



LANDSCAPE DESIGN COMPLEMENTS THE BUILT ENVIRONMENT

As buildings have a direct relationship with their surrounding environment, it is important to consider their effect on each other. A well designed garden will improve not only the outdoor experience of a place, but has significant influence on indoor comfort. Gardens can be designed using similar principles to those applied in architectural design. Making the best use of sun, wind and rainfall to supply the energy and water needs of occupants or user is the ideal outcome.

environmentally sensitive, passive solar design

Passive solar design refers to use of the sun's energy for heating and cooling of living spaces. Its principles can be applied to both architectural and landscape design, creating user friendly spaces.

Passive solar design takes advantage of natural energy characteristics in materials and air created by exposure to the sun. Passive systems are simple, have few moving parts, and require minimal maintenance and require no mechanical systems.

Passive design is practiced worldwide and has been shown to produce buildings with low energy costs, reduced maintenance, and superior comfort. Key aspects of passive design include appropriate solar orientation, the use of thermal mass, and appropriate ventilation and placement of key elements such as windows. The most effective designs are based on specific understanding of a site's wind patterns, terrain, vegetation, solar exposure – the key is an effective site appraisal and analysis.

The majority of the principles of architectural passive solar design below can be applied to garden design

- northern orientation (providing warmth in winter)
- opening windows (allowing cross ventilation)
- low energy use light bulbs
- thermal mass (masonry and water that can store heat energy for extended periods)
- thermal chimneys (exhaust hot air on summer evenings)
- green or bio walls (positioned on hot westerly walls add a layer of cool vegetation)
- rainwater tanks (lessen dependence on public resources and save you money)
- composting toilets (to eliminate water use, sewerage costs and create useable organic compost)
- grey water re-use (bathroom and laundry water for the garden)

Other practical techniques that can be implemented in the garden that will have a significant impact on both indoor and outdoor comfort include

- installation of wing walls (vertical exterior wall partitions placed perpendicular to adjoining windows to enhance ventilation through windows)
- use of water features positioned under floor length windows in the path of prevailing breeze to facilitate indoor cooling
- the creation of cool zones and mini oasis; use of shade structures around buildings to keep the building envelope cool
- use of appropriate 'hard-scape' materials that don't reflect or absorb heat (such as reconstituted sandstone paving)
- use of green, foliage covered roof and walls
- sheltered paths and walkways to create shade

