

SPORTS SURFACE STANDARDS

Why they matter for better, safer and more sustainable community sport



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Sports Surface Standards

Purpose and Context

Sport is changing rapidly. Population growth, urban densification, climate variability, increasing female participation, modified formats of sport and greater demand for year-round access are placing unprecedented pressure on community sports infrastructure. Natural turf fields remain essential, but many cannot sustain the intensity of use now expected by councils, schools, clubs and communities.

Synthetic, hybrid, acrylic and rubber sports surfaces have become important tools in meeting this demand. However, these surfaces must be planned, designed, procured, constructed and maintained against recognised standards. Without standards, decision makers risk investing in facilities that may look acceptable at handover but fail to perform, deteriorate quickly, increase whole-of-life costs or expose users to unnecessary safety risks.

A “fit for purpose” surface is not simply one that meets the required and available standard. It is one that aligns with the intended sport, level of play, expected hours of use, local climate, maintenance capacity, environmental expectations, accessibility needs and long-term asset management strategy.

Why Standards Matter

Sports surface standards provide a common language between councils, sporting bodies, designers, contractors, manufacturers, clubs and users. They define the minimum performance, safety, durability and construction expectations for a surface.

Standards are important because they, protect player safety, support consistent play, reduce procurement risk, provide measurable quality assurance, support certification and insurance, improve whole-of-life value, help compare tender submissions fairly and ensure the surface matches the intended sport and level of use.

For synthetic and engineered surfaces, standards generally address the interaction between the player, ball and surface. This may include ball roll, ball rebound, traction, shock absorption, deformation, slip resistance, surface evenness, porosity and durability.

In Australia, international standards should often be treated as the starting point rather than the final answer. Australia’s high UV exposure, heat, rainfall intensity and high community use levels mean additional local requirements are often needed for durability, drainage, heat mitigation, environmental management and maintenance.

The Global Approach to Sports Surface Standards

Most international sports federations have developed performance standards for synthetic or engineered sports surfaces. These standards provide confidence that a surface can replicate, or in some sports enhance, the intended playing characteristics of the sport. The general global approach includes:

1. Laboratory testing of the product or system.
2. Installation by a recognised or experienced supplier.
3. Field testing by an independent accredited test institute.
4. Certification by the relevant sport or governing body.
5. Periodic re-testing to ensure ongoing compliance.

The Smart Guide for Sports Surface Standards explores in detail the following broad performance standards:

Sport	Elite / Stadium Level	Community Level
Athletics	World Athletics Class 1	World Athletics Class 2
Hockey	FIH Global / Global Elite	FIH National / Multi-Sport
Football	FIFA Quality Pro	FIFA Quality
Rugby Union	World Rugby Regulation 22	World Rugby Regulation 22
Rugby League	Stadium	Community
Tennis	ITF 2 Star	ITF 1 Star
AFL / Cricket	N/A	AFL / Cricket Australia Community Standard
Gridiron	No full synthetic standard	No full synthetic standard

The key lesson is that each sport has different needs. A surface suitable for one sport may not automatically be suitable for another.

Summary by Sport

Athletics - one of the earliest adopters with synthetic tracks used at the 1968 Mexico Olympic Games. World Athletics provides certification for elite and community track systems include structural spray, sandwich, full polyurethane and prefabricated rubber systems.

Australian Rules Football and Cricket - The AFL and Cricket Australia developed community synthetic turf

standards to allow both sports to be played safely on synthetic surfaces. They focus on player-surface interaction, ball behaviour, durability and field safety.

Football (Soccer) - FIFA's Quality Programme for Football Turf includes FIFA Quality for community and FIFA Quality Pro for stadium use. The standards assess durability, player interaction and ball interaction.

Rugby League - The NRL recognises community and stadium categories, acknowledging that community fields often experience greater total use while stadium fields require elite performance characteristics.

Rugby Union - World Rugby Regulation 22 governs artificial rugby turf, focusing on ball-surface interaction, player-surface interaction and durability. Because rugby is a high-contact sport, shock absorption, critical head impact and surface stability are especially important.

Hockey - Hockey has long embraced synthetic turf. FIH standards include Global Elite, Global, National, Multi-Sport and Hockey 5s categories. The surfaces may be wet, sand-dressed or 3G, depending on the level of play.

Tennis and Netball - Tennis uses the ITF Court Pace Classification system and recognition program. Netball focuses heavily on slip resistance. For shared tennis and netball courts, the dominant sport and safety requirements must guide the final surface selection.

Multi-Sport Areas - Multi-sport & multi-use activity zones are becoming more common, particularly for schools and community recreation; surface selection, safety, slip resistance, durability & likely users must be considered.

Standards by Surface Type

Synthetic Sports Turf - Synthetic turf systems include the turf carpet, yarn, backing, infill, shockpad, pavement and drainage system. The surface must be assessed as a complete system, not as isolated components. Key considerations include, yarn type and length, UV resistance, colour fastness, heavy metal limits, carpet backing strength, seam strength, infill type and containment, shockpad performance, drainage capacity and long-term durability.

Infill - Infill supports the yarn and contributes to performance. Options include sand, rubber, organic infills and newer alternative materials. The industry is moving away from rubber, and plastic infills due to environmental concerns, with organic infills such as cork, wood fibre, olive pits and other natural materials increasingly being considered.

Shockpads - will improve comfort, shock absorption and performance consistency. They are especially important for high-use and contact sports. A reusable shockpad (30

years) can extend the life of the overall system and reduce replacement waste.

Rubber Surfaces - Rubber surfaces are used mainly for athletics. Options include structural spray, sandwich systems, full polyurethane systems and prefabricated sheet systems. Each has different cost, durability and performance characteristics.

Hard Courts - Acrylic systems are common for tennis and netball. Options include multi-layer acrylic, cushioned acrylic, prefabricated mat systems and gel systems. Their performance depends heavily on pavement quality, installation skill, maintenance and resurfacing cycles.

Construction Standards and Key Considerations

The long-term success of any sports surface depends as much on construction quality as surface selection. Poor civil design can undermine even the best synthetic or acrylic system. Key construction considerations include:

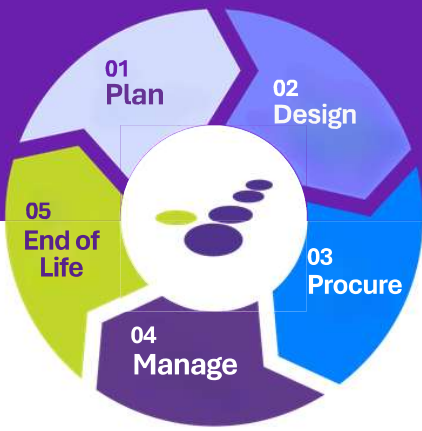
Site Investigation - Before design, the site should be properly investigated. This includes feature survey, geotechnical investigation, contamination assessment, flood overlay review, existing services investigation, drainage and stormwater assessment, tree and root impact assessment. Sites with reactive clay, landfill, contamination, poor drainage, underground services or flood constraints may still be usable, but they require more rigorous design and often greater investment.

Pavement Design - The pavement must support construction vehicles, players, maintenance machinery and the sports surface system. It should also protect the field from subgrade movement and water. A pavement life of at least 30 years, or approximately three surface cycles, should be considered.

Drainage Strategy - Drainage must be designed around the expected rain event, discharge capacity and local stormwater conditions. Vertical drainage through an aggregate base can detain water under the field before controlled release. Horizontal drainage can remove water quickly, but only if the stormwater system can accept the flow.

Procurement and Quality Assurance - Good procurement should define the performance standard, require independent certification, specify warranties, include clear maintenance expectations and use hold points during construction. Critical hold points should include base acceptance, survey verification, compaction testing, drainage inspection and final field certification.

Recommendations



The Sports & Play Industry Association (SAPIA) brings together the organisations that create the places where people of all ages and abilities can play, move and participate. Through professional standards, industry leadership and innovation, we are building and maintaining better places for a more active world.

To provide these SAPIA Insight Notes, we have partnered with Smart Connection Consulting to provide the latest technical knowledge on the issues that the community are keen to understand better. These notes are based around the NSW & SA Governments Frameworks for Decision Making for Synthetic Sports Fields.

Plan

- As part of the planning and decision making process identify the scope and all risks associated with the project and explore the various global standards that can be embraced in Australia for sports performance, environmental performance, civil engineering standards, user health and safety standards
- Embrace a Design Finalisation or Detailed Design Contract that allows you to detail these standards during the design and procurement stages

Design

- Build environmental controls into the design from the start.
- Address heat, drainage, microplastic containment, PFAS risk, material durability, maintenance access and future material recovery against the various global standards

Procure

- Procurement should prioritise global standards and align with any ANZ standards
- Reference recognised standards and require suppliers to prove performance, durability and environmental claims.
- Avoid vague terms such as “eco-friendly” or “fully recyclable” unless backed by evidence and linked to EU and Global standards and best practice
- Request declarations or test reports for PAHs, PFAS, heavy metals, recycled content, recyclability, UV stability, infill, shockpad life, drainage, heat behaviour and end-of-life recovery.

Manage

- Additional certification during life of the surface including the International Sports Federation standards

End of Life

- Plan renewal before the surface fails.
- Keep records of the carpet, yarn, backing, infill, shockpad, adhesives, drainage and warranties.
- At renewal, require take-back options, recycling declarations and separation of carpet, infill and shockpad materials.

To understand how SAPIA can assist you in making a difference to your projects and the community understanding of this technical subject please contact the SAPIA office at office@sapia.org.au or on our website www.sapia.org.au.