



### PROJECT IDENTIFICATION

**WHAT P?**

1. Museum is a non-profit, permanent institution in the service of society and the development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.

2. The purpose of modern museums is to collect, preserve, interpret and display objects of artistic, cultural, scientific, historical or educational interest in their displays and collections.

3. Museum education is a specialized field devoted to developing and strengthening the educative role of non-formal education systems and institutions such as museums. Its main objective is to design activities or learning experiences to enhance their curiosity and interest in their displays and collections.

4. Social centers would lead harmony and foster cooperation among the working class and immigrant elements and at the same time ease some of the difficulty of their life.

**WHY P?**

1. The way traditional museum exhibits are only linked to looking the exhibits and observers for view the original artwork, however due to the influence of factors such as exhibition space, venue, and audience, the total context of direct contact with exhibits is less in the reality.

2. The technology has become a favorable factor for development, and a support of creating like behavior among, making education for another generation, engaging visitors, and making the present exhibits more attractive.

**HOW?**

In the proposal I will change the way of thinking of the VR museum by introducing a new architectural style named *Scientific Architecture*. The style looks like:



**Project name :** Digital Art Museum  
**Main strategy :** Digital Architecture  
**Location :** Ras Al-Ain

How does the BIG Technology affect the architecture? specially museums? | P

The virtual reality technology used in different museums around the world like Louvre Museum in Paris, The National Museum of Finland, The Peterson Automotive Museum in Los Angeles, etc.

All of these museums deals with the technology just to represent the artwork in a museum only. On the other hand, the technology didn't affect the design of the museum as it should have happened.

**Actual Rooms**    **VR Rooms**

**ROLES OF THE FACILITY**

- 1. Educational
- 2. Cultural
- 3. Historical
- 4. Scientific
- 5. Artistic
- 6. Recreational
- 7. Social
- 8. Environmental
- 9. Economic
- 10. Political
- 11. Religious
- 12. Military
- 13. Medical
- 14. Industrial
- 15. Commercial
- 16. Residential
- 17. Institutional
- 18. Governmental
- 19. Non-profit
- 20. For-profit

### NATURE OF PROJECT

**WHAT IS THE PROJECT**

**Types of Museums:** Agricultural, Archaeological, Art, Biological, Children, Community, Geological, Historical, Industrial, Natural History, Open-air, Planetarium, Science, Specialized, Zoological.

**Modern History:** Renaissance, Baroque, Neoclassical, Romanticism, Impressionism, Modernism, Postmodernism, Contemporary.

**Architecture:** Gothic, Romanesque, Renaissance, Baroque, Neoclassical, Romanticism, Impressionism, Modernism, Postmodernism, Contemporary.

**ICAM:** International Center for Architecture and Museum Studies.

**WHY THIS PROJECT**

**Museums in Jordan:** Jordan is a country of rich cultural heritage, which is one of the main reasons for its attraction to tourists. The country has a rich cultural heritage, which is one of the main reasons for its attraction to tourists. The country has a rich cultural heritage, which is one of the main reasons for its attraction to tourists.

**Target Users:** Tourists, Students, Artists & Designers, Tech Fans, Families.

**Artists & Designers:** There are many artists and designers who are interested in the field of digital art and design. They are interested in the field of digital art and design. They are interested in the field of digital art and design.

**HOW THE TECHNOLOGY WORKS IN THE PROJECT?**

**VR (Virtual Reality):** A computer-generated simulation in three dimensions of objects in the real world or the imaginary world.

**AR (Augmented Reality):** A technology that superimposes a virtual image onto a real-world environment.

**MR (Mixed Reality):** A technology that combines elements of virtual and augmented reality.

**VR/AR/MR Results:** Immersive experience, Interactive content, Personalized learning, Remote collaboration.

**How the technologies work in the project?**

**Digital Content:** 3D Modeling, Animation, Virtual Reality, Augmented Reality, Mixed Reality.

**Hardware:** VR Headset, AR Glasses, MR Headset, PC, Smartphone, Tablet.

**Software:** Unity, Unreal Engine, HoloLens, Microsoft HoloKit, ARKit, ARCore.

**Applications:** Education, Entertainment, Healthcare, Retail, Real Estate, Manufacturing.

### SITE ANALYSIS

**Location: Ras Al-Ain Management**

**Site Analysis:** Topography, Climate, Surrounding Area, Infrastructure, Services, Amenities.

**SWOT Analysis:** Strengths, Weaknesses, Opportunities, Threats.

**Site Plan:** Building Footprint, Parking, Landscaping, Access Points.

**Cultural Centers (Ras Al-Ain)**

**Local Amenities:** GAM & Park, Ras Al-Ain, Ras Al-Ain.

**Site Plan:** Building Footprint, Parking, Landscaping, Access Points.

**Site Analysis:** Topography, Climate, Surrounding Area, Infrastructure, Services, Amenities.

### CASE STUDY

**JORDAN NATIONAL MUSEUM**

**Case Profile:** Location: Amman, Jordan. Project Area: 10000 m<sup>2</sup>.

**Architect:** Foster + Partners.

**Year of Construction:** 2015.

**Materials:** Stone, Steel, Glass.

**Why This Case?** Innovative design, Cultural heritage, Sustainable architecture.

**THE LOUVRE ABU DHABI MUSEUM**

**Case Profile:** Architect: Jean Nouvel. Location: Abu Dhabi, UAE. Year of Construction: 2017.

**Materials:** Stone, Steel, Glass.

**Why This Case?** Unique architecture, Cultural heritage, Sustainable architecture.

**CULTURE AND ART CENTER**

**Case Profile:** Architect: Foster + Partners. Location: Seoul, South Korea. Year of Construction: 2015.

**Materials:** Stone, Steel, Glass.

**Why This Case?** Innovative design, Cultural heritage, Sustainable architecture.

**DIGITAL CASES**

**Case Profile:** Location: Seoul, South Korea. Year of Construction: 2015.

**Materials:** Stone, Steel, Glass.

**Why This Case?** Innovative design, Cultural heritage, Sustainable architecture.

**PROGRAMME / FUNCTION OVERVIEW**

**Programme:** Exhibition, Education, Research, Conservation, Collection, Administration, Support Services.

**Function Overview:** Exhibition, Education, Research, Conservation, Collection, Administration, Support Services.



**CODES**

### ENTRANCE & LOBBIES

**Entrances**

**Design guidelines should:**

- 4/10/2 - One accessible entrance is required for buildings having 1 to 3 entrances and two accessible entrances for buildings having more than 3 to 5 entrances.
- 4/10/3 - Paint entrance doors in a color that contrasts with surrounding surfaces.
- 4/10/3 - Provide lighting at entrances and in all accessible pathways.
- 4/10/4 - Easy accessibility between internal & external built environment & between interior spaces provides safe transfer point for people with limited movement & people who use wheelchair.

**Lobbies**

**Design guidelines should:**

- 4/2/1 - Make lobbies accessible for physically disabled people and people using wheelchairs and provide enough space for their maneuverability.
- 4/2/2 - It is preferable not to use doors with single shutter in lobbies when using or using double doors, lobbies should not be less than length of horizontal projection of door or doors that open to lobby plus 1500 mm.
- 4/2/3 - Set place reception desks in a clear view of entrance doors.

### FIRE PROTECTION CODE

2-1 new and existing buildings:

2-1-1 New Mbaye protection terms from fires apply to the existing Mbaye unless otherwise stated, taking into account what is contained in Article (4/2) of this code

2-1-2 Multiple Occupancies:

A- To protect a building with multiple overlapping occupancies from fires, it must be provided. The following:

- 1- Providing the building with sufficient exit means to accommodate the total maximum occupancy load.
- 2- Conformity with the building protection requirements from fires in terms of construction, protection and other means of protection with the most dangerous types of works.

### DISABLED PEOPLE CODE

2/1 Requirements for Architectural Spaces

2/1/1 Measures for the handicapped that must be taken into account when designing:

A- Disabled persons who are not users of left chairs:

2- The following figures show the distances that persons with disabilities can reach from non-users of wheelchairs and the CIRCULATION areas required for each of them from different situations.

2/1/2 The MOVEMENT area of the auxiliary tools on the seat:

a- The area of the seat necessary for the users of the wheelchairs:

1- The minimum dimensions in the state of MOVEMENT are as follows:

1. The minimum spaces needed for wheelchair rotation:

- 1- (0.8) meters a disabled person uses a wheelchair and is assisted by another person.
- 1- (0.9) meters for a disabled person using a wheelchair without the assistance of another person.
- 1- (1.70) in the case of a corridor that allows two reclining chairs to pass in opposite directions with two assistants.
- 1- (1.8) meters in case of a corridor that allows passage of two armchairs in opposite directions without presence of assistants.

2- The distance between the wheelchair boundaries and the surface of obstacle must not be less than 0.05 meters.

3- To facilitate the rotation of the wheelchair, the area required for this must not be less than:

- 1.4m x 1.4m in the case of a 90° rotation.
- 1.4m x 1.8m in case Turning with a bracket.

- circle with a diameter of 1.5 m or 1.7 m for standard & large chairs respectively in case of circular rotation.

Facilitate turning during movement in lanes & spaces designated for movement to be the necessary space:

the required space of movement for crutch users:

- 1- The width of the movement area allocated to users of the elbow pads must not be less than 0.90m and for users of the auxiliary supports 0.95m.

### FIRE ESCAPE STAIRCASE

MINIMUM WIDTH	STAIRCASE WHOSE CAPACITY EXCEEDS (10) PEOPLE	STAIRCASE WHOSE CAPACITY IS LESS THAN (10) PEOPLE
	CLEAR DISTANCE BETWEEN THE HANDRAILS (0-55.0)	CLEAR DISTANCE BETWEEN THE HANDRAILS IS 0-45.0
MINIMUM HORIZONTAL USE FOR RAMP PLATFORM	950 (R/R)	950 (R/R)
MINIMUM SIZE FOR RAMP WITHOUT MORE STAIRCASE	220 (R/R)	150 (R/R)
SPIRAL STAIRS	IT IS NOT ALLOWED TO USE	ALLOWED TO BE USED
MAXIMUM HEIGHT BETWEEN THE STAIRS THE HEIGHT OF PARAPET OR HANDRAIL	1.10 m	1.10 m

**REGULATIONS**

### SITE REGULATION

#### BUILDING REGULATIONS

- Build-up Area (Coverage) 50% (8050 m<sup>2</sup>)
- Floor Area Ratio 300% (37500 m<sup>2</sup>)
- Maximum height from street level 25m
- Ground floor clear height higher than 6.5m
- Shop area must be more than 80m<sup>2</sup>
- Shop front facade width must be more than 8m

### CURB RAMP

It can contain small ramp built into path to passage to street:

- Position out of line of pedestrian movement.
- install inaccessible parking areas, at drop-off zones at building entrances, at paths with high usage and road intersections.
- Stand away from places where water might accumulate

### VERTICAL ACCESSIBILITY

Ramps can deliver barrier-free access to buildings and between floor levels.

Design guidelines should:

- The ramp slope must not exceed 8%, To make it accessible, knowing that the ideal slope is 5%.
- Provide ramps when stairs prevent the free passage of pedestrians and disabled people.

Design guidelines should:

- Slope: 1:20 is suggested min for non-helped wheelchair person, ramp slope can be increased to 1:14, where wheelchair user is helped. Greater than 1:12 is considered danger.
- Width: Varies according to use, configuration, and slope, but the min is 1 m.

### PARKING REGULATIONS

- The front side of the site can be used for street parking according to the following rules:
  - A central 0.5m wide island must separate the parking space from the main street (B)
  - Park longitudinally (P)
  - The car pathway must not be less than 6.5m (A)
  - Minimum outer parking entry radius is 11 (R)
  - Minimum inner maneuvering radius is 5m
- Parking numbers requirement according to space use:
  - Cafe: 1 spot/35m<sup>2</sup>
  - Event Halls: 1 spot/50m<sup>2</sup>
  - Galleries: 1 spot/30m<sup>2</sup>
  - Culture Centre: 1 spot/60m<sup>2</sup>
  - Parks: 1 spot/100m<sup>2</sup>
- There must be 1 elevator for every 50 parking spots

### HORIZONTAL ACCESSIBILITY

Access to buildings:

- Provide ramped alternatives to ground floors.
- Provide level access to all floors in the building.
- Avoid unnecessary level changes.
- Construct doors that are of adequate width.

### PATHWAYS

Pathways contain paved and unpaved paths. They must be safe for all people, especially people with mobility disabilities.

design guidelines should consider:

- 4/1/1 - Clear of all obstructions.
- 4/1/1 - upgrade unpaved footpath surfaces, since these often become hazardous in adverse weather conditions.
- 4/1/3 - Construct slopes that do not exceed a gradient of 1:20.
- 4/1/3 - For slopes that exceed 1:20, install ramps & allow for landings with a minimum dimension of 100 cm x 100 cm every 900 m.
- 4/1/3 - Provide accessible pathways between buildings and leading to the car park.
- 4/1/3 - Ensure no breaks in path of travel including with steps.
- 4/1/1 - Make wide enough for wheelchair access 1.5cm.

### CORRIDORS

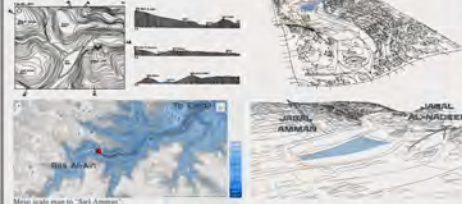
Corridor's requirement to be barrier-free and well lit. Design guidelines should:

- Provide for an unobstructed cleared path with min. width of 1.5m, for ease of movement & maneuverability with other pedestrians.
- Provide corridors with signage and must be visible at the beginning of the corridor when there is an obstacle at the end of the corridor.
- Prepare the length of corridors as short as possible.
- Design changes of direction at 90 degrees.



### SITE DATA AND ITS FORCES :

THE GENERAL LOCATION OF THE PROJECT IS CHARACTERIZED BY THAT IT IS LOCATED IN THE LOWEST ZONE IN AMMAN (WADI AMMAN), WHICH MAKES DEALING WITH MEDIUM-RISE BUILDINGS MORE DIFFICULT .



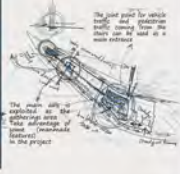
THE GENERAL LOCATION OF THE PROJECT IS CHARACTERIZED BY THAT IT IS LOCATED IN THE LOWEST ZONE IN AMMAN (WADI AMMAN), WHICH MAKES DEALING WITH MEDIUM-RISE BUILDINGS MORE DIFFICULT .

#### CLIMATE CONSIDERATIONS

THE TOPOGRAPHICAL NATURE OF THE SITE ENABLES US TO EXPLOIT THE OUTDOOR SPACES BY TEN MONTHS A YEAR.



ANOTHER POINT THAT Distinguishes THE SITE IS THAT IT IS LOCATED IN AN AREA THAT IS CONSIDERED ONE OF THE STRONGEST HERITAGE AND CULTURAL SITES IN THE CITY.



The site of the low-lying land will be used in relation to its surroundings and the site close to it and taken into account in the design.



in addition to that the site in the park, which is considered the only (open space) in the region, in an attempt to exploit the garden improvement

THE ARCHITECTURAL GRADATION ON THE SLOPES OF THE VALLEY CONSISTS OF SQUARE AND RECTANGULAR BUILDINGS MAKES THE SITE MORE HARMONIOUS SO THAT THE VALLEY STANDS OUT AS A FOCAL POINT.

### CONCEPT 1 :

#### ADOPT OF PETRA EXPERIENCES

#### WHAT ;



A TUNNEL FORMED TO CREATE AL-SEEQ TANGIBLE EXPERIENCE AT THE SITE AND TO COMPLETE THE STORY OF WADI AMMAN.

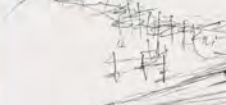
AL-SEEQ EXPERIENCE IS AN UNIVERSAL WHICH CREATES SENSE OF NARROW

AL-DIER WITH ITS CUT OF MOUNTAIN ROCKS PERPENDICULARY.

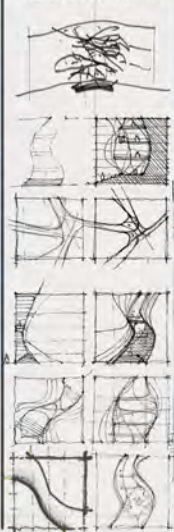
#### WHY ;

SINCE PETRA IS CONSIDERED THE MOST IMPORTANT LANDMARK AND TOURIST DESTINATION IN JORDAN, AND BECAUSE THE MUSEUM SPECIALIZES IN PRESENTING DIFFERENT CULTURES, THAT INSPIRED ME TO ADOPT THE NABATAEAN CIVILIZATION TO FORM THE PETRA EXPERIENCE IN THE HEART OF AMMAN.

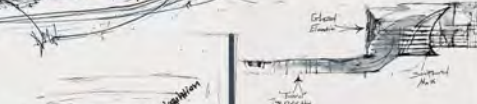
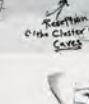
#### HOW ;



STUDYING THE RELATIONSHIP BETWEEN REGULAR SHAPES WITH CURVES.



Horizontal land mark as a point of attraction and take advantage of the main axis of the Earth



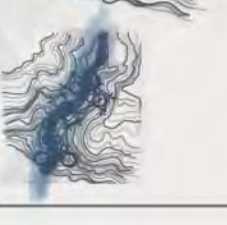
### CONCEPT 2 :

#### DOCUMENTATION OF SIEL-AMMAN

#### WHAT ;

AT THE BEGINNING OF THE TWENTIETH CENTURY, SIEL-AMMAN WAS THE MAIN LANDMARK IN THE CITY, AND IT WAS THE GATHERING PLACE FOR AMMAN'S AT THAT PERIOD .

UNFORTUNATELY, WE COULDN'T PRESERVE A PLACE WHO CULTIVATED LIFE IN THE MIDDLE OF OUR CITY AND WE BURIED IT TO KEEP PACE WITH MECHANICAL MODERNITY.

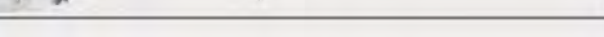
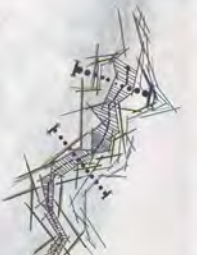
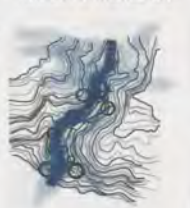


#### WHY ;

BECAUSE SIEL-AMMAN IS CONSIDERED ONE OF THE HERITAGE LANDMARKS IN THE CITY OF AMMAN, AND BECAUSE THE PIECE CHOSEN TO BUILD THE PROJECT WAS PART OF THAT, I FOUND THAT IT IS MY JOB AS AN ARCHITECT TO REVIVE THE IDEA OF TORRENT IN THE REGION.

#### HOW :

BY RESTRUCTURING THE PLOT AND EVOKING MEMORIES OF THE PAST IN THE OUTLINES OF THE NEW URBAN DESIGN.



THE SHARP LINES ALIGN WITH TOPOGRAPHY LINES