

DESERT TRACES MADAIN SALEH SITE MUSEUM

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Abstract

The project is a Site Museum of Madain Saleh in Al-Ula, Saudi Arabia. It is a unique and rich city of architectural heritage and nature, a place that is described as "an open-air museum." Madain Saleh, also known as Al-Hijr is the first inscribed World Heritage property in Saudi Arabia. It has a notable number of monumental tombs and decorated facades that date back to the 1st century BC to the 1st century AD. Along with many inscriptions, cave drawings, and water wells. The uniqueness of Madain Saleh comes from being the meeting point of the late Antiquity civilizations. As well as from its significance architecture and decorations that was cut into sandstone and still preserved. The site and its original function; as funerary architecture, is the driving force of the design. The proposed space program consists of archaeological museum, research, auditorium, entrance and administration, and outdoors zone. This study also proposed the best location at Madain Saleh as the project site location according to the site evaluation result. The aim of the project is to connect the bond between humans and nature, humans and the architectural spaces, and most importantly humans with themselves.

Keywords--Museum, Architectural Heritage, World Heritage, Funerary Architecture

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INTRODUCTION

Individualism and humanism are diminishing concepts in our contemporary cities [1]. From the vehicle- oriented streets, the mega-scale buildings, and uncomfortable public places that are surrounded with. Public spaces should address all the different physiological needs of their users. It should provide the social space and the solitary space [2]. And this is the origin of this project, to focus on making a humanized spiritual space.

The project is a Site Archaeological Museum combined with cultural and recreational spaces in Al-Ula which is rich in its architectural heritage and nature, a place that is described as "an open-air museum." Site museum is located in rural areas or unique sites dominant with a specific subject or arts [3]. To attract visitors they integrated the site with recreational functions focusing on tranquility, solitude, and nature, they are destination for people who are seeking peaceful time while engaging with art [4]. The program of the project includes Museum, temporary exhibition space, library, research and accommodations units, and outdoor areas. Besides that, this project increases the local interest of the population in the cultural heritage of the region. Also, it's creating a high sense of individualism in the public context through the layers of privacy, territorial spaces, and ownership.

CASE STUDIES

There are four fascinating arts and historical museum from China, Israel, USA and France are chosen for the case studies. All the museums are sensitively designed to present the best content to the visitors. The selected museums are magnificent and unique, and they are:

- i. Dachang Muslim Cultural Center, China
- ii. Holocaust History Museum, Israel
- iii. Pérez Art Museum, USA
- iv. Lascaux IV museum, France

Dachang Muslim Cultural Center, China

Dachang Muslim Cultural Center located at China is designed by Architectural Design & Research Institute of SCUT (Figure 1) [5]. The project is located in Dachang County, Hebei Province in China. It is a cultural center that serves as art creation and

community center all together. It is like a spiritual home to the residents especially Muslims. The building and the design reflect the culture, local religion, and the history. The cultural complex consists of exhibitions, theatre, and a community center [5].

The building concept emerges from two aspects, the first from the designers own strategies and vision of creating architecture to make a better life, and the second aspect is related to the context and religion. The form of the building is translating the special form of the traditional mosques in a new approach, by using new sophisticated technologies and materials. Looking at the building you can see the simplicity of resembling Islam and the complexity of the arches and the dome [5].

The inspiration of the design was the Islamic religion and that is evident in many elements of the building. However there are two elements that make the building iconic and new, which was meant to be. The first one is the arcade; the building perimeter is constructed of illuminated arches that are also surrounded by water to make it sustainable and more graceful. The facade is considered as a sustainable border, the double facade and the several layers are creating this border [5]. The second element is the dome system; it is a significant part of the building. It has a symbolic meaning, it transfers the interior into a semi-exterior space, because it enclose a roof garden, it is structurally challenging [5]. The structure of the dome consists of 16 units, each unit is in one layer of the dome, and they are hollow to allow air to exit [5].

Holocaust History Museum, Israel

Holocaust History Museum located at Israel (Figure 2) [6]. The Holocaust Museum is part of the Yad Vashem complex in Jerusalem, it includes several memorials and historical museums. It was founded in 1953, the current building is almost triple the size of the former. The Holocaust History Museum designed by Safdie Architects, is a prismatic concrete tunnel that cuts through the Mount Herzl's hillsides. The hidden structure is 16.5 meters high and 183 meters long. It consists of a network of underground galleries that is skylit with only the elongated central spine breaking through the earth [6]. The tunnel and the gallery are

tracing the Nazism development and the Holocaust that is based on historical research about the victim's lives.

To reflect the tragedy of the holocaust, the emotional journey in the museum was the main design concept. The giant concrete triangle is digging deep in earth, almost covered in darkness and narrowness, it brings to the visitors a strong experience while shaking on the dim lighted tunnel and zigzagging through the underground rooms. The atmosphere in its context perpetuates the memory of the holocaust. The vision is to create an emotional experience and to preserve the character of the site of YaVashem [7]. The six design principles that Direct Safdie's approach considered are:

- i. Architecture and planning should shape the public realm "create meaningful, vital, and inclusive social spaces" [7].
- ii. Architecture has a purpose: design buildings that "address human needs and aspirations" [7].
- iii. Respond to the essence of place: design "specific to place and culture" [7].
- iv. Architecture should be inherently build-able: design is informed by "the specific qualities of materials and the processes of construction" [7].
- v. Build responsibly: "We have to use resources efficiently while we advance our clients' goals." [7].
- vi. Humanize the mega scale: "mitigate the dehumanizing effect of mega-scale, and enhance the quality of life in our cities and neighbourhoods" [7].



Figure 1. Dachang Muslim Cultural Center, China [5]



Figure 2. Holocaust History Museum, Israel [6]

Pérez Art Museum, USA

Pérez Art Museum located at USA is designed by Herzog & de Meuron (Figure 3) [8]. The museum park is located in Miami, part of the waterfront downtown. The project is located in an area known for its art deco iconic district. It is mostly decorated with boxes without inside and outside relationship. What makes Miami special is the climate, the lush vegetation and cultural diversity [8].

The concept of Pérez museum is focusing on three aspects, which are: Nature, specificity, and Community and views. These three elements are noticeable in the exterior and interior experience of the building, the combination of the vegetation, materials and interactive spaces distributed in the building. The interior volume of the museum is suspended along the structural framework, allowing each floor to take the shape it needs. "The expression of the building comes from the canopy, the platform, the columns, and the vegetation: in other words, the Veranda occupying the entire site" [8]. So the project is oriented toward the park, the water and the city.

Lascaux IV museum, France

Lascaux IV museum located at France is designed by Snøhetta and Duncan Lewis Scape Architecture (Figure 4) [9]. The Lascaux IV museum was commissioned to conserve the original fragile cave that was discovered in 1940, and dates back to 20,000-year. It has been accessible to the public until it was closed in 1963, due to the pollution that started to affect the cave's paintings [9]. The paintings inside the cave are described as the 'Sistine Chapel of Prehistory' because of their historical and spiritual significance. The Lascaux IV Caves Museum displays art from the Paleolithic period by using an experiential storytelling technology for the visitors to experience in the replica of the caves. It has a combination of low-tech and high-tech elements [9].

The aim of the project is to preserve the original work and ensure that the public can still experience the remarkable Paleolithic paintings within, and to create a holistic museum and educational experience. The design of the museum favors simplicity over the overstatement of the form and materials, this choice makes the building blend in with the surrounding landscape and direct the attention toward the art. The roof has broken lines that reflect the notion of faults, the cracks in the landscape.



Figure 3. Pérez Art Museum, USA [8]



Figure 4. Lascaux IV museum, France [9]

SPACE PROGRAM

This project provides activities for low or middle concentration of people, and they include different zones; public, semi-public, semi-private. Part of these activities gives people “time off” and provides an individual escape. The primary zones that considered for the space program are archaeological museum, research zone, auditorium zone, entrance and administration, and outdoors. The museum zone includes functions that are directly connected to the museum which are museum rooms, temporary exhibitions, storages and conservation units. The research units are the facilities that are dedicated to researchers only, and visitors who are coming for a specific purpose of study. The research unit includes labs for recording and studying, photography room, accommodation and working spaces. The public zone is where several activities take place and is totally accessed by the public; also some of the functions are directly related to the previous zones, such as the Library, lecture room, the entrance, administration and services. The gross floor area and the percentage distribution of the project are tabulated in Table 1.

Table 1. Space program of the project

Zones	Net area	Gross area	Percentage (%)
Archaeological Museum	3063	3981.9	34.5
Research	885	1062	9
Auditorium	960	1248	11
Entrance and administration	754	904.8	8
Outdoors		4320	37.5
Total		11516.7	100

SITE SELECTION AND ANALYSIS

Two sites have been chosen as alternative in order to choose the ideal site of the project based on the site evaluation. The first site is located next to the Heritage City of Al-Ula (Figure 5) and the second one is in Madain Saleh (Figure 6). The site evaluation criteria that used to evaluate this project location consists of topography, accessibility, noise levels, utilities, security and safety, image and visual quality, visibility, future development plans, nature integration, and scenic views. The site selection result is tabulated in Table 2. The weight factor is ranged from 1 to 5, the highest number mean the criterion is important to the project.



Figure 5. Site 1, Heritage City of Al-Ula [10]



Figure 6. Site 2, Madain Saleh [11]

Table 2. Site evaluation result

Site criteria	Weighting factor	Site 1	Site 2
Topography	2	2	3
Accessibility	3	4	2
Noise levels	3	2	4
Utilities	2	4	2
Security and safety	1	3	3
Image and visual quality	3	2	3
Visibility	2	3	2
Future development plans	4	3	4
Nature integration	3	2	4
Scenic views	4	3	4
Total		28	31

The chosen project location is Site 2 based on the site evaluation result in Table 2, as Site 2 marks the highest score. Since the site is located in the middle of the desert there is the possibility of having any site area, however the proposed site is 22,000 m² in area, which includes the current specify program and a room for future expansion. The site is accessible through a main and secondary street. However the secondary street is not continuous to the site, so it is suggested to continue it till the site.

Al-Ula has significant importance because of the heritage. This heritage includes a collection of artifacts in the existing museum of Al-Ula that reaches the amount of 3000 pieces, varying in size and type, and inscriptions. Along with the artifacts in the museum of Al-Ula, many artifacts of approximately 400 pieces are exhibited worldwide.

ZONING AND PROJECT DESIGN

The project has 4 main zones, archaeological museum zone, research zone, public zone, and the open air activities. Figure 7 shows the initial zoning which is based on the museum standards. The uniqueness of Madain Saleh comes from being the meeting point of the late Antiquity civilizations. As well as from its significance architecture and decorations that was cut into sandstone and still preserved. The site and its original function; as funerary architecture, is the driving force of the design. As a result, the design is focused on the following aspects:

1. Spirituality, Tranquillity: creating a poetic spatial experience. A journey through the landscape and the architectural building that connect the bond between humans and nature, humans and the architectural spaces, and most importantly humans with themselves. The journey is inspired by the symbolic language

used in the monumental tombs. The crow-steps is meant the ascending and descending to the heaven. Hence, the different levels of the building, and the different start and ending points of the experience.

2. Relevance and Harmony: The design of the building should fit with the surrounding, and the choice here is to reflect the monumentality and solidity. Also, the choice of materials is

sandstone which is the same material used locally, to make it more tangible and sustainable.

3. Open Air Museum: The city of Al-Ula and Madain Saleh specifically is characterized by its openness and exposure. This is maintained in the plan by a continuous relation between the indoor and outdoor.

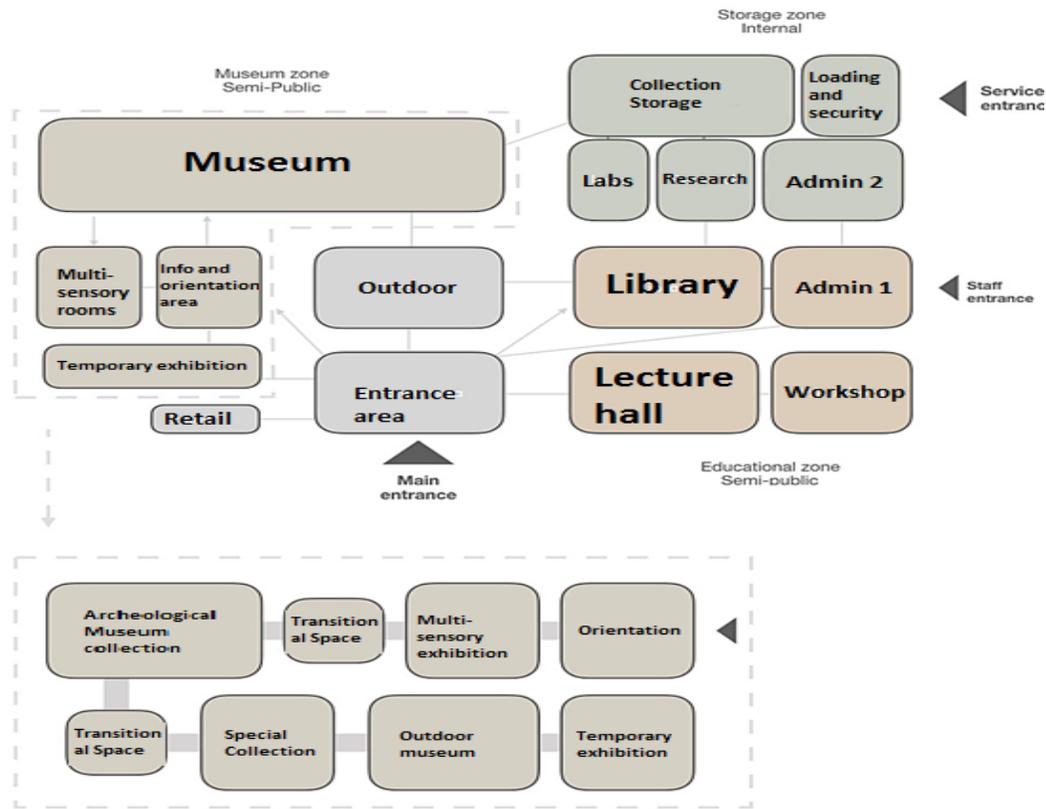


Figure 7. Building zoning and Museum Zoning



Figure 8. The main elevation and context

Figure 8 illustrates the main elevation and context of the project. The journey starts from the landscape while walking to the building. Users rise up through the stairs to the building, when they reach they see the museum gate in the center, also they can see the end of the journey through the skylight open to below (Figure 9). As they enter the museum (Figure 10), the journey starts at level 2 and ends at level 0 by descending gradually. Inside the museum, the rooms are in sequenced controlled order but with adequate options. It starts from the 3D sensory room, to the terrace, then to the natural room (Figure 11).

The different rooms are divided by transitional zones which focus on light (Figure 12). When users reach level 0 they reach the special collection (Figure 13), which includes important sculptures in chambers, its design is inspired from the chamber tombs of Madain Saleh, the last space display few more pieces that are open by the skylight (Figure 14). However, this is not the end, because after that users can go out to the open air museum or to Madain Saleh.



Figure 9. A The bridge leading to the museum



Figure 10. Museum Entrance



Figure 14. Special Collection



Figure 11. Natural Room



Figure 12. Transitional Spaces



Figure 13. Special Collection

CONCLUSION

This project aims to preserve the cultural heritage of Al-Ula and allow people to explore it in an experiential journey by focusing on the interior experience of the spaces. This study added a research unit that enhances the field of research of important artifacts. Several main zones are considered for the space program namely archaeological museum, research, auditorium, entrance and administration, and outdoors zone. The selected site location is at Madain Saleh according to the site evaluation criteria of topography, accessibility, noise levels, utilities, security and safety, image and visual quality, visibility, future development plans, nature integration, and scenic views. This project increases the bond between humans and nature by creating a vast outdoor area that enables visitors to contemplate. In addition, this project also creates a poetic experience by addressing the different physiological needs of the users.

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