Shady business

That smart new shade sail in your backyard might be providing precious little UV protection.

PHOTO COURTESY OF SIDONIE BOUCHET

nutshell

- The shadecloth installation industry is largely unregulated in Australia. The installer may have little knowledge about the correct method of design and installation to ensure proper protection.
- Some shadecloths are susceptible to stretching, whether through incorrect tensioning during installation, or deterioration. This may reduce their UV protection.

Australians have embraced the outdoors like no other nation, with compact courtyards and rambling backyards readily converted into extensions of our living areas, thanks to synthetic shade. A range of smart shade devices come in trendy styles and vibrant colours, and many offer reassuring claims of maximum ultraviolet radiation (UVR) protection.

CHOICE has found, however, that the UVR rating of the shadecloth is only half the story. The shadecloth industry is largely unregulated and serious knowledge gaps exist in the way these devices should be designed and installed. Ignorance of the level of shade coverage necessary, the choice of materials and where a shade structure should be orientated in relation to the sun may all contribute towards a structure that provides dangerously inadequate protection against the sun.

If the shadecloth is improperly stretched, this could also reduce its stated UVR protection.

WHY SHADE DEVICES FAIL

According to architect John Greenwood, director of the shade audit firm, WebShade, there are a few reasons most shade devices fail.

- The wrong materials are used, such as shade fabric with too low a UV protection level, or even translucent plastic roofing instead of one that is polycarbonate, which offers 99% UVR block.
- The shadecloth structure is not big enough to create shade over the target area.
- Poor planning of where shade is sited, such as not erecting shade where it is needed.

Can you trust the industry?

With the exceptions of Queensland and Victoria, where installers must hold a valid builder's licence, anyone can set themselves up as a shade installer.

Even with a builder's licence, there is no guarantee an installer will have any specific qualifications, experience or advanced knowledge of shade devices and their correct installation. A high-protection shadecloth could be installed in such a way that compromises its stated UV protection.

"There is no formal education process of how to put up a shadecloth, so the only way is to go out there and do it," says John Simmonds, director of Billabong Shades in Victoria. "The problem with this trial-and-error method is that sometimes the error is made and the customer has to pay for it."

Technical aspects of how to design and erect an effective shade sail include making sure the cloth has the right tensile strength to take different wind loads and that the supports are sufficiently stable. Orientation to the sun also matters; there is little use having the shade sheltering your neighbour's barbecue pit.

What's in a shadecloth?

There are two types of shadecloth – knitted and woven. Most for domestic and commercial use are of knitted fabric, each available in several grades, from light to extra heavy. Commercial-grade fabrics generally offer superior protection in terms of UVR block and strength as they are designed for larger spans. Domestic-grade shadecloth is sold at hardware stores (see Domestic and Commercial Knitted Shadecloth Fabrics, page 18), and offer between 50% and 99% UVR protection for both plants and people. Cancer Councils across Australia recommend shade structures have a UVR block of at least 94%.

Whether you're a DIYer sizing up shade fabric off the roll, buying a readymade shadesail from a hardware store or looking at swatches from a shadecloth supplier, check for the shadecloth's UVR rating. A shadecloth with a 98% UVR rating means it blocks 98% of ultraviolet radiation.

"Most people go for colour and cost in choosing shadecloth," says architect John Greenwood, director of shade audit firm WebShade. "From the shade audits we have done, it is obvious there is a huge knowledge gap in the choices people make while buying and installing them."

In the numerous shade audits Greenwood has conducted in NSW, Queensland and New Zealand, he always asks his clients if they know the UVR protection of the shadecloth and the type of material used. "I find it very rare when someone knows the type of material the shade sail they bought is made of and how much UVR block it offers," says Greenwood.

Then there is the added uncertainty of stretching. "The UVR block is the single most important determinant of assessing the degree of protection against sunburn. But when a shadecloth is stretched due to improper installation, its UVR could be lowered," says Christopher Nolan, managing director of Nolan Warehouses, a company that has been installing shade since 1920.

"We simply got a couple of guys to pull a shadecloth in different directions. Some shadecloths open up when stretched and some don't. The key is in how you put it up," says Billabong Shade's John Simmonds.

Tony Watt, director of Queensland-based shadecloth manufacturer Pro-Knit Industries, is also concerned, arguing that shade fabrics should be tested under tension. He asks: "What is the point of stating that a shadecloth has 97% UVR, but when stretched offers a lower protection?"

Stretching the truth

Despite these suspicions, to our knowledge, no shadecloths have been tested for any change in UVR protection level when being stretched.

Currently, the UVR protection provided by shadecloth is covered by Australian Standard AS4174 and can be measured by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), Australian Wool Testing Authority (AWTA) and the University of NSW. The AWTA and Commonwealth Scientific and Industrial Research Organisation (CSIRO), meanwhile, tests shade fabrics for tear and tensile strengths.

"ARPANSA carries out shadecloth testing in accordance with Australian Standards for synthetic shadecloth. The standard specifies that 'care should be taken not to distort cloth structure during the preparation of the test specimens'. There is no standard test method to test the change in UVR transmitted for material under stretched conditions," says Dr Peter Gies, senior research scientist of the Ultraviolet Radiation Section at ARPANSA.

The School of Optometry and Vision Science at the University of NSW has performed tests on shadecloth to the Australian Standard. Professor Stephen Dain, director of its Optics and Radiometry Laboratory, says that how much a shadecloth stretches will vary with installation, which is a problem for devising a test method that includes a stretched state.

"How much shadecloths stretch depends on how and where they are supported in the installation. So a shadecloth manufacturer should not be governed by what is out of their control," says Dain. "Generally, knitted shadecloths do stretch and would transmit more UVR than unstretched. Woven shadecloths do not stretch much at all, so the transmission changes are very small.

"An interesting project might be to take down shadecloth that has been in use for some time and test it in the used state, in which stretching would be the major change. We would need to quantify the tension applied and the duration of use to draw meaningful results," he says.>

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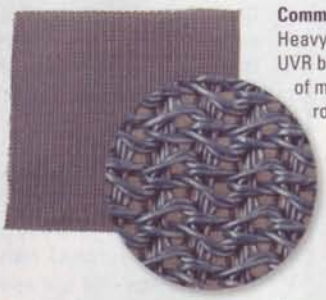
BEFORE YOU BUY SHADECLOTH

- **Choose the fabric wisely** Dark, closely woven and heavy fabric blocks or absorbs more UV radiation than lighter fabrics. Different fabrics have different abilities to block or absorb UV radiation. As a general guide, shadecloth should provides at least 94% UVR protection or greater.
- **Consider a shade audit** Conduct a shade audit of the site where shade is required. You don't have to be professionally qualified, and Cancer Council Australia's publications can be used as a guide (go to www.cancercouncil.com.au). A shade audit includes assessing the current shade of a site as well the types, times and months of use. A shade audit will help to plan a shade design that meets the needs of the site and its intended use.
- **Select your installer carefully** Check the credentials of the shade provider and the quality of the shadecloth. Does the company include a structural engineer's report for the site and structure? What warranty applies? Do they provide ongoing services such as safety checks, maintenance and cleaning? What are the specifications of the cloth used? Has it been independently tested to confirm the UV radiation protection level? What is the durability of the cloth?
- **Do you need approval?** Confirm with your local council whether you need a permit to put up the shadecloth.

Source: Cancer Council NSW

Domestic and commercial knitted shadecloth fabrics

Commercial
Extra-heavy duty and claims 95% UVR block.



Commercial
Heavy duty with 90% UVR block, made of monofilament, round yarns.

Domestic
Extra-heavy and claims between 84-90% UVR block.

Commercial
No UVR block figures stated, but is closely knitted and claims "UV Extrablock".

Commercial
Lightweight and claims 98% UVR block.

Domestic
"Medium" UVR block of between 64%-70% stated on rolls.

Classification of sun-protective levels of shadecloth

The Australian Standard for sun-protective clothing includes a classification system similar to that used for sunscreen. Depending on how much UVR is blocked out, the cloth may be described as offering "Good protection", "Very good protection", or "Excellent protection".

The Cancer Council NSW believes there is a need for a similar system for the UVR protection of shadecloth. According to a spokesperson, "an Australian Standard for shadecloth similar to the classification for sun-protective clothing will improve consumers' ability to identify products with a low or high UVR protection level."

A Standards Australia spokesperson explained that shadecloth differs from sun protective clothing in that factors such as the design and size of the shade structure, distance from the subjects, the level of reflected and diffused radiation, as well as the physical location of a person within the shade structure, can affect the level of protection provided. This is why the sun-protective levels of shadecloth, or a classification as such, are not included in the Australian Standard for shadecloth.

"UVR classification is not included in the standard for synthetic shadecloth because it is difficult to determine an accurate measure of protection for items which are not in close proximity to the skin and the committee did not want to provide a false sense of security. While the committee considered it, it was decided providing such information would give a false level of protection to users as there are many other factors to consider," says the Standards Australia spokesperson.

Standards Australia told CHOICE it has not received any proposals or requests to review the existing standard for shadecloth but welcomes anyone who wishes to do so (go to www.standards.org.au/).

Common sense

Australia has one of the highest skin cancer rates in the world. More than 380,000 Australians are treated for skin cancer each year – about 1000 people each day. Half of all Australians are diagnosed with skin cancer at some stage in their life. Skin cancer accounts for 80% of all newly diagnosed cancers each year. More than 9500 new cases of melanoma are diagnosed in Australia every year, with about 1600 people dying annually from skin cancer.

Cancer Council Australia's Slip! Slop! Slap! Seek! Slide! campaign, beseeching us to protect ourselves with clothing, sunscreen, hat, shade and sunglasses, is a catch-all for the layers of protection your skin needs against harmful UV rays.

"Shade is an essential part of the sun protection combination," says the council's spokesperson. "The provision of strategically placed shade can be highly effective in reducing UV radiation exposure, as well as making the environment more comfortable. Shade alone can reduce UV radiation exposure by 75%."

For pointers about buying shade sails or having shadecloth installed by a professional, see Before You Buy Shadecloth, page 17, for advice from the Cancer Council NSW.

Says Christopher Nolan: "As far as selection of the cloth is concerned, a rule of thumb is that the heavier the cloth, the greater the UV protection. In my view, one should not get too hung up about the UVR block, because there is always going to be significant reflected radiation, which logically requires other forms of protection such as clothing and sunscreen. Black and dark green are better colours for UV absorption, but really should not dictate choice."

As well, given that the performance of a shadecloth depends on the way it is designed and installed, it is important to find a skilled and experienced designer and installer. ■

PHOTO COURTESY OF JULIET

The risk to childcare centres

Lack of knowledge and expertise in the industry, resulting in shade devices that fail to provide adequate protection, has significant implications for childcare centres, which are legally obliged to have adequate shade as part of their licence conditions.

Under the Children's Services Regulations 2004 (NSW), outdoor play space "must be adequately shaded" in accordance with guidelines published by Cancer Council NSW's *Shade for Child Care Services*, including, among other things, that shadecloths should have minimum 94% ultraviolet radiation block.

However, CHOICE discovered that childcare centres are left to their own devices when it comes to ensuring adequate sun protection and compliance to regulation.

When Juliet Ranieri (above), director of KU Wahroonga Preschool, was looking to replace the mouldy and saggy shadecloth in the school, she called five shade installers. Quote-and-leave attitudes and product-pushing characterised her experience among the four firms she didn't choose.

Only one firm took Ranieri through the kind of materials it would use, the UVR block of the material, how it planned to design the shade and how that would suit what she wanted: a simple green shadecloth with the right UVR block that was big enough to cover the children's playground.

"One installer tried to convince me I needed multicoloured shadecloths, while another told me they could put the new shade sail over the old poles, which I was told later caused the sag in the old shade sail," says Ranieri. "Another took out two business cards; he was both a shade installer and an electrician."

In the end, she chose the installer who offered the most detailed explanation of what the school's $24,000 was being spent on and who was backed up with credentials from past jobs. Not only did she make the reference checks, she drove around to look at the work the installer had done before. She has never had a professional shade audit done but studied the Cancer Council NSW's guidelines and SunSmart recommendations closely.

A shade audit is not a pre-condition for a childcare service to be certified SunSmart but Ranieri conducted her own shade assessment before she had the shadecloth put up. CHOICE set up and attended a preliminary shade audit for the KU Wahroonga Preschool with architect and shade auditor John Greenwood (below). The preschool scored 9.5 out of a possible 10 for having the right shade materials and shade projected in the right areas.

"Juliet understood the shade needs of her site. She knew what material the shadecloth was made of and what protection it offered. This is rare as many people we have done shade audits for do not know where shade is really needed or what UV protection is required. Her efforts in getting the right installer have been a big factor in achieving a successful shade outcome," says Greenwood.

When he conducted audits of seven childcare centres between January 2007 and November 2008, Greenwood found none complied fully with regulations, despite two being SunSmart certified.

CHOICE asked the Department of Community Services (DoCS) and the Cancer Council Australia for solutions they may have considered in ensuring what "adequate shade" is in practice, but no one seems to take responsibility for solving the problem.

A Cancer Council Australia spokesperson says: "Regulation is the responsibility of state governments, each of which has its own recommendations or guidelines for sun protection, shade in outdoor spaces and duty of care." She added that the Cancer Council is a non-government organisation, not an enforcement agency, and cannot regulate for shade in early childhood services.

A DoCS spokesperson told CHOICE: "DoCS supports moves to improve the quality of equipment used in children's services. However, the installation of equipment in children's services, whether it be shadecloths, playground equipment, or kitchen facilities, is managed by the individual children's service. DoCS does not have a mandate to regulate the shadecloth industry." However, the licence conditions that adequate shade must be provided as part of a childcare services facilities and equipment requirement falls within DoCS' jurisdiction.

Childcare centres must be proactive about ensuring adequate sun protection for outdoor play areas.

CHOICE verdict

CHOICE would like to see state governments better monitor childcare centres' compliance with the Cancer Council guidelines. Shade audits and installation of any shadecloth, as required by those guidelines, should be enforced as a condition of licensing for childcare centres.