Sydney2030/Green/Global/Connected

CITY OF SYDNEY

DRAFT

Minimising overshadowing of neighbouring apartments

Documentation guide

city of villages


MIPRO

Purpose of this guide

The purpose of this guide is to describe the documentation required to be submitted in a Development Application to meet the requirements of State Environmental Planning Policy 65 (SEPP 65), the Apartment Design Guide (ADG) and associated regulations.

Use this guide where a proposed building to which SEPP 65 applies overshadows an apartment building. The guide explains how the ADG solar access objectives, design criteria and design guidance are applied when documenting and assessing overshadowing of neighbouring apartments.

Do not use this guide where other types of development are overshadowed, in those cases make reference to the ADG objective to minimise overshadowing and any relevant provisions of Sydney Development Control Plan.

What the ADG requires

The ADG requires that overshadowing of neighbouring properties is minimised during mid winter. The associated design guidance sets out a practical way in which this can be demonstrated. It describes four steps that must be followed:

1. Measure existing and proposed compliance with the solar criteria
2. Maintain compliance with the solar criteria (which allows some reductions)
3. Make other allowable reductions
4. Minimise overshadowing and document options where the above criteria are not met

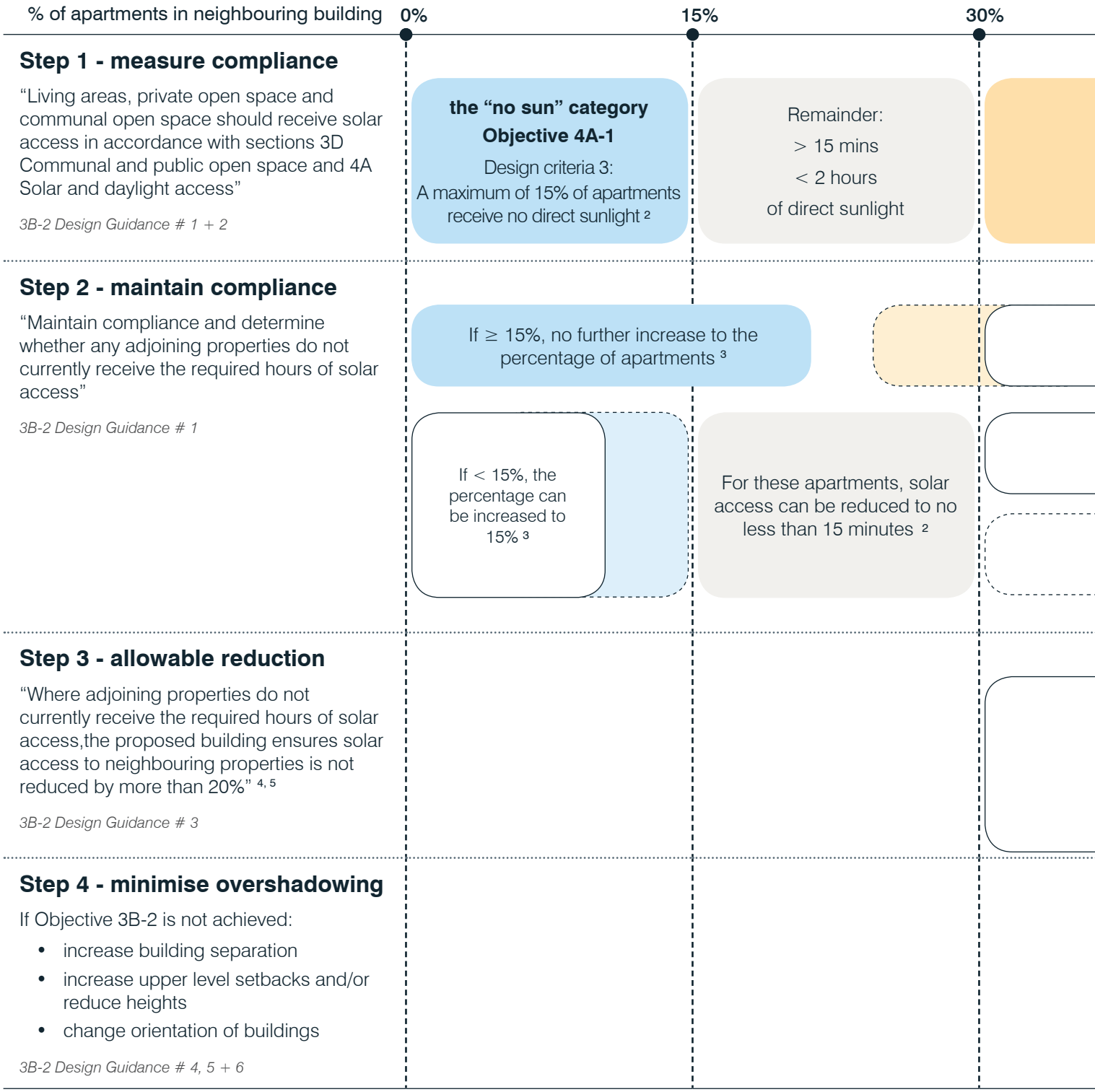
The solar criteria are:

- Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter [the “2 hours of sun” category];
- A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm at mid winter [the “no sun” category]; and
- Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9pm and 3pm on 21 June (mid winter)

Process diagrams describing the four steps for assessing apartments and communal open spaces are set out on the following pages.

ADG Objective 3B-2
- Overshadowing of neighbouring properties[1] is minimised during mid winter

Living Areas and Private Open Space



Notes

1 Neighbouring properties refers to individual strata properties where sunlight to living rooms and private open space is being considered.

2 Refer to ADG 4A-1 design guidance #5: to maximise the benefit of direct sunlight within living rooms and private open spaces, a minimum of 1m² of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes.

3 Time can be reduced to 0 minutes.

100%

the “2 hours of sun” category
Objective 4A-1

Design criteria 1:
Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight

If > 70% of apartments, then the number of apartments can be decreased to 70%

If any apartments receive > 2 hours solar access, the time can be reduced to a minimum of 2 hours

If < 70% of apartments, then no decrease in the number of apartments with a minimum of 2 hours of solar access

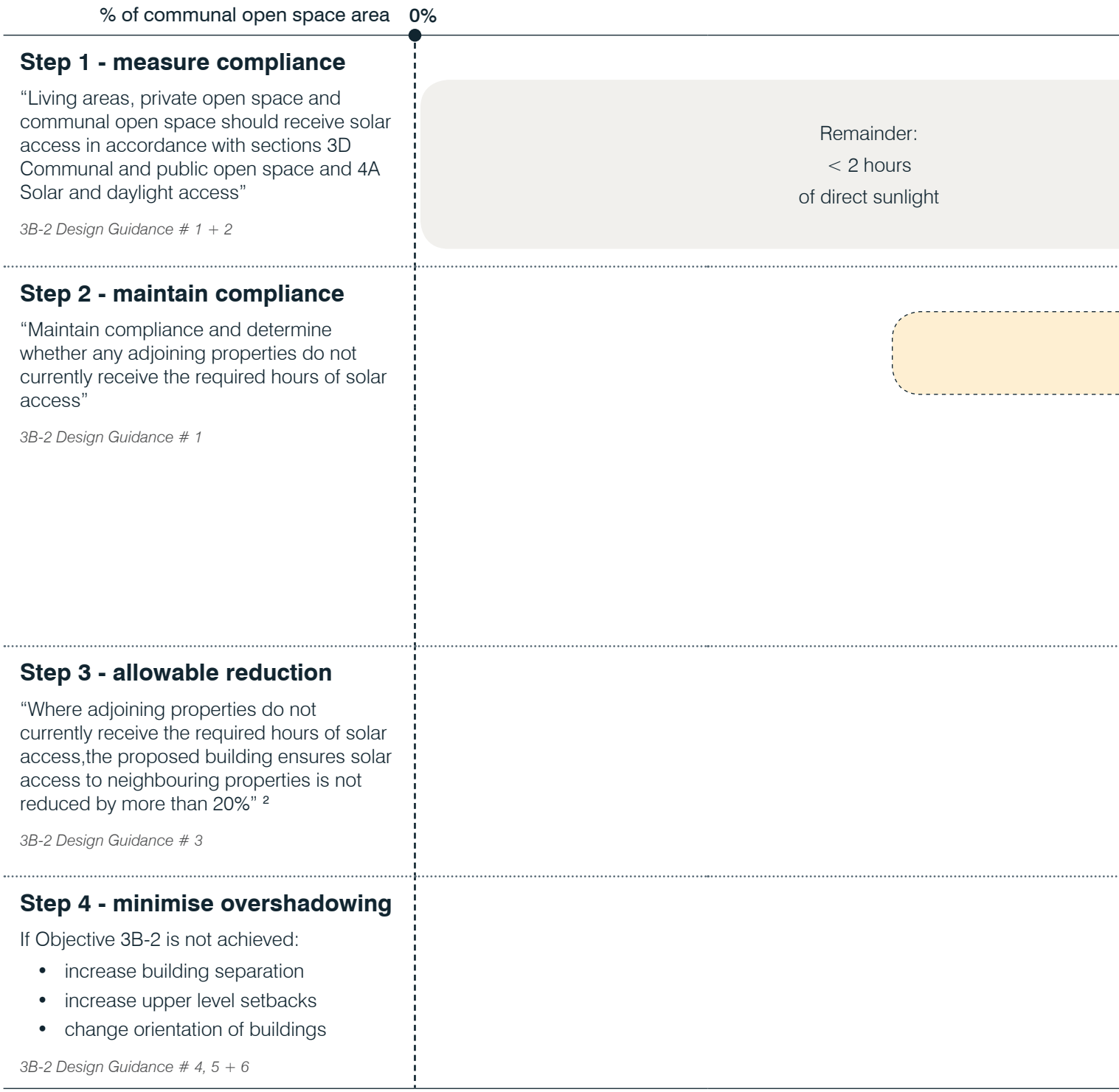
Apartments with <2 hours of solar access which would otherwise have fallen into the 70% of apartments can have the period of solar access reduced by 20% [4, 5]

4 As it is only the 70% of apartments which have a measurable criteria in terms of *the required hours of solar access,* the 20% reduction applies to that proportion of apartments which would otherwise have fallen into the 70% of compliant apartments It does not apply to the 15% with no direct sun or the remaining 15%, which can be reduced to no less than 15 minutes. It also does not apply to apartments which currently receive the minimum of 2 hours of solar access.

5 The measurable criteria is in hours, so the 20% reduction is measured in hours.

ADG Objective 3B-2
- Overshadowing of neighbouring properties[1] is minimised during mid winter

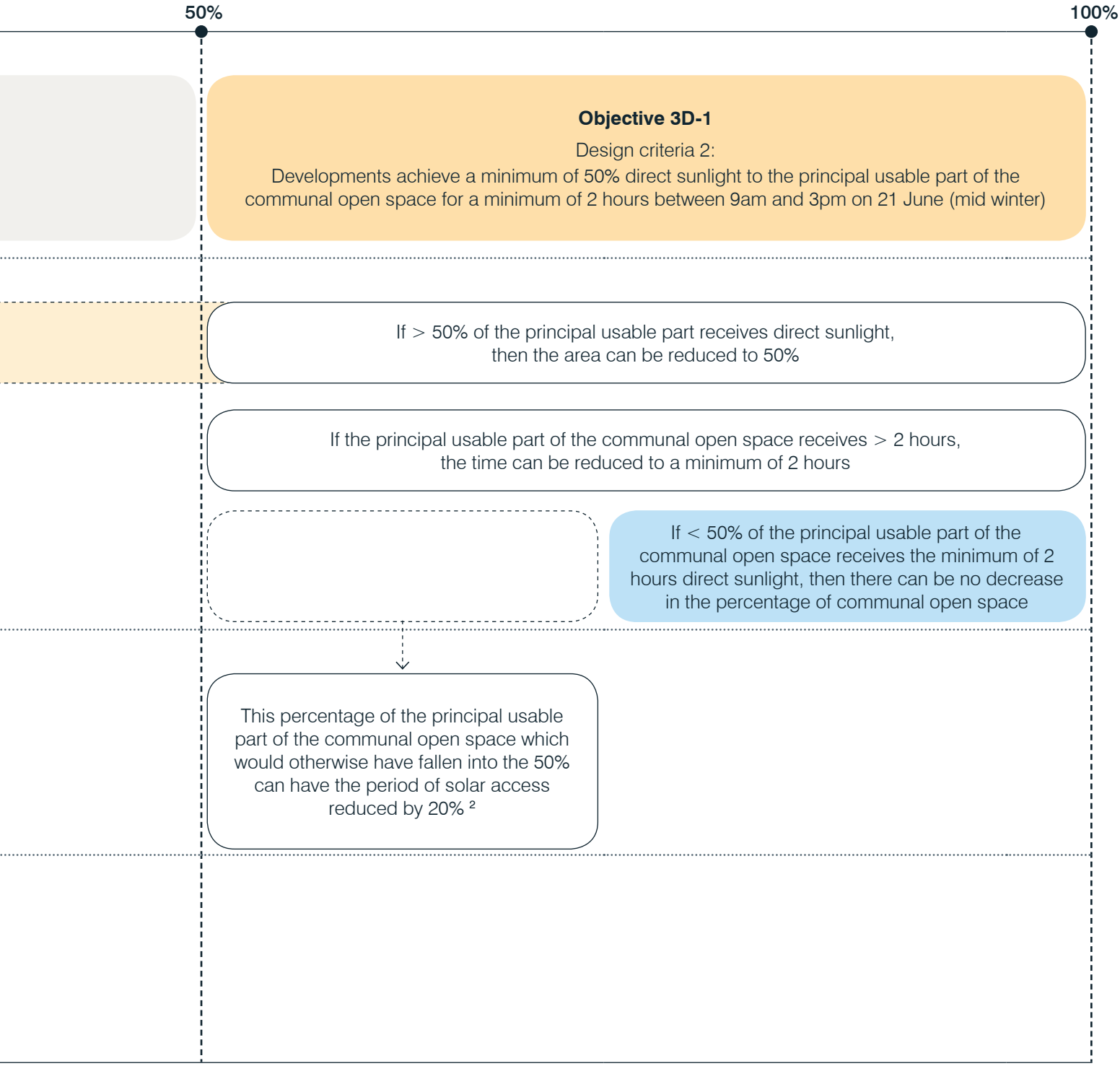
Communal Open Space



Notes

1 Where sunlight to communal open space is being considered, the reference to neighbouring properties refers to communal strata areas.

2 The 20% reduction in hours only applies to the proportion of communal open space that would otherwise have fallen into the 50% of the principal usable part that has a measurable criteria in terms of required solar access. It does not apply to any part of the compliant (50%) communal open space which currently receives the minimum of 2 hours of solar access.


50%
100%
Objective 3D-1
Design criteria 2:
Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter)
If > 50% of the principal usable part receives direct sunlight, then the area can be reduced to 50%
If the principal usable part of the communal open space receives > 2 hours, the time can be reduced to a minimum of 2 hours
If < 50% of the principal usable part of the communal open space receives the minimum of 2 hours direct sunlight, then there can be no decrease in the percentage of communal open space
This percentage of the principal usable part of the communal open space which would otherwise have fallen into the 50% can have the period of solar access reduced by 20% [2]

Step 1 – measure compliance

Both the existing and proposed overshadowing conditions must be measured and documented. The process and documentation requirements for measuring compliance is set out in *Documentation Requirements* section (page 9).

Step 2 – maintain compliance

Demonstrate that compliance with the criteria has been maintained, in the conditions created by the proposed development relative to the existing conditions.

Compliance is maintained; where the number of apartments and proportion of communal open space in each solar category complies with the minimum and maximum proportions set out in the design criteria or, if the existing proportions are non-compliant, that the existing non-compliances are not made worse.

Note: the hours of sun for each apartment can be varied to the minimum required by the solar category without causing a change in category; for example, an apartment with 3 hours of sun could be reduced to 2 hours of sun while remaining in the "2 hours of sun category".

Step 3 – make other allowable reductions

If the existing condition of a neighbouring building is that less than 70% of apartments receive more than 2 hours of sun, then the proportion of apartments that would otherwise have fallen into the "2 hours of sun" category can have their respective periods of solar access reduced by 20%.

Step 4 – minimise overshadowing

Where compliance with all of the step 2 and 3 criteria are achieved, minimisation of overshadowing is deemed to have been demonstrated.

Where compliance with all of the step 2 and 3 criteria are not achieved then overshadowing must be minimised with reference to multiple options documented in the design verification statement.

The documentation must demonstrate that the preferred option minimises overshadowing, that is that it creates the smallest possible amount of overshadowing of neighbouring apartments and communal open space relative to the other options considered. This should be balanced with other public interests set out in ADG 3B Orientation including, but not limited to:

- responding to desired streetscape character by siting buildings along the street frontage, ie. that face, define and incorporate direct access from the street;
- promoting amenity for the proposed and neighbouring properties;
- responding to significant views;
- retaining trees and locating open spaces; and
- responding to the topography and contextual constraints such as overshadowing and noise.

The ADG design guidance says overshadowing can be minimised by:

- increasing building separation;
- increasing upper level setbacks (and/or reducing heights); and/or
- changing orientation of buildings.

Documentation requirements

The following documentation must form part of the design verification statement prepared by a qualified designer (a registered architect*).

For every apartment affected by the proposed development; the following documentation must be provided for the **entire affected building**.

Standard drawings and tabulation of the **existing** and **proposed** overshadowing must be provided including:

- "view from the sun" drawings
- associated excel data tables (found at https://www.cityofsydney.nsw.gov.au/__data/assets/excel_doc/0006/308643/Excel-data-tables.XLSX); and
- options, demonstrating minimisation of overshadowing where criteria are not met

How to measure sunlight

Measure the area of sunlight to living room windows on the glazed (vertical) surface of the window.

Measure the area of sunlight on private open spaces on an imaginary horizontal plane 1m above the floor level of the private open space.

If the area of sun is not clearly greater than 1m^2 then, on the "view from the sun" drawing, provide a note of the area of sunlight on the window or horizontal plane.

If the area requirements are not met, additional documentation may be provided that demonstrates that the provision of sun is usable and will provide real benefits to the future residents.

Measurement frequency

The frequency of measurement is affected by the minimum period of sun defined in the ADG as providing benefit to residents. For sun to be counted it must have an area of at least 1m^2 and a duration of at least 15 minutes. Areas less than 1m^2 and periods of less than 15 minutes are not considered.

For a period of sun exposure to be recorded, there must be sunshine on a window or private open space on occasions that are at least 15 minutes apart.

The number of "views from the sun" drawings should be selected to demonstrate compliance. In highly constrained areas with significant overshadowing, 15 minute intervals will be required. For less constrained locations half hourly or hourly intervals may be appropriate.

View from the sun drawings

Model requirements

The 3d model used to generate the "view from the sun" drawings must include accurate data including all built elements such as balustrades, fixed screens, window and glazed door locations, private open spaces and communal open spaces for:

- the proposed development
- affected apartment buildings
- other context buildings and structures affecting buildings overshadowed by the proposed development

All structures that cast shadows must be modelled **except vegetation/trees**, which are not to be included.

* Note: consistent with SEPP 65 and regulation requirements

Drawing requirements

The drawings must be consistent with the following requirements:

- views are to be in orthographic projection (not perspective projection)
- each view is set from the position of the sun looking toward the subject building. The orientation of the view will have the opposite altitude (ie. equivalent but negative) and reverse/back azimuth of the sun at that time. This means that no shadows will be visible. For example: if the sun had an altitude of 20 degrees and an azimuth of 330 degrees the opposite altitude would be 20 x -1 = -20 degrees. The back azimuth would be 330+180 = 510, if the resultant number is greater than 360 then subtract 360, ie. 510 – 360 = 150 degrees.
- Co-ordinates for the sun position can be found at http://www.ga.gov.au/geodesy/astro/smpos.jsp. Note: that the altitude and azimuth of the sun are measured from True North which in the City of Sydney Local Government Area is approximately 1 degree counter clockwise of Map Grid of Australia (MGA) Grid North (Geographic to Grid conversion can be found at http://www.ga.gov.au/scientific-topics/positioning-navigation/geodesy/geodetic-techniques/calculation-methods).
- the drawings are to be in fine black and white line work, sometimes referred to as "hidden line" display setting; except for:
  - living room windows that must have a light blue tone fill with RGB values 135, 206, 235*
  - the imaginary plane 1m above the floor level of the private open spaces that must have a transparent light yellow tone fill, 50% transparent with RGB values 255, 215, 0
  - communal open spaces that must have a light green tone fill with RGB values 127, 255, 212
- label each apartment with a unique identifier consistent with the identification in the associated excel data tables
- for areas of sun that are not obviously greater than $1m^2$ – show the area measurement on the drawing
- where there is no sun to the living room window(s) – any other window that receives any sun must be clearly identified on the drawing with a light purple tone fill with RGB values 221, 160 , 221

Excel data tables

The City of Sydney excel data tables must be used without modification to the format (number and naming of columns), except for changing the number of rows of data to match the number of apartment. For each affected building a separate data table must be provided for the existing and proposed conditions.

Options

Where options are required by Step 4 at least three reasonable but substantially different options must be documented.

The documentation must demonstrate that the preferred option creates the smallest possible amount of overshadowing of neighbouring apartments and communal open space relative to the other options while balancing other public interests (see Step 4).

The documentation must include sufficient "view from the sun" drawings and associated excel data tables to demonstrate the differences between the options.

* Note: in most cases the living space can be identified visually from public places, otherwise plans of recent buildings can be found by searching Council's meeting archive or by application under Government Information Public Access request or GIPA commonly referred to as "freedom of information"

This document is in draft form. Please send any comments to jMcNicoll@cityofsydney.nsw.gov.au