

TECHNOLOGY AND INNOVATION IN MUSEUM DESIGN

Fathima Shaji, Assistant professor Sunil Kumar

School of Design, Interior and Furniture Design, Lovely Professional University, Punjab.

Abstract

The ultimate aim of the museum is to preserve and exhibits an artefacts of any historic, cultural, creative or social importance. This research paper focuses on technologies and innovation in museum design. It becomes the duty of an interior designer to style an area that implements the newest techniques, data, technology, and additional to stay up with the advancement. A museum should activate multiple senses of the human being not just the eye. Apart from the physical display of artefact, creating new-age exhibition presentation by combining quality design and innovative technology. With technology, the implementation of sustainable factors in interior design helps to enhancing the human health and productivity, as well as protecting the environment. The exhibition gallery is one among the most important part of museum interior. The effective presentation of assortment and data in the exhibition gallery is a major part of the museum design style. The chronological order and sequencing of events should be there to understand the timeline of events which shows what all changes happened over the time. The design concept focuses on bringing more audience to the museum. Enhancing the user experience by implementing interactive interiors.

Key words

Museum design, Technology, display and presentation, Exhibition gallery, Interactive interiors, Sustainability

Introduction

The museum design mainly focusing on different ways to display the artefact, Interior lighting (Both natural and artificial lighting), Concept of sustainable interior, use of technology especially interactive interiors. Currently technology is inescapable part of architecture and design. Museum design should be simplified, made open and more welcoming. The part of the core project is to reimagine how the museum should work and helps the community to gain knowledge. An art exhibition accommodates wide variety of artefacts like painting, sculpture, research records, video installation, audio installation, more interactive arts. Certainly the exhibitions in museum are focused on specific era, one genre, one theme, selected artist or sometimes great artworks selected by the juries.

Designing a museum is always an exciting architectural challenge. Museum often come up with their own unique needs and constraints. Here the museum design theme is contemporary. This 21st century design theme can't be defined by single styles. Probably it is the unified combination of several styles with the interpretation of innovation, technology, minimalism and use of new materials and moreover sustainability is unavoidable part of present era. The use of technology and sustainability together gives an outcome for great design. Several surveys states that the audience engagement in museum is much lesser compared to older days. So the ultimate aim of the project focuses on audience engagement.

Methodology

The methodology of the research is generally based on various studies of different groups of occupants in museum and the technologies which embraces the overall functionality and aesthetics of museum. Online survey helped to understand the needs of audience. The complete study gives an idea that the shift from the standard museum design to the innovative presentation and exhibition ways will manifest audience experience. During this context, museums reaching to share technological developments and completely

different views with a broader audience incorporate visual instructional materials (computer screens, Augmented and virtual reality, interactive projection systems, three-dimensional scanning, simulators, three-dimensional modeling, digital applications, digital way finders, lighting sensors). The research includes the major factors such as functionality, feasibility, human comfort, audience engagement and aesthetics.

Approaches towards design

Contemporary approaches in the field of museum design are an inevitable consequence of the era in which we live because we see new developments in every sphere of life every day. It is, therefore, clear that the common perception of museums as sites whose sole objective is to exhibit the artifacts of ancient history.

1. Functionality and flexibility

Functionality and flexibility plays a crucial part in architecture and design. Probably museums are designed for public and the target audiences are of different age groups, the functionality matters a lot. The exhibition gallery is one among the most important a part of museum interior. It ought to style in such the simplest way that enough circulation space for the occupants without creating a traffic. The zoning of different sections helps the audience to navigate easily. Moreover orientation gallery in museum is unavoidable part. Functionality consideration enables people to enjoy and work effectively.

2. Lighting in museum

Lighting plays a vital role in museum design. If we tend to doesn't offer right lighting in galleries, it will have an effect on overall interior style of museum. Particularly reserve reflection, glare and shadows has negative impact on displays. Natural light are efficient light source however its illumination could vary over the time and seasons.. Check that the exposure of natural light-weight doesn't cause any damages to the artefacts. Especially artefacts made of paper, fabrics and different natural materials, natural dyes, oil painting on canvas are less tolerant to high exposure of sunshine. Lighting technology has improved by an excellent quantity within the past few years.

Lighting in museums is designed to fulfil visual requirement of visitors as part of their comfort and enjoyment of museum experience .The most important lighting system used in exhibition rooms are:

- Luminous Ceiling

The idea of luminous ceilings meant to imitate daylight. Luminous ceilings deliver light that is especially appropriate for painting galleries.

- Indirect Luminaires

Indirect Luminaires distribute 90 to 100 percentage of the emitted light upward and it bounce off from the ceiling to wall surfaces.

- Cove Luminaire

The cove lights are another form of indirect lighting. Cove luminaires are frequently used in modern museum building. Cove lighting hides the fixtures and supply even lighting within the space. Basically shadow free and it directly illuminate towards the ceiling and down adjacent walls. Cove lighting hides the fixtures and supply even lighting within the space.

- Wall Washers

Wall washers illuminates a surface with uniform brightness. Wall washers draw attention to

- Spot Lamps

Spot lamps are a type of accent lighting which draws attention to specific object or place.

3. Human comfort, safety and accessibility

The museum is designed such a way that experience of the visitor including their physical and social well-being is taken into account.

- The physical space such as layout, lighting, flooring is created in such a way that visitors of varying physical sizes and abilities are able to navigate and interact with the exhibition.
- The content is developed in such a way that audience of varying ages, cultures and cognitive abilities are able to understand and learn from the museum.
- Labels are legible and easy to understand.

4. Sustainability factors

Water saving, energy efficiency, material selection, waste reduction, renewable source of energy, innovative strategies are sustainable factors that can be the part of museum design.

- Use of renewable energy such as solar energy to meet requirements can significantly reduce carbon footprints of such buildings.
- Use of low VOC or zero VOC paints in the interiors, which enables to maintain a better level of air quality and also doesn't have any side effects on human health.
- Sustainable flooring option like slate flooring, which is durable and needs less maintenance.
- Use of energy efficient lighting system like LED and provisions for natural day light.

5. Interactive Museum interior

The implementation of interactive technologies in museum interiors enhances the user experience and attract more audience to the museum.

- Audience can experience both tangible and intangible components.
- Use of digital display and projectors to convey the exhibition narratives and reinforce the overall content to the audience.
- Digital technologies like augmented reality and virtual reality drives more visitors to the museum.
- In augmented reality, which adds digital 3d element to a live view. People can experience an altered version of reality. AR can be experienced through Head Mount Displays (HUD), smart phones, tablets etc.
- Museums are intended to educate the visitors. In fact by the use of augmented reality things could convey easily. Using augmented reality to explain things which means AR can bring 3d objects to real life so that the audience can analyse it well.
- In VR instead of viewing a screen in front of them, users are able to interact with 3D world. In Virtual reality we can experience something similar or completely different from the real world. So the basic difference between AR and VR is augmented reality stimulates artificial objects in the real world at the same time virtual reality creates an environment to inhabit. Head Mounted Displays (HMD) Used to experience VR (both hearing and visual experience).

Conclusion

In conclusion, what distinguishes contemporary museum from traditional museum design is that museums today engage more interactive communication with the public. Therefore, visitors of museums, which have been designed based on modern functions and new understanding, are more open to different experiences and enjoy them more. Before overall objective of museums is to fund artworks, their styles are usually plain and straightforward with empty areas. But everything changed over the time and now museum architecture and design based on contemporary approaches. This created an aesthetic perception as a work of art. The objective of the museum design is to deliver seamless option which embraces all the fundamental components in the gallery and activates all the senses of human. Overall analyses gives an insight that good presentation never overshadow the artefacts. Technology plays a major role in the field of design and architecture. However technology is always improving, so there is no dead end for that and still more to come in future.

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