

The Value of Green Roofs



Lancashire
Manchester &
N. Merseyside

What is a green roof?



Intentional area of roof that has been covered with substrate or vegetation.

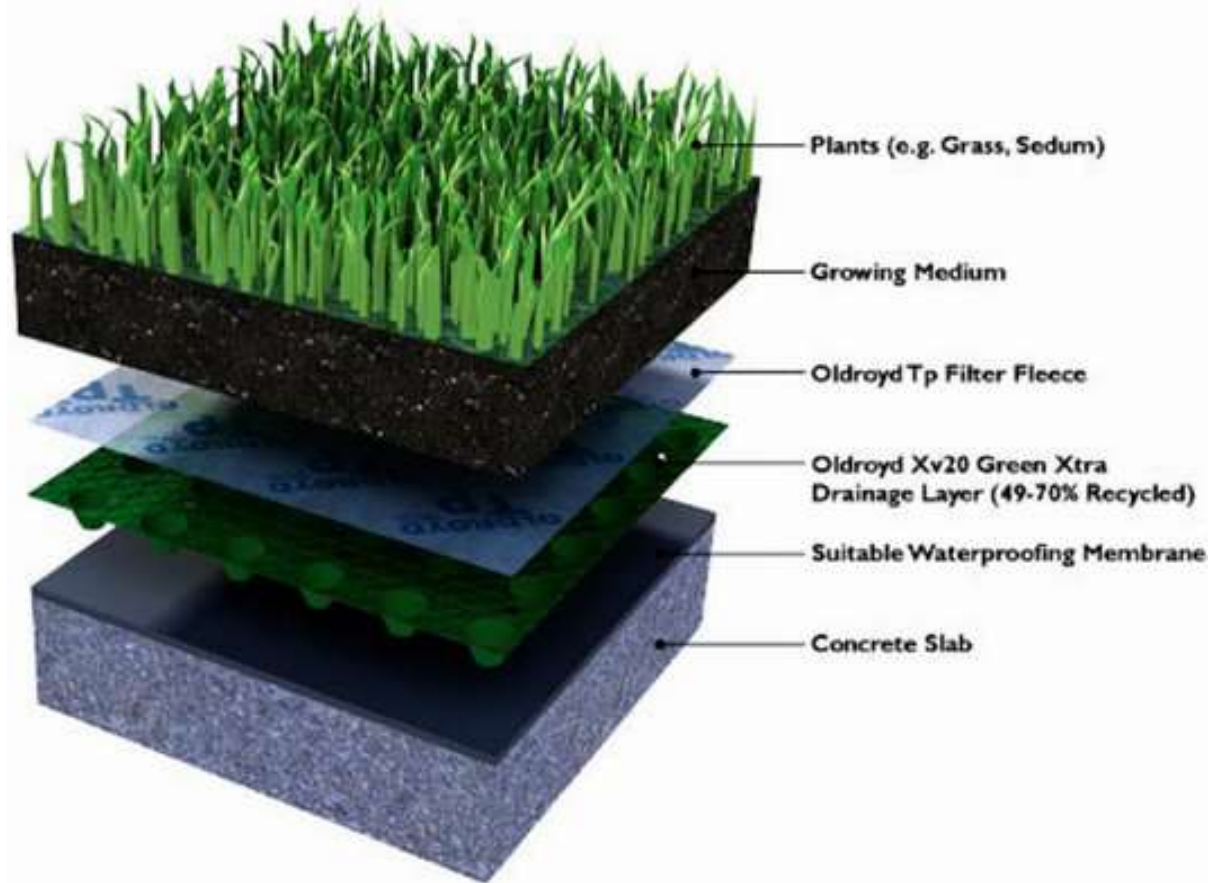
Various names in use – green, brown, living, intensive / extensive.

A green roof can be any size – building, garage or shed.



Lancashire,
Manchester &
N Merseyside

Components of a green roof



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Examples



Lancashire,
Manchester &
N Merseyside

Why?



General perception is that green roofs are a little 'outlandish'

Main benefits generally fall within three categories:

Environmental benefits

Economic benefits

Social benefits



Lancashire,
Manchester &
N Merseyside

Green roof quiz

1. Which of the following statements is correct?

The longevity of a green roof is on average the same as that of a 'normal' roof

The longevity of a green roof is on average half that of a 'normal' roof

The longevity of a green roof is on average 2 to 3 times longer than that of a 'normal roof'



Lancashire,
Manchester &
N Merseyside

Green roof quiz

- 2 The insulation properties of green roofs have been studied by various agencies. In the table below can you guess X temperature?

Season	Mean air temperature	Temperature under standard roof membrane	Temperature under green roof membrane
Winter	0°C	0.2°C	4.7°C
Summer	18.4°C	32°C	X°C

Source: CIRIA, with data provided by Nottingham Trent University



Lancashire,
Manchester &
N Merseyside

Green roof quiz

3. Which of the following statements is correct?

On average green roofs support more invertebrates than brownfield sites

On average green roofs support less invertebrates than brownfield sites

On average green roofs support the same amount of invertebrates as brownfield sites



Lancashire,
Manchester &
N Merseyside

Green roof quiz

4. Which two of the following will a green roof cause?

Increased runoff during a rainfall event

Less pollutants reaching river systems

Increased sedimentation in our river systems

Decreased runoff during a rainfall event



Lancashire,
Manchester &
N Merseyside

Green roof quiz

5. A number of green roofs have been used for food production. At the Waterfront Hotel in Vancouver, Canada, how much did the hotel save by growing its herbs on the roof?



\$ 3000

\$ 12, 000

\$ 30, 000

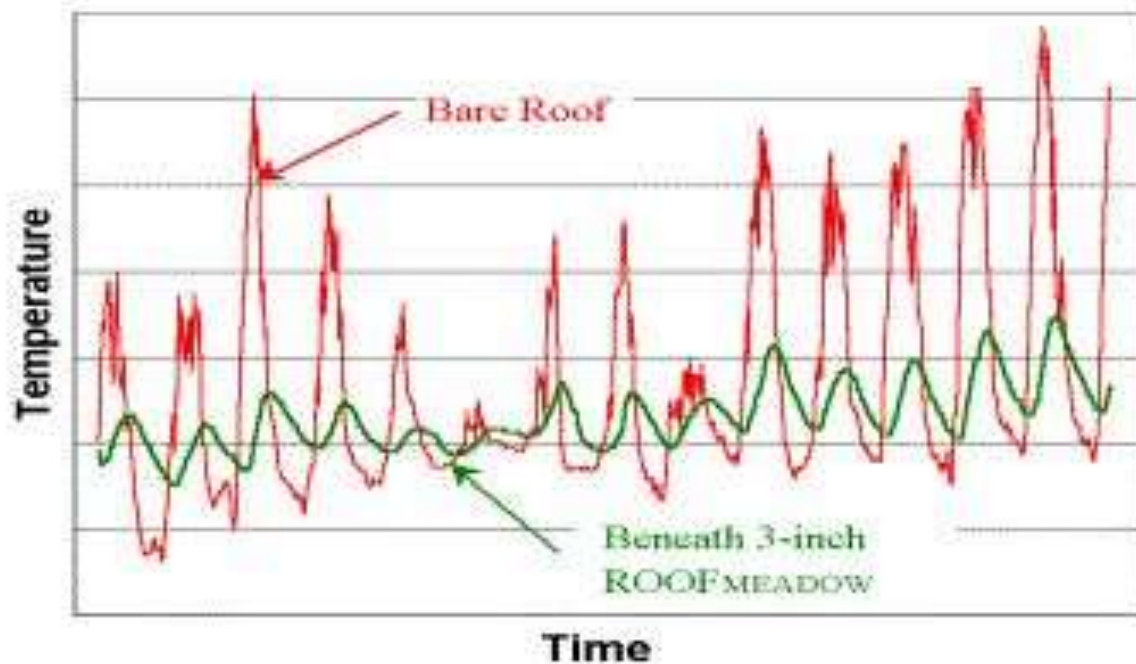


Lancashire,
Manchester &
N Merseyside

Green roof quiz - answers

Question 1 – correct answer is...

- c) The longevity of a green roof is on average 2 to 3 times longer than that of a 'normal roof'



Lancashire,
Manchester &
N Merseyside

Green roof quiz - answers

Question 2 – correct answer is...**17°C**



Lancashire,
Manchester &
N Merseyside

Green roof quiz - answers

Question 3 – correct answer is...

On average green roofs support more invertebrates than brownfield sites.



© Ole Thorsen

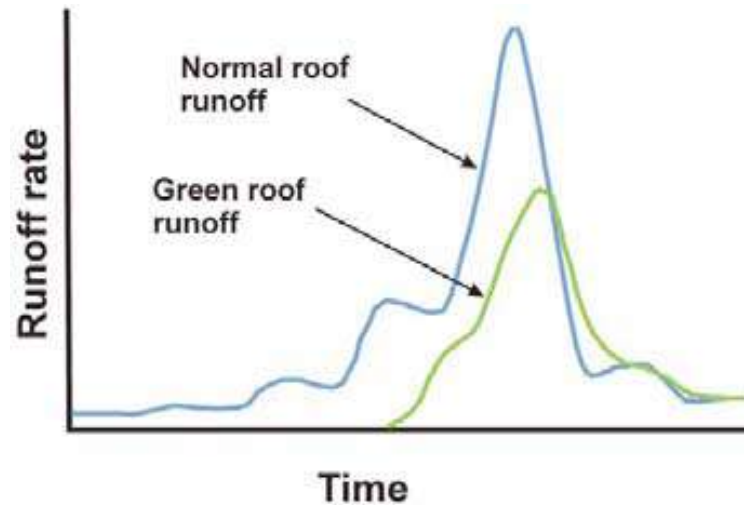


Lancashire,
Manchester &
N Merseyside

Green roof quiz - answers

Question 4 – correct answer is...

- b) Less pollutants reaching river systems
- d) Decreased runoff during a rainfall event



Lancashire,
Manchester &
N Merseyside

Green roof quiz - answers

Question 5 – correct answer is...

c) \$30, 000



Lancashire,
Manchester &
N Merseyside

Benefits - Summary

Sustainable drainage and storm water amelioration

Biodiversity

Thermal stability

Control of air pollution

Reduction of noise pollution

Protection of waterproofing properties

Economic benefits

Better visual aesthetics



Lancashire,
Manchester &
N Merseyside

Resistance to green roofs

If they have so many benefits, why aren't there more green roofs in the UK?

A number of reasons exist for resistance including:

- Too expensive to install.

- Liability – leaks, fire risk.

- Planning permission issues.

- Lack of knowledge.



Lancashire,
Manchester &
N Merseyside

Resistance: 1. Costs

Capital costs of retro fit green roof build generally £20 - £70 per metre squared - but significant savings can be made.

Initial outlay should be considered against future long term savings.

Costs within a new development could be less than conventional roofing costs

Don't forget PR, publicity



Lancashire,
Manchester &
N Merseyside

Resistance: 2. Liability

Fire – Most materials and design in UK follow German specifications – strict guidelines. In Germany it is possible for a green roof owner to get a 10 – 20% reduction on fire insurance.

leakage – if designed well a green roof will dramatically increase the life of roof waterproofing.

Maintenance costs – a roof can be designed to be self-maintaining and require minimum upkeep.



Lancashire,
Manchester &
N Merseyside

Resistance: 3. Planning

National - Sustainable development and biodiversity policy such as PPS1, PPS3, PPS9, PPS25 all support green roof build

Regional – RSS Policy EM3 – Green Infrastructure

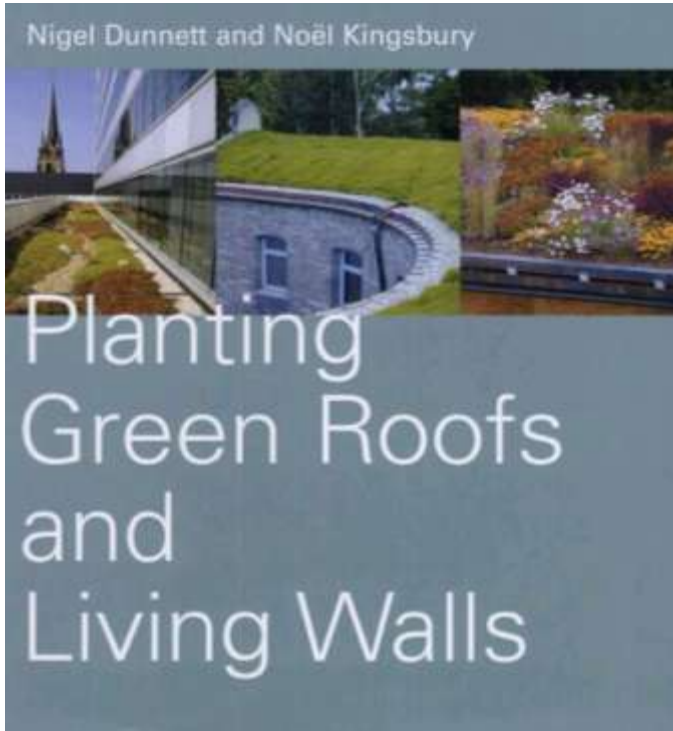
Local – all councils are required to plan for GI within their core strategies.

National planning guidance states that local authorities should ‘resource and energy efficient buildings’



Lancashire,
Manchester &
N Merseyside

Resistance: 4. Knowledge



Very little publicity leads to lack of knowledge amongst public.

Library of books, websites and other guides steadily growing.

Natural Economy Publications

Manchester feasibility study

Training courses starting to become available in the UK.



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery



Lancashire,
Manchester &
N Merseyside

Case study – Unicorn Grocery

Watch the video Living Roof Seasons

http://www.unicorn-grocery.co.uk/living_roof.php

Appointments can be made to visit the Unicorn Roof



Lancashire,
Manchester &
N Merseyside