



Workshop 4 : Living walls for vertical farming

George Irwin (Green Living Technologies International LLC – USA)

George Irwin is the founder and President of Green Living Technologies International LLC (GLTi). He is also a global pioneer in vertical agriculture with a focus on education & training. A published author and the featured 'Green Wall Editor', George is also a leading resource and authority for green wall and roof technologies around the world. Prior to founding GLTi, George was a landscape contractor for over two decades. He holds a degree in education and maintains his passion for out-of-the-box learning, combining his love for the environment and zest for learning into a growing global business. George personally oversees all green wall and roof education, integrating state-of-the-art technology and ideas into a continuously evolving educational and training curriculum. Annually, he teaches hundreds of new green technology experts in green roof and living wall manufacturing, installation, growth, and maintenance. His mission is to help create sustainable solutions to the challenges of food insecurity and the dearth of job opportunities for at-risk youth in inner cities through vertical farming.

Five times, ten times or twenty times your average yields! These are the production rates of a well-planned vertical farm maximizing energy and water while controlling the key environmental variables for predicted outcomes. Don't confuse this vertical farm with leafy green hydroponics: this discussion will demonstrate the use of organic techniques derived from traditional farming to grow higher value crops and herbs. Our food supply is becoming increasingly stressed and the need to grow food in greater quantity is a demand however quality and nutritional value is of critical importance. The vertical farm techniques discussed here will provide an insight on growing vertically using biological activity between plants and bacteria and the benefits of humic acid. This technique contributes to the nutrient quality and the increased brix levels while utilizing existing building structures within urban environments. Topics will include configuration, lighting, environmental controls, sustainable full circle biological system applications and water conservation with dialogue intertwined with additional educational and economic development.

Benz Kotzen (University of Greenwich – UK)

Benz Kotzen is a Chartered Landscape Architect, teacher, designer and researcher. He is a senior lecturer, Post Graduate Landscape Course Coordinator and Sustainable Landscapes and Environmental Research Group Leader at the University of Greenwich. The focus of the group is on

urban green infrastructure; green roofs, living walls, urban agriculture and aquaponics. The focus of the research extends across the globe into dryland and arid areas with particular regard to water issues and restoration as well as into food production in developing countries.

The appetite for living walls is growing. Government organisations, local authorities, business as well as local people are becoming used to and appreciative of the environmental benefits that these green infrastructure projects can bring. Development in living wall technology and use scenarios is changing rapidly and living walls are now starting to be used as much indoors as they are used externally. One application that has yet to be fully explored is the use of living walls to grow produce both inside as well as outside buildings. There is a groundswell in growing food locally and especially in urban areas. This drive is based largely on improving family and community health and well-being, but also bring benefits in food security, reductions in food miles and CO2 emissions. But growing food horizontally in soil uses up space that may no be available in cities. Thus vertical growing is on the increase. This workshop investigates living walls for growing food and in particular integrating living walls into aquaponics production.

Tomaz Cufer (Humko Bled – Slovenia)

Tomaz Cufer was Slovenia's youngest entrepreneur when he began a vermiculture business for growing edible and ornamental plants while employed as Head Gardener in Vila Bled, former President Tito's summer residence. He eventually developed a thriving private business – Humko Bled, now producing over fifty products consisting of compost, growing media and organic fertilizer products, including vermichar and biochar, along with their own living wall system. Fifteen years ago Tomaz pioneered their first living wall programme for greening highways. This developed into a vertical modular system, for growing edible plants and can also be used as a decorative architectural facade. His latest innovation is a low budget multi-layer system particularly suited for growing plants in extreme temperatures, featuring double irrigation and a defrosting system.

Tomaz will discuss his vision for the future for vertical farming and share his many years of experience growing edible produce in modular vertical systems. He will demonstrate the connection of fertiliser in mineral substrates to vegetables. Tomaz will also give a 'sneak preview' of his latest development of a complete system for growing and maintaining vertical gardens by online control, connected to meteosat data, fertiliser calculator and web service protocol.