

A GUIDE TO GREENING OUR URBAN ENVIRONMENTS



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Air Quality



Biodiversity



Urbanisation



Health Concerns



Environment Challenges

Water Sustainability



Energy Consumption



Extreme Weather

Statistics

- PM₁₀ (harmful dust particles) is a key issue for London's Clean Air Act and the UK has been fined €300m (as of June 2012) by the EU fine for not meeting targets
- Poor air quality could contribute to over 4,000 deaths year in London (GLA estimate)
- Overall energy consumption for energy use in the UK has increased by 13% since 1970 and by 11% since 1990. Domestic energy consumption has increased by 32% since 1970 and by 19% since 1990 (DTI).
- Global water consumption has increased six times between 1900 and 1995; more than double the rate of population growth (World Meteorological Organization)
- **More than 80% of the UK population now live in urban areas (Oxford University)**
- In the UK over 100 species have been lost during the last century including more than 2% of all fish and mammal species, 5% of butterflies and 7% of dragonflies (UK BAP).
- Over the past 100 years the UK has lost 90% of its raised lowland bogs and 75% of its ponds and floodplain grasslands (UK Government figures)
- UK environment agency expecting flood risk to increase significantly this century (already an increase in the intensity, severity and frequency of extreme weather events)

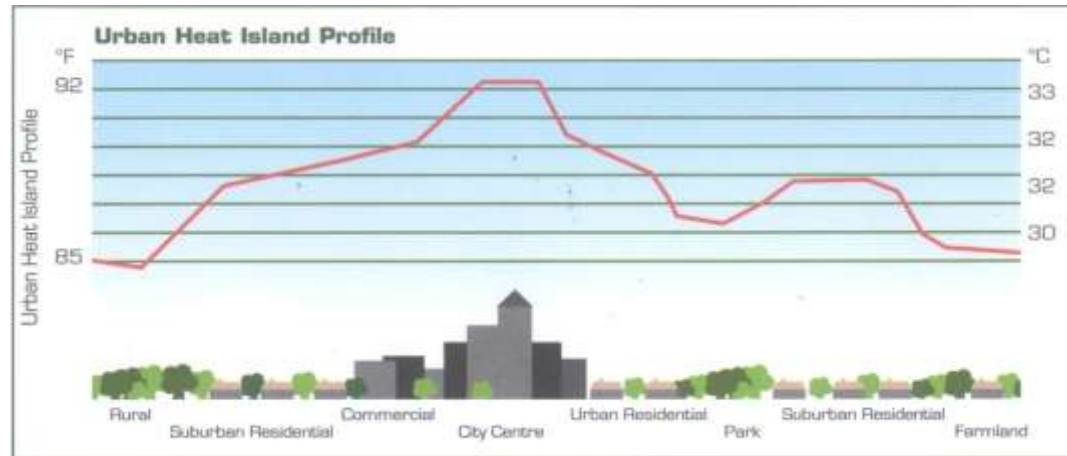
Urban Greening Solutions



- Trees
 - Effective solution when already in place
 - Challenges to planting new trees in urban environments
- Green roof
 - 25% reduction in cooling required on top floor, steeply drops to 1% within three floors
 - Suitable for smaller buildings
- Green wall
 - 25% reduction on cooling requirement on all floors
 - Suitable for any building

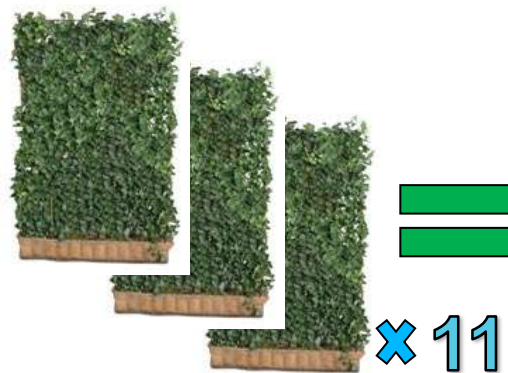
Environmental Benefits

- Reduced urban heat island effect



Max Fordham Consulting Engineers

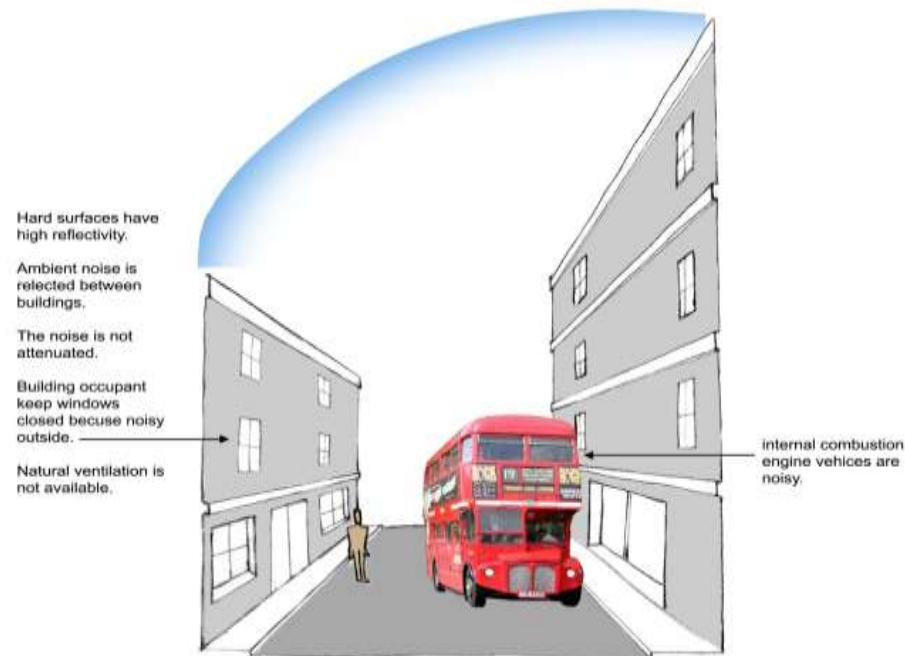
- Air purification



- Increased biodiversity
- Storm water attenuation

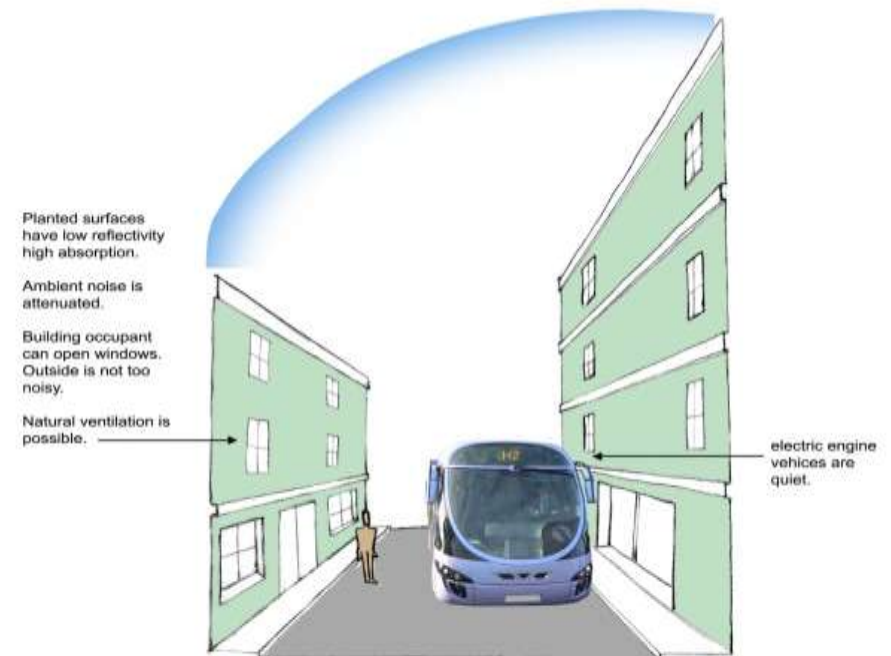
Human Benefits

- Aesthetics
- Noise reduction
- Dust suppression
- Health and wellbeing



HARD FACADES

Ambient noise reverberates.



GREEN FACADES

Ambient noise is attenuated.

Building Benefits

- Passive thermal insulation



- Anti-graffiti



- Building protection



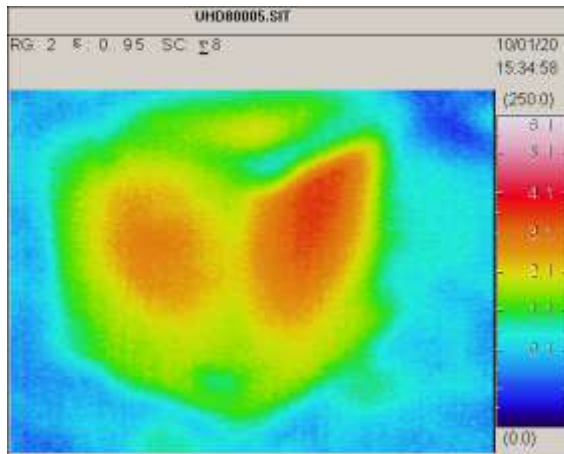
- Green credentials



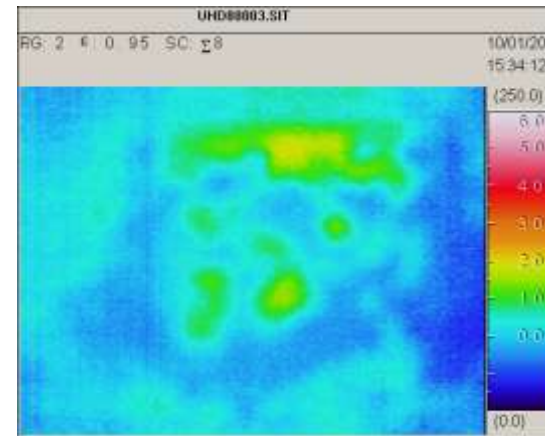
Thermal Benefits of Vegetated Surfaces



Thermal Images of Harborne Blocks



Brick box with no plant covering



Brick box with walls lightly covered in Hedera helix

Thermal Benefits of Vegetated Surfaces

34 °C

Single leaf in sun

28°C

Underside of leaf canopy

49°C

Underside fabric canopy

31°C

Underside of leaf shaded fabric canopy



Kuching (on the equator) 10:15 AM 28/5/09

Thermal Benefits of Vegetated Surfaces

Table in the sun

35°C

Dry table top



25°C

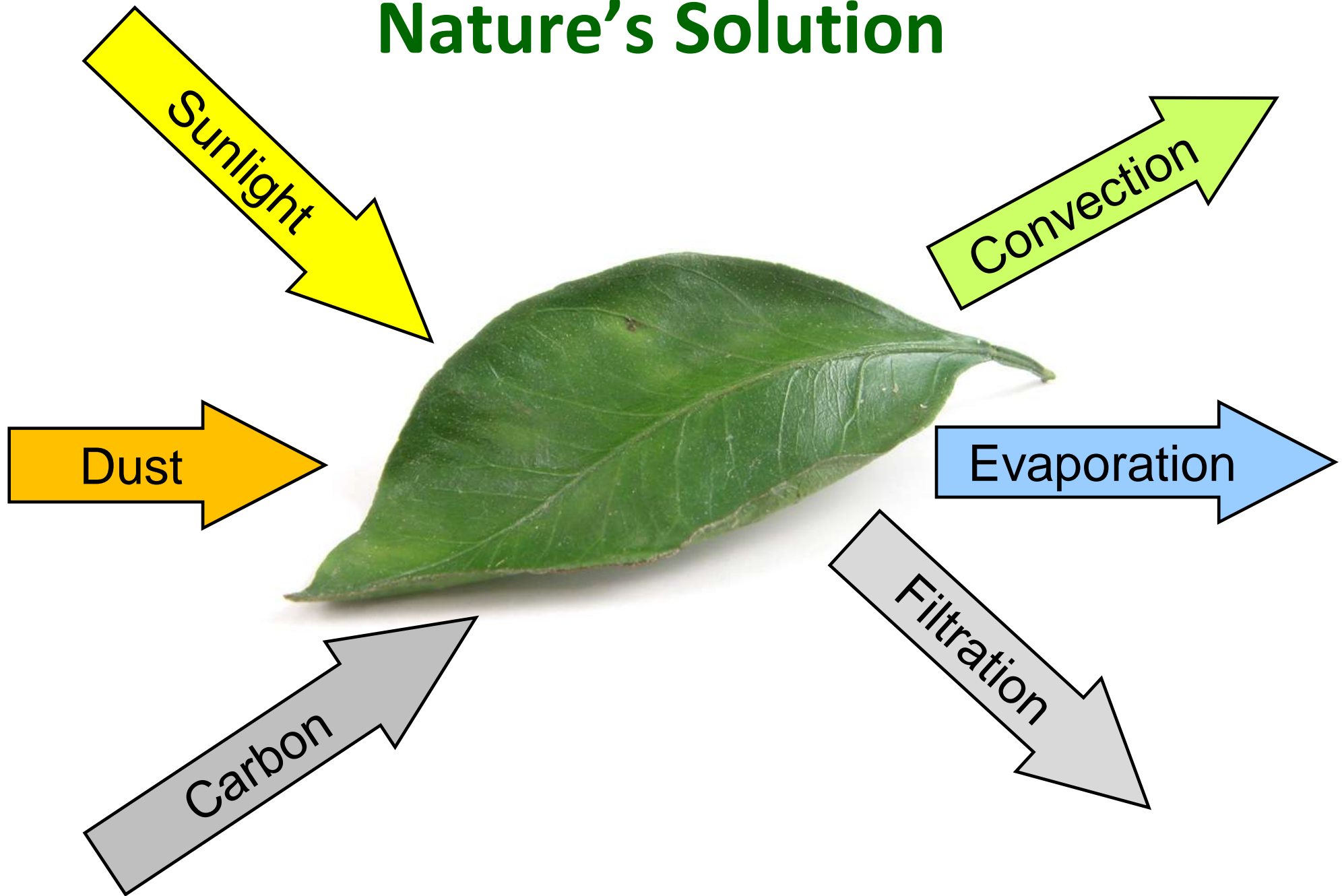
Moss – No fan

21°C

Moss with fan

Hertfordshire UK 17:15 11th August 07

Nature's Solution



Structure of a Leaf



Bio-mimicry... embracing Nature's solutions is the way forward

What are Green Walls?

Vegetation draped over a building either in part or entirety



Types of Green Walls

Two main types of Green Walls

- Green Climbing Façades
- Modular Living Walls



Green Climbing Façades

- Mobilane
- Jakob System



Living Walls

- ANS System
- BioTecture
- Patrick Blanc
- Vertiss
- Mobilane LivePanel



Green Wall Challenges

- Past failures
- Cost of installation
- Need for regular maintenance
- Need for a high-spec irrigation



Changing Perceptions

More than just aesthetics...

...do green walls have a payback period?



The Future of Green Walls

Transformational Urban Greening



- Alternative to cladding
- Greenfrastucture
- Changing Cityscapes
- Urban Farming

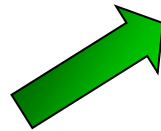
Transformational Urban Greening

Greener cities are:

- Cleaner
- Healthier
- More attractive



From this...



...to this



Urban Greening Solutions



Green Screens

- Instant sustainable security fencing
- Low maintenance
- Cost effective compared to brick or block perimeter walls
- Environmentally sound alternative to traditional fencing
- Hedera ivy (various), beech and hornbeam
- Available in various heights from 1.0m-3.5m



WallPlanter

- Robust, reliable and cost effective living wall system
- Aluminium planters (3mm) with optional RAL colour
- Integrated irrigation system with drainage outlets
- Insulation and drainage matting
- Peat free substrate



LivePanel

- Flexible system can be used both inside and outside
- Creative freedom in design and choice of plants
- Fully enclosed planting, no bare patches
- Integrated irrigation system designed for minimal water use
- Structurally sound modular construction
- Fire insulating properties



No-dig Living Hoarding

- pre-grown green ivy panels in multiple sizes
- totally reusable 'on-ground' site perimeter hoarding system
- quick to install, reposition or dismantle
- flexible enough to fit the majority of applications
- low-cost fencing, anti-climb mesh and living tile options



Retrofit Living Hoarding

- installation on existing traditional wooden hoarding
- uses pre-grown ivy screens or tiles that attach to hoarding
- enables existing construction sites to be 'greened-up'
- screens can be removed and recycled when hoarding is dismantled



LivePicture (product available Jan 2013)

- Internal or external use
- No irrigation or power required
- Provides natural air purification
- Can be used for growing small vegetables or fruit
- Can be fixed at working height for wheelchair users



Services & Maintenance

- Greening solutions designed to meet exact requirements
- All installations include an automated irrigation solution
- Living Hoarding requires no on-site power or water supply*
- Flexible maintenance options available to include trimming, feeding, pest control and irrigation management

**optional standalone irrigation system available for Living Hoarding*





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