Responding to environmental concerns – the next generation of football turf systems

Visiting Prof. Alastair Cox

ESTC Technical Director

Alastair@estc.info

Contents

- New turf systems
- Standards
- Fibre wear
- Life cycle analysis for synthetic turf

- Synthetic turf surfaces allow many communities to play football where natural grass is not a viable option.

- But synthetic turf is part of the plastics industry and increasingly the world is recognizing plastics need to be used in a sustainable way.

- Responding to the concerns of society, government agencies are introducing new, stricter environmental regulations to reduce the impact of plastics on the environment.

PERFORMANCE
Player performance
Consistency
Safety
Playability
High performance surfaces support player development and team success
Performance demands drive innovation in sustainable materials and design
SUSTAINABLE FOOTBALL PITCH SOLUTIONS
Balanced for today and tomorrow
DURABILITY
Wear resistance
Long service life
Maintains properties over time
Cost efficiency
ENVIRONMENTAL COMPATIBILITY
Responsible materials (Granulated cork infill)
Resource efficiency
Minimise emissions & pollution
End of life management
Durable, well-managed surfaces reduce environmental impact over the whole life cycle
The best outcomes are achieved when PERFORMANCE, DURABILITY and ENVIRONMENTAL COMPATIBILITY are designed and managed in balance.

The market is changing – companies are having to innovate - resulting in an increasingly diverse range of turf solutions

- Cork
- Wood chip
- Corn cob
- Olive pits
- Coconut fibre
- Natural rubbers

- No infill

Dense turf pile, made from a combination of straight and curly yarns

- Sand
- Zeolite
- Engineered Mineral Blends

CONSUMERS NEED TO BE WELL INFORMED

Make the right choice for a successful facility

LEVEL OF USE

Recreational, community or professional?

CLIMATE

Will it face heat, cold, heavy rainfall or snow?

INTENSITY OF USE

Low, medium or high intensity?

SUCCESSFUL FACILITY

- RIGHT TURF
- FOR THE RIGHT CONDITIONS
- BUILT TO LAST
- BETTER PERFORMANCE
- GREATER VALUE

Ensuring they select the right turf for the intended **level of use, climate and intensity of use** is key to a successful facility.

INFORMED CHOICES CREATE BETTER PLAYING TOMORROWS

FIFA QUALITY PROGRAMME 2026

TURF SYSTEMS CLASSIFICATION

FIFA QUALITY PRO 2026

TURF SYSTEMS CONTAINING POLYMERIC OR VEGETAL INFILLS

FIFA QUALITY PRO

Filled systems
(> 50% infill depth)

POLYMERIC INFILLS

e.g.

- Crumb Rubber
- TPE
- EPDM
- Thermoplastic Elastomers

VEGETAL INFILLS

e.g.

- Cork
- Wood
- Olive Pits
- Rice Husk
- Other Plant-based Materials

ALL OTHER TURF SYSTEMS

FIFA QUALITY OR FIFA BASIC

FIFA QUALITY

FIFA BASIC

INCLUDES TURF SYSTEMS WITH:

NON-FILLED TURF

MINERAL INFILLS

"SEMI-FILLED" SYSTEMS

KEY POINTS

FIFA Quality Pro is the highest performance level, required by UEFA for its top competitions.

Only turf systems containing polymeric or vegetal infills can achieve this standard.

All other turf systems can be certified as FIFA Quality or FIFA Basic.

These systems must still meet FIFA's rigorous performance, safety and durability requirements.

The FIFA Quality Programme ensures confidence, consistency and worldwide recognition for artificial turf football surfaces.

Infill Quality

Elastic Properties	Non-elastic
	Low elasticity
	Medium elasticity
	High elasticity
Durability	Higher number of cycles = greater durability
Water absorption	Higher value = greater potential to freeze in cold conditions
Buoyancy	Higher value = greater potential to float in heavy rain
Resistance to freeze–thaw cycles	No significant break-down of infill
Toxicology	Limits on PAH, chemical migration and environmental leaching

SVENSK STANDARD
SS-EN 15330-4:2022

Golvmaterial – Sportbeläggningar – Konstgräs och nålfilt främst avsedda för utomhusbruk –
Del 4: Specifikation för stötdämpande underlag

Surfaces for sports areas – Synthetic turf and needle-punched surfaces primarily designed for outdoor use –
Part 4: Specification for shockpads used with synthetic turf, needle-punch and textile sports surfaces

SIS Svenska Institutet för Standarder

Språk: engelska/English
Utgåva: 1

Shockpad Quality

Shockpads are an essential part of many turf systems.

They:

- Provide cushioning to protect the players, ensuring player welfare
- Significantly contribute to sports performance properties of the surface
- Prolong the life of the sports performance characteristics

Ensuring a shockpad is of good quality and capable of providing long-term performance is an important part of providing sustainable sports fields.

EUROPEAN STANDARD
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DRAFT
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English Version

Surfaces for sports areas - Synthetic turf sports surfaces - Part 6: Specification for synthetic turf carpets

Sols sportifs - Sols sportifs en gazon synthétique - Partie 6 : Spécifications pour les tapis de gazon synthétique

Sportböden - Sportflächen aus Kunststoffrasen - Teil 6: Spezifikation für Kunstrasenteppiche

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 217.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Carpet Quality

SYNTHETIC TURF COUNCIL EMEA

Under development – CEN Formal Vote later 2026

- Yarn quality
  - Yarn strength
  - Resistance to mechanical abrasion – fibre wear
  - Resistance to UV degradation
- Tuft anchorage
- Yarn anchorage
- Carpet strength
- Dimensional stability
- Joint strength
- Water permeability
- Toxicology - Limits on PAH, chemical migration and environmental leaching
- Recycled material content
- Recyclability rating

SYNTHETIC TURF YARNS DEGRADE OVER TIME AND CREATE SECONDARY MICROPLASTICS – reducing secondary microplastics is an objective of the European Commission

Turf yarns weaken due to UV degradation and mechanical wear (play)

Fibre breakdown tends to start **after 5 - 6 years**

Primarily occurs **in high use areas of a field**

What happens to the fibre debris is not fully understood – more research is needed

Wind can transport light fiber pieces far beyond the field.

Rainfall can wash microplastics into stormwater systems and natural waterways.

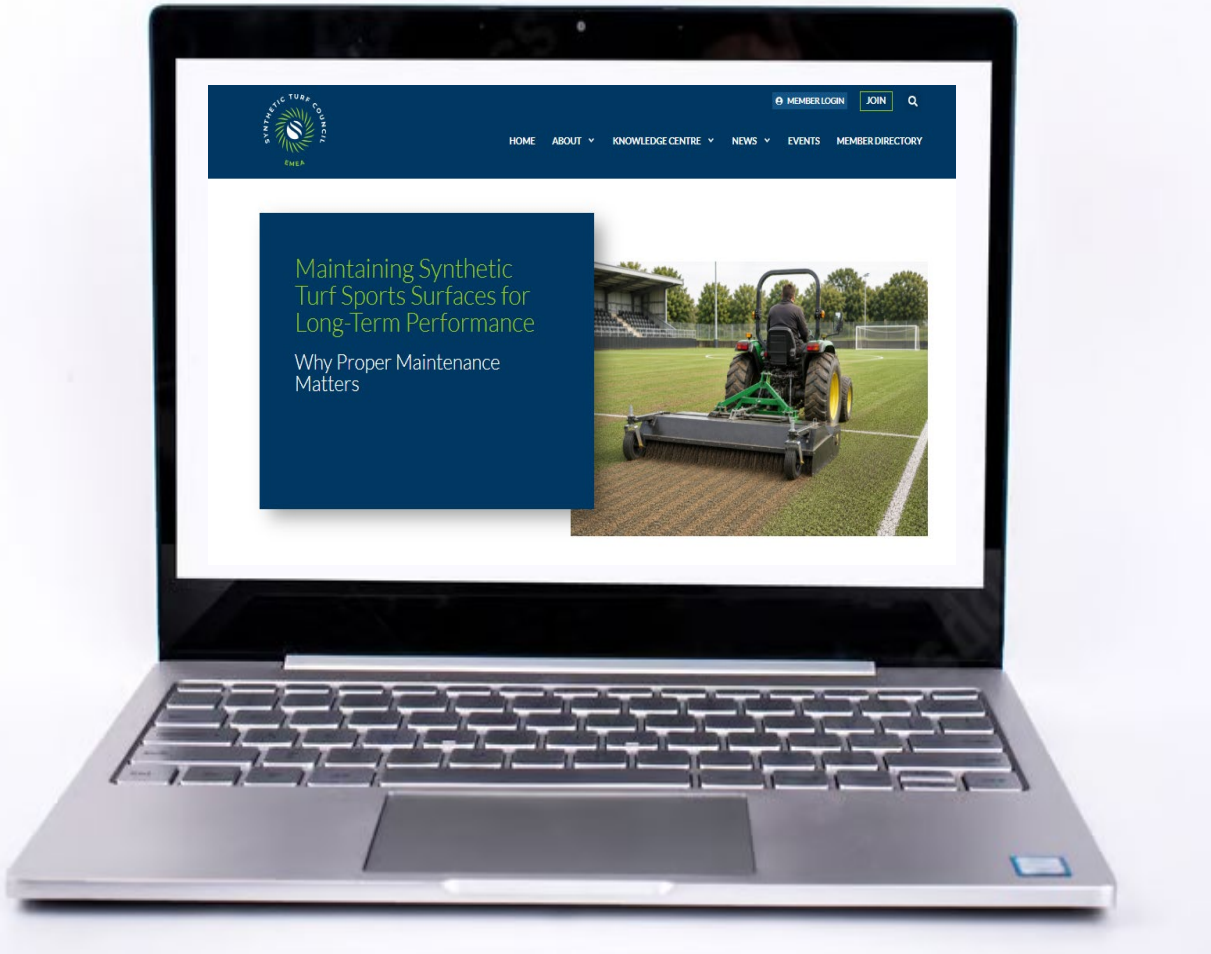
Field owners need to be proactive, using **specialist maintenance equipment** they can ensure their fields do not become a source of microplastic pollution

A COLLECTIVE RESPONSIBILITY

By understanding fiber wear and its impact, and by taking action together, we can reduce microplastic pollution and create a healthier planet for future generations.

MAINTENANCE HAS NEVER BEEN MORE IMPORTANT

https://estc.info/knowledge-centre/maintenance/



New ESTC guidance on synthetic turf sports field maintenance

The new web pages explain the **general principles of good synthetic turf maintenance** and, importantly, aims to make field owners aware of the questions they should be asking when purchasing and operating a synthetic turf field.

Every synthetic turf system is different, and the appropriate maintenance programme will depend on the specific system, its components, intensity of use, local conditions and other factors.

The turf producer remains the primary point of reference for system-specific maintenance requirements and recommendations.

A key part of the guidance is highlighting the importance of undertaking maintenance to ensure any fibre debris (secondary microplastics) does not end up in the environment and become pollutant.

ESTC is developing Product Category Rules to enable companies to produce Environmental Product Declarations for synthetic turf surfaces.

These will be based on ISO 14040, ISO 14044 and ISO 14045. The work will take over from the PEF Category Rules previously developed with the European Commission.

2 What does an EPD tell you about a turf system?

An EPD can provide environmental data for the complete product life cycle, including:

- **Raw materials**
  Polymers, yarn, backing, coatings
- **Manufacturing**
  Energy and resource use
- **Transport & installation**
  To site and construction impacts
- **Maintenance & infill management**
  Cleaning, grooming, infill top-ups
- **Replacement over the reference study period**
  Carpet and infill replacement
- **End-of-life treatment**
  Re-use, recycling or disposal

KEY MESSAGE: Look at the whole system – not just the carpet.

3 Why EPDs are valuable when comparing turf systems

EPDs help make comparisons evidence-based

WITHOUT EPDs	WITH EPDs
Sustainability claims	Verified environmental data
Different ways of reporting	Standardised methodology
Focus on individual materials	Whole-life assessment
Difficult to compare	More meaningful comparison
Marketing-led decisions	Evidence-led decisions

KEY MESSAGE: An EPD doesn't tell you which turf is "best" – it gives you better evidence to make the decision.

4 The importance of whole-life performance

A lower-impact turf at installation may not remain lower-impact over its life.

- Initial impact
- ↓
- Expected service life
- ↓
- Maintenance requirements
- ↓
- Infill replenishment / replacement
- ↓
- Frequency of carpet replacement
- ↓
- End-of-life options

Durability matters.

A system that lasts longer and maintains acceptable performance may avoid the environmental impacts associated with premature replacement.

KEY MESSAGE: Whole-life thinking leads to better environmental and performance outcomes.

From Spring 2027

5 What should investors & specifiers ask for?

Don't just ask: "Is it sustainable?"
Ask for evidence:

- A current, independently verified EPD
- Clearly defined product/system scope
- Declared/reference service life
- Life-cycle assessment data
- Maintenance assumptions
- Infill requirements and replacement
- End-of-life assumptions
- Evidence supporting durability claims

THE GOAL

Specify the right turf system – not simply the turf system with the best sustainability story.

EPDs provide the evidence to support better decisions.

Thank you for your attention - any questions?

Alastair Cox: Alastair@estc.info

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