

Vertical Meadow Cladding
Tufnell Park - London
Vertical Meadow

BIG Biodiversity Challenge Award Category: *Innovation Award*

Project overview

Vertical Meadow was awarded an Innovate UK Sustainable Development Grant to develop a new cladding system to address biodiversity in the built environment. The team set about with experts in horticulture and ecology to develop a new approach to living walls that grow native UK wildflowers from seed in place.

What were the biodiversity conditions on site, prior to the enhancement?

The aim of developing the new cladding system is to address the need for biodiversity in dense urban areas where horizontal greening may not be feasible. As each site is different both in orientation, scale and local ecology it was important to develop a solution that could be adapted to the local environment. Working with the Wildlife Trusts, Buglife and Nigel Dunnett we undertook a baseline assessment of the local ecology adjacent to our workshop (demonstrator location) and then developed a specific seed mix to address this using only native UK Wildflowers. This should be undertaken on an individual project basis.

What were the reasons behind this project ?

The reason behind the project is that with Biodiversity Net Gain entering very shortly in to planning regulation it was essential to develop a new approach to living walls that specifically addressed some of the key barriers to adoption. These are cost, maintenance, biodiversity, fire and constructive issues. We already had experience of growing living walls from seed however we brought together an expert team to address the needs for a long term solution as well as most importantly fire concerns. Most of the existing systems use plastic which was becoming a barrier for adoption from clients and insurers.



Bumblebee on cornflower:



Butterfly on the mixed sward of wildflowers

What were the biodiversity measures taken?

The biodiversity measures undertaken include a baseline assessment of the local ecology to the test wall, as well as a consideration of the wider London environment to ensure it would be replicable to the first projects. Working in combination with the Wildlife Trusts and Buglife this initial ecology site assessment was undertaken to provide a brief for Professor Nigel Dunnett to develop the version 1 seed mix for the demonstrator.

This is the first time a system like this has been developed hence the patents that have been filed around the concept during the Innovate UK project. Growing living walls from seed in place to avoid the carbon associated with greenhouses and bulk transport of plants often from overseas provides a significant step forward for the industry. A façade engineering approach to mimic how existing rainscreen facades are built was essential to ensure it could be easily adopted by the industry, again something unique to the living wall industry. The team also worked with Arup Fire to ensure all components that could be made from A1 non-combustible materials were used to minimise any fire risk, this contrasts with the plastics used currently by living wall providers.

The seeds chosen were chosen to address Biodiversity Net Gain. A bespoke calcareous grassland meadow mix was adopted. We tested two subtly different mixes on the wall, one a shorter mix and one a longer mix. Following turning on the system in spring 2021 the Wildlife Trusts and Buglife have been monitoring the wall in terms of flora and fauna during the different seasons of growth of the wall. It has been very interesting to see how it developed during the first growing year where the annuals dominated in terms of colour and how it rebounded on the second where the perennials have come through.



Before growth – openable panel for seeding and maintenance



Self Heal hidden behind grasses and Ladies Bedstraw

Further information

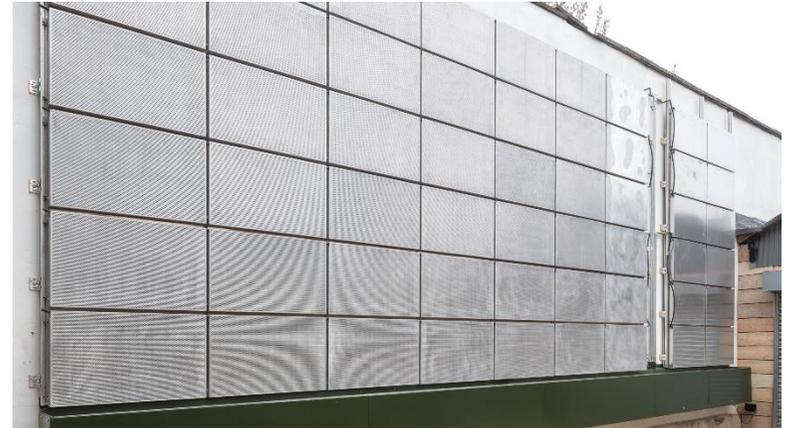
One of the innovations of the new Vertical Meadow Cladding system is the way it is installed. Designed to be an exact replacement to an existing rainscreen cladding system it is installed on standard façade support rails. A cladding contractor was used to install it for us to check that it met the brief of easy constructability. A gutter was installed at the bottom of the wall with a collection tank so excess water could be recirculated on the wall again to minimise any water loss. Monitoring by the Wildlife Trusts, Buglife and Professor Nigel Dunnett was continued throughout the project to assess the evolution of the flora and fauna on the wall throughout the seasons. Vertical Meadow has assessed the water usage. The aim of the innovation is to offer a viable solution for Biodiversity Net Gain vertically that addresses fire safety, maintenance issues and constructability. The assessments showed a demonstrable improvement in biodiversity assessed by expert ecologists. It has been important to run the demonstrator over two years to understand what species appear in the first year and then are robust enough to come back the following year. This has led to an iteration to the seed mix that we are about to launch shortly on the demonstrator.

Project Team

Vertical Meadow – Alistair Law & Ralph Wilson / Wildlife Trusts – Rosie Whicheloe / Buglife – Paul Hetherington / Prof. Nigel Dunnett

What was the motivation for carrying out the enhancement?

The motivation of the project was to develop a robust living wall solution that can drive Biodiversity Net Gain in the built environment both in the UK and abroad for the years to come.



Demonstrator wall prior to turning on

