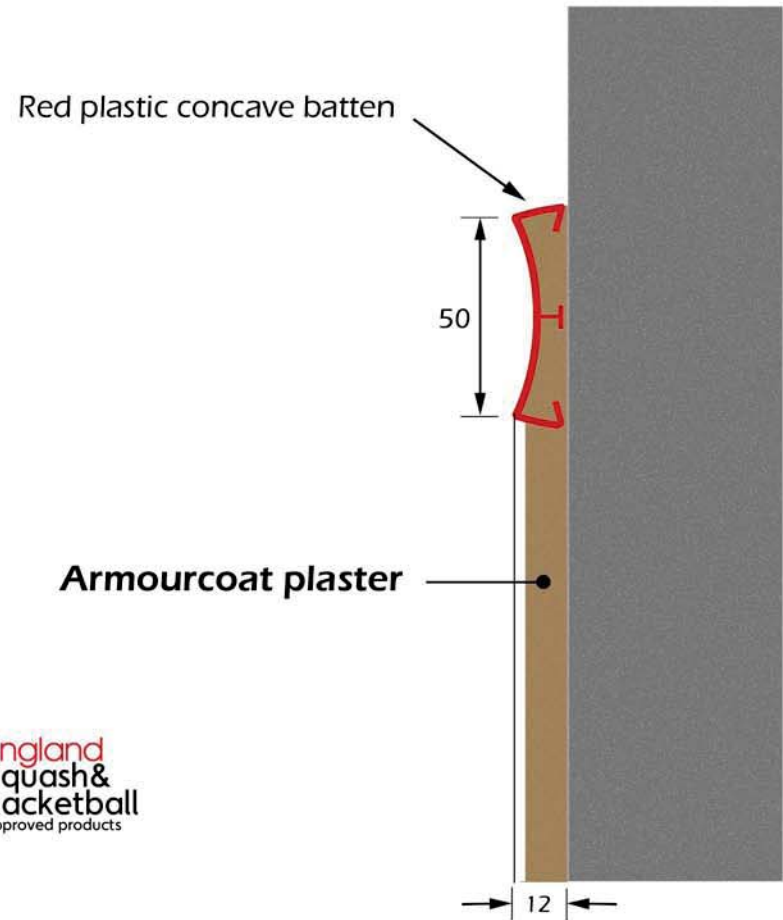
SQUASH COURT PLAYLINE & TIN DETAILS



The Armourcoat 'Tin'



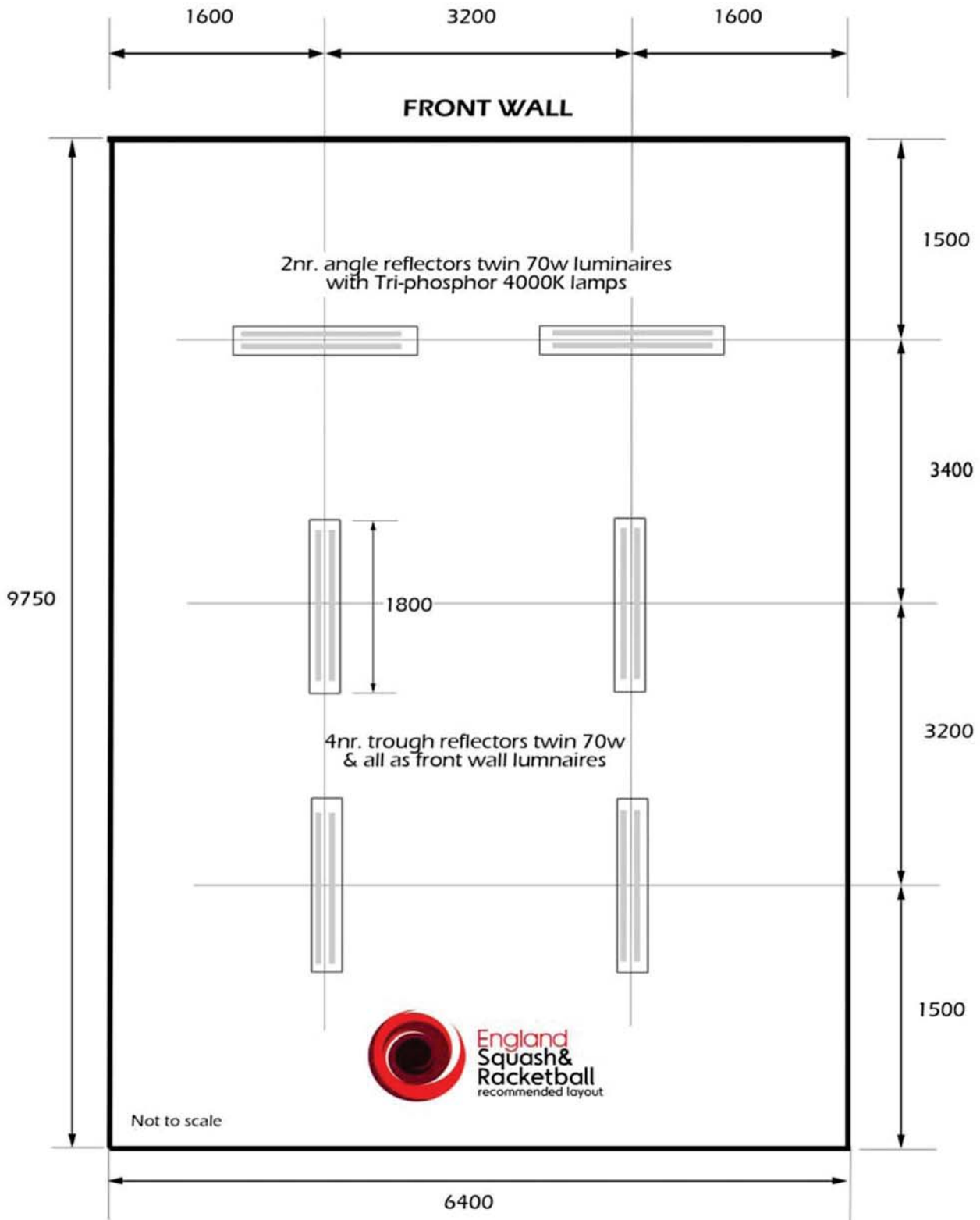
The Armourcoat playline



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SQUASH COURT LIGHTING LAYOUT

Singles Court



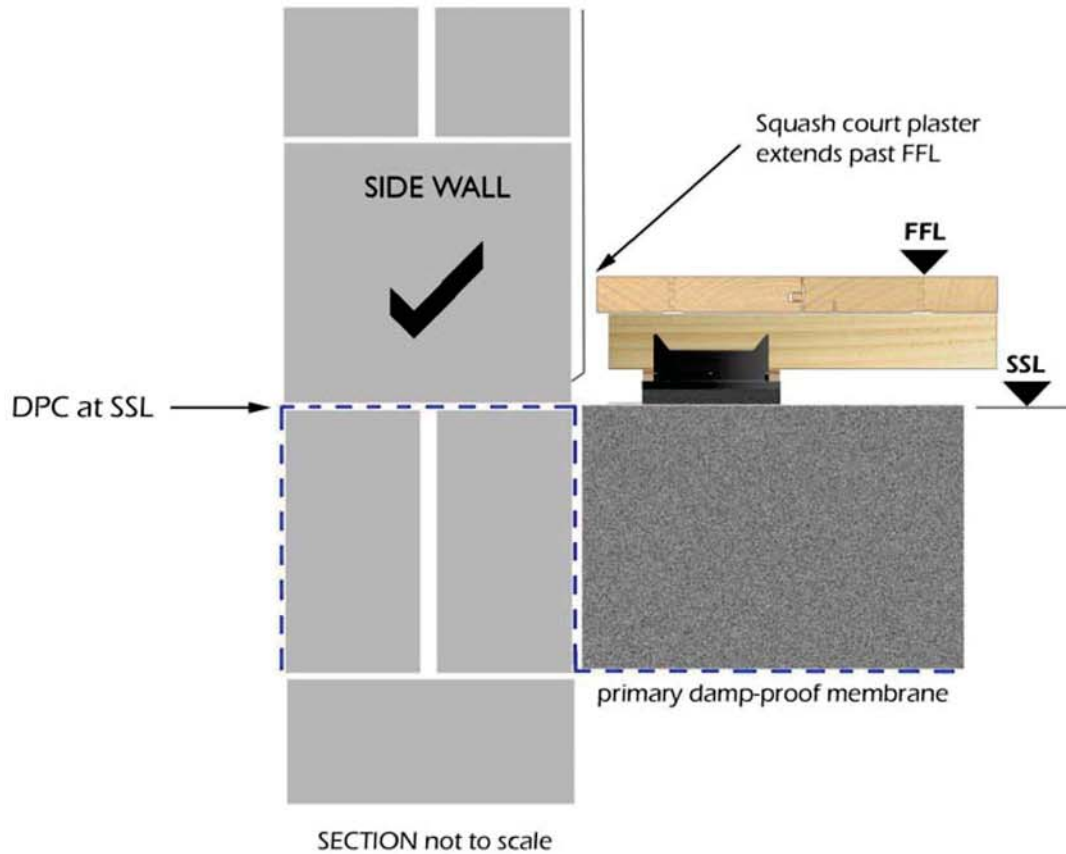
based on ESR Technical Information Sheet no.8

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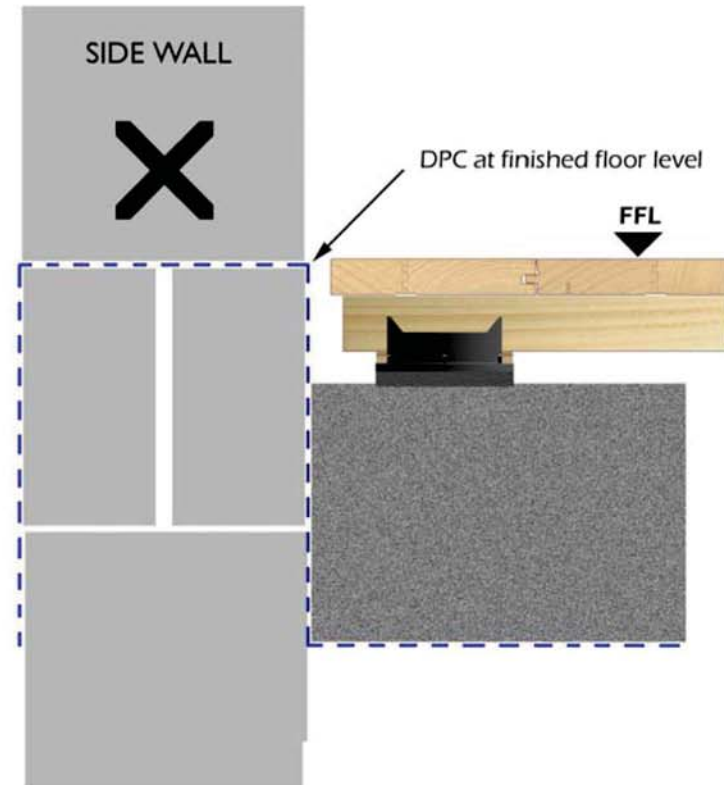
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POSITION OF DPC IN SQUASH COURT SIDEWALLS

DPC in correct position



DPC not in correct position



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Data Sheet 1 COURT DIMENSIONS & TOLERANCES

Finished sizes	Width:	6400 ±10mm Singles courts 7620 ±10mm standard Doubles courts 8420 for WSF World & Regional events & Commonwealth Games
	Length:	9750 ±10mm
	Diagonals:	11665 ±25mm
	Height:	5640mm clear space to underside of lights from floor level

(Note: in renovated courts plan dimensions may be reduced by a maximum of 80mm)

Finished tolerances	Walls:	vertically: ±5mm in 2 metres straightness: ±15mm in length at 1 metre AFFL plane: no greater than 3mm in 1800mm
	Floors:	level: ±10mm in length, width & diagonally plane: joints not exceeding ±0.25mm in plane trueness: ±3mm in 3 metres

Construction Tolerances	Walls:	±6mm in 2 metres
	Floors:	for single batten systems: ±3mm in 3 metres for cradle systems: ±10mm in 3 metres

Court markings	50mm wide	straightness:	to within ±2mm in 3metres
		correct position:	±5mm except the "board", which is ±2mm in height

Position of playlines	Frontwall:	4570mm to underside of playline above finished floor
	Backwall:	2130mm to underside of playline (omitted if backwall is glass)
	Glass-back wall:	Minimum height 2130 ±5mm, in which case no marking is required. If glass wall higher than this it must be a minimum of 2180mm with a red line marking complying with above.
	Cut line:	Top edge 1830mm above finished floor level
	The "tin"	Top edge of "board" 480mm (may be adjustable to 430mm) above finished floor level

Floor markings	Short line:	parallel to front and back walls, nearest edge 4260mm from back wall
	Half line:	parallel to and equidistant from side walls, running from back wall to the Short Line
	Service boxes:	(see drawing) one on each side of court behind the Short Line. Internal dimensions 1600mm square.

Reflectance of walls	Average reflectance of front and side walls 60%
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The door	Should be located in the centre of the back wall and open into the court. The inside surface should be flush with the adjacent wall surfaces when closed and matching in colour, texture and ball rebound characteristics. Maximum size 900mm wide and 2130mm high.
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Lighting	400 lux at 1000mm above floor level (ESR). 500 lux (WSF)
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Data Sheet 2 PRODUCT SPECIFICATIONS & DETAILS

ARMOURCOAT Plaster

Colour: White
 Thickness: Nominal 12mm

ARMOURCOAT Playlines

Colour: Red
 Size: 50mm x 12mm

ARMOURCOAT Tin battens

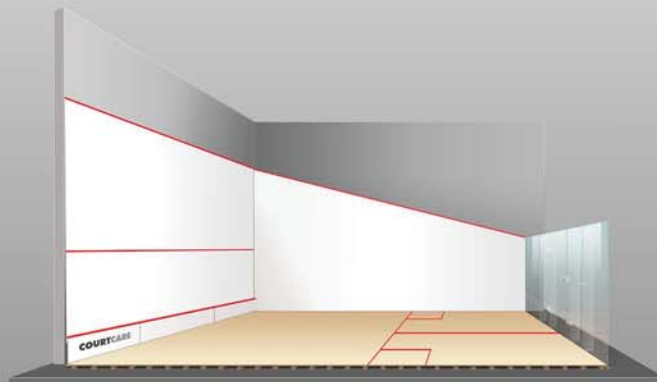
Colour: Red
 Size: 40mm deep x 50mm wide

GLASSWALLS

Overall size: 6400 wide x 2130mm high
 Thickness: 12mm toughened glass
 Door size: 760 wide x 2130mm high
 Fin size: 300 wide x 610mm high (2 panel type)
 300 wide x 2130mm high (4 panel type)

JUNCKERS SylvaSquash Beech Floors

Species: Prime grade beech (*Fagus Sylvaticus*)
 Finished size: 22mm x 129 wide x 3700 long
 Hardness: 36N/mm² (3.6 Hardness Brinell)
 Manufacturing tolerance: ±0.2mm
 Moisture content: 8% ±2%
 Blubat batten sizes: 31 x 45mm wide (including foam strip)
 45 x 45mm wide (including foam strip)
 57 x 45mm wide (including foam strip)
 Batten centres: 411mm
 Moisture content (battens) 12-14%
 System thicknesses: with 31mm Blubat batten: 53mm
 with 45mm Blubat batten: 67mm
 with 57mm Blubat batten: 79mm
 with 16mm cradle/ 22mm batten: 60mm min.
 with 16mm cradle/ 36mm plain batten: 74mm min
 with 16mm cradle/ 48mm plain batten: 86mm min



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