

# ACSA/AIA Practice and Leadership Award

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2015-2016 Winner Submission Materials

Public Interest Architecture Program

GEORGIA BIZIOS

North Carolina State University



# Public Interest Architecture Program

Professor Georgia Bizios, FAIA, DPACSA  
School of Architecture  
College of Design  
NC State University

## A. Public Architecture Program

ARC 503 or 402                      Public Interest Architecture: Modest Homes                      6 credits

ARC 503: Advanced Studio. Required credit in M. Arch program. Students select among several offerings  
ARC 402 Advanced Studio. Required credit in B.E.D.A. program. Students select among several offerings

ARC 590                                      Public Interest Architecture Seminar                                      3 credits

ARC 590: Graduate Architecture Seminar. Required credit in M.Arch and B.Arch programs.  
Students select among several offerings

Course Prerequisites:                      Graduate or senior standing in Architecture

These co-requisite courses have been offered as a *Public Architecture Program*

Spring 2014:                      to 5 advanced graduate students and 4 undergraduate seniors

Summer 2025:                      to 8 graduate students

This *Public Architecture Program* is enhanced by collaborations with community partners and with local architectural offices. Students work with representatives of non-profit organizations that are providing affordable housing in NC and/or with future homeowners. They are also assigned to professional offices as interns reporting approximately 200 hours of IDP credit.

### Organization and Scope: Studio

The focus of the studio is on architectural design at residential scale. Students will have the opportunity to design modest places and carry out design explorations and proposals that integrate issues of site, human needs and construction methods. Modest buildings challenge students to develop their ideas in greater depth and detail that is usually required of larger scale studio projects and use presentation techniques that clearly communicate with lay persons the design intent and its potential for implementation.

### Organization and Scope: Seminar

The course addresses design in the public interest as a critical and growing element of the architecture discipline, contributing to the social, economic, and environmental wellbeing of our communities. We review the history of public interest architecture, and study current trends and successful examples. Students lead in class discussions based on weekly reading assignments and complete a research/case study paper or a project. In class presentations of student papers or projects and individual meetings with the instructor take place during the second part of the semester. Students explore and document personal, academic, and civic learning through critical reflections.

## B. Home Environments Design Initiative (HEDI)

As Director of HEDI (2004-present) Professor Bizios has been creating opportunities for students in our curriculum to earn academic or internship credit by engaging in design projects for the public good, through collaborations with community partners and local professional offices. These opportunities and collaborations provided the appropriate context for our School to be able to offer the *Public Architecture Program* described above as soon as NCARB regulations allowed full integration of academic and internship credit.







**NORTHSIDE NEIGHBORHOOD HOMES:  
The Courts**

Public Interest Architecture Studio Project

Kersten Welch, M.Arch 2016

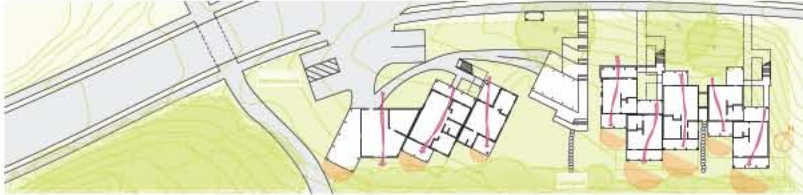
Funded internship and academic credit

Community Partners: Self-Help Community Development Corporation, Community Alternatives for Supportive Abodes (CASA), and The Jackson Center at UNC Chapel Hill.

Completed in 2015



PROGRAM DIAGRAM



ENVIRONMENTAL DIAGRAM



CIRCULATION DIAGRAM



NORTH ELEVATION



DETAILED PLAN



MODEL OVERVIEWS



MODEL DETAIL



**NORTHSIDE NEIGHBORHOOD HOMES:  
Caldwell Street Bungalows**

Public Interest Architecture Studio Project

Rebecca Ryan, M.Arch 2016

Funded internship and academic credit

Community Partners: Self-Help Community Development Corporation, Community Alternatives for Supportive Abodes (CASA), and The Jackson Center at UNC Chapel Hill.

Completed in 2015





THE BRIDGE



THE STREET VIEW



MASSING



GREEN SPACES/COMMON AREA



PR VATE/PUBLIC



CIRCULATION



TWO BEDROOM UNIT

STUDIO

ONE BEDROOM UNIT



24 PUBLIC INTEREST ARCHITECTURE



STUDIO PROJECTS 25



## NORTHSIDE NEIGHBORHOOD HOMES: The Living Lane

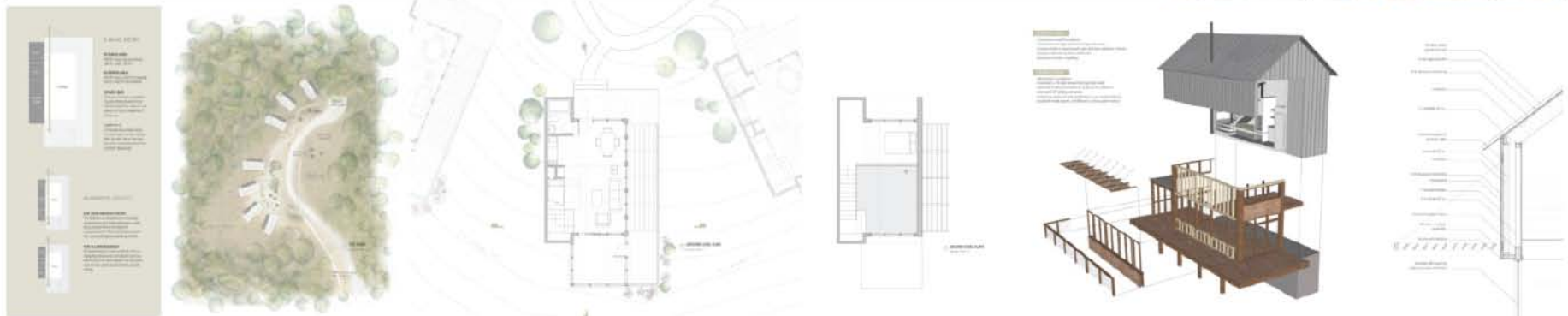
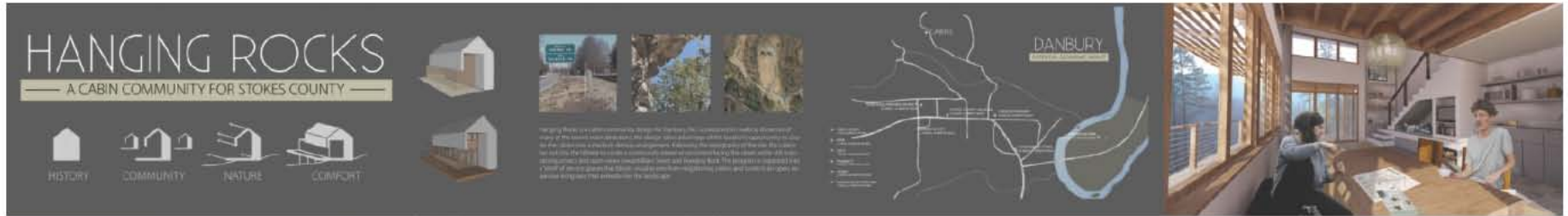
Public Interest Architecture Studio Project

Mahta Nazari, M.Arch 2016

Funded internship and academic credit

Community Partners: Self-Help Community Development Corporation, Community Alternatives for Supportive Abodes (CASA), and The Jackson Center at UNC Chapel Hill.

Completed in 2015



Final presentation board

**THE CABINS OF STOKES COUNTY:  
Hanging Rocks Cabin**

Public Interest Architecture Studio Project

Arsalan Abbasi, B.Arch 2015

Rachel Steinsberger, M.Arch 2014

Funded internship and academic credit

Community Partner: Economic Development  
Commission (EDC), Stokes County, North Carolina

Completed 2014

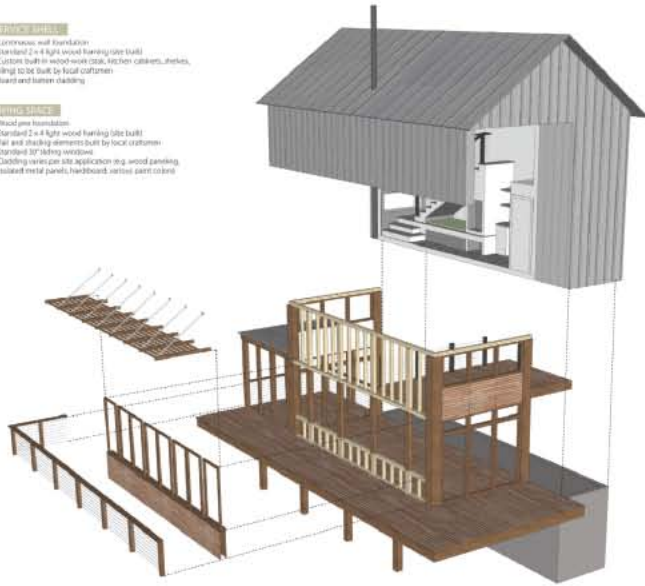


**ROOFING SHEET**

- Continuous roof foundation
- Standard 2" x 4 light wood framing (site built)
- Custom built-in metal roof (cable, hatches, cables, shingles, siding) to be built by local craftsmen
- Board and batten cladding

**INTERIOR SHEET**

- Wood pine floorboards
- Standard 2" x 4 light wood framing (site built)
- Rail and decking elements built by local craftsmen
- Standard 30" sliding windows
- Cladding material application (e.g. wood paneling, insulated metal panels, hardboard, various paint colors)

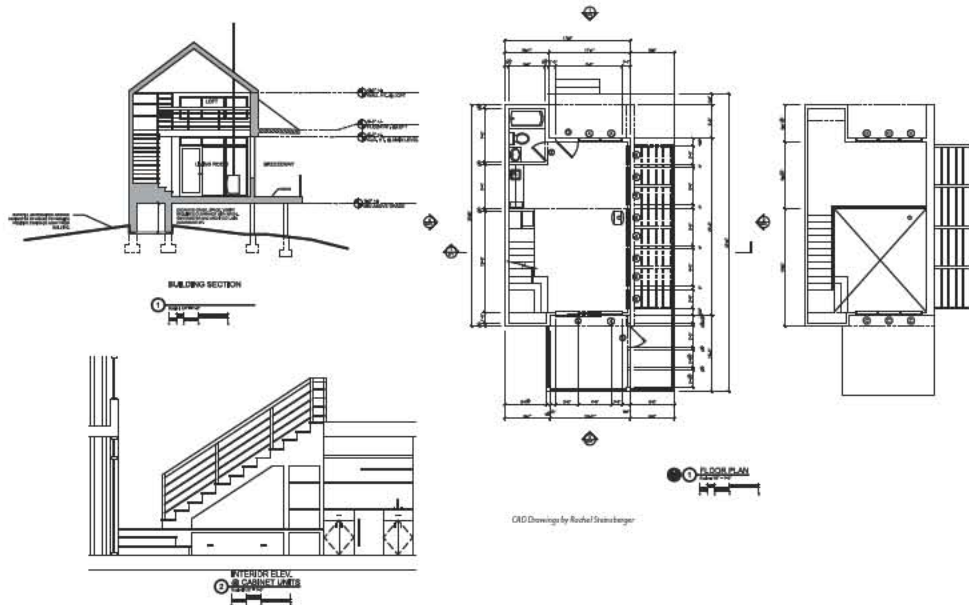


Construction diagram



Physical model

HANGING ROCKS CABIN :: ARSALAN ABBASI + RACHEL STEINSBERGER



CAD Drawings by Rachel Steinsberger

**THE CABINS OF STOKES COUNTY:  
Hanging Rocks Cabin**

Public Interest Architecture Studio Project

Arsalan Abbasi, B.Arch 2015  
Rachel Steinsberger, M.Arch 2014

Funded internship and academic credit

Community Partner: Economic Development Commission (EDC),  
Stokes County, North Carolina

Completed 2014

Arsalan and Rachel were assigned a site near downtown Danbury, NC, and they focused on creating a community of cabins with shared recreational facilities. The form of their cabin was inspired by the rock outcroppings of Hanging Rock. They pushed this mountain concept to inform the "carved out" living area in the cabin with a "hanging" roof that provides protection. The layout includes a service "bar" where the kitchen, toilet, and stair are grouped together linearly for efficient use of space.





**THE CABINS OF STOKES COUNTY:  
Mountain View Cabin**

Public Interest Architecture Studio Project

Will Sendor, M.Arch 2015  
David Koontz, M.Arch 2015

Funded internship and academic credit

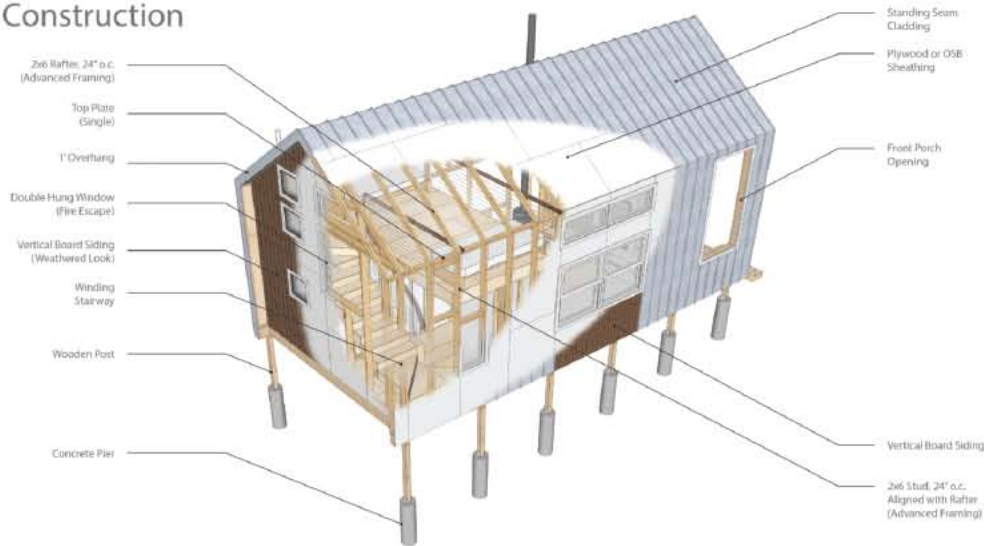
Community Partner: Economic Development Commission (EDC), Stokes County, North Carolina

Completed 2014

David and Will explored vernacular architectural language, a simple formal gesture, and efficient construction techniques in the cabin design. Mountain View Cabin Resonates with the surrounding architectural language of Stokes County, NC, with its simple vernacular form and materials. The design packs in sleeping, cooking, dining, and relaxing for up to four travelers into a 500-s.f. footprint, using flexible spaces that transform throughout the day.

David and Will continued the schematic design into a more developed AutoCAD drawing set, which was presented to the Stokes County EDC. Will continued the design development using the EDC and community feedback during Summer 2014.

**Construction**





View from loft



View from "nook" in living area



Construction diagrams



**THE CABINS OF STOKES COUNTY:  
Mountain View Cabin**

Will Sendor, M.Arch 2015  
David Koontz, M.Arch 2015





AVAILABLE AT LULU.COM

Georgia Bizios & Katie Wakeford, editors  
**BRIDGING THE GAP** PUBLIC-INTEREST ARCHITECTURAL INTERNSHIPS

“Within the pages of this book—which is essentially a road map to significant change—you will find a thoughtful selection of useful perspectives on the issue of public-interest internship, from the ethical reasons why we need such internships to the experiences of a star lineup of the leading figures attempting to create these opportunities. Their stories, combined with the compelling, eloquent firsthand accounts from the trenches by the interns and young practitioners engaged in these pioneering programs and practices, make this book the first one to substantively contribute to solving this difficult problem.”  
 —Sergio Palleroni

This project is supported in part by awards from the National Endowment for the Arts and the NC State University College of Design.

FOR MORE INFORMATION:  
[bridging\\_the\\_gap@ncsu.edu](mailto:bridging_the_gap@ncsu.edu)



### **BRIDGING THE GAP: Public-Interest Architectural Internships (Lulu, 2011)**

Georgia Bizios and Katie Wakeford, editors

Bridging the Gap, a collection of 19 essays, brings together the best in current practice and thinking regarding public-interest architectural internship and advocates for new models that will have the power to profoundly change the architectural profession and our communities. The collection is intended to fuel a vibrant conversation in the hope of inspiring the creation of new public-interest internships and informing the ongoing updates to the Intern Development Program (IDP). The advantages to developing new public-service internships are clear. Let's get started!



Site Plan



## 126\_128 SW Main Street

Rocky Mount, North Carolina

Professor: Georgia Bizios  
 Intern Architect: Katie Wakeford, HEDI  
 Students: Jamey Glueck, William Lavin



Sectional Perspective

## THE HEART OF TOWN: Revitalizing Main Street

Graduate Architecture Seminar Funded Project

Jamey Glueck, M.Arch 2011  
 William Lavin, M.Arch 2013  
 Academic credit

and Katie Wakeford, M.Arch 2006  
 Funded Internship

Community Partner: Downtown Development,  
 Town of Rocky Mount, NC

Completed in 2011



## Sustainable Strategies for Residential Renovations

August 2010



### 4) Structural Frame and Building Envelope:

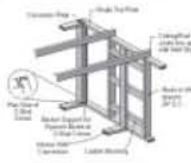
#### Substantial Benefit:

##### Shading Systems and Gutters

- Design appropriate overhangs to allow sunlight into the home during winter months and block sun from entering the building envelope in the summer.<sup>1</sup> Shading devices can range from trees, as mentioned in Section 1: Site and Landscape, to trellises and awnings. Consider adjustable shading devices to accommodate various times of the day and year.
- Overhangs are also an important moisture management strategy, with at least 1 1/2 foot overhangs recommended on all sides of home for water protection.
- Design appropriate gutter system to work with the slope of the land to carry water at least five feet away from the house.<sup>1</sup>



Various overhangs, including trellises, work with the shading system.



Advanced Framing Diagram (Not drawn to a specific scale)

##### Building Frame/Envelope

- Implement advanced framing techniques.<sup>1</sup> Advanced framing techniques include spacing studs and roof trusses 24 inches on center, constructing a 2-stud corner, using ladder blocking, having a single instead of a double top plate, and replacing solid wood headers with engineered insulated headers.
- Use Forest Stewardship Council (FSC) certified wood for framing, decks, floor joists, and ceiling rafters.<sup>1</sup>
- If FSC certified wood is not an economically feasible choice, other options for framing include engineered lumber products.
- For decks, consider composite decking products.<sup>1</sup>
- Install a rain screen wall system to allow water that penetrates the exterior cladding to effectively drain out before penetrating the wall assembly.<sup>1</sup>
- Use noncombustible and durable exterior products, preferably with 50-year product life warranty.
- Create a sealed attic space.<sup>1</sup>
- Include proper flashing, weather-stripping, and caulking around all wall and roof penetrations to prevent air leakage.<sup>1</sup>
- Air seal and insulate rim joists, using caulking or a sealant with rigid insulation, or a spray polyurethane foam insulation.<sup>1</sup>

Notes:

## SUSTAINABLE STRATEGIES FOR RESIDENTIAL RENOVATIONS

Research Project

Jordan Eure, B.Arch 2011

Funded Internship

Sponsored by Home Environments Design Initiative, North Carolina State University

Completed in 2010



### **WALLTOWN TOOL LENDING SHED**

Design/Build Project

Geoffrey Barton, M.Arch 2009

Service Internship

Community Partner: Self-Help Community  
Development Corporation

Building Materials funded by Self-Help Community  
Development Corporation

Completed in 2010







**MEETING THE NEED:  
Architecture in Affordable Housing**

Master of Architecture Thesis Project

Craig Bethel, M.Arch 2010



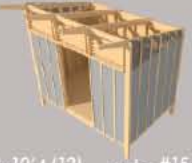






Academic credit

Community Partner: Self-Help Community  
Development Corporation

Completed in 2010



TIME LINE	
5.19.10	5.24.10
BEGAN FUNDRAISING	CONTINUED FUNDRAISING + DISCUSSED MATERIALS
5.27.10	6.2.10
MADE INITIAL SKETCHES + DISCUSSED PRECEDENTS	SALVAGED MATERIALS FROM BUILDERS OF HOME SITE
6.4.10	6.9.10
DEVELOPED INITIAL CONCEPT	DISCUSSED WITH QUAL DESIGN + SYNTHESIZED INTO CONCEPT DESIGN
6.11.10	6.17.10
PRESENTED INITIAL SCHEME TO GEORGIA BIGGS	DEVELOPED DETAILS + CONSTRUCTION DRAWINGS
6.21.10	6.25.10
REACHED FUNDRAISING GOAL OF \$1000 FOR THE PROJECT	PRESENTED DESIGN CONCEPT TO JMS-SANDERS
6.29.10	7.1.10
DEVELOPED FINAL DETAILS + REVISED MATERIAL LIST	HELD DESIGN DEVELOPMENT MEETING WITH GEORGIA BIGGS
7.14.10	8.5.10
BEGAN SHED CONSTRUCTION	COMPLETED SHED CONSTRUCTION

<p>10. Install vents into custom blocking + install screen</p>  <p>X - 1x4x3'-4" f (10), 1x4x3'-6" f (5) note: #8.1</p>	<p>13. Install exterior sheathing</p>  <p>Z - 3'-9 1/2" x8' (4) note: #11 BB - 3'-8 1/2" x8' (4) note: #12 CC - 4' x8' (1)</p>	<p>16. Install battens</p>  <p>JJ - 1x2x10' f (12) note: #15 KK - 1x2x10' f (16) note: #16</p>
<p>11. Add central rafters</p>  <p>FF - 2x6x12' f (4)</p>	<p>14. Install painted hardi boards</p>  <p>DD - 3'-9 1/2" x8' (4) note: #13 EE - 3'-8 1/2" x8' (4) GG - 4' x8' (1)</p>	<p>17. Install remaining rafters @ sides</p>  <p>OO - 2x6x12' f (2) note: #17</p>
<p>12. Attach trim to top plate @ back + vertical headers @ back + front</p>  <p>L - 1x4x3'-4" f (2), 1x4x3'-6" f (1) W - 2x8x3'-4" f (2), 2x8x3'-6" f (1) note: #9 U - 2x6x3'-4" f (2), 2x6x3'-6" f (1) note: #10</p>	<p>15. Install polycarbonate @ sides</p>  <p>HH - 30" H x 48 L x 1/2" W (4) note: #14</p>	<p>18. Prep roof sheathing + install roof sheathing starting w/ central rafters</p>  <p>MM - 4'x8' f (6) note: #18</p>

## ROSE HILL EMERGENCY HOUSING STORAGE SHED

Design/Build Project

Megan Patnaik, M.Arch 2010  
Adam Harker, M.Arch 2010  
Courtney Evans, M.Arch 2010

Academic Credit

Community Partner: Sanders Service Center, Magnolia, NC

Building materials funded by the students through crowd sourcing efforts.

Completed in 2010





## CONSTRUCTION PROCESS

PRIOR TO CONSTRUCTION, MS. SANDERS OBTAINED THE PROPER DOCUMENTATION NEEDED TO BEGIN BUILDING THE STORAGE SHED.

DAYS 1-3: WORKED ON THE FOUNDATION SYSTEM, SETTING THE FOUR POSTS AND INSTALLED FLOOR JOISTS.

DAYS 4-6: INSTALLED THE RAFTERS, STUD WALLS, WALL PANELS, BATTENS, AND PLYWOOD WOOD.

DAY 7: INSTALLED DOOR, STAIRS AND PLACED FELT PAPER ON THE ROOF.

A LOCAL CONTRACTOR, RODNEY LARKIN, INSTALLED THE METAL ROOFING.

TOTAL CONSTRUCTION : 7 DAYS

TOTAL RECYCLED MATERIAL: 90% (REFER TO PAGES 61-62)

TOTAL BUDGET: \$1200

## ROSE HILL EMERGENCY HOUSING STORAGE SHED

Design/Build Project

Megan Patnaik, M.Arch 2010

Adam Harker, M.Arch 2010

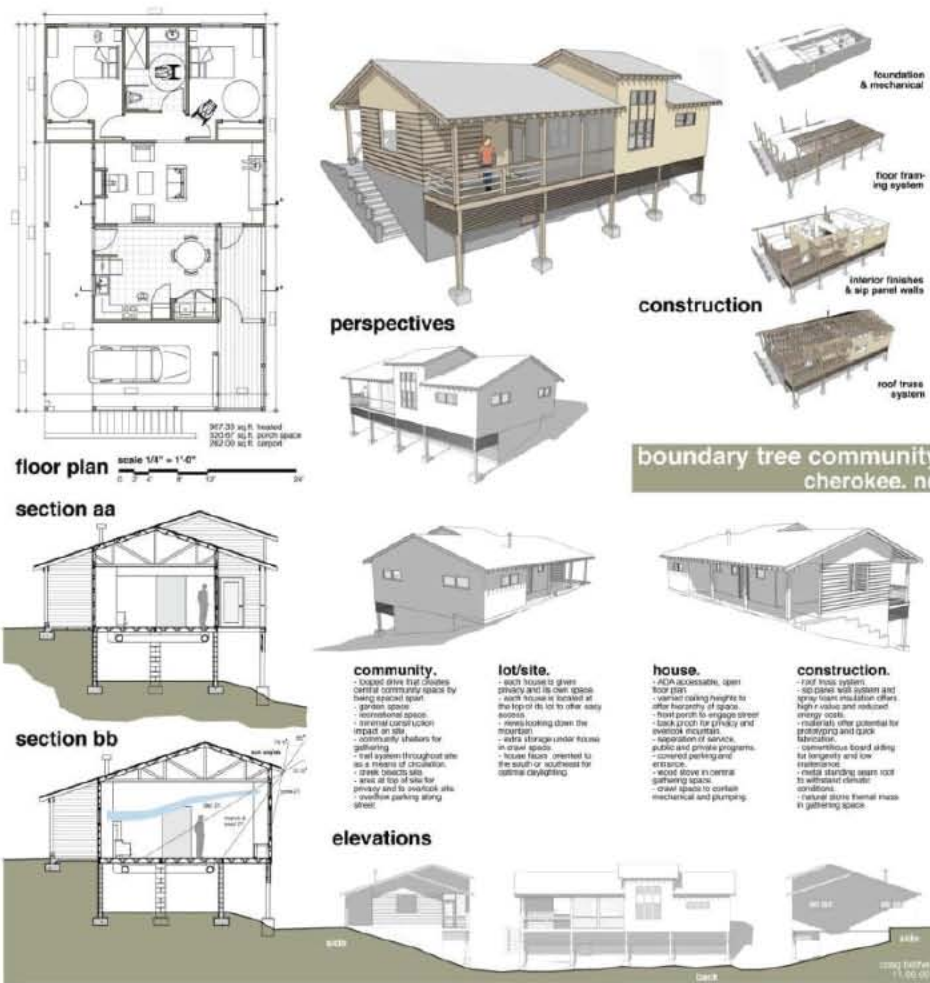
Courtney Evans, M.Arch 2010

Academic Credit

Community Partner: Sanders Service Center, Magnolia, NC

Building materials funded by the students through crowd sourcing efforts.

Completed in 2010



## BOUNDARY TREE COMMUNITY

Graduate Architecture Studio Funded Project

Craig Bethel, M.Arch 2010

Academic Credit

Community Partner: The Eastern Band of Cherokee Indians

Completed in 2009



Kent Street (800 block) : LARGE houses, small houses, and MuTI - fAmILy housing.



## Affordable Housing Internship Program Launched

Architecture students Imran Aukhil\* and Wendy Legerton\*\* had the experience of a lifetime during the summer of 2007. They worked as architecture interns addressing affordable housing issues at Self-Help, a nationally recognized Community Development Financial Institution (CDFI) based in Durham, N.C.

NC State School of Architecture Professor Georgia Bizios, intern architect Katie Wakeford, and affordable housing professionals at Self-



Gene Bressler, second from left, interacts with fresh-

man project. THE RUNNING MOUNTAIN THE AFFORDABLE Housing Internship Program, partnering NC State College of Design's Home Environments Design Initiative (HEDI) with Self-Help. Self-Help is a community development lender and real estate developer with the mission to serve women, minorities, rural residents, and low-wealth families and communities. It works closely with other local developers, such as Durham Community Land Trustees and Durham Habitat for Humanity, to deliver housing to families living at or below 80 percent of median area income.

Self-Help has a large internship program, employing as many as 70 students from various disciplines every summer, but the organization had not previously employed architecture students. The HEDI grant funding

opened the door for the two architecture students to be hired for ten-week summer internships. For Legerton and Aukhil, this was an immersion experience in service learning and a chance to contribute their summer hours to Self-Help's efforts to provide affordable housing.

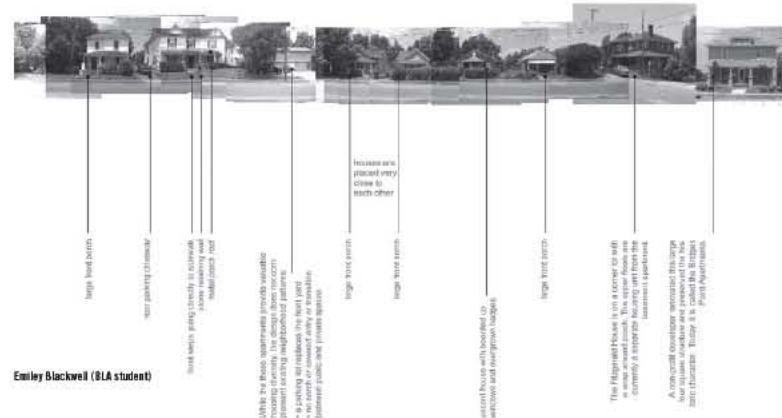
### Internships Offer Varied Experiences

Legerton has become painfully aware of the affordable housing needs in our area and the world. "There is a global housing crisis. The need for decent affordable housing is persistent," she reflects. Her work focused in the Southwest Central Durham area, specifically the Burch Avenue, West End, and Lyon Park neighborhoods. She collaborated with neighborhood groups and the housing developers to outline residential design guidelines. "The first step was listening to community members describe the architecture that defined their neighborhoods and the type of space they wanted to create, then we could write down what criteria should be used to evaluate proposals," she says. Legerton explains the purpose of the guidelines is to communicate the community's wishes to the developers and to empower citizen groups in evaluating proposals for home construction more effectively and consistently.

Legerton was pleased to work with a committed and active group of neighbors who want to improve their quality of life and bring affordable housing into their communities in a way that respects and improves existing patterns. She is convinced that community involvement and interdisciplinary collaboration provide a system of checks and balances for the design guidelines so they maintain comprehensive and realistic perspectives. She enjoyed the interdisciplinary atmosphere of her internship and learned from her involvement with community members, developers, construction managers, and lenders. "I was glad to contribute my design training for affordable housing, and I felt valued as a team member."

Aukhil worked as a residential construction manager for properties owned by Self-Help. His tasks varied from inspecting a house being considered for demolition and redevelopment to working on material specifications for a soon to be constructed "green" home. He discovered

Kent Street (800 block) : LARGE houses, small houses, and MuTI - fAmILy housing.



Emily Blackwell (BIA student)

that balancing sustainability with affordability can be difficult. The goals of making a house cost-efficient and environmentally responsible require thoughtful negotiations and sometimes compromise. Aukhil also prepared the drawings required for town approval of a Self-Help development project in Goldsboro, NC. Like Legerton, his job involved opportunities to meet with community members, listen to their needs and learn how his design training could be useful to local neighborhoods.

### Lessons Learned

The practical experience of the internships was enriched by a commitment to understand and apply current thinking on service-learning pedagogy. During meetings with Bizios, Wakeford, and Dr. Patti Clayton, Director of the Center for Excellence in Curricular Engagement, the students were introduced to theoretical frameworks of service-learning and encouraged to examine the challenges and successes of their work in the field. Critical reflection essays written by the interns at the end of the summer provided valuable insight for both students and faculty.

Aukhil learned that the practice of architecture is different than the

theory. "As an architect, you have to help fill the gaps between the contractors, lenders, politicians, responding to codes and regulations and differing opinions. It is a struggle," he notes. "These lessons and reflections are invaluable to my understanding of housing design and construction," he adds.

Legerton continued to work as an intern at Self-Help during fall semester. The work has focused her career goals. "I will continue to ask, 'How can I use my design training to serve the world's greatest needs? When I look for future jobs, I will look for firms that are involved in social and environmental justice work and value team building and interdisciplinary collaboration.'"

Aukhil stated that he would like to see this Affordable Housing Internship Program develop further, to include more organizations and more students. Indeed, HEDI is currently seeking funding to continue to support future interns in public service and specifically affordable housing. Professor Bizios points out that "such opportunities for students and recent graduates make the School of Architecture a leader in providing new models for architecture internships, integrating education and practice while serving the public."

\* Imran Aukhil is a senior in the BIDA program and plans to graduate in May 2008.  
\*\* Wendy Legerton received her M.A.R.C.D. degree in December 2007.

## INTERNSHIP PROGRAM

Cosponsored by Self-Help and Home Environments Design Initiative, North Carolina State University

2007-2008



HOME ENVIRONMENTS DESIGN INITIATIVE

SCHOOL OF ARCHITECTURE COLLEGE OF DESIGN

LUMBEE HOME DESIGNS PEMBROKE, N.C.

PROJECT DESCRIPTION:

In the Fall of 2004, NC State University's College of Design, in cooperation with the Lumbee Tribe of North Carolina, embarked on an initiative to promote quality home designs and an increase in tribe member home ownership. The role of the College of Design, through its statewide program of Research, Extension, and Engagement, was to assist in developing prototype home designs to be used by members of the Tribe in building new homes for their families.

A team of architectural graduate students, under the leadership of Professor Georgia Bizios, worked together with the Tribe members to identify important priorities for the Lumbee houses. The resulting design guidelines emphasized affordability, site sensitivity, sustainability, quality construction, and cultural values. At the conclusion of the initial phase of the Lumbee Home Designs project, the NC State Design Team delivered the Design Development drawing sets and models for three house prototypes, as well as for possible additions/variations on each. As of January 2006, the first Lumbee Home Design is under construction.

The NC State/Lumbee Tribe partnership is now entering Phases Two and Three. Phase Two will focus on the design of a small house to be built with panelized construction and intended to reduce the Tribe's dependence upon trailers. In Phase Three, the NC State design team will work with the Lumbee community to develop Neighborhood Design Guidelines for a 100 acre tract of tribally owned land. The expectation is that many of the prototype designs will be built in this new neighborhood and the design guidelines will promote a cohesive, nurturing, and culturally appropriate development pattern.

In addition to providing a valuable service to homeowners, this project is an excellent opportunity for students to learn by addressing issues of site and place for communities in North Carolina.



TEAM MEMBERS:

Georgia Bizios, FAIA Professor of Architecture

Jim Argenta, M Arch Dec. 2004  
Che Clark, M Arch Dec. 2004  
Marshall Dunlap, M Arch Dec. 2004  
Katie Wakeford, M Arch May 2005  
K.C. Kurtz, Graduate Student  
Wendy Legerton, Graduate Student  
Mikhail Kim, Undergraduate Student

February 2008

HOMES FOR THE LUMBEE TRIBE OF NORTH CAROLINA

Research and Participatory Design Project

Jim Argenta, Che' Clark, Marshall Dunlap, Mikhail Kim, K.C. Kurtz, Wendy Legerton, Katie Wakeford

Funded Internships

Cosponsored by The Lumbee Tribe of North Carolina and Home Environments Design Initiative, North Carolina State University

Completed 2004-2007

# HOMES FOR THE LUMBEE TRIBE OF NORTH CAROLINA

Professor Georgia Bizios, FAIA, and Student Team: Jim Argenta, Che' Clark, Marshall Dunlap, Mikhail Kim, K.C. Kurtz, Wendy Legerton, and Katie Wakeford  
School of Architecture, College of Design, NC State University, Campus Box 7701, Raleigh, NC 27695

summer 2004

fall 2004

winter 2005

spring 2005

summer 2005

fall 2005

winter 2006

spring 2006

partnership  
workshop & research  
design guidelines  
schematics  
design development  
breaking ground  
next phases

**The GOAL of this project is to promote quality home design and increase home ownership among members of the Lumbee community, a Native American tribe living predominantly in southeastern North Carolina.**

**Our process involved:**

- **ACTIVE PARTNERSHIP** between the NC State School of Architecture, the Lumbee Tribe, and the Lumbee Housing Authority
- **RESEARCH** into the Lumbee region, history, and culture
- **SITE VISITS and PHOTO DOCUMENTATION**
- **COMMUNITY WORKSHOP** – LISTENING & SYNTHESIZING

In September of 2004, the NC State Design Team conducted a community workshop in Pembroke, NC. During this workshop, future homeowners discussed their needs and desires regarding issues of site, house and construction materials.

Information gathered during the workshop, along with the research conducted by the design team regarding Lumbee heritage, formed the basis for a series of **DESIGN GUIDELINES**. These guiding concepts focused on sustainability, affordability, energy efficiency, and cultural issues.

DESIGN GUIDELINES	SITE	ROOMS and DETAILS
Respect for Site	Rural Site Character	Porches
Outdoor Places	Flood Protection	Size of Living and Dining Rooms
Number of Bedrooms	Storage	Size of Kitchen
Size of Laundry	Large Utility (Mud Room)	Minimum of Two Bathrooms
Energy Efficiency	Lifecycle Costs	Natural Light
Universal Design	Ventilation	Ceiling Height
Public/Private Distinction	Integration of Interior/Exterior	Choice of Exterior Materials
Quality Construction & Craft	Sense of Entry	Healthy Materials
Choice of Interior Finishes & Fixtures	Expandability & Flexibility	
Flood Protection	Livable/Usable Space	
Choice of Entry Materials	Places to Get Away	
Healthy Materials	Ample Natural Light	
	Choice of One or Two Stories	

Using the Design Guidelines, we developed three house **PROTOTYPES**:

- 1 Porch Home
- 2 Patio Home
- 3 Courtyard Home

**The schemes offer:**

- Flexible Floor Plans
- Ample Windows for Natural Lighting and Ventilation
- Spacious Open Family Areas
- Private Bedroom Zones
- Porches, Patios, Courtyards and Gardens
- Generous Storage
- Siting Flexibility (to adjust for solar orientation and street location)
- Raised Floor Levels (to protect from flooding)
- Convenient Laundry Areas

We designed the prototype houses to accommodate future **INCREMENTAL GROWTH** with components that can be added as family needs or finances change.

**Options for additions:**

- Bedroom or Office Suite
- Detached Garage or Carport
- Attached Garage or Carport

During 2006-07, we will embark on the **NEXT PHASES** of the NC State-Lumbee collaboration.

- Neighborhood Design Guidelines
- Neighborhood Master Plan
- Small (1,000 SF) House/Panelized Construction
- Elderly Housing Prototypes

summer 2004

fall 2004

winter 2005

spring 2005

summer 2005

fall 2005

winter 2006

spring 2006

We extend special gratitude to the many Lumbee Tribe members for their continuous interest, participation, and contributions. Support for the Lumbee Home Designs is provided by a grant from the Lumbee Tribe of North Carolina and by the NC State College of Design.

## HOMES FOR THE LUMBEE TRIBE OF NORTH CAROLINA

Research and Participatory Design Project

Jim Argenta, Che' Clark, Marshall Dunlap, Mikhail Kim, K.C. Kurtz, Wendy Legerton, Katie Wakeford

Funded Internships

Cosponsored by The Lumbee Tribe of North Carolina and Home Environments Design Initiative, North Carolina State University

Completed 2004-2007