

Earthship Project Australia

(earthship.net)

Project description

Michael Field and his team (4 colleagues) will come to Australia for at least two weeks in winter 2012 and build a custom designed *Earthship* with an Aboriginal community in Northern Territory (NT) or South Australia (SA). The project will train black and white Australians to build sustainable housing in the design of Michael Reynolds Earthships for their communities. Black and white Australians will build Earthships together for their communities and learn from each other new skills in building sustainable houses and strengthen the black/white relationship.

Initially, Earthship creator Michael Reynolds will be giving a four-day Intensive Workshop about Earthship systems, solar/thermal construction concepts, Earthship design variations and how to go about getting an Earthship built.

Project outcomes

The project outcomes are expected to be:

- Partner with Michael Field and an Aboriginal community
- Design of an Earthship that culturally and pragmatically meets the needs of the selected Aboriginal community
- Building one custom designed Earthship in an Aboriginal community by Michael Field and his team of four and volunteers
- One four day fundraising workshop about 'How to design an Earthship?' offered in NT or SA including
 - Tire pounding
 - Glass/can bottle brick building
 - Water harvesting systems
 - Ferro cement roof construction
 - Solar shower installation
- Training locals in the community the skills in building sustainable housing based on Earthships (free of charge)
- Rising awareness for the needs of training skills and provide housing for regional Aboriginal communities
- Refocus from displacement and disorientation towards creating a new process of emplacement
- White and black Australians work together on building a sustainable house for an Aboriginal community and learn from each other which will strengthen white/black relationship and support reconciliation
- Document the project on film and develop a documentary on DVD

Risks

Cultural and language barriers; Community engagement; Acceptance of the Earthship concept (unconventional design and materials); Finance / Funding; Planning permissions (first Earthship in Australia); Logistics; Project management; Lack of skills; Commitment from the Earthship team

Background – Earthships (<http://earthship.com/>)

Earthships are the idea of Mike Reynolds founder of Earthship Bioteecture, a company that specialized in designing and building Earthships all around the world and for every climate. Mike built his first Earthship in the 1970s. Earthships follow three basic principles (Wikipedia):

- Sustainable design using recycled and Indigenous materials
- Energy supplied by renewable energy sources including solar and wind
- Simple design that makes it economic viable to the average person with no specialized construction skills

The main design principles are:

House as Assemblage of by-products

(<http://earthship.com/construction-materials>)

For thousands and thousands of years, housing was built from found materials such as rock, earth, reeds and logs. Today, there are mountains of by-products of our civilization that are already made and delivered to all areas.

Earthship Construction Materials

A sustainable home must make use of Indigenous materials, those occurring naturally in the local area.

Indigenous

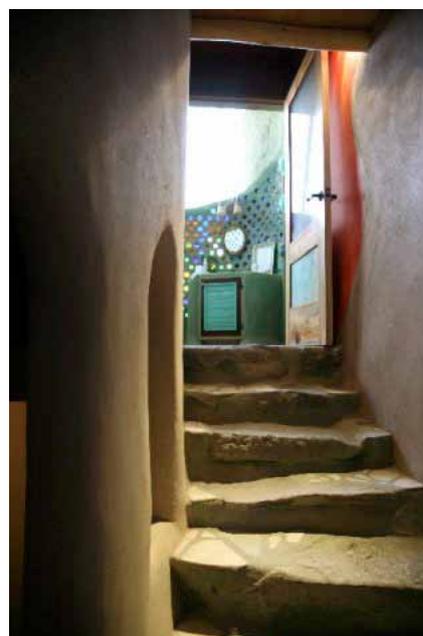
Materials are found all over the planet. Shipping materials for long distances is not sustainable and uses excessive amounts of energy. In order for the Earthship to be easily accessible to the common person and to maintain a low impact on the planetary energy situation, a “building block” found all over the globe would be required.

Able to be fashioned with little or no energy: If a building material was found that was Indigenous to many parts of the

- Electricity: from sun and wind
- Water: from rain and snow
- Sewage: sanitary treatment
- Heating & Cooling: from sun and earth
- Food: grow inside and outside
- Building with natural and recycled materials

Spain

<http://earthship.com/image-gallery/21-spain-earthship/detail/1512-img0587#>



planet but it required massive amounts of energy to fashion into a usable form, then it would not be sustainable and not considered. The major building materials for an Earthship must require little or no manufactured energy to fashion into use. This keeps them easily available to common people and at the same time would allow the large scale production of Earthships to maintain a relatively low impact on the planet.

Since there are so many of us, if we are to survive without literally consuming the planet, everything we use must be chosen with consideration to the impact of large scale application. We must explore building materials and methods that are not dependent on manufactured energy and that have the potential to contribute to the general well-being of the planet rather than exploit it.

Thermal Mass

The materials that surround the spaces of an Earthship must be dense and massive in order to store the temperatures required to provide a habitable environment for humans and plants. The Earthship itself must be a ‘battery’ for storing temperature. Making buildings out of heavy dense mass is as important as making airplanes light. Obviously, a heavy airplane takes more fuel to fly. Obviously a light house takes more fuel to heat and cool.

Durability

We have built out of wood for centuries. Wood is organic and biodegradable. It goes away. So we have developed various poisonous chemical products to paint on it and make it last. This, plus the fact that wood is light and porous, makes it a very unsatisfactory building material. This is not to mention the fact that trees are our source of oxygen. For building housing that will last without chemicals, we should look around for materials that have durability as an inherent quality rather than trying to paint on durability. Wood is definitely a good material for cabinet doors and ceilings where mass is not a factor and where it protected so it will not rot, but the basic massive structure of buildings should be a natural resource that is inherently massive and durable by its own nature.

Resilient

Earthquakes are an issue in many parts of the world. Any method of building must relate to this potential threat. Since earthquakes involve a horizontal movement or shaking of the structure, this suggests

http://electrictreehouse.com/wp-content/uploads/2011/01/earthship_sustainable_home.jpg



Hawaii

<http://earthship.com/image-gallery/17-hawaii-earthship/detail/1293-img0958?tmpl=component>

a material with resilience or capacity to move with this shaking. Brittle materials like concrete, break, crack and fracture. The ideal structural material for dealing with this kind of situation would have a ‘rubbery’ or resilient quality to it. This kind of material would allow movement without failure.

Low specific skill requirements

If the materials for easily obtainable housing are to be truly accessible to the common person they must, by their very nature, be easy to learn how to assemble. The nature of the materials for building an Earthship must allow for assembling skills to be learned and mastered in a matter of hours, not year. These skills must be basic enough that specific talent is not required to learn them.



Low tech use/application: some systems of building today are simple if one has the appropriate high-tech expensive energy-dependent device or equipment. This, of course, limits the application of these methods to the professionals who have invested in the technology to enable them to use such methods. Because of the expense and energy required to get set up for these systems, the common person is left totally dependent on those professionals for accessibility to these particular housing systems. Therefore, the common person must go through the medium of money (bank loans, interest approvals, etc.) to gain access to a housing system that usually dictates performance and appearance.



Spain

<http://earthship.com/image-gallery/21-spain-earthship/detail/1564-img692#>

If high-tech systems and skills are between the common person and their ability to obtain a home, we are setting ourselves up to place the very nature of our housing in the hands of economics rather than in the hands of the people. This situation has resulted in human, energy-hog housing blocks and developments that make investors some quick money and leave the planet and the people with something that requires constant input of money and energy to operate.

recycled automobile tires filled with compacted earth to form a rammed earth brick encased in steel belted rubber. This brick and the resulting bearing walls it forms and is virtually indestructible.

The Primary Building Block

Rammed-Earth encased in Steel Belted Rubber

The major structural building component of the Earthship is

<http://earthship.com/image-gallery/21-spain-earthship/detail/1520-img0615#>

Aluminum Cans and Glass/Plastic Bottles

These ‘little bricks’ are a great, simple way to build interior, non-structural walls. Aluminum can walls actually make very strong walls. The ‘little bricks’ create a cement-matrix that is very strong and very easy to build. Bottle can create beautiful colored walls that light shines through.

Scotland

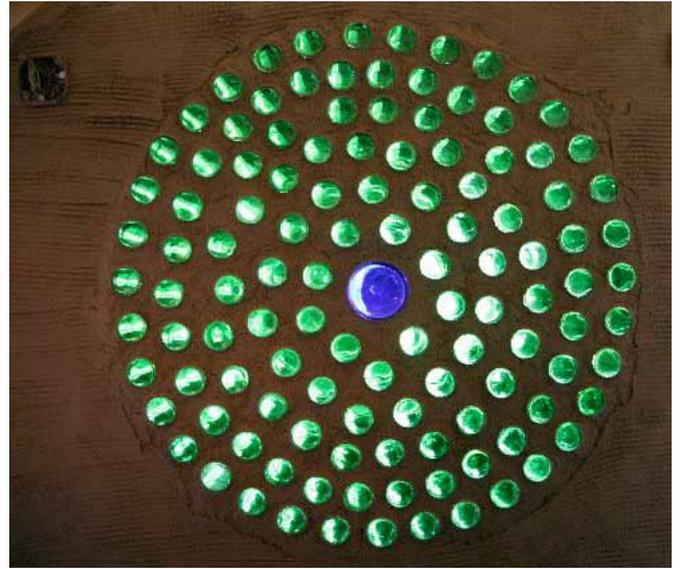
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Spain

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Spain

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http://earthship.com/images/buildings/tire_work1.jpg



Guatemala

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Spain

<http://earthship.com/image-gallery/21-spain-earthship/detail/1554-img0992#>



Africa

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Hawii

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http://earthship.com/images/buildings/tire_wall_steps.jpg

http://electrictreehouse.com/wp-content/uploads/2011/01/earthship_sustainable_home.jpg

