Play it Sun Safe

Enhancing Shade in Licensed Child Care Centres

SunSafe
NOVA SCOTIA

NOVA SCOTIA
Community Services

Sun Safe Nova Scotia is a coalition of agencies and individuals interested in reducing the incidence of and mortality from skin cancer in Nova Scotia. Members represent various sectors bringing diverse talents and perspectives together to collectively identify and action priority areas related to the prevention and early detection of skin cancer.

Members include representatives from:
- Canadian Cancer Society – Nova Scotia Division
- *Cancer Care Nova Scotia*
- Capital District Health Authority
- Cole Harbour Boys and Girls Club
- Division of Clinical Dermatology and Cutaneous Science, Dalhousie University
- IWK Health Centre Dermatology Services
- Massage Therapists Association of Nova Scotia
- Meteorological Service of Canada – Nova Scotia Branch
- Nova Scotia Department of Community Services
- Nova Scotia Department of Health Promotion and Protection
- Nova Scotia Department of Natural Resources
- Nova Scotia Department of Seniors
- Pharmacy Association of Nova Scotia
- Pictou County Teen Health Centre
- West Hants Community Health Board, Capital District Health Authority

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What is a Shade Audit?

A shade audit is an objective process for measuring shade at an outdoor site, and assessing if changes are needed.

The purpose of a shade audit is to help identify sources of shade; where and when shade is available; and how outdoor areas are used. When these factors are understood, you can make decisions to enhance available shade, if required.

Why is it Important to Consider Shade?

Ultraviolet (UV) radiation from the sun cannot be seen or felt, but too much UV can be harmful. In the short term, exposure to UV radiation can cause sunburn, pain and blistering skin. Over time, UV exposure can lead to early aging of the skin, eye damage, immune system damage and increased risk of skin cancer.

Skin cancer rates have been increasing steadily in Canada over the past 30 years. Nova Scotia has the second highest rate of melanoma skin cancer in Canada for males and females, second only to Prince Edward Island.

UV radiation passes through clouds and fog, so is still a threat even when the sun is not shining. Reflection from surfaces such as concrete, asphalt, water, snow and sand intensifies UV exposure (see Table 1). Adequate shade can reduce UV radiation by 50% or more.

1

Table 1: Surface Reflection of UV Radiation[1]

Surface	Percent Reflection (%)
Grass	2.5% to 3%
Water	5% to 7%
Sand	20% to 30%
Snow and ice	80% to 90%

The nature of outdoor activities means children cannot always seek shade. It is important to consider shade when planning for outdoor environments. This can be done by making the best use of existing shade, by reducing UV reflection from surface materials and by increasing the amount and quality of shade available through natural and built structures.

Improving access to shade by conducting a shade audit will better protect children from harmful UV exposure and help to develop lifelong shade-seeking behaviours.

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[1] Kinney, J., Long, C., and Geller, A. (2000). "The Ultraviolet Index: A Useful Tool." Dermatology Online Journal 6 (1): 2.

Who Should Conduct a Shade Audit?

Anyone can conduct a shade audit. However, because various interests and opinions may need to be considered, a committee of interested individuals may be beneficial. For example, in a child care centre, the committee could include the centre director, staff and a parent representative. A shade audit can also be used as an educational activity for school age children.

How to Conduct a Shade Audit

There are four main steps to conducting a shade audit:

Step 1: Interview Stakeholders
Step 2: Observe the Site
Step 3: Explore Shade Options
Step 4: Report on Recommendations

Step 1: Interview Stakeholders

Stakeholder interviews provide site-specific background information to make your shade audit realistic and appropriate. In this step, the following questions may be helpful in gathering information (see Appendix 1 for a sample Stakeholder Interview Guide).

What does the site look like?
Ask for, or create a site plan or survey that shows the size of the site and includes the location of trees, roads, built structures and so on, including shade structures.

Who uses the site?
Identify the age ranges of those who currently use the site.

What is the site used for?
Include the main activities carried out on the site, as well as where they take place.

What are stakeholders' comments about the type and amount of shade?
Gather opinions on the adequacy of existing shade at the site and whether there is a need for more shade.

What are the future plans for the site?
Long-term development plans for the site need to be considered. This includes plans for site landscaping, construction, shade provision, etc.

What weather and maintenance requirements are to be considered?
If new structures are constructed, who will maintain them? What considerations need to be made for wind, rain and weather?

Are there any other considerations?
This could include the potential for damage to structures, and building code restrictions.

Responses may vary depending on stakeholder interests and roles.

Step 2: Observe the Site

In this step, collect detailed site data and confirm what you learned from stakeholder interviews. Use the Sample Site Observation Checklist (Appendix 2) as a guide.

Take a copy of the site plan with you. Also bring a camera to take pictures inclusive of shade structures and outdoor activities taking place.

Assess your site during the critical UV protection time—the time when UV rays are at their strongest.

In Nova Scotia, the sun is strongest from April to September and daily from 11 am to 4 pm.

Site observation priorities:

Site description and use

Describe the site. Note how it is used. Also include climate/seasonal elements, such as if the site is located beside the ocean, near trees or in a windy location.

Site map

Use your existing site map and confirm or add details such as buildings, structures, trees, and amenities. Label key features. Identify places where shade could be enhanced. Take pictures of the general layout, trees, and shade structures for later reference. Take approximate measurements of existing shade and mark this on your site map. These measurements may vary depending on the time of day.

Patterns of use

This includes specific information on what activities take place and where and when they happen. Key observations to make include:

- Type of activity
- Location of activity
- Approximate duration of activity
- Number and age group of people taking part
- Use of available shade
- Reason the site is being used a certain way, along with opportunities for change. For example, do people gather in certain areas because it is the only place a particular activity can take place in, or can this activity be moved to a shaded area?

Surface material

Record the type of material that covers the ground – e.g. concrete, rubberized surface, pea gravel, grass, sand or snow. This will influence the intensity at which UV rays are reflected.

Shade

Record the natural and built sources of shade. Take note of the usable existing shade by recording shade specifics such as:

- Where is the shade falling?
- Are outdoor activities shaded during critical UV protection times? Is the shade adequate?
- Is anything getting in the way of shade?

Identify the species of trees on the site. Measure the approximate tree height, maturity, condition, canopy density and diameter. For more information on shade audit tools refer to the Sample Site Observation Checklist in Appendix 2.

Step 3: Explore Shade Options

In this step, use your interview and site observation data to assess the quantity and usability of existing shade and usage patterns of shade. Then determine if additional shade is needed and how to create it.

Here are key things to consider:

Assessing Available Shade

Quantity
- How much shade is present during the critical UV protection times? Is it adequate for the number of people using the site? Is more shade needed? Are there ways to make better use of existing shade?
- Where is additional shade needed? Are there locations that will allow additional shade during spring, summer and fall without creating excessive shade in winter?

Location
- Is the location of existing shade appropriate, given how the site is used? Are there areas where shade is inadequate? Is there enough shade in high-use areas? Are there priority areas that need more shade? Are there shade options even in low-use areas? Should/can existing shade be moved to better match site usage patterns?

Quality
- What is the quality of shade? Is the shade provided by existing trees strong enough? Are the trees healthy? Are shade structures in the right place? Are shade circles large enough?

Impact
- What is the impact of the ground cover on UV reflection? Do some areas of the site have surfaces that reflect high levels of UV rays? Can these surfaces be changed? Are there other ways to reduce the impact of UV reflection?

- What is the impact of future tree growth on the amount of shade at the site? Will this significantly alter the amount or distribution of shade? How long will it take before significant change occurs?

Assessing Usage Patterns

Who are the main user groups?
Age is especially important when looking at who uses an outdoor site. Protecting children from overexposure to the sun may greatly reduce the lifetime risk of developing skin cancer. For many, a significant part of lifetime exposure to UV has already happened by age 18. As well, children have more sensitive skin than adults, so they need extra protection from the sun.

Sites where children are the main users are a high priority for protective shade.

During what months/time of day is the site used?
The period of greatest daily UV intensity is from April to September between 11 am and 4 pm. If your site is used most often during this period, there is increased need for protective shade.

How long is the site used (i.e. hours)?
Longer exposures to the sun increase the risk of harmful skin damage. If children are using this site for extended periods of time, there may be increased need for protective shade.

How often is the site used?
Frequently used sites should be your priority. Be sure to check usage patterns over time in case they change.

Assessing Opportunities to Enhance Shade

Does your site assessment show that additional shade is required? If so, here are some questions to consider for enhancing available shade.

Is there shade on your site that people cannot access? Is there a way to enhance access to existing shade?

Are there high shade areas that could be better used?

Could activities be rescheduled to take advantage of shade between 11 am and 4 pm (critical exposure times)?

Could structures such as playground equipment, benches and tables be moved to more shaded locations?

Can new shade structures be designed and installed to provide shade to high use areas?

Can trees be planted to build on existing shade and increase areas of usable shade?

Step 4: Report on Recommendations

The next step is to create a description outlining the results of your shade audit, and strategies to achieve your site's shade requirements.
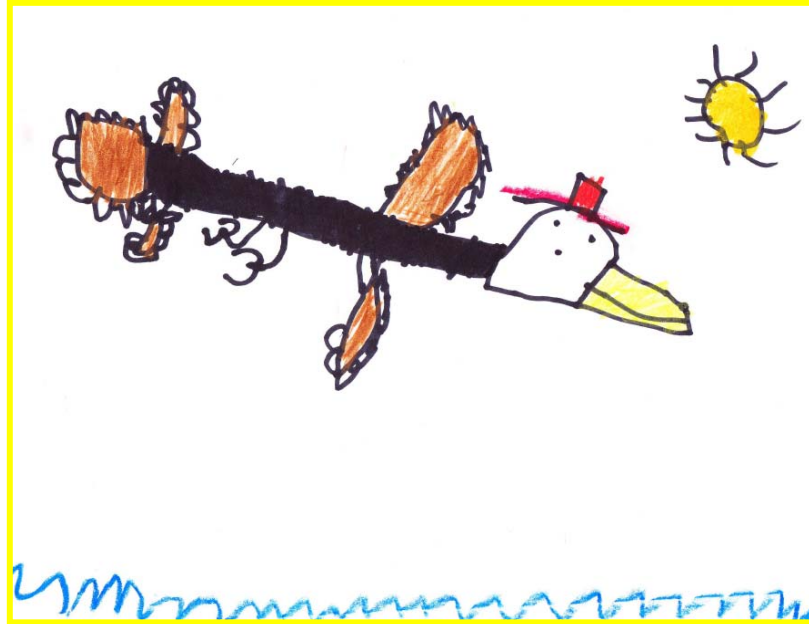
Include the following in your description:
- A summary of your shade audit results.
- The shade requirements of your site.
- The strategies you will use to meet the shade needs of the site. These may include:
    - revising the way the site is currently used
    - making the best use of existing shade
    - creating new shaded areas
    - minimizing the effects of indirect UV rays through better ground cover

A clear description increases the chances that your recommendations will be implemented and supported by administrators, parents and staff.

Shade is an important consideration in outdoor activities. Children are at high risk of overexposure to harmful UV rays that may lead to skin cancer later in life if provisions are not made for shade and precautions are not taken.

Enhancing shade in outdoor areas of child care centres enhances the opportunities for the provision of a sun safe environment and supports the adoption of a lifetime of shade-seeking behaviour.

Appendix 1: Sample Stakeholder Interview Guide

This interview guide can be used to interview children, staff, administrators and committee members.

Site Name and Location: _____

1. Please describe the main outdoor activities that occur at this site (list activities).

2. How are different groups of children using this site (try to match with activity, if possible)

User groups (by age group)	Number of children	Main activities	Location of Outdoor Play Area(s)	Time of day
Infants				
Toddlers				
Preschool				
School Age				

3. Are there outdoor areas currently not in use that could be made accessible? Are there outdoor areas that cannot be used?

4. Could any changes be made to make better use of existing shade? For example, do children have safe access to other outdoor areas, could activities be rescheduled, could equipment be moved, etc?

5. In your opinion, how adequate is existing shade at the site? Is there a need for more shade? If yes, what kind of additional shade could be provided? What has to happen for this to occur?

6. Are there barriers to creating more shade at this site? For example, through built structures, usable outdoor space, etc. If yes, what are they?

7. Do you have any safety concerns regarding new shade structures?

8. What are thoughts/comments of children, staff and families of creating additional shade at the site?

9. Does the creation of additional shade impact the play area/ play structures?

Additional questions for administrators, maintenance staff and committee members

10. Do you have any maintenance concerns about new shade structures (trees or man-made structures? Have you used trees, shrubs and plants that are non-toxic/non-poisonous?

    _____

    _____

    _____

11. Are there any long term plans which will affect shade use at the site? For example, building expansion, outbuildings, landscaping?

    _____

    _____

    _____

12. Are there already specific plans in place to increase shade at this site?

    _____

    _____

    _____

13. Do you have a copy of a site plan or survey? Do you have other data or documents that might be of assistance?

    _____

    _____

    _____

14. Have you considered cost effective/creative options for shade provision?

    _____

    _____

    _____

Appendix 2: Sample Site Observation Checklist

Site name and location: _____

1. Site description and use:

a) Provide a general physical description including climate (i.e. windy, by the ocean, topography, tree cover, type of site, etc.)

_____

_____

_____

_____

_____

b) What is the main use for this site?

_____

_____

_____

_____

Site map
Include a site plan or site sketch. Include and label buildings, trees, structures, etc.

2. Patterns of use
Observe patterns of site use (where, when and what activities take place). Use the following table to record results. How do these results compare with the information provided during stakeholder interviews?

User groups (by age group)	Number of users (approx.)	Main activities	Location of Play Area(s)	Time of day
Infants				
Toddlers				
Preschool				
School Age				

3. Surface material

What material is used for ground/surface cover (to account for reflected UV Rays)?

_____

_____

_____

_____

4. Shade

a) What are the main sources of shade at the site?

Natural shade:

_____

_____

Built shade:

_____

_____

b) Shade specifics

How are children and staff using available shade?

_____

5. Where do children and staff gather? Is this the only place a particular activity can take place, or can this activity be moved to a shaded area?

_____

_____

_____

6. Where does the shade fall? At what times?

_____

_____

7. Is shade being used at critical protection times (i.e. between 11 am and 4 pm)?

_____

_____

8. What activities are not held in the shade? If activities are shaded, is there enough shade?

_____

_____

9. What gets in the way of shade? Is access to shade obstructed?

_____

_____

10. Do playground supervisory staff have access to shade?

_____

_____

Mark measurements of existing shade on the site map
Include photographs of the site: general site layout, trees, existing shade structures, problem areas and shade opportunities

11. Use the following tool to take a tree inventory of your site

Location of Tree	Type of tree (i.e.) deciduous (d) or coniferous (c)	Height	Maturity (i.e. mature, not mature)	Condition (broken branches, dead limbs, etc.)	Canopy Density	Canopy Diameter

Deciduous trees: trees that lose their leaves seasonally

Coniferous trees: usually cone bearing, evergreen trees

Height: tree height can be measured as compared to other familiar objects (i.e. 3 school buses tall)

Maturity: mature trees often have a minimum height of 3 m - 6 m.

Canopy density: the amount of outer layer of leaves on a tree or group of trees

Canopy diameter: the approximate size of the canopy density coverage

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