NATURAL TURF ALLIANCE

Why Bushfire Risk Must Be Considered When Planning Sporting Fields

Bushfire risk is now a critical planning consideration for synthetic turf developments.

As bushfire seasons become longer and more severe, councils and sporting organisations must consider whether installing large plastic surfaces near bushland, schools and residential communities introduces avoidable risks. Current NSW Government guidance recognises bushfire as a mandatory environmental consideration when assessing synthetic turf proposals and recommends a precautionary approach in high-risk locations.

Why This Matters

Australia experiences some of the world's most severe bushfires, with climate change increasing both the frequency and intensity of extreme fire weather. While much discussion around synthetic turf focuses on maintenance, costs and playing performance, bushfire risk has emerged as an equally important consideration.

Many sporting fields occupy locations immediately adjoining bushland, national parks, schools and residential neighbourhoods. These are often the very places where ember attack, radiant heat and fast-moving fire fronts present the greatest danger.

Unlike natural turf, synthetic turf consists primarily of polymer-based plastic fibres and backing materials. Independent research undertaken for the NSW Chief Scientist found that these materials are generally classified as easily flammable and may ignite under bushfire conditions. Once burning, synthetic turf can produce dense smoke and potentially release toxic gases and volatile organic compounds that present additional risks for nearby communities and emergency responders.

Recognising these concerns, NSW planning requirements now require bushfire risk to be specifically considered whenever synthetic sports fields are proposed or renewed. The key question is no longer simply whether a field can be built, but whether it should be built in a particular location.

Good planning requires councils to consider the full range of environmental risks over the life of an asset, ensuring today's decisions improve community resilience rather than creating avoidable hazards.

1. The Evidence

Bushfire is now a mandatory planning issue

Following the Independent Review of Synthetic Turf undertaken by the NSW Chief Scientist the NSW Government introduced specific planning guidance requiring bushfire risk to be assessed as part of Division 5.1 environmental assessments for synthetic turf sports fields. The guidance identifies bushfire as one of several critical environmental factors requiring careful consideration before approval.

Synthetic turf behaves differently during fire

The NSW Chief Scientist found that many synthetic turf systems:

- contain petroleum-based polymer fibres;
- are classified as easily flammable;
- may ignite from radiant heat, ember attack or direct flame;
- may contribute additional combustible material during a bushfire; and
- can release toxic smoke and combustion products when burning.

Importantly, the review also concluded that there are currently no fit-for-purpose outdoor fire testing standards that accurately assess synthetic turf under real bushfire conditions involving high temperatures, wind and ember attack.

Government guidance recommends caution

Current NSW guidance recommends that synthetic turf sports fields should not generally be located in areas of high bushfire or extreme flood risk.

Where synthetic turf is proposed on bushfire-prone land, determining authorities should undertake detailed bushfire assessments, seek independent expert advice, consult emergency agencies where appropriate and carefully evaluate alternative lower-risk options.

Bushfire history matters

Risk is determined not only by vegetation but also by local fire history. Many sporting fields throughout NSW are located beside bushland valleys that have experienced significant bushfires. Fire behaviour in these landscapes is often characterised by rapid spread, intense radiant heat and ember attack, with fires capable of moving quickly under severe weather conditions. Understanding this local context is an essential component of responsible planning

2. Understanding the Issue

Bushfire risk is often misunderstood because synthetic turf is viewed simply as another playing surface. In reality, it is a large engineered plastic system that behaves very differently from living vegetation during fire.

Natural turf contains living grass, moisture and soil that can assist in reducing combustibility. While natural grass can burn under extreme conditions, it does not melt into burning plastic nor does it generate the same type of toxic smoke associated with synthetic materials.

The greatest concern is not that a synthetic field will necessarily start a bushfire. Rather, once exposed to ember attack, radiant heat or direct flame, it may contribute additional fuel and create more hazardous conditions for people nearby.

Location therefore becomes critically important.
A sporting field situated within an urban area may present a different level of risk to one immediately adjacent to Category 1 bushfire-prone bushland, national parks or schools.

Schools deserve particular attention. Many school emergency management plans identify outdoor areas that cannot be used once embers are present or a bushfire is approaching. This recognises that open spaces are not automatically safe simply because they are open.

When councils develop or renew sporting facilities that are jointly used by schools, they also share an important responsibility to consider student safety, emergency planning and long-term community resilience

3. Impacts and Implications

Community Safety

The first priority during any bushfire is protecting people. Large synthetic surfaces located beside schools, residential communities or evacuation routes have the potential to complicate emergency management if they become involved in a fire or produce toxic smoke.

Emergency Response

Firefighters already operate in extremely hazardous environments.
Additional burning plastics and synthetic materials may increase smoke toxicity and create more difficult operating conditions for emergency responders.

Planning and Duty of Care

Recent NSW planning guidance places a clear responsibility on councils to consider bushfire risk during environmental assessments. As knowledge continues to develop, decisions that fail to properly assess known risks may receive increasing legal and public scrutiny. The growing legal principle that decision-makers must adequately consider foreseeable environmental risks reinforces the importance of evidence-based planning.

Schools and Vulnerable Communities

Many sporting fields are shared with schools.
Children, teachers and visitors may use these facilities every day throughout the year, making the consequences of poor site selection more significant than for standalone sporting venues.

Where school bushfire management plans already restrict the use of an oval during approaching bushfires, this reinforces the importance of carefully considering whether introducing additional combustible materials is appropriate.

Long-Term Asset Management

Sporting fields are long-life community assets.
Councils should assess not only construction costs and sporting performance, but also how an asset will perform over decades of increasing bushfire risk associated with climate change.

Infrastructure that increases resilience is likely to provide greater long-term community value than infrastructure introducing additional environmental risk.

4. Best Practice Approach

Modern sporting field planning considers much more than playing capacity.
Best practice begins by selecting the most appropriate surface for the location.
For sites adjacent to bushland, schools or environmentally sensitive areas, this means carefully evaluating bushfire exposure before deciding on the playing surface.

Best practice also includes:

- undertaking independent bushfire risk assessments;
- considering local fire history and vegetation;
- assessing whole-of-life environmental risks;
- consulting relevant emergency management expertise;
- applying the precautionary principle where significant uncertainty exists; and
- favouring lower-risk solutions where they can achieve the require community outcomes.

High-quality natural turf represents a mature, well-understood technology that provides excellent sporting performance while avoiding many of the additional fire related uncertainties associated with large plastic surfaces.

The NSW Chief Scientist also recommended greater support for best-practice natural turf management as part of improving the sustainability and resilience of community open space.

5. Recommendations

1. **Assess** bushfire risk early in every sporting field project.

2. **Apply** the NSW Division 5.1 guidance and the findings of the NSW Chief Scientist.

3. **Consider** the unique risks associated with schools, bushland and residential communities.

4. **Undertake** independent bushfire and environmental assessments before approving synthetic turf in bushfire-prone locations.

5. **Prioritise** best-practice natural turf wherever it can safely meet community needs.

Key Takeaways

Bushfire risk matters
Bushfire risk is now a mandatory environmental consideration for synthetic turf developments.

Location is critical
Sites beside bushland, schools and national parks require particularly careful assessment.

Evidence is evolving
Independent research identifies important limitations in current synthetic turf bushfire testing.

Precaution reduces risk
Councils should favour lower-risk solutions where uncertainty remains about future bushfire performance.

Natural turf builds resilience
Well-managed natural turf provides a safer, lower-risk and more sustainable option for many community sporting fields.

"The NSW Chief Scientist concluded that synthetic turf products are generally classified as easily flammable and recommended careful consideration of bushfire risk, particularly in environmentally sensitive locations."

References

1. ENSW Chief Scientist & Engineer – Independent Review into the Design, Use and Impacts of Synthetic Turf in Public Open Space.

2. NSW Department of Climate Change, Energy, the Environment and Water – Division 5.1 Guidelines Addendum for Synthetic Turf Sports Fields

3. NSW Rural Fire Service – Bushfire prone land mapping and bushfire planning guidance

4. NSW Department of Planning, Housing and Infrastructure – Environmental assessment requirements for synthetic turf developments

5. University of New South Wales. Assessment of Bushfire Risk and Flammability of Synthetic Turf Systems. Technical assessment prepared for the NSW Chief Scientist & Engineer

Visit the NTA Document library: **https://naturalturfalliance.org/document-library/**

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This Fact Sheet has been developed with the support of Lawn Solutions Australia, the nation's largest network of turf specialists.
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Natural Turf Alliance Inc (NTA) is a Registered Association consisting of community groups committed to preserving and developing natural grass open spaces including sporting fields.
Our core focus is engaging with local councils and sporting groups in relation to best practice natural turf construction and maintenance.