

Eco Bricks Project **Reflective Essay**

Over the past couple of years I have been inspired to take part in beach cleans across the welsh coast. Gaining first hand insight into the amount of rubbish found on the shore, in particular plastic, I have been encouraged and inspired to participate in further reading on the worldwide impact that these plastics have on the environment. Many of the beach clean organisations I have volunteered with merely put the collected rubbish into a bin bag and taken to an amenity center. There are vast benefits to collecting litter, however, I often find myself questioning whether the process can be taken further. Whether the litter collected can be put to better use.

Prior to receiving the brief, I had no knowledge about eco bricks nor had I anticipated using plastic waste as a construction material.

Initial Group discussion

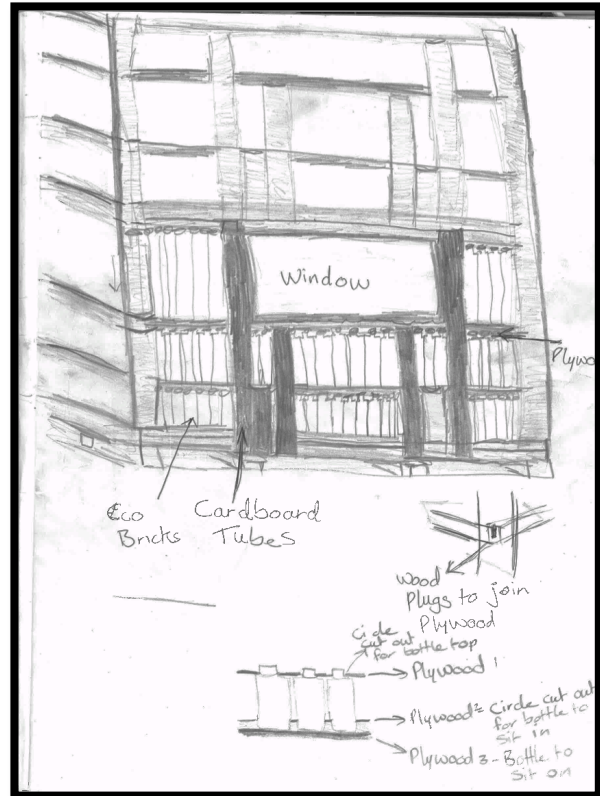
After carrying out research on what eco bricks were, in our group we discussed the pros and cons of the physical aspects of the eco brick. Much of the discussion focused on the negative aspect such as the unusual shape, the slippery texture of the plastic bottle and it's density. We analysed the brief, collectively identifying the key aims and objectives of the task.

Personal Research

To stimulate our creativity, we agreed to carry out further individual research on sustainability and any similar projects that have taken place. My research revealed that there have been many projects across the world, mainly in countries that have a poor waste management infrastructure such as the Philippines and Africa, whereby eco bricks have been used to make furniture, toilet areas and future plans in place for schools and other communal buildings (the Guardian, 2014). I learnt that a key principle of using eco bricks is to store waste products in a controllable form whilst scientists and other professions devise ways on how to deal with waste such as plastic (Ecobricks.org, n.d.). Further research introduced me to many different architects such as Hassan Fathy who focused on utilizing ancient architectural methods and materials (ARCHNET, n.d.). I was particularly fascinated by Shigeru Ban's work and perspective. Shigeru based much of his work on using recycled materials to build temporary and/or cheap structures, emphasising that architects must not merely serve for the rich (Youtu.be, 2013). Shigeru implemented a moralistic approach, addressing issues such as poverty (Saval, 2019). I established that potential buildings made from eco bricks do not necessarily have to be big impressive buildings. Eco bricks could be used to create simple structures that greatly benefit societies such as shelters or temporary accommodation. These kinds of projects could be beneficial in third world or disaster zone countries.

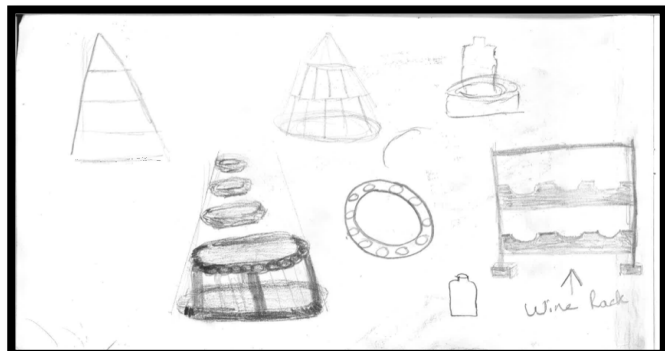
Individual Design

With a better understanding I began to create concept ideas for our project. Due to the shape of the eco brick, I was inspired to use the concept of a wine rack holder as the integral structure. I initially designed a cube shaped structure. I struggled to form a realistic structural design for the roof. Much of my time was wasted in trying to make this idea work. From this experience I learnt that whilst perseverance and dedication are positive traits, there are times where designs may not work and time could be spent more valuably exploring new ideas.



(Authors- 2019- sketches of the cube structure concept)

My final concept idea derived from the shape of The Catcliffe Glass Cone, alongside some of the structural aspects of the Pantheon dome. I adapted my structure into a cone shape, which meant the walls and roof would be integrated into one. As seen in the sketch below, the structure is constructed by placing the eco bricks onto plywood, which are cut into ring doughnut shapes. The diameter of each ring decreases an equal amount at each tier to create the cone shape structure. As the main wall, holes the diameter of the eco brick neck and bottom would be cut out of the plywood in order to allow the eco brick to be placed into a secure vertical position. The load of each tier would be passed through a series of cardboard tubes acting as columns. On reflection, in future projects, I would dedicate more time researching materials in order to broaden my knowledge. This would allow me to meet the aims of the brief to its full potential.



(Authors- 2019- sketches of final concept)



(Gothisplace.com, n.d., The Catcliffe Glass Cone)



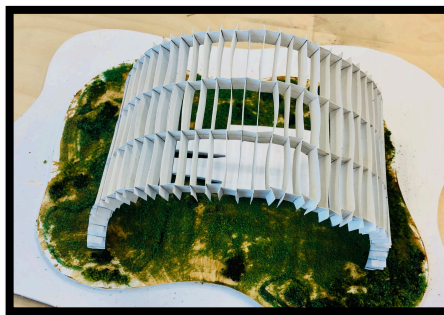
(Justfunfacts.com, n.d., The Pantheon)

The Chosen Group Design

We later reconvened as a group to present our individual ideas, providing feedback on each design. Following discussion we unanimously decided to use the design as shown below:



(Author, 2019, 1:20 model of group concept)



(Author, 2019, 1:20 model of group concept)



(Author, 2019, 1:1 model demonstrating the eco bricks in the structure)

This decision was based on the unique arched shape that would be effective in providing shelter in all weathers. The shape also provided a practical floor plan space for the structures function as a homeless shelter.

Group Presentation

As a part of the process we were required to present our chosen structure to members of the Eco Bricks Swansea society. Individuals were nominated to carry out key roles. The person who created the concept was nominated to create a 1:20 scale model of the design. As an addition, a 1:1 model was created to show how the eco brick would be used. The other members of the team, including myself, prepared drawings and discussed the key points we wanted to emphasis on in the presentation. As the most confident speaker, I was given the task of initiating the presentation with other members of the group contributing to any questions raised. Personally, I found the experience of presenting our concept to a professional architect incredibly valuable. It was great to gain an insight into how a professional architect may think whilst analysing a concept. We received a lot of positive feedback. However, the guests pointed out that due to the shape of the design there was not enough structural security to hold the eco bricks in place, causing a high safety risk. This emphasised the level of detail that is required when designing a structure. In future projects, I would

encourage the group to spend more time working together, combining and improving designs collectively. I would also encourage the group to scrutinise our proposal in order to identify potential issues.

Conclusion

In conclusion, this project has provided me with the platform to think creatively and effectively about the methods and materials I may use for future projects. I have also broadened my knowledge on particular architects and developed various skills such working in a team and presenting. On a broader scale, I have learnt that architecture does not merely require professionals to be creative in designing aesthetically pleasing buildings. I now further understand the importance behind architects implementing their abilities and responsibilities in producing innovative ideas to combat issues that face the world e.g homelessness and the environment.

Word count: 1096 (excluding citations and titles)

Group Credits:

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