

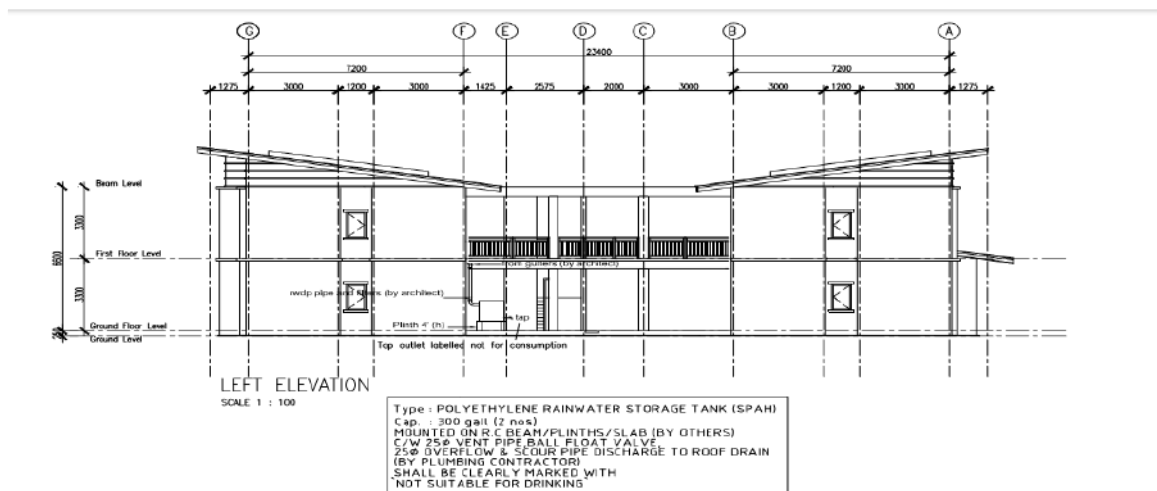
Template for Evidence(s) UI GreenMetric Questionnaire

University : Universiti Malaysia Pahang
Country : Malaysia
Web Address : <http://www.ump.edu.my/> and <http://mygreen.ump.edu.my/>

[2] Energy and Climate Change (EC)

[2.9] Elements of Green Building Implementation as Reflected in All Construction and Renovation Policies

[1] RAIN WATER HARVESTING



Ko-Kurikulum Building rain water harvesting piping plan



Rain Water Harvesting tank for Teaching Factory



Rain Water Harvesting tank for Surau

Some building especially for new building come with tank for collecting rain water. Rain water are used for general cleaning and planting irrigation.



Rain Water Harvesting tank for Staf House
(Rumah 40)



Some building especially for new building come with tank for collecting rain water. Rain water are used for general cleaning and planting irrigation.



[2] **NATURAL VENTILATION** all of our building equipped with natural ventilation option rather than air conditioner, example each room or need to have a window.





[3] FULL NATURAL DAY-LIGHTING - Window at each room to allow direct sunlight.





Existence of Building Energy Manager

Ventilation bricks or Air bricks – also known as vent bricks or ventilation bricks - are traditionally made of clay, and most still are today. The installation of air bricks allows air to flow under the floorboards, helping to regulate temperature and minimise the formation of condensation.



Ventilation Brick used on Building new Mosque at University Malaysia Pahang

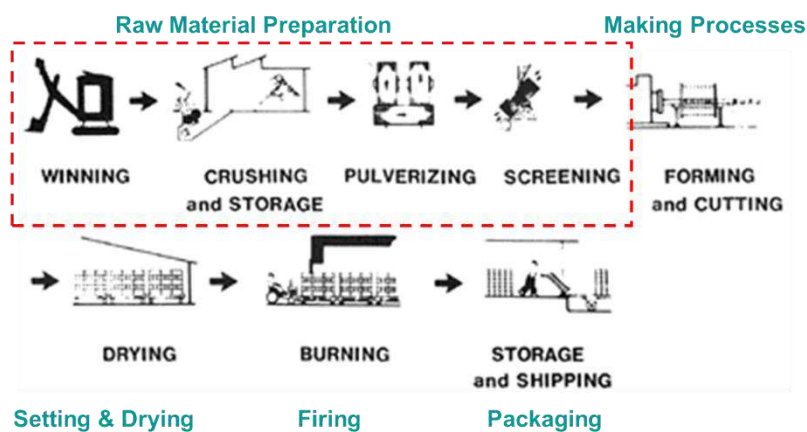


CONTAINER BUILDING (72 LECTURER'S ROOM) & LANDSCAPE OFFICE

The eco-friendly container building is made from recycled material and is environment-friendly. It is the latest project undertaken that involved building basic module made of used container that has been modified and upgraded. The modular craft pilot project is about the construction of 72 rooms for lecturers in the Gambang Campus. The construction uses a type of thermal insulation coating that can reduce the temperature inside the container. The coating can lower the temperature inside the container by eight degree Celsius to ten degree Celsius. The project also uses eco-friendly green bricks that are produced by UMP Innovest Sdn Bhd.



2



G-Bricks is innovation by UMP's Researcher are widely used for development project inside campus

Description:

i. G-BRICKS

It is estimated that about 600,000 metric tones or more of spent bleaching earth (SBE) are utilized worldwide in the refining process based on the worldwide production of more than 60 million tons of oils. The SBE serves as by-product, which contains high percentage of oil was through the oil recovery process. 40% of oil was recovered from the SBE and 40% is waste of SBE. Disposal of SBE waste by incineration, inclusion in animal feeds, land filling method or concrete manufacturing is generally practiced, but this research to investigate replacing of clay by SBE waste in brick manufacturing. The main chemical content in brick manufacturing is SiO_2 and Al_2O_3 which content 65.04 SiO_2 and 12.95 Al_2O_3 in clay and 68.03 and 14.80 in SBE respectively. The different of chemical compositions and mineral phases between SBE and clay would cause the firing parameters and mechanism and performance of SBE-clay bricks are different from that of clay bricks.

What is g-Brick?

g-Brick is a **non-load bearing brick**, similar to cement brick in term of production technique that use a solid industrial waste, called **red gypsum**, from a chemical industry for the making of sustainable bricks.

Objective of Innovation

To reduce the disposal problem of red gypsum to the environment and finally lead to the reduction of industrial waste to landfills.

To offer an economical option to the development of new construction materials and design that utilizes existing technologies which lead to another choice in the current markets for greener environment.

The advantage of g-Brick

- a) Increase brick density with simple mixing process thus leading to lower material cost compared to conventional bricks.
- b) High compressive strength (12 N/mm^2) compared to standard bricks (average: 6 N/mm^2) thus making it a perfect choice for today's construction situation.
- c) Environmental friendly approach as the production promote reduction of waste to the landfills.
- d) Offer a new opportunity of business in recycling of waste for making green brick (waste-to wealth concept).

Description:

Additional evidence link: