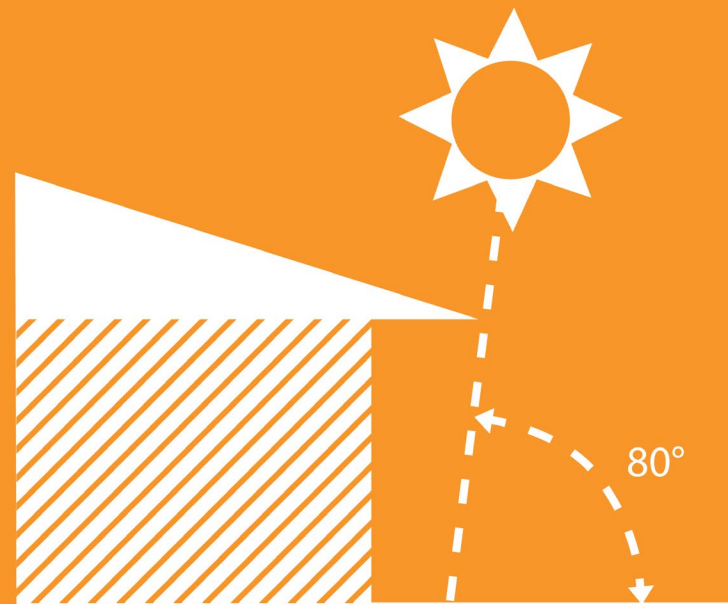


2.7

GENERIC PROVISIONS SOLAR ACCESS AND OVERSHADOWING







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Part 2 Generic Provisions

2.7 Solar Access and Overshadowing

Retaining direct solar access and avoiding detrimental overshadowing of internal and external spaces are significant concerns for residents where building work is proposed on adjoining or nearby sites. Similarly, the protection of solar rights for the purposes of hot water heating, energy generation using photo-voltaic (PV) panels and passive internal space heating is also a concern.

The solar access of a property refers to its potential to receive adequate sunlight so certain areas of a dwelling can catch the sun's energy. A property with good solar access enjoys adequate sunlight for principal living areas with north facing windows to receive sufficient sunlight to provide thermal comfort; can locate a clothes line in a sunny outdoor position; and can efficiently use a solar hot water system. In addition, solar access is important for landscaped areas and the usability of a private open space.

2.7.1 Objectives

- O1** To promote energy efficiency in the design, construction and use of buildings.
- O2** To encourage the use of passive solar design.
- O3** To protect solar access enjoyed by neighbours.
- O4** To ensure PV panels and solar hot water systems are located and placed to receive maximum exposure to sunlight.

2.7.2 Shadow diagrams

A shadow diagram is a scaled drawing that shows the extent of shadows resulting from existing and proposed building works.

Shadow diagrams are generally required for all new development or the extension to existing buildings where the proposed works will cause additional overshadowing on nearby properties.

NB *Direct solar access does not encompass ambient light access.*

- C1** Shadow diagrams must show the effect in plan and elevation view of existing and proposed overshadowing for June 21 at hourly intervals between 9.00am and 3.00pm. Shadow diagrams at only 9.00am, 12.00 noon and 3.00pm may be acceptable where it can be clearly demonstrated that any shadowing of a window, landscaped area or private open space of an adjoining building will receive solar access in accordance with Council requirements. The shadow diagrams must:
 - i. Be drawn to an appropriate scale (generally 1:100 or 1:200);
 - ii. Use different colours or style to clearly differentiate between existing and proposed shadows;
 - iii. Indicate the outline of neighbouring buildings impacted by existing and/or proposed shadowing, including the location of any windows, skylights, private open spaces, clothes drying areas, PV panels and/or solar hot water systems;

- iv. Specify the use of the rooms that have windows or skylights that are impacted by the existing or proposed shadowing; and
- v. Indicate and use the true north point (not magnetic north).

2.7.3 Solar access for surrounding buildings

- C2** Direct solar access to windows of principal living areas and principal areas of open space of nearby residential accommodation must:
- i. Not be reduced to less than two hours between 9.00am and 3.00pm on 21 June; or
 - ii. Where less than two hours of sunlight is currently available on 21 June, solar access should not be further reduced. However, if the development proposal results in a further decrease in sunlight available on 21 June, Council will consider:
 - a. The development potential of the site;
 - b. The particular circumstances of the neighbouring site(s), for example, the proximity of any residential accommodation to the boundary, the resultant proximity of windows to the boundary, and whether this makes compliance difficult;
 - c. Any exceptional circumstances of the subject site such as heritage, built form or topography; and
 - d. Whether the sunlight available in March to September is significantly reduced, such that it impacts upon the functioning of principal living areas and the principal areas of open space. To ensure compliance with this control, separate shadow diagrams for the March/September period must be submitted in accordance with the requirements of C1;

Where less than two hours of sunlight is currently available on 21 June and the proposal is not reducing it any further, Council will still consider the merits of the case having regard to the above criteria described in points a to d.

- C3** Where adjoining sites include non-residential uses like commercial, industrial and other public/community buildings, Council will consider the merits of the case having regard to the use of those parts of such buildings that are impacted by any additional overshadowing.
- C4** Council will also consider the overshadowing impacts of a proposal upon a window which provides ambient light to a principal living area within a neighbouring dwelling where that window results in the only source of light to that room.

Window	<i>Includes a roof skylight, glass panel, glass brick, glass louvre, glazed sash, glazed door, translucent sheeting or other device which transmits natural light directly from outside a building to the room concerned.</i>
Principal Living Area	<i>Means rooms with a high level of use including a lounge room, living room, dining room, kitchen, but not including bedrooms and non habitable rooms such as laundries and bathrooms.</i>
Principal Open Space	<i>Means that portion of level open space utilised by, or most likely to be utilised by, occupants for rest</i>



and recreation. **NB** For the assessment of overshadowing impacts, if this area is not readily identifiable, an area adjacent to the dwelling with a minimum width of 3 metres, will be used for assessment purposes.

2.7.4 Solar access for PV panels and solar hot water system

- C5** PV panels and solar hot water systems must be placed on areas of a building where there is minimal or no adverse impacts on the streetscape or architectural integrity of the host building and where there is minimal or no overshadowing.
- C6** The best location for a PV panel or solar hot water system must be determined through a site and context analysis taking into account the following:

NB Section 2.3 (Site and Context Analysis) of this DCP provides detailed objectives and controls on carrying out a site and context analysis.

- i. Features of the site or of the proposed development on which the PV panels or hot water system will be placed (for example shadows within the site from trees or any architectural features of the proposed building);
- ii. Features of the adjoining site and developments that may impact on the placement of the PV panels or solar hot water system; and
- iii. The maximum building envelope permitted on an adjoining property, where the adjoining property has not been developed to the maximum extent permissible under planning or zoning provisions.

NB The presence of PV panels or solar hot water systems on a site and the potential that they may be overshadowed when an adjoining site is redeveloped in accordance with applicable development controls must not be used as grounds for objection to restrict development of an adjoining site where the extent of that development could have been anticipated at the site and context analysis stage.

- C7** PV panels and solar hot water systems must receive a minimum four hours of direct sunlight between 9.00am and 3.00pm during midwinter.

2.7.5 Solar access for new development

2.7.5.1 Attached dwellings, dwelling houses, semi-attached dwellings and secondary dwellings

- C8** Where site orientation permits, new buildings and additions must be sited and designed to maximise direct solar access to north-facing living areas and outdoor recreation areas such that:
- i. At least one habitable room (other than a bedroom) must have a window having an area not less than 15% of the floor area of the room, positioned within 30 degrees east and 20 degrees west of true north and allow for direct sunlight for at least two hours over a

- minimum of 50% of the glazed surface between 9.00am and 3.00pm on 21 June.
- ii. Private open space receives a minimum two hours of direct sunlight over 50% of its finished surface between 9.00am and 3.00pm on 21 June.

2.7.5.2 *Other forms of residential accommodation*

- C9** At least 65% of dwellings within multi dwelling housing, group homes, residential flat buildings, the residential components of mixed use buildings or seniors' housing must provide living area windows positioned within 30 degrees east and 20 degrees west of true north and allow for direct sunlight for at least two hours over a minimum of 50% of the glazed surface between 9.00am and 3.00pm on 21 June.
- C10** Communal landscaped areas within a multi dwelling housing, group homes, residential flat buildings, the residential components of a mixed use building or seniors' housing must receive a minimum of two hours of direct sunlight over 50% of its finished surface between 9.00am and 3.00pm on 21 June.
- C11** At least 65% of habitable rooms within a boarding house, a hostel or a residential care facility must provide a window positioned within 30 degrees east and 20 degrees west of true north and allow for direct sunlight over minimum 50% of the glazed surface for at least two hours between 9.00am and 3.00pm on 21 June.
- C12** Communal open space within a boarding house, a hostel or a residential care facility must receive a minimum two hours of direct sunlight over 50% of its finished surface between 9.00am and 3.00pm on 21 June.

The Land and Environment Court issued the following planning principle on solar access:

Where guidelines dealing with the hours of sunlight on a window or open space leave open the question what proportion of the window or open space should be in sunlight, and whether the sunlight should be measured at floor, table or a standing person's eye level, assessment of the adequacy of solar access should be undertaken with the following principles in mind, where relevant:

The ease with which sunlight access can be protected is inversely proportional to the density of development. At low densities, there is a reasonable expectation that a dwelling and some of its open space will retain its existing sunlight. (However, even at low densities there are sites and buildings that are highly vulnerable to being overshadowed.) At higher densities sunlight is harder to protect and the claim to retain it is not as strong.

The amount of sunlight lost should be taken into account, as well as the amount of sunlight retained.

Overshadowing arising out of poor design is not acceptable, even if it satisfies numerical guidelines. The poor quality of a proposal's design may be demonstrated by a more sensitive design that achieves the same amenity without substantial additional cost, while reducing the impact on neighbours.

For a window, door or glass wall to be assessed as being in sunlight, regard should be had not only to the proportion of the glazed area in sunlight but also to the size of the glazed area itself. Strict mathematical formulae are not always an



appropriate measure of solar amenity. For larger glazed areas, adequate solar amenity in the built space behind may be achieved by the sun falling on comparatively modest portions of the glazed area.

For private open space to be assessed as receiving adequate sunlight, regard should be had of the size of the open space and the amount of it receiving sunlight. Self-evidently, the smaller the open space, the greater the proportion of it requiring sunlight for it to have adequate solar amenity. A useable strip adjoining the living area in sunlight usually provides better solar amenity, depending on the size of the space. The amount of sunlight on private open space should ordinarily be measured at ground level but regard should be had to the size of the space as, in a smaller private open space, sunlight falling on seated residents may be adequate.

Overshadowing by fences, roof overhangs and changes in level should be taken into consideration. Overshadowing by vegetation should be ignored, except that vegetation may be taken into account in a qualitative way, in particular dense hedges that appear like a solid fence.

In areas undergoing change, the impact on what is likely to be built on adjoining sites should be considered as well as the existing development.

2.7.5.3 Commercial, industrial and other development

C13 New buildings and additions must be sited and designed to maximise direct solar access to reduce reliance on artificial lighting and heating.

NB Applications for commercial, industrial and other development must demonstrate compliance with the above control, for example, through solar access diagrams.