



Departmental Administration (DA) Operations Staff have been working to implement multifunctional beneficial landscaping on the grounds of the Jamie L. Whitten Building. E.O. 13148, Greening the Government through Environmental Leadership, (recently superseded by E.O. 13423 in 2007) required federal facilities to incorporate environmentally and economically beneficial landscape practices on federal grounds into their landscaping, programs, policies, and practices. In the fall of 2006, DA staff kicked off this effort by arranging for the installation of a 1,200 square foot green roof. Green roofs act like giant bio-filtration sponges soaking up rain thus helping to retain storm water and reducing excess storm water runoff which is considered one of the most serious problems facing local waterways and the Chesapeake Bay.



Melwood Landscaping Services designed and installed a "Green Paks" green roof.

The DA staff is using the high profile green roof as an example for other Federal agencies and to inform the public about beneficial landscaping practices. The Whitten Building is located in the combined sewer system zone in Washington D.C., so the use of green roofs not only adds aesthetic value to the facility, but also helps address a serious environmental problem of combined sewer overflows in the Washington D.C. waterways. Other environmental benefits are noted below.



The sedum are flourishing on the new USDA green roof.

Advantages to Green roof technologies:

Green roofs reduce storm water run-off (up to 90%), improve water quality of streams, and reduce the need for expensive, engineered structural storm water management controls (storm water ponds, vaults, etc.). Reducing or eliminating storm water run-off at the source is far more cost-effective compared to treating the storm water or the effects of polluted storm water "downstream."

Green roofs reduce the surface temperature of the roof membrane and protect the roof from solar radiation. Reducing the surface temperature extends the life of the roof. Green roofs have a life expectancy of about 40 years, which is twice the life expectancy of a standard roof.

Green roofs reduce the surrounding air temperature, provide substantial noise reduction, and thermal insulation. Green roofs have a high R (insulating) -value, therefore decreasing the cooling load needs of the building resulting in improved energy efficiency and savings.

Green roofs reduce the "heat island effect." The Environment Canada study showed that green roofs could contribute to a reduction of energy use, which in turn helps reduce the emissions of greenhouse gases and air pollutants.

Green roofs provide habitats for wildlife. Rooftop habitats can play one of two roles: a 'stepping stone' habitat connecting natural isolated habitat pockets with each other, or an 'island' habitat remaining isolated from other habitats on grade.

Green roofs improve air quality by filtering the air that moves across them: 1 square meter of roof grass removes 0.2 kg of airborne particulates every year. Through the

process of photosynthesis, green roofs convert carbon dioxide (a greenhouse gas), water and sunlight into oxygen and glucose: 1.5 square meter of uncut grass produces enough oxygen per year to supply 1 human with their yearly oxygen intake requirement. Reduced outdoor temperatures slow reaction rates that produce smog which, in turn, lowers ground level ozone levels.

Green roofs are an effective means of improving a building's aesthetics. The variety of sounds, smells, colors and movements provided by plants can add significantly to human health and well being.