SportsSURF workshop opens up debate on synthetic surfaces maintenance

Along with 40 plus other delegates and 8 speakers I attended the latest SportSURF workshop focusing on current developments and maintenance issues regarding the provision for artificial playing surfaces. The presentations can be found at http://sportsurf.lboro.ac.uk under 'event' and the 7th workshop, along with other interesting seminar presentations.

The workshop was aimed at the sport surface industry and the wider related community, including sports surface suppliers and manufacturers, consultants, contractors, architects, owner/operators, funders, national governing bodies, researchers, users and other parties interested in sport surface science and behaviour.

The proceedings began with a talk by the workshop host, Paul Fleming, who outlined the role of Sportsurf and its aims and objectives; he highlighted the fact that membership had risen to 320, with a healthy ratio of 40:60 academic and non-academic members.

The day was split into four sessions:

Session 1 Current Practices
Session 2 Materials and Equipment
Session 3 Research Findings and performance costs
Session 4 Discussion

**Session One** began with a talk about current maintenance practices or, rather, the lack of them by Nick Harris from Technical Surfaces. He also stated that in many cases products were sold to Client's still with the (wrong) tagline that they are 'low' maintenance facilities.

Nick showed many examples of poor practice and the different range of products and surfaces they have to deal with on a daily basis. Many of the problems are often down to poor design, site location or merely due to the lack of basic maintenance regimes until they are asked to step in and rescue the playing surface.

Poor initial design can lead to surface problems, for instance, a dynamic sub base can eventually suffer from subsidence, creating hollows in the surface which affects levels and playability. These hollows then tend to collect water, causing further problems.

Location of the pitches was also an issue, with some put in areas predominantly sheltered by trees or in areas that allow water ingress.

However, the lack of basic maintenance work (brushing, vacuuming, and rejuvenation processes) was, without doubt, the main factor in surface deterioration, coupled with high usage.

There was also a case for educating the end user to be more helpful. By providing clear signage and shoe brushing facilities, litter and surface contamination can be reduced considerably. Nick concluded with some useful advice on what the company

considers to be a useful recipe for maintenance tasks and the frequency for good upkeep.

**Session two** was delivered by Paul Fleming and Mark Freeman from Loughborough University who talked about the practices they use to manage and upkeep their pitches.

The university has three full size artificial pitches on campus and maintains another on an adjacent college campus. Three are third generation (3G) carpets (two long pile and one medium pile) and the other is a non-filled water based system used solely for hockey. The 3G pitches cater for football, rugby and lacrosse and in the case of the medium pile system for hockey also. On average the pitches are catering for between 55-66 hours use per week which is considered very high usage.

The Heydour water based pitch is specifically for hockey. This 11mm pile carpet system requires watering prior to play to reduce friction burns and traction. 18,000 litres of water are put onto the pitch in seven minutes. During the summer there may be a need to water these facilities six or seven times a day, costing about £25 each occasion.

Their maintenance regimes are as follows:

3G
- Weekly – Litter pick 2-3 times, 2 safety checks (posts/nets), brush once or twice using different style brushes
- Monthly – Rotary vacuum brush of the surface (external contractor)
- Annual – Revitalisation – remove top 2/3 mms of infill, separate out contamination and replace infill (external contractor)
- Possible five-year rejuvenation deeper process than the annual one

Water based
- Brush once or twice per week using different style brushes
- Line markings re-applied 3 monthly
- Algae treatment 3 monthly
- Twice yearly repair and maintenance programme of the irrigation equipment, tank, pump and rain guns

These maintenance costs work out to be around 8-10k per year.

Field test data was discussed also, showing the value of monitoring the surfaces playing related behaviour.

**Session three** was presented by Dr Ian James of Cranfield University who outlined the results of a recent four-year PhD research project carried out by Dr Andy McLeod, funded partly by the IOG, resulting in a set of guidelines for the maintenance of sand filled and sand dressed synthetic surfaces.

He began his talk by demonstrating the difference between natural and artificial turf annual maintenance costs, which were shown to be very similar:

Natural £7500
Synthetic £8000

Average weekly usage per pitch (hrs)
Natural    4.1 hrs
Synthetic  44. hrs

Average annual maintenance expenditure per hour of use
Natural    35 £ /hr
Synthetic 3.39 £/hr

He went on to discuss performance issues, including as the pile and infill materials which have an affect on ball roll and bounce. Also there are environmental factors which play a part, particularly the way water moves, or in some cases does not, through the profile into the drainage system.

The hardness and compaction of infill materials, and the issue of too much or too little infill material, will impact on player performance in respect of underfoot comfort and traction.

It is a very comprehensive report which provides a greater understanding of these systems and how best to use and maintain them. More details can be found at www.cranfield.ac.uk/sas/sst

**Session four** was presented By Gert –Jan Keift, on the study of the correlation between field properties, usage and maintenance of 50 artificial turf football facilities in a six-year period from 2001-2007.

He studied various aspects of the systems, including surface deformation, ball roll, ball bounce, traction and friction, along with monitoring a number of maintenance regimes and their effect on the surfaces.

He concluded that many systems were failing to maintain their performance, and that the initial starting conditions needed to be better understood to then design for the longer-term loss of performance. The study is ongoing and future monitoring should include details of the usage and maintenance regimes.

**Session five, was presented** by Kathryn Severn who is studying a PhD at Loughborough University, was a presentation on the physical properties of the systems versus performance test results. It was an in-depth analysis of the physical make up of the materials and their properties, that form these synthetic sport surface systems, looking at the way the pile, infill and base materials affect the overall performance. It included some useful comments on the effect of pile height, infill depth and compaction on the performance – with ramifications for the effective control of maintenance regimes and their likely success in changing performance.

**The sixth and final session** was an interesting presentation on the life cycle and the installation and maintenance costs of artificial surfaces by Dr Colin Young (Technical and Training Manager of SAPCA).

He certainly ruffled a few feathers of some of the delegates with his comment that some of the manufacturers' products and services often failed to meet the testing criteria.

He advocated the need for the sports governing bodies to ratify a testing procedure to measure the performance of the synthetic systems, pre and post installation.

A typical 3G artificial full size pitch, with fencing and floodlights, can cost in excess of £500,000, so keeping them operational and prolonging their life span should be a priority.

Colin stated that misinformation about synthetic surfaces being maintenance-free had been very unhelpful and detrimental to the industry, the client and the long-term quality of these surfaces. The benefits of regular maintenance are well understood, yet little provision is made towards these costs at the planning and feasibility stages.

All too often, he continued, a facility is built to a high standard at great expense, only for it to be wasted due to the inadequate provision for maintenance and aftercare. Furthermore, the responsibility for providing maintenance is unclear - should it be the contractor, manufacturer or end-user? Consequently, it is left to no-one.

Colin is hoping to convince the sports governing bodies to come up with a sanctioned code of practice and method of testing procedure, together with an agreed maintenance regime for each and every type of artificial system installed in the future.

**Discussion** - Most of the discussion centred around Colin's proposals for a recognised procurement route and set of guidelines for the installation and maintenance procedures for artificial surfaces. There was plenty of discussion how it would be implemented monitored and tested. Some delegates could see the need and logic for such a proposal, some considered it unworkable in their opinion.

Interesting times ahead I am sure for everyone who is associated with the provision, manufacture and maintenance of artificial facilities.