

# SPECIFIED ARCHITECT: Zaha Hadid (1950-2016)

**NATIONALITY:** British, born Baghdad

**ETHNICITY:** Muslim Iraqi Arab, identified as Iraqi British

**EDUCATION:** Architectural Association, Diploma Prize 1977, and taught there on graduation

**PROFESSIONAL PRACTICE:** Partner with Rem Koolhaas of OMA; opened her own office in 1980, Harvard Professorship

**AWARDS:** 2004 First woman to win the Pritzker Prize, USA; 2010 and 2011 Stirling Prize; 2012 Dame of the British Empire; 2015 Royal Gold Medal, RIBA



Zaha Hadid after winning the RIBA Royal Gold Medal, 2016. Digital image courtesy of Mary MacCartney

**KEY BUILDING:** Heydar Aliyev Centre, 2012. Digital image courtesy of Azerbaijan Travel



**Architect:** Zaha Hadid Architects (ZHA), with Iraqi-British architect Zaha Hadid (1950-2016) and German-born Patrik Schumacher (with onsite project architect Saffet Kaya Bekiroğlu, and Turkish contractors DIA Holding)

**Commission:** The Republic of Azerbaijan (state). Cost: estimated \$250m (original quote \$137m)

**Date:** ZHA won international competition in 2007; opened in May 2012 by President Ilham Aliyev (son of the first President Heydar Aliyev). Won Design Museum 'Design of the Year Award' 2014

**Function:** Cultural Centre, i.e. a civic public building

**Nationality:** Azerbaijani, named after the first President of Independent Azerbaijan

**Location:** Baku, capital of Azerbaijan, Eurasia; on a peninsula in the Caspian Sea

Site and scale: 101,801 m<sup>2</sup> floor space over eight levels, set in a 10 hectare/111,292 m<sup>2</sup> public park north-west of Baku city centre

Materials and processes: parametric design with shell structure of concrete elements and steel frames enclosed by a skin made in Glass Fibre Reinforced Concrete (GFRC) and Glass Fibre Reinforced Polyester (GFRP) and semi-reflective glass.

## 1. KEY TERMS AND CONCEPTS

Function: Cultural Centre with three main areas. There is a large atrium with access to the museum, temporary gallery and workshop spaces; a conference centre with a 1000-seat auditorium; and a library which rises to a peak at the back of the building. It is the primary centre for promoting contemporary Azeri culture, alongside a display of historic culture.

It is also a commemorative homage to national leader Heydar Aliyev (1923-2003), First Secretary of Soviet Azerbaijan 1968-87, and President of the new independent state from 1993 to 2003. It is therefore both symbolic of the new global forward-looking, modernised state and outright propaganda.

*“Elaborate formations such as undulations, bifurcations, folds, and inflections modify this plaza surface into an architectural landscape that performs a multitude of functions: welcoming, embracing, and directing visitors through different levels of the interior. With this gesture, the building blurs the conventional differentiation between architectural object and urban landscape, building envelope and urban plaza, figure and ground, interior and exterior.”<sup>1</sup>*

Style: The building’s style is known as parametricism (a term coined by Schumacher), a new global style developed through digital culture and changes in computer software using a system of parametric design with multiple iterations. It rejects Classicism, Modernism and Post-Modernism, so rigid forms (e.g. cubes, pyramids), simple repetitions and collages of isolated, unrelated elements (as seen in Post-Modernism) are taboo. Positive principles are that all forms are soft (with links to organic architecture, catenary curves and shell models from Gaudi, to Candela, to Saarinen), all systems are differentiated (individual elements), and all systems are correlated (inter-articulation of multiple sub-systems such as a structure, an outer envelope, internal subdivisions and a navigation void such as an atrium). An analogy with nature would be the relationship of vegetation to topography. Elements are malleable and variable, lines are free not rigid, planes are not flat surfaces but radiate and ripple, and volumes bleed into each other for continuous varying spaces which allow for rich interior diversity.

The Heydar Aliyev Centre illustrates this on a large scale with a continuous shell structure and no columns. It sweeps up to a peak at the rear, and spills out and bleeds onto the plaza, while also continuing the exterior ground surface into the wall surface and up into the roof surface. Similarly, in the interior the staircase bleeds into the walls and turns into lighting strips. Hadid described it as a “*completely seamless building*” and “*very calming*” for its fluid qualities with spaces unfolding while

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<sup>1</sup> <https://www.yatzer.com/heydar-aliyev-center-zaha-hadid-architects-baku-azerbaijan>

immersing the viewer in its strong white light. “*It melts, it slides, it wooshes, it juts, it moves*” (Yentob).

It is a very sensual, curvaceous style. These features link it both to European Romanticism and to Islamic traditions. “The center is famous for its *fluid shape*, which the architects intended as reaction to the rigid architectures of the Soviet era as well as a reference to Islamic calligraphy and to elements of the traditional Azeri architecture.”<sup>2</sup>

### **Structure and Form:**

Baku, which in old Farsi means ‘where wind beats’, is subject to high wind throughout the year, and lies within a seismic zone. The freeform structure derives from the architectural design concept of modifying a single surface to adopt different functional requirements. To achieve this, vertical elements are absorbed by the envelope and curtain wall system. ZHA used an ingenious and elegant structural system, which has two collaborating systems: a concrete structure combined with a space frame system. Because vertical structural elements are absorbed by the envelope and curtain wall system, the large-scale column-free spaces can allow the visitor to experience the fluidity of the interior. Another important issue is the building’s skin. To make the surface so continuous that it appears homogenous, a broad range of different functions, construction logics and technical systems were brought together, and integrated, into the building’s envelope. It makes the building appear homogenous since different parts were covered and connected.

The rigid structural grid of the space frame enables the construction of a free form structure. Reinforced concrete was used to construct sheer walls as the partition to separate main spaces and to support the space frame to which it is connected. The surface geometry, driven by the architecture, dictates the need to pursue unconventional structural solutions: namely the introduction of curved ‘boot columns’ at the west, and the cantilever beams’ ‘dovetails’ tapering towards the free end, supporting the building’s envelope at the east. The bending movement of the auditorium requires a multi-layer space frame. The free-formed exterior cladding seams derive from complex geometry.

To summarise: there are no rigid geometrical structural forms, instead there are soft parametrically variable forms creating omnidirectional space, only limited by structural constraints and fabrication constraints. The structure has no columns to support it, but is a shell structure with catenary curves.

**Composition:** It rejects geometrical, rectilinear composition and is asymmetrical, with one main façade but quite different and unique forms from different viewpoints creating a continuous running form.

**Volume and Mass:** There is little sense of mass and void, rather the varied volumes bleed into each other to create continuous varying moving spaces, rather than space contained with borders. Space moves from exterior to interior and back through large scale fenestration and bright light reflecting off the tiled surfaces.

**Light:** Semi-reflective windows have an up and down transom pattern while the interior has brilliant streaks of neon light that give a sense of energy to the space.

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<sup>2</sup> <https://www.inexhibit.com/mymuseum/heydar-aliyev-center-baku-azerbaijan-zaha-hadid/>

**Decoration:** There is no added decoration, the total form – all in white – itself is decorative and resembles calligraphic forms with its stereometric sweeping outlines.

**Public urban space:** A generous 14-acre site (the size of 10 football pitches) which was previously an area with a Soviet factory and government housing. It rises 20m from the lowest level to the entrance rather like the propylaea of the ancient world drawing visitors into the centre.



Left Map of the Caspian sea region. Digital image courtesy of ICEF Monitor

Right The Heydar Aliyev Centre. Digital image courtesy of Azerbaijan Tourism LLC

**Urban environment:** It is approached from the centre of the old city by a series of terraces, steps and pathways zig-zagging up the slope interspersed with waterfalls into infinity pools to contrast with the curvaceous white form. These have been linked to alternative geometric traditions of calligraphy (closer to Kufic) and also to the signature of Heydar Aliyev. Islamic architectural traditions from the Middle East include the sound of running water to stimulate the senses. Approaching from the opposite direction of the new airport the centre is part of a series of signature buildings standing for Baku's new second wave of oil wealth and rising status within Europe.

## 2. MATERIALS, TECHNIQUES AND PROCESSES

The process of design is computer based using parametric, Rhinoceros 3D and other computer-aided design which allows one to depress one part, as another part moves. The challenge is to transform the design into reality when curves are very expensive to build. Reinforced concrete is used to construct the footing of the building with massive 150-foot (4.7m)-long concrete piles buried below the earth's surface to withstand an earthquake measuring up to magnitude 7.0. Parametric structures are dependent on both the materials and techniques of Modernism, and new synthetic lightweight fibre products associated with Post-Modernism. The centre was built using a load bearing structure with a complex ensemble of concrete elements and steel frames enclosed by a skin, a free-form curvilinear envelope made in Glass Fibre Reinforced Concrete (GFRC) and Glass Fibre Reinforced Polyester (GFRP), with semi-reflective glass and LED lighting making full use of natural light. It was a design-build using Turkish project architect Saffet Kaya Bekiroğlu, and Turkish contractors DIA Holding. The all-white interior demands an army of cleaners to keep it spotless.

## 3. CULTURAL, SOCIAL, TECHNOLOGICAL AND POLITICAL FACTORS

Zaha Hadid grew up as a Muslim in Iraq but went to a Catholic boarding school, and studied mathematics in Beirut before moving to London to study. Her father was the leader of the National Democratic Party so her family was liberal and progressive. Baghdad of the 1950s had built a new modern identity with modernist architecture by Le Corbusier, Alvar Aalto and Gropius. At the

Architectural Association in London in the 1970s Hadid developed an interest in Malevich and Russian Suprematism and Constructivism, painting and designing rectilinear works which eventually culminated in her '*slicing, blade-like building*' – the Vitra Fire Station of 1993, part of the movement known as Deconstructivism.

Baku is located 28m below sea level on a peninsula in the Caspian Sea. It has a long, rich and varied cultural history due to its crucial geographical location for world politics on the Silk Route linking East and West. These multiple cultures are important for the commission and design of the Heydar Aliyev Centre, and Baku's aim to show itself as a tolerant multicultural secular society. North of the Caucasus mountain range and west of the Ural Mountains, it considers itself part of Europe (it hosted the 57th Eurovision Song Contest in 2012, the 2015 European Games, and will host UEFA Euro 2020).

The petroglyphs in nearby Gobustan (UNESCO heritage site) are 12,000 years old; in the first century CE the Apostles Bartholomew and Taddeus brought Orthodox Christianity, which took over from Zoroastrianism. Islam and the Arabic script arrived in the 7th CE and the medieval period saw the reign of the Shirvanshahs with a rich Islamic culture of illuminated books, textiles, music and metalwork as the Silk Road joining Europe to China prospered. In 1501 Persian Safavid King Ismail II ransacked the old city and introduced Shi'ia Islam and the Turkic dialect now known as Azerbaijani. The Safavids ruled until 1722 when Ottoman forces attacked. 89% of the population is still Muslim, though only 30% attend the mosque.

In 1813 Baku was integrated into the Russian Empire, in 1846 the world's first oil well was drilled which started the first oil boom, and resulted in a large Europeanised city of boulevards and oil barons' palaces. Before World War I Baku produced 50% of the world's oil. In 1920 the Soviet Red Army made Baku the capital of the Azerbaijan Soviet Socialist Republic, a secular modern state with an extensive building programme. Many of these modernist geometrical structures were demolished after the collapse of the USSR in 1991, to make the space for the cultural centre. Heydar Aliyev was an important politician during the Soviet Era, a member of the KGB, and Secretary of the Communist Party of Azerbaijan from 1969 to 1987, until he fell out with Gorbachev.

Modern secular Azerbaijan declared Independence in 1991. Yet by 1993 there was unrest; Heydar Aliyev reinvented himself as a moderate nationalist and returned to step in as acting President, before being elected as President, and re-elected again in 1998. He has been described as an authoritarian repressive dictator, who rigged elections, but also as a moderniser who sought close ties with Turkey (now Türkiye), Europe, the USA and the UN. He initially studied architecture. Aliyev allowed foreign companies to explore oil resources from 1994, and in 2005 Azerbaijan built the world's second longest oil pipeline to get Azeri oil to Ceylan in Turkey bypassing Russia and Iran.

His son Ilham Aliyev (b. 1961) was the only candidate in the 2003 elections and is now President. Ilham's wife Mehriban, from an immensely wealthy and powerful business family – the Pashayevs – is believed to be influential in directing oil revenue into the recent building boom.

#### **4. WAYS IN WHICH IT HAS BEEN USED AND INTERPRETED**

**Aim:** Firstly, to break with the geometrical Modernism of Soviet era architecture of the period 1920-1989 and to engage instead with past Azeri culture. Secondly as an optimistic symbol of growth with the new republic's oil money being invested in signature buildings. Finally as a monument to a controversial first family, a region, and an emergent national culture in a newly independent

country. Democracy and liberalism are symbolised via the permeability and transparency of the structure. It directly commemorates Heydar Aliyev and promotes his son the current President: “a huge show-off project for the ruling family” (Yentob).



Nask Calligraphy. Digital image courtesy of Wikimedia

**Iraq and Azerbaijan – elements of a shared heritage:** Baku wants to promote its long and complex cultural history within the Islamic world, as well as its European aspects in its latest cycle of development aimed at tourism. Hadid’s personal dual cultural heritage meshes perfectly with that of the new Baku.

**Calligraphy:** The Azeri language was initially written in an Arabic script so the flowing curves of calligraphy are familiar to the population of Baku as they were to Hadid who said: “There’s definitely a connection between fluidity – the fluid line and calligraphy – and what I am doing now... I think there is a kind of connection between architecture and geometry – and between calligraphy and geometry.”



Top right Carpet Shop in Old Town Tbilisi, Georgia. Digital image courtesy of Georgia About

Left Sand dunes in the desert. Digital image courtesy of Guy Seela

Right Heydar Aliyev Centre. Digital image courtesy of The Azerbaijan State News Agency

**Landscapes:** The distinctive mud volcanoes (“flowing like lava from mountain peaks”) and mountain ranges of Azerbaijan alongside the sand dunes of Hadid’s Iraqi childhood are reflected in the organic lines of the auditorium, and the silhouette is like an artificial mountain range. “The beauty of the landscape – where sand, water, reeds, birds, buildings, and people all somehow flow together – has never left me.”

**Interior decoration:** Hadid spent part of her childhood in traditional houses where carpets flow from wall to seat, to floor, like the leitmotif of the right side exterior of the Heydar Aliyev Centre; and the interior where the curve of the ceiling flows to the curved walls to join the stairs of the centre.

**Orientalism:** The local population, and some critics, like to suggest the supine form of the building references the pure white skin of European Orientalist female nudes “all form and no structure”, with ‘cleavages’ and ‘tucks’ and ‘tactile curves’. While others view it as a tent – referencing the Silk Road caravanserai, or a “turban unravelling in the wind” alluding to the Turkic nomadic heritage.

**New global culture:** As a world-renowned prize-winning global ‘starchitect’ with a Muslim background, this ‘total work of art’ by Hadid is an appropriate civic gift to the Azerbaijani public and

visitors to the country. The ruling family want to make their mark with “*an anti-monumental monument devoted to culture not government*”. However, Olcayto points out it is “*named after a former KGB supremo whose son today presides over a dictatorship*”. Moreover, William Curtis calls it “*vapid formalism placating and promoting a dubious regime... manipulation of clichéd shapes relying too heavily upon computer generation at the expense of real architectural thought.*”

### References:

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Olcayto, Rory Architect September 2013, Volume 102, 9, p. 118-128.

<https://www.youtube.com/watch?v=ZaHyKOHammk> – interview with Zaha Hadid for Baku Magazine February 4, 2014.

<https://www.youtube.com/watch?v=V-n2DgBeQok> - Imagine ‘Zaha Hadid. Who Dares Wins’ BBC 2013 with Alan Yentob

<https://henitalks.com/talks/zahahadid/> - Zaha Hadid: Sketching the Future with Hans Ulrich Obrist

<https://www.youtube.com/watch?v=pVHvWUKj1eU> - ‘Parametricism’ by Patrik Schumacher, lecture 2013

<https://heydar-aliyev-foundation.org/en/content/index/63/National-leader>

<https://www.theguardian.com/artanddesign/2014/jun/30/zaha-hadid-architecture> - re Human Rights Watch and destruction of homes to make way for the plaza in Baku

<https://www.youtube.com/watch?v=7fksqoHLx0k> – Rhinoceros 6 modelling video (38 minutes)

### Practice examination questions:

1. How does the building express the identity of its patron (namely the state of Azerbaijan, ruled by the President Ilham Aliyev, whose father the building is named after)?
2. How does the building demonstrate national identity (namely of the new independent secular Republic of Azerbaijan since 1991)?
3. How does the building demonstrate ethnic identity (namely of Turkic speaking, secular Azerbaijanis with a rich Islamic cultural history)?
4. How does the building reflect the gender of the architect? (NB. Remember to consider whether the computer is a tool that helped realise a pre-existing aesthetic, or whether the vision is just an algorithm).