

MAINTENANCE MANUAL

FOR SYNTHETIC TURF FOOTBALL PITCHES

Introduction

The FIFA QUALITY CONCEPT is a strict testing programme for artificial (synthetic) surfaces allowing successful manufacturers to enter into a licensing programme using the prestigious FIFA mark for synthetic turf pitches conforming to FIFA laboratory and field testing requirements.

The testing scheme ensures that only the best quality synthetic turfs meeting the highest technical standards **may now receive the FIFA QUALITY certificate** (formerly 1-star or 2-star). The certificate is valid for a maximum **period of four years**. The highest-level certification, FIFA QUALITY PRO, is only awarded for **one year** and must be renewed annually, subject to successful testing.

FIFA is well aware that the suitability of the pitch for playing must remain constant throughout its entire life cycle, which **necessitates** its **proper maintenance**. A pitch that is not properly maintained will lose its good quality for playing after some time. The ball may start moving faster on the surface, roll unpredictably and bounce differently in different areas of the pitch. The players will not enjoy running on the pitch and lose precise control over the ball due to its unpredictable behaviour.

A football pitch with a synthetic turf requires significantly less time and money to maintain and may be used during many more playing hours than traditional grass pitches. A synthetic turf football pitch is maintained differently than a natural grass pitch, but this does not mean that maintenance is any less important.

Proper maintenance of a synthetic turf football pitch ensures maximum duration of optimum conditions and the maximum return on investment by prolonging the synthetic turf's usable life cycle.

Why maintain a synthetic turf football pitch?

In summary, a synthetic turf football pitch must be maintained for the following reasons:

1. player safety;
2. playing characteristics and performance;
3. longer life cycle;
4. optimum aesthetics.

Presence of rubbish on the pitch and impurities in the sand and rubber infill material can negatively affect the pitch's playing characteristics. Such impurities may cause over-compaction inside these infill materials leading to a hardening of the surface which, in turn, may lead to a decreased water permeability, bad ball handling, worse adhesion of the players' footwear and may potentially also cause damage to the fibres or their loss.

Potential pollutants:

- Particles deposited by rain or sprinkler systems.
- Foreign objects brought by strong wind.

- Leaves, plants and flowers introduced due to seasonal changes, if pushed into the surface by the players, can form an organic substrate if not removed.
- Pollution of the pitch by animals.
- Players and visitors or machines can bring soil or fragments to the pitch on their shoes or tires.
- Food and drink packages or general rubbish left by the visitors.
- Chewing gum tangled in the fibre or infill.
- Usual wear and tear of the fibre-forming remnants.
- Neglected maintenance can cause proliferation of weeds, algae and moss.

Other possible causes:

- Using unsuitable maintenance machines or vehicles with unsuitable tires on the pitch's surface.
- Damage caused by cigarettes or fireworks, which are capable of altering certain markings/certain characteristics of the fibre and infill.
- Food or drink additives containing acids or sugars may also impact the quality of the pitch.

PLEASE REMEMBER

The life cycle of a synthetic turf pitch directly depends on the observance of a precise maintenance plan and maintenance schedules. This is the right way to avoid devaluation of your investment.

Generally applicable recommendations:

As owners or managers of a synthetic turf football pitch, you can help maintain optimum quality of the pitch by following the RULES below. Following these rules can prevent the negative impacts described above.

- Avoid unnecessary use of vehicles.
- The pitch should only be used for the purpose for which it was designed and made.
- Do not permit the use of unsuitable footwear.
- Prevent any use of open fire, fireworks or welding near the pitch.
- Choose routes across the pitch in a way that minimises its pollution.
- Refreshments should only be distributed and consumed aside from the pitch.
- Ban smoking on the pitch.
- Do not allow animals/pets to enter the pitch.
- Make sure the pitch rules are visibly placed near every entrance.

General principles:

These guidelines are not supposed to replace the recommendations issued by the producer of the synthetic turf. Instead, they are meant to supplement them in order to highlight the need for proper maintenance of synthetic turf football pitches to ensure optimum performance for as long as possible.

Rule #1 is the same for a synthetic turf football pitch as for any other asset requiring maintenance: Prevention is best!

Playing characteristics of a pitch may suffer greatly because of poor maintenance. The ball may start moving faster over the surface, roll unpredictably and bounce differently in different areas of the pitch. The surface of the pitch becomes compacted if not properly maintained – it loses elasticity and can, in extreme cases, cause injuries to the players. Regular maintenance reduces risks.

A synthetic turf surface must also be treated well to maintain good appearance. A filthy, polluted pitch will not be an attractive area for any kind of sport and will sooner or later discourage players from using it.

Lack of maintenance reduces the life cycle of a synthetic turf football greatly, which can result in a wasted investment.

General principles

Do not do anything without prior authorisation by the installing company. Warranties are usually tied to surface maintenance. Insufficient or improper maintenance voids the warranty. If you are in doubt, ask experts on this particular system, i.e. the supplier.

Do not treat the surface with any unapproved chemicals. Many chemical substances, especially oil-based products, may damage the surface. It is always necessary to take care and avoid spillage of oil-based chemicals, including fuels used in tractor vehicles. Always refuel vehicles away from the pitch. In case of fuel spillage, the area must be immediately covered with sand or sawdust to soak up the fuel. Remove the sand/sawdust afterwards.

Synthetic surfaces may be treated with certain chemicals such as anti-algae or anti-moss agents (e.g. herbicides). Industrial salt may be used normally in winter months. It is recommended to apply salt before starting winter operations.

REGULAR MAINTENANCE

Normally, the surface should be brushed regularly according to the number of hours it was used. The frequency of brushing must be proportional to usage: the more the pitch is used, the more frequently it needs to be brushed.

Brushing serves to level out the infill, thus ensuring flat surface and consistent infill height. The second important reason for brushing is to prevent the artificial grass from becoming lodged. Many synthetic fibres have a tendency to lean in a certain direction. To overcome this tendency, regular brushing in all directions is necessary to keep the fibres erect.

A number of brush types for various usage scenarios are available on the market. Triangular tractor brushes* are the most commonly used solution. This kind of brush is drawn behind a tractor vehicle and is very effective in keeping the infill even. Brush the surface in various directions to prevent the fibres from leaning in a single direction. This could cause the ball to roll differently in different directions.

* *Note:*

This is a mandatory equipment of a pitch in the Czech Republic.
It is generally most effective to brush the surface when it is dry.

Recommended procedure for brushing

Divide the pitch between the goal-lines into six sections. Brush the first strip in section 1 from one touch line to the other. Make sure you are driving straight.

Turn slowly in a wide arc outside the touch lines and drive through section 2 (yellow arrow).

Clean the brush after each section.

Brush the strip in section 2 until you reach the touch line.

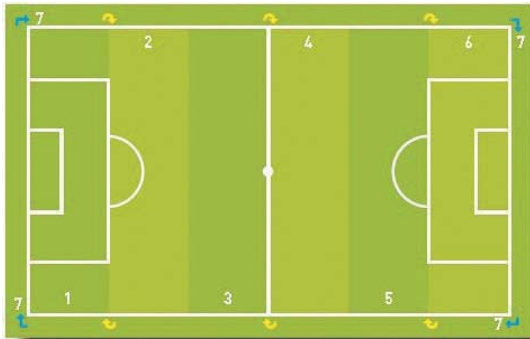
Turn slowly in a wide arc outside the touch lines and drive through section 1 again (yellow arrow).

Repeat the process until the entire section 1 and section 2 are brushed.

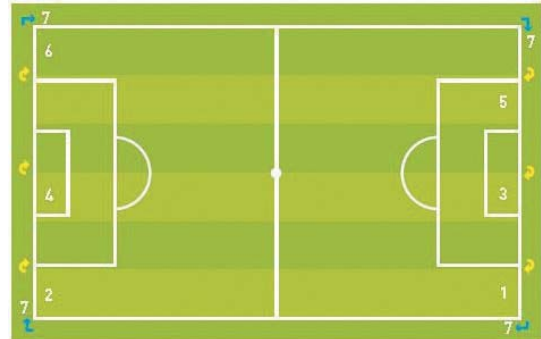
Once sections 1 and 2 are finished, move to sections 3 and 4 and repeat the procedure.

After you finish with sections 3 and 4, repeat the same procedure in sections 5 and 6.

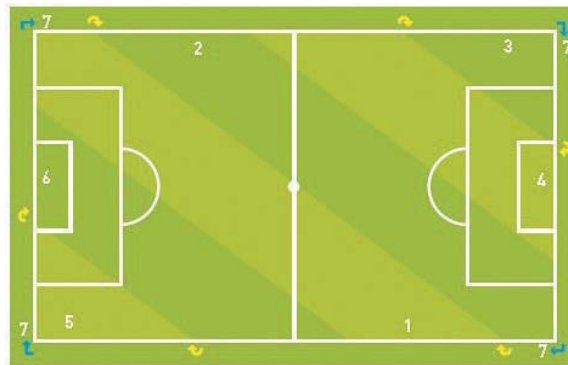
Once sections 1 to 6 are complete, finish up by brushing the edges and the goal lines (section 7, blue arrow).



(1) vertical brushing



(2) horizontal brushing



(3) diagonal brushing

Sprinklers and precipitation

Third-generation artificial turf pitches (3G pitches) get very hot during warm or hot weather periods. The surface may get hot enough for the players to notice. Hot surface may also cause friction burns. This is the case because the skin needs to be exposed to temperatures above 60 °C to cause skin burns. During hot days, any friction between the hot surface and the skin of a player who slipped on the pitch makes skin burns almost inevitable. For this reason, it is recommended to sprinkle the surface with water to reduce its temperature.

Water affects the turf in the following ways:

1. cools the surface;
2. makes the surface smoother;
3. stabilises the infill and reduces its displacement.

After heavy rains, it is recommended to check the infill level as it could have changed. This is especially important if the pitch is built in a complicated sloped terrain.

Evening out the infill

The most heavily used areas (around the corners, on penalty spots, in the goal box) require special attention and care. The maintenance staff should be aware of this and be prepared to regularly replenish the infill above the scope of routine brushing. During intensive use, the infill in these areas may require daily replenishment. A higher level of infill, leaving approx. 5-6 mm of the length of the fibres above the infill, is recommended.

If the rubber infill begins accumulating near the edges of the pitch, it should be removed, cleaned and re-laid to the pitch via brushing.

Infill settlement time

3G turfs use infill materials that require certain time to settle after installation. This will necessitate more frequent brushing of the surface than usually required. The installing company will provide advice concerning the extra brushing frequency and include the requirement in the maintenance manual.

Additional maintenance

Any pollution of the pitch should be removed as soon as possible.

No food or drinks should be allowed on the pitch. Chewing gum is equally problematic, but can be removed from the pitch by freezing it solid by a freeze spray and breaking it out of the pitch.

Smoking and the use open fire is to be strictly avoided.

All organic materials such as leaves, soil, seeds etc. may cause the growth of algae, mosses or weeds if left unchecked and, for this reason, they must be removed from the pitch as fast as possible.

Less frequent maintenance procedures

Check the firmness, hardness and elasticity of the infill, especially in the most heavily used parts of the pitch. If the infill characteristics seems to be inconsistent, contact the installing company for advice. Some installing companies supply equipment to overcome the deficiency, others do the necessary work themselves based on a maintenance contract. Maintenance workers may easily check the hardness by bouncing ball off the pitch surface. The ball will bounce differently on an unevenly hard surface. Increase bounce height often indicates infill loss or higher compaction.

Check the seams for defects. If you find loose seams, contact the installing company as soon as possible and insist on immediate repair based on the warranty conditions.

DO NOT ATTEMPT TO MAKE THE REPAIRS YOURSELF!

If you have sprinkler systems installed, check them regularly. Make sure the drainage system functions correctly.

Decompression and cleaning of the pitch

If the pitch shows signs of rigidity, use special decompression tools to loosen and aerate the rubber infill (granules), clean it and, if possible, return it back to the turf. These procedures are carried out by specialised maintenance companies or the synthetic turf suppliers; appropriate machine equipment must be used for this purpose. A pitch needs to be properly decompressed and cleaned at least once a year!*

**Note:*

Mandatory requirement in the Czech Republic.

However, it is better to carry out the entire medium-term maintenance twice a year.

Snow removal

Snow should be removed from the surface using a special rubber or plastic plough. If the area often experiences heavy snowfall, make sure there is sufficient room around the pitch to store the removed snow (always outside the run-off areas). During mechanical removal of snow, be careful not to damage the synthetic turf.

Ask the system manufacturer about the appropriate equipment. Normally, this equipment consists of a plough with rubberised lower edge preventing damage to the pitch surface. Use the plough to remove most of the snow from the surface, leaving at most a 2-3 cm layer on the surface. When you get to the edges of the field, always turn the plough in wide arcs to prevent it from penetrating the surface. The remaining 2-3 cm layer of snow may be removed using a brush. A rotary brush may also be used for this purpose.

Snow blowers can be very useful in removing large quantities of snow.

Mosses – algae – weeds

If weed proliferation is not too extensive, it can be easily removed by hand.

Mosses and algae require special treatment, usually requiring specific chemicals and techniques to get rid of the remnants (see General principles). Use a 1% hydrogen peroxide – water solution. Gently apply the solution to the contaminated area. *Rondat* is also a suitable product for this purpose. Wash the area with water after application.

Pitch edges

The best way to avoid contamination of the pitch is to fence it off and use it in accordance with the approved purpose.

Contamination may take several forms:

- A) contamination introduced by players;
- B) surrounding vegetation;
- C) contamination by wind;
- D) contamination by animals.

The players will inevitably choose the shortest path between the dressing room and the pitch. If the path is dirty, the dirt will be carried to the pitch on their footwear. Make sure the path is clean to avoid contamination of the pitch.

If the pitch is surrounded by other plants, plant matter will inevitably be deposited on the surface. For example, when mowing the grass around the pitch, the cut leaves of grass will fall onto the pitch. Try creating a barrier between the vegetation and the synthetic turf, either in the form of a physical barrier or an area free of any plants.

Animals, especially birds, may pollute the pitch. Remove the waste as soon as possible, otherwise it will encourage the growth of mosses, algae and weeds.

Keeping the Maintenance Book and observing the maintenance regime

The Maintenance Book is a good tool to keep track of the maintenance and use of the pitch. The Maintenance Book will enable the operator to record the date, type of activity and duration of regular maintenance tasks, workers' training, the equipment used, etc., as well as the usage of the pitch.

FACR Guidelines require the Maintenance Book to be updated weekly!

**Note:*

Keeping the Maintenance Book is mandatory in the Czech Republic.

A proactive maintenance programme will significantly extend the life cycle of the installed turf and ensure many years of satisfactory use. The maintenance regime is based on simple principles:

1. keep the surface clean;
2. keep the infill level even;
3. keep the fibres erect;
4. repair smaller defects before they become serious.

Final recommendations and measures

- (a) Maintenance specifications must always be introduced as an integral part of the supply contract.
- (b) All companies installing 3G turfs should be responsible for the maintenance of the pitch for a period of at least 5 years.
- (c) Older 3G turf types must always be maintained differently than newer turfs with memory yarn.
- (d) The new criteria must take into account the number of person-hours played or trained on the pitch.
- (e) Information seminars will be organised not only for maintenance workers and groundsmen, but also for direct representatives of the pitch operators/owners in the upcoming season.