Eco-integrated green walls for indoor gardening and commercial buildings

COHA ACHO
Canadian Ornamental Horticulture Alliance
Alliance Canadienne de l'Horticulture Ornementale

New products mean new market opportunities for the ornamental horticulture industry.

Scientists from Agriculture and Agri-Food Canada are working to develop a new, low maintenance indoor eco-integrated green wall that could be used in residential and public buildings to improve air quality, provide beneficial acoustics and amenity effects, and contribute to year round in-house gardening.

Two test sites, one in Agassiz and one at Université Laval, have been established to compare the performance of three different types of wall modules at each location. At Laval, the wall module trials are testing three types of substrates and two different fertilization regimes using herbs, edible flowers and mini vegetables.

The modules being tested include Florafelt® (by Planterra), ModuloGreen® (from ByNature) and Flowall® (made by Wattelez), with three other units being observed. Three different growing media are part of the trial, all made by Berger: a coarse peat and wood; a peat, perlite, vermiculite, and compost; and a test product containing peat, coir, and wood fibre. Conventional and organic fertilizers are being used.

ModuloGreen® (ByNature)

Flowall® – (Wattelez)

Florafelt® (Planterra)

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Coir Test Slab (Berger)

Herbs

At Agassiz, the trials are also testing wall modules – two Coir GrowTiles and one Coir test slab – and fertilization regimes, as well as three different plant arrangements. These include one third each edible flowers, mini vegetables and herbs; half mini vegetables and one quarter each of herbs and edible flowers; and one third each of ornamentals, edible flowers and herbs.

For both trials, scientists are measuring a variety of parameters, including substrate moisture distribution, nutrient content of the nutrient solution, environmental growing conditions like light levels and temperatures, weekly plant growth, and percentage of biomass covering the slab area as well as plant quality characteristics like colour and appearance.

With the trials now underway, researchers also hope to determine a sustainable water and nutrient management plan for green wall installations, as well as efficient LED lighting use – the indoor location of most of these walls mean they will require supplementary lighting of some kind.

Why is this project important to the ornamental horticulture industry?

This work will help identify appropriate wall modules, species and management for green wall installations, offering the ornamental horticulture industry new potential market opportunities for their products.

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The Canadian Ornamental Horticulture Alliance research and innovation cluster is funded by Growing Forward 2, a federal-provincial-territorial initiative.