

# 3.1 Building layout

Related Credits: LBo-R3: Outdoor Thermal Comfort Strategy  
RE-R1: Minimum Energy Performance

The layout of the buildings on the plot has many implications later in the design process, especially with regard to energy performance and external shading. The design team should carefully consider the following:

## Optimize natural light but minimise solar gains

- 1 Utilize external shading devices to reduce solar gain, whilst maintaining external views. For example by providing horizontal shading on South orientation and vertical shading on East and West orientations.
- 2 Use shadows cast by surrounding buildings to provide shade and reduce solar gains.
- 3 Place windows in shaded areas, recessed into the wall, or facing North to provide light to indoor spaces.
- 4 Use rooflights sparingly as these significantly increase solar heat gains. Consider using sunpipes or solar-tubes instead.

## Harmonious integration with surroundings & pedestrian environments

Cool breezes can reduce heat build up in external areas as well as freshen the air in externally accessible areas. Hot winds cause unpleasant and uncomfortable conditions building up heat in external areas, increasing heat load on the building and increasing pedestrian thermal discomfort.

- 1 Understand local wind climate, identifying orientation, timing and temperature of prevailing winds.
- 2 Consider position, form and orientation of nearby buildings to understand wind movement and how the external environment is affected.
- 3 Use building form and position to best use cool breezes. This will help to reduce build-up of hot or stagnant areas at pedestrian level.
- 4 Use building form to shelter pedestrian areas from hot or high speed winds.
- 5 Consider the use of external building features as well as building form and massing to minimize adverse impacts from wind on the public realm. Features to be considered include, but are not limited to:
  - shading devices, e.g. brise-soleil, mashrabiya, etc.
  - overhangs
  - breaks in facade continuity
  - podiums
  - openings
  - permeable features

Potential adverse impacts include downwash, corner accelerations and local wind direction changes amongst other effects.

- 6 Consider the need for mitigation of adverse wind conditions within the public realm. Potential mitigation strategies include, but are not limited to:

- canopies
- wind screens
- shelter belts
- deployable structures

