



radical
innovation
in hospitality
award

2011

Grand Prize Winner

The Ark

Submitted By:

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THE ARK HOTEL

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Concept:

For contemporary architecture two aspects are of the highest concern: the first one is maintenance of security and precautions against extreme environmental conditions and climate changes; the second one – protection of natural environment from human activities. The Ark Hotel makes an attempt to answer these challenges of our time.

1. This Ark Hotel can be built quickly after natural disasters or rising of sea level for temporary accommodation of victims - because the building may hold onto the water surface, protected from earthquakes and consumes energy, which itself produces.

2. The Ark Hotel is a green hotel. The independent-from-power-networks building can be constructed in the most beautiful and previously inaccessible places, including the water surface, while respecting the environment. Autonomy from the existing infrastructure should create unique opportunities for guests - to live in comfort and safety in wild nature or drifting over the water, watching the changing landscape around them. The Ark Hotel is probably the greenest hotel ever!

Guest experience:

1. After natural disasters Ark Hotel residents will feel no need in external energy, they will quickly get temporary housing with all necessary infrastructure, which will not depend on external adverse environmental conditions. After the construction of permanent housing for the victims, the hotel can be quickly disassembled and assemble elsewhere.

2. The Green Ark Hotel guests receive a unique opportunity to live comfortably and safely in places previously inaccessible - on the water surfaces, in the natural reserves, in the mountains and deserts, even in Antarctica. Moreover, the hotel can be an island in the ocean or it can drift quietly along the shore. This allows guests to feel themselves like on the cruise liner, but without the inconvenience of seasickness and tightness. All this is thanks to unique architecture, which became part of independent, non-polluting energy system. Flowers, herbs and vegetables can be grown directly at the hotel. Secluded location of Green Ark Hotel contributes to the development the "team-building" - corporate events, exhibitions and conferences, sport events, education of social responsibility events, eco-oriented education. Not to mention watching the types of the underwater world and the changing landscapes around, diving and yachting directly in the place is another advantage of the hotel.

Design:

It will feature a transparent roof, that will allow natural light into it to provide heat. There will be wind turbines also that will be used as a way to create energy along with solar panels. The gutters from the roof will collect rainwater that is to be heated using any & all means of the self-reliant capsule. A see-through hotel that can be adapted to suit both land and water is a "self-contained oasis" and be scaled to house between 50 and 10,000 people. Flowers and plants would be housed in the structure, as would be water tanks and hot and cold storage. It would use a combination of wind, solar and thermal energy.

The structural solidity is provided by compression of the timber arches and tension of the steel cables. The framework is covered by glass with a special foil made of ETFE - Ethyl TetraFluoroEthylene, a strong highly transparent foil, self-cleaning, recyclable, more durable, more economical and lighter than glass. The glass with foil itself are fixed to the framework by special metal profiles, which serve at the same time as solar collectors for water heating and as gutters intended for collecting rainwater from the roof surface. The project is basically a domed building with a central bearing in the form of a tube with all engineering communications passing inside it. Such a form permits to attain an optimum relationship between the building's volume and its outer surface, with a substantial saving of materials, also enabling for effective energy usage. Prefabricated frames permit to erect such kind of buildings very quickly.

The building by itself constitutes a single energy system; the dome form helps in by aiding the generation of an air flow on the outer surface of the central bearing, were the wind generators are placed. The actual form of the building is suitable for the placement of photoelectric cells at the correct angle towards the Sun. The agglomeration of the warmed air in the upper part of the dome is collected in seasonal heat, electric and hydrogen accumulators, in order to provide an

uninterrupted energy supply for the whole complex regardless of the outer environmental conditions. The building can also produce extra power for supplying adjacent houses and "green" transportation. All wastes are recycled inside the building using methods such as the oxygen-free pyrolysis.

This project is viable in different climatic zones and in systemically dangerous regions, mainly because of its shell structure, without any ledges or angles; a stressed structure of arches and ropes that permits to distribute loads along the whole bulk of the building, in case of earthquake. In case of increased global sea level water rise, the structure allow for the building to float, bestowing it with an increased autonomy on the surface of the water.

The next step in creating a bioclimatic building is the planting of a greenery space. All the plants were chosen according to principles of compatibility, illumination and efficiency in oxygen production, becoming also a valuable element in an effort to create an attractive and comfortable living space.

Impact on industry:

1. Thanks to the autonomous life support systems and lack of pollution it is possible to build hotels where there is no energy and other infrastructure - the water surfaces and mountains, in the midst of nature reserves and in the deserts, up to Antarctica. Island in the ocean or drift along the coast is becoming a reality for these buildings.
2. With mass production of such buildings can develop related industries -
 - production of alternative energy sources (photovoltaic cells, wind turbines, heat pumps),
 - manufacture of vehicles, boats and yachts on alternative energy sources (hydrogen, electricity),
 - manufacture of innovative environmentally friendly building materials,
 - development of bio-climatic and other technologies to create a comfortable, healthy climate inside the building.
3. The revenue generated by the hotel business would of course have to be on a very high level in order to generate a satisfactory RoI.

Feasibility:

All technologies of life support, alternative energy sources and building materials already exist separately. In Ark Hotel, they are linked into a coherent whole with the architectural form, life-support systems and bioclimatic technologies and work synergistically - that is, the efficiency of all systems in the complex is increased significantly. Light and prefabricated constructions allows to construct such buildings in a short time, which saves money and energy.

The top floor is an observation deck, full landscaping, which is a decorative garden for growing their own herbs and flowers.

On the ground floor are situated: lobby, conference halls, bars and boutiques.

On the first - third floors there are 100 living rooms including Suites and Executive rooms. All rooms have landscaped balconies and overlook the outside. On the third floor is an atrium, where there are large trees.

On the first floor below the "zero" are three restaurants that have views on the underwater world.

The remaining floors below zero - fitness, services, entertainment and sports, technical facilities.

Yachts and boats can be moored right next to the lobby.

- Main use: **hotel**
- Site area: **2900 m²**
- Building floor area: **14 800 m²**
- Open spaces: **2 500 m²**
- Greenery: **2500m²**
- Lobby: **500 m²**
- Rooms: **100** (including Suites and Executive rooms)
- Restorants: **3**
- Bars: **2**
- Night club: **1**
- Service center: **1**
- Conference halls: **5**
- Beauty salon: **1**
- Business Center: **1**

The Ark























