Sustainability benefits of external living walls

Bringing nature into our cities is a vital component for a sustainable future. living walls are an ideal solution in urban areas where space is literally and financially at a premium.

Living walls are proven to help to reduce air pollution, aid biodiversity, uplift people and help meet sustainability targets and improve your business. No other cladding system can do all this.

CO^2 sequestration

Scientific research has shown that on average plants in a living wall filter particulate matter from the air and convert CO^2 into oxygen. $1m^2$ of living wall extracts 2.3 kg of CO^2 per annum from the air and produces 1.7 kg of oxygen.

Better air quality

'Air quality is the largest environmental health risk in the UK.' *Defra Clean Air Strategy, 2019*. During photosynthesis, plants absorb CO^2 and other gases like oxides of sulphur & nitrogen (SO^2 & NOx), ozone (O) and airborne ammonia(NH3) through their stomata. Plants also reduce air pollution by intercepting suspended particulate matters (SPM) and aerosols and retaining them on the leaf surface.

In densely populated areas of high rise development pollutants can become trapped in urban street canyons. A study carried out in 2012 showed that 'planting of vegetation in Street Canyons can reduce street-level concentrations by as much as 40% for NOx and 60% for PM (Particulate Matter).' *Pugh, MacKenzie, Whyatt and Hewit (2012)*

Biodiversity Net Gain

One of our living walls will typically contain at least 10-15 different plant species. These walls provide a refuge for biodiversity in inner city habitats e.g. they provide food, shelter and a habitat for birds, bees and other insects and invertebrates. We can also incorporate bee and invertebrate boxes.

Relief from 'urban heat islands'

Cities have higher temperatures than surrounding areas – an effect known as the 'Urban Heat Island'. The number of heat islands and degree of temperature increase is set to increase with urban population growth, rising air pollution and climate change. Various studies have proved that living walls can lower temperatures in the immediate vicinity providing relief from urban heat island effects and potentially lead to fewer deaths. In a 2008 study green walls were estimated to decrease canyon air temperature by up to 4 degrees in Hong Kong and 5 degrees in Riyadh (Alexandri and Jones, 2008).

Improved insulation

Green walls have been proven to provide energy savings to help reduce the carbon footprint of existing buildings. Buildings directly account for 17% of UK Greenhouse Gas Emissions (UK Government, 2019) and space heating accounts for over 60% of all energy used in buildings (J. Palmer and I. Cooper, 2011) . Living walls and green infrastructure provide insulation and solar shading helping to keep buildings cool in summer and warm in winter, which could play a part in helping the UK to achieve its net-zero commitments. A research team at the University of Plymouth recently found that the amount of heat lost through a section of wall covered in a living wall was 31% lower than the original structure.