

A Review on Under Water Glass Aquarium Tunnels

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Abstract: Population in India is increasing quickly and reached about 127 crores with average growth of 1.6% every year. Traffic Crowding and blockage is one of the major problems that India is facing and it has a huge hit/effect on the quality of air, time of travelling, trade and cost. It has been noted that the government are trying their best in order to come up to this problem by creating structures such as Tunnels, Subways, Flyovers and Bridges. But unfortunately, it fails as does not match up with the increase of population and due to less amount of land available for the construction. In this report there is a study on the construction of the buildings and structures with a new technology of building under the water. It has been noted that the underwater buildings exist since year 1960 but no one knew about it. The underwater construction of the buildings can be advantage-giving to the people and the surrounding conditions. If such technology is changed/ready everything can be built underwater such as buildings, houses, shopping center, museums, entertainment hub, restaurants, hotels, sports stadiums etc. This can lead to a progressive and a beautiful life to the people and they can even enjoy their holidays at such places. Encouragement of underwater building is given by the beautiful view beneath the water of fishes, sea beds, different creatures and coral reefs. This paper discusses about the materials which should be used for the construction of underwater buildings, ways of building and special needed things, the possibility of such constructions, advantages and disadvantages of underwater buildings, the hit/effect of such buildings on surrounding conditions, effect on the social life and transportation.

KEYWORDS: Under Water, Glass tunnel, Glass Structure.



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INTRODUCTION

Underwater buildings are the structures which are built under the water and each building built has a clear and particular reason related to it in keeping with the type of its construction. The idea of the underwater production came into action with the construction of underwater research stations through Jacques Cousteau's team inside the 1960's. To an ordinary person, he has by no means idea/plan of going to an underwater building and through the development of underwater homes it is a new improvement and improvement of the generation. Underwater construction is the pre-planned future goal or future foundation so that you can have a great hit on the surrounding conditions, it will also lead to some of the troubles to the things that are near and around which will be angrily faced because of the application of this technology but if we get fulfillment in reaching it, it will be a huge gain to the health of the Earth which is getting crowded day by day due to the growing population. About 3/4th of the earth's floor is protected with the aid of water and waters our bodies. For this reason, the development closer to the underwater production technology will be useful to the people.



BENEFITS OF BUILDING UNDERWATER STRUCTURES

Underwater construction will have great benefits to the people living in India. There will be a decrease in the populated places present on the surface of land. There will be a progress and improvement in technology used for its construction. It will help increase tourism as all the people from all over the world would come for the amazing experience of many fishes and coral and it will be provide as a source of entertainment for them and also, the corals will be protected from the touching and diving of the people. The people will get extremely interested by it and if this idea gets success, then it will get easily spread among the people. After asking some people it was found that most of the people accepted the idea of going to the underwater city for the means of

entertainment or in order to get a new fancy experience. Hence this project may get success.



At the heart of Blue Planet Fish tank is the 'Aqua-tunnel', one of the longest underwater tunnels in the world. You'll be taken on an amazing underwater safari on our moving walkway and everywhere you look you'll find amazing and humid fish and awesome sharks staring back at you!



Meet one of Europe's largest collections of Sharks face to face! Amazing Sand Tiger Sharks, beautiful Guitar Sharks and beautiful Black Tip Sharks can all be seen as you drift along through the 70 meter long underwater 'Aqua-tunnel'.

Look up and be greeted by the bold and rude smiles from our stunning Stingrays. You can't help but smile yourself when you see them!



Get up close and personal with Blue Planet Aquarium's sharks. Weighing in at up to 350lbs and at lengths of 3.2m the Sand Tiger Sharks are by far the largest in our tank! Remember, all of our sharks and fish are actually a third larger than they look in the tunnel as the curve in the plastic changes the way of seeing things. Go through the tunnel as many times as you like, each time you will spot something different and be amazed at the wonderful world of the Caribbean Reef.



Tunnel construction for transport routes is becoming more and more important worldwide. Transport is fast and best protection is given for the health of the Earth and the wide view of a nature scene/wide area of beautiful land. Many tunnels are carefully thought about extremely and amazingly good things that people created and governments have honored tunnel engineers as heroes.

Building a tunnel, however, is one of the most complex challenges in the field of civil engineering. Tunnels are attractive solutions for railways, roadways, public utilities. Worldwide population is increasing quickly so the need of fast or quick transportation to fight against this about 3/4th of earth floor which is under water is to be used. This gives rise to construction of underwater tunnel. An underwater tunnel is a passage, gallery or roadway beneath a body of water. Underwater tunnels are used for highway traffics, rail road and subways to transport sewage, oils, gas or vehicles and also for military. Modern underwater tunneling begins by building a tube within a pre-dug trench on the river or sea floor, to do these pre-created sections of steel and concrete tube are floated into position and intelligently sunk into the trench. Underwater tunneling is an art of guiding the great natural force, the water, to do Engineering works.

SOCIAL ASPECTS

Over population is carefully thought about the area problem that is increasing at a high pace and this result in big number of issues. we understand that the blue colour rules the earth therefore these reasons for doing things have let the humans think about the opportunity of the underwater constructions. Now, the point is will people accept the idea of living underwater in future or this project will turn out of no use. Because of the high price of construction those underwater building may also get kept to/restricted to the sure amount of people who are capable of find the money for it and this will be thought about because the signal of rich human beings allows to think about that if the time in history gets developed there might be the discount, however if whole cities are built underneath the water. It'd be hard for the human beings to accepts the sort of alternate and to live there, due to the fact some people wish solar and as this underwater city are some distance faraway from regular world some human beings might think that they

would get remoted. Others need to try the brand-new ways of living and enjoy the quiet, peace and fantastic view of nature.

MATERIALS USED

There are many materials to be used for the building but our selection should be such that the material fulfils our needed thing and to be had with a very little price. While choosing the materials to be used inside the manufacturing, it is very important to make sure that the burden restriction is not went beyond. The way of thinking about fabric to be used for construction underwater changed into a kind of steel and plastic. The plastic fabric is used specifically for visibility, on the same time because the steel is used for addition. Steel is used as it is in particular good price, and has its ridiculously overdone yield electricity.

It isn't always a terrific conductor of power and warmth. It's far a too slow chemical breakdown of something rust resistance. Plastic fabric is used in preference to glass; it is better than glass due to being much less dense, and it's also has higher effect electricity than the glass. Plastic gives the herbal length of time and colorings of the including materials than glass. It's also proper insulator of strength which is good in searching out the fitness and safety of clients and underwater creatures.

SCOPE

1. Due to shortage of land and quickly growing traffic and population, different underwater tunneling construction ways of doing things should be put into use.
2. As underwater tunnel have shorter routes than bridges and roadways, it saves our important time.
3. Different materials such as oils, gas and drinking water can be moved at the same time along with the traffic route.
4. By using advanced technologies clear tube can be built which gives very beauty-related and attractive view for passengers and tourist.
5. Therefore making the overall project cost effective.

OBJECTIVE

Under water glass Tunnels are submerged glass passages or structures used for transportation and also for submerged buildings or structures. They could be

used for carrying passengers, water, sewage, under water aquariums. Glass Tunnels helps to see the surrounding clearly. Tunnels avoid disturbing or interfering with surface life. Tunnels prove to be cheaper than bridges or open cuts to carry public utility services like water, sewer and gas. Accomplishments of these constructions in water, causes the land and rock-based conditions in water plays a big part in their firm. Parts of major importance and that are clear for the completion of a tunnel project is land and rock-based conditions in water, construction time and costs.

RISK MEASURES TO BE CONSIDERED FOR UNDERWATER TUNNEL SETTLEMENT:

In a watercourse carrying a high material that sinks in liquid load, it is desirable to put underwater/surround by something the tunnel elements as soon after completion of digging/scooping and trench cleaning as possible, and to complete the sand flow operation as quickly as possible after the elements have been under water.

RISK OF SEDIMENTATION:

Very important in planning the marine activities for forming the foundations to test/evaluate the risk of sedimentation and plan for watching/supervising and cleaning procedures, should it happen. If there is a risk of sedimentation, then exposure time between placing an element and under filling it should be made something as small as possible.

BEHAVIOR IN SEISMIC CONDITIONS:

Sand foundations can act in front of people in an acceptable way under earthquake-related load, some thought is given to the risks at the design stage. The issue to guard against is preventing liquefaction. This can be gained with effort by the selection of an appropriate grading or through making steady and strong. In highly active zones, a mix of little rocks or grouted mix of little rocks solution is more likely to give the proper solution.

GROUND IMPROVEMENT

Ground improvement may be needed for a variety of reasons. Underwater tunnels are often built in the poor fluvial rivers, with sands and mixes of little rocks often mixed with layers of silt and clay. If the soils need to be

improved, there are some recognized ways of doing things that may be chosen:

- Granular replacement
- Stone columns
- Sand compaction piles (SCPs)
- Soil mixing.

CONSTRUCTION WORK OF UNDERWATER GLASS TUNNELS

Building beneath water is a very expensive way because of using heavy machinery, devices and professional workers. Building below water also includes some of welfare and it wants to large price range. Wearing away is the method of weathering and delivery of solids material that sinks in liquid, soil, rock and different rock particles in the natural things that are near and around something or their source and deposits them someplace else.



It usually happens because of transport with the useful thing valuable supply of wind, water, or ice so engineers should pick out appropriate materials for beneath water building. Location of fuel may also be possible when the driller machines and other machinery are trying to find out oil or to any ship also can damage the outlook and structure of the building it's far out of manage. The hassle of warmth of the water. The temperature differs/changes good enough over the surface of water, it is heated from the ground from the below by the usage of daylight hours, but at depth maximum of the water may be very cold. The problem of pressure Stress act at a large amount in convincing the guidelines of the building and people comes to problems one or the other at some stage in the development system or at some point of the protection procedure.

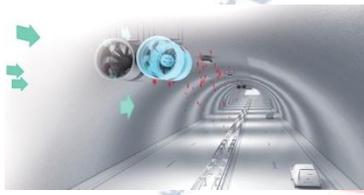
Building element, No doubt that the first problem that is to be had in our mind at the equal time as talking about the development of underwater systems is the problem of filling with air. There need to be a supply of renewable air that helps in breathing and lung related, and removing unwanted gases. Permits discover a

solution, for the air flow hassle, that changed into put into use at the same time as the development of the underwater Holland tunnel.

Tunnels, especially, have an very unusual trouble with fresh air due to gases produced by trains and cars. This hassle changed into talked to/looked at with the aid of Clifford Holland. His plan/purpose was to find ways to easy exhaust fumes and pump in clean air, reaching this with the aid of manner of the usage of filling with air towers, and fans to transport air in and out. In the end, air can be changed each ninety seconds.

TUNNEL VENTILATION

In Tunnel fresh air is critical for a variety of reasons. Usually, fresh air makes sure of an enough air quality, controls the spread of smoke in case of fire, and reduces air temperatures to acceptable limits. The function of the fresh air machines that bring fresh air relates to the type of tunnel in question.



CASE STUDIES

DUBAI UNDERWATER RESORT

It's far anyway beneath development. The motel is located at 33 feet below the surface of water. The total cost of this project is over \$550 million. The surface station can be related with the main project below the water with a 515-meter-long tunnel via which an unplanned and suddenly it teaches the shipping people to the underwater motel.



It has 260 hectares place consisted of the bubble shape suits 220 in numbers which are formed at 20 meters beneath the surface of the water. The motel or hotel may even have many safety features. It consists of sequence of waterproof entrances which can be used in case of any joy. It's going to have its personal Rocket-fired weapon or high-speed flying weapon which is

protection in the situation of any related to a person who feels very strongly about something attack.

UNDERSEA - THE POSEIDON LUXURIOUS RESORT

The idea was developed by an American engineer Bruce Jones. The Poseidon resort as shown in the figure can be reached with the help of the elevator. It is built up in the area of 11 lakh rectangular foot. The area of every room contains/makes up of 550 rectangular feet. The total cost for the development of this project was 100 million dollars.

THE UNDERWATER RESTAURANT – ITHAA



The underwater restaurant – ithaa

The construction was done in Singapore. Its development started in the year 2004, and the work got over in October 2004 together with set up of the plastic clear arches, air conditioners and electric powered channels. The length of time of its existence is 20 years. Louis C Baleros "Famous Hong Kong in on Harbor area "This assignment is help to make a dramatic elevation of the shape. The famous resort is the shape of elliptic and 1/2 part is underwater to the ocean water. It counters (firm and steady nature/lasting nature/strength) it's self-weight and (forced (on people)/caused an inconvenient situation) loads. It is used to make a brilliant interior for the structure. These lodges contain/make up Mini Island of parks itself. It helps to offer Evans dreamed up the floating structure, which affords guests with a (like nothing else in the world) way to experience the awesome (something that blocks or stops something) Reef. Available best through boat or helicopter, maximum site visitors arrive through too much/too many speeds catamaran to enjoy an afternoon of scuba diving, snorkeling, and (lying in the sun).

CONCLUSION

This paper analyzed the present-day generation of construction of structures beneath the water. Building under sea glass tunnel, the water is the future establishment that has an excellent effect on the health of the Earth or the surrounding conditions. This document has shown up what underwater buildings are. It has talked about effect of underwater constructions and social existence. It has tested the materials which can be used in underwater building. It also described the problems that are faced during the construction of structures below the water. It has described the air flow structures which are used. It has higher the reader with a few examples of underwater constructions that have been built or under manufacturing, in order to fascinate/hypnotize him with the appealing view and the beauty of buildings. So, this document compliments and respects the reader to don't forget this technology of building, and convince him to stay down there.

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