Registration Form

TEAM INFORMATION

Team Name/Project Title: Bio-tecture: A revolutionary response to declining environmental conditions within the built environment

Department: Engineering, Architecture, Landscape Architecture

Faculty Advisor(s): Leila Tolderlund, Pete Jenkins

Team Members: Jillian Troiani, Cana Gallegos, Joshua Gregory, Zachary Dohallow, Benjamin Nguyen

PROJECT INFORMATION

Description:

Utilizing cross-disciplinary practices we propose an alternative look at the built environment, moving beyond sustainability to focus on adaptability via use of vegetated walls.

Abstract:

Living walls are an emerging facet of environmentally adaptable design. This project combines engineering and architecture studies to create a living, breathing wall for air purification and interior climate control, as well as ecological support on the exterior of the applied structure. The exterior portion also combines green wall application with a PV array to maximize the efficiency of solar energy harvesting. Further, plant selection for the exterior facade is based upon the premise of pollinator support, promoting the concept of pollinator corridors within the urban environment.

Applications such as this allow for the mitigation of colony collapse disorder in pollinator species. The interior wall consists of select species of plants chosen for optimum phytoremediation and indoor air flow. The proposed system utilizes the microbes prevalent on plant root systems to remove impurities from the air, while simultaneously producing fresh oxygen and psychological benefits for occupants within the space. These systems combine to propose an alternative to traditional hermetically sealed structures, promoting the notion that engineering and architecture can be key components in the adaptability of both humanity and nature in these turbulent times in our environment.