Research Article

SoundBlockt: "The Soundproofing Solution"

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Abstract: *SoundBlockt is an innovative project that introduces a soundproofing solution utilising coconut fibre as the main material. The primary objective of this project is to address the issue of increasing coconut fibre waste while providing effective soundproofing capabilities. In Malaysia, a developing country with numerous housing areas located near construction sites and noisy environments such as factories, highways, and train stations, the need for soundproofing solutions is crucial. Coconut fibre, a readily available and sustainable material, is selected as the core component of SoundBlockt. By repurposing coconut fibre waste, this innovation project offers an eco-friendly solution that reduces waste accumulation and provides effective soundproofing properties. The use of coconut fibre as a soundproofing material presents a unique opportunity to tackle both environmental and noise pollution challenges simultaneously. The application of SoundBlockt is particularly beneficial for housing areas situated in close proximity to construction sites and noisy environments. The product acts as a barrier, effectively reducing external noise and creating a more peaceful living environment for residents. By implementing SoundBlockt, individuals residing in these areas can experience improved quality of life, enhanced comfort, and increased productivity. In conclusion, SoundBlockt offers an innovative soundproofing solution utilising coconut fibre waste. By incorporating this material, the project addresses the increasing issue of coconut fibre waste while providing effective noise reduction in housing areas near construction sites and noisy environments.*

Keywords: soundblockt, noise

1. INTRODUCTION

The innovation project's name is SoundBlockt and the main idea is to act as a soundproofing wall. This innovation project's main material is coconut fibre which will function as soundproof. The main reason for this selection of material is to decrease the amount of coconut fibre waste that is becoming serious nowadays. Other than that, in Malaysia categorised as a developing country, many

housing areas are close to construction sites and some housing areas are near to noisy places such as factories, highways and train stations.

2. METHOD & MATERIAL

1. Lorem The core walls with the sizes 6" and 8" are anchored using the iron rod that is deep into the ground that acts as a house frame before the cement is placed.
2. Using the general ratio of cement which is 4:2:1, means 4 parts of crushed stones mixed with 2 parts of sand and a part of cement, the core wall is filled with the cement. To ensure no crack in the wall, the ratio is followed accurately.
3. After a few hours, the wall is still not fully dry, and shredded coconut fibre is used to coat the wall to cover up all the space on the wall.
4. Galvanised mesh is used in order to maintain the position of the coconut fibre and to prevent it from easy to tear off due to unpredictable weather.
5. To add aesthetic value, flower plants are planted along the galvanised mesh and other features that our company provide.

MATERIAL

1. Cement

   Cement provides strength and durability to the structures. It forms a strong bond with other materials, such as aggregates (sand and gravel), to create a solid composite known as concrete.

2. Iron rods

   Iron rods provide additional strength and stability to the walls. They help to reinforce the concrete and improve its tensile strength. While concrete is strong in compression, it is weak in tension. The inclusion of iron rods helps to counteract this weakness and prevent cracking or failure of the wall due to tensile forces.

3. Coconut fibre

   Coconut fibre can act as a sound-absorbing material, reducing noise transmission between rooms or from the outside environment. It can be used to enhance acoustic insulation in walls, creating a quieter and more comfortable living or working environment.

4. Galvanised mesh

   Helps control cracking in walls. It acts as a reinforcement material that can help prevent the propagation of cracks that may occur due to factors such as settlement, temperature changes, or shrinkage of the underlying materials. By providing additional tensile strength, the mesh helps to distribute the stress and minimize the formation and widening of cracks.

5. Sand

During the construction of brick or block walls, sand is used to fill the vertical joints between the units. This process is called pointing or jointing. The sand-filled joints improve the aesthetic appearance of the wall, enhance its strength, and protect against moisture penetration.

6. Pebbles

as an exterior cladding material to enhance the visual appeal of the wall. They are often applied to the surface of the wall using mortar or adhesive, creating a textured and decorative finish. This can be particularly common in garden walls, boundary walls, or feature walls where a natural and organic appearance is desired.

7. Flower plants

In some cases, flowers can be incorporated into wall construction as murals or art installations. These can be created using paint, wallpaper, or three-dimensional art pieces that depict flowers or floral patterns. This allows for a customizable and low-maintenance option to add a floral aesthetic to the wall.

3. FINDINGS

3.1 PRODUCT AND SERVICES

The SoundBlockt is a decorative building wall and an outer wall that core is using coconut fibre as the main material. By using coconut husk as a core to the wall it can be taken as a soundproofing material that can reduce noise pollution in the area. Other than that using coconut husk can reduce the use of other materials such as cement and sand in the wall.

Other than that, a 10-year services warranty will provide to the customers and if they subscribe to our product and pay every year, maintenance undergo their wall annually and monthly. Two types of services that will provide to a fellow customer which is monthly and annually. The monthly services have different types of packages.

Annually services are the coconut inside the wall replaced every year in order to lessen the damage to the wall. The decomposed coconut fibre in the wall into compose and put at the surrounding landscape used, so the coconut fibre will not be wasted and give the soil the nutrient for the plant that we planted surrounding the wall.

For example, the preference that the customer gives us or just select the package given to them such as herbs landscape surrounding the wall so that it will give the nature vibe when the customer sees our wall. Other than that, a cultural package that will use the cultural event such as Chinese New Year, so it will be replace the plants in the soil with the reddish plant synonym with the Chinese New Year red colour.

3.2 ENVIRONMENTAL

Coconut waste can be hazardous to the environment if not properly managed. Coconut palms are widely planted in tropical places and provide a substantial source of income and a variety of goods.

However, waste from coconut manufacturing, including the husks, shells, and coir fibres, can contribute to pollution if not properly disposed of.

3.2.1 Air Pollution

In some locations, open burning of coconut material is a prevalent practice, notably for waste disposal and land clearance. When coconut husks and shells are burned, smoke, particulate matter, and other air pollutants are released into the atmosphere. These chemicals contribute to air pollution and can harm human health, particularly respiratory disorders.

3.2.2 Aquatic Pollution

If coconut fibre waste is not properly handled, it can end up in bodies of water such as rivers, lakes, and oceans. Over time, the fibre can decay, releasing natural colours, tannins, and other organic substances into the water, possibly polluting and destroying aquatic environments.

It is critical to encourage environmentally friendly practices across the coconut supply chain. Utilizing coconut fibre in the wall so that the waste of coconut does not go to waste. Not using any colour or chemicals in the coconut, allowing it to decay naturally without harming the environment. This initiative seeks to reduce its environmental impact while increasing its value as a renewable resource.

3.3 DIFFERENCES BETWEEN OF SOUNDBLOCKT WITH OTHER

1. Very eco-friendly to the environment due to the coconut fibre that we use in the core and the outer wall.
2. Coconut wall is very sturdy and durable for a long period of time which is very important to our customers.
3. Provide annual and monthly services to our customers for 10 years warranty and if they subscribe to the packages based on their preference and their taste of the wall environment.

4. DISCUSSION

From the findings of this innovation project, there are so many aspects that can be discussed. Starting from the product itself, is the innovation using the idea of a soundproofing wall with the addition of coconut fibre which can decrease the sound starting from 15dB and upper. The target for this product is usually the resident that lives near the railway station or development area that surely have a noise pollution problem. The product is unique and strong with the addition of extra features that comes after purchasing the product. Consumers can pick the business package from a company that has many varieties such as herbs, flowers, grasses and basic packages. It comes with monthly and annual services that they need to subscribe to the wedding and landscaping process also will change the coconut fibre every year to ensure the efficiency of the product. The product also comes with 10 years of warranty which shows that we are very committed and confident about this project. SoundBlockt product is winning on the aspect of durability, aesthetic value, customer services and warranty period. Aim for the products offered by a company to last for a long period of time. This is because consumers are not always to change their walls, so it is very important to make sure the product's durability is high. The aesthetic value of the product also is the key point to differentiate the

product with other companies. Consumers always love things that look beautiful and fresh, so it includes that in packaging. They can choose what type of plant they wanted to be the cover of the wall.

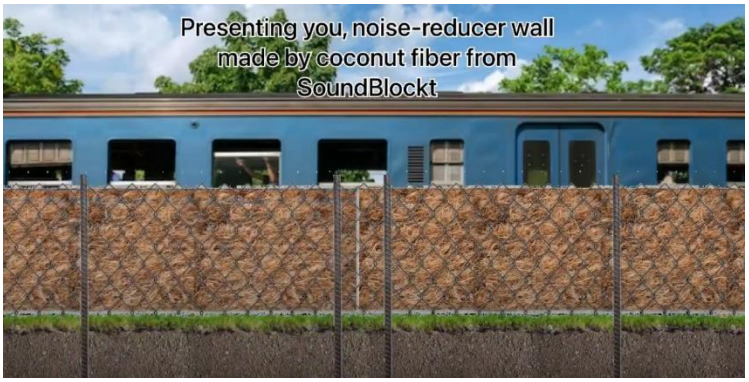

Figure 1. Figure of our product

5. CONCLUSION

With the innovation, the rate of noise pollution from day to day keeps increasing following the advancement of the city and transportation will decrease. Moreover, by adding aesthetic value and the service that innovation provided, it is a high chance for our innovation to get more attention compared to our competitors.

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