

# **Bangladesh Aviation and Aerospace Museum**

By

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# 01 Background of the project

## 1.1 PROJECT BRIEF

**Project Name:** The spirit of Aviation [Museum]

**Function:** preservation of aircraft and aviation history related programs and display

**Site:** Tejgaon BAF base, Dhaka

**Site Area:** 18.26 Acres

**Client:** Bangladesh air force

An aviation museum, air museum, or aerospace museum is a museum exhibiting the history and artifacts of aviation. In addition to actual or replica aircraft, exhibits can include photographs, maps, models, dioramas, clothing and equipment used by aviators.

Aviation museums vary in size from housing just one or two aircraft to hundreds. They may be owned by national, regional or local governments or be privately owned. Some museums address the history and artifacts of space exploration as well, illustrating the close association between aeronautics and astronautics.

Many aviation museums concentrate on military or civil aviation, or on aviation history of a particular era, such as pioneer aviation or the succeeding "golden age" between the World Wars, aircraft of World War II or a specific type of aviation, such as gliding.

## 1.2 PROJECT INTRODUCTION

The British had built the military airstrips at Tejgaon, Dhaka during the Second World War for operating warplanes towards the battlefields of Kohima and other Burmese war threats. After Independence in 1947, Tejgaon Airport became the first airport to operate civil aviation in the then East Pakistan and it was also a station of the Pakistan Air Force. It became the first civil airport of Bangladesh, at present it is a part of BAF (Bangladesh Air Force). Parliament house is in the south-west, novo theatre is in the south and Mirpur, the biggest middle class area, is in the north of the proposed site. IDB Bhaban, the biggest computer market in the country, is located in the east side of the site.

The area is already heavy with city dwellers for many reasons. In the east side of the site, along with the long boundary there is Rokea Sharani which is one of the main roads in

Dhaka. The parade ground of the old airport also holds many national events including the Victory day parade.

In the current context, the museum will enrich the scenario with unique content and a destination for the urbanites. Already with multiple important landmark in the heart of the country's capital, the site is a natural focus point of the dwellers of Dhaka.

### **1.3 AIMS AND OBJECTIVES OF THE PROJECT**

The aim of the project is to preserve the rich history of create a knowledgeable destination from the Dhaka dwellers. The spirit of Aviation Museum will be the only national museum dedicated wholly to aviation. With a collection of old aircrafts integrated with special exhibitions, films, interactive, artwork, engines, photographs, uniforms, medals and research and education facilities, the Museum will take an innovative approach while keeping with tradition.

While offering an insight into aviation technology, the museum will also focus on the people who made it possible – from daredevil early aviators, through wartime heroes, to the Service men and women whose contributions are shaping the national image from the independence to today.

The site will offer a unique experience to the visitor and the exhibits complementing each other. The museum will tell the story of the people who boldly went where very few dared and inspire patriotism in the heart of the new generation by providing a view into the future of the aviation.

The purpose is to tell the story of the aviation through its about people and collections:

- For the visitors, collections of items and the aviation stories, relevant and stimulating

The ambition is to ensure that the aviation story endures and enriches future generations. Create Connection between Bangladesh air force and civil welfare

## **1.4 PROGRAMS**

### **Entrance**

Ticket

Reception

Information center

Lobby and lounge

Washroom\

Administration office

Directors room

Assistant directors room

Staff room

Conference room

Research room

Storage

### **Galleries**

Temporary gallery

History gallery

Hanger 1

Hanger 2

Hanger 3

Outdoor exhibition

**Public gathering space**

Auditorium

Multipurpose hall

Theater

Library

Storage

Cafeteria

Watch tower

## **02. Site Appraisals**

### **2.1 HISTORICAL AND SOCIAL BACKGROUND**

My site is Tejgaon Old Airport. Tejgaon Airport in Dhaka, Bangladesh served as the country's sole international airport prior to the construction of Shahjalal International Airport. Following the transfer of civilian flights to the newly built Shahjalal International Airport in 1981, Tejgaon was taken under the control of the Bangladesh Air Force.

The British had built military airstrips at Tejgaon, Dhaka during the Second World War for operating warplanes towards the battlefields of Kohima and other Burmese war threats. After Independence in 1947, Tejgaon Airport became the first airport to operate civil aviation in the then East Pakistan and it was also a station of the Pakistan Air Force. A number of other British built military airstrips in Bangladesh territory were also converted into civil airports – some during Pakistan period and some after Liberation. A few others were converted to STOL (Short Take-off and Landing) ports some years ago. And some are still left alone. The airstrips not yet converted to any civil airport of any kind are at Feni, Rajendrapur, Pahar Kanchanpur, Chakaria and Rasulpur.

Soon after the Second World War broke out, the British authority felt the need of constructing the Royal Indian Air Force (RIAF) stations in Dhaka and other vulnerable places in Bangladesh territory. The construction of Tejgaon Airport at a place named Dainodda started in 1941; and the building of a landing strip at Kurmitola (Balurghat) started at about the same time. The airstrips at Tejgaon and Kurmitola had military fighter plane landing facilities and the British Royal Air Force used the airstrips for safe up-keeping of their aircraft. There was also an American air force detachment here during the war. The first RIAF light fighter landed on the under-construction runway of Tejgaon at the beginning of 1943 and after development of the airport facilities, it became the first civil airport of Bangladesh. Today it is a part of BAF (Bangladesh Air Force) Base Bashar.

Air force has officially nominated the site for the museum. This site is appropriately located inside the BAF base to associate the audiences' experience aviation.

Museum is predominantly a public place and the site has excellent positioning to allow a convenient commute. Rokeya Sharani, one of the main roads of Dhaka connecting Mirpur with the southern part of the capital, runs alongside the premise boundary. The cityscape also complements the requirement of a cultural hub. Many significant establishments are in close proximity of the proposed site, chief of which is the Parliament house. It is only a short distance from the site. IDB Bhaban, city's largest computer market and a meeting point of tech savvy Dhakaits, is directly opposite to the site's entry point.

Apart from the obvious suitability of the spot, the BAF runway is adjacent to the proposed museum. The visitors will be able to experience the out of the ordinary ambience of real life military aviation. The site is currently being used as a showcase of our military aviation history only by featuring some aircrafts and hardware's in a stationary manner.

## **2.2 SITE LOCATION AND ZONING**

Location – Tejgaon, old airport area

Area – 18.26 Acres

Shape – Rectangular Site

Topography -Flat Land





### **2.3 SITE SURROUNDING**

The Air force Museum will be the only national museum dedicated wholly to Military aviation. The objective of the project is to preserve the rich history of the Bangladesh Air force and create a knowledgeable destination for the Dhaka dwellers.

While offering an insight into aviation technology, the museum will also focus on the people who made it possible – from daredevil early aviators, through wartime heroes, to the service men and women whose contributions are shaping the national image from the independence to today. With a collection of old aircrafts integrated with special exhibitions, films, interactives, artwork, engines, photographs, uniforms, medals and research and education facilities, the Museum will take an innovative approach while keeping with tradition.

## **2.4 S.W.O.T ANALYSIS**

### **STRENGTH-**

Footfall of the city dwellers is important for the museum. The site is conveniently located for that purpose. Important government staff colonies, many schools and important private office building are nearby to the proposed site. Many public visiting destination is also nearby to the site which will make it easy for the public to make it their choice of destination. The area is quite vast with almost no establishments and surrounded by lush greeneries which will make it a pleasant place to roam around with family and friends. The museum will be located inside the BAF base so people will be able to experience the military aviation.

### **WEAKNESS-**

People think that the location is only for official use and public activities are very limited. The main road adjacent to the location is also very traffic heavy. There was also no planning for any museum to be constructed there under the original DAP as it does not fall into the DAP zone. The fact that there is a runway located very close to the site also poses a threat in the form of probability crash accident hazard. The site also has a height limitation as it is located very nearby to the BAF operation base so the design will have to be developed keeping that fact into consideration.

### **OPPORTUNITIES-**

The museum will be a knowledge hub and a much needed cultural point for the public. As it is closely located to Mirpur, one of the most important lower-middle class hubs in the city with a very high density of population, footfall in the museum will not be a problem, as many people will visit the place. There could be a possible connection route to the site for the public to have more ease of access, which can also serve as a commuting line. The establishment can be used for holding seminar sand occasional exhibitions. It will have an auditorium for public or official function. As the runway is used for the victory day parade, it will be a natural humble addition to the patriotic atmosphere.

### **THREAT-**

Security, Public interruption in Military space and environmental threat.

## **Chapter 03: literature review:**

### **3.1 AVIATION**

Everything that flies is aviation, for example, airplanes, blimps and helicopters etc. Aviation is the design, development, production, operation, and use of aircraft. A general term including the science and technology of flight through the air. Aviation also applies to the mode of travel provided by aircraft as carriers of passengers and cargo, and as such is part of the total transportation system. Aviation also describes the employment of aircraft in such fields as military aviation. The world of the airplane, including the people who manufacture, market, and repair aircraft or who work in allied industries, is frequently spoken of as aviation.

From pilot's psychology aviation is

"A drug seductive to even the fiercest Luddite, GPS makes skill, knowledge and intuition obsolete. It makes us at once infants and Gods. Observer and observed, we watch from on high as our icon, a digital metaphor of self-awareness, creeps across the map. With GPS, there is no longer such a thing as "lost." Navigation, a great and noble art whose traditions stretch back into prehistory, has been replaced by a computer game. Its tools, the products of so much experience, ingenuity and self-sacrifice, will soon become curiosities; its methods and skills, so recently separating life and death, will eventually be forgotten."

— Peter Garrison, contributing editor *Flying magazine*, *The Importance of Being Lost: We Lost Something When We Lost "Lost"*, July 2014.

#### **3.1.2 AVIATION HISTORY**

The history of aviation has extended over more than two thousand years from the earliest kites and attempts at tower jumping to supersonic, and hypersonic flight by powered, heavier-than-air jets. Kite flying in China dates back to several hundred years BC and is thought to be the earliest example of man-made flight. Some kites were capable of carrying a man into the air. The ancient Chinese also flew small hot-air lanterns and bamboo-copter toys with spinning rotors. Leonardo da Vinci's 15th-century dream of flight found expression in several rational but unscientific designs, though he did not attempt to construct any of them. Efforts to analyze the atmosphere from the 17th to 19th centuries led to the discovery of gases such as hydrogen, which in turn led to the invention of hydrogen balloons. Various theories in

mechanics by physicists during the same period of time, notably fluid dynamics and Newton's laws of motion, led to the foundation of modern aerodynamics. Tethered balloons filled with hot air were used in the first half of the 19th century and saw considerable action in several mid-century wars, most notably the American Civil War, where balloons provided observation during the Battle of Petersburg. The term aviation, noun of action from stem of Latin avis "bird" was coined in 1863 by French aviation pioneer Guillaume Joseph Gabriel de La Landelle (1812–1886) in "Aviation ou Navigation aérienne". Experiments with gliders provided the groundwork for heavier-than-air craft, and by the early 20th-century advances in engine technology and aerodynamics made controlled, powered flight possible for the first time.

### **3.1.3. AVIATION HISTORY IN BANGLADESH**

#### **a. First Manned Flight.**

The first recorded manned flight was arranged by the Dhaka Nawab Family in the year of 1892. Jeanette Van Tassel, a young balloonist from the United States, was hired by the then incumbent Nawab Khwaja Ahsanullah. At around 1820 hrs on the 16th March 1892, she set off to fly from the southern bank of the river Buriganga to the roof of Ahsan Manzil, lying across the river. But a gusting wind carried her off to the gardens of Shahbag, where her balloon became stuck in a tree. This resulted in the death of the flyer. Then, The World War II and post World War periods (1940- 1947)

#### **b. Induction of Tejgaon Airstrip.**

Modern aviation in this area began when the British Government of India built Royal Indian military airstrip at Tejgaon. They built this airstrip to fly their warplanes towards the battle fields of Kohima (Assam) and war theaters in Burma. There was also an American air force detachment here during the period. The construction of Tejgaon Airstrip started in 1941 at a place named Dainodda. The Kurmitola Airstrip was also started at the same time, as an additional landing strip for the Tejgaon Airport. The First RIAF light fighter landed on the under-construction runway of Tejgaon at the beginning of 1943. The Tejgaon airstrip played a crucial role by providing tactical reconnaissance and extensive close support to the army. With the Fall of Rangoon the operations in Burma were reduced. By the end of June 1945 most of the Royal Air forces squadrons were withdrawn.

When the War was over, the colonial government decided to build the Tejgaon Airport to meet the needs of a Royal Indian Air Force station in Dhaka. After development of the airport facilities, it became the First civil airport of Bangladesh.

There after The Liberation of India and post Liberation of Bangladesh Period (1947 – 1971)

In 1947, after the independence of India East Pakistan and West Pakistan were formed. The critical connection between the capitals of geographically separated East and West Pakistan was started with the Orient Airways. The first flight started on 7 June 1954 by DC-3 ac from Karachi to Tejgaon Dhaka. Later Orient Airways merged with the government's proposed airline Pakistan International Airlines (PIA).

Later, PIA had started operating Boeing 707 and Vickers VC10 jet services. The Eastern Pakistan Flying Club was established in 1948. During the 1962 Sino-Indian War, services to East Pakistan were proving to be difficult; therefore PIA placed their Sikorsky S-61 helicopters on these routes until 1966.

### **c. The Scarifying Liberation War - 1971**

Most respectfully, would like to remember the valiant sacrifice of Bir Shreshtho Flt Lt Matiur Rahman. As well as the founder of BAF in 1971.

Just to have a quick glance, BAF was established on 28 September, 1971 at Dimapur, India. With only 3 aircrafts BAF conducted 46 operations, only within a 9-days span. However, we are quite aware of his patriotic and unforgettable devotion. Here, our scope of discussion will be limited mostly within the formation and operations conducted from Tejgaon Air Field.during our liberation war beside our new born Bangladesh Air Force, Indian Air Force also had extensive engagements with the Pakistan Air Force in the sky over Bangladesh.

The first engagement was on 22 November over the Salient of Boyra in West Bengal. In the process Tejgaon Airport suffered extensive damage.

Throughout 03, 04 and 05 December, IAF concentrated in attacking by their Canberra bombers, Su-7s, and Mig-21s over Tejgaon air fd for PAF aircraft on the ground. But, it failed to cause significant damage to the PAF assets in well-dispersed and camouflaged locations.

On the morning of 06 December four MiG-21s flying from Gauhati hit Tejgaon and scored several hits on the runway. Repeated attack by MiG-21s and Hunters however, kept the runway cratered.

#### **d. Post liberation war**

After liberation in 1971, the Bangladesh Air Force received equipment from the Soviet Union and the People's Republic of China; a clutch of Mikoyan-Gurevich MiG-21 fighters; Antonov An-24 and Antonov An-26 transport aircraft and Mil Mi-4 helicopters. Soon after Bangladesh received 5 Sabre Jets for airforce. This went on to be a complete air force once decorated with few Mig-21s, Mi-8 helicopters and An-26 aircrafts.

### **3.2. MESUEM**

Public institution dedicated to preserving and interpreting the primary tangible evidence of humans and their environment. Types of museums include general museums, natural-history museums, science and technology museums, history museums, and art museums. In Roman times the word referred to a place devoted to scholarly occupation. The public museum as it is known today did not develop until the 17th–18th century. The first organized body to receive a private collection, erect a building to house it, and make it publicly available was the University of Oxford; the resulting Ashmolean Museum opened in 1683. The 18th century saw the opening of great museums such as the British Museum, Louvre, and Uffizi Gallery. By the early 19th century the granting of public access to formerly private collections had become common. What followed for the next 100 years was the worldwide founding of museums intended for the public. In the 20th century, museums have broadened their roles as educational facilities, sources of leisure activity, and information centres. Many sites of historical or scientific significance have been developed as museums. Museum attendance has increased greatly, often

attracted by “blockbuster” exhibitions, though museums have had to become more financially resourceful due to constraints in public funding.

### **3.2.2 PURPOSE OF AVIATION MUSEUM**

Preservation of national history plays a significant role for the development of a nation through ages, because history and heritage remind the past and inspire the future generation to bring the country to the way of development. So, the museum of a country plays an important role preserving the historical events. BAF Museum will enrich our knowledge and connectivity with Bangladesh air force.

Bangladesh air force museum is an institution that cares for (conserves) a collection of aircrafts and other objects of scientific, artistic, cultural, or historical importance and makes them available for public viewing through exhibits that may be permanent or temporary. Most large museums are located in major cities throughout the world and more local ones exist in smaller cities, towns and even the countryside. Museums have varying aims, ranging from serving researchers and specialists to serving the general public. The continuing acceleration in the digitization of information, combined with the increasing capacity of digital information storage, is causing the traditional model of museums (i.e. as static “collections of collections” of three-dimensional specimens and artifacts) to expand to include virtual exhibits and high-resolution images of their collections for perusal, study, and exploration from any place with Internet.

### **3.2.3 VITAL FOR THE DEVELOPMENT AND GLOTFICATION**

Looked at this way one may assert that unlike mere office block skyscrapers, where despite a significant shape on immediate relationship with a quickly associate content is wanting The spirit of Aviation museum has a remarkable firm, solid image after 42 years of histories. The idea of modern force without museum is inconceivable. They were as much as crowd- pullers as they ever were. Because so many people were orientated not any old where but palpably towards a particular thing, content they are the best induction of what otherwise would have been a public been a long in state of crisis in an

urban context. The air forces feel the emergence to create a public arena for the wellbeing of civilians' recreation and learning.

### **3.3. THE CURRENT STATUS OF AVIATION MUSEUM**

Now it is an open air museum And located at tejgaon airfield and open for public.



## **5 Case Study**

### **Case Study 01**

#### **Project – Imperial War Museum**

**Location – Lambeth Road, London, UK**

**Architects – Foster + Partners**

**Interiors- Casson Mann**

**Year: 2014**

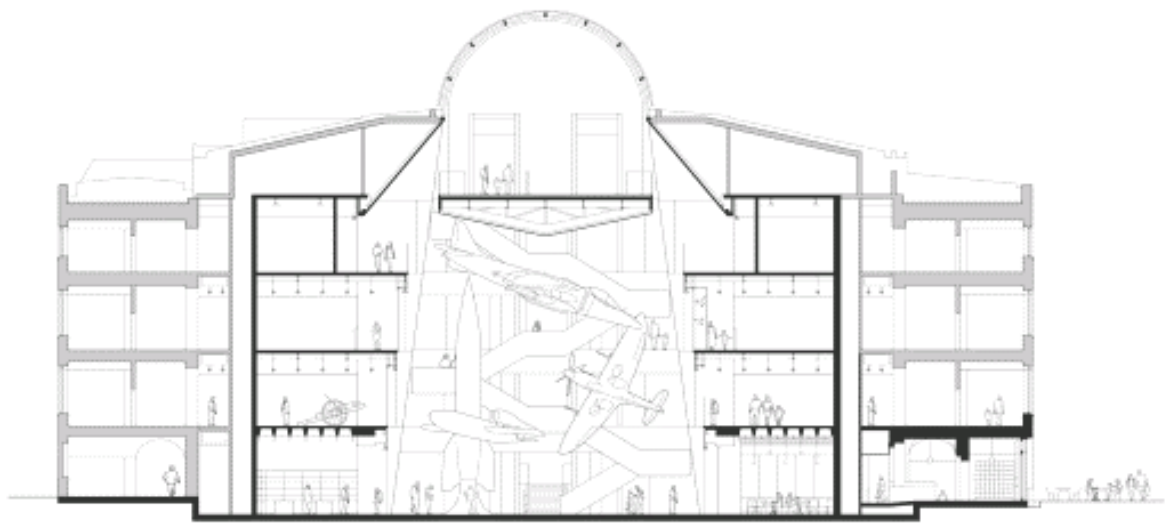
**Photographs: Nigel Young – Foster + Partners**



From the architect. As part of the commemoration of the centenary of the First World War, impressive new galleries centred on a new atrium have been unveiled today at the Imperial War Museum.

These new public spaces represent the first phase of a long-term redevelopment project, which will improve access and circulation through the Museum, open the interiors to daylight and views, and create new connections with the surrounding park.

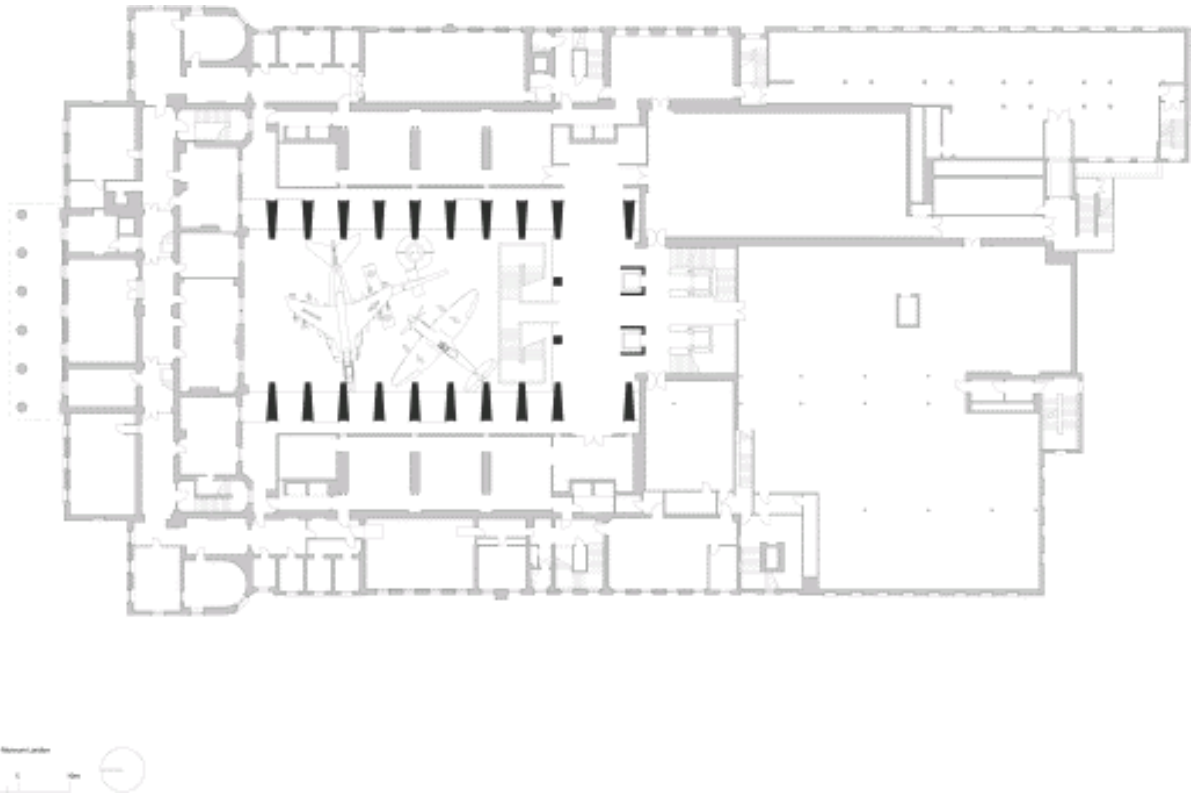
Spencer de Grey, Head of Design at Foster + Partners: “Our project for the Imperial War Museum makes an important contribution to our ongoing work in historic buildings. We have peeled away some of the recent additions to celebrate and restore the historic architecture, opening the building up to the park and revealing the gallery levels inside an impressive new hall.”



Imperial War Museum London  
Short Section 1  
0 5 10m

The heart of the building is a generous new atrium, which provides a dramatic space in which to view the largest objects from the Museum's collection. The relationship between these exhibits and the surrounding galleries has been completely redefined – the Harrier jet, Spitfire, V2 rocket and other iconic objects are suspended to correspond with the gallery displays on each of the floors for the first time. Viewed from the upper levels, the aircraft are framed by a series of large-scale concrete fins. These fins line the atrium and widen as they rise to provide structural support for the aircraft, extended gallery floors and barrel vaulted roof. Terraces between the fins open up visual connections vertically and across the central space, and a new gallery floor suspended beneath the dome of the roof protects the exhibits from direct sunlight. The galleries have been completely reconfigured, with a new chronological arrangement designed to be more intuitive. The new First World War Galleries, with interiors by Casson Mann, are located at ground level, and the top floor of the building will eventually be dedicated to current conflicts. Vertical circulation has also been

redesigned to make the connections between floors more visible – a new cantilevered stair forms the backdrop to the atrium.

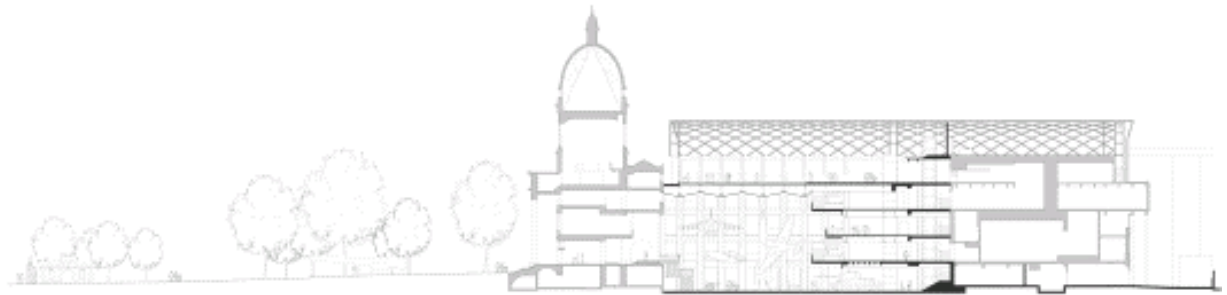


## Floor Plan

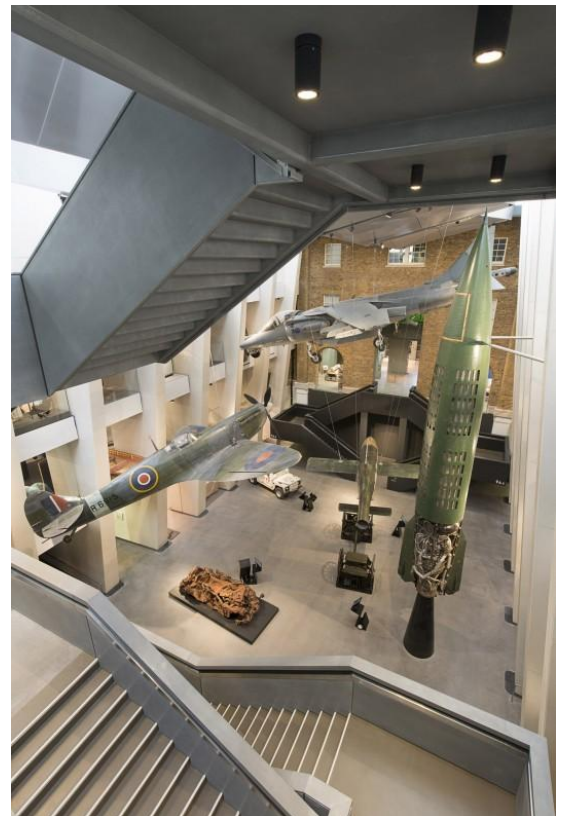
Rather than encroaching on the exhibition space, the café and shop have now been relocated to the new, lower entrance level at ground floor. The previously sealed ground floor windows along the western façade have been opened up to allow views into the museum, as well as views of the park from the atrium. The café can now be used outside of the Museum's opening hours, and its seating extends into the park to create an open air dining area.

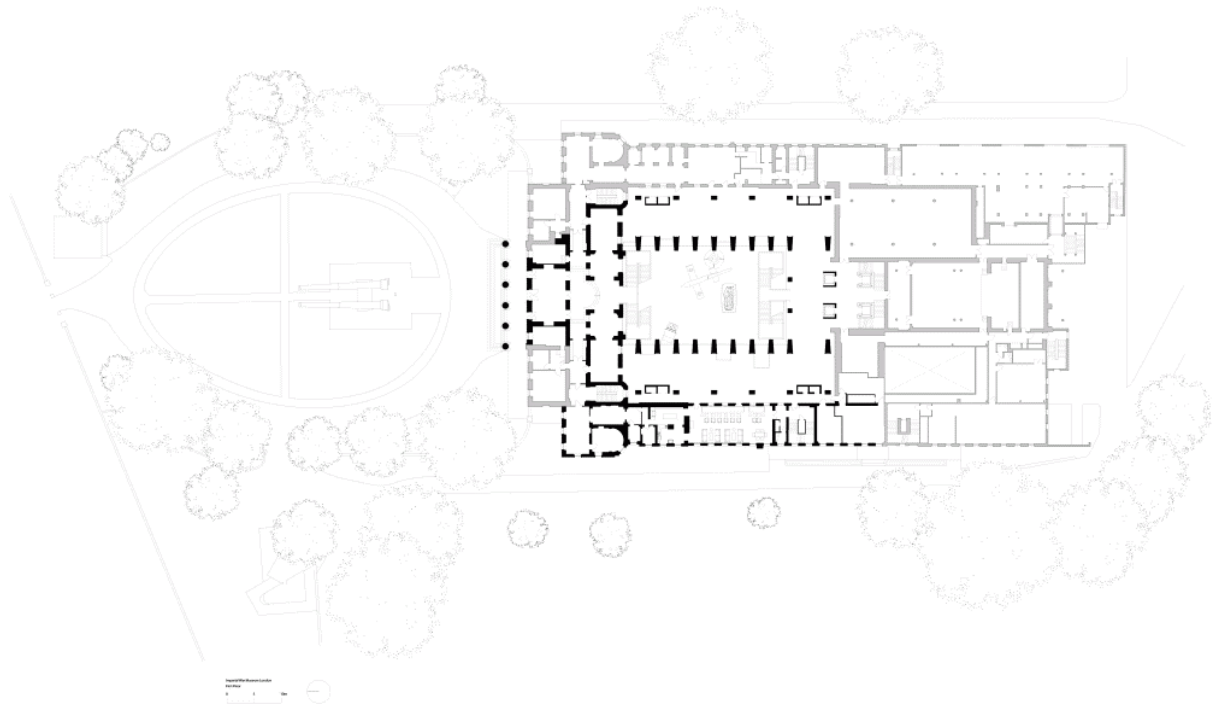
The floor of the atrium has been lowered to park level, in anticipation of a future phase of development, in which the approach to the building will be scooped out to create a

single, accessible entrance for all below the existing portico stair. The current entrance staircase is temporary and will be removed when the new approach sequence is complete. The planned oval forecourt will create a public plaza, visually balancing the weight of the historic building and emphasising the Imperial War Museum as a contemporary institution, while retaining the integrity of the existing structure.

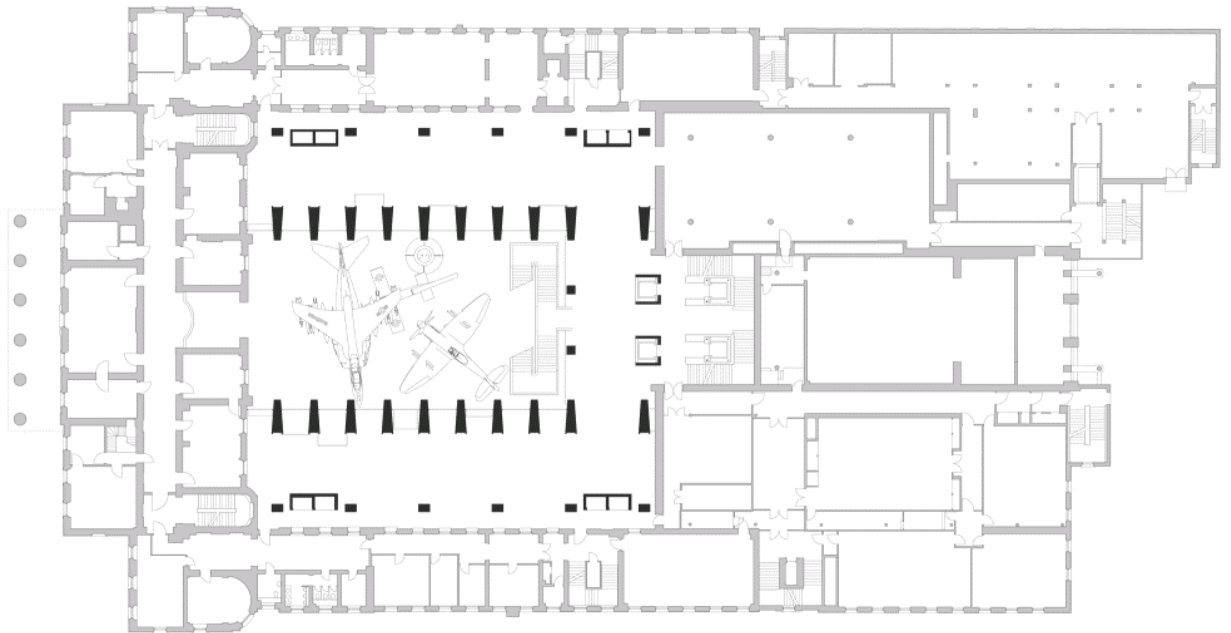


## Section





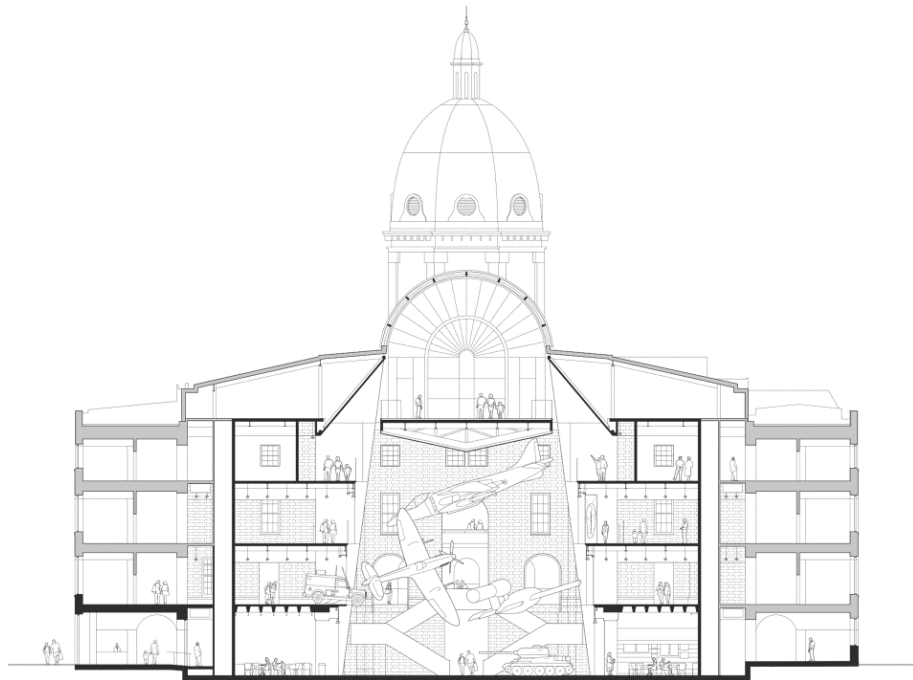
Floor plan



Imperial War Museum London  
Second Floor

0 5 10m

Floor plan



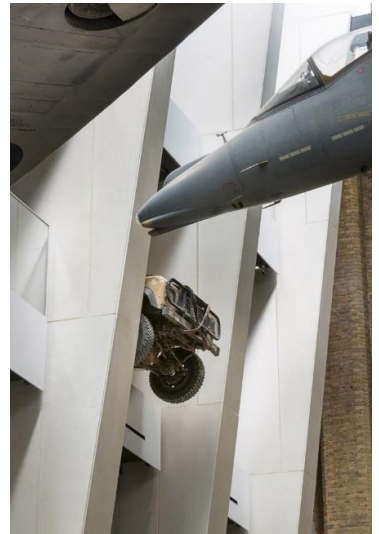
Imperial War Museum London  
Short Section 2  
0 5 10m

Floor

plan

Section

“It is a privilege to work with the Imperial War Museum to commemorate this important centenary – the process of learning about the collection and working with the Museum’s curators and staff has been fascinating. Today’s events are an important milestone in the long-term regeneration of the building, a project that will transform the experience for visitors and establish a new relationship with the surrounding park, which will benefit both.”





## **Case Study 02**

### **Project – American Air Museum**

### **Project – Museum of Aviation and Aviation Exhibition Park / Pysall**

Location – Krakow, Poland

Architects – Pysall. Ruge Architekten, Bartlomiej Kisielewski

Project team: Justus Pysall, Peter Ruge, Bartlomiej Kisielewski, Katarzyna Ratajczak,  
Mateusz Rataj, Alicja Kepka-Guerrero

Project area: 4,504 sqm

Year: 2005 – 2010

Photographs: Jens Willebrand



The Muzeum Lotnictwa is one of the largest museums of aviation in the world. It is

located in historically pre-served buildings and hangars of the former historic airfield of Rakowice-Cyzyny in Cracow, the first airfield on polish terrain, build in 1912 for the air fleet no. 7 of the Austrian-Hungarian Empire.

In 2005 a competition was launched for the new main building – the first pan-European competition for archi-tects, after the accession of Poland to the EU, to be won and realised by a German architect.

The idea of flying, the spirit of the place, the structure of the historic airfield – the new building for the Museum of Aviation takes up these references intellectually and synthesises them into an expressive and emblematic structure. The old hangars set the modular scale for the footprint (60x60 m) and the height (12m) for the new building.

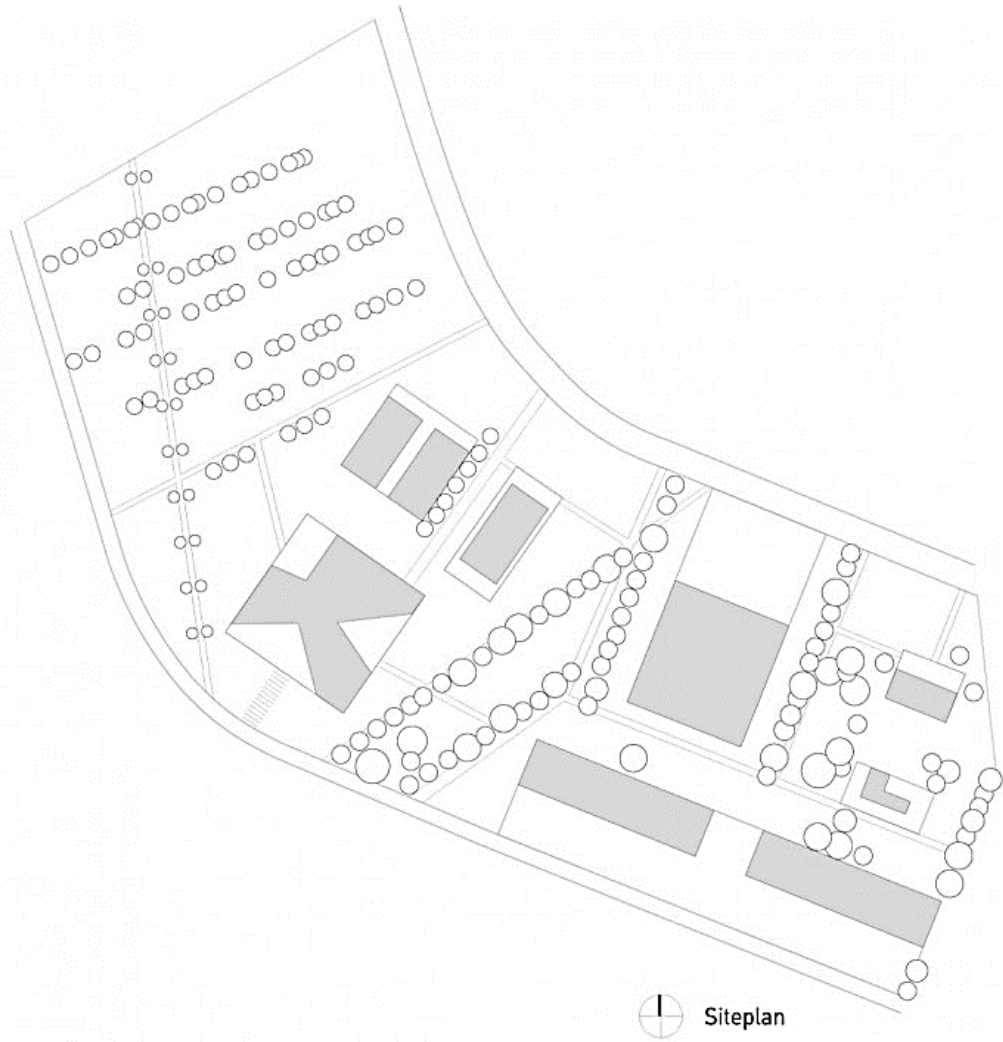


Developed from this modular scale – cut out and folded, as if made like a paper airplane, a large structure has arisen – triangular wings made of concrete and yet as light as a wind-vane or propeller. Size and orientation of the wings got developed out of three different functions. 4500sqm usable area on three floors is for disposition now. Intertwining spaces provide good orientation for the visitor.

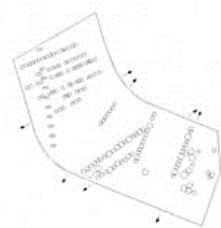


Entering the building one has the choice to go into the education wing with a voluminous 3D-cinema or directly into the exhibition area with the planes. The wings are generously glazed, opening in all directions. The exhibition thus links visually with the landscape around it and offers a view of the apron and the planes on display outdoors. The airplanes in the North wing seem by no means enclosed, but rather to have been placed in shelter, ready to roll out onto the runway at any time. The first floor is occupied with the conference room seating 150 people, a bibliotheca, a multimedia section and a restaurant with bar over viewing the exhibition.

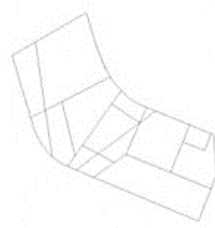
# Site Plan



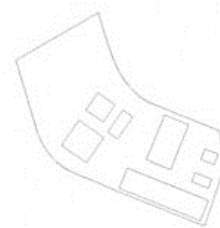
Streets



Trees



Vegetation



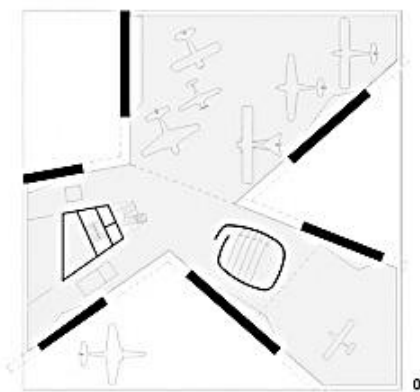
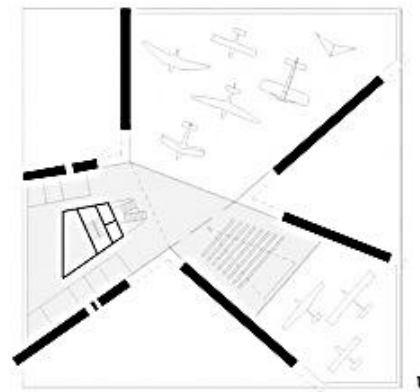
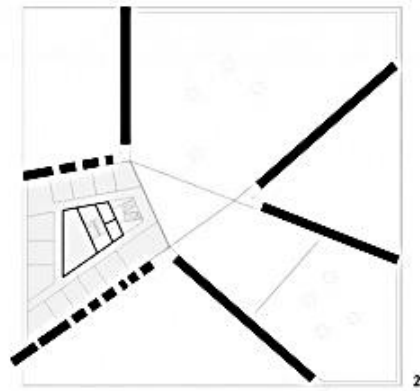
Hardcover



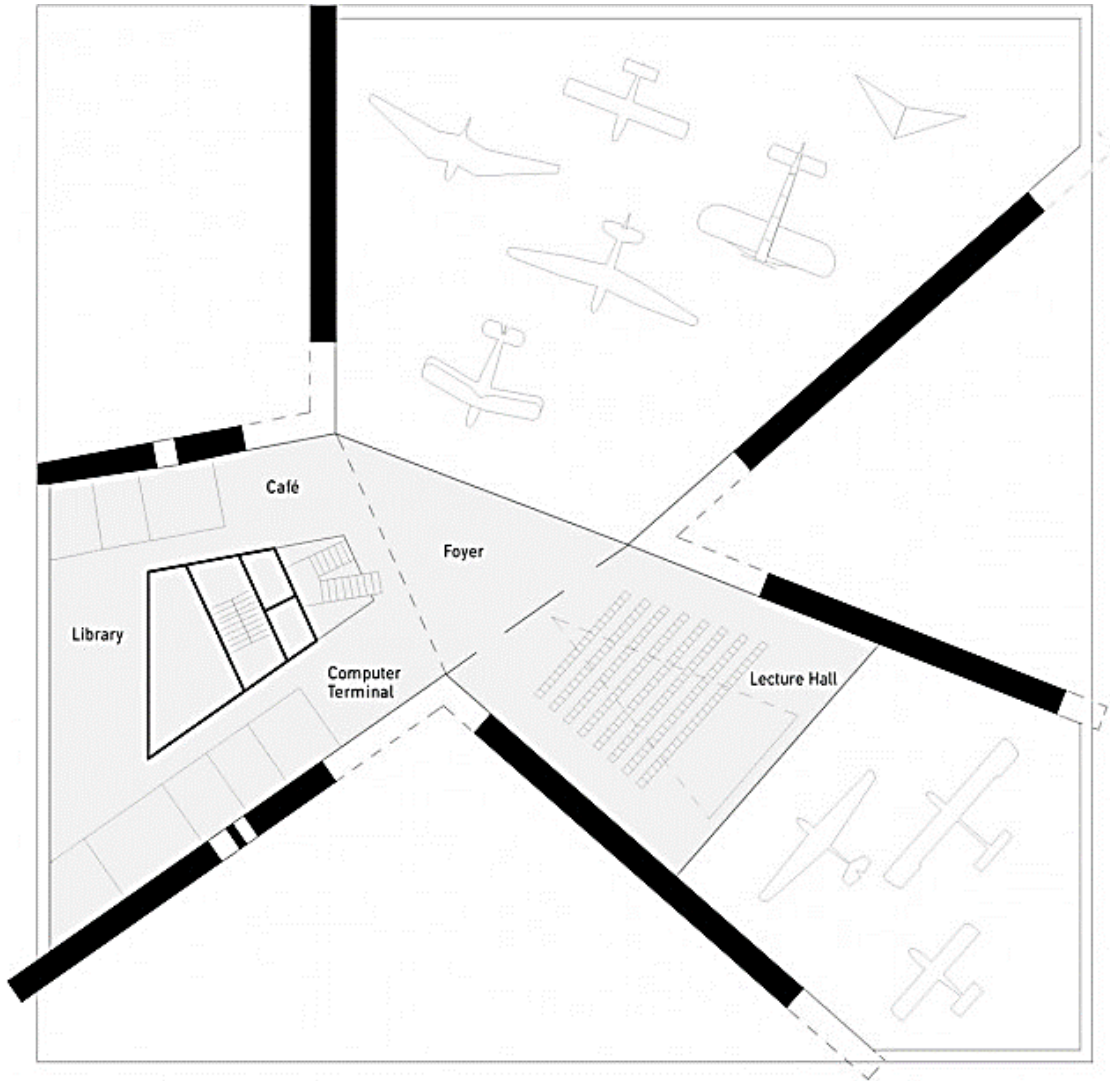
Buildings

## Site plan 2





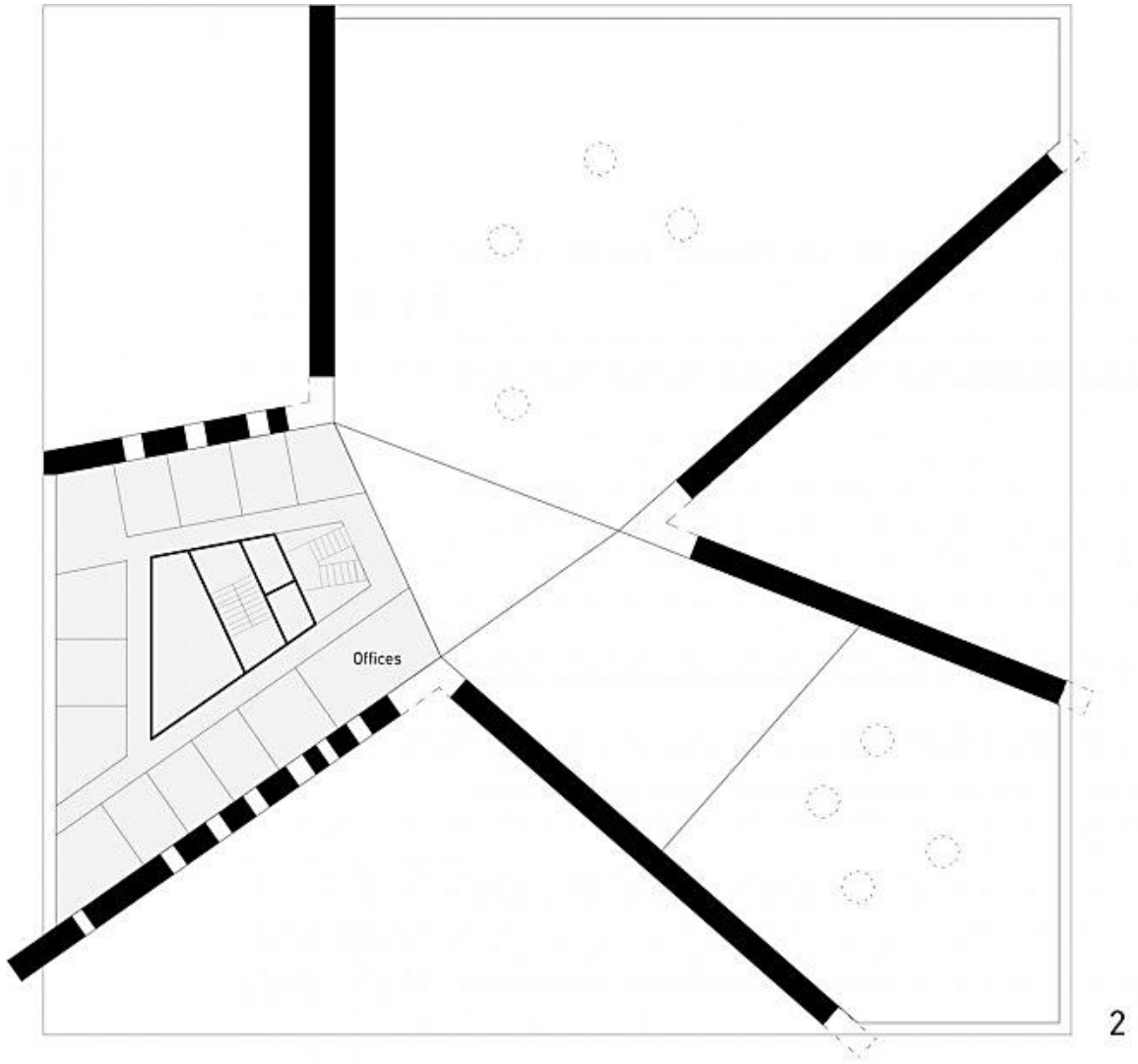
Plans



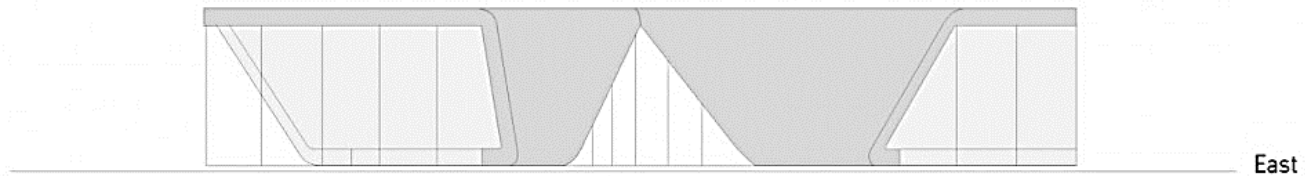
10 20

First floor





Second floor



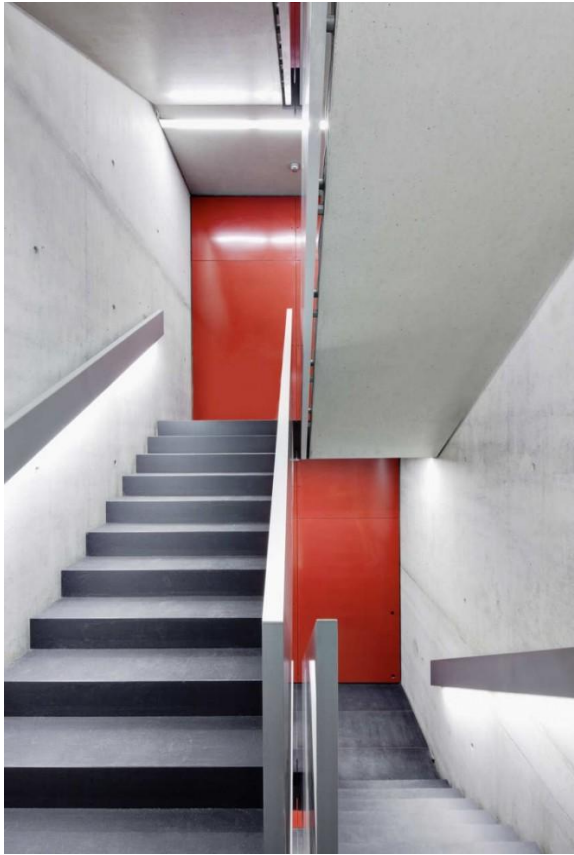
## Elevation

The offices for administration are in the second floor offering views towards the park, into the exhibition or through bull's eye windows onto the former airfield.

The new museum for aviation appears not as a “house” – it yields a subtle functionally expressive architectural sculpture.







## **Case Study 04 (Based On Form)**

### **Project – Zayed National Museum**

Architects: Foster + Partners

Location: Saadiyat Island, Abu Dhabi, UAE

Foster + Partners

Project Team: Norman Foster, David Nelson, Gerard Evenden,

Toby Blunt, Martin Castle, Ross Palmer, Dara Towhidi, Karsten Vollmer,  
Barrie Cheng, Ho Ling Cheung, Sidonie Immler, Joern Herrmann,  
Andrew King, Gemma Owen, Jillian Salter, Marilu Sicoli, Daniel Weiss,  
Bram Van Der Wal, Simon Wing

Engineers: WSP/BDSP AKT

Local Architect: Planar

Landscape Architects: Atelier Dreiseitl

Lighting Designers: Claude Engle  
Cost Consultants: RLB  
Facade Access: Lerch Bates  
Specification Writers: Schumann Smith  
Air Flow Consultants: RWDI  
Environmental Engineers: Transsolar  
Auditorium Consultants: Shen Milsom + Wilke  
People Movement Consultants: Intelligent Space  
Programme Managers: AECOM  
District Master Planners: TDIC Master Planners  
Museography: The British Museum  
Client: Tourism Development + Investment Company  
Project Area: 66,042 sqm





The display spaces are housed within a man-made, landscaped mound. The galleries are placed at the bases of five solar thermal towers. The towers heat up and act as thermal chimneys to draw cooling air currents naturally through the museum. Fresh air is captured at low level and drawn through buried ground-cooling pipes and then released into the museum's lobby. The heat at the top of the towers works to draw the air up vertically through the galleries due to the thermal stack effect. Air vents open at the top of the wing-shaped towers taking advantage of the negative pressure on the lee of the wing profile to draw the hot air out.



Here in the museum these towers are lightweight steel structures, sculpted aerodynamically to work like the feathers of a bird's wing. The analogies with falcons and flight are deliberate and relate directly to Sheikh Zayed's love of falconry. This theme is further celebrated by a gallery devoted to the subject as part of a wider focus on conservation. These inner spaces open up to an outdoor arena for live displays with hunting birds.





Balancing the lightweight steel structures with a more monumental interior experience, the galleries are anchored by a dramatic top-lit central lobby, which is dug into the earth to exploit its thermal properties and brings together shops, cafes, an auditorium and informal venues for performances of poetry and dance. Throughout, the treatment of light and shade draws on a tradition of discreet, carefully positioned openings, which capture and direct the region's intense sunlight to illuminate and animate these interior spaces. Objects are displayed within niches and on stone plinths that rise seamlessly from the floor.

The museum contains a variety of performance spaces. A large auditorium, lined with Emirati textiles, provides an evocative setting for presentations and films. The lobby incorporates more informal venues for poetry readings, music and dance, where the audience can gather in a circle to enjoy the spectacle and atmosphere of traditional performances.



The interior concept for the restaurant draws on the opulence and hospitality of the Bedouin tent, with carefully selected furnishings. The majlis, or VIP spaces, open onto a central courtyard. This traditional space offers guests a unique perspective, as it is the only place in the museum where one can enjoy views of the wind towers.

Lord Foster said: “It has been a great privilege to work on the Zayed National Museum, to carry forward Sheikh Zayed’s vision and to communicate the dynamic character of a contemporary United Arab Emirates. We have sought to establish a building that will be an exemplar of sustainable design, resonating with Sheikh Zayed’s love of nature and his wider heritage.”

Saadiyat Island is located 500 metres off the coast of Abu Dhabi and is the largest single mixed-use development in the Arabian Gulf. Arranged as seven districts, the Saadiyat Island Cultural District will also include the Guggenheim Abu Dhabi Museum, the Louvre Abu Dhabi, as well as a Performing Arts Center and Maritime Museum. The Zayed National Museum is already under construction and will be the first of the museums proposed for the island.

## Chapter 5: Program detail

### 5.1 program and area calculation

Main program	Space	no	Number of users	Area	Total
<b>Entrance</b>	Gathering space /main lobby + ticket counter			1000	
	Books and gift shop	1		500	
	Visitor's service	1		100	
	Toilet			500	
	Sub total			4100	
	30% Circulation			1230	
	Total				5330
<b>Administration office</b>	Directors room + attach toilet	1	1	400	
	Secretary	1	1	100	
	General office	1	10 person	850	
	Educators	1	35 person	2000	
	Conference room	2	20 person	900	

	Tea room	1	5 person	100	
	Security and supervision	1	4	200	
	Research room	1	4	150	
	Toilet	1	1	250	
	Reception lobby	1		550	
	Sub Total			6050	
	Circulation 30%			1815	
	total				7865

Main program	Space	no	Number of users	Area	Total
Museum maintains		1		2000	
Auditorium		1	400	15000	
Multipurpose hall				10000	
Cafeteria/ food court			150	4000	

<b>Main program</b>	<b>Space</b>	<b>no</b>	<b>Number of users</b>	<b>Area</b>	<b>Total</b>
Library	Lobby and Information	1		400	
	Reading space	1	50	4000	
	Archive	1		800	
	Librarian	1	1	150	
	For book Collection			3000	
	Toilet			500	
	General office and toilet	1	4	550	
	Library storage			400	
	Total			9800	12740
	30% of total circulation			2940	
Galleries	Exploring Bangladesh aviation history			4000	
	Hanger 1 liberation war collection			65000	

	Hanger 2 current collection			65000	
	Hanger 3 international collection			65000	
	Temporary gallery			4000	
	Outdoor gallery				
	Sub Total			203,000	263900
	Circulation 30%			60900	

	Sub total			31000	
	Circulation 30%			9300	
	Total				40300
	Grand total				330135

## 5.2 Rational of the developed program

Site Area, A = 18.26 acres = 4181540 sqft

Road width the site around =60 ft

=18 m

So for public space FAR = 5.5

MGC= 50% of A =2090770

Total built area TBA = FAR X Site area

= 5.5 X 4181540

=2299847

Total floor can be built (maximum) = TBA/MGC

=11

Set back for the site :

Front = 1.5.m

Back =3 m

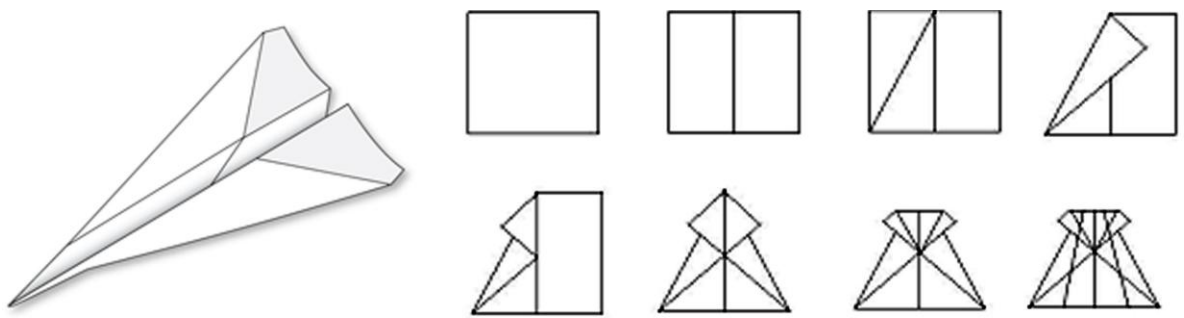
Each side = 3 m

Grand total of build area with 30 % of circulation = 330135

## CHAPTER 6: CONCEPTUAL STAGE AND DESIGN DEVELOPMENT

Concept: my concept is paper plane, paper aero plane paper glider, paper dart or dart is a toy aircraft, usually a glider made out of paper or paperboard. The origin of folded paper gliders is generally considered to be of Ancient China, although there is equal evidence that the refinement and development of folded gliders took place in equal measure in Japan. It is impossible to ascertain where and in what form the first paper aircraft were constructed, or even the first paper plane's form.

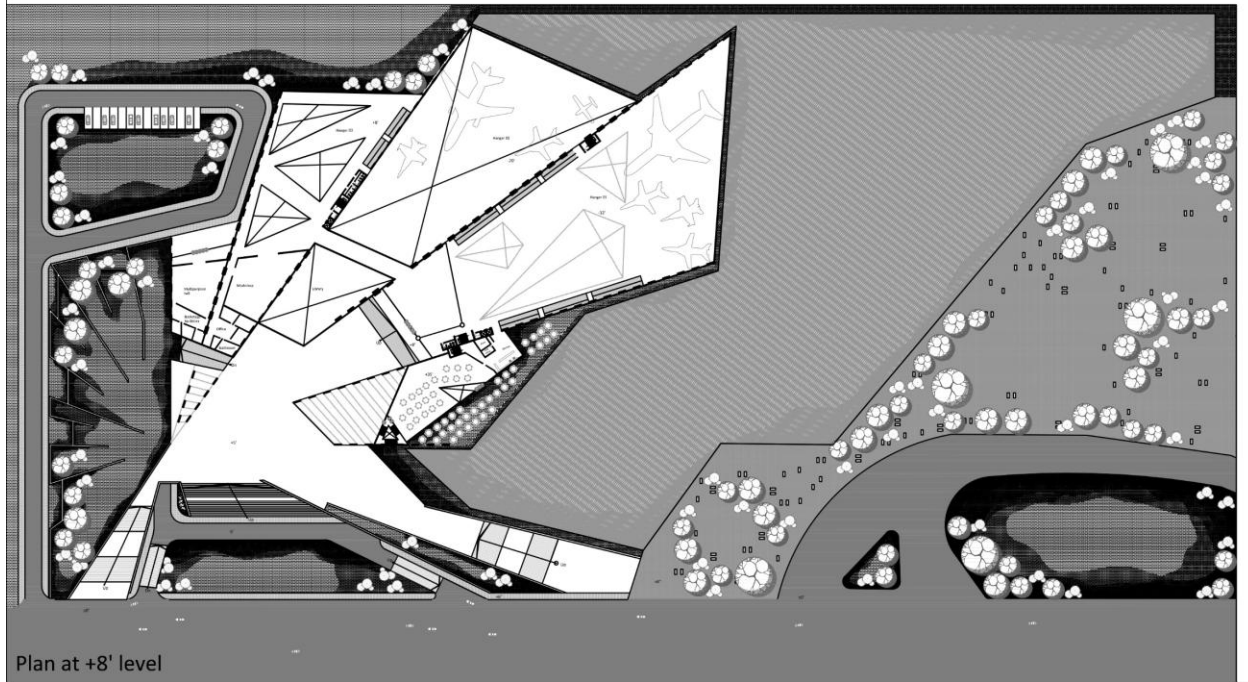
For over a thousand years after this, paper aircraft were the dominant man-made heavier-than-air craft whose principles could be readily appreciated, though thanks to their high drag coefficients, not of an exceptional performance when gliding over long distances. The pioneers of powered flight have all studied paper model aircraft in order to design larger machines.



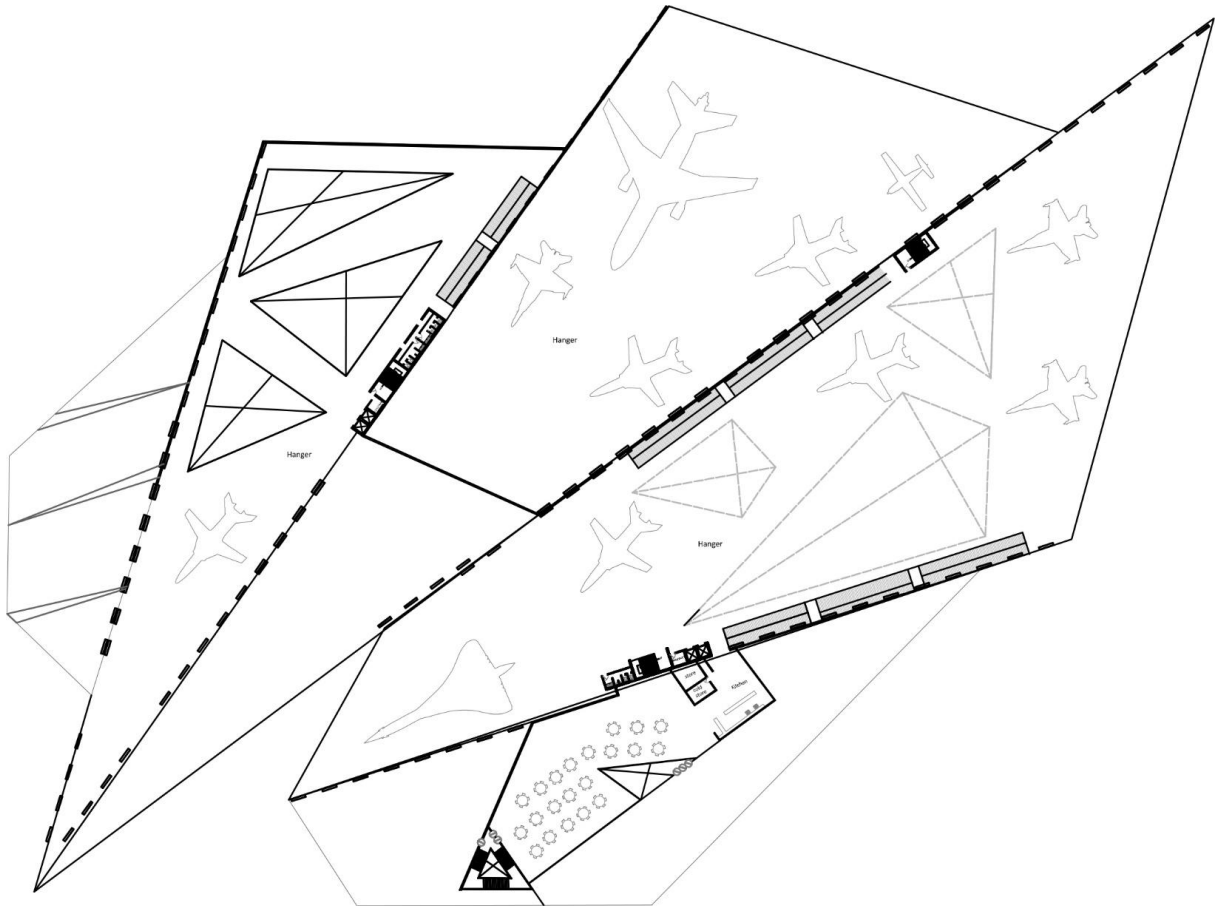
# Paper Plane



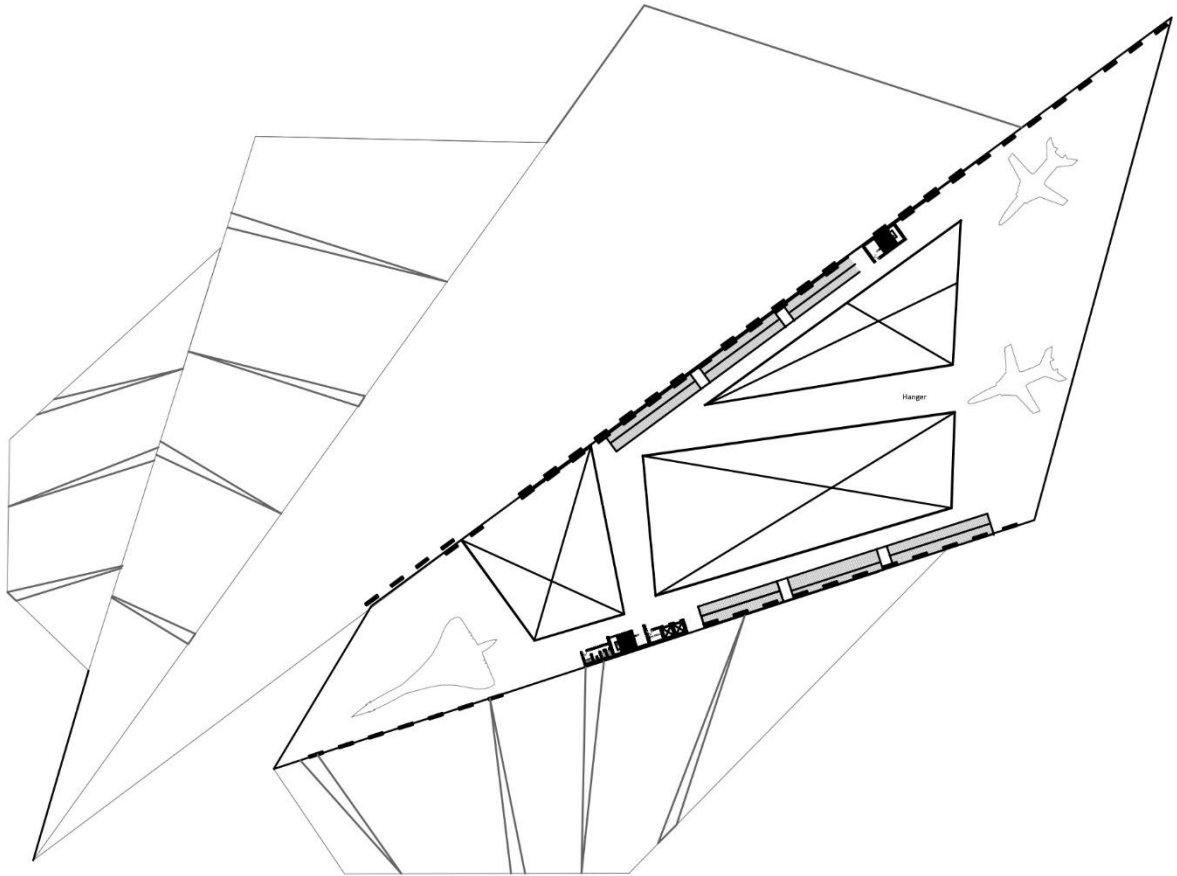




Plan at +8' level



Plan at +25' level



Plan at +55' level

## References

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<http://www.nationalmuseum.af.mil/>

<http://www.nationalmuseum.af.mil/visit/hours.asp>

