

Brazil

BRAZIL STUDIO, AXIS MUNDI, KILOMBO TENONDE, CAPOEIRA ANGOLA
Mestre Cobra Mansa and Meghan Walsh, AIA

Meghan Walsh, AIA is the founder of the Brazil Studio and a co-founder of Kilombo Tenonde (www.kilombotenonde.org) with Mestre Cobra Mansa of the International Capoeira Angola Foundation (www.capoeira-angola.org). Kilombo Tenonde is project that will support the development and education of communities in which these opportunities are not usually available. The construction and development of the land of Kilombo Tenonde will be based on principals of sustainability and conservation. Mestre Cobra Mansa has created a worldwide network of academies of Capoeira Angola in Brazil and also in the US, Europe, Japan, and even Africa. Ms. Walsh met Mestre Cobra Mansa as a student of Capoeira Angola in Washington, DC, and the two have collaborated on the creation and development of Kilombo Tenonde. [to view the photos click here](#)

Capoeira Angola is the seed of the work of Kilombo Tenonde. While Mestre Cobra Mansa is a great figure of Capoeira Angola in Brazil and abroad, he is also strong community leader who's charisma and capability of leading community work reaches far and beyond only the Capoeira Angola community. Ms. Walsh brings her experiences as an architect, an educator, and her own experience with community-based work.

Ms. Walsh's masters thesis at the University of Michigan focused on housing in a squatter area of Cato Manor in Durban, South Africa. There in South Africa, she began learning about sustainable architecture and the use of recycled materials in a developing country. She has taken this knowledge and 10 additional years of experience teaching and practicing as an architect to Brazil where she is beginning this Brazil Program.

BRAZIL SUMMER ARCHITECTURE PROGRAM 2005

ABSTRACT:

Students will travel to Salvador, Bahia Brazil to participate in a course focusing on the design and construction of a community center using natural and recycled building materials. The program is the first of its kind at Catholic University's Architecture School, giving students the opportunity to learn and study abroad in Brazil. Catholic University is intending to make this an annual program. They are also in the process of advertising the studio at all schools of Architecture in Brazil and the US as well as some other schools in South America, Europe and Japan. The intention is that each year, students will design/construct a new community building in Bahia.

>RATIONAL/ PURPOSE/ OBJECTIVES:

The Brazil Program seeks to educate students in an intensive summer workshop solely focused on the design and construction of a building. This offers a student a truly unique experience to learn about architecture and construction in a hands-on manner while simultaneously learning about a foreign culture.

It is intended that students will broaden their understanding of materials and methods of construction through the exploration of unfamiliar materials in a foreign context. Instead of relying on the conventional methods of solving a problem, which in the US often means purchasing a product that specifically solves the problem, students will need to understand and engage in the process of solving these problems with invention, creativity and intensity.

Bringing in specific highly experienced, guests in particular areas of expertise to aid students in their process of design and decision-making by exposing them to knowledge of materials, structures, design, architecture, and culture will facilitate a more thorough and full learning experience throughout the program.

Through the Brazil Program, students are expected to develop the following understanding and capabilities:

A basic understanding of sustainable building materials including natural and recycled materials.

An ability to develop a unique architectural detail utilizing natural and recycled materials

A knowledge of African-Brazilian history and its influence on architecture and culture of Bahia

Knowledge of the varieties of Brazilian woods and their material and aesthetic properties

A knowledge of sustainable building methods such as passive cooling and rainwater collection

An ability to communicate through drawings to contractors (even with language barriers)

An ability to compute basic structural loads for a small frame building

The subjects that will be the focus of the project are:

Sustainability & Construction in a Developing Country with a Tropical Climate

This course will focus on analysis of site conditions to impact and improve the buildings ability to function efficiently and to be comfortable. The climate of Salvador is warm even in the winter. The site the students will build on is located on a hill, directly on the ocean, with many types of fruit such as mangos, coconuts, jackfruit, tamarindo, and banana. Water, sewage and electricity are provided as municipal services, but the goal of the community center is to be as sustainable as possible, depending on natural methods of energy collection and conservation where necessary. Students will design systems for ventilation and cooling without the use of air conditioning. They will develop systems for collecting and redistributing rainwater for use as gray water (non-potable) for irrigation and washing. Students will consider the relationship between the site's topography, vegetation, wind, and rainfall in their design for the community center. A highlight of the course will be the

involvement of one of the most well known experts on the subject of environmentally friendly building design and construction in developing countries. Johan Van Lengen, founder of TIBA, and Author of *Arquiteto Descalço* (The Shoeless Architect) will travel from his center TIBA in Rio de Janeiro to visit the project and offer his input and expertise.

Wood and Bamboo Structural Design

This course will focus on the use of wood and bamboo. Students will study the properties of species of Brazilian woods such as Massaranduba, Beriba, Pau Darko, Angelinha Vermelha, Eucalypto, Jaqueira, and others. Students will also study the 1600 different species of Bamboo, focusing on Mirin, the type that is used most frequently for demanding structural requirements. Wood will be used in the construction of the roof and walls of the Community Center and will be studied for its potential as

structure as well as for screening and finishes. Students will learn and utilize a variety of systems of hand and mechanical joinery for both wood and bamboo construction. Professor Sandro Cesar of the Laboratory of Wood Construction at the Federal University of Bahia will work closely with the group to provide expertise on the strength, resistance and characteristics of local wood and bamboo as well as to assist in the actual calculations necessary to design a sound framing structure using these materials.

Architectural History & Culture of Brazil: Indigenous Buildings, Kilombos, Colonialism, Modernism and Contemporary Architecture.

This course will explore the history of Brazilian Architecture from the earliest building methods and materials of indigenous tribes such as the Tupi, Guarani, and Xucuru. Students will visit Kilombos, communities of resistance to slavery and Colonialism, to see the influence of African architecture in Brazil. The class will also cover the Colonial Architecture of the Portuguese and Dutch, and the Modern Movement of architects such as Oscar Neimeyer and Lina Bo Bardi. Professor Daniel Dawson, a premier scholar of the Kilombos in Brazil will visit the site to give the students a cultural history of their origins and influence in Brazil. Practicing Brazilian Architect Chico Rocha of the firm O&Norte in Recife will lead the students on a journey of understanding the history of Architecture and Contemporary Architectural practice in Brazil.

Design/Construct from the Detail

This course will focus on the process of designing construction details. Carlo Scarpa said, "God is in the details". It is often true that what separates the mundane from the profane is the care attention and creativity that people put into designing a unique detail. The experience of participating in a design/build course gives students the opportunity to build details at full size. Focusing on the relationship between drawing and building, students will work in a Scarpa-esque manner to design, draw and actually build their ideas. The palette of materials for their experimentation will include standard brick (tijolo), concrete, recycled metal, steel cables, bamboo, wood, glass, and other recycled and economical materials. The course will investigate the inventive, unconventional, creative ways to use materials that are very common & familiar. Students will learn to detail, not just from a reference book but also through their own trial and error, experimentation and investigation. Students will work with local and American master builders to help realize their ideas and visions.

WORK PLAN

The Brazil Studio will take place during the summer of 2005. It will be a total of 10 weeks, including a trip the students and faculty will take to a conference in Sao Paolo with over 4000 architecture students from Brazil during the 7th week of the program.

Dates: May 30 to August 5

Week 1: History and Culture workshop

Week 2: TIBA workshop (Johan Van Lengen)

Week 3: Structural workshop (Prof. Sandro Cesar & Prof. Rita Cunha)

Week 4: Working on site of building project (C. Daniel Dawson & Chico Rocha)

Week 5: Working on site of building project

Week 6: Working on site of building project

Week 7: IENEA Student Conference in Sao Paolo

Week 8: Working on site of building project

Week 9: Working on site of building project

Week 10: Working on site of building project - Final Presentation and Completion

WORKSHOPS AND CONSULTATION

TIBA "BIO ARCHITECTURE: Students will participate in the BIO-ARCHITECTURE workshop of an acclaimed organization in Brazil TIBA. Various techniques of building design and construction will be presented including Bamboo construction, Grass Roof construction, Cascaje " lightweight concrete, and Bason " construction of composting toilets. The workshop will explain the concept of Bio-architecture through the combination of traditional materials like bamboo or adobe and modern materials such as cement or plastic.

The lecturer for this weeklong workshop is Johan Van Lengen, architect and author of the "Handbook of the Barefoot Architect". Mr. Van Lengen is originally from Holland but spent his early career and schooling in the US on the West Coast. He then spent time in Mexico before finally relocating in Brazil 40 years ago to begin TIBA. He is well known throughout the architectural community of Brazil for his work with poor communities using natural building technologies.

WOOD & BAMBOO STRUCTURES AND CONSTRUCTION: The Federal University of Bahia's College of Engineering, Laboratory of Wood Construction has offered their laboratory as a classroom for Howard students to utilize for workshops and lectures during the course of the program. They will also be providing structural engineering consulting on a one-on-one basis throughout the project. As students will be designing a pavilion like structure, they will benefit greatly from working with engineers who can help them with load calculations and who are familiar with the properties of wood and bamboo indigenous to Brazil.

Professor Sandro Fabio Cesar, a structural engineer and head of the Laboratory of Wood Construction at the Federal University of Bahia will serve as an ongoing consultant to the students throughout the project over the course of 10 weeks. Several graduate students will also be working closely on the design and construction with the students from Catholic University.

HISTORY, CULTURE, CONTEXT AND ARCHITECTURE: Students will learn about Indigenous and African architecture in Brazil through studying the Kilombos (communities of resistance of slavery and colonialism) and Indigenous settlements of the Xucuru, Tupi, and Guarani peoples. They will visit building sites close to Salvador with two scholars on the subject matter.