



# Design Framework: New playground equipment in schools

A guideline for the design and installation of new playground equipment in NSW schools.

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# Purpose of this document

This document has been created to guide design and installation of new playground equipment for new schools. This design framework streamlines the installation of fixed playground equipment within major capital work funding.

## Disclaimer

This framework helps design teams easily access information and share successful project methodologies to ensure compliance with the school design principles. Following this framework does not irrevocably replace any project obligations to deliver against Educational Facilities Standards and Guideline requirements. The information within this document once downloaded/printed/exported will be classed as an uncontrolled copy. Its currency must be checked by visiting the EFSG website prior to using the information for any purposes.

## Related Documents

This document duplicates information related to new playground equipment from [Playground Equipment in Schools](#)

## Superceded Documents

Playing Safe: Guidelines for the installation and maintenance of playground equipment in NSW Government Schools 2006'

For more information on Education Facilities Standards and Guidelines, Technical Standards and a glossary, please visit:  
[education.nsw.gov.au/about-us/efsg](http://education.nsw.gov.au/about-us/efsg)





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# 1. Introduction to New Playground Equipment

Safe playgrounds are an essential part of providing a safe environment for the physical development and recreation of students and community members.

A new Technical Standard has been included that streamlines the installation of fixed playground equipment in new schools within major capital work funding.

## Policy

New guidelines have been developed for schools wanting to install and maintain fixed playground equipment.

This document aims to provide key considerations on the design and installation of new playground equipment for new schools. This information can also be found at [Playground Equipment in Schools](#) on the SINSW intranet.

This framework does not provide information on processes for existing school playground equipment. Refer to [Playground Equipment in Schools](#) for guidelines for inspection and maintenance processes for playground equipment.

This design framework covers the following design development phases:

**Phase 0 Project initiation**

**Phase 1 Master planning**



**Phase 2 Concept design**



**Phase 3 Schematic design**



**Phase 4 Design development**



**Phase 5 Tender evaluation**



**Phase 6 Tender, evaluate and award**



**Phase 7 Construction administration**



**Phase 8 Commissioning and handover**



**Phase 9 Post-completion and warranty**

### New equipment in new school builds

Business cases will clearly state that the Education Faculties Standards and Guidelines (EFSG) requirements, current Australian Standards, and departmental guidelines have been applied. The installation of new equipment will be included in all new school builds as at the date of implementation of the [Playground Equipment in Schools](#) guideline.

The EFSG standard and updated guidelines will be applied to all new Strategic and Final Business Cases developed after the implementation of the guidelines in Term 4 2022.

The principal of a new school can choose to include or not include playground equipment depending on contextual factors.

### New equipment in existing schools

It is the responsibility of the schools to ensure the current departmental guidelines are adhered to when planning for installation of new playground equipment on their site. Schools should seek guidance and approval from the Asset Management Unit (AMU) on the proposed equipment.

If plans to install playground equipment have already commenced, schools should liaise with the AMU and contractors involved to ensure plans are compliant with current departmental guidelines. Any relevant changes to design must be made to comply with the guidelines outlined on the EFSG website.

### Restricted equipment

An updated [Restricted Playground Equipment Register](#) is now available.

Equipment that requires forced movement and higher levels of supervision should be avoided, such as swings and flying foxes.

There are some exemptions, including the installation of equipment for students with disability where there will be a higher level of supervision. Staff are to contact their AMU to obtain approval to install a restricted equipment item under circumstances that are listed as an exemption.

### Consultation

The choice of equipment and the design of its layout differ between schools and their needs.

Schools should consult with the school community, including staff, students, and families to ensure the needs of the school are met, risks are identified, and the specific school context for play equipment is included.

### Processes

There are different processes in place for new equipment and equipment currently existing on school sites.

#### For existing schools

Principals are required to obtain approval for any new installation or modification to existing playgrounds from their relevant Asset Management Unit (AMU). The AMU will provide advice to the school principal on installation.

##### Type of works

New playground equipment on existing sites

##### Responsibility for associated costs

School funded

##### Responsibility for actioning

School principals are responsible for the upgrade and maintenance of fixed playground equipment with requirements to be advised by the AMU.

#### For new schools

A new Technical Standard has been included that streamlines the installation of fixed playground equipment as standard procedure in new school builds.

##### Type of works

New schools playground equipment

##### Responsibility for associated costs

SINSW to develop project business case which includes funding for playground

##### Responsibility for actioning

School principals are responsible for the upgrade and maintenance of fixed playground equipment with requirements to be advised by the AMU.







## 2. Key Areas of Engagement

The choice of equipment and the design of its layout differ between schools based on their needs. This is determined by the school's environment, local context, and available funds. Consultation with the following stakeholders at project milestones will help achieve success of the play equipment design.



### Design Consultants

Designers and manufacturers must provide certification that all manufactured equipment and surfaces meet current Australian Standards (AS4685:2021 and AS 4422:2016).

#### Designers, manufacturers and installers have a duty of care for:

- Ensuring that the playground equipment satisfies all requirements and can be held liable for negligence in the event of an injury, death, or equipment failure.
- Providing legible manufacturing details marked on all equipment and surfacing including ABN, equipment reference, year of manufacture, and conformance with the Australian Standards.
- Providing instructions for installer to ensure that the completed installation satisfies all requirements.

#### Need more information?

##### Engage with...

- Project Specific Delivery Team
- Refer to Playground Surfacing section below.
- EFSG Technical Standards





### School Operations and local Asset Management Unit

School principal and staff run day-to-day operations of the school. Consulting stakeholders early in the project design process will take into account unique school operations requirements at the school.

- School playground equipment and playground surfacing must be inspected and maintained in a safe condition. School principals must identify and report any maintenance requirements to their AMU in the first instance, in line with school practices for reporting health and safety hazards.
- AMUs are responsible for managing the maintenance of playground equipment under the Facilities Management Contract (FMC). The AMU will isolate the equipment from use; modify it so that it complies with the current guidelines; or action the removal or replacement of the equipment.
- Schools are responsible for the cost of maintenance works undertaken.

#### Need more information?

##### Engage with...

- School Principal
- Local Asset Management Unit
- Project specific delivery team
- Local Director Educational Leadership
- [Playground equipment in schools guidelines on inspection and maintenance requirements](#)

### 3. Supporting New Playground Equipment Design

The choice of equipment and the design of its layout differ between schools and their needs. This is determined by the school's environment, local context, and available funds.

All new playground equipment and surfacing must comply with these guidelines that align with current Australian Standard AS 4685:2021. The departmental guidelines include additional restrictions for fixed

equipment in Government schools. This includes the [Restricted Equipment Register](#).

Schools are required to obtain approval for any new installation or modification to existing playgrounds from their SINSW Asset Management Unit (AMU) before any equipment is purchased and work is undertaken.



# Master planning and concept design

Phase 1 Master planning



Phase 2 Concept design



Before designing and installing equipment, it is important to identify the needs of the school. There are several factors that need to be considered.

## Age and level of ability

Determining the age and ability of student groups and their capacity to evaluate risk while using the playground equipment will determine many features of the design.

A range of equipment is required to provide a balanced play environment that promotes development of a range of skills and play types for all ages. Some examples include:

- fundamental movement skills
- gross and fine motor development
- upper body strengthening
- agility skills
- imaginary and creative play skills
- equipment designed for therapy purposes

## Secondary schools

There is more of an emphasis on providing open space for social or passive settings and team sports in secondary schools. Installation of fixed equipment in secondary schools would primarily include fitness and agility equipment items, such as:

- gymnastic equipment
- butterfly and shoulder presses
- cross trainers
- cycle seats
- rowing machines
- steppers

Safety requirements remain the same and all equipment installed must comply with the Australian Standards.





### Inclusive play

Playground equipment design needs to incorporate access and inclusiveness for all abilities. Incorporating inclusive practices ensures all children can participate. This includes modifications in terms of the physical layout, resources, and/or equipment provided such as:

- Suitable accessible pathways
- Wheelchair and mobility support equipment
- Adapting resources to include larger or textured handles to assist handgrip
- School are to check with the manufacturer of any fixed structures before making modifications to avoid risk of entrapment hazards or voiding warranties.
- Schools are required to detail specific requirements where appropriate with manufacturers and designers to support an understanding of the most suitable playground equipment.

### Location

It is imperative when choosing a location to thoroughly check the available space is adequate and whether this will affect planning.

Things to consider when determining locations include:

- Adequate open space surrounding proposed location for equipment.
- Exclusion of any location that has existing structures such as posts, fencing, gates, trees, landscaping, taps, and plumbing that could potentially create disruptions in installation and hazards within the space. This also affects playground surfacing and containment borders.
- Underground services and utilities e.g. water and sewer pipelines
- Consultation with adjoining neighbours if the playground equipment is located where there is potential risk of visual or noise impact to neighbouring houses.
- Risk of in-ground asbestos. Asbestos registers must be checked when installing or replacing playground equipment as this work can disturb the ground.



### Shade

The location must provide adequate shade in line with the Department's Sun Safety guidance.

- Shade is required for synthetic play equipment and surfacing to reduce the risk of contact burns from direct sunlight.
- Timber equipment has lower heat properties and is generally cooler than synthetic equipment.
- Shrubs and grass plantings can reduce surface air temperature and improve climate conditions of nearby playground equipment.

### Nature play

Australian Standard AS 4685:2021 defines nature play as:

The elements of a playground consisting of natural, non-manufactured items that are incorporated into the playground, including items such as logs, boulders, plant materials and surfaces, changes of level, and other landscape elements.”

Nature play encourages children to actively engage with nature and its elements. Children develop risk assessment skills as they navigate the natural environment and build resilience as they learn to adapt their behaviour to the play setting.

The following must be considered when planning a natural play space:

- Adequate falling space, impact areas, and playground surfacing are provided. (Refer to Playground surfacing section below.)
- Clear pathways are provided
- Toxic plants and plants with sharp or spiky features are avoided.
- Loose parts such as small logs, leaves, seed pods, and pinecones are readily available for incorporation in nature play.



# Schematic and detailed design

Phase 3 Schematic Design



Phase 4 Design Development



Once you have determined the needs of your school, you will need to consider types of equipment and surfacing to install. The school's environment and available funds will determine choice of equipment and layout design.

The type of equipment and materials selected must comply with the Australian Standards at the time of installation.

The funding source must be clearly identified and available before undertaking any procurement of playground equipment.

Before procuring any playground equipment or soft fall, schools should contact their assigned Asset Services Officer (ASO) for support and advice.

The [Planning Playground Equipment Checklist](#) is available to ensure all standards and specifications are included.

## Restricted playground equipment items

Due to high risk of potential injury, there are equipment types that are not permitted in schools. Equipment that requires forced movement and higher levels of supervision should be avoided. There are some exemptions, including the installation of equipment for students with disability where there will be a higher level of supervision.

The [Restricted Equipment Register](#) includes all restricted items and their risk ratings, as well as exemptions.

## Playground surfacing

Tested and certified surfacing is required for all equipment with a free fall height of no more than 600mm above ground level to reduce impact of fall. All playground surfacing must meet the test requirements of AS 4422:2016 and the supplier must provide documented evidence that surfacing complies with these guidelines.

For equipment items with a free fall height less than 600mm above ground level, a soft surface such as well-maintained grass or mulch is required. This surfacing does not have to be tested.



The selection of surfacing will depend on the individual site and its needs. Surfacing materials that can be used include:

- synthetic grass
- wet pour rubber
- rubber tiles
- certified bark mulch (loose fill)

Loose-fill surfacing (certified bark mulch) must be installed at a minimum depth of 300mm and maintained at no less than 200mm.

The [Impact Attenuation Playground Surface Materials List](#) provides further information.

### Sandpits

Sandpits are a popular playground feature and provides a space for creative play. There are no Australian Standards specifically for design and maintenance of sandpits however general requirements for fall heights, impact areas, and surfacing as per AS 4685:21 and AS 4422:16 apply. Schools must ensure that the manufacturer provides documentation that certifies the sandpit is compliant with the necessary standards when installed.

Further guidance for sandpit specification and maintenance can be found in the Kidsafe Sandpit Information Sheet.

### Borders and edging

Borders or edging must be installed around fixed playground equipment and sandpits to separate the area from other playground materials such as grass. Borders can be constructed from pavers, concrete or timber and must be of sufficient width to allow grass trimming and mowing.

Borders for loose-fill surfacing can be constructed from:

- Timber
- Concrete sleepers
- Sandstone blocks.
- Pre-manufactured locking plastic type border edgings

### Impact areas

Australian Standard AS 4685:21 has replaced the previous terminology of 'fall zones' and is now known as 'impact areas.' AS 4685:2021 supersedes Section 4.1 Installation – Clearances/Safe fall zone in the previous guidelines.

A minimum 1.5m impact area is required from the perimeter of fixed equipment with a platform height 0.6-1.5m above ground level. The impact area will increase appropriately for fixed equipment with platforms 1.5-3m above ground level. The impact area must be covered by a certified surfacing material.

### Requirements for playground equipment

The following table outlines the requirements for equipment items to ensure compliance with Australian Standard AS 4685:2021.

Item	Description	Requirement
Footings	Concrete anchored footings installed underground to secure playground equipment	<ul style="list-style-type: none"><li>• Must be at least 400mm below playing surface; or</li><li>• at least 200mm below playing surface with a minimum 45° chamfered top (unless directly covered by equipment or parts of equipment)</li></ul>
Nuts and bolts	Nuts, domed nuts, bolts, washers, spikes and nail heads used to secure equipment	<ul style="list-style-type: none"><li>• Must be recessed flush with the surrounding surface.</li><li>• Domed nuts to be used on protruding bolt threads.</li></ul>
Barriers	Provided to prevent users from falling off or through the structure	<ul style="list-style-type: none"><li>• Barriers must be solid or have vertical bars.</li><li>• Barriers must not be able to be used as a climbing frame.</li><li>• Grab rails must have a diameter between 16mm and 45mm.</li></ul>
Tube ends	Tubes or pipes used for equipment structure or barriers	<ul style="list-style-type: none"><li>• Must be fitted with a permanent cap or plug.</li></ul>

Item	Description	Requirement
Entrapment	Clothing and hair entrapment can occur when students are playing on equipment. All equipment must be free of areas or points where clothing or hair can catch	<ul style="list-style-type: none"><li>• Bound head and neck entrapment occur in accessible openings of 89-230mm located 600mm or more above ground level.</li><li>• Finger entrapment occurs in accessible openings of 8-25mm (such as gaps between platforms or barriers) located 1000mm or more above ground level.</li><li>• Chains must be a short link type or have gaps less than 8.6mm. Any chain connector (such as 'S' hooks) must have gaps greater than 12mm or less than 8.6mm.</li></ul>



### Fall height

#### Height of equipment

Australian Standard AS 4685:2021 has raised the fall height of equipment from previous standards. AS 4685:2021 supersedes Section 4.2 Impact-absorbing surfaces in the previous guidelines.

Maximum height of fixed equipment is now 3m in schools (previously 2.5m) and 1.8m in preschools (previously 1.5m).

The standard design of spatial networks (i.e. web structure made of rope cables) allows a maximum direct fall height of 1m. Therefore, this equipment can be designed with a maximum height greater than 3m.

Maximum height of moveable equipment is 1.5m.

#### Climbing walls

There are no Australian Standards specifically for design and maintenance of climbing walls as part of playground equipment. However, general requirements for fall heights, impact areas, and surfacing as per AS 4685:21 and AS 4422:16 apply.

As a guide, the free height of fall for climbing walls is determined by the highest climbing peg intended for a foothold. If these climbing pegs are 600mm–1500mm in height, then an impact area of 1500mm of certified surfacing is required. If these footholds are less than 600mm high, a soft surface would be sufficient (i.e. well-maintained grass, mulch, sand) with an impact area of 1000mm.

Leaving a 1000mm distance between the highest handhold peg and the top of the wall will ensure children are not able to climb to the top or over the wall.

#### Sloping ground

Often on site, there may be sloping ground which may increase the fall height of equipment. If alternative locations are unavailable, schools are permitted to install equipment on sloping ground.

This is subject to a site assessment conducted by the Asset Service Officer to determine where adjustments should be made, such as using retaining walls to provide levelled surfaces.



# Delivery, commission, and handover

Phase 5 Tender evaluation



Phase 6 Tender, evaluate & award



Phase 7 Construction administration



Phase 8 Commissioning and handover



## Delivery - Installing playground equipment

Installation of equipment and surfacing must be undertaken by either the supplier or a licenced installer with knowledge of the playground standards.

Installers are required to provide certification that all manufactured equipment and surfacing meet current Australian Standards and the departmental guidelines.

Playground installers must ensure installation is carried out strictly in accordance with the recommendations and instructions of the manufacturer. If injury, death, or equipment failure occurs due to failure to install equipment in accordance with instructions, the installer will be considered negligent.

## Commissioning - Introducing new playground equipment

Schools must develop and implement their own program for the introduction of newly installed or modified playground equipment.

### Safety considerations

Schools must adhere to the department's Incident Notification and Response Policy and Procedures as well as the guidelines on this website for the safe use of playground equipment. Any accidents or incidents are to be reported in line with the Incident Notification and Response Procedures.

### Staff and student responsibilities

All staff supervising must be familiar with:

- The intended use of the equipment
- Techniques required for use
- How equipment elements promote physical and educational development
- Mitigation strategies to avoid risk of injury (e.g. correct footwear, age groups, number of students using the play equipment at any one time, and weather implications)
- Adequate levels of supervision

All students must be familiar with:

- The intended use of the equipment
- Techniques required for use
- All safety rules implemented

Complementary to the business as usual supervision procedures required in the Code of Conduct Section 8.6 Duty of Care – health, safety and wellbeing, supervising students using fixed playground equipment must be heavily considered and included in the school's program for introducing new equipment. During the first eight weeks of introducing playground equipment, supervision is to be

provided to a greater degree than normal and gradually reduced to an effective working level.

Supervision of pre-school aged children must comply with the National Early Childhood Education and Care Law and Regulations.





### References

- [KidSafe Sandpit Information Sheet](#)
- [Department of Education Sun Safety](#)
- [Department of Education Incident Notification and Response Policy](#)
- [Department of Education Code of Conduct](#)
- [Australian Children's Education & Care Quality Authority \(ACECQA\) National Law and Regulations](#)
- [Everyone Can Play Guideline: Principles to consider when creating inclusive play environments](#)

### Additional information

- [Playground Equipment Guidelines - information and checklists](#)

