The Learning Center
A Strawbale Community

Jennifer Morris
Ball State University
Department of Architecture

Studio Professor
Andy Seager

Advisor
Eric Nay
1.0 COMMUNITY GOALS

insert THE LIVING CENTER

2.0 FROM THE EARTH, OF THE EARTH

3.0 LIVING SYSTEM

4.0 ARCHITECTURAL SYSTEM

5.0 ARCHITECTURAL RESPONSE

conclusion
Architecture of Jubilation

Have you ever watched the millions of stars in the sky on a moonless night, or seen the wind wave over a field of grass, or noticed the dust at play in a shaft of light, or felt the warmth of another’s hand...someone you cared for?

This is where architecture must come from. Architecture must take measure of all that it is to be human in a world that is whole.

It must count of our galaxy and of a smile and somehow learn to interpret and express our new world into walls, doors, and roofs.

It is not that economics and function are not important but that they no longer express the whole man. They no longer express who we believe ourselves to be. We must add the wind, the sun, and the call of the hills. Our buildings must learn to express all that we contain, for now we are a whole world.

I have heard astronomers talk about the music of the spheres. I have heard this music described as a song of jubilation. Perhaps this is a word for our coming of age, a time of coming together of coming back to the whole.

We need an Architecture of Jubilation to sing of it!

-James Hubbell
COMMUNITY GOALS
A Promise to the Community, by the Community

"We have spent the last 500 years trying to understand the world by dividing it into parts. We are at the task of putting our world back together. We are seeking a vision of a whole world, with ourselves as part of the whole."

James Hubbell
Architect
This thesis is proposing a return to a time before the modern conveniences that we rely upon today - a time before electricity, before refrigeration, before running water - and that we begin to reintroduce those ways into modern times. It is a way of life designed around a sustainable building system. This is not a negation of technology, just a step back from it and a step forward for the earth.

The goal of the Living Center is to develop a new architecture utilizing the benefits of strawbale and earthen construction.

This Center consists of a group of people who are dedicated to promoting the development and implementation of the concepts of sustainability in order to obtain a more harmonious existence with the world. A permanent staff of people knowledgeable of the real-life issues of sustainability and strawbale construction will promote, by example and through educational workshops, the basics and benefits of living with nature. A fluctuating staff will consist of guest speakers/lecturers who will also partake in the hands-on portion of the experience. Involvement is essential to the Living Center as it encourages members to take responsibility for its maintenance and evolution.
1) Efficient use of resources.
Simply by using resources such as energy, water, and materials more efficiently as well as utilizing new techniques to cut pollution and waste, this community will significantly reduce its impact on the environment. Utilizing local resources for local needs will lessen the impact of the community on the natural world. Though a connection with modern, technological society will be retained, most needs will be internally produced.

2) Invest in a sustainable building system and infrastructure.
The use of materials such as earth and straw, coupled with the reuse of salvaged materials such as railroad ties and barn timbers create a sustainable building system in which the whole community can take part in. Minimal infrastructure will be created and maintained by community members. The structure will consist of handmade, earthen tiles.

3) Enhance the quality of life of all members.
Life quality depends more upon environmental quality, access to public lands, harmony with the natural environment, and views into that environment than upon the economic status of the person or group of people. People of all age groups and nationalities are desired to ensure the health and diversity of the community. The Living Center will volunteer its time to environmental and societal organizations which promote a higher quality of life for others outside the community.

4) Create a new business focused on the protection and preservation of the environment.
The Living Center will be an educational retreat in which people trapped in the modern, over-consuming, waste generating world can learn how to manage their lifestyle in order to live more harmoniously with the earth.
Building the Community

Strawbale construction reinforces the bonds of the community members while providing a cheap, do-it-yourself, renewable building material. Visitors to the Living Center who have little construction experience can learn what they need in order to build their own strawbale building in the matter of days.

A two day straw bale construction workshop at the University of Oregon as part of the HOPES Conference of 1996.
Modern appliances will be contained to the Marketplace. Homes will rely upon the earth's natural capacity to cool and preserve that which can not be gathered directly from its source during meal preparation.

Fresh water for drinking and washing will be bottled from the Marketplace. Water will originate from a well at the Marketplace. There it will be bottled for community use. This forces the inhabitants to become more aware of the quantity of water they are consuming. Public toilets at the Marketplace will also use water from the well but it will recycle its water in water treatment tanks located at the Marketplace.

Electricity will be supplied in the form of batteries to be obtained at the Marketplace. This will be used as a backup system for a time when the windmills break or the crops fail and the dependance upon store boughten items are forced to increase. Solar power and burning natural oils can substitute for electricity as well. The key to these systems is the small, localized size.

The community will be compact and pedestrian friendly. Activities for daily living will be within walking distance.

Parking will remain at the edge of the site.

The Center will always require at least one automobile for use in obtaining access to doctors, schools, libraries, stores, and other such needs outside of the community. Though the Amish transportation needs have relied successfully upon animals for centuries, the Learning Center chooses not to exploit animals and human efforts and energies are needed elsewhere. The use of the automobile will always be a conservative one.

Clothing and utensils/storage containers can be bought or handmade. Most hardware is passed down through the generations.
Located at the outskirts of the small 600 person town of Staunton, Indiana, the Learning Center is loosely bordered by U.S. Hi-way 40 to the north, Staunton Road to the west, farmland to the south, and wood to the east.
THE LIVING CENTER
A Strawbale Community

"Truly indigenous architecture results when the inhabitants are at peace with their place. Few places in the U.S. qualify as indigenous in this way."

Chris Lazarus
Architect
"If someone today invented wood, it would never be approved as a building material. It burns, it rots, it has different strength properties depending on its orientation, no two pieces are alike, and most cruelly of all, it expands and contracts based on the relative humidity around it. However, despite all of these problems, wood is the material of choice when building houses. In fact, we can use wood better than we can use steel, masonry, or concrete."
Strawbales construction is not only a viable, local material, but a versatile one as well. The inherent strength and carving capabilities allow the builders to stray from the popular idea of perfect rectilinear planes with seemingly no tolerance for "error" to a tolerance of a couple of inches. Strawbale can be clad with nearly any type of material for nearly any style building. This community will bring strawbale construction to a new level of refinement. It explores the capabilities of strawbale in Indiana. As strawbale construction becomes more widely utilized, other communities may be developed utilizing this environmentally friendly building technique.
Living roofs
They reduce sound, run-off, and the affects of the sun. Buildings with living roofs tend to be cooler in the summer because the soil acts as an insulator and the plants provide evaporative cooling.

Earthen plasters / Handmade tiles
refer to:
Handmade Tiles by Frank Giorgini
available from Real Goods
“Design leads to the manifestation of human intention and, if what we make with our hands is to be sacred and honor the earth that gives us life, then the things we make must not only rise from the ground but return to it as well - soil to soil, water to water, everything that is received from the earth can be freely given back without causing harm to any living system. This is ecology! This is good design!”

William McDonough
William McDonough Architects
New York, New York
On average, one acre of farmland will yield approximately 50 bales of straw. The area on this site which can be farmed consists of approximately 5 acres which means there will be a yield of 250 bales per cutting the first year. Each starter home consists of about 700 square feet of livable space. According to the estimating graph, a typical house of that size will use slightly less than 300 3-tie bales of straw (size 16"x23.5"x47"). This would mean that the community could average one home per cutting; however, as the community grows, available crop land will be reduced.

Familiarity and knowledge of strawbale construction will continue to improve as the phasing of the community proceeds. Therefore, the “final” designs will continue to be refined.

**Phasing Example**

**Phase One**

- Plant the first crop of wheat
  - Clear any stones or concrete rubble
  - Disk grass under
  - Plant
  - Harvest

- Plant trees with edible fruit along unplowed ground
  - Apples/pears/plums/peaches

- Prepare foundation and water source for first families’ temporary homes.
- Weather providing, construct simple space for first winter’s living.

**Phase Two**

Plant crop number two - leaving space for this summer’s construction.
- Plant food gardens and more fruit trees.
- Prepare foundations
  - A community building
  - A spiritual place
  - Several more residences
- Harvest crop number two, building depends upon weather
ARCHITECTURAL SYSTEM
Round Barns

"Every increment of construction must be made in such a way as to heal the city."

Christopher Alexander
Historically, the center of the farm’s activity was the silo. This was out of necessity as it housed the feed for the farmer’s livestock. Naturally, this element became the central feature of the barn, providing easy access to the feed as well as a strong structural support. As a result, round barns with their radiating roof structures became popular. In the Living Center, the hearth returns as the heart of the home. Thus, the roof structure becomes one similar the roof structure of the round bars.
The barn is the most utilitarian building of a farming community. The round aspect of the building eliminated the "dead space" in the corners.
ARCHITECTURAL RESPONSE

Natural Reaction

"Perhaps this is an idealistic concept, but then so are all human hopes, dreams, and aspirations."

-unknown
STRETCH 5.3
HOME

CAN COMPOST:
- GRASS/WEEDS/FLOWERS
- FRUITS/VEGETABLES
- COFFEE/TEA FILTERS
- EGG SHELLS
- LEAVES/TWIGS
- SEEDS
- ASH
- TAPE/SQUEEZED PLASTIC

SMALLER
ORIENTED TO ABREVIATE
WEAK FROM SUN - CURVED WALLS
ALLOW A GREATER SURFACE AREA
- CURVED WALLS GIVE STRUCTURAL STABILITY TO THE BUILDING

HOUSES ARE:
SIZE - MIN 3 TALL
MAX 5 TALL

ROOM FOR FUTURE EXPANSION
VERTICALLY AND HORIZONTALLY
ROOM FOR FUTURE EXPANSION
SHUT TO COMPOST FILE

POSSIBLE STARTER HOMES

\[ \frac{x}{10} = 1.0 \]
Curved walls:
allow more efficient use of space
- use of heat

Is roof of irregular building less efficient or just more time consuming?
The Living Center is for families of all sizes and configurations. Below are two examples of home with multiple sleeping spaces. The plan to the left blooms out like pedals of a flower. To expand this plan further, one of the sleeping spaces can become a family room or library and sleeping spaces can bloom from the outer edges of that. The plan to the right provides a stair to a second level on which sleeping spaces can be configured using lightweight partition walls. Perhaps these walls could be formed from composite straw panels.
"The most difficult part of being an architect is to step back and leave people to their own explorations."

-William McDonough
Man's first creation of shelter consisted of sticks and stones and mud. There was no imitation of nature or natural forms, just a direct and meaningful use of it. This process did not involve a design, just a doing - with what was at hand. I believe the human race is again craving this simplicity in our lives. This community was never meant as a step down in technology, only a step back, and a step forward for the good earth. The earth from which all emerges, and to which all must someday return.

I believe this thesis has allowed me to explore this never ending story of life from many viewpoints. An exploration which will continue on my journey to reunite with the earth.

"In the end we seek a certain peace with each other and the land. That kind of peace comes from unconditional respect for each other and for the place itself. Any dogmatic overlay limits the creative expression needed to develop that respect, and results in people feeling disconnected from the joy of their work, the joy of the place, and the joy in each other. So we must allow the process to inform itself as it proceeds, rather than approach it with a preconceptions."

William McDonough