Resilient Building Toolkit Adaptation Measures Factsheet

Name and description of measure: **Building fabric to mitigate cooling requirements**

The building fabric refers to the ceiling, walls, windows, floors and doors of a building. Optimum design of building fabric can minimise potential cooling requirements, which may lead to the downsizing of cooling systems or sometimes eliminate the need for them at all.

This may be achieved by use of the following initiatives:

- Operable windows and doors create natural and cross ventilation.
- Operable natural ventilation shafts create natural and cross ventilation.
- Lighter coloured renders on buildings reduce solar absorption.
- Natural planting, such as deciduous trees and bushes reduce solar adsorption.
- Green walls or roofs reduce solar absorption.

Cost of measure (high, medium or low):

- Operable windows and doors = no-low cost
- Operable natural ventilation shafts = low-medium cost
- Lighter coloured renders on buildings = low cost
- Natural planting = low-medium cost
- Green walls or roofs = high cost

Pros and Cons:

Pros

Reduced energy costs.
Improved temperature control leading to savings.
Lower maintenance costs.
Lower capital expenditure.
Improved productivity – the output and morale of the people in the building can be enhanced by providing a more comfortable working environment through reducing solar glare and overheating.

Cons

Windows & doors may not be opened in noisy areas or areas of air-pollution, such as urban centres.
Lighter coloured renders may need regular re-painting in urban locations.

Effectiveness of measure (high, medium or low):

Natural ventilation and green walls/roofs provide a highly effective measure for reducing the requirement for HVAC in a building.

Light coloured renders and natural planting work better when used in combination with natural ventilation solutions.

Product review site:

Carbon Trust: http://www.carbontrust.com/media/19457/ctv014_building_fabric.pdf
CIBSE: http://www.cibseenergycentre.co.uk/ventilation.html