

Shade for schools

This information sheet has been written to assist school communities to improve the quality of shade provided for students, staff and visitors. It has been designed to accompany *The Shade Handbook*, which contains general information essential to developing effective shade.

To order a copy of *The Shade Handbook*, go to www.cancercouncil.com.au/sunsmart or call (02) 9334 1900.

The importance of shade at schools

Australia has the highest rate of skin cancer in the world, with most skin cancers caused by overexposure to ultraviolet (UV) radiation from the sun. Reducing exposure to the sun's rays can reduce the number of people affected by skin cancer.

Sun protection is an important health and safety issue that schools need to address. Schools can make a significant contribution to the prevention of skin cancer because:

- The sun exposure children and adolescents receive while they are young increases their risk of developing skin cancer as adults. Protecting children and adolescents from UV radiation will reduce their risk of skin cancer in the future.
- Students and staff attend school throughout much of the year and during the time when UV radiation is most intense.
- Students and teachers often spend time outdoors while at school.
- Schools are important settings to promote education about UV radiation and sun protection.

Providing adequate shade is important in any school's sun protection policy and practice. However, as shade alone cannot provide total protection, other protection measures should be encouraged. These include:

- Scheduling events and activities to avoid the middle of the day when UV radiation levels are most intense
- Encouraging students, staff and visitors to adopt sun protection measures, such as wearing sun safe clothing, a broad-brimmed hat, sunglasses and sunscreen
- Educating students and parents about the importance of sun protection
- Ensuring staff act as role models by demonstrating appropriate sun protection behaviours.

It is essential to assess existing shade before starting to plan and design additional shade. Part 2 of *The Shade Handbook* contains a step-by-step approach to conducting a shade audit and how to plan and implement a shade project.

Planning and design issues

The following planning and design issues should be considered when planning shade development at a school. These issues are examined in greater detail in *The Shade Handbook*.

It is important to note the different areas of a school, including:

- active playground areas for ball games and free play
- passive playground areas for eating lunch and socialising
- covered assembly areas
- canteen areas
- bus stop areas
- pedestrian links and transition zones.

Some schools also have specialist facilities such as swimming pools, tennis courts, sports fields or agricultural areas. While each area has its own shade requirements, they should be considered within the context of the whole site.

Project team

Ideally, representatives from school management, teaching staff and parents, as well as relevant professionals such as architects and landscape architects, should be involved in the project team. This will help to ensure that the need for shade is considered within the context of other issues, including long-term development plans for the site.

If community groups use the school grounds on weekends or during school holidays, it may be appropriate to liaise with them, particularly if the project will disrupt the areas they use.

Student participation

Students should be consulted and involved throughout the shade project. For example, they could perform certain tasks in the shade audit.

Existing shade

Try to optimise existing shade before considering additional shade. For example, move fixed seating to a shaded area, remove low branches from trees to allow access to shady areas, and review current playground use.

Use of outdoor area

It is important to take into account the usage patterns of the outdoor area, including the type of activities that occur, where they occur, and when they occur. Sufficient shade should be available at the times of heaviest use, particularly when UV radiation levels are most intense.

Active and passive use

There should be sufficient shade for active outdoor activities such as free play, physical education classes and sport, particularly during summer. There should also be enough shade for eating and socialising, 'lining up' (especially after recess and lunch) and assemblies, particularly during summer. These activities could be undertaken in covered assembly areas, active playground areas or specific passive-use areas.

Climatic conditions

Consider the characteristics of the climate zone as well as any local weather conditions, such as strong winds or salt (which leads to corrosion). These factors will affect the design of a shade structure as well as the selection of tree species.

Seasonal considerations

Although summer protection is a priority, winter shade is also needed in many parts of NSW.

Summer shade provision should minimise UV radiation levels as well as reducing heat and light. Winter shade provision should minimise UV radiation levels, while allowing sufficient levels of heat and light. Adjustable shade systems and deciduous vegetation may provide greater flexibility.

Reflected UV radiation

Shade structures should be designed to minimise reflected UV radiation. Shade structures should be of a sufficient size to ensure people can move away from the edges. The shade canopy should extend at least one metre past the areas of use, with vertical barriers built into the sides.

Modify or select surfaces to reduce reflected UV radiation. For example, replace smooth concrete with brick or grass. Vertical surfaces such as walls should also be made of materials that reduce reflected UV radiation.

Aesthetics

Shade design should be both practical and attractive to encourage use. Generally, an approach that combines both natural and built shade is preferable. Using a variety of tree and shrub species will also help to create a more interesting environment.

Approval

Check with the Department of Education and Training, Catholic Education Office and the local council to see if you will need approval to build a shade structure.

Natural shade

Natural shade should be a major element of shade provision at a school. Trees with dense foliage and wide-spreading canopies provide the best protection. Choose species that suit local soil and climatic conditions and the character of the environment. Root barriers and subsoil drainage will help to ensure tree roots do not damage pavements. Dense shrubs can also provide shade.

Avoid shrubs and trees that:

- are toxic
- have seed pods or stone fruit
- attract bees
- have spikes or thorns
- are known to cause adverse health effects such as asthma or skin irritation
- drop their branches.

Temporary built structures can provide shade until trees mature.

Built shade structures

In many situations, combining built and natural shade will be the best option. There are many types of built structures that can provide effective shade, including:

- permanent structures – pergolas and verandahs
- demountable shade – marquees and tents
- adjustable systems – awnings
- shade sails
- portable shade.

Materials used can range from glass, fibreglass, canvas and PVC to steel sheeting. For built structures, regardless of the size, it is a good idea to get professional advice from a shade installer, builder, landscaper or architect to ensure it is safe and will provide the desired amount of shade. Permanent shade structures usually require council approval before installation.

Selecting shade cloth

Shade cloth is often the most common and simplest way to provide sun protection. When choosing the type of cloth, keep in mind that different fabrics have different abilities to block or absorb UV radiation. Fabric that is dark, close weave and heavy will block or absorb more UV radiation. It is best to source shade cloth that states the level of UV protection, either as an Ultraviolet Protection Factor rating (UPF) or percentage figure. A UPF of 40-50+ is rated as excellent and blocks more than 97.5% of UV radiation. As a general guide, shade cloth should provide at least 94% UV protection (UPF 15) or greater.

Safety

It is important to ensure that shade structures do not create safety hazards. Support systems such as upright posts should be clearly visible and ideally have rounded edges or padding. They should be placed to minimise intrusion into play and circulation areas. Where possible, avoid guy ropes, which can be a tripping hazard. Vertical barriers at the sides of shade structures should be designed to prevent children using them for climbing.

Demountable structures

Demountable shade structures should only be used to supplement more permanent forms of shade. Some demountable structures, such as umbrellas, offer only limited protection and may be unstable during windy conditions.

Rain protection

Schools often lack sufficient wet-weather shelter. Built structures that offer protection from both UV radiation and rain can help overcome this issue.

Vandalism

As school grounds are often accessible after hours, the risk of vandalism needs to be considered.

Emergency access

Shade structures and planting should not restrict emergency vehicle access to school buildings and grounds.

Existing services

The location of shade structures and planting should take account of existing services such as drainage, power lines, gas and water.

Carnivals

Shade is an important consideration for sports and swimming carnivals and other school events such as fetes. Demountable structures may be useful on these occasions.

Further information

For more information please visit www.cancercouncil.com.au/sunsmart

Also refer to the website for information sheet:

- Shade for playgrounds.

The information contained in this resource has been sourced from:

- The Cancer Council Western Australia. *The Shade Handbook; A practical guide for shade development in Western Australia*. Perth; The Cancer Council WA; 2007
- The Cancer Council Victoria. *Shade for everyone; a practical guide for shade development*. Melbourne: The Cancer Council Victoria; 2004
- Greenwood JS, Soulos GP, Thomas ND. *Under cover: Guidelines for shade planning and design*. Sydney; The Cancer Council NSW and NSW Health

Recommendations

Active playgrounds	<p>Partial shade is recommended for open playground areas, especially over grass that needs some sun for growth. Natural shade is the most appropriate option.</p> <p>Consider arranging planting in clusters so that groups of children can access shade. Deciduous trees will allow for penetration of warmth and light to the playground during winter.</p> <p>Shade is recommended over play equipment and sandpits throughout the year. Consider using a combination of built and natural shade. The need for winter warmth and light may be an issue.</p>
Passive playgrounds	<p>Shade throughout the year is recommended for areas of passive playground use such as fixed seating and assembly areas.</p> <p>Relocate seating to areas of shade.</p> <p>Consider using a combination of natural and built shade.</p>

Recommendations, continued

Fixed play equipment areas	<p>Safety is a major consideration for shade over fixed play equipment.</p> <p>Shade structures, particularly poles, should not have footholds, grips, or surfaces that allow for climbing.</p> <p>Extend rooflines at least 500mm beyond the edge of the deck of the play equipment to prevent access to the roof.</p> <p>Provide clearance from the highest accessible point that a child might reasonably be expected to reach by climbing.</p> <p>The roof of the shade structure should allow for a minimum head clearance height of 2.5 metres above the deck of the play equipment.</p> <p>Ensure a freefall zone exists within the play area. Tree trunks and upright posts should be located a minimum distance of 2.5m away from the most fully extended part of the play equipment, such as the end of an extended swing arc or the side of a climbing platform.</p> <p>Any shade structure in the play area should be designed with reference to AS/NZS 4486.1:1997 <i>Playgrounds and playground equipment – development, installation, inspection, maintenance and operation</i>.</p>
Sports grounds and facilities	<p>Use built shade over all seated spectator areas. This will also provide protection from the rain.</p> <p>Natural shade or a combination of natural and built shade is recommended for other spectator areas.</p> <p>Provide shade for competitors in the marshalling area and for officials. Demountable shade may be the most appropriate option for these locations.</p>
Canteen areas	<p>Shade throughout the year is recommended for queuing areas.</p> <p>Built shade, such as a broad awning, is the most appropriate option.</p> <p>Rain protection is recommended.</p>
Pedestrian links and transition areas	<p>Shade is recommended for thoroughfares linking buildings and facilities within a school.</p> <p>Consider using a combination of natural and built shade.</p> <p>Rain protection is recommended, particularly where students are moving from one building to another throughout the day.</p>
School bus stops	<p>Shade is recommended for waiting areas at school bus stops, particularly during summer.</p> <p>Consider using natural shade, although where possible built structures that offer both UV radiation and rain protection should be provided.</p> <p>Although school bus stops are usually part of the general streetscape and therefore outside the school boundaries, it may be possible to shade the area by planting trees immediately within the boundary.</p>