



**MIDCOAST**  
council

**AUS-SPEC**

**Infrastructure Specifications**

**0262 External Sports and Playground  
Surfacing**



## 0262 EXTERNAL SPORTS AND PLAYGROUND SURFACING

IMPORTANT: This document has been adapted from the NATSPEC suite of specification templates for use in the MidCoast Council area by both Council and industry. NATSPEC regularly updates the base templates (currently in April and October each year), and Council may incorporate changes into its version of AUS-SPEC from time to time. To assist in highlighting any changes made by Council to the NATSPEC templates, the following conventions are used.

- See ANNEXURE M at the end of this document which contains (where practical) MidCoast Council customisations (also known as 'office master' text). References to the Annexure are to also be inserted at relevant clauses in the main body of the document.
- Where content is added to the main body of the document, it is to be shown **in brown text like this**.
- Where content is deleted or excluded from the main body of the document, it is to be shown ~~struck through like this~~. Such clauses are to have no effect.

Where there is a conflict between main body text and MidCoast Council specific clauses, Council's specific clauses shall prevail.

### 1 GENERAL

#### 1.1 RESPONSIBILITIES

##### General

Requirement: Provide external sports and playground surfacing, as documented.

#### 1.2 CROSS REFERENCES

##### General

Requirement: Conform to the following:

- *0136 General requirements (Construction)*.
- *1141 Flexible pavement base and subbase*.
- *1144 Asphalt (Roadways)*.
- *0319 Auxiliary concrete works*.

#### 1.3 STANDARDS

##### General

Playground surfacing: To AS 4685.0 and AS 4685.1.

#### 1.4 INTERPRETATION

##### Abbreviations

General: For the purposes of this worksection the following abbreviations apply:

- EDPM: Ethylene propylene diene monomer (M-class) rubber.
- SBR: Styrene-butadiene rubber.

##### Definitions

General: For the purposes of this worksection the following definitions apply:

- Critical fall height: The maximum free height of fall for which a surface provides an acceptable level of impact attenuation.
- Rubber: Polymeric material, either natural or synthetic that is elastomeric.
- Substrate: The surface to which a material or product is applied.
- Surfacing: An impact-attenuating surface consisting of one or more material components cast in situ, formed into a sheet, tile or other continuous surface where the underlying protective properties of the impact surfacing remain constant with consecutive and/or repeated use.

## **1.5 TOLERANCES**

### **Sports surfacing**

General: No ridges, bumps or hollows to cause a hazard or to deflect a ball from its true path.

Gradients: Not greater than 1:100 in any direction.

**Profile:** Crown, camber and crossfall to meet the relevant sporting association standards.

**Surface regularity:** Maximum surface deviation as measured with a straightedge to meet the relevant sporting association standards.

Deviation from the finished plane: When checked on a 10 m grid the difference in level between adjacent grid points, after taking design gradients into account, must not exceed 25 mm.

### **Playground surfacing**

General: No ridges, bumps or hollows to cause a hazard, with a 2.5 m gradual transition from playground surfacing to adjacent surfaces.

## **1.6 SUBMISSIONS**

### **Operation and maintenance manuals**

General: Submit manufacturer's published use, care and maintenance requirements for each type of surfacing.

### **Products and materials**

Manufacturer's data: Submit the manufacturer's product data for each type of surfacing, and the manufacturer's recommendations for its application in the project including the following, as appropriate:

- Product technical data sheets.
- Safety data sheets (SDS).
- Maintenance recommendations.

Type tests: Submit results, as follows:

- Impact-attenuation performance of surfaces: To AS 4422.
- Slip resistance: To AS 4586.

**Evidence of delivery:** Submit delivery docket as evidence of delivery of components, including granular components (such as softfall rubber) components.

### **Samples**

Synthetic turf surfacing: For each type, submit a sample of the following:

- Turf fabric: 300 mm x 300 mm.
- Game line turf fabric: 300 mm long by line width.
- Infill material: 100 g of each type.
- Impact-attenuation layer: 300 mm x 300 mm.
- Seam sample: 300 mm x 300 mm square with seam centered in sample.

Polymeric cast in situ surfacing and polymeric liquid coatings: For each type, submit a sample of the following:

- Coating system including impact-attenuation layer on a suitable base.
- Minimum size per sample: 450 mm x 450 mm.
- Game line sample: 450 mm long by line width.

Polymeric cast prefabricated surfacing: For each type, submit a sample of the following:

- Minimum size per sample: 450 mm x 450 mm.
- Game line sample: 450 mm long by line width.

Polymeric granular material: For each type, submit a 100 g sample of the material.

Identification: Label each sample, with brand, product name, and manufacturer's code reference (including the code for each coat of multi-coat work).

**Sample panels:** If required, construct a panel to verify the finish and the material properties, as documented, with the following to the satisfaction of the Principal Certifier:

- Location

- Size (mm)

### Shop drawings

Synthetic turf surfacing: Submit shop drawings to a scale that best describes the detail, showing the following:

- Sections and details.
- Locations of seams and method of seaming.
- Layout of game lines, numbers, and letters. Indicate application method of each line and marking.

Polymeric surfacing: Submit shop drawings to a scale that best describes the detail, showing the following:

- Installation details.
- Layout of game lines, numbers, and letters. Indicate application method of each line and marking.
- Location of equipment inserts.
- Method of joining different colours and separate pours.

### Subcontractors

General: Submit names and contact details of proposed suppliers and applicators.

**Prior experience:** Submit evidence of experience.

Substrate acceptance: Submit evidence of applicator's acceptance of the surfacing substrate before commencing installation.

### Tests

Site tests: Submit results, as follows:

- Impact-attenuation performance of completed surfaces.
- Slip resistance test of completed installations.

### Warranties

Requirement: Submit warranties, as documented.

## 1.7 INSPECTION

### Notice

Inspection: Give notice so that inspection may be made of the following:

- Base preparation completed.
- Substrate preparation completed.
- Setting out completed.
- Installation completed.

## 2 PRODUCTS

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### 2.1 GENERAL

#### Storage and handling

General: Deliver, unload and store surfacing materials in unbroken manufacturer's packaging. Inspect for damage upon delivery.

Storage: Store in a dry environment and in a location to allow installation of the surfacing without excess disturbance of the substrate.

### 2.2 SUBSTRATES

#### Base and subbase

Requirement: To *1141 Flexible pavement base and subbase*.

#### Asphaltic concrete

Requirement: To *1144 Asphalt (Roadways)*.

#### Concrete

Requirement: To *0319 Auxiliary concrete works*.

## **2.3 GEOTEXTILE MATERIALS**

### **General**

Material: UV stabilised polymeric fabric formed from a plastic yarn composed of at least 85% by weight.

Identification and marking: To AS 3705.

Quality: Free of flaws, stabilised against UV radiation, rot proof, chemically stable and with low water absorbency. Filaments resistant to delamination and dimensionally stable.

## **2.4 IMPACT-ATTENUATION LAYER**

### **General**

Description: Proprietary resilient layer between the base and surface with the following properties:

- Reduce injury risk from falls.
- Reduce lower leg stress.
- Control ball bounce.

## **2.5 SYNTHETIC TURF**

### **General**

Description: Proprietary matting made from synthetic fibres tufted into a water-permeable woven backing, including the following:

- Unfilled synthetic turf: A sporting surfacing that requires prolonged wetting before use.
- Dressed or filled synthetic turf: A sports surfacing that incorporates granular fill.

Pile height maximum variation:  $\pm 15\%$  of the mean height.

Pile distribution: Uniform over the surface.

Rubber Infill: Ground SBR crumb rubber free of metal, non-metallic fibres, and contaminants.

Sand Infill: Uniformly sized kiln dried silica sand free of silts, clays, vegetable matter and contaminants, and of sub-angular or rounder shape.

## **2.6 POLYMERIC CAST IN SITU**

### **General**

Description: Proprietary polymeric system comprising polyurethane binder and granular rubber mixed and cast in situ and finished with a coloured spray coating.

Game lines and markings: Inlaid or painted.

## **2.7 POLYMERIC PREFABRICATED SHEETS AND TILES**

### **General**

Description: Proprietary system of prefabricated sheets or tiles comprising polyurethane binder and granular rubber.

Game lines and markings: Inlaid or painted.

## **2.8 POLYMERIC GRANULAR MATERIAL**

### **General**

Definition: Proprietary system comprising loose laid granular rubber.

Granular rubber: Shredded particles free of metal, non-metallic fibres, rubber dust and contaminants.

Edging: Water-resistant interconnected modular units.

## **2.9 POLYMERIC LIQUID COATINGS**

### **General**

Description: Proprietary system comprising acrylic or polyurethane coatings with or without an impact-attenuation layer.

Game lines and markings: Painted.

### 3 EXECUTION

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#### 3.1 GENERAL

##### Subcontractors

Requirement: Use specialist applicators recommended by the material manufacturer.

##### Combinations

General: Do not combine products from different manufacturers in a surfacing system **except in accordance with manufacturer's specifications and where accepted by the Principal Certifier.**

#### 3.2 SUBSTRATES

##### Drying and shrinkage

General: Before laying surfaces, allow at least the following times to elapse for these substrates:

- Concrete slabs: 28 days.
- Asphaltic concrete: 14 to 21 days.

#### 3.3 PREPARATION

##### Substrate condition

Requirement: Sound, clean and free of any deposit or finish, including laitance, efflorescence, curing compounds, dirt and grease, which may impair bonding or is incompatible with the surfacing.

Substrate alkalinity and adhesion: Verify the concrete pH is within the range recommended by the manufacturer. Perform adhesion tests to the manufacturer's recommendations, do not proceed with application unless the substrate passes the test.

##### Substrate correction

Substrate rectification: Conform to the following:

- Surface treatments: Mechanically remove the following surface treatments:
  - . Sealers and hardeners.
  - . Curing compounds.
  - . Waterproofing additives.
  - . Surface coatings and contamination.
- Planeness, smoothness, projections: Remove projections and fill voids and hollows with a smoothing and self-levelling compound compatible with the adhesive. Allow filling or levelling compound to dry to manufacturer's recommendations.

##### Ambient conditions

Ambient air temperature: If less than 5°C or more than 35°C, **or outside manufacturer's or designer's specifications**, do not lay surfacing.

Ambient surface temperature: If less than 10°C or more than 60°C, **or outside manufacturer's or designer's specifications**, do not lay surfacing.

Rainfall and humidity: If rainfall is imminent or high humidity may prevent drying, do not lay surfacing.

##### Falls

Requirement: Make sure the fall in the substrate conforms to the fall documented for the surface finish.

##### Geotextile

Preparation: Trim the ground to a smooth surface free from cavities and projecting rocks.

Placing: Lay the fabric flat, but not stretched tight, and secure it with anchor pins. Overlap joints 300 mm minimum.

##### Priming

General: If required by the surfacing manufacturer, prime the substrates with a primer compatible with the surfacing system.

#### 3.4 SYNTHETIC TURF

##### Installation

Preparation: Place and compact minimum 50 mm cement stabilised crusher dust as bedding layer for synthetic turf. Avoid disturbance to the bedding during installation.

Laying: Cut to shape, spread without wrinkles and lay carpet as follows:

- In continuous lengths across the width of the pitch with no cross joints.
- Level differences and separation at joints and seams: < 2 mm.
- Seams or textural variations not to cause ball deflection from true path.

Impact-attenuation layer: Roll out and allow to relax for a minimum of 6 hours. Stagger head seams between adjacent rows.

Joints: To the manufacturer's detail.

Inlaid game lines: Cut through turf fabric and fix with seaming tape

Infill dressing: Spread and groom by machine in proportions and depths, as documented. Rake fibres trapped by infill to surface.

Painted game lines: Apply to the manufacturer's recommendations.

### **3.5 POLYMERIC CAST IN SITU**

#### **Installation**

General: Mix and apply components of seamless surfacing to manufacturer's recommendations to produce uniform, monolithic, and impact-attenuating surfacing of required overall thickness.

Substrate primer: Apply over prepared substrate.

Impact-attenuating layer: Spread evenly over primed substrate to form a uniform layer with a minimum of cold joints.

Intercoat primer: Apply primer over cured cushioning layer.

Wearing layer: Spread over primed substrate or impact-attenuation layer to form a uniform layer and, except where colour changes, with a minimum of cold joints. Finish surface to standard wearing surface texture.

Topcoat: Spray or roller apply in one continuous operation.

Joints: To the manufacturer's detail.

Edge treatment: Fully adhere edges to substrate with full coverage of substrate. Maintain the cushioned thickness required to conform with performance requirements.

Game lines: Mask surfacing and apply to the manufacturer's recommendations.

### **3.6 POLYMERIC PREFABRICATED SHEETS AND TILES**

#### **Installation**

General: Apply components of prefabricated surfacing to manufacturer's recommendations to produce a uniform wearing surface without unaligned units, raised edges (lipping), or other surface imperfections.

Prefabricated sheet: Lay from centreline established between principal perimeter edges.

Prefabricated tiles: Lay out from centreline established between principal perimeter edges, with tiles at opposite sides of installation of equal width. Adjust as required to avoid cut tiles less than one-half of a tile width and as follows:

- Alignment axis and pattern: Lay units along axis and in grid pattern, as documented.

Obstructions: Scribe, cut, and fit prefabricated units to vertical surfaces, equipment anchors and other interruptions of floor surface.

Fixing sheets and tiles:

- Adhesive: Adhere to substrates using a full spread of adhesive applied to substrate or to sheet/tile.
- Mechanical: Anchor to substrates.

Joints: To the manufacturer's details.

Edging: Maintain cushioned thickness required to conform with performance requirements.

Game lines: Mask surfacing and apply to the manufacturer's recommendations.

### **3.7 POLYMERIC GRANULAR MATERIAL**

#### **Installation**

General: Apply components of loose-fill surfacing to manufacturer's recommendations to produce a uniform surface.

Edging: Install and permanently secure edging in place, and attach units to each other.

Loose fill: Place loose-fill materials to required depth after installation of playground equipment support posts and foundations, including the recommended amount of additional material to offset compaction over time.

Grading: Uniformly grade loose fill to an even surface free from irregularities.

### **3.8 POLYMERIC LIQUID COATINGS**

#### **Installation**

General: Mix and apply flooring components according to manufacturer's recommendations to produce a uniform surface.

Substrate primer: Apply over prepared substrate.

Impact-attenuation layer: Roll out and fix with adhesive. Stagger head seams between adjacent rows. Apply sealer over impact-attenuation layer.

Wearing layer: Apply by spray or roller over primed substrate or impact-attenuation layer to form a uniform layer.

Topcoat: Apply by spray or roller in one continuous operation.

Game lines: Mask surfacing and apply to the manufacturer's recommendations.

### **3.9 TESTING**

#### **Completion tests**

Slip resistance of testing of completed installation: To AS 4663.

Impact-attenuation performance of completed surfaces: To AS 4422.

### **3.10 COMPLETION**

#### **Protection**

General: Keep traffic off finished work for 48 hours after installation.

#### **Reinstatement**

Extent: Repair or replace faulty or damaged work. If the work cannot be repaired satisfactorily, replace the whole area affected.

#### **Spare materials**

General: Supply spare matching surfacing and accessories of each type for future replacement purposes. Store the spare materials on site where directed.

Quantity: At least 1% of the quantity installed.

#### **Warranties**

Surfacing: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use conditions.

*Warranty period: In accordance with applicable DA consent conditions or REF recommendations, but no less than the duration of the Defects Liability Period required by Council's Development Engineering Handbook.*

## **4 SELECTIONS**

*These Schedules should be completed for Council or private development projects to specify parameters required in conjunction with the contract Drawings. Where there is an inconsistency between the approved Drawings and this Annexure, the approved Drawings shall prevail unless specifically noted otherwise.*

### **4.1 PERFORMANCE**

#### **Sports surfacing performance schedule**

<b>Property</b>	<b>A</b>	<b>B</b>	<b>C</b>
Sport			
Surfacing type			



<b>Property</b>	<b>A</b>	<b>B</b>	<b>C</b>
Base			
Anticipated usage (hours/day) (days/week)			
Priority of activities			
Standard of play			
Wearing quality			
Permeability			
Minimum life expectancy (years)			
Slip resistance classification			
Resistance to impact tested to EN 1517			
Thickness of synthetic surfacing tested to EN 1969			
Joint strength of synthetic surfacing tested to EN 12228			
Tensile properties of synthetic sports surfacing tested to EN 12230			
Water infiltration rate tested to EN 12616			
Behaviour under a rolling load tested to EN 1569			
Ball roll behaviour tested to EN 12234			

**Notes to schedule:**

Anticipated usage: Nominate the usage for both hours/day and days/week.

Priority of activities: For multi-sport usage list in order. The ranking may relate to the total hours of use for different sports or the intensity of use. Standard of play: e.g. Recreational, Club, National, International.

Permeability: Check the sports requirements.

Refer to each sporting organising body for additional performance requirements.

**Playground surfacing performance schedule**

<b>Property</b>	<b>A</b>	<b>B</b>	<b>C</b>
Playground type			
Surfacing type			
Base			
Anticipated usage (hours/day) (days/week)			
Abrasion resistance			
Minimum thickness			
Permeability			

Property	A	B	C
Minimum life expectancy (years)			
Slip resistance classification			
Critical fall height tested to AS 4422			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Anticipated usage: Nominate the usage for both hours/day and days/week.

Critical fall height: Nominate the maximum free height of fall for the required level of impact attenuation.

## 4.2 PRODUCT

### Synthetic turf schedule

Property	A	B	C
Location			
Type			
Material			
Pile height			
Fill: Depth			
Fill: Proportions			
Seaming method			
Game lines and markings method			
Impact-attenuation layer			
Colour			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Type: Select from the following:

- Sand dressed synthetic turf.Sand filled synthetic turf.
- Rubber filled synthetic turf.Sand and rubber filled synthetic turf.Material: e.g. Monofilament polyethylene; Slit-film polyethylene, Monofilament nylon.

Fill: Depth: e.g. Dressed: 66% to 80% of the pile height, Filled: 95% of the pile height.

Seaming method: e.g. Adhesive; Sewn; Hot melt tape.

Game lines and makings method: e.g. Tufted in fabric; Inlaid lines; Painted.

### Polymeric cast in situ schedule

Property	A	B	C
Location			
Product			
Total thickness			
Wear layer			
Impact-attenuation layer			

Property	A	B	C
Colour			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Product: If a product is nominated, check it has the required performance values.

Wear layer: e.g. Mixture of EPDM rubber, particles and binder.

Impact-attenuation layer: e.g. Mixture of SBR rubber, particles and binder.

Colour: Integral colour is preferable to colour coatings.

#### Polymeric prefabricated sheet and tile schedule

Property	A	B	C
Location			
Product			
Total thickness			
Sheet / tile thickness			
Material			
Base profile			
Surface texture			
Edge / border detail			
Colour			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Product: If a product is nominated, check it has the required performance values.

Material: e.g. Mixture of SBR and EPDM rubber, particles and binder.

Base profile: e.g. Integral ribbed.

Surface texture: e.g. Flat; Granular; Embossed.

Edge / border detail: e.g. Tapered; Bevel-edged.

Colour: Integral colour is preferable to colour coatings.

#### Polymeric liquid coating schedule

Property	A	B	C
Location			
Product			
Total thickness			
Body coat			
Top coat			
Impact-attenuation layer			
Colour			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Product: If a product is nominated, check it has the required performance values.

Body coat: e.g. Two part, self-levelling, polyurethane.

Top coat: e.g. Pigmented polyurethane.

Impact-attenuation layer: e.g. Mixture of SBR rubber, particles and binder.

#### Polymeric granular material schedule

Property	A	B	C
Location			
Product			
Uncompressed material depth			
Edging			
Colour			

Notes to schedule:

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Product: If a product is nominated, check it has the required performance values.

Edging: e.g. Polyethylene units; Steel units; Rubber units.

#### 4.3 ANNEXURE – REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS 3705	2012	Geotextiles - Identification, marking, and general data
AS 4422	2016	Playground surfacing - Specifications, requirements and test method
AS 4586	2013	Slip resistance classification of new pedestrian surface materials
AS 4663	2013	Slip resistance measurement of existing pedestrian surfaces
AS 4685		Playground equipment and surfacing
AS 4685.0	2017	Development, installation, inspection, maintenance and operation
AS 4685.1	2014	General safety requirements and test methods (EN 1176:2008, MOD)
EN 1517	2000	Surfaces For Sports Areas - Determination Of Resistance To Impact
EN 1569	1999	Surfaces For Sports Areas - Determination of the behaviour under a rolling load
EN 1969	2000	Surfaces For Sports Areas - Determination of thickness of synthetic sports surfaces
EN 12228	2013	Surfaces For Sports Areas - Determination of joint strength of synthetic surfaces
EN 12230	2003	Surfaces For Sports Areas - Determination of joint strength of synthetic surfaces
EN 12234	2013	Surfaces For Sports Areas - Determination of the behaviour under a rolling load
EN 12616	2013	Surfaces For Sports Areas - Determination of water infiltration rate

**5 ANNEXURE M – MIDCOAST COUNCIL SPECIFIC CLAUSES**

M1.	<p>Variations to or non-conformances with Council's AUS-SPEC are to be evaluated with reference to the procedure in Council's <i>Development Engineering Handbook</i>. Acceptance is to be obtained in writing from:</p> <ul style="list-style-type: none"> <li>a) an authorised representative of Council's Director of Infrastructure and Engineering Services, or</li> <li>b) an accredited certifier where they are the Principal Certifier and hold the relevant accreditation category for the type of work.</li> </ul>	<b>Variation procedure</b>
M2.	<p>This specification applies in addition to any development consent (DA) conditions. If there is any inconsistency, the conditions of consent shall prevail.</p>	<b>DA conditions</b>
M3.	<p>Refer to the MidCoast Council <i>Development Engineering Handbook</i> for final inspection, works-as-executed and handover requirements.</p>	<b>Completion</b>

**6 AMENDMENT HISTORY**

0	14/12/2020	First Published
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