Rutgers University Business School

Newark, New Jersey, 07102

Before

After

The terrace is immediately accessible to the student center. Concerns for wind and noise impacts led to the installation of a screen. Inboard of the screen, a quiet, green garden space was created that is ideally suited for study and reflection. On the more exposed outboard side, a conventional extensive green roof was installed. A requirement for this project was that it should not be irrigated. Because the surface of the terrace is level, the planting layout was heavily influenced by the slope of the underlying roof surface. Garden planting beds are located in areas where the media depth is greatest. The combined environments offer a diverse plant community. In addition to its social benefits, the roof cools the air, reduces the amount of storm water runoff, and will significantly extend the life-expectancy of the roofing system.

General:

Type of development (residential, mixed use, commercial): Mixed use

Project partners:

Builder: Epic Management (General Contractor), Furbish Company (Landscape Contractor)

Engineer: Roofmeadow

Landscape Architect: ES-A Architects in collaboration with Roofmeadow

Types of green infrastructure used on site: Intensive and extensive green roof

Project status: Complete

Costs and Benefits:

Anticipated cost of green infrastructure features: Estimated $325,000

Actual cost: $325,000 for green roof and $165,000 for the underlying structural roof assembly and waterproofing, totaling $490,000

Cost of green infrastructure installation vs. anticipated cost of gray: A roof with no green component would be $165,000. However, the goal for the project was to create an outdoor space for students, which would not be possible on a barren, conventional roof. Thus, the school is actually getting a fully designed public space for the cost of the green roof installation.

Competitive advantage (How did your project design beat out the competition?): Well established green roof design firm, Roofmeadow, offered a comprehensive set of construction documents with a competitive price. Partnering relationship with the waterproofing provider, Sika Sarnafil, allowed the design to be tailored to the site conditions and requirements.

Financing strategy: Privately funded

Design Details:

What design storm was used to size the green infrastructure practice? Typically we assess green roof performance using a 2-year (3.4 inch) storm

Number of gallons or cubic feet of stormwater the project captures per storm? 3,500 gallons

What percentage of this capture will be managed by recharge vs. detention vs. reuse? 100% (by plant uptake and eventual evapotranspiration)

What are the pre-development runoff rates for those design storms for the project? 0.6 cfs

What are the post-development runoff rates for those design storms after green infrastructure measures were put in place? 0.3 cfs

Takeaways:

Benefits to/impacts on the end user and larger community: The benefits of installing an extensive green roof for the larger community is the reduction of stormwater entering the local sewer system, reduced heat island effect in the vicinity of the buildings with green roofs, and offers an opportunity to educate and inspire interest in green roof systems for future generations.

Challenges: 1) Developing a planting layout to accommodate the slope of the underlying roof surface. 2) Establishing diverse plant communities without permanent irrigation. 3) Sheltering plants from exposure to wind and sun so they thrive

Lessons Learned: 1) The importance of timely maintenance to counter periods of drought, preserve plant cover, and foster biodiversity, and 2) value of creating protected areas, reducing exposure of plants to wind and direct sun.

For more information about this case study, please contact:

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This case study is a product of **Mainstreaming Green Infrastructure**, a program of New Jersey Future.

Making green infrastructure the first choice for stormwater management in New Jersey.

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