

Implementing a SuDS Strategy:

The example of the
DLRCC Green Roof Policy





Who am I?

Elaine Carroll

Executive Engineer

Drainage Planning, DLRCC

- Policy creation and implementation
- Surface/Storm water management
- Flood Risk Assessment

DLRCC Depot, Ballyogan



Brief Summary

- Experience of incorporating Green Roofs into plan making as an example for other Local Authorities
- Green roofs - practical SuDS technique example

DLRCC Depot, Ballyogan

EVENT
Freezing fun at the Yacht club

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Racing is mainly held under PY handicap but there are separate starts for large classes such as the popular Fireballs.

All dinghy classes will be catered for and it will run, as usual, from November until March. Check out <http://www.dmyc.ie> for information.



Ready to patrol: Locals get a closer look at Dun Laoghaire Garda station

THE gates of Dun Laoghaire Garda Station were thrown open to the public and a warm welcome extended to the community by Superintendent Martin Fitzgerald and the gardai of the 'P' District for the district's second Garda Intercultural Open Day recently. It was a great opportunity for the public to take a look behind the scenes at their local Garda Station and for this lucky boy to get up close and personal with one of the garda motorcycles.

INITIATIVE: PLAN FOR TOPS OF HIGH-RISE BUILDINGS TO BE USED FOR GROWING

Rooftop urban farming approved

BY LAURA WEBB

AN initiative to see the roof tops of high-rise buildings transformed into a Green Roof for urban farming was unanimously approved by local councillors and will be incorporated into the County Development Plan.

Local Labour councillor Jane Dillon Byrne asked management in Dun Laoghaire-Rathdown County Council to consider positive encouragement for urban farming for multi-storey buildings, which means they should be designed to grow food at roof level.

In response to the councillor, a spokesperson for Water and Waste services department said John Laoghaire-Rathdown's position on Green Roofs "is very proactive and we are possibly the first council to formulate a policy and guidance document on Green Roofs".

"Section 16.12 of the Development Plan requires large developments to make use of Green Roofs in accordance with the Council's Green Roofs Guidance Document. This document provides for the use of either an 'Intensive' or an 'Extensive' Green Roof. 'Intensive' Green Roofs, or roof gardens, have a deep layer of soil which can support a range of plants, trees and shrubs and is designed to include access for people.

"Extensive Green Roofs are lightweight, with a thin layer of soil or vegetated fabric mats, that are planted with small plants (sedums is used most often).

"These roofs are not normally designed to provide access for people. In addition to Green Roofs being mandatory on large developments (with limited exceptions, e.g. detached housing, etc.) their

use on all developments is positively encouraged."

Speaking in the Gazette this week, Councillor Dillon Byrne welcomed the recent approval by councillors.

"This means that, within the development plan, we have incorporated in it, or will incorporate in it, a policy about green spaces on roofs. This will mean that people will have to reinforce it and strengthen the upper sections of the building to allow for the people to have

'People are interested in the opportunity to create their own food'

the roof gardens.

"I was in Finland and actually saw a cow, sheep and some hens on top of a building. Thinking subsequently about it, I wasn't quite sure if it was real, but the idea embedded in my mind. There is a big movement at the moment to try and eat the food that is in season in your own area and not travelled 5,000 miles before it goes onto a market shelf.

As you look at the attitudes of people who are waiting on allotments in the area, there is a long list - 108 waiting to get onto that list. People are interested in the opportunity to create their own food, and to have their own vegetables and to have an open space that they might not have if they were living in an apartment.

The fact that you could see the whole roof of a building and divide between interested tenants, obviously not all of the tenants, then that would be fantastic." Cllr Dillon Byrne said.

What is a Green Roof?

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John Howard
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**Cheered Italia 90?
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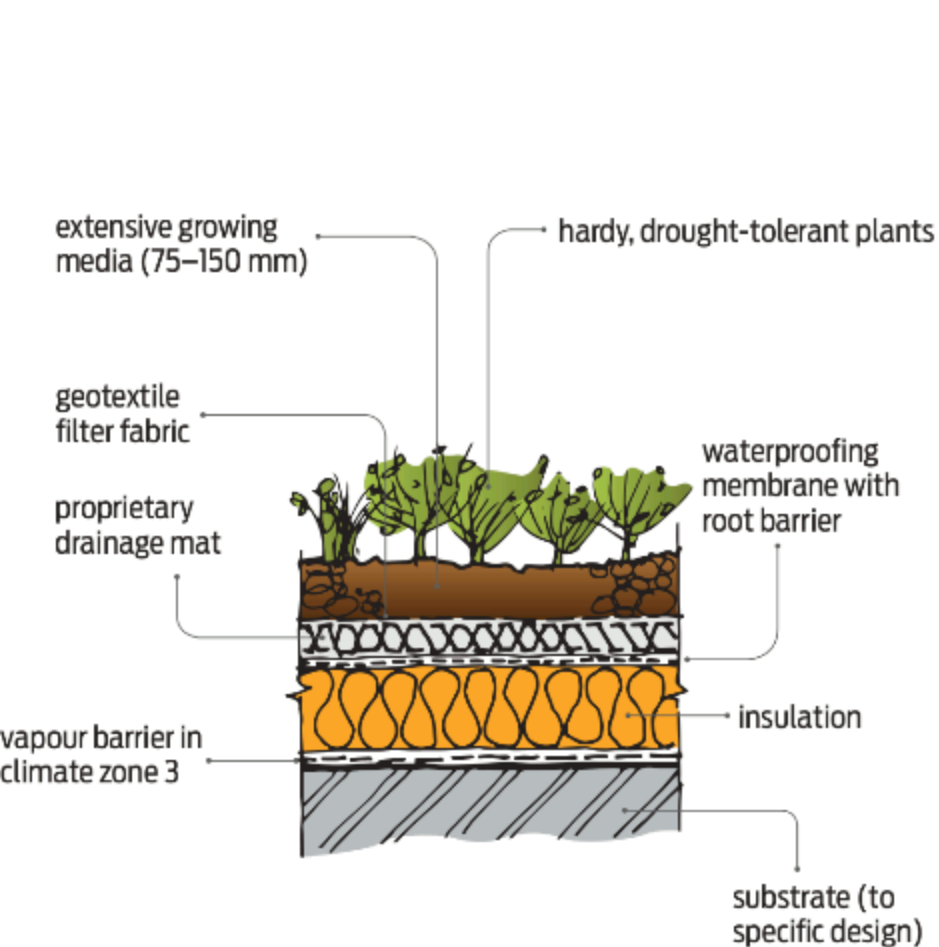
Let's bring home our Italia 90. It seems like only yesterday. But the truth is if you cheered Italia 90, you're now part of the generation that needs to be seriously considering regular savings in pension, if you've been putting it off, a meeting with an AIB Financial Advisor is the best step in getting your pension sorted. Tell us about your plans for the future. We'll help you get there.

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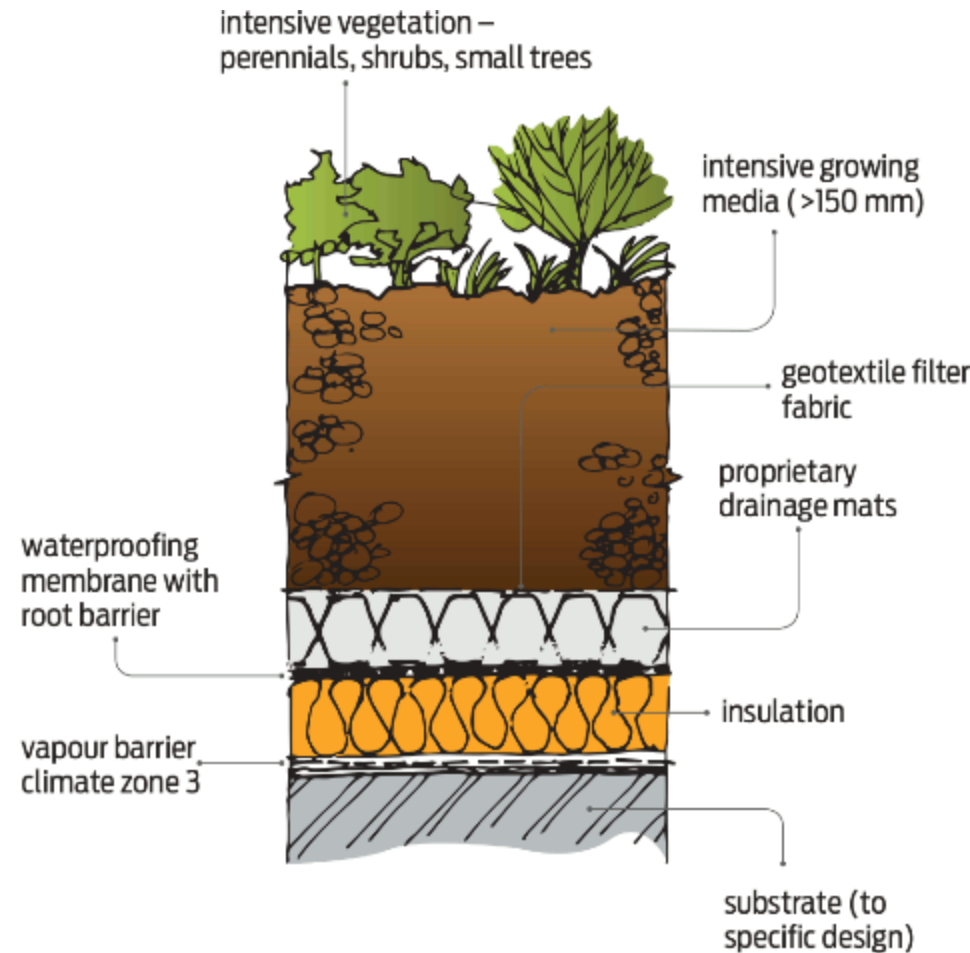
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(a) Extensive



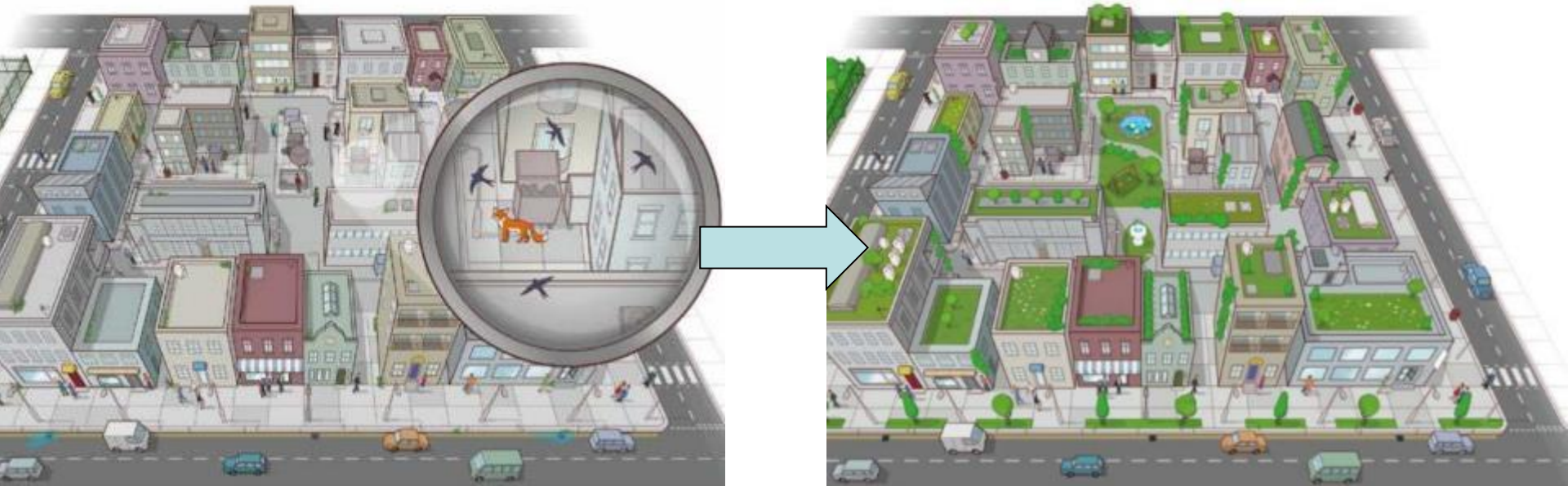
(b) Intensive



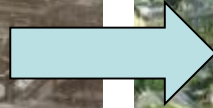
Why Green Roofs? Only Solution is UP!

- Retrofitting existing buildings
Alternative SuDS measures are not achievable.
- Infill development
Footprint of proposed buildings in small sites reduce ability to provide sufficient ground level SuDS solutions.
- Intensification/High Density
Balancing required site density with building heights and amenity space

Retrofitting Green Roofs in Urban Areas



Redevelopment providing opportunity for Green Roofs



Grand Canal Dock, Dublin



Why Green Roofs?

Added Benefits

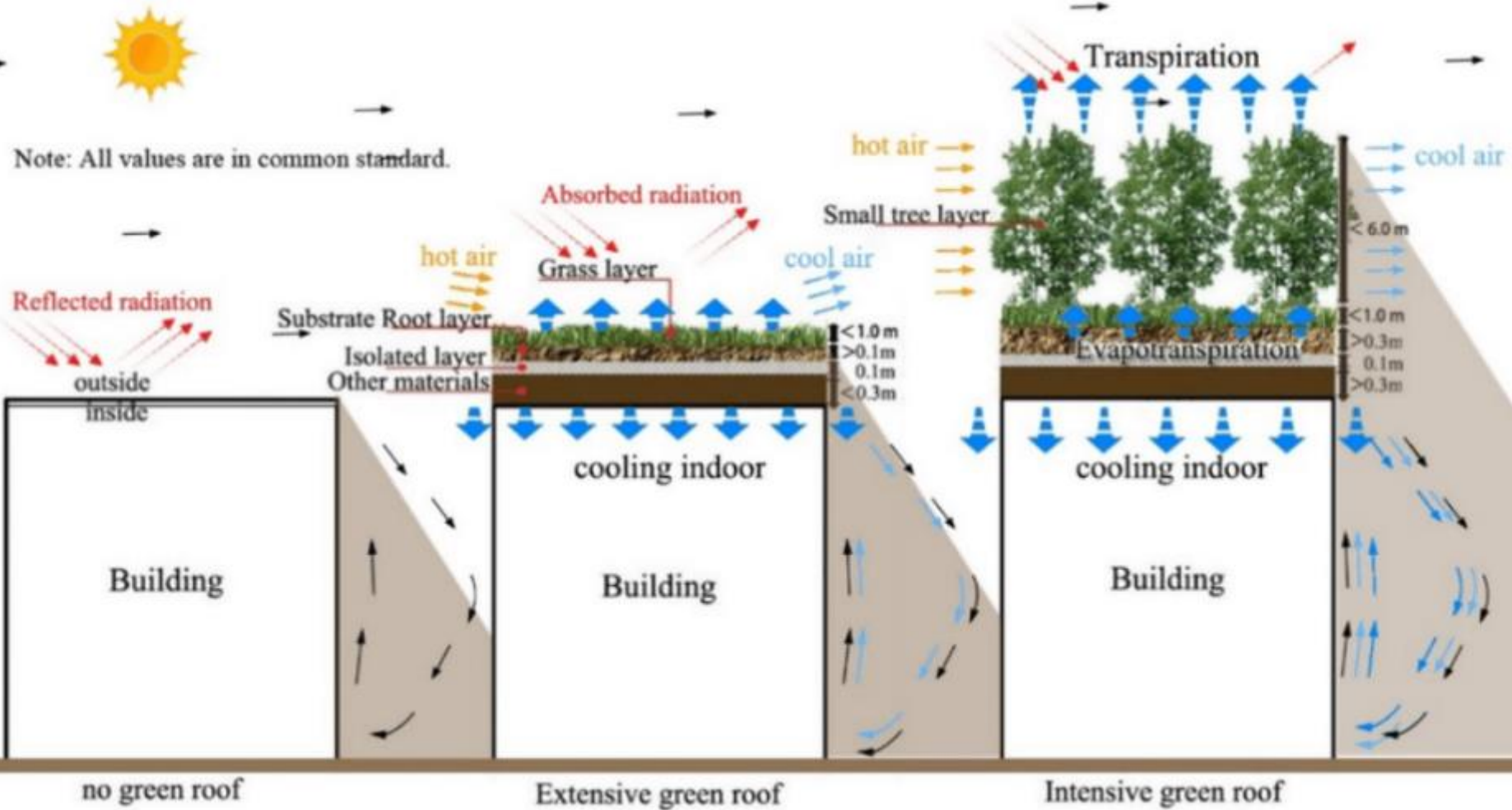
- Surface Water Quality
 - Improve water quality by filtering out pollutants via growing medium
- Source Control = Industry best practice
 - Retain water in growing medium for small rainfall events and reduce burden on surface water network and rivers during heavier rainfall possibly reducing flooding severity locally.
- Biodiversity
 - Replace habitat lost due to urbanisation or create habitats for enhanced biodiversity to actively encourage flora and fauna into the area, for example, by providing food, habitat, nesting opportunities or resting places.



Why Green Roofs?

Added Benefits

- Countering Climate Change & Urban Heat Island
Vegetation consumes carbon during photosynthesis positively removing emissions and helping to arrest climate change.
- Building Performance Enhancements
Good natural insulation reducing the need for air conditioning or heating. It also provides sound attenuation. Can increase the lifespan of existing roofs as a protective layer.
- Amenity Value
Can benefit occupants by providing visual amenity and in some instances valuable additional outdoor areas recreation.





Why Green Roofs? Policy Requirement

National/Regional Policy

- *Climate Action Plan 2019*
- *National Planning Framework*
- *Regional Spatial & Economic Strategy (RSES)*
- *Greater Dublin Strategic Drainage Study (GDSDS) 2005*

Local Authority Policy

- *DLRCC Climate Change Action Plan 2019-2024*
- *DLRCC Green Infrastructure (GI) Strategy (2016 -2022)*
- *DLRCC Green Roof Policy – Appendix 16 CDP 2016-2020*

Road to CDP



Oct 2010 – Green Roof referenced in CDP 2010-2016 under Development Management, but no enforceable mechanism

June 2015 – Green Roof Policy presented to Strategic Policy Committee

Sept 2015 – Brought to full Council as part of final CDP consultation, passed with no issue

Nov/Dec 2015 – Brought into the public domain as part of the “second stage” of public consultation of the Draft County Development Plan 2016 - 2022

March 2016 – Included as Appendix 16 of the CDP 2016-2022 adopted by the Council

Road to CDP

DLRCC County Development Plan 2010-2016

Chapter 16 Development Management

16.12 New Developments– Environmental Impacts

Applications for large to very large developments should:

- › Make provision for composting and recycling.
- › Incorporate, where appropriate, local 'Bring Centres' into development layouts for recyclable materials.
- › Facilities for wheeled bin collection and litter collection points.
- › Make use of 'Green Roofs' in accordance with Dún Laoghaire-Rathdown County Council Green Roofs Guidance Document.

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Road to CDP

DLRCC County Development Plan 2016-2022

Appendix 16: Green Roofs Guidance Document

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- 1.1.5 The Benefits of Installing a Green Roof

2.1 Relevant policies

3.1 Requirements for Various Land Uses

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Appendix 16: Green Roofs
Guidance Document

Road to CDP

DLRCC County Development Plan 2016-2022

Appendix 16: Green Roofs Guidance Document

3.1 Requirements for Various Land Uses

A Green Roof proposal is a requirement for all Roof areas greater than 300 square metres for the following development types unless exempted or partially exempted by DLRCC's Municipal Services Section following consideration of the suite of complimentary or alternative "soft" SUDS (Sustainable Drainage Systems)* measures being proposed:

- **Apartment Developments**
- **Employment Developments**
- **Retail and Ancillary Shopping**
- **Leisure Developments**
- **Education Facilities**

Any habitable or employment related development type not covered under the above headings will be deemed to require the installation of a Green Roof unless exempted or partially exempted by DLRCC's Municipal Services Section following consideration of the suite of complimentary or alternative "soft" SUDS measures being proposed.

Terraced, semi-detached or detached housing or mews developments are not required to have Green Roofs. However, their installation is encouraged, wherever practicable.

A Green Roof, where required, shall in all cases cover a minimum of 60% of the Roof area. The minimum soil thickness shall be 2 to 4cm for a Moss/Sedum type of Extensive Green Roof and 10 to 15 cm for a grassed type of Extensive Green Roof.

* Alternative soft SUDS measures include ponds, bioretention areas, detention basins, infiltration basins, filter strips, wetlands, swales, rain garden. (For the purpose of clarity - a proposal that relies solely on attenuation storage systems and/ or permeable paving as an alternative to the provision of a Green Roof will not be acceptable)




Road to CDP

DLRCC County Development Plan 2022-2028

Appendix 7: Sustainable Drainage System Measures

Appendix 7.2: Green Roofs Policy



Appendix 7:
Sustainable Drainage
System Measures

7.2 Green Roof Policy



“Obstacles”

Developer engagement

Buildings require “green” credentials to meet client demands.

Developers already providing green/blue roofs to aid in meeting these requirements.



“Obstacles”

Developer engagement

“Budget retailers” have also provided green roofs.



LIDL, Shankill



LIDL, Sallynoggin

ALDI, Sallynoggin



LIDL, Sallynoggin

“Obstacles”

Developer engagement

Department of Education have included greens roofs on all recent planning applications for schools in DLRCC.



Stepaside Educate Together, Belarmine

“Obstacles”

Photovoltaic Solar Panels

Greens roofs sometimes cited as a “fire hazard” – option to provide permeable paving directly under panels with green roof adjacent.

NOTE: Permeable paving should not be considered as contributing to “green” roof coverage.

Bauder BioSOLAR - Integrated Solution



“Obstacles”

Pitched Roofs

Greens roofs can be installed relatively easily on roofs with a pitch of up to 1:3

Steeper slopes require greater design consideration but are achievable



Sloping green roof, West of Ireland



Moesgaard Museum, Aarhus, Denmark



Green Roof Policy Internationally

In 2008, 'Living Roofs and Walls Policy' was introduced into the **London** Plan. Success rate of this policy shown in 2019 report, stating that green roofs cover 1.5 million m² across London alone.

In 2009, **Toronto** passed a green roof law requiring new buildings or additions that are greater than 21,000 square feet to cover between 20 and 60 percent of their buildings with vegetation.

In 2010 **Copenhagen** began requiring green roofs on all new commercial buildings with a roof slope of less than 30 degrees.

In 2016, the city of **Córdoba** in Argentina issued a bylaw that directed all rooftops — new or existing — of more than 1,300 square feet to be turned into green roofs.

In 2016, **San Francisco** began requiring that 15 to 30 percent of roof space on new buildings incorporate solar panels, green roofs or both.

In 2017, Germany's eighth largest city, **Essen**, ruled that all new buildings and restoration work in its city centre must have green roofs.