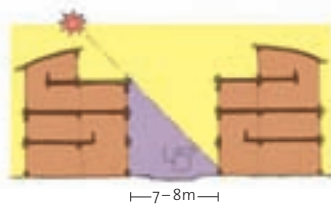


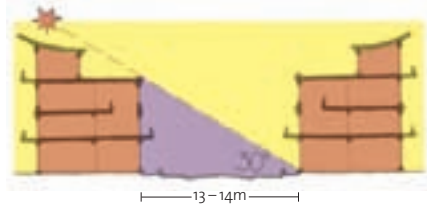
Make sure that overshadowing doesn't unduly undermine solar access and vary building scale and positioning accordingly



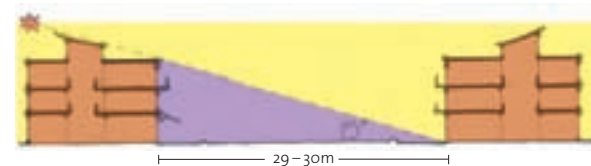
Strict adherence to solar access and privacy concerns can serve to space buildings further and further apart – lowering densities and weakening street enclosure.



Mews: 60 – 70% loss of total annual solar radiation



Street: 30 – 40% loss of total annual solar radiation



Square or high street: 5% loss of total annual solar radiation

With careful design, sufficient solar access can be provided to all floors in tighter settings and solar energy systems installed on roofs. Lower solar access on the ground floor can be compensated for by, say, larger windows.

Depending on the site, in many cases there is a hierarchy of considerations as to how to use renewable energy resources. Often, the order of consideration is:

- sun;
- rainwater;
- ground;
- wind.

Whilst maximising the contribution of these resources, it is important to minimise environmental demands and ensure the efficient conversion or disposal of waste.

3.4.1 SOLAR DESIGN

Turn towards the sun

There are four main ways of using the sun in buildings: daylight; passive solar gain; photovoltaic (PV) modules; and active solar panels.

Daylighting reduces the need for artificial lighting and passive solar gain reduces the need for space heating. Photovoltaic modules convert solar radiation directly into electricity and are a rapidly developing technology. Active solar panels for heating water have been available for some time and have long term potential in the UK.

The key to optimising the solar potential of the site is to orientate buildings broadly to the south. This tends to result in an East-West street pattern. It is possible to move up to 30° away from due south and yet have 90-95% of the maximum output of a PV module or a solar collector. A common goal is to stay within 15-20° of due south.

Let the light in

As a general rule, the more sun the better (potential problems of overheating and glare can be dealt with during the building design stage). Contrary to some attitudes and guidelines, it is possible to achieve high levels of natural light penetration with tight urban form. But a balance needs to be struck between new development and the constraints imposed by the local setting, particularly in relation to the land use and street pattern of adjacent areas and the height and roofscape of adjacent buildings.