

Purpose

Our website aims to **inform** potential green roof (GR) owners of **common issues** and **best practices** to **maximize the longevity of green roofs** constructed across **North Carolina**.

Motivation

- Research in Portland, Oregon found that the average annual failure rate of green roofs is 2.94% annually and experts claim the average annual failure rate was as high as 20.17% (Thurston, v).
- There is currently a lack of cohesive guidelines about the construction of vegetated roofs leading to significant shortcomings in their design and longevity.
- Our solution is to increase education around past failures and to encourage potential owners to seek a licensed contractor.

Website Features

Feature	Value
Plant Selection	Climate, ecosystem concerns
Roof Structure	Pitch, installation
Irrigation Tips	Spray and drip irrigation systems, soil types
Local Examples	Grainger Hall, etc.
NCDEQ Guidance	Building codes specifics
GR Experiences	Group visits and interviews
Contractors	Contact information, recs.

Results

Our website provides potential green roof owners with fundamental information on green roofs and encourages individuals to seek out professional contractors.

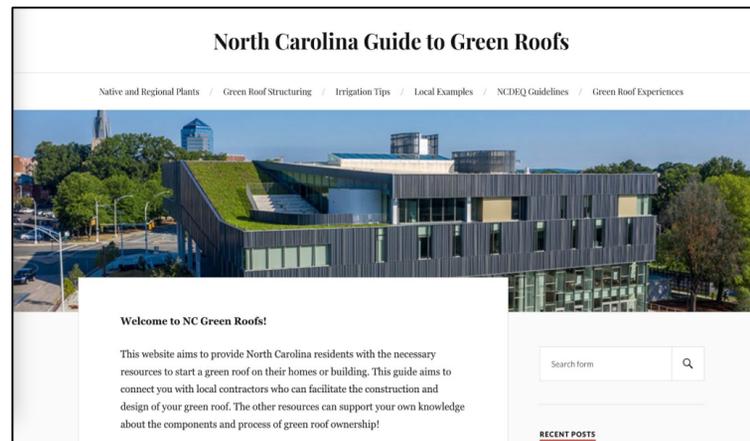


Figure 1: Cover Page of Website on Desktop

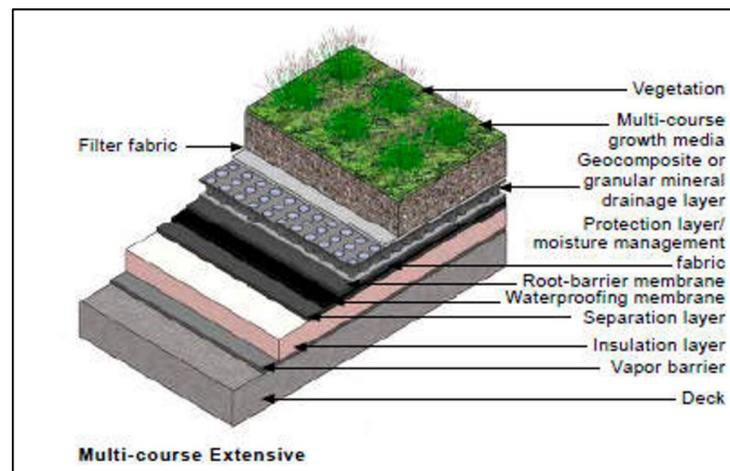


Figure 2: Cross section of extensive green roof (U.S. General Services Administration 2011)



Figure 3: Our team touring the Smart Home at Duke University

Beta Testing

Criteria	Questions	Result
User-friendliness	How easy was this website to navigate? Did you like the interface and design of the website?	100% easy
Informative	Do you feel better informed about green roofs? How helpful do you find this website?	94.44% better informed
Feedback	What recommendations do you have for us? Any additional thoughts or questions?	Positive - add more photos to website
Shareable	How likely would you be to recommend this website to a friend?	94.44% likely

Future Work

- How do we make green roofs easier to maintain?
- Which are more effective energy saving measures, intensive or extensive green roofs?
- Can we make produce-bearing plants successful components of green roofs?

Conclusion

Successful green roofs in North Carolina should be constructed by professional contractors and should include a plan for maintenance. Green roofs are complex environmental tools, and our website provides a potential owner with the foundation to seek a professional.

Literature

Thurston, R.A. 2017. "Defining and Measuring Green Roof Failure Using a Case Study of Incentivized Industrial, Commercial, and Institutional Vegetated Roofs in Portland, Oregon." *The Evergreen State College*.

"Assessing Water Demand of Green Roofs Under Variants of Climate Change Scenarios." 2019. In *Regeneration of the Built Environment from a Circular Economy Perspective*, edited by Stefano Della Torre, Alessandra Zanelli, Sara Cattaneo, and Camilla Lenzi. N.p.: Springer International Publishing.

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Visit Our Website
sites.duke.edu/ncgreenroofs

