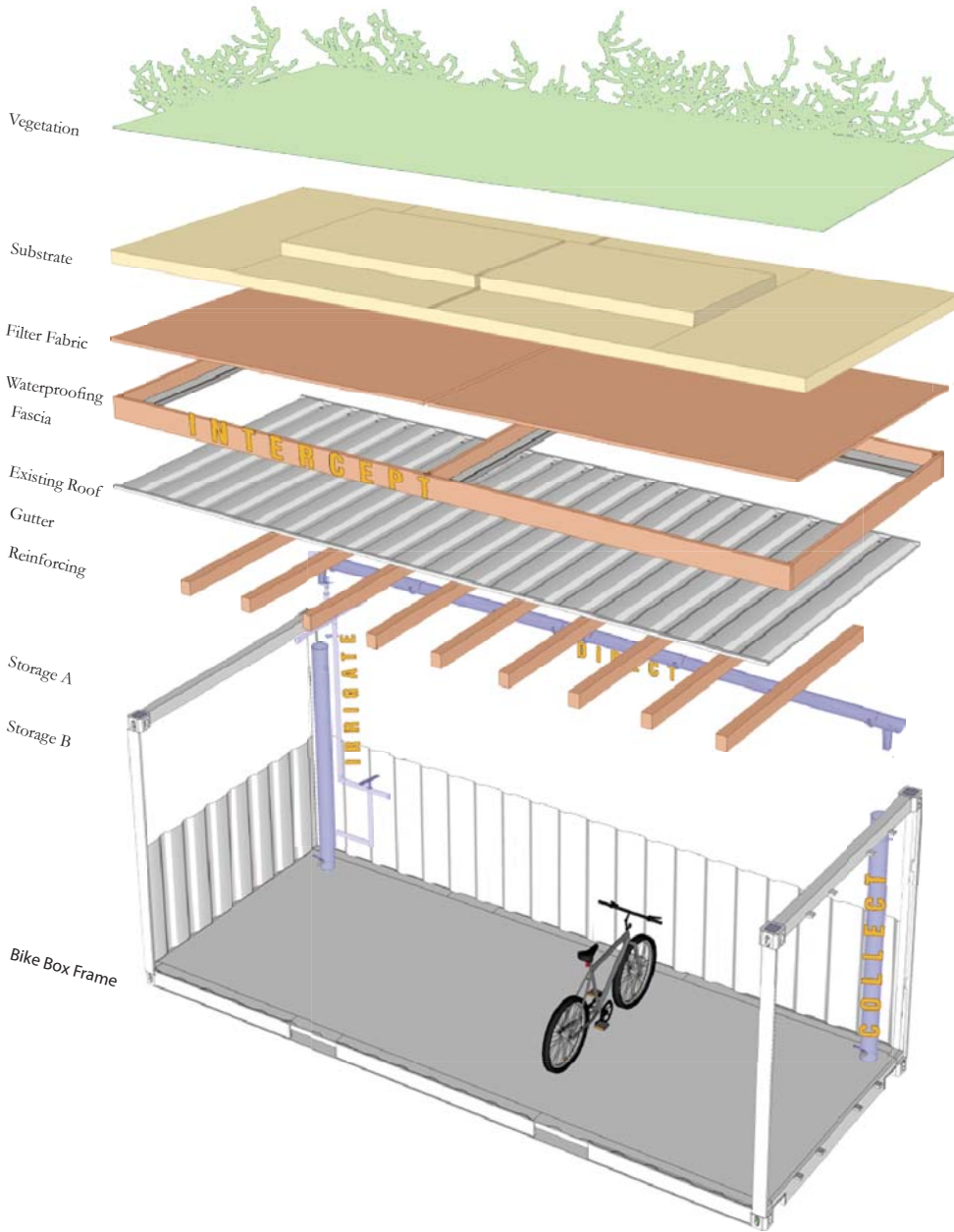


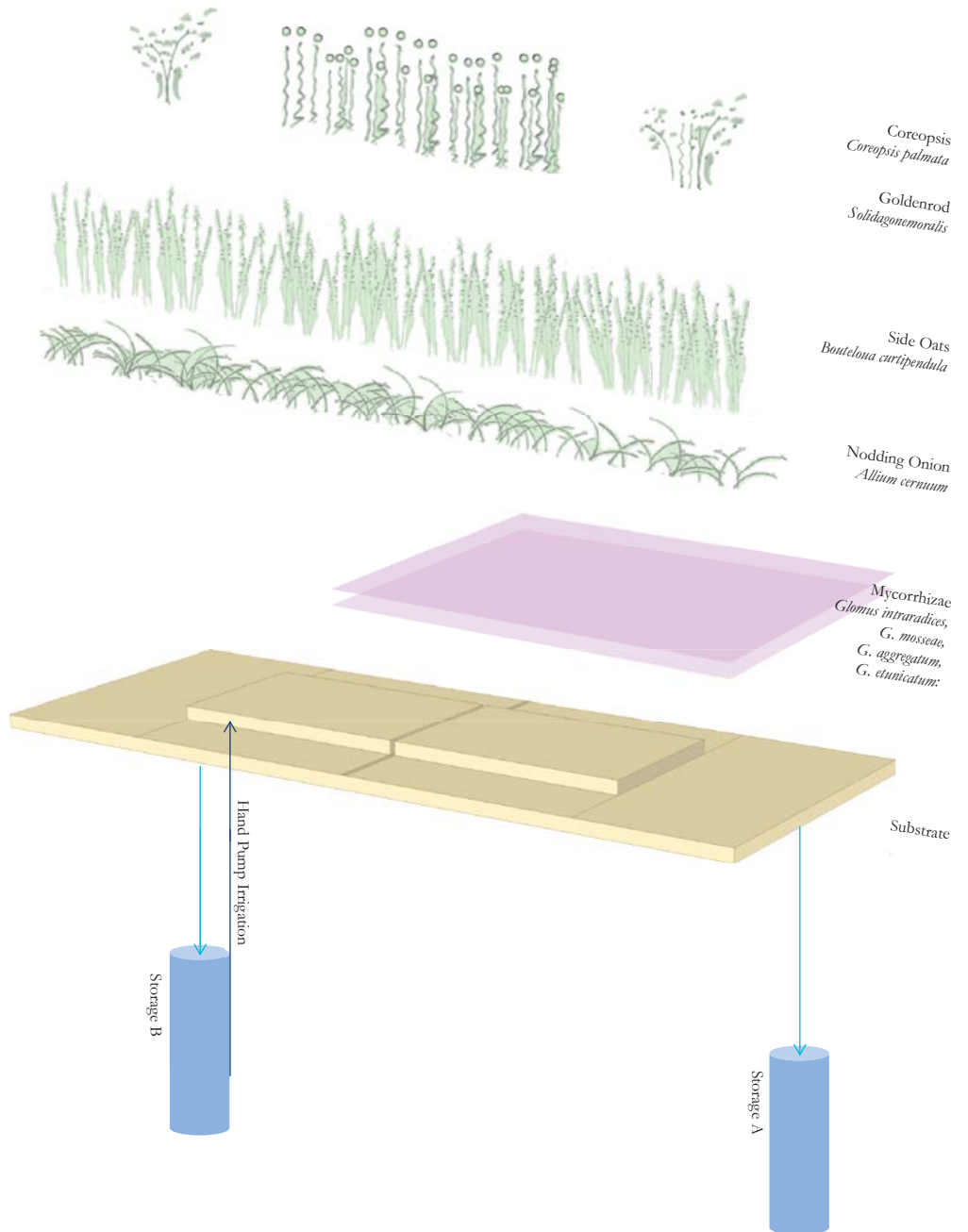
bike box | Living Roof Lab



Project Abstract

The Bike Box | Living Roof Lab project demonstrates the ability of green infrastructure to mitigate non-point source storm water runoff, while providing a continuous examination of the role novel ecosystems may play in the city. Located in the high profile Gordon Square District on Cleveland’s West Side, the project aims to inform local citizens of the benefits provided by a vegetative roof system, while investigating ways to increase productivity of native species on extensive green roofs in Northeast Ohio. The outcome of the project is a piece of mobile green infrastructure; an approach that hasn’t received considerable study at an urban scale.





The roof itself is divided into two separate zones; the first being a control side, the second implementing mycorrhizae to test its ability to increase productivity of native species while reducing nutrient and runoff discharge. Mycorrhizae, are natural occurring soil fungus which form symbiotic associations with the roots of vascular plants. In a mycorrhizal association, the fungus colonizes the host plant's roots, and aides in the plant's uptake of water and nutrients. The examined species of mycorrhizae include *Glomus intraradices*, *G. mosseae*, *G. aggregatum*, and *G. etunicatum*.

Runoff water from the roof is collected into two separate tanks storing water separately from the two experimental zones of the roof. This provides the ability to test water quality improvements that result from the use of mycorrhizae. A pump is connected into the storing tanks allowing the collected water to be reused as the roof irrigation system. This hand pump is placed in an easily accessible location which allows the public to directly interact with the roof itself.

Coreopsis (*Coreopsis palmata*), Goldenrod (*Solidago nemoralis*), and Side Oats (*Bouteloua curtipendula*) were planted for their aesthetic and performance qualities, while Nodding Onion (*Allium cernuum*) was planted to provide nearby restaurants with the ability to harvest a local ingredient from the roof.

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