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TEXAS A&M AGRILIFE EXTENSION
DISASTER ASSESSMENT AND RECOVERY

POST HOUSTON

Texas Green Infrastructure Case Study

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Aerial view of the POST Skylawn.
Photo Credit: POST Houston

PROJECT COMPONENTS

Practice

Green Roof: An extension of a roof that adds waterproofing, a drainage system, a lightweight growing medium, and plants.

Scale

Site: A practice designed to collect and naturally treat rainwater falling on a single site, such as an individual home or business. Examples: bio-swale, pervious pavement.

Green infrastructure practices are designed and engineered to work with nature to capture, store, and treat stormwater runoff in ways that provide both water quantity and water quality benefits. Sitting next to the Houston theater district, the POST Houston is home to a visionary example of a green roof.

PROJECT OVERVIEW

POST Houston is a center to enjoy foods, cultures, and recreation. The site was originally a United States Post Office from 1962 to 2014.[1] The development group Lovett Commercial bought the site in 2015 to preserve the building's history and create a community space, and from 2017 to 2021, the group redesigned and renovated the building. During that process, green infrastructure was added to reduce stormwater runoff, reduce the heat island effect, and grow produce for the local market. The main green infrastructure practice used is a green garden filled with both edible and native vegetation.[2] In addition to the ecological and functional benefits of the garden, it provides a green space in the center of Houston's concrete jungle for people to enjoy.

BEFORE YOU BUILD

One factor to consider before building a rooftop garden is the structural load it will put on a building's roof. The POST building is suited to carry the weight of the 210,000 square feet of the Skylawn, of which 43,560 square feet is a farm because it was built to 1960s Federal Bureau of Investigation (FBI) standards.[4] Although not all buildings can hold the weight of a full rooftop garden retrofit, many buildings can handle a partial rooftop garden.

BENEFITS

There are a number of benefits that the POST's Skylawn provides to the environment and community, including:

Ambient temperature reduction

Rooftop vegetation on the POST reduces solar absorption and leads to a reduction in temperature around the building.[3] A large portion of the 210,000-square-foot rooftop has been transformed from concrete to vegetation and other materials that reduce the heat island effect.

Stormwater runoff reduction

Houston, Texas, is known for windy and rainy weather. During rain events, water pools on rooftops and flows down drains onto the streets and into stormwater systems. A rooftop garden will prevent a portion of this runoff.[4] At the POST, vegetated areas on the roof have a system of layers, one of which captures and stores rainwater. The layers include a substrate layer, a water retention layer, and finally, a waterproof membrane to protect the roof.

Local food production

Sand, dirt, and gravel added during green roof construction allow for growing produce. Blackwood Educational Land Institute runs the rooftop farm at the POST and sells the produce to local businesses and farmers' markets.[4]

Plant diversity and habitat

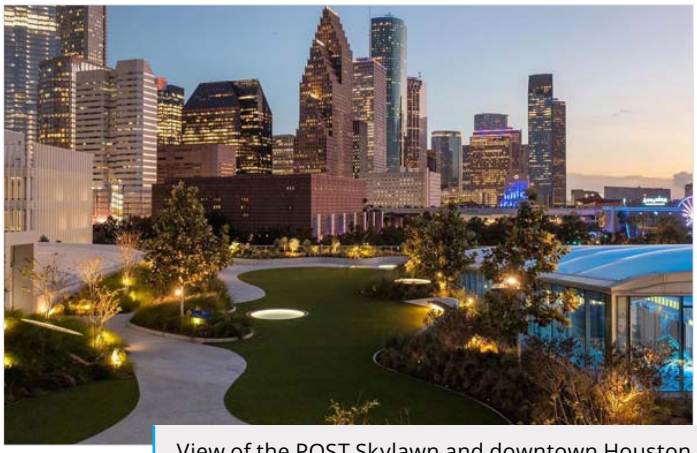
A number of different plant species are grown around the POST Skylawn. These plants include Gulf Coast muhly grass, fig trees, and more.

Aesthetics

Downtown Houston is built with steel, concrete, and glass. These materials make beautiful buildings but minimize available green space. The POST green roof reduces the concrete feel of downtown. In addition to reducing the concrete, green space in cities can reduce stress and improve mental health.[5]

FIND OUT MORE

You can visit POST Houston located downtown at 401 Franklin Street, Houston, TX 77201.



View of the POST Skylawn and downtown Houston. *Photo Credit: POST Houston*

FINANCING

The project cost $26.3 million to renovate the building and build the Skylawn. It was funded from 2017 through 2021 by:

- Historic Tax Credit
- New Market Tax Credit

The one-acre POST Skyfarm operated by Blackwood Educational Land Institute. *Photo Credit: https://www.posthtx.com/skylawn*

[1] https://www.posthtx.com/info/an-innovative-design-linking-houstons-past-with-its-future-aspirations

[2] https://www.posthtx.com/skylawn

[3] Bornstein, R. D. (1968). Observations of the urban heat island effect in New York City. *Journal of Applied Meteorology and Climatology, 7*(4), 575–582.

[4] https://blackwoodland.org/the-skyfarm-at-post-houston/

[5] World Health Organization. (2016). *Urban green spaces and health* (No. WHO/EURO: 2016-3352-43111-60341). World Health Organization. Regional Office for Europe.

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