GREEN TO HOME DOWN
Purpose:

Installation of green roofs on campus to inspire and educate Western students and faculty about the environmental and economic benefits of sustainable green construction.
WHAT IS A GREEN ROOF?...

A ROOF THAT IS COVERED WITH VEGETATION AND DRAINAGE PLANTED OVER A WATER PROOF MEMBRANE
### Extensive vs Intensive

#### Shallow Substrate Layer < 6 in.
- Herbs, grasses, mosses, drought tolerant succulents-Sedums
- Minimal Maintenance
- Installed on sloped roofs
- No public access

#### Deeper Substrate Layer > 4”
- Supports wide variety of plants species
- Intense Maintenance
- Limited to flat roofs & structure reinforcing
- Accessible for Recreation

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**Purpose**

**Definition**

**Case Study**

**Benefits**

**Design**

**Site**

**Potential**
Sedum Mat 2"
Water Retention
Fleece 1/2"
Drainage Layer 1/2"
Michigan State University

Greenroof Research Program

48 raised roof platforms
4’ x 4’ and 8’ x 8’
3500 sf green roof
Used Xeroflor
Graduate and Undergraduate education
Ongoing Research
Installation
Monitoring
Maintenance
GREENROOF BENEFITS

Environmental:
- Air Quality
- Water Management
- Urban ecosystem
- Reduce Heat Island Effect

Economic
- Longer material lifespan
- Grant eligibility
- Satisfy regulatory requirements

Educational Benefits:
- Major design principles
- Environmental and ecological benefits
- Continued studies and research
- Increase in student and faculty support
EXISTING BIKE RACKS & COST

CURRENT COVERED STANDARD
- TOTAL COST: $20,000
- BIKE CAPACITY: 10
- COST PER BIKE: $2,000

PREVIOUS UNCOVERED STANDARD
- TOTAL COST: $750
- BIKE CAPACITY: 4
- COST PER BIKE: $188
# Proposed Bike Roof Cost

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Miller &amp; Communications Labor/Materials</td>
<td>$100,000</td>
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<tr>
<td>Footings, Posts, Beams, Concrete, and All Other Materials</td>
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<tr>
<td>Waterproof Membrane</td>
<td>$75,000</td>
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<tr>
<td>Green Roof Materials @ $8.00 SF</td>
<td>$21,600</td>
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<tr>
<td>Total Project Cost Estimate</td>
<td>$196,600</td>
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<tr>
<td>Bus Stop Green Roof Installation</td>
<td>$11,800</td>
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<td><strong>Miller Hall Design</strong></td>
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<tr>
<td>1200 SQF</td>
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<tr>
<td>Total Cost</td>
<td>$92,400</td>
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<td>Current Bike Capacity</td>
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<tr>
<td>Cost per Bike</td>
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<tr>
<td>Potential Bike Capacity</td>
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<tr>
<td>Cost Potential per Bike</td>
<td>$1,155</td>
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<tr>
<td>Communications Design</td>
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<td>900 SQF</td>
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<td>Total Cost</td>
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<td>Current Bike Capacity</td>
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<td>Cost per Bike</td>
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<td>Potential Bike Capacity</td>
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<td>Cost Potential per Bike</td>
<td>$1,440</td>
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</table>
MILLER HALL DESIGN

EAST ELEVATION
- 12'
- 60'

NORTH ELEVATION
- 13'6"

SOUTH ELEVATION
- 21'
- 6'8"
- 7'10"
COMMUNICATIONS DESIGN

EAST ELEVATION

NORTH ELEVATION

SOUTH ELEVATION
Communications BLD.
Green Wall

Purpose: The purpose of a Green Wall is to create a vertical garden that brings greenery to urban spaces. It can be used to improve the aesthetics of buildings, provide a cooler microclimate, and offer a source of fresh air and oxygen.

Definition: A Green Wall is a vertical garden that is typically integrated into the facade of a building. It can be created using a variety of materials and plants, and is designed to enhance the appearance and functionality of the building.

Case Study: The case study highlights the effectiveness of Green Walls in improving the environment around buildings. Studies have shown that Green Walls can reduce urban heat islands, improve air quality, and provide a habitat for wildlife.

Benefits: The benefits of Green Walls are numerous. They can improve energy efficiency, reduce noise pollution, and provide a place for people to relax and enjoy nature.

Design: The design of a Green Wall is an important consideration. It is important to choose the right plants, design the structure to support them, and ensure that the design is aesthetically pleasing and functional.

Site: The potential for a Green Wall depends on the site. It is important to consider factors such as sunlight, soil type, and available space when planning a Green Wall.

Potential: Green Walls have great potential to improve the quality of life in urban areas. They can be used in a variety of settings, from residential buildings to large commercial sites.

Overall, Green Walls are a sustainable and innovative way to bring greenery to urban spaces.
Special Thanks to:
Seth Vidana Professor
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Carol Berry Sustainable Transportation Coordinator
David Glmore Etera Green Roof Specialist
And Planning Graphics Studio Class

Source List:

www.aashe.org Association of the Advancement of Sustainability in Higher Education
Projects Database GreenRoofs.com
Miller Hall Renovation Information Provided by David Willett
Presentation Plant Media Etera, Northwest Horticulture
Planting Green Roofs and Living Walls By Nigel Dunnett and Noël Kingsbury