

The fine art of surfacing:

Choosing a multi-use sports surface

Chris Trickey, chief executive of SAPCA, offers *PE&ST* the benefit of his knowledge and experience in selecting the right artificial sports surface to suit your school...

Multi-sports surfaces can offer a cost effective solution for facilities with a wide range of sporting demands. But while a multi-sports area is often seen as a 'safe option', there will almost always be a need to compromise, primarily in terms of the dimensions and the playing surface.

There are widely differing requirements for the playing surfaces for various sports and many different needs for the design of individual facilities. It is not possible to provide a simple solution or formula that will satisfy every situation, so each facility must be carefully planned according to specific demands and priorities.

Critical to the success of any sports facility is an initial assessment of its likely use.

The sports to be catered for must be determined, as must the priorities for usage between them and the standards of playing performance needed. The choice of sports and the feasible balance between them may also depend on the different levels of income generation that are possible. The initial planning of a project should also include a thorough assessment of the proposed management and operation of the facility.

The cost of any new facility is greatly influenced by the nature of its site. Costs will be much higher for engineering a difficult

site and some sites may just not be cost effective to develop as sports facilities. The following factors will have to be considered: topography, access, site drainage, electrical supply, water supply, trees and ground conditions. Before starting a detailed design it will be necessary to gather as much information as possible about the site and its surroundings and allowing sufficient resources for this process will greatly reduce the risk of unforeseen problems (and increased costs) during construction. It is therefore advisable to produce this information at an early stage of the design process and to make it available to all contractors tendering for the construction of the facility.

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Compromise

Among the most commonly played sports on multi-use games areas are tennis, netball, basketball, football, five-a-side football and hockey but other sports that might need to be catered for include rugby, volleyball, athletics practice, roller hockey and rounders. The need to compromise arises from the fact that certain types of surface are more suitable than others for different sports.

One of the most important issues affecting the choice of surface is the need for some form of shock absorbency (or cushioning) but again there can be conflicting requirements between the sports. Surfaces with good shock-absorption qualities can provide clear benefits for players in protection from injuries but too much cushioning may be detrimental to a surface's overall performance for certain sports, such as tennis, basketball and netball.

It is increasingly possible to quantify the playing performance of sports surfaces using a series of standard test methods to measure these different characteristics objectively. These properties are generally divided into player-surface characteristics, such as slip resistance underfoot, and ball-surface characteristics, such as the height and speed of the ball bounce.

Standards

Over recent years a number of sports governing bodies have produced recommendations and requirements for synthetic surfaces particularly for higher levels of play and these can be used to provide useful guidance when assessing the optimum specification for a sports facility. European standards for sports surfaces are also being developed that will, in due course, replace existing national standards such as BS 7044.

Ensuring that a new playing surface meets the needs of those who will use it is clearly of vital importance but there are a number of other key issues that must also be given consideration if the right choice of surface is to be made. For example, what will it cost? As well as the initial cost of installation, the choice of surface may be influenced by the cost of both routine maintenance and its eventual replacement. For this, the anticipated life of the surface

will also need to be known.

Many modern synthetic surfaces require relatively little on-going maintenance especially compared with natural grass but this regular work will still be essential if the surface is to continue to perform properly and is not to fail prematurely. Indeed, the warranty may depend on the maintenance being carried out in accordance with the manufacturer's recommendations. It is always a good idea to build into the cost of the project the purchase of



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the necessary maintenance equipment.

The range of synthetic surfaces available nowadays can appear quite daunting, especially to anyone undertaking a project for the first time. The problem of choosing the right surface may seem even more complicated with the vast number of different products, all with different trade names. Three of the main types of surface installed for multi-use sports are macadam, polymeric and synthetic turf. The following notes on each provide a simple introduction.

Macadam

Macadam surfaces may be either dense or porous. While dense macadam may provide a more durable surface (it is typically laid on school playgrounds), its inability to drain is a major constraint for use as a sports surface.

For this reason, porous macadam is considered more suitable and is used for around 80 per cent of all tennis surfaces installed in the UK. Porous macadam can be played on in most weather conditions throughout the year. It is relatively inexpensive compared to most other

sports surfaces and requires low levels of maintenance. Porous macadam surfaces may be colour coated to improve their appearance and the playing characteristics.

Polymeric

A polymeric surface is usually an elastomeric mixture of natural or synthetic rubber in a binder (matrix) of polyurethane. Polymeric surfaces have a degree of inherent shock absorption, which may be varied by increasing the thickness of the surfacing layer or altering the composition of the polymeric materials. Thicker forms of the surface may be used where the intended sports include five-a-side, football or athletics training. This type of polymeric is also capable of taking a running shoe spike.

Synthetic turf

There are many different types of synthetic turf surface, all with a wide range of properties. Among the variables that will determine their performance are the polymer used for the fibre yarn (such as polyolefin and nylon), the cross-sectional area of the individual ribbons of fibre, the method of carpet



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manufacture, the pile height and pile density. Two main designs used for multi-sports areas are those with a vertical pile (of tufted, woven or knitted construction) that is supported with a sand filling or dressing and those surfaces with an interlocking pile of needle-punch construction that are also filled or dressed with sand.

The majority of synthetic turf pitches are surfaced with tufted sandfilled carpets. Experience has shown that they have good durability and performance when used for the more severe wear conditions experienced on multi-use facilities. Sand-dressed carpets are a more recent innovation. They have shorter, denser pile than the standard filled systems with a reduced quantity of sand fill and are primarily suited for multi-use games areas where hockey is the primary sport.

components are rubber crumb/shred mixed with a resin binder, either manufactured as prefabricated rolls or mixed and laid in-situ.

Shockpads constructed in-situ vary in thickness from 15mm to 35mm depending on the performance required and consist of a polyurethane binder mixed with rubber crumb/shred. The thicker pads may also contain pea gravel or other smaller aggregates. The rough texture of the shockpad helps to grip the back of the synthetic turf carpet, minimising the risk of carpet creep or movement.

● Chris Trickle is chief executive of SAPCA



Further detailed guidance is provided in *A Guide to the Design, Specification and Construction of Multi-Use Games Areas* produced jointly by SAPCA and Sport England. Copies Free copies are available from the Technical Guidance section of the SAPCA website at: www.sapca.org.uk.

Shockpads

A shockpad is a resilient layer introduced between the base and the playing surface, which is used to provide a degree of comfort for players and to create defined playing characteristics for specific sports. The most common



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