



Community Rooftop Garden on a Former Retail Property

Sustainability Project Background

EPA's Brownfields Sustainability Pilots provide technical assistance to support communities in achieving greener, more sustainable results from assessment, cleanup, and redevelopment at their brownfields projects. These pilots also provide models for other communities across the country.

EPA provided the Latino Community Development Agency (LCDA) in Oklahoma City, Oklahoma with technical assistance for the sustainable redevelopment of a former commercial retail property into a community center. EPA helped evaluate the structure of the retail property for the development of a green or blue roof. More specifically, LCDA wanted to explore the feasibility of a green roof as a community garden that could be used as a venue for community programs. The LCDA also considered the feasibility of a blue roof - a roof that retains water to reduce stormwater runoff and reduce cooling costs.



Latino Community Development Agency Background

LCDA provides community programs for children, youth and adults in Oklahoma City. The city helped LCDA acquire a new building so that the agency could relocate its headquarters and community services. The property was a former retail property with a large roof area. The LCDA wanted to construct a green roof (community garden) that could be used to support some of its community programs as well as provide citizens with a connection to nature.

Project Execution

Initially, EPA provided technical assistance to LCDA for a structural assessment of the building to support a green roof. The analysis showed that due to weather conditions and the existing structural infrastructure of the building, a green roof was not feasible. The property is located in an area that experiences high winds and high temperatures and as a result it was determined that the maintenance costs would be high and usage would be limited.

Following the determination that a green roof would not be feasible, the technical assistance shifted focus to investigate the feasibility of a blue roof. A blue roof retains rainfall to reduce runoff impacts and to reduce the loads on building Heating, Ventilating, and Air Conditioning HVAC equipment by cooling the roof. Again, the conclusion of this evaluation was that the building was not structurally sound enough to support the weight of a blue roof without significant reinforcement.

The technical assistance showed that neither a green roof nor a blue roof were viable options for redevelopment of this building, saving LCDA time and resources on the design and planning for this project. LCDA continues to explore options for the building's reuse.

Sources for Additional Information

For more information on this project, please see the full Brownfields Sustainability Pilot report at: www.epa.gov/brownfields/sustain_plts/reports/sustain_report_web_final.pdf

Regional Contact Information

For more information on the Oklahoma City Green Roof project, please contact:

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Challenges and Lessons Learned

Structural Limitations

EPA support determined that the existing building roof structure was unable to support additional weight. Experts found that the cost of retrofitting the building to support a rooftop garden or a blue roof would be prohibitive. Additionally, the energy savings gained by either a green or blue roof would be less than the cost of retrofitting the structure to support these uses.

Local Climate Consideration

During the site visit, the technical assistance experts visited a local museum with a rooftop terrace to get a sense of the potential issues with building a green or blue roof in this area. The terrace had experienced operational issues, mostly due to severe winds and high temperatures. Many days it is too windy for the terrace to be used and the wind creates higher than average maintenance costs.



Example of a green roof. Photo source: Green Grid Roofs.