

# Engaging Students A Sustainable Campus Laboratory The Chatham Cottage

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# Central Carolina Community College- Sustainable Campus Pioneer

- In 1996 local farmers, non-profit organizations and NC Cooperative Extension approached CCCC to create a sustainable agriculture training program.
- The college partnered with farmer-instructors to create a student farm and eventual AAS Degree in Sustainable Agriculture.



# Growing Farmers from Farm

## Experience

- Our student population did not grow up on a farm
- Most students have never used a power tool, a hoe, or touched a chicken



# Biofuels Program Innovation

- Created from local automotive instructor seeking to create sustainable fuel training in the region.
- Fall 2008 CCCC began offering an associate degree in Alternative Energy Technology: Biofuels. The program has been designed to utilize CCCC's comprehensive biofuels testing lab and production lab to educate students in a wide variety of industry skills.

# Biofuels Labs

- Dynamic Partnerships with DOT, Piedmont Biofuels



# Continuing Education in Green Building and Renewable Energy



# Phase 2 Sustainability Campus

- Sustainability Technologies Program Launched in 2010.
- New Sustainable Technology Building coincides with AAS in Sustainability Technologies.
- Chatham County Commissioners support campus expansion, sustainability coordinator position and new community library. Buildings built to LEED Silver.

# Campus Tour

- Developed by Green Team and CCCC Webmaster
- [Engaging Campus Sustainability, Map](#)





Greater Triangle  
**Stewardship  
Development Awards**

*Promoting environmentally friendly public and private development*

- native landscaping
- reuses harvested rainwater
- treats wastewater onsite
- incorporates day-lighting
- Solar thermal system
- regional, recycled and low-VOC materials, sustainably harvested wood, and a vegetated roof.
- The highest level award was bestowed for these green building and water quality protection measures as well as exceptional public outreach efforts.

# Culinary Program



## Newest sustainability Program

- The Natural Chef Cafe features sustainable meals prepared by students enrolled in the CCCC Culinary Arts Continuing Education Programs. The café features gluten free, vegan, and vegetarian dishes as well as dishes prepared using local farms such as Cohen Farms, Lilly Den, Bennet Farming, CCCC's Organic Agriculture Farm, and other local vendors and farmers when possible.

# Pizza Oven!



# What are Green Programs at CCCC?

- Sustainable Agriculture
  - Animal Husbandry
  - Crop Production
- Sustainability Technologies
  - Green Building Certificate
  - Renewable Energy Certificate
  - Biofuels Certificate
  - Natural Chef Program
  - Sustainability Certificate

[Chatham](#)  
[Campus Video](#)  
[Tour](#)



# Sustainability Technologies

- Program Highlights
- The Sustainability Technologies degree focuses on sustainability issues, Renewable Energy and Green Building.
- Core classes cover the major policy and development issues in sustainability metrics and practices. Students learn how to measure sustainability indicators, skills necessary for improving financial, social and environmental impacts.

# Renewable Energy

- The Renewable Energy courses include solar pv, solar thermal, biofuels, and other sources of renewable energy. Renewable energy modeling, and design and installation skills are part of the program.



# Sustainability Technologies

An AAS Degree focusing on green building and renewable energy.

<http://www.cccc.edu/thechathamcottage/>



# Class Details

- Class meets 1x per week, all day Friday
- Instructor is a licensed GC, we hire some subcontractors for electrical and plumbing. Electrical apprentice students from the continuing education program also work on the house.





# Construction Elements

- Framing Design
- Advanced Framing (minimized framing also improves thermal insulation performance)
- Use of low Volatile Organic Compound (V.O.C.) high density oriented strand board which improves long term indoor air quality
- Interior trim certified by Forest Stewardship Council, and 80% recycled content



# Construction Elements

- Insulation Selections
- Closed cell expanded polystyrene insulation board having twice the thickness most standard building industry homes utilize
- Use of eco bats recycled content (61%) insulation
- Eco bats have no formaldehyde, no phenols or acrylics
- 2-inch blue board and sill seal used to insulate exteriors



# Construction Elements

- Exterior Wall and Siding
- Cypress wood selectively harvested from sustainable practice forestry resource - Cypress is exceptionally durable and has a long term service life.
- Minimal air infiltration achieved via fully caulked window and door openings, use of insulation barriers at wall penetrations and electrical switches and outlets.



# Construction Elements

- Indoor Air Quality Features
- Recycled content/ no voc certified vinyl plank flooring
- Low V.O.C. content cabinets using high density fiberboard KCMA environmental stewardship approved
- Low V.O.C. countertop and related adhesives Environmental Stewardship Program certified 0% V.O.C. wall and ceiling paint
- Whole house ventilation with Energy Recovery Ventilator, air exchanger



# Third Party Certification

- KCMA created the Environmental Stewardship Program to help cabinet manufacturers demonstrate their commitment to environmental sustainability and help consumers easily identify environmentally friendly products.
- ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency.
- The Forest Stewardship Council is an international not for-profit, multi-stakeholder organisation established in 1993 to promote responsible management of the world's forests
- WaterSense, a partnership program by the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services. All fixtures are water sense certified.



- Our fans meet the high quality ASHRAE 62.2 standards for indoor air quality. BROAN-NuTone ventilation fans are a great solution to meet the now frequent whole house ventilation requirements and energy efficient building codes brought on by green building programs such as LEED and ENERGY STAR(R).
- Products with GREENGUARD Certification are compliant with stringent emission levels for over 360 VOCs, plus a limit on the total of all chemical emissions combined (TVOC).
- Moulding & Millwork is committed to practices which limit the impact society has on our environment and promotes the use of certified and recycled wood products. Chatham Cottage's interior molding is certified 80% recycled content.

# Design Elements

- Lighting
- Air tight enclosures for compact fluorescent (CFL) or LED can lights. All lighting CFL or LED.
- Designed with passive solar day lighting options.
- Motion activated LED wall mounted outdoor lights



# 2013 Cottage

- [Virtual Tour](#)



# Sponsors

- Progress Energy of North Carolina supplied a \$30,000 grant to support the development of the Sustainability Technologies Program at CCCC.
- Faculty decided to use the 30k as seed money to build the cottage. The goal was to use the 30k and auction the house to recoup the costs to build the next house!
- We sold the 2013 cottage for \$30k.





# Questions?

