

# FABRICATING FLOATING STONE FOUNDATION “PROTOTYPE FOR ADAM’S BRIDGE”

Arkam Hyatt, Badre Alam

**Abstract**— Have you heard about Adam’s bridge which is also known as Ramsetu bridge. The bridge between the Sri Lanka and Rameshwaram of India. In order to study the properties of stone utilized in this bridge, we developed a fabricated floating stone and a fabricated floating stone foundation. The floating stone has a floating property up to the weight of 50 gm and it has a compressive strength of 16.5 mpa and the floating foundation has a self weight of 2.9 kg and it takes a weight up to 1.025 kg on it without sinking.

**Index Terms**— mpa (unit of compressive strength millipascal), gm (gram) . KN (kilonewton), kg/m<sup>3</sup> (kilogram per metre cube).



## 1 INTRODUCTION

In today’s world, there are lots of innovation, but this is something beyond imagination. Can you imagine a rock or “a panel of stones” with good strength float. This is done by undergraduate student of Northern India Engineering College. They have made the “Fabricating Stone Panel Foundation”. This panel has a self weight of 2.9 kg and it takes a weight 1 kg on it without sinking. This shows that a stone panel has floating property along with bulkiness and it has good compressive strength too. Floatness and strength are two properties which are not taken together in any stone and if a stone or rock having these properties, then it is not answerable “how these properties in a stone or rock resides”. As we all know floatness depends upon density of material and buoyancy. A less dense material does not have strength but we have developed a stone panel foundation which is less dense and it has strength too.



Fig.1. floating stone



fig.2. floating panel

## 2. OBJECTIVE

In order to determine, "how two properties (i.e. floatness and strength) can reside in a stone pane?". So, We have developed a panel that has floating property, it can take a load of 1.025 kg on it without sinking along its self weight of 2.9 kg. The density of our stone in panel is 1012.72 kg/m<sup>3</sup> and the compressive strength of stone panel is 16.65 mpa. It fails on load around 17 KN due to its spherical shape and it may fail at (20-25 KN) when it is developed in cubical shape.

## 3. DESCRIPTION OF RESEARCH WORK

This project employed some of very good innovations. In this project, main problem is to provide less density to panel and also strength too. This problem has been solved by us. We used materials which provide strength to our panel and that have a less weight also. We employed material like fibre glass, polyester resin, cobalt and puo solution to make it strengthive. We have worked on the basis of "void ratio concept" to provide a floating property in our stone panel or fabricating stone foundation.

## 4. CONCLUSION

- From the analysis of data from practical results, We can say that there is an existence of a stone or rock which has a floating property and strength. As fabricating floating stone panel takes a load of 1.025 kg without sinking along its self weight of 2.9 kg and It has a compressive strength of 16.65 mpa.
- Density of stone in a panel is 1012.72 kg/m<sup>3</sup> and Anything which is less dense than water can float, but it is floating at density of 1012.72 kg/m<sup>3</sup> which is more than water (1000 kg/m<sup>3</sup>) and Buoyancy concept also fails here, as spherical shape of our stone provide less buoyant force as compared to flat body surface.
- We can use it in civil engineering field by employing some innovative techniques like we used this floating foundation to produce renewable energy as solar panels are 11 percent more efficient in waterbodies than on lands.
- It may also used in very plastic soil as a foundation in order to increase its bearing capacity.

- Dead load and live load is in ratio of 3:1, So we can provide floating foundation for floating bridges floating buildings.
- We can provide a floating slab or monolithic slab for one storey building to avoid "use of columns" and makes it economical.
- Our population has been increasing and creates a problem for our cultivated land. To protect our cultivable land, we increase the number of stories in our structure but this also faces the problem of earthquake and wind effects. Hence development of floating colonies or societies on still water bodies can overcome this problem.

## 5. ACKNOWLEDGMENT

I really thankful to faculty members of Northern India Engineering college Delhi, India. They appreciated me for my research work when it was in initiation phase.

## 6. REFERENCES

1. History of ram setu as explained by Indian express.com.
2. Scholastic articles about the floating stone.
3. [www.stonefactory.com](http://www.stonefactory.com) to study the properties of different stone.
4. Pumice (a concept stone) book written by ps ramnathpuram.
5. A textbook of material science by bc punamia to study about different materials and their properties.
6. <https://en.wikipedia.org/wiki/floatingstones>: ARKAM HYATT : an article by an undergraduate student who have written about the properties of floating stones.
7. <http://enr.construction.com/infrastructure/transportation/2015/0511-world8217s-first-frp-floating-bridge-takes-shape-in-verm>