

Image of living roof, Cezar Cristea



## Reaping The Benefits of Functional Design

Homeowners are not just looking for aesthetics these days – they are looking for efficiency as well as functionality. People want to maximize living space but minimize energy costs and environmental impact. Well that is exactly what you can do if you add a green roof to your living space. Just ask David Coulson, President of David Coulson Design Ltd. and local Cowichan Valley resident, who recently planted a green roof on top of his design studio in Duncan. “I am always looking for innovative and different ways to improve efficiency and quality of life. Gardening is one of my passions and the benefits of green roofs are impressive to say the least”. Now for the WHAT, WHY and the HOW.

WHAT – green roofs also known as eco roofs, sky gardens, living roofs or sod roofs (where grass is the key planting component), are simply a vegetated roof cover constructed atop and across a roof deck using engineered soil (called substrate or growth media). Green roofs are either extensive or intensive, with the difference being maintenance requirements. Extensive roofs usually use a thin soil mix of 2 to 5 inches and are intended primarily for low

growing plants from 1” to 2 ft. such as alpines, succulents, herbs, some grasses and mosses. Load bearing capacity needed is between 12-30 lbs per sq. ft. Intensive roofs have a soil depth of 6” to 3’ and can support a much greater variety of plants but require strong structural integrity.

With a soil depth of 6” and timber frame construction, DCD’s studio roof is a mix of both. About 50% of the 250 sq. ft space is planted in sedums, with grasses, perennials and bulbs making up the rest. Plants are spaced approximately 1 ft. apart with walking stones interspersed between. Cost? This project came to approximately \$25/sq. ft, though extensive roofs average \$10-\$15/sq. ft in North America.

WHY? The benefits are endless. Green roofs can reduce ambient air temperature, energy use and utility costs; help clean the air and water; utilize local and recycled materials; extend the life of the roof, and also improve aesthetics while creating a green space for humans and wildlife.

Now all you need is the HOW. Green roofs

can be used successfully in both new and retrofit construction and are only limited by the slope or pitch of the roof, existing load requirements and budget factors. Ideally the roof should have a gentle slope of 1.5 to 2% to allow for natural drainage and you should try to plant in the fall if possible. Also bear in mind that wind shear is often more of a concern than weight and that in this area snowfall can be up to 40 lb per sq. ft. Excellent plant lists suitable for green roofs are available online, and here in B.C., N.A.T.S. nursery in Langley is the main supplier of green roof material.

David and his wife Ulla are very excited about this first roof and will be planting the 2nd and 3rd areas of the roof this fall. The 2nd phase will use a greater degree of native plants for the remainder of the planting, mainly transplants from their own garden – finally somewhere to put all those extra sword ferns. “The three roofs are an excellent mix of sun and shade”, David explains, “so we are creating a planting scheme with this in mind. We are also going to add a seating area for the larger roof and paths linking the three roofs to one another and to my next new project – treehouses!”