

Art History Undergraduate Research Grant Proposal

Biotecture: Waste does not exist in Nature

I. Abstract

Necessity and energy efficiency have been equitably driving architectural and engineering design since the 1960s, when the iconic book *Silent Spring* was published. That was the catalyst of the environmental/-ist movement. Earthships, first coined by Mike Reynolds, are inspired by energy efficiency and the idea that waste does not exist in nature. Earthships as a concept have become an experiment of domestic and public structures where form, function, and ecological accommodation meet design and construction practices. The Eco-village, Earth Haven, has several *biotecture* inspired homes where earth sheltered and sustainably built homes have been constructed and successfully maintained. Their approach to a sustainable collective is formally present in the designs of their homes and public buildings, as well as the food production and culture of the community. With this in mind, the firsthand experience of speaking to Earth Haven inhabitants, contextualizing Earthships and the formal elements of their design, will inform the analysis of *biotecture* designed structures of the sub-tropical Southeast and desert Midwest as to ascertain a natively formed American style of architecture. This research will identify an architectural movement that's a legacy of environmental art of the 1960s and 70s, as an American art movement, where humans commune with nature and are able to integrate ecology within an operating community.



#2 Earthship Way, Tres Piedras, NM 2000-2014

<http://earthship.com/Designs/earthship-village-ecologies>

II. Introduction

Earthships were started by Mike Reynolds in the mid-1970s, during the American energy crisis. He was inspired to live in a conventionally uninhabitable place, so as to remove his ecological footprint, which was not accessible at the time. His idea has spread through the Midwest United States as well as the UK and communities in need throughout the globe. The UK, more so than the US, has supported the promotion and experimentation of these *biotecture* structures, which will later become public buildings and homes once further funding and success is achieved. The entire approach is experimental, but the goal is to utilize all of the building materials used, integrating multiple uses for found indigenous materials, so as to achieve a small or negative ecological footprint, in the short and long term life of the structure.

Reynolds has expanded his renewable technique of *biotecture* into disaster relief for communities overseas. The use of bottles, tires, found plastics, and muds are all integrated; as well as water collection, filtration, and independent energy collection through solar panels. His designs vary depending on available funding and local basic needs seeking support. Food production is also integrated into the structure of the home. Waste from construction and indigenous found materials are always reintroduced into the form, so the final design varies from location to location. His approach of site specific materials and designs, the experience of immersing the viewers/inhabitants through all the senses, and bringing to attention the diversity of ecology and human needs, are all key characteristics of environmental art; as well as contemporary *Eco art*, his technique stems from the legacy of that art form. He brings together the goals of environmental art and revitalizes it through postmodern architecture into the contemporary movement of *Eco art*.

By contextualizing his approach, created through the overarching style of *biotecture*, this form of architecture will be discussed within the narrative of Western art, through the lens of environmental art, *Eco art*, and their relative characteristics.

III. Research Method

Formal analysis of Earth Haven *biotecture* homes and community buildings as they fit within the narrative of *Ecoart*, as well as the legacy of environmental art and how it relates to the evolving approaches within Western architecture. Examples will be drawn from existing Earthships, earth sheltered homes, and hybrids within the movement of *biotecture*. Explanations of *biotecture*, *Eco art*, and environmental art will be given as to analyze their relationships to architecture movements branching from the 1960s and 70s. Events of that era will give reason for the rise in environmental art, as well its evolution into *Eco art*. Brief descriptions of the engineering and architectural elements which contextualize Earthships and *biotecture* within both Western architecture and environmental art; the hybridity of these areas of design are encapsulated within Earthships specifically.

By visiting Earth Haven, I will be able to experience the long term effects of *biotecture* on native ecology and human wellbeing, its effects on communities' needs, and the formal elements that relate *Eco art* and *biotecture* to the traditions of environmental art and Western architecture. Elements of Mike Reynold's design approach and material integration within construction will be experienced firsthand. The sensory immersing experience of being within a zero ecological footprint structure, where very little energy is needed and the integration of solar energy collection is on site will allow my analysis of its formal elements to be more accurate and in-depth than just images and hearsay from books, the internet, and scholars.

IV. Presentation and Publication

My research will be presented on-campus at the Spring Undergraduate Research at UNCA and the paper will be submitted to the UNC Asheville Journal.

V. Budget

Dollar amount of Gas round trip to Earth Haven from Asheville: (Gas: \$3.30) (distance: 37 miles [27m highway & 10m mountain road]) (Toyota Highlander V6 2002 average gas mileage: 22 city; 27 highway) = \$19.20

2 visits- \$38.40

Tour of Earth Haven: Group tours are \$15; Private tour fees are \$40 per person

1 group tour & 1 private tour = \$55

Total= \$93.40

VI. Trip/Visit Timeline

Dates of tour: public October 11; private tour TBA

Public tour of Earth Haven: 10am – 1pm

Private: 2.5-3 hours

VII. Itinerary

Experience tour and take photographs of homes.

Ask questions pertaining to building processes and decision making throughout. Request opportunity to interview a few Earth Haven inhabitants on their experience during construction and how the process relates to their experience within the community. Inquire as to how they feel towards their handcrafted sustainable home.

Working Bibliography

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