

CHAPTER 3

Design principles

There are several design principles or influences that are common to both green roofs and living walls, and there are some that are more specific to one or the other. Firstly we examine some of the commonly shared influences, which are all linked to climate.

Climatic influences on design

There are several climatic influences common to the design of green roofs and living walls:

- temperature and humidity
- wind
- orientation.

Global warming trends indicate that temperatures are gradually rising, with Australia experiencing a 'warming of 0.4 to 0.7°C, with more heatwaves, more rain in the north-west and less rain in the southern and eastern regions and an increase in the intensity of droughts' since 1950. The Intergovernmental Panel on Climate Change warns that 'It is generally acknowledged that some of the effects from climate change are now either present or inevitable and that they will become more severe if we do not modify our behaviour' (Hennessy *et al.* 2007).

A brief look at some of the climate data currently available will help to set the scene for the future, given these climate change predictions. For example, Adelaide's summer temperatures are predicted to rise by 0.4 to 0.9°C by 2030, or even higher if CO₂ emissions are not stabilised, so planning must take into account the future trends. Green roofs and living walls, with their many benefits, can be employed to help mitigate the effects of climate change; however, in designing successful green roofs and living walls, the extremes of our climate must be taken into consideration.

Temperature and humidity

When designing green roofs and living walls it is important to understand the local climate and the specific characteristics the climate presents. Looking only at the monthly average temperature and