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Review Paper on Planning and Construction of Floating House

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Abstract: *Floating and amphibious houses are built to be situated in a water body and are designed to adapt to rising and falling water levels. Floating houses are permanently in the water, while amphibious houses are situated above the water and are designed to float when the water levels rise. Amphibious homes are usually fastened to flexible mooring posts and rest on concrete foundations. If the water level rises, they can move upwards and float. The fastenings to the mooring posts limit the motion caused by the water. Floating houses are popular in highly populated areas where there is a high demand for houses near or in water. Because floating or amphibious houses adapt to rising water levels, they are very effective in dealing with floods.*

Keywords: Float, house etc.

I. INTRODUCTION

A floating building is a building unit with a flotation system at its base, to allow it to float on water. It is common to define such a building as being "permanently moored" and not usable in navigation. Floating buildings are usually towed into location by another ship and are unable to move under their own power.

Floating and amphibious houses are built to be situated in a water body and are designed to adapt to rising and falling water levels. Floating houses are permanently in the water, while amphibious houses are situated above the water and are designed to float when the water levels rise. Amphibious homes are usually fastened to flexible mooring posts and rest on concrete foundations. If the water level rises, they can move upwards and float. The fastenings to the mooring posts limit the motion caused by the water. Floating houses are popular in highly populated areas where there is a high demand for houses near or in water. Because floating or amphibious houses adapt to rising water levels, they are very effective in dealing with floods. Living on water can also reduce the negative effects of heat, and may improve the quality of life of residents, who like to live on or near water. Floating houses have already been built in various countries, like The Netherlands and the UK, and amphibious houses in The Netherlands. The scale can vary from individual houses to major groupings of dwellings to, theoretically, full-blown floating cities. So far, this option has been most experimented with in inland surface waters, but marine applications are possible.

Many people are aware of problem such glacial melt and overpopulation .when it comes to how these will impact the way we live on this planet in the future most people don't know where to start . The fact is, issues such as these will cause many toxic problems throughout the world, the worst by far being the fact that land will likely become ,inhabitable .while this would've likely meant the end of civilization in the past, the constant advancement of technology ensure that we will one day be able to expand to the water of the world.

Since most people live in traditional house that exist on land, the world would have to go through a massive shift in ideas, as society would be forced to move to the water. This however would not have to be a negative change, as new house and communities could be built to exist solely on the oceans and sea of the world. While it would likely being as small house being crafted to float on the water , many people believe that entire floating cities will find their way into existence in the future ;cities that would be clean ,affordable and green in every way possible .

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Yet there are a lot of additional problems due to the special climate boundary conditions, including wind waves and chemical components of the water in the case of post-mining lakes. There is a need for studying and solving these problems to avoid damage in the future. The paper demonstrates the effect of the corrosion of steel concrete by an unusual environment. Direct attacks of the climate components solar radiation and wind, owing to a lack of neighbouring buildings or trees on the one side and modern glass architecture on the other side, cause an uncomfortable room climate in summertime. The management of energy and water supply and waste disposal must be resolved. The safety of children or animals is also to be discussed. In districts with a cold wintertime the attacks of ice on the pontoons and the safety of walking on footbridges must be considered

1.1 Objective

1. Implementation of reduce, reuse and recyclable potential in the floating house design.
2. Replacement of non-renewable source by renewable source for energy production.

II. Review Of Literature

In this connection the following literature has been reviewed,

"Floating Foundation in Geological Environment Prone To Sink Hole" Dr. Eduard Vorster, Technical Director (1987).

The Gautrain Rapid Rail Link is a state-of-the-art rapid rail network currently under construction in Gauteng, South Africa. The project comprises of a link between Pretoria, Johannesburg and the OR Tambo International airport with a total length of approximately 66km. The structure described in this paper will cross a dolomite area with a 3.1km long viaduct (V5c) south of Pretoria. The site is generally underlain by dolomitic ground with occasional syenite intrusions. The area is well known for the risk of sinkhole and do line (area settlement) formation due to the erodibility of the in situ soil, cavernous ground and bedrock conditions and potentially variable water table conditions (if left uncontrolled). Sinkholes and do lines may affect the rail services and may have catastrophic consequences if left untreated. The bedrock profile is highly undulating, sometimes with deep valleys or grykes between bedrock pinnacles.

"Very Laege Floating Structure Application , Analysis & Design "E. Wantanbe ,C.M. Wang, T.Utusonomiya &T. Moan (2004).

Very large floating structures (VLFS) have attracted the attention of architects, city planners, and engineers because they provide an exciting and environmentally friendly solution for land creation from the sea as opposed to the traditional land reclamation method. The applications of VLFS as floating piers, floating hotels, floating fuel storage facilities, floating stadia, floating bridges, floating airports, and even floating cities have triggered extensive research studies in the past two decades. The VLFS technology has developed considerably and there are many innovative methods proposed to minimize the hydroelastic motion, improve the mooring system and structural integrity of the VLFS. This keynote paper summarizes the applications, research and development of VLFS over the past two decades.

"Overview of Megafloat: Concept, Design Criteria, Analysis & Design", Hideyuki Suzuki (2004)

This paper presents an overview of research and development on Megafloat, carried out by the Technological Research Association of Megafloat (TRAM) and other researchers. Megafloat is a type of very large floating structure (VLFS), pursued by TRAM, to develop technology for ocean space utilization and to show soundness of the technology and readiness for construction. On-site experiments with a 1000-m-long experimental model, as well as subsequent studies, are introduced.

"Floating Houses For Flood Plains", Dura Vermeer (2006).

One solution to the housing crisis and the challenge of mitigating climate risk that is being put forward with increasing vigour is to allow houses to be built in areas deemed at risk from flooding at a far greater rate than is "You could build homes that go up and down [with rising and falling flood water levels] that mean you do not displace any water off the site. The Dutch are very good at this," says Flood line technical director Faruk Pekbeken.

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III. SCOPE OF WORK

As we know in Kolhapur many of the villages are located on the banks of panchganga, bhogavati, koyana, warana and other rivers which are tributaries of Krishna, the largest river in Maharashtra which flow through satara, sangli and Kolhapur then runs through four states before culminating in to the bay of bengal .

A government official said "preliminary estimates say 10,000 families have become homeless sugarcane, paddy and banana crops suffered maximum damage. A large number of cattle also died. Business and tourism have suffered big losses."

3.1 Need

Environmentalist disagree with government stands and the massive construction in the prohibited zones of the floodplain of the river panchganga as the prime reason for flood & devastation that's why the need of floating houses such as AMPHIBIOUS HOUSES is necessary . Our motive of the project is to build the amphibious house in flood areas.

3.2 Advantages

1. The cost of floating house is cheap than concrete one.
2. The major advantages of float house is that the resident can stay in home during flood.
3. It has low density but it gives high strength.
4. It will not break down so it will not spread into surrounding.
5. Use of low cost material and locally available material can improve the vernacular character of the place and also efficiency of the structure.

3.3 Disadvantages

1. This cannot be constructed as a multistoried as a multistoried building.
2. It is subjected to strong external loading due to wind, ice and other environmental condition.
3. There are restrictions to esthetic view as there is limitations of size and shape of the house.
4. Height limitations are restricted to the mooring post heights.

IV. METHODOLOGY

An amphibious house is a building that rests on the ground but whenever a flood occurs, the entire building rises up in its dock, where it floats, buoyed by the floodwater.

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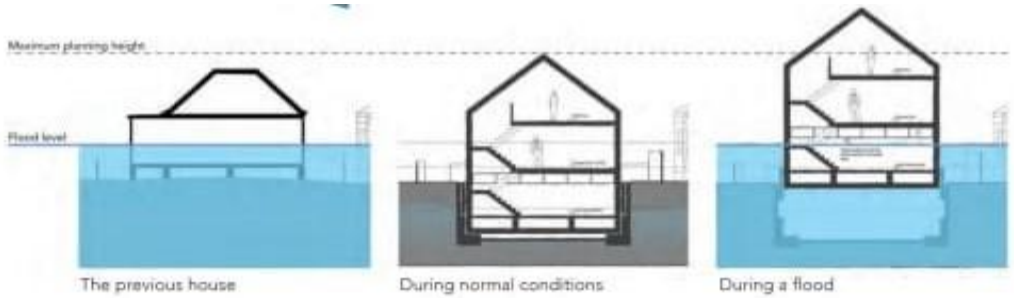
Amphibious construction brings together standard components from the construction and marine industries to create an intelligent solution to flooding. The house itself sits in the ground and the floating base is almost invisible from the outside. Amphibious designs can vary to suit the location and owners' preferences.

4.1 Design Specification

The amphibious design allowed the floor level to be set less than 1m above the ground level instead of 2m, had the house been static. This enabled a 225sqm 3-bed dwelling to be constructed over three floors in place of the existing 1-storey 90sqm. House without significantly increasing the ridge height, and therefore achieved full planning.

Construction is slightly more expensive than mainstream house building due to the requirement for two foundation systems: the dock and the hull; but overall the costs are comparable to a typical basement extension, or around a 20-25% uplift on a similar size new house. The technology is ideally suited to areas of high flood-risk or if there is uncertainty regarding future flooding levels, as well as in historical or sensitive landscape settings where more heavy-handed solutions would be unacceptable.



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