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Design of upside down Museum

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ABSTRACT

Nowadays, in this fast moving world the giving moment for past or history is becoming hardest thing. As everyone stepping on next generation, there is no one to take care about history of nation. To improve and support the history in this modern world in an innovative way is our aim. As an engineer, we planned to build an upside down museum which is a token of remembrance for our national leader. The architect of upside down elevation will easily attract the people to view a unique structure. By this, it's become good thing to spread history to all. Though the structure is upside, we designed it in a feasibility and economical way. We made the structure perfect by applying all design in limit state method as per IS 456 and SP 16 and also we use M_{20} and Fe $_{415}$ for strength of structure. We planned to provide sub- structure as isolated footing 'cause our soil is in drained condition. We decided to place our design project in OMR road as it will provide a peaceful environment. As this OMR road is special for many MNC companies, there are travel facilities to reach our spot.

KEY WORDS: Design, museum, world, upside.

1. INTRODUCTION

Upside down museum is a unique and innovative structure which is constructed in order to show a museum in different manner which is attractive and to induce some knowledge for a young generation who are not interested in seeing museum in this fast moving world. We are decided to design our project in OMR road which is called as IT corridor comprises of many colleges and various companies. Our main aim is to attract college student who are the upcoming generation of our future. Rajiv Gandhi salai (also known asold mahabalipuram road (OMR**)** or IT corridor**)** is a major road in suburban Chennai, India, beginning at Kailas temple in adyar in south Chennai and continuing south till mahabalipuram in kanchipuram district, ultimately merging with the east coast road.

This is popularly called as the IT corridor because this stretch has become home to many IT/ITES companies. This road is state highway-49A.The corridor, an ambitious six-lane project with service lanes and landscaping, is still in the making. The first phase - 20.1 km from Madhya Kailas junction in Adyar to Siruseri- was to have been opened by 2005. Plagued by delays, primarily due to problems in land acquisition, the stretch became operational in 2008. Feasibility studies are being conducted for phase 2 between Siruseri and Mahabalipuram. We are planned to design our project in this place with feasibility and economical.

Climatic condition:

Temperature: Over the course of a year, the temperature typically varies from 70°F to 101°F and is rarely below 67°F or above 106°F. The warm season lasts from April 30 to June 18 with an average daily high temperature above 97°F. The hottest day of the year is May 20, with an average high of 101°F and low of 83°F. The cold season lasts from October 26 to February 9 with an average daily high temperature below87°F. The coldest day of the year is January 21, with an average low of 70°F and high of 85°F.

Precipition: The probability that precipitation will be observed at this location varies throughout the year. Precipitation is most likely around August 10, occurring in 57% of days. Precipitation is least likely around February 10, occurring in 4% of days.

Wind: Over the course of the year typical wind speeds vary from 0 mph to 16 mph (calm to moderate breeze), rarely exceeding 20 mph (fresh breeze). The highest average wind speed of 9 mph (gentle breeze) occurs around May 27, at which time the average daily maximum wind speed is 16 mph (moderate breeze). The lowest average wind speed of 3 mph (light breeze) occurs around October 30, at which time the average daily maximum wind speed is 10 mph (gentle breeze).

Humidity: The relative humidity typically ranges from 39% (comfortable) to 95% (very humid) over the course of the year, rarely dropping below 28% (dry) and reaching as high as 100% (very humid). The air is driest around May 23, at which time the relative humidity drops below 45% (comfortable) three days out of four, it is most humid around October 30, exceeding 94% (very humid) three days out of four.

Clouds: The median cloud cover ranges from 38% (mostly clear) to 79% (partly cloudy). The sky is cloudiest on July 26 and clearest on February 29. The clearer part of the year begins around December 4. The cloudier part of the year begins around May 31.

Objectives: To inspire people around the area in the field of history and to encourage them by making wonderstruck about loyalty of our motherland. Moreover to carve our young generation with a blow of patriotic

passion in their heart. To provide nationalistic feelings and to admire our past history and to know the depth of our freedom's legend we planned to build this museum.

Need for study: Our choice for picking a unique and innovative structure for museum to fascinate young generation and to the people who lives in a fast moving world. By building an upside down museum, people will thought to relax and wonder the mind blow of safe structure and critical architecture will charm them more. Hence by this people will get attract to the place and our purpose of conveying patriotic message will be fulfilled.

2. EXPERIMENTAL

Work schedule: We are going to design our museum as following:

a) Design of slab, b) Design of beam, c) Design of column, d) Design of flat slab, e) Design of footing, f) Design of staircase

Footing design: Reinforced concrete foundations, or footings, transmit loads from a structure to the supporting soil. Footings are designed based on the nature of the loading, the properties of the footing and the properties of the soil. The following steps are typically followed for completing the structural design of the footing or pile cap, based on ACI 318-05:

a) Determine footing plan dimensions by comparing the gross soil bearing pressure and the allowable soil bearing pressure.

b) Apply load factors in accordance with Chapter 9 of ACI 318-05.

c) Determine whether the footing or pile cap will be considered as spanning one-way or two-ways.

d) Confirm the thickness of the footing or pile cap by comparing the shear capacity of the concrete section to the factored shear load. ACI 318-05 Chapter 15 provides guidance on selecting the location for the critical cross-section for one-way shear. ACI 318-05 Chapter 11 provides guidance on selecting the location for the critical cross-section for two-way shear. Chapter 2 of this handbook on shear design also provides further design information and design aids.

e) Determine reinforcing bar requirements for the concrete section based on the flexural capacity along with the following requirements in ACI 318-05.

- Requirements specific to footings
- Temperature and shrinkage reinforcing requirements
- Bar spacing requirements
- Development and splicing requirements
- Seismic Design provisions
- Other standards of design and construction, as required

National building museum: The National Building Museum is housed in the former Pension Bureau building, a brick structure completed in 1887 and designed by Montgomery C. Meigs, the U.S. Army quartermaster general. It is notable for several architectural features, including the spectacular interior columns and a frieze, sculpted by Caspar Buberl, stretching around the exterior of the building and depicting Civil War soldiers in scenes somewhat reminiscent of those on Trajan's Column as well as the Horsemen Frieze of the Parthenon. The vast interior, measuring 316 × 116 feet (96 × 35 m), has been used to hold inauguration balls; a Presidential Seal is set into the floor near the south entrance.The National Building Museum's Corinthian are among the largest in the world measuring 75 ft. (23 m) tall and 8 ft. (2.4 m) in diameter.

Museum building design and exhibition layout: A theoretical as well as practical key issue in the design of art museum and galleries is how the layout of space interacts with the layout of objects to realize a specific effect, express the intended message or create a richer spatial structure. Depending on the way museums use these principles, it is possible to distinguish between museums that intend to convey a pre-given meaning and reproduce information, and museums that aim at creating fields of possible meaning and producing a richer spatial structure. Precisely, the first part of the paper discusses the main dimensions of spatial variability in the selected museums, while the second directs attention to the variability of display strategies. On this basis, the final part seeks to build an overall model of the underlying principles that govern different possible forms of layouts and their implications on the main dimensions of our experience of museums.

Residential spiral stairs – guidelines, criteria and dimensions: Sean O'Hara on April 20, 2015 suggested some Guidelines, Criteria and Dimensions. Spiral staircases may be an option for your residential applications where you can't fit a conventional staircase. These are the rules from the 2006 International Residential Code. Spiral staircases have to be at least 26″ wide with each tread being at least 7.5″ deep when you're 12″ in from the narrow end. The treads have to have identical (uniform) dimensions and a rise of no more than 9.5″. You also have to provide headroom of at least 6′-6″. (Residential Spiral Stairs – Guidelines, Criteria and Dimensions — EV studio, Architect Engineer Denver Evergreen Colorado, Austin Texas Architect.html)

National museum of natural history library / Smithsonian libraries: (National Museum of Natural History Library Smithsonian Libraries.html): The National Museum of Natural History (NMNH) Library consists of the main location (on the 1st floor and basement of the NMNH's East Court) and 11 specialized collections throughout the NMNH building. These collections are located within the NMNH Entomology, Invertebrate Zoology, Vertebrate Zoology, Mineral Sciences and Pale biology departments. The NMNH Main Library and its satellite locations all have strong collections of 19th- and 20th-century literature. Pre-1840 titles are accessible in the Joseph F. Cullman 3rd Library of Natural History, which is part of the Special Collections Department, SIL.

Designing science museum exhibits with multiple interactive features: This article describes five common pitfalls of designing exhibits with high levels of interactivity or multiple interactive features:

a) Multiple options with equal salience,
b) Features allowing multiple users to interfere with one another,
c) Options that encourage users to disrupt the phenomenon being displayed,
d) Features that make the critical phenomenon difficult to find, and
e) Secondary features that obscure the primary feature. Examples of each of the five problems are presented, and possible design solutions are offered.

Design solutions: For many exhibits, the problems listed above can be regarded as interface issues, and can be solved through relatively minor changes to the exhibit's label or physical affordances. Less commonly, a complete rebuild is required to solve the problem. Here we list three specific responses to an exhibit that suffers from multiple interactive design features that are poorly integrated, a) Limit functionality, b) Segment functionality, c) Create a hierarchy of salience.

3. CONCLUSION

In conclusion, it should be noted that this conceptual model is proposed as a way of thinking, as a method for reading museum space as a set of formal potentials, built out of a number of basic concepts. In that sense it might be suggested that these ideas could be a valuable contribution to the design of museums in that they provide designers with a better understanding of principles and some knowledge of systematic consequences of strategic design decisions.

More importantly perhaps, they can also inform the application of new ideas, and encourage new ways of handling spatial and display considerations. In trying to optimize the interactivity in exhibits, the Exploratorium staff sometimes use a framework with two aspects: initial and prolonged engagement. By initial engagement, we mean the degree to which a visitor can determine how to approach an exhibit and how to get started by prolonged engagement; we mean the degree to which an exhibit offers opportunities for sustained explorations, challenges, and experimentation.

We try to build our interactive exhibits, particularly those that showcase interesting physical phenomena, to support both initial and prolonged engagement. Finally, we recognize that exhibit development is irreducibly complex, and though design principles may serve as tools to help us become more reflective practitioners, they are unlikely to provide simple prescriptions any time soon. For this reason, we want to emphasize the importance of conducting evaluation studies in all phases of exhibit development. Many development budgets include funding for summative evaluation, conducted at the end of the process to determine the degree to which a project met its goals.

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