

## ARCHAEOLOGY RESEARCH CENTER

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### Abstract

This project aims to promote and facilitate the rescue excavation, study, conservation, and public understanding of the archaeological heritage in an academic way. It includes cultural, educational and governmental activities that reflect the archaeological sector. The educational field include a research center that focuses on scientific research activities in the theoretical and practical fields that linked to archaeological sector. In the governmental sector, there is an agency of archaeology (General Authority for Tourism and national Heritage). It works to facilitate sustainable and successful development of the tourism industry in the Kingdom by providing a clear direction to enhance the applets of protect, record, explore, excavate and study the urban heritage. From the cultural side, the museum is a building where objects of historical, scientific, or artistic interest or is an institution which collects, documents, preserves, exhibits and interprets material evidence and associated information for the public benefit. The proposed site location is at Al-Jawf, Saudi Arabia. The outcomes of the Archaeology Research Center expected to enhance the tourism sector.

**Keywords**--Archaeology Research Center, History, Culture, Educational, Tourism

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### INTRODUCTION

Archaeology provides a unique perspective on human history and culture that has contributed greatly to our understanding of the past by studding the ancient and recent human past through the material that remains [1, 2]. Saudi Arabia is placed in the multicultural country and informative local various colours of cultures and civilizations that inhabited the Arabian Peninsula, especially Mecca, Medina, city of Ola, Jeddah, Riyadh,AlJouf and Jazan [3]. From here, there is need for specialized centers emerged that supply and develop the knowledge about the archaeology that extends from multicultural roots and prepares a suitable environment that let people exercise and learn under the supervision of specialists in restoration, conservation, and reconstruction methods.

The Saudi Arabia attempt to diversify the economy and reduce its dependence on oil imports, Saudi authorities are focusing on the development of the tourism sector, as one of the most important non- oil economic sectors [4]. Saudi Arabia also called for improving the educational and cultural situation and encouraging domestic tourism by drawing attention to archaeological landmarks, which are symbols of culture over time. Archaeology center interspersed the system of the urban fabric and are usually associated with indigenous roots that bound man to seed the first entity. The importance of architecture comes as an effective means of expressing this symbolic direction. And in that sense, the archaeology centers (Institute, exhibitions, laboratories, research centers and historical library) is to strengthen the relationship of buildings and the surrounding elements of the site and building codes for architectural heritage as cultural material and distinctive architecture tools [5]. Therefore, this study proposes the Archaeology Research Center to facilitate the rescue excavation and create public understanding of the archaeological heritage in an academic way.

### CASE STUDIES

There are three main case studies used in this study namely Archaeological Museum in Vitoria, Korean Institute for Archaeology & Environment and King Abdul-Aziz Historical Center. The first one is Archaeological Museum in Vitoria is a

timeless building with a clear concept and practical yet attractive use of structure and materials and space. Korean Institute for Archaeology & Environment this project has a clear circulation and clear distribution of the plans. King Abdul-Aziz Historical Center tis project is located in Saudi Arabia and reflect its heritage. These case studs reflect the ideas and desorption that used in this project.

#### Archaeological Museum in Vitoria, Spain

Archaeological Museum in located at Vitoria, Spain is designed by Francisco José Mangado (Figure 1) [6]. The Archaeological Museum stands in Vitoria, in the province of Álava which is Basque community's capital in Spain. It is constructed on a small site in a very populated city centers. This new complex is adjacent to the previously rehabilitatedBendaña Palace from the 1500s. These two buildings are connected by a shared courtyard. The Vitoria Museum gives the illusion of being closed off from the street covered in ribbed bronze cladding; the elevation is minimalistic with very less openings [6]. The building was designed in mind like a treasure box that protects significant and rare jewellery inside which are in this case: the museum exhibits. The external cladding gives hints of the dual-skin wall construction that gives a sense of the technical details are integrated into the building. Alongside this, the artifacts can be seen exhibited like in a showcase.

The project's concept is to mirror a treasure box that speaks of the passage of time and history and the many layers of earth upon which we build our worlds represented by the dark outer skin, which is actually a double skin and then the dark interiors interrupted by the bright glazed light shafts around which all the artifacts are organized. The glazed light wells themselves are used in the exhibition as sculptures showing detains and information about the displayed items [6].

#### Korean Institute for Archaeology & Environment, South Korea

Korean Institute for Archaeology & Environment, South Korea is designed by Hohyun Park and Hyunjoo Kim (Figure 2) [7]. Korean Institute for Archaeology & Environment was founded as Artifacts, research center as part of Korea University's

Archaeology Department in 1995. In 2006, research center changed its name to the current name. Major activities are excavation, research, publication, exhibition, and seminars. Since its foundation in 1995, the research institute has grown and existing facilities (within Korea University's Sejong Campus) are not enough to provide the good research environment [7]. So, the new research center was planned in early 2009. Requirement from the client was a total floor area should not exceed 2,300 sqm and Building scope was 3 floors [7]. They divided programs into two groups according their function and planned service areas between two groups. Since budget and construction time were limited, they decided to design relatively a simple form.

The project is designed in the form of asymmetrical wings the long wing (called research wing) and the short wing (called seminar wing) [7]. Because there are no big buildings around the center the architect aimed to increase the scope of the vision by using balcony, wide window and the cafeteria has a great view through full glass windows. Also the architect was focused during the design to make many rest space. By placing big and small terraces at many places, research space becomes more efficient and by adding an exposed translucent staircase on simple and linear form, they tried to create fun and efficient space.

**King Abdul-Aziz Historical Center, Saudi Arabia**

King Abdul-Aziz Historical Center located at Saudi Arabia is designed by RasemBadran /BEEAH Group consultants (Figure 3) [8].The National Museum was part of the "Murabba'Development Plan" to modernize the area around the old Murabba' palace district for the centennial celebrations in Saudi Arabia. The museum had been discussed since the eighties and in early 1999, leaving only 26 months for the planning and building of the museum from scratch. The architect Raymond Moriyama was inspired by the form and colours of the sand dunes of the "Red Sands" that located outside Riyadh. The west façade along Murabba'Square reflect the soft contour of a sedan with its layout forming a crescent point towards Mecca. For the final galleries the visitor enters the "Unification Drum" which has displays about the current Saudi State. The last gallery illustrated the two holy mosques and the hajj. Additionally, there are two further galleries for special exhibition.

The Design reflects the heritage, cultural and historical identity the city of Riyadh, also fitting with the architectural and urban fabric of the surrounding area. It represents "The High Commission for Development of Riyadh" development in the downtown area. The other part of the design concept was to pay attention to the environment, for the green spaces, including varieties of various plants and trees contribute to the reduction of air purification, pollution, and moderate temperatures, to benefit from the areas surrounding the center.



Figure 1. Archaeological Museum in Vitoria, Spain [6]



Figure 2. Korean Institute for Archaeology & Environment, South Korea [7]



Figure 3. King Abdul-Aziz Historical Center [9]

**SPACE PROGRAM**

This project includes cultural, educational and governmental activities that reflect the archaeological part. In educational field, this project focusing on scientific research activities in the theoretical and practical fields that linked to archaeological part. In term of governmental, there is an agency of archaeology (General Authority for Tourism and national Heritage).

It works to facilitate sustainable and successful development of the tourism industry in the Kingdom by providing a direction to encourage the applets of protect, record, explore, excavate and study the urban heritage. The cultural field include the exaptation that where objects of historical, scientific, artistic interest, documents, preserves, exhibits and interprets material evidence and associated information for the public benefit.

This study considered four main zones for the space program namely public zone, leaning zone, culture zone, and general authority for tourism and national heritage zone. Figure 4 illustrates the connection between the primary zones. The percentage and the footprint of the zones are tabulated in Table 1. The total footprint of this project is about 5512.25 sqm. The parking space is calculated and tabulated in Table 2. The calculated parking space for the project is about 194 parking lots.

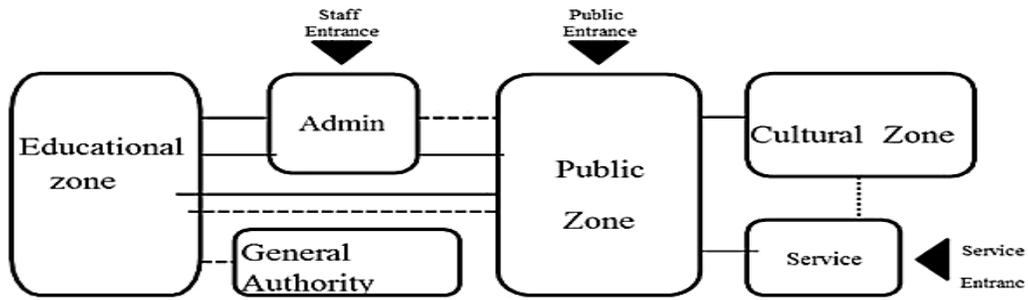


Figure 4. Flow chart of the project

Table 1. Space program of the build area

Zones	Percentage (%)	Net Area (m <sup>2</sup> )	BUA (m <sup>2</sup> )	Floor	Foot Print (m <sup>2</sup> )
Public zone	16.5	2323	2671.45	2	1335.7
Leaning zone	28.5	4038.6	4644.39	4	1161.09
Culture zone	49	6984.3	8032	3	2677.33
General authority for tourism and national heritage zone	6	882	1014.4	3	338.13
<b>Total</b>	<b>100</b>	<b>14227.9</b>	<b>16362.24</b>		<b>5512.25</b>

Table 2. Calculation for the space parking

Zones	Parking Calculation	Number of Parking Lots
Public zone	Parking Lot/70 m <sup>2</sup>	2671.45/70=38
Leaning zone	Parking Lot/100m <sup>2</sup>	4644.39/70=66
Culture zone	Parking Lot/45 m <sup>2</sup>	8032/100=80
General authority for tourism and national heritage zone	Parking Lot/100m <sup>2</sup>	1,014.4/70=10
<b>Total</b>		<b>194</b>

**SITE SELECTION AND ANALYSIS**

Selecting a proper site location is very essential to ensure the success of the project so it will be functional. The site must be surrounded by archaeological sites to help the users in their educational path. Prince Sultan bin Salman, Chairman of the National Authority for Tourism and National Heritage, announced in early 2015 the approval of the High Commissioner for the application of the Commission to register sites on UNESCO's World Heritage List, including Medan Saleh, Qal'atMurad and the Castle of Tabuk. For that reason the project will be placed in one of these sites. The site criteria are determined according to the requirement of the project. Different site criteria are used to evaluate the proposed sites, also the analysis based on terms of sun directions, wind, accessibility, and etc. The site that has the highest score will be selected including a full analysis. Figure 5 and Figure 6 illustrate the proposed Site 1 and Site 2 respectively. Site 1 is located in the Tabouk city, accessible from Othman bin affan Road. Site 2 is located in Al-Jawf, accessible from the yellow road. The land size of both

proposed sites are 20,600 sqm and part of this land can be used for project.



Figure 5. Site 1 [10]



Figure 6. Site 2 [11]

The proposed sites are evaluated based on the criteria of land pattern, accessibility and connectivity, surrounding views, and availability of information. The site evaluation result is tabulated in Table 3. The site marks the highest score will be selected as the project location.

Table 3. Site evaluation result

Category	Criteria	Site 1	Site 2
Land Pattern	Site shape	5	5
	Site Size	5	5
Accessibility and Connectivity	Vehicle Access	4	5
	Pedestrians Access	2	3

Surrounding	Connectivity	3	3
	Traffic Impact	3	4
	Surrounding land use	5	5
	Expansion	5	5
	Surrounding architectural scale	4	5
	Noise	4	4
	Landmarks	5	5
	Activity of the area	3	4
	Parking availability	3	3
	Utilities availability	3	4
Views	Visibility	4	4
	Views	3	4
Availability of Information	Presence of information	3	4
<b>Total</b>		<b>64</b>	<b>72</b>

Based on the site evaluation result shown in Table 3, Site 2 is chosen as the site location. The site shape is linear shape with area of 9,647.5 meter square (Figure 7). The site is surrounded by the streets. Dumat al-Jandal is an ancient city of ruins located in North Western Saudi Arabia in the Al Jawf Province. It is located 37 km away from Sakakah. The name Dumat al-Jandal means literally "Dumah of the Stone". It contains many monuments such as the Citadel of the Grand and the Mosque of Omar ibn al-Khattab. The Mard Castle is considered one of the most important monuments in the area. It is an important archaeological fortress constructed of stones on a high overlooking the city of Domat al-Jandal, about 600 meters high.

Regarding the site's regulations, this site is used for private residences, resorts, tourist resorts, shops, offices and related services. The max permitted building rate for the floor is 60% including ground. Maximum floor can build in this area are 5 floors. The bounce-backs of the site for the main street are about 6m and for the secondary street is about 4m (Figure 7).

Figure 8 demonstrate the site climate analysis. The site experience cool wind from northeast direction and experience hot dusty wind from southwest direction. The surroundings of the site are private residential, and commercials. The site also experience noise pollution for the streets surrounded the site especially during weekday.

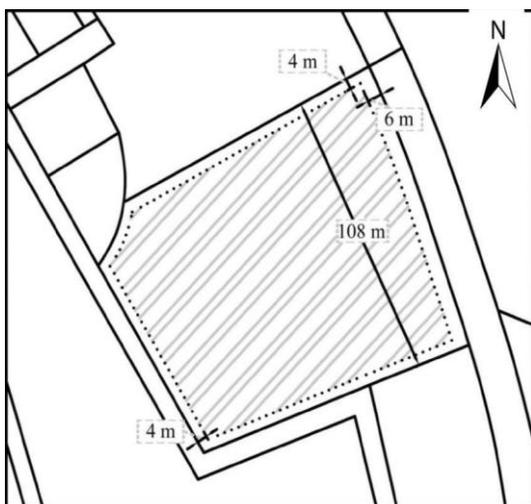


Figure 7. Site shape and proportional

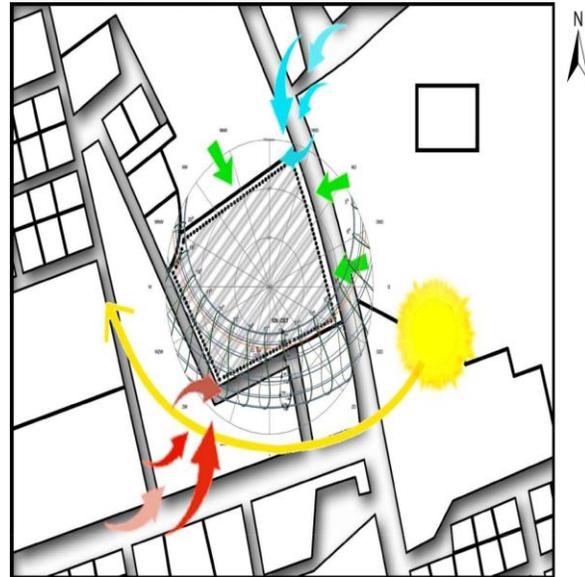


Figure 8. Site climate analysis

### ZONING AND PROJECT DESIGN

The mission of this project is to ensure the protection, knowledge, awareness, attention, rehabilitation and development of the components of the national cultural heritage, and to make it part of the life and memory of the citizen.

This project emphasizes pride and activates it within the daily culture of the community, and linking the citizen to his homeland by making heritage a pension element. This project achieves a qualitative transfer in caring for it, also contributes to overall economic development.

The project primarily aims to display the importance of the past and previous civilizations and improve the state economy through them with all different kinds of interesting that provide psychological comfort and an appropriate environment for getting knowledge. Also, it contains oneducation and training that aims to research, restore, conserve and display historical monuments.

Encouraging the community to integrate and understand the importance of these monuments. The design concept creates a special verity from indoor to outdoor. In addition, by connecting the existing rich contents (indoor) with attractive landscape (outdoor), so the visitor can wander around, enjoy, and surprises this variety of contents.

Figure 9 and Figure 10 demonstrate the site zoning and site plan of the project respectively. Since the cool wind comes from the north-east, thus the block is designed and allocated in a way that allows the cool wind to enter the largest part of the building and the inner courtyard and repel unwanted winds. The blocks in the south and east should be higher to repel the unwanted wind and provide shade in the afternoon. The classroom is allocated to the north of the site.

The car parking is located in the south with several entrances serving the educational, administrative and public part. Due to shadow calculations at 1 pm the shading device should be placed in the inner courtyard. Figure 11 and Figure 12 demonstrate the staking diagram and the main perspective diagram of the project building respectively.

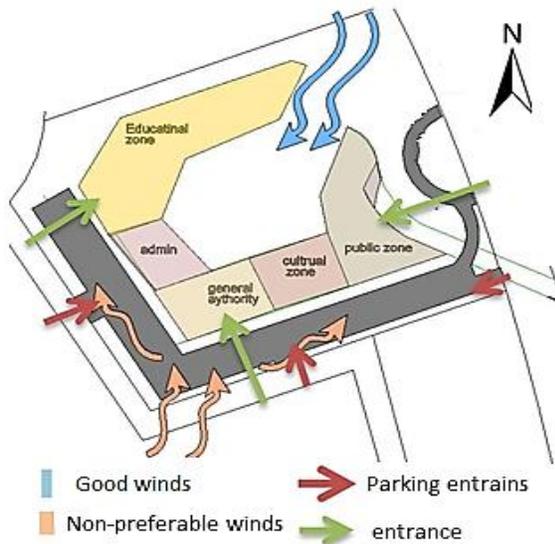


Figure 9. Site zoning of the project



Figure 10. Site plan

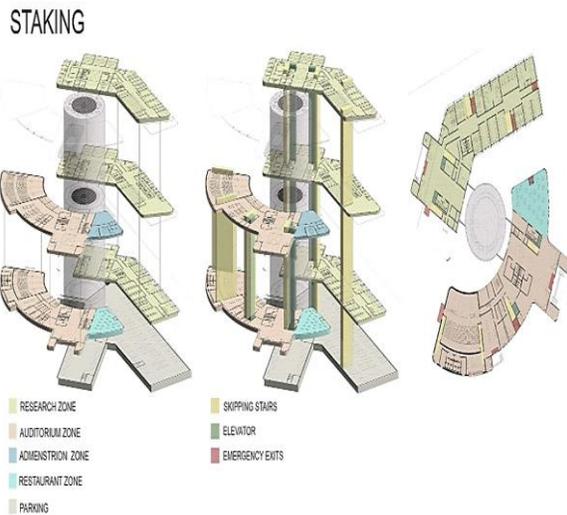


Figure 11. Staking diagram of the project building



Figure 12. Main perspective view of the project

**CONCLUSION**

The aim of the Archaeological Research Center is to create, enhance, disseminate, and preserve knowledge, archaeological research, scientific discovery, education, creation, and public service. It develops the students of universities and those interested in archaeology and teaching them methods of conservation and restoration of monuments. The concerning zones for the space program are public zone, leaning zone, culture zone, and general authority for tourism and national heritage zone. Al-Jawf is chosen as the project site based on the evaluation criteria of land pattern, accessibility and connectivity, surrounding, views, and availability of information. In addition, this project displays the historical and heritage landmarks around the Kingdom to increase public knowledge.

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