

# Psychosocial Benefits of Green Roofs

This flyer is one in a series about green roofs, developed by an Ohio University green roof committee. Information about green roofs and the variety of benefits they offer can be found on our [website](#).

Green roofs, which provide a variety of environmental benefits, can also offer aesthetically appealing green spaces and opportunities for social interaction or activity. The green roof design and size will affect the realization of psychological and social benefits. Variability in circumstances and expectations also impact the benefits derived by individuals in their experiences with green roofs. The potential psychosocial values of vegetated rooftops are sometimes described by extrapolating from research on green spaces. Studies have begun to assess what features of green roofs can advance those benefits (Williams et al. 2019).

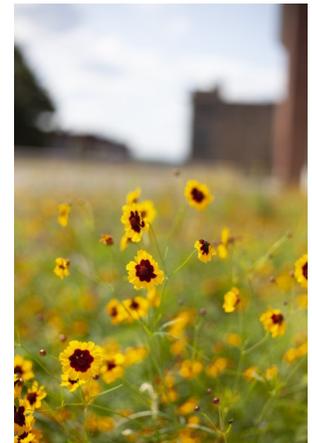
## Psychological Benefits

Visual and physical access to green roofs can support human well-being, depending on location and design.

- Green roofs that provide space for physical exercise or opportunities for reflection are linked to stress reduction, increased creativity, and emotional respite (Williams et al. 2019).
- Views of vegetated rooftops, even for as little as 40 seconds, has been shown to improve attention, enhance productivity, increase retention of information, and improve response rates (Lee et al. 2015).

Green roofs may also extend benefits attributed to interaction with natural green spaces.

- True natural settings, when compared to simulated natural settings, provide greater mood improvement (Browning et al. 2020). Rooftops offer opportunities to plant previously unused spaces.
- Psychologically restorative effects are positively correlated with greater biodiversity present in a green space (Wood et al. 2018), which could drive green roof design decisions (Vanstockem et al. 2018).
- Interaction with green spaces reduces stress hormone levels (Boll et al. 2020) and improves amygdala integrity, the center of emotions in the brain. Especially in childhood, this reduces the risk of developing adolescent and adult psychiatric disorders by 15-55% (Engemann et al. 2019).



McCracken Hall green roof adjoins a study area for students. Holzer Clinic has an extended reception area and Schoonover Center's green roof is visible from office windows (Photos: Kim Thompson, Maddy Salyer).

## A Green Roof Design Impacts its Capacity for Supporting Human Engagement

### Extensive Green Roofs

Extensive green roofs have shallower soils and lower weight capacity. Schoonover Center's green roof cannot support gatherings or recreation but is available for research and communications projects. It offers an attractive view from the offices and lobby of the School for Media Arts and Studies for faculty, students, and staff. Virtual tours extend its educational capacity.

Photo: Madison Salyer, Photojournalism Major



### Intensive Green Roofs

Intensive green roofs are designed with a greater support structure, offering more opportunities for socialization. Holzer Clinic, in Athens, Ohio (right) has an intensive green roof accessible from a second floor reception area. Planted with shrubs, trees and flowering plants, it provides an aesthetically pleasing space to support relaxation and enhance the emotional and mental wellbeing of patients and staff. This roof adjoins a solar array, adding to its positive environmental and social impact.



## Social Benefits

Green roofs provide benefits to communities through cost savings, environmental improvement, and jobs. Some are designed to support social interaction, physical activity, education, or other community pursuits.

- Green roofs lower costs of stormwater management, reduce flooding, improve air quality, reduce noise pollution, and mitigate the heat island effect associated with urban areas (Bianchini and Hewage 2012; Manso et al. 2021). Low-income communities in urban areas are more negatively affected by rising energy expenses and heat-related illnesses and have less green space. Installing green roofs on public buildings in these communities would serve environmental justice initiatives by helping relieve pressure on these historically under-privileged communities (Sanchez and Reames 2019).
- Intensive green roofs can be used for urban agriculture, promoting self-reliance, and providing access to resources (Harada and Whitlow 2020).
- Parks and community gardens have greater perceived value in some cities than green roofs, which are associated with environmental benefits (Miller and Montalto 2019). Overcoming challenges of creating recreational and social space on a rooftop is more compelling when ground level landscape is limited.
- Increasing access to safe green spaces in urban areas may improve social cohesion which enhances mental and physical health (Jennings and Bamkole 2019).

For more information please visit:

[www.ohio.edu/sustainability/schoonover-green-roof-project](http://www.ohio.edu/sustainability/schoonover-green-roof-project)



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