

## Sustainable Building Design

'Thermal Mass' is a property of the mass of a building which enables it to store heat, providing "inertia" against temperature fluctuations.

The following principles are recommend for sustainable building design, however they are not a statutory requirement:

- The sun rises in the east and sets in the west, where it is strongest in the afternoon. The surface area of walls facing east and west should be minimised. Areas of glass and openings on east and west facing walls should be minimised. Shading to east and west facing walls should be maximised. North and south walls should be as open as possible, to allow for cross ventilation. (Refer Figure 1).
- Close spaced buildings provide increased shade.
- Large eaves 750mm, awnings, trees, pergolas, verandahs, overhangs, deep recessed windows and major opening are encouraged.
- Hard surfaces should be covered with mulch and/or ground covers consisting light coloured gravel and shaded with a trellis, shade structure and/or trees.
- Materials which have a low ability to retain heat include Timber and Reserve Brick Veneer.
- Materials which have a high ability to retain heat and should be avoided include Brick and Stone.
- Masonry is more effective if on the inside of the wall and insulated on the outside.
- Raised floors allow breezes to cool the thermal mass of floors.
- Light coloured roofs and walls are effective in reducing the heat absorbed. Dark colours increase absorption of heat and should be avoided. (Refer Figure 2)
- Having high narrow openable windows and/or louvres can provide the necessary ventilation and light to a room without the exposure to heat radiation.
- Permeable fencing, increases the potential for breezes to reach a house and provide passive cooling.

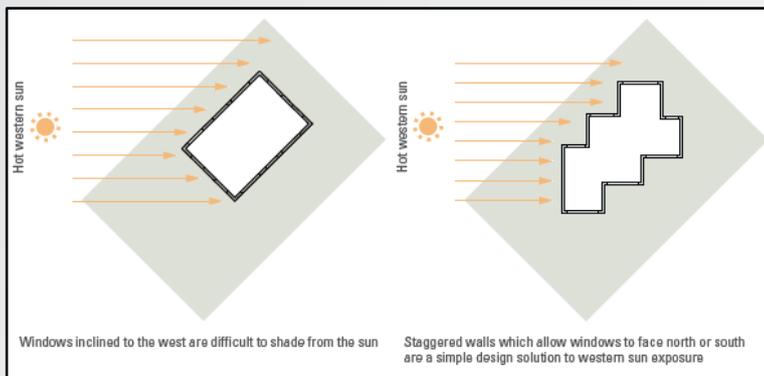


Figure 1: Minimising openings facing west

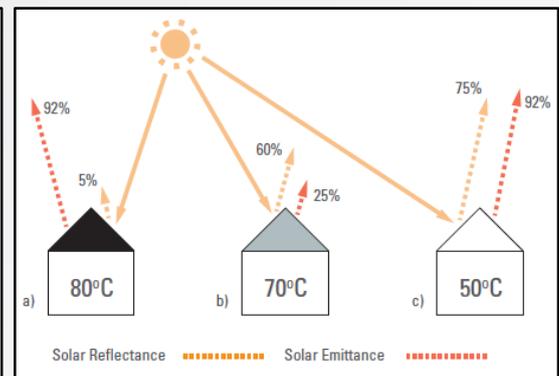


Figure 2: Roof colour reflectiveness

Sources: *Landcorp Pilbara Vernacular, 2012*  
*Landcorp Denham Design Guidelines, 2015*  
*WAPC Liveable Neighbourhoods, 2015*  
*WAPC R-Codes Explanatory Guidelines, 2015*

### Disclaimer

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