



## **Artificial Turf Pitch Maintenance Guidelines**

Unless a pitch is maintained properly, an artificial turf pitch will lose some of its playing quality in the long term. The ball can become faster over the surface, it will roll unevenly and the ball bounce will vary from place to place. The players will feel uncomfortable running on an uneven surface and frustrated by the inability to control an unpredictable ball.

Football turf certainly demands less investment in time and costs for maintenance and it can be used for many more playing hours than a grass pitch, but you cannot just lay it and leave it to its own devices. Maintenance of an artificial turf pitch is different but just as important as it is on a natural grass pitch. The correct maintenance of an artificial turf pitch ensures that the optimum performance of the facility is achieved for the longest period of time and that the client is able to maximise his investment by lengthening the usable lifetime of his investment.

### **Why maintain a so-called maintenance-free facility?**

It has long been promoted, by ill-informed individuals, that artificial surfaces are maintenance-free. This is not only a myth, but is more importantly a dangerous concept to embrace. The need to maintain an artificial turf pitch is fundamental for several reasons.

These can be highlighted as follows:

- 1 Aesthetics
- 2 Safety
- 3 Playing performance
- 4 Longevity

### **Aesthetics**

Purely from the overall appearance of the surface, it is necessary to maintain a football turf field. A dirty, unclean pitch is not an attractive venue to play any sport on and will in the long term deter participants from playing on the field.

### **Safety**

A neglected pitch will often be a dangerous pitch. Simply put, a pitch that is not maintained can present a number of hazards to the players, which can lead to a variety of injuries. This can further detract from the attraction of the facility and open the owners up to the threat of litigation



### **Playing Performance**

The playing characteristics of the pitch will be severely impaired by a lack of maintenance. The ball can become faster over the surface, it will roll unevenly and the ball bounce will vary from place to place. The players will feel uncomfortable running on an uneven surface and frustrated by the inability to control an unpredictable ball. The surface will become harder and the grip of the surface will alter to such an extent that the surface can become a risk to the players, potentially leading to long-term injury.

### **Longevity**

Finally, the lifetime of the artificial turf pitch will be significantly reduced by a lack of maintenance. Thus the investment in the pitch will be undermined.

### **General Principles**

Do not undertake any action that has not previously been authorised by the installing company/ carpet manufacturer. Warranties are normally linked to the maintenance of the surface. Lack of maintenance will invalidate the warranty as will incorrect maintenance. If in doubt, ask the experts of that particular system, namely the supplier.

Do not apply any chemicals onto the surface without prior consent. Many chemical substances can act to the detriment of the surface, particularly petroleum-based products. Care must be taken to avoid all petroleum-based spillages, including fuel for tractor units. Always re-fuel off the playing surface. Chemicals may be used on synthetic surfaces. These can include algacides, mossicides, weedkillers, de-icers, etc.

### **Routine Maintenance**

The surface should normally be brushed regularly in accordance with the number of hours of use. The brushing frequency will be related to the intensity of use; the more often it is used, the more often will be the need for brushing. A general guideline is **one hour** of maintenance to every **10-15 hours** usage.

The main effect of brushing is to level the infill (where present) to ensure the uniformity of the surface. A second important reason for brushing a synthetic pitch is to prevent pile lean and pile flattening. Many synthetic fibres have a tendency to lean in a particular direction or flatten with use. To help overcome this, regular brushing in all directions will tend to keep the fibres upright and non-directional.

A variety of brush types exist on the market with a variety of effectiveness. The most commonly used are drag brushes. These are normally attached to the rear of tractor units either hydraulically or as a simple attachment. They are particularly effective at levelling the infill (where present) in the surface. Rotary brushes are also used. These are typically attached to the front of the tractor unit. Normally they can rotate forward or in reverse. Rotating forward is particularly



effective at removing material from the surface. Either modes of rotation are good for raising the pile of the carpet.

Always brush in different directions, as brushing in one direction will tend to cause the fibres to lean in that direction. This will result in different ball roll characteristics in different directions.

The high wear areas will require additional attention as these zones will obviously have the most disrupted infill and pile flattening due to the intensity of play.

**Note:** It is usually most effective to brush the surface when it is dry.

### **Irrigation and Waterfall**

On the face of it, it seems a ridiculous proposition to water a synthetic field. After all, football turf does not grow. However, on certain occasions it can help the performance of the field.

Football turf fields will become hot during periods of warm or hot weather. The surfaces can become so warm, as to be noticeable to the players. Furthermore, a heated surface can contribute to a friction burn. This is simply due to the fact that it requires a skin temperature of approximately 60°C to produce a skin burn. On a hot day, the combination of hot skin with a hot surface in addition to the friction (heat) generated when the player slides on the surface makes it almost inevitable that a skin burn will occur.

Water has several effects:

- 1 It will lubricate the surface
- 2 It will cool the surface
- 3 It will stabilise the infill and consequentially reduce migration

After heavy rainfall, it is advisable to check the infill levels as they may have become disrupted. This can be particularly significant if the pitch has a slope and the infill has migrated with the slope.

### **Levelling the infill (where infill is present)**

The penalty spots and corners are prone to disruption of the infill. The groundstaff should be aware of this and be prepared to top up on a more regular basis than is necessary for routine brushing. It may be necessary to top up these areas every day during intense usage.

When material begins to accumulate at the edges of the field, debris should be removed from it and the accumulated material cleaned and brushed back into the main field.

### **Settling-in period**

Systems that utilise infill materials may require a period of settling-in. This will necessitate a regime of regular brushing on a more frequent basis than is normally required. The installing company will give advice as to the necessity and added frequency of this extra brushing.



### **Additional Maintenance**

- Wherever and whenever contaminants are present, remove them as soon as possible.
- It should be noted that no food or beverages should be allowed on the field. Equally problematic is chewing gum, although this can be simply remedied by freezing the offending gum, which can then be broken out of the pitch when it has become solid.
- Smoking is strictly forbidden.
- All organic matter such as leaves, soil, seeds etc., if left, will result in algal, moss or weed growth. Remove as soon as is practical.
- If the infill shows signs of agglomerating, break up the lumps into their individual components.

### **Less Frequent Maintenance Procedures**

Check for compaction of the infill (where present), particularly in the high usage areas. Contact the installing company if you observe this and they will advise accordingly. Some installing companies supply equipment for overcoming this problem; others will undertake the work themselves under a maintenance contract. The groundsman can easily check for compaction by bouncing a ball on the surface. A surface with uneven compaction will show variable ball bounce. A high ball bounce will often indicate loss or compacted infill. Check the seams for any failings. If the seams have failed in any place, contact the installing company as soon as possible and insist on an immediate repair under the terms of the warranty. **DO NOT ATTEMPT TO UNDERTAKE THE REPAIRS YOURSELF.**

If you have an irrigation system, check it periodically. Also check the drainage system periodically to see that it is still functioning well.

### **Pitch Cleaning**

When a pitch begins to show signs of significant compaction and accumulation of detritus, use specialist machines that are capable of removing a proportion of the infill materials, cleaning the materials and re-introducing the materials back into the surface. These procedures are normally undertaken by specialised maintenance companies or the installing company.

### **Snow Removal**

Snow can be removed by the use of a snowplough. If your area is subject to regular heavy snowfalls, ensure you have sufficient area around the pitch to deposit the snow removed from the field.

Seek advice from the manufacturer of the system as to suitable equipment. This should normally be a plough with a rubber blade on the lower edge to prevent damaging the surface. Remove the majority of snow with this plough, but leave the final 5cm-10cm on the surface. Always turn the plough in large loops when coming to the edge of the pitch to prevent the plough from digging in to the



surface. The final 5cm-10cm can be removed with a brush. A rotating brush is particularly useful for this. Snow blowers can also be useful to remove snow.

### **Moss Algae Weeds**

Weeds are easily removed by hand if the infestation has not become too excessive.

Moss and algae, however require specialist treatment normally using specific chemicals and techniques to remove residues. The advice of the installing company should be sought at an early stage if the problem occurs. The longer you leave an infestation in general, the bigger the problem will become.

### **Pitch Surrounds**

The most important design feature is to avoid contamination. Contamination can come in several forms:

- A) Player-borne contamination
- B) Surrounding vegetation
- C) Wind-borne contamination
- D) Animal-borne contamination

Players will inevitably take the shortest path between the changing facilities and the pitch. If that pathway is dirty, they will carry that dirt on their boots onto the field. To avoid this, ensure the pathway is clean.

If other vegetation surrounds the field, this will inevitably be deposited on the field. For example, grass areas around the field, when cut, will deposit cuttings on the field. Try to leave a barrier between the natural area and the artificial field. This can be a physical barrier or a zone that is vegetation free.

Contamination, particularly pollution and seeds, will be blown onto the pitch by the wind. Take this into consideration when deciding on the location of the field. Animals, particularly birds, will leave deposits on the field. Clean them off as soon as possible as the deposits will become the nutrient for moss, algae and weed growth.

### **Logbook**

Many companies now supply a logbook as a method of recording the maintenance and usage of the field. Typical logbooks will allow the owner to record the routine maintenance times, operatives, machinery used, etc. as well as recording the pitch usage.

### **Conclusion**

An active maintenance programme will maximise the lifetime of the installation and ensure many satisfactory years of use.

The maintenance regime is based around simple principles:

- 1 Keeping the surface clean
- 2 Keeping the infill level



- 3 Keeping the fibre upright
- 4 Reporting minor defects before they become major problems

#### **Maintenance Time Schedule**

Inspection of fixtures and fittings	Daily
Brushing to remove debris	Every 30-35 playing hours
Brushing to redistribute infill	Every 30-35 playing hours
Moss-kill/Algaecide	Annually
Weed-kill	As necessary
Snow/Ice	As necessary

#### **Maintenance equipment**

- Drag brushes and drag mats and nets
- Hand-held equipment such as a hard road-sweeping brush for brushing the infill material into the turf system
- High-pressure cleaner (wet cleaning with a pressure of approx. 200 bar)
- Manually-operated sweeping machines with an hourly capacity of around 1,000 m<sup>2</sup> or a sweeping and suction machine, self-propelled, with an hourly capacity of up to 3,000 m<sup>2</sup>

**These guidelines are not intended to replace the recommendations given by the manufacturer, but simply to compliment the manufacturer's recommendations in order to underline the importance of correct maintenance of an artificial turf football pitch that ensures the optimum performance of the facility for the longest period of time.**

**The rule is the same for an artificial pitch as with any other object in need of maintenance, i.e. prevention is the best cure.**