Architecture in Context

Designing in the Middle East

I dedicate this book to all those young architects who are striving to design out of the box, with the aim of improving the human condition through an architecture of sense in all regions of the world.

Architecture in Context

Designing in the Middle East

Hassan Radoine

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The process of preparing it started as an open dialogue with students and young architects, in response to their queries, after I realised how much they were suffering from the lack of a guiding textbook on contemporary architecture and design in the Middle East. Since I cannot mention all their names, I fully acknowledge my smart students' great contribution to making this a practical textbook and, I hope, a reference for generations of students and architects to come.

Words cannot express my gratitude to the publishing team – commissioning editor, Helen Castle; project manager, Miriam Murphy; project assistant, Calver Lezama; copyeditor, Abigail Grater – for their close assistance and perseverance. My deepest gratitude goes to the talented illustrator, Insaf El Koussi, who has brought my visions to life by visually interpreting the complex text. I would like to thank Mustapha Semmar for his valuable comments on the manuscript. Appreciation is extended to all professional photographers who have offered their valuable photographs to enhance the presentation of my arguments.

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This book would not have been possible without the support and encouragement of my family, my spouse Soumiya and my sons – Khalil, Adam and Rayane.

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CONTENTS

INTRODUCTION

There is a vast amount of architectural activity taking place in the Gulf and other countries of the Middle East, including Turkey, Lebanon, Egypt and Morocco. In various places throughout this region, high-rise structures made possible by the freedom from structural limitations of materials such as concrete, steel and glass are taking the art of design to heights never reached before. Some embody the new 'global' approach that relies heavily on imported forms, while others reflect the 'local', pursuing a rather postmodern form of romantic aestheticism. Consequently, contemporary architecture in the Middle East and the north of Africa is at a critical crossroads with regard to the limits of global and local design practices.

However, the striking conceptual framework that underlies the new approaches to designing in this particular area never takes into consideration its entrenched rich architectural tradition and sense of place. Indeed, modern local and international architects have designed most of the new buildings as if there were no context. What is meant by context here is not the ordinary emotional forms but the intrinsic memory and prophecy of a locality to engender an innovative project centred on a sustainable genius loci, or spirit of place. Architects currently designing in this area are instead pursuing an iconic-abstract architecture that is once again dominating worldwide architectural discourse and practice.

Very few local or international architects are trained to capture grassroots contextual elements, and therefore most are unable to creatively translate these into their projects, particularly in those located on sites with high natural, cultural and environmental potential. This is due firstly to decades of modernist ideologies which influenced a whole generation of architects to take a negative position towards any historical or contextual reference, and secondly to the loss of empirical

OPPOSITE
Early 21st-century postmodern romantic versus global iconic architecture in Dubai, United Arab Emirates
In the foreground is the Madinat Jumeirah resort (2003), designed by Eduardo A Robles and Thanu Boonyawatana with DSA Architects in postmodern romantic style, while soaring beyond is the Burj Khalifa (2010) by Skidmore, Owings & Merrill and Hyder Consulting.

BELOW
'Monopolio' building, Tangier, Morocco, 1884
A historic tobacco factory in Tangier is overwhelmed by the standardised international style of the tall buildings around it as they take over the existing urban heritage cityscape.

knowledge regarding local building know-how beyond dramatic and superficial pastiche.

The current new generation of students and young architects seem to be at a loss about what to do with this discordant state that the previous generation inherited at the beginning of the 20th century, when any contextual form was considered a hindrance to architectural avant-gardism. Even today, students of architecture in the Middle East region are being exclusively taught Eurocentric historical surveys with insufficient focus on those closely relevant to their own context. They are unfortunately not offered the opportunity to grasp local architectural vocabularies and their embedded environmental and cultural signifiers.

Consequently, the redundant internationalist standardised vocabularies and forms of architecture plague all cities in the region, with no consideration for their environmental, ecological, cultural, geographical or social settings. The rich architectural diversity and uniqueness of the region, which once offered the world architectural wonders, has frequently been substituted with monotonous and repetitious forms by designers seeking international fame at the expense of the human factor and its environment that ought to be its raison d'être.

However, if we consider that such criticism or rejection of context is based on resentment or alienation for mere polemical or ideological ends, we will not find a straightforward answer to the question of contemporary design in today's

BELOW
Cityscape of Cairo, Egypt
A monotonous cityscape similar to those of most Middle Eastern cities, with conventional forms.

Middle East. Hence the urgent need for a new orientation to cultivate responsible design practice geared towards a more responsive architecture that communicates with its place while being concomitant with its time. This need echoes a voice that seeks to raise awareness among the architectural community all over the world about the risks of the fast-spreading ego-centred designs that exempt the act of designing from any relevance to its milieu.

Therefore, this book is intended to be a guiding tool and an eye-opener on the long-overdue revalidation of context in current design processes that have been deprived of the quintessence of their locality due to the common alibi of constraining architects' creativity. Stressing this concern among architects, this book serves as a reminder of the importance of reaching a balance between embracing a creative regionalism that anchors architecture in its site and culture, and adopting an effective globalism without utterly surrendering to an ultra-technological form devoid of any sense of place. This cannot be attained without first training students and young architects in the region to grasp contextual parameters as not limitations, but rather opportunities that can be translated through architectural innovation in order to boost the overall quality and comprehensiveness of the design process. Secondly, the book sets out to provide them with efficient methods and techniques for

ABOVE
Transparent House design agency, Crescent Moon Tower proposal, Dubai, United Arab Emirates, 2012
A metaphorical and fantasist ego-centred design with an Orientalist 'Islamic' form – the crescent.

ABOVE
IM Pei, Museum of Islamic Art, Doha, Qatar, 2008
Pei's successful attempt at dismantling the local architectural vocabulary and redesigning it in a contemporary style without falling into pastiche.

a judicious exploration of contextual realms. Thirdly, it gives them pointers to explore universal design with its innovative mechanisms, acquiring its scope while embracing the spirit of places.

Accordingly, this book's main message for architects is, first, to approach architectural design with more subtlety and responsibility, in order to heighten the vivacity and originality of the region's buildings – not only for the decades to come, but also to set a referential value for future architectural masterpieces. And second, it is a plea to all architects to re-centre design and creativity around the vital human living condition rather than be satisfied with an ephemeral aestheticism. This will hopefully alert students and future architects to the possibilities of designing a more responsive and sensitive architecture.

Several new terms have recently been coined to voice these contextual concerns in different disciplines, such as sustainability, resilience and smartness. To avoid any confusion in students' and young architects' minds, it is imperative to note that this book does not seek to propose a historicist or a nationalist architecture

LEFT
X Architects, Wasit Natural Reserve Visitor Centre, Sharjah, United Arab Emirates, 2016
An example of designing with the demands of the site in order to generate a living landscape where architecture is a balanced environmental ensemble.

or one that advocates an emotional regionalism. However, it does pursue a programmatic approach that seeks to holistically integrate the genius loci of different places through a responsible process of designing. While taking care first not to fall into ready-made recipes of one of these terms, and second not to blindly surrender to the pressure of sheer consumerist architecture that satisfies only the demands of competitive developers – market rules, monotonous commercial building materials, regulations and fast production – architects, particularly young ones, are indeed called upon to endure the struggle of keeping the profession sustainable and noble. Subsequently, the approach pursued in this book can be applied to any other region in the world while exploring the proposed elements, taking into consideration their own local characteristics and peculiarities.

The key questions to be raised are the following: How should the background of architectural tradition in the Middle East and the north of Africa be comprehended? How can architecture in the Middle East be designed in a way that observes contextual qualities without falling into emotional pastiche? How can context be grasped in order to design responsibly? How can a sense of judgment regarding a responsive contextual design be cultivated? How can contextual elements be explored in an innovative way? What are the different contextual and cultural meanings to be considered in design? How should the practice of a contextual design be situated within the current architectural trends and discourses in the region? How can local anchorage be achieved without discarding positive global input?

BELOW
Map of the regions and countries covered by this book

This book is thus an attempt to address these questions by critically exploring four fundamental aspects:

- the historical background of architecture in the Middle East, presenting the key knowledge elements that need to be mastered so as to situate the content of this book in time and in place, and recall what is essential to design in contemporary theory and practice

- the local architectural vocabulary and its elements of local styles, to enable an understanding of the paradigm of authentic local design principles and forms, and how they can still be reactivated in contemporary projects through their stylistic contextual idioms

- the cultural and contextual meaning of forms, which allow genuine cultural and contextual references to be set that may influence contemporary architecture in the region by critically questioning all local and foreign preconceived concepts about the architecture of this area

- the different discourses and trends of contextual architecture that need to be taken into account in order to position the theories and practices vis-à-vis the current global/local dichotomy – the purpose being to find out to what extent the global interacts with the local and vice versa.

With such a perspective, the book discusses the dynamics of the context of contemporary architecture in the Middle East in both theory and practice. Arching over these four aspects will be the spectre of crisis, change and opportunity that can collectively be understood as the sustainability question. The regions of the Middle East that are covered in the book are North Africa (Morocco, Algeria, Tunisia, Libya and Egypt), the Levant (Jordan, Syria, Palestine, Israel and Lebanon), the Gulf (Saudi Arabia, United Arab Emirates, Qatar, Bahrain, Kuwait, Yemen and Oman), and the zone of Turkey, Iran and Iraq.

This book is intended for a new generation of students and architects who are well versed in visual culture. Its content is interwoven with informative illustrations and photographs that together generate an innovative narrative. It is important to consider that this book is only a modest starting point for a new line of research on the possibilities of reactivation of dormant and dynamic contextual parameters in the making of a contemporary architecture that is continuously becoming detached from its human factor.

Architecture in Context Designing in the Middle East
By Hassan Radoine

CHAPTER 1

ARCHITECTURE IN THE MIDDLE EAST: A BACKGROUND

The Middle East region cannot be ignored when it comes to architectural production over the course of history, and neither should it be disregarded in relation to contemporary architectural trends, particularly in the Gulf area. This is due to the region's rich characteristics in terms of geographical situation, climate, topography, culture, history and environment. Despite globalism and internationalism, the Middle East has presented a kind of resistance to modernism – as have some other places with rich heritage antecedents, such as Italy where modernism was vehemently questioned before the rush to pursue an avant-gardism of sheer aesthetics devoid of its contextual essence.

OPPOSITE
Hossein Amanat, Azadi Tower, Tehran, Iran, 1970
An expression of nationalism through architecture and urban planning.

This resistance to fast modernism requires some deciphering. It does not necessarily mean the blind pursuit of the trend of reproducing past architectural models. Rather, it involves exploring how contemporary architecture cohabits with the built heritage in the Middle East, not only in the modern era but also throughout the history of their civilisations. By revisiting this practice, the spirit of designing with context or rejecting it can reveal guiding and inspiring lessons for the current period.

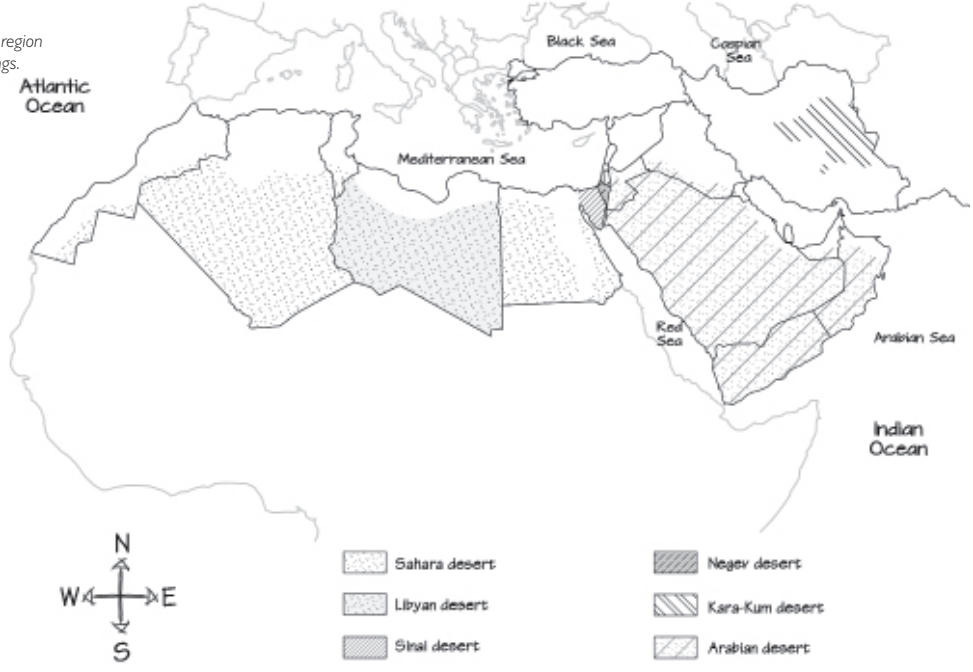
Accordingly, it would seem necessary to focus on the different historical, cultural, geographical, environmental, ideological and political characteristics that influence the theory and practice of architecture. It is about how these characteristics contributed and are contributing to generating a portfolio of architectural antecedents. What is critical in this respect is to find how and when these antecedents were essentialised so as to evoke an emotional regionalism, or how and when their intrinsic potentials have been genuinely reactivated in today's design processes.

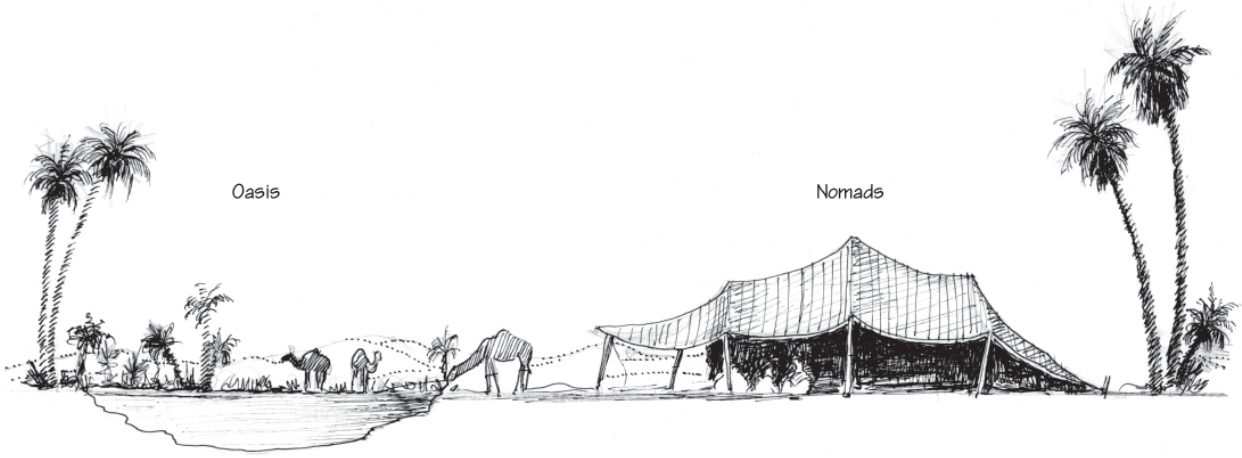
GEOPOLITICAL AND ENVIRONMENTAL CHARACTERISTICS

The Middle East is a vast geographical zone with incredibly diverse landscapes and climates that stretches between the Atlantic and Indian oceans. Despite the fact that the term 'Middle East' was invented at the beginning of the 20th century to denote the region between Europe and Asia, it is still problematic in terms of territorial and geographical limits, including some distant geographical areas under its umbrella such as North Africa. This is due mainly to cultural and linguistic bonds and some cases of environmental and climatic similarities (Held and Cummings 2014). However, the strategic geographical element that links all these areas of the Middle East, including North Africa, is the Mediterranean Sea and the Persian Gulf. Therefore, although the term Middle East is not fully accurate, it is commonly used to connote a territory that stretches from Morocco to Afghanistan (Drysdale and Blake 1985).

Its topography is mainly desert drylands, and includes known deserts such as the Arabian, Libyan, Sinai, Negev, Kara-Kum and Sahara deserts. However, these deserts contrast in the same region with series of chains of mountains such as the Atlas, Taurus, Asir, Hejaz, Caucasus, Pontic and Elburz mountains. The transition from the northern mountains to the southern deserts engenders rich plateaus such as those of Anatolia and Iran.

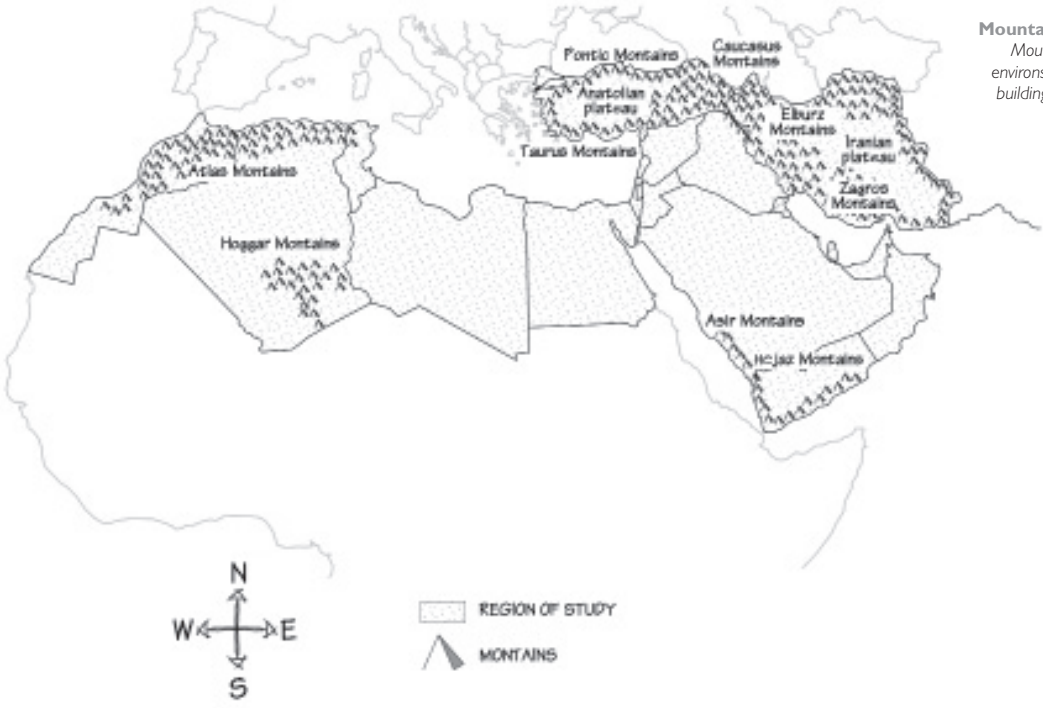
RIGHT
Deserts in the Middle East
The vast Sahara territories in this region explain the rooted nomadic settings.





ABOVE
The culture of nomads
A nomadic environmental setting where form manifests lightness and endurance.

This descending nature of Middle Eastern topography also provides a series of rivers that contributed along with the large plateaus to the creation of suitable ecosystems for great human civilisations. Among these key rivers that shaped the geography of the region are: the Euphrates that flows from the Caucasus Mountains and crosses Turkey, Iraq and Syria; the Tigris that flows from the mountains of southern Turkey and crosses Iraq to frame, with the Euphrates, what was known as Mesopotamia; the Nile that flows from Burundi to cross Sudan and Egypt and end at the Mediterranean Sea; and the major rivers that flow through Morocco – that is, the Draa, the Sebou, the Moulouya and the Oum er-Rbia.



LEFT
Mountains in the Middle East
Mountains and their immediate environs generate ideal settings for building civilisations around arable lands.

RIGHT
Rivers in the Middle East
The key rivers in the region were ideal environmental reservoirs around which to build civilisations.

From the rugged mountains to dry lowlands, the geography of the Middle East is archetypal of having several geographical and environmental landscapes such as steppes, oases, riverbeds, slopes, plains, coasts and mountains. These myriad types of sites offering endless building possibilities, in a semi-arid environment where sunlight is predominant, have helped to establish several well-grounded physical settlements and human establishments that have capitalised on the evolution of human know-how in terms of making cities and civilisations.

RIGHT
Civilisations and cities in Mesopotamia (now Iraq, Kuwait and parts of Syria, Turkey and Iran)
The Euphrates and Tigris rivers formed a strategic environmental territory for continuous empires.

Although its climate is generally arid and semi-arid, due to its location around the Mediterranean Sea, several zones in the Middle East are predominantly green and have a mild climate (Zhang et al 2005). The history of urban and architectural savoir-faire in the region is one of centuries of adaptation to geographical and topographical features that has shaped exquisite solutions for human existence on earth in harsh environments.

LEFT
Al Hajjara village, Haraz Mountains, Yemen, 12th century
An example of anchored settlement fully established by the 12th century on a mountain where security and sustainability were at play. The village of Al Hajjara was founded by the Sulaihid dynasty and stands at an altitude of 2,300 metres (7,500 feet). A: situation; B: layout; C: elevation.

RIGHT

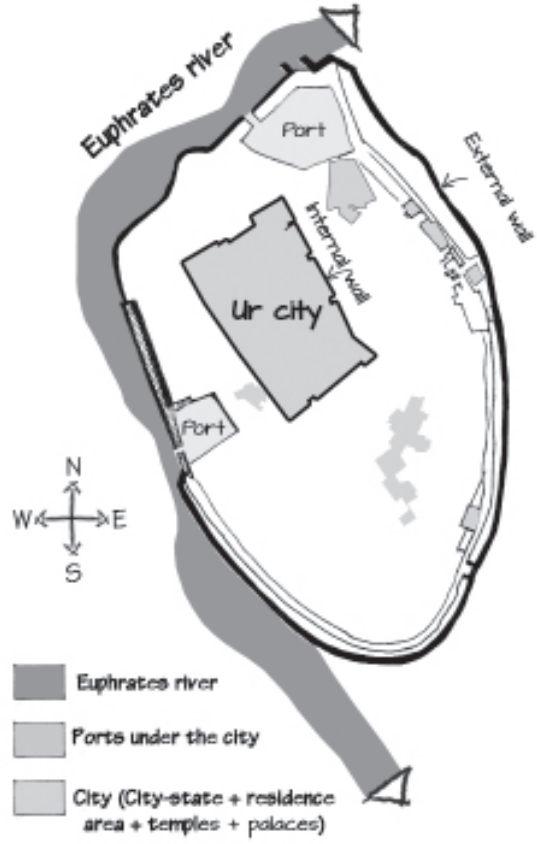
Babylon, Iraq, c 2500 bce: plan

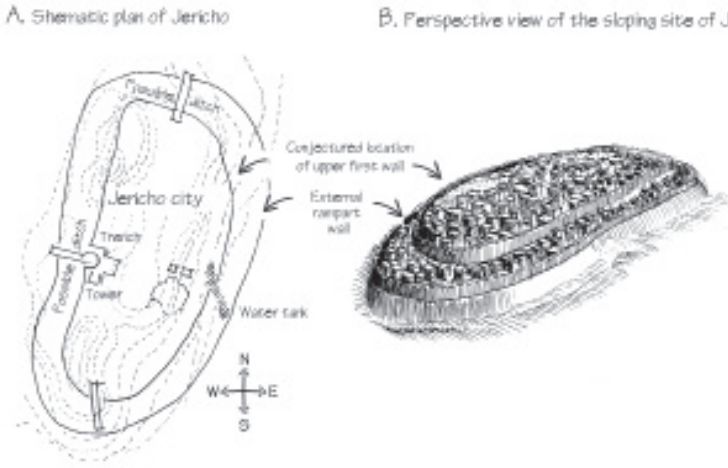
Built under the Akkadian Empire on a site 100 kilometres (60 miles) south of the much later city of Baghdad, Babylon explored the environmental features around the river Euphrates, and advanced its urban infrastructure through canal systems.

RIGHT

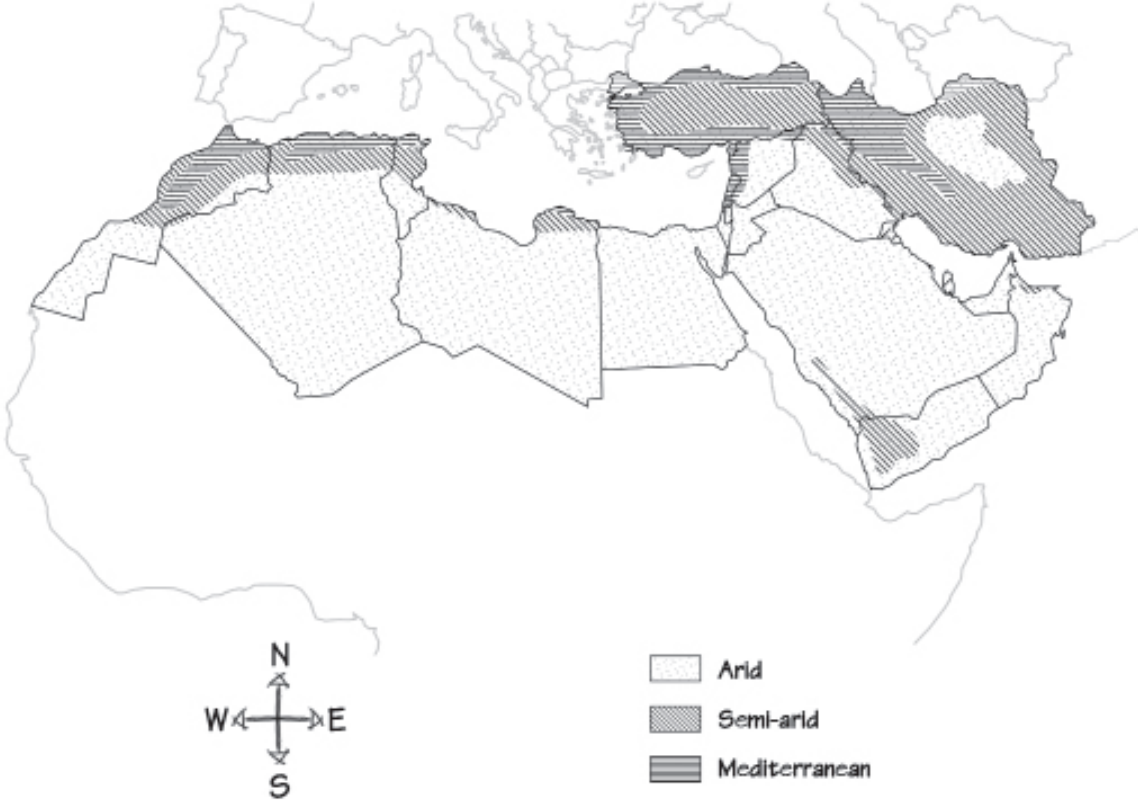
Ur, Iraq, c 4000 bce: plan

The Sumerian city of Ur was set next to the river Euphrates, at the site of modern Tell al-Muqayyar near the Persian Gulf, and witnessed the rise of ports.

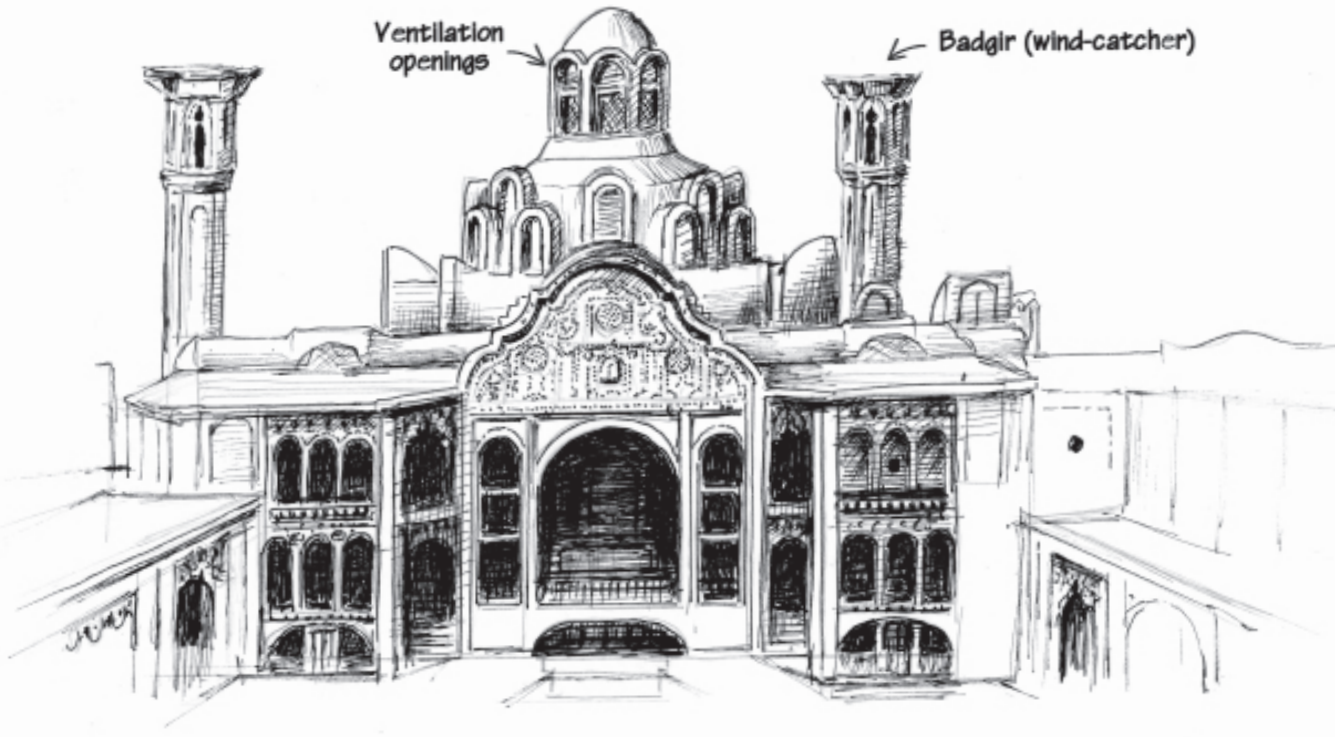




LEFT
Jericho, West Bank, Palestine, c 9600 bce
The city espoused a sloping site on the banks of the river Jordan that boosted its defences and facilitated its water drainage.



LEFT
Climates of the Middle East
The majority of the region is arid, with some semi-arid and some greener areas around the Mediterranean.



ABOVE
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857
The Persian architect Ustad Ali Maryam here used the traditional Persian feature of the badgir (wind-catcher or wind tower) as a smart cooling system.

The present-day Middle East is witnessing tremendous changes that are shaping the way architecture and cities are realised. This has been made possible in some parts of the region thanks to huge energy resources. Being the region of the richest oil reserves, with almost 60 per cent of the world's total, its reliance on artificial and mechanical systems to make buildings and cities is also alarming, with the highest carbon footprint on the planet.

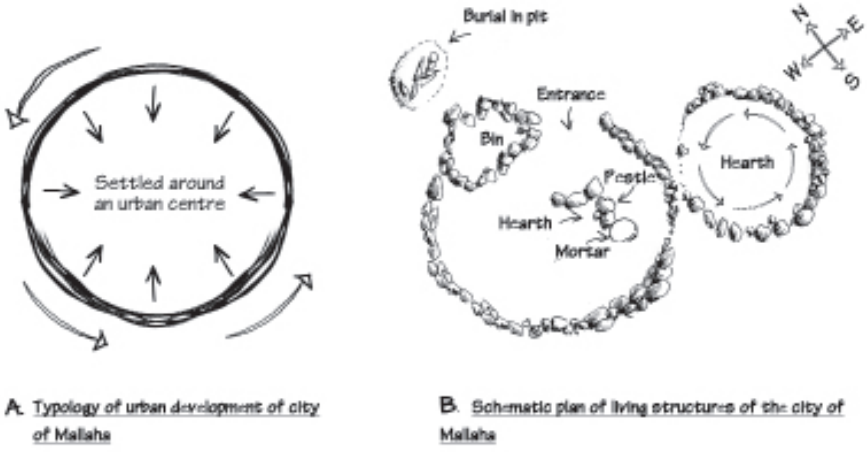
How architects design in this region thus requires a rethink. With growing global concern over climate change due to carbon emissions, mainly in places where energy consumption is the highest, the pressure on the atmosphere needs to be alleviated. The Middle East, particularly the Gulf region, is indeed a critical area in this regard.

CULTURAL AND RELIGIOUS INFLUENCES

Being a strategic corridor between the North and the South, from the Mediterranean Sea to the Persian Gulf, and crossroads between Europe, Africa and Asia, the Middle East has always constituted a place of continuous trade and exchange of ideas and know-how. Thus, its material culture is very diverse, generating complex artistic and architectural production. Notwithstanding constant attempts to portray all regions of the Middle East as culturally homogeneous, it is essential to consider differences between their various territories.

The ethnic complexity and religious mixture of the Middle East makes it one of the most complex regions to study in terms of material and visual culture. Who influenced whom and how architecture has been shaped over centuries of coexistence are crucial questions. Besides the predominant monotheistic religions of Islam, Christianity and Judaism that have clearly dominated cultural typologies in the Middle East, other faiths are not to be disregarded when it comes to contributions to the artistic and architectural constructs in the region – such as Buddhism, Hinduism and Zoroastrianism. Religion has certainly influenced the built environment, mainly in terms of religious buildings and sites, but the diverse political systems under which the Middle East was ruled established different sedentary modes and city settings where these buildings and sites existed.

Since the rise of the first civilisation around the Tigris and the Euphrates rivers by 3500 bce, the Middle East has been a generator of world civilisations around the Mediterranean area. It was here that the second Egyptian civilisation rose around the Nile to create premeditated urban centres. The enduring cultural, political and economic forms in a harsh physical context thus generated intellectual and artistic exchanges around established cities that presented civilisational forms of architecture and the art of living.



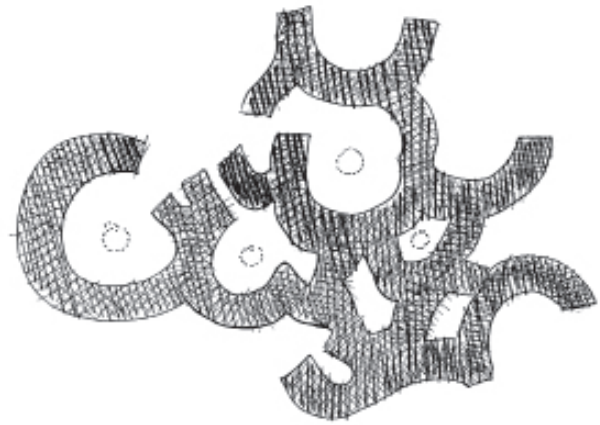
A. Typology of urban development of city of Mallaha

B. Schematic plan of living structures of the city of Mallaha

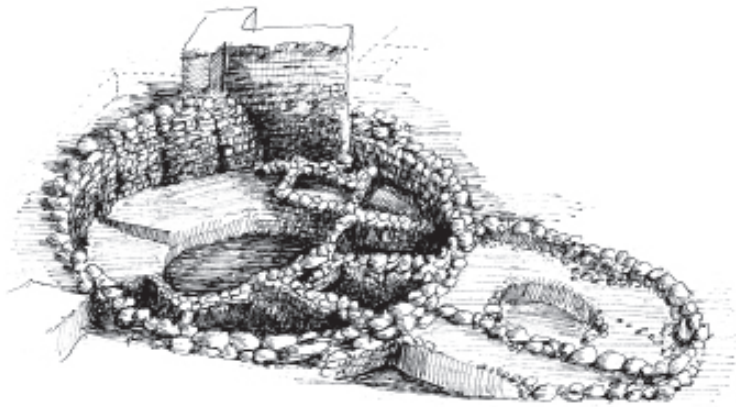
LEFT
Mallaha, Jordan valley, 12,000–10,000 bce: diagrams
Living by fishing and hunting, a group of late Palaeolithic and early Neolithic people established this first urban centre (50 houses and around 200 inhabitants) for social rather than religious ends.

Ancient cities of the Middle East such as Çatalhöyük (*c* 7000 bce), Ur (*c* 4000 bce), Babylon (*c* 2500 bce), El-Lahun (*c* 1800 bce) and Dur-Sharrukin (*c* 720 bce) constituted the first human spirit of adapting to different site typologies in order to create architectural and urban innovations, from the Neolithic period to the Iron Age. From the Sumerians and Akkadians to the Egyptians and Persians, city-states were repositories of contextual savoir-faire.

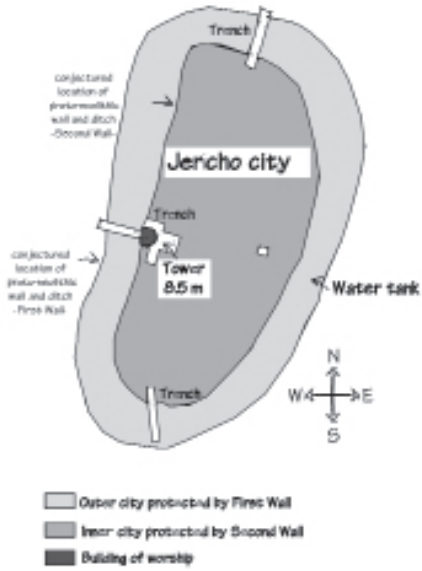
RIGHT
Mureybet, Al-Raqqah province, Syria, c 9000–8500 bce: diagrams
Mureybetian culture was developed in the Neolithic era around premeditated urban centres on the left bank of the river Euphrates.



A. Schematic plan of the urban development of the city of Mureybet

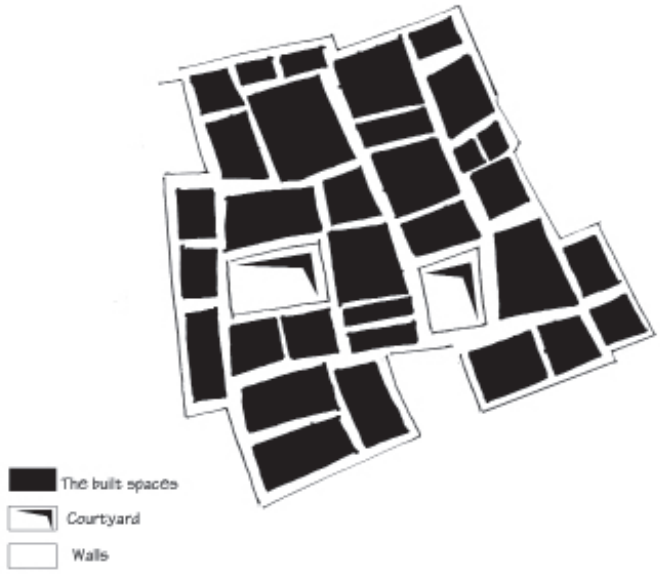


B. The sunken single-storey houses around a community building



LEFT
Jericho, West Bank, Palestine, c.9600 bce: schematic plan
One of the first centres that reached an urban maturity of a real city, Jericho contained architectural symbols such as its 8.5-metre (28-foot) tower and building of worship.

The architectural and urban typologies of these civilisations took different forms, starting from primitive settlements and moving on to sophisticated urban fabric. Most buildings often pursued an urban pattern dictated mainly by site, community and security concerns. Architecture was not an end in itself, as it was more a medium to reflect the significant buildings as symbols of power or religion. Palaces, temples, pyramids, ziggurats and other monuments portrayed the local ideology and power with a great sense of monumentality, while the major urban fabric was more organic for communal, commercial or industrial ends.

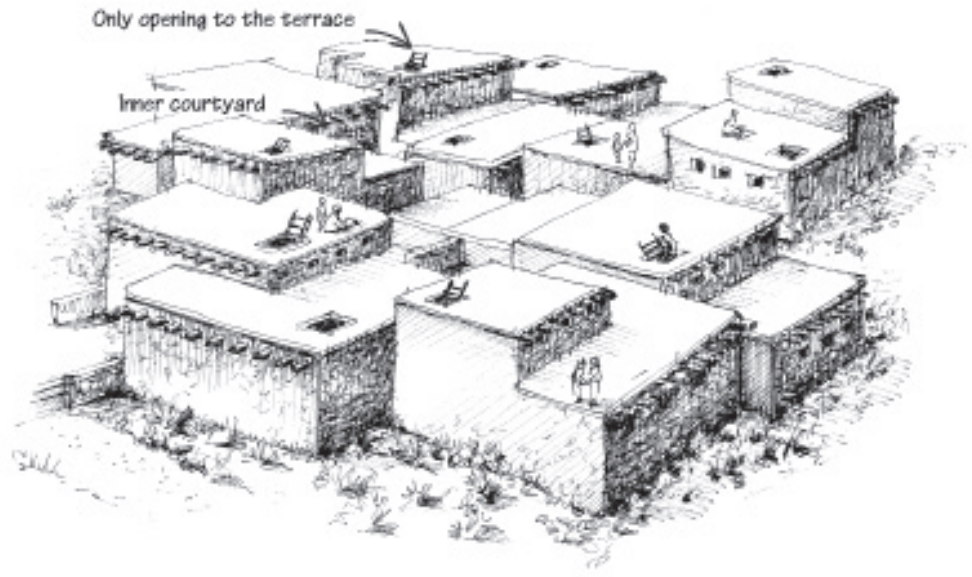


LEFT
Çatalhöyük, Konya Plain, Anatolia, Turkey, c 7000 bce: schematic plan
Çatalhöyük was a city with no religious or political buildings, that relied on its outside agriculture to survive.

RIGHT

Çatalhöyük, Konya Plain, Anatolia, Turkey, c 7000 bce: perspective view

A city plan without streets: buildings communicated through their terraces, to aid defence, and inner courtyards appeared for the first time.



BELOW

Ur, Iraq, c 4000 bce: plan

The functions of the city are well structured according to political, religious and civic requirements, and generated the first physical manifestation of a city in urban and architectural forms.

City state:
1- Ziggurat
2- Court of Nannar
3- Temple of E-nou-makh
4- Giparu
5- Palace of E-khursag: royal palace
6- Dublamah Temple
7- Archaic royal tomb
8- Royal mausolea
9- Wall enclosing the sacred precinct

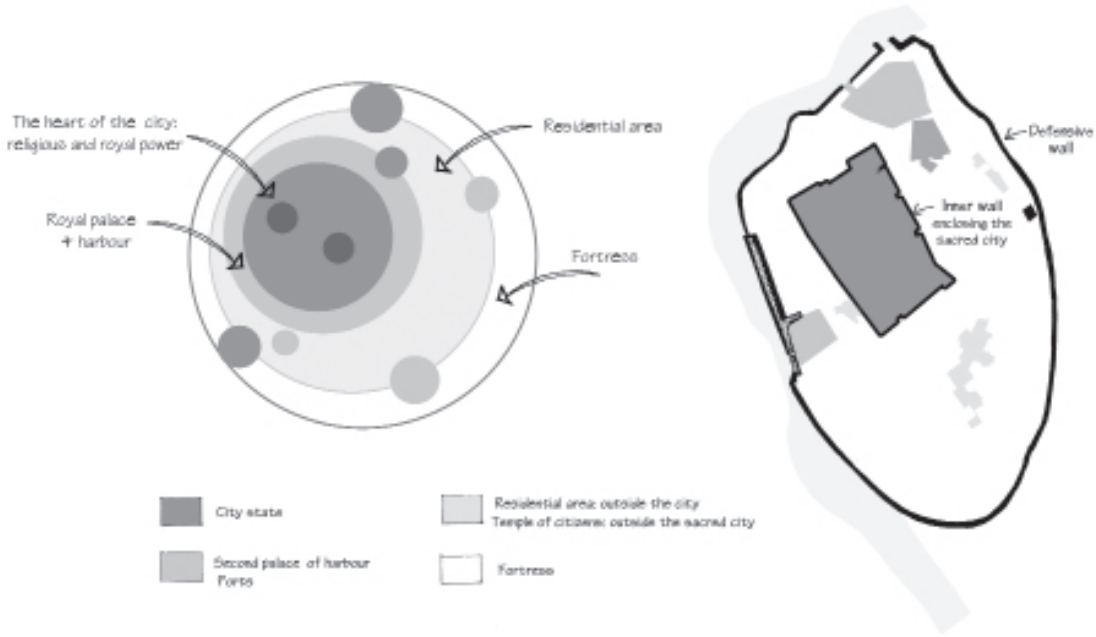
Second palace of harbour:
10- Nabonidus's palace
11- Harbour temple
12- Houses EM

Residence area: outside the city
13- House AH
14- Residences
15- Residences

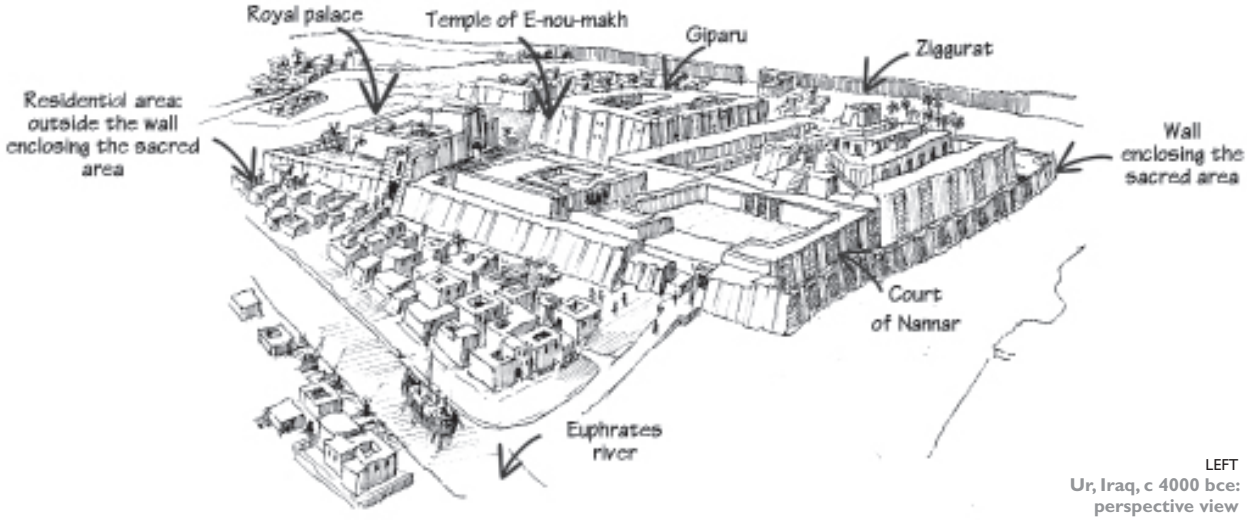
Ports
16- ports: from Euphrates river

Temple of citizens: outside the sacred cit
17- Temple of Enki

Fortress:
18- Fortification gate
19- Kassite fortress



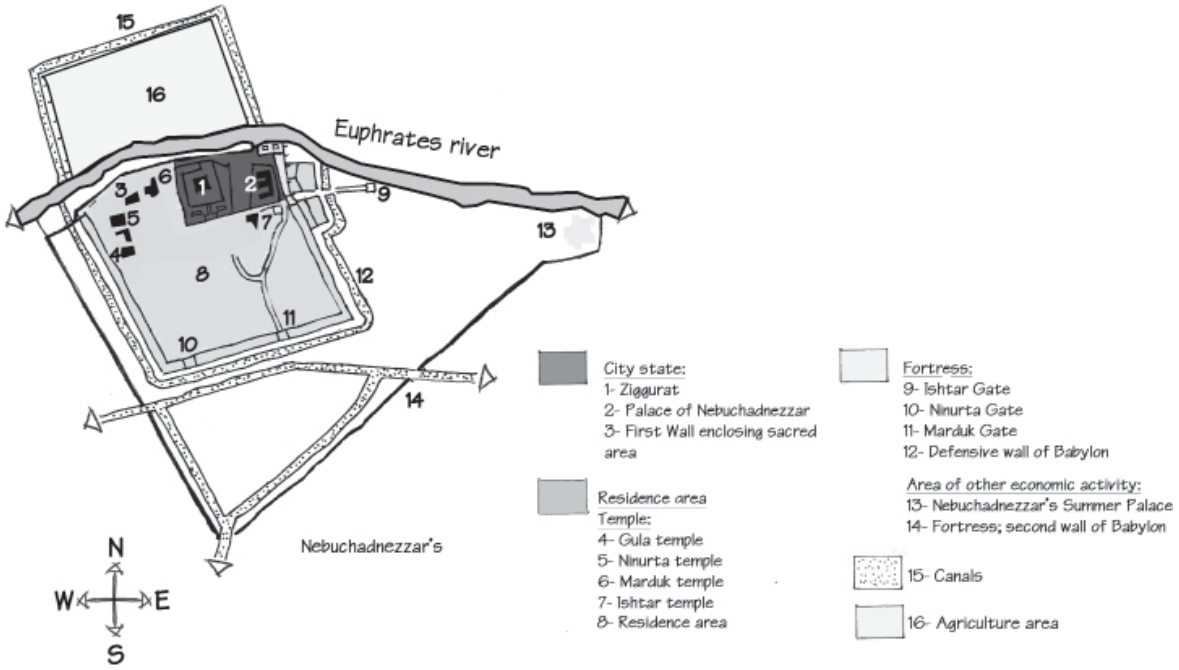
ABOVE
Ur, Iraq, c 4000 bce: concept diagram
Ur was the first city-state represented by its central religious ziggurat and temples.

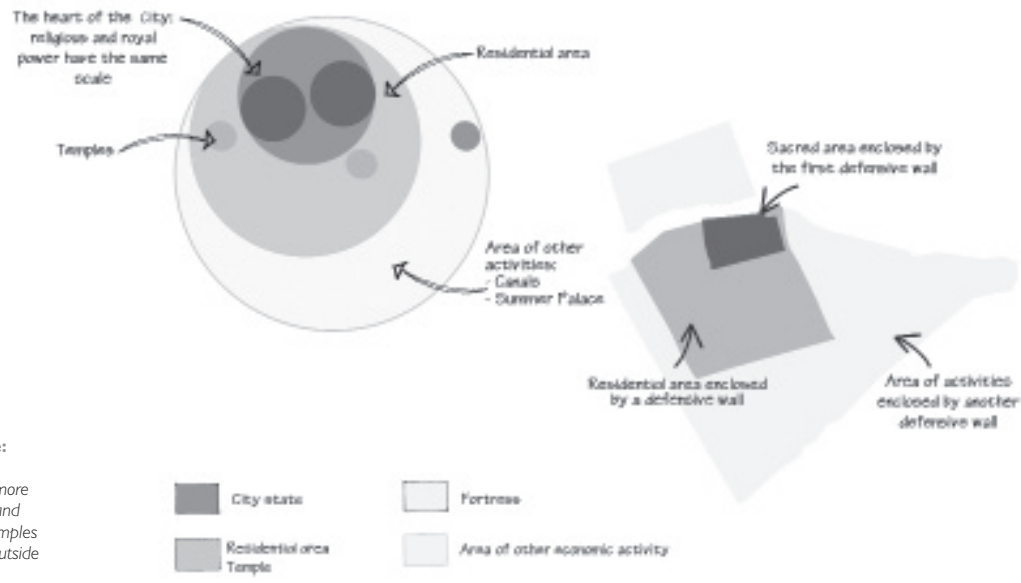


LEFT
Ur, Iraq, c 4000 bce: perspective view
The Sumerians used scale and size in order to underline the strategic buildings in their city-states.

BELOW
Babylon, Iraq, c 2500 bce: plan
The monumental city in which architecture translates the grandeur of power.

Nonetheless, most ancient cities of the Middle East showed a premeditated sense of planning with different levels of orthogonality that generated a sort of hybrid architecture with a range of architectural idioms. Cities like Çatalhöyük, Ur and Babylon were shaped according to different orders.

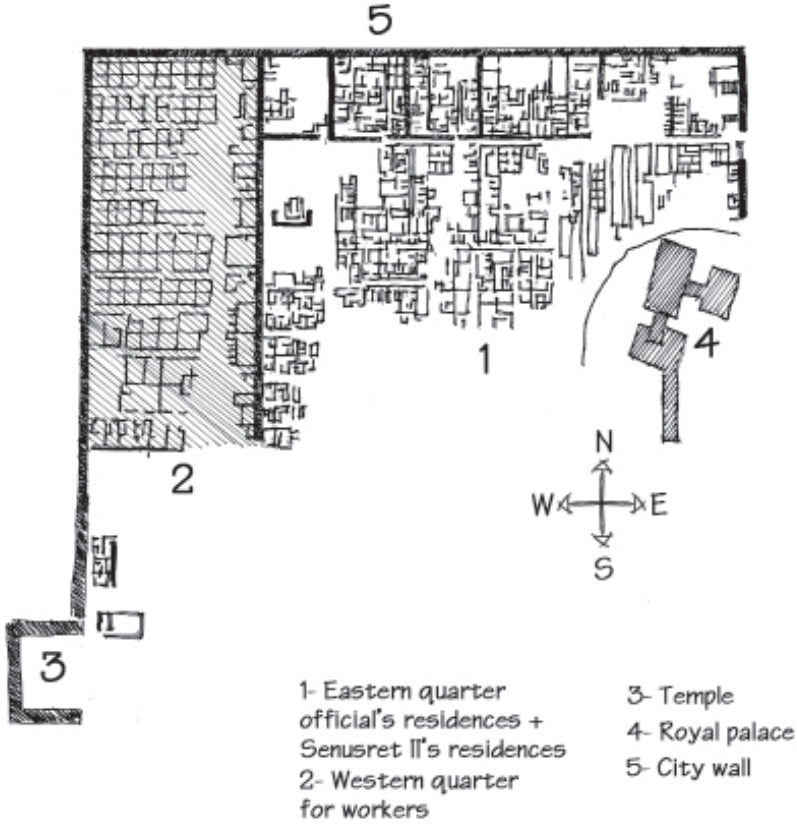




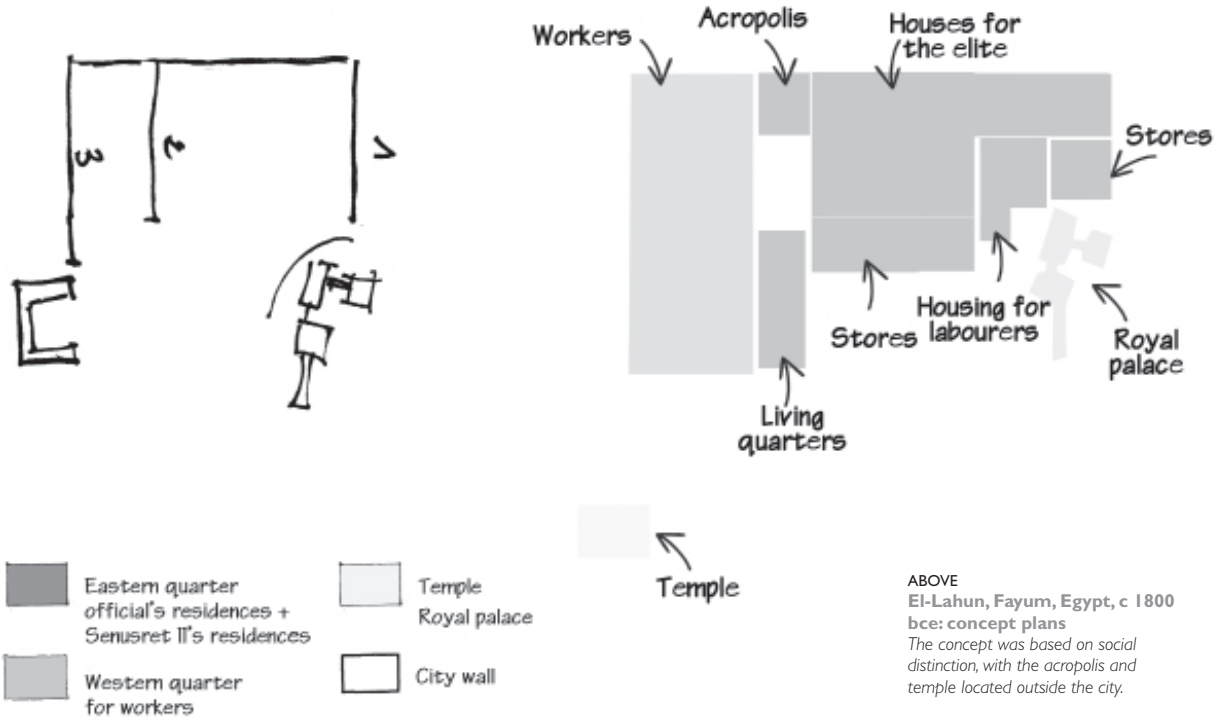
RIGHT
Babylon, Iraq, c 2500 bce: concept plan
An evolved urban layout with more political and spiritual (palace and ziggurat) centrality than Ur; temples and residences were located outside the first wall

ABOVE
Babylon, Iraq, c 2500 bce: perspective view
Scale and size were used to underline the strategic buildings in the city-states: here, the ziggurat (religious) and royal palace (political) are the same size, implying that they hold the same importance.

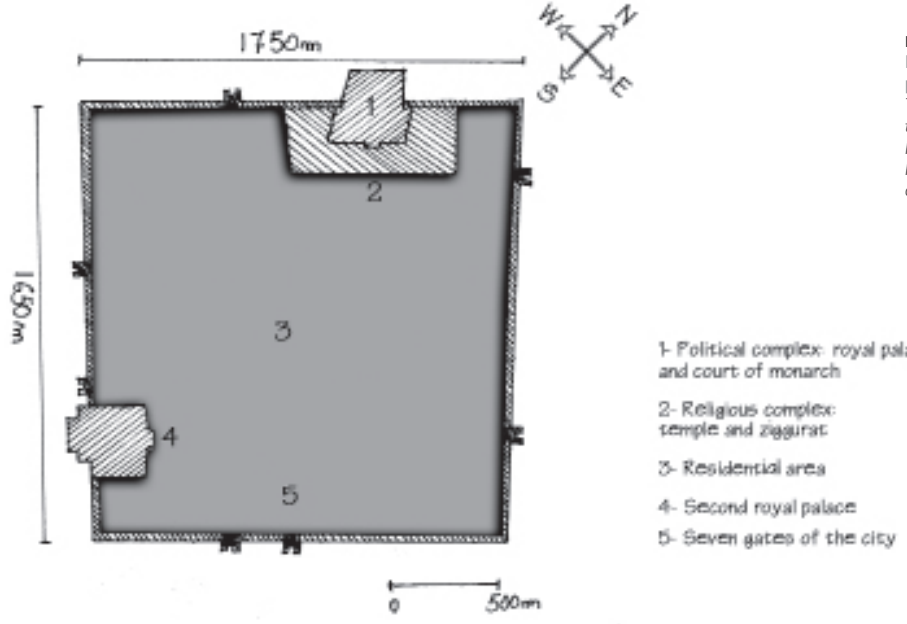
Therefore, these cities never followed an absolute aesthetic order, as in the case of Roman and Greek cities. The absolute urban order of the latter, with a strict rectilinear street arrangement, was but a translation of the layout of military camps, where architecture served as an ornament to aesthetically underscore a firm hierarchy. This sense of urban orthogonality beyond contextual parameters that favoured an architecture of a sheer aesthetic order had existed previously, but without dictating that the whole city-form be interlocked in strict geometric contours.



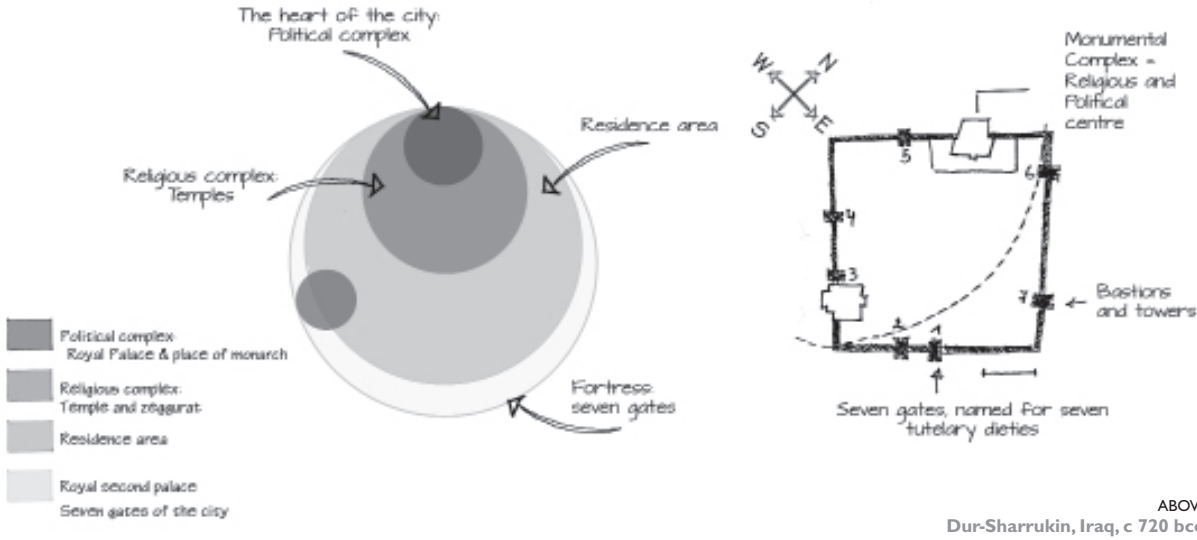
LEFT
El-Lahun, Fayum, Egypt, c 1800 bce: plan
The ancient Egyptian city of El-Lahun consisted of a regular orthogonal layout.



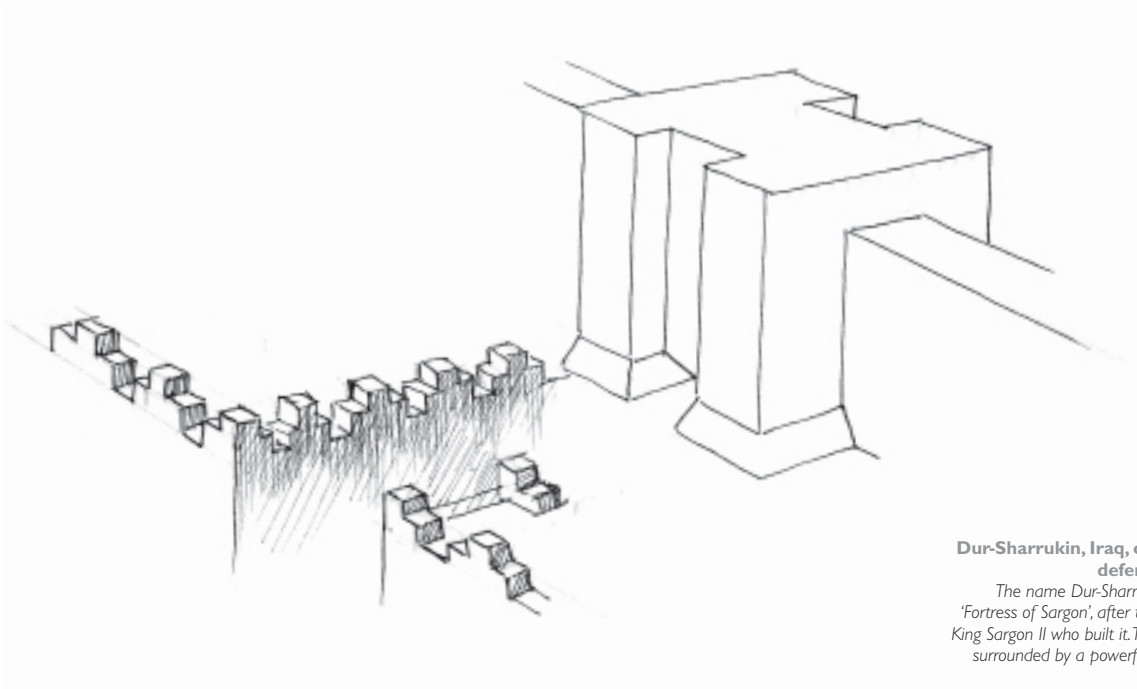
ABOVE
El-Lahun, Fayum, Egypt, c 1800 bce: concept plans
The concept was based on social distinction, with the acropolis and temple located outside the city.



LEFT
Dur-Sharrukin, Iraq, c 720 bce: plan
The Assyrian city of Dur-Sharrukin – on the site of what is now the village of Khorsabad, near Mosul in northern Iraq – was laid out according to an orthogonal structure.



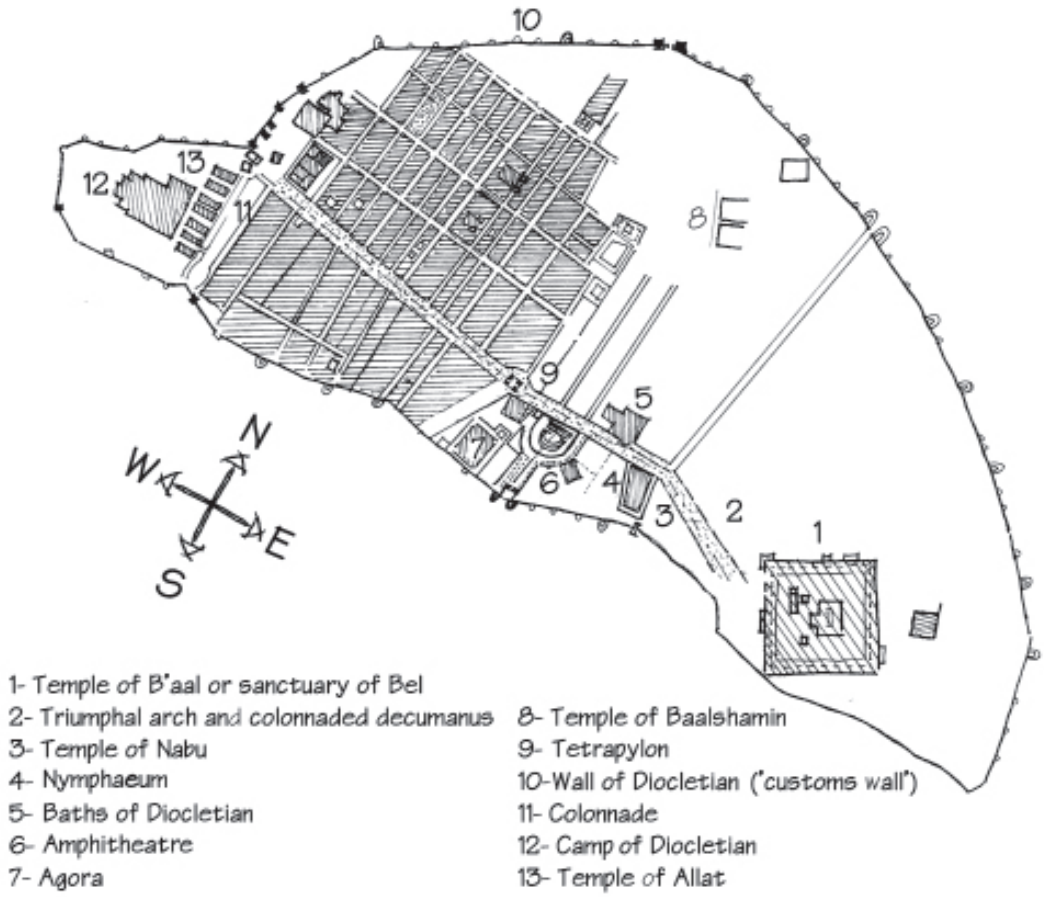
ABOVE
Dur-Sharrukin, Iraq, c 720 bce: concept diagrams
The city was organised in accordance with a strong political (monarchic) order with a well-developed royal and religious complex around it.

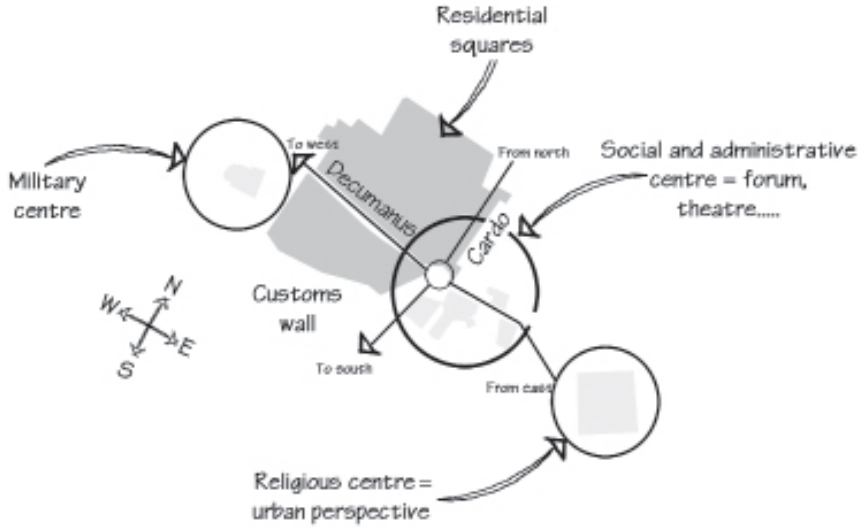


LEFT
Dur-Sharrukin, Iraq, c 720 bce: defensive wall
The name Dur-Sharrukin means 'Fortress of Sargon', after the Assyrian King Sargon II who built it. The city was surrounded by a powerful defensive wall.

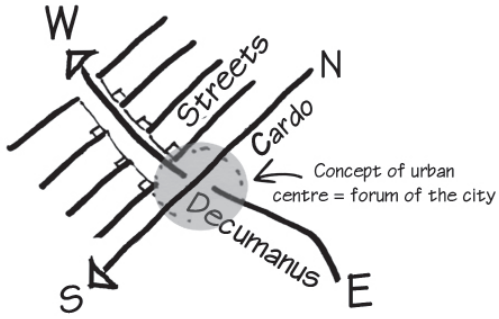
However, this rich ancient and classical urban and architectural heritage was widely explored in the Islamic period – around the 8th and 9th centuries – when a new urban typology emerged through the model of the medina (Michell 1978). From North Africa and Southern Europe to the Far East, cities like Baghdad, Damascus, Fez, Sanaa, Tunis, Cairo and Tabriz were built according to a new urban system consisting of a compact fabric. But, in spite of the fact that elements of this urban system existed in previous models, new specific cultural and contextual codes had to be considered.

BELOW
Palmyra, Syria, 41 bce: plan
The city of Palmyra, in the Syrian desert, shows how the Romans integrated new official and social structures such as the agora (meeting space) and amphitheatre.

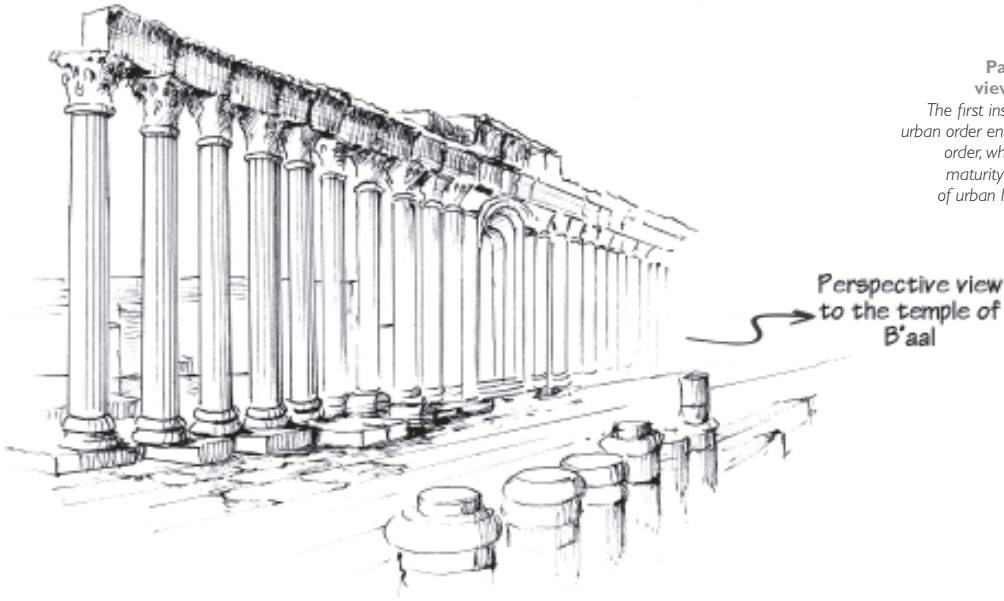




LEFT
Palmyra, Syria, 41 bce: concept diagram
The Romans applied an urban order that structured the city around a main axis running east–west, called the decumanus, and another running north–south, called the cardo, reflecting the Roman view of cosmological order.



LEFT
Palmyra, Syria, 41 bce: orthogonal concept diagram
This city developed on an orthogonal layout, applied according to the Roman cosmological signs.

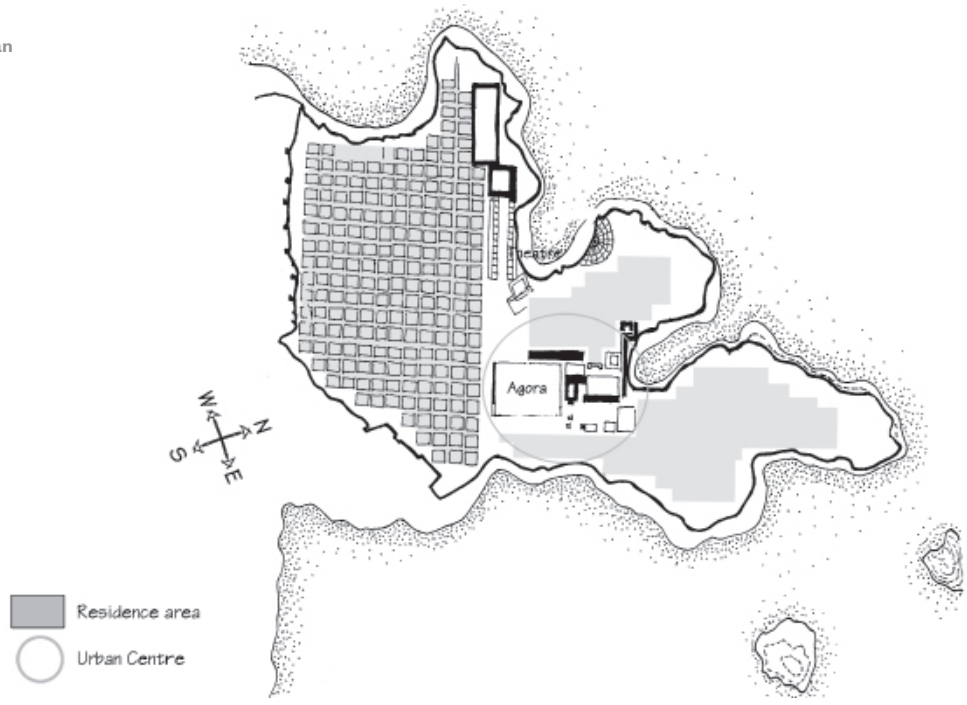


LEFT
Palmyra, Syria, 41 bce: view of the Decumanus
The first instance of fully established urban order enhanced with architectural order, where urbanism reached its maturity in terms of configuration of urban layout and its subsequent architecture.

RIGHT

Miletus, Turkey, c 610 bce: plan

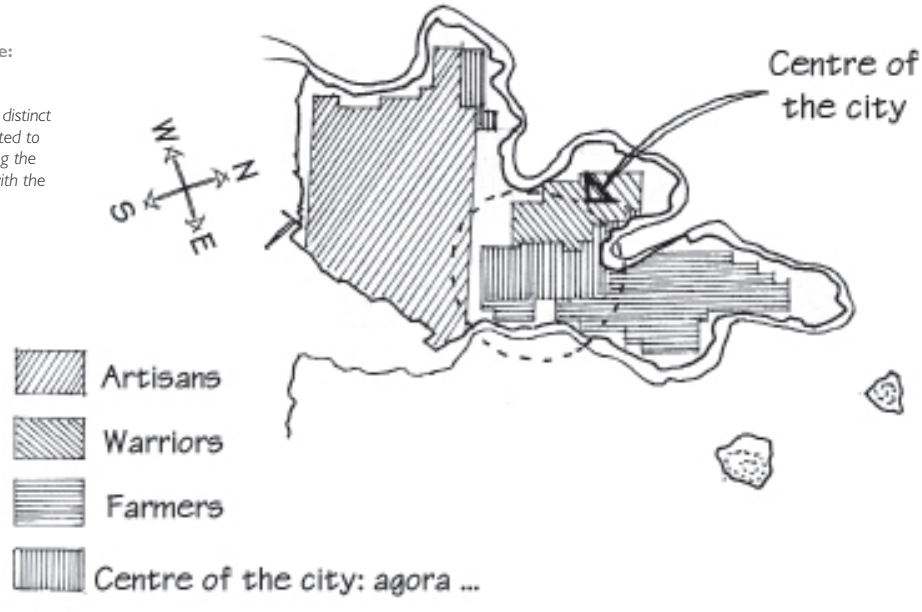
Miletus was an ancient Greek city on the southwest coast of Turkey, a short distance north of what is now the village of Balat. It represents the first time in history when the city was geometrically based on a grid plan, marking the beginning of the development of the current urban layout.

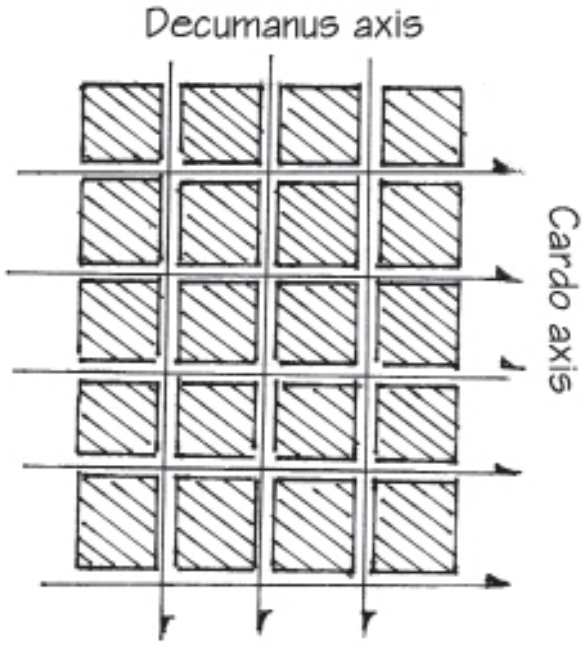


RIGHT

Miletus, Turkey, c 610 bce: concept diagram

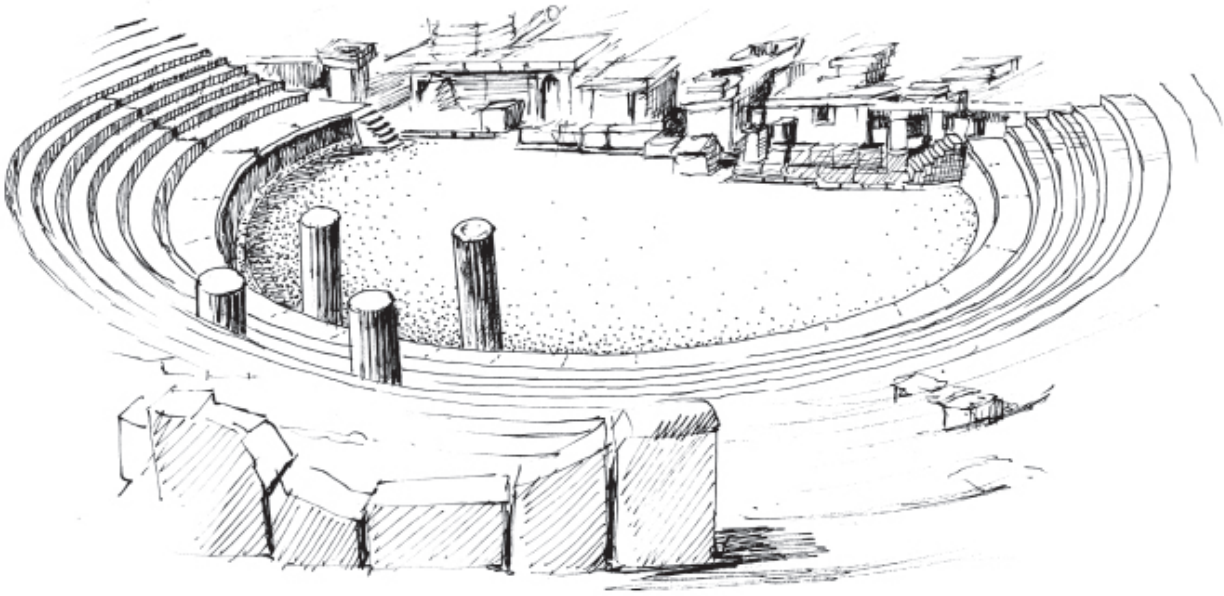
This ancient Greek city was geometrically divided into four distinct zones of social classes connected to the agora at the centre, sharing the concept of the urban centre with the Roman city.



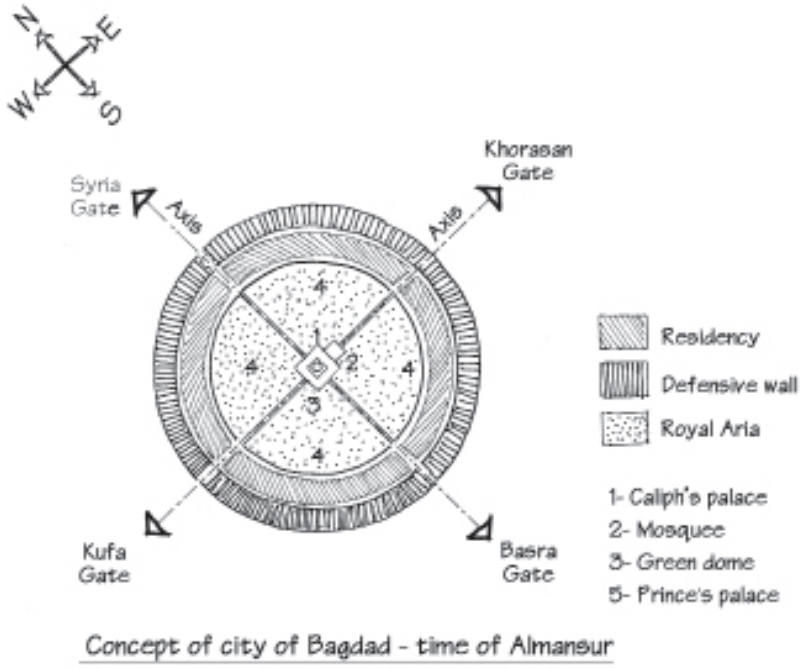


LEFT
Miletus, Turkey, c 610 bce: grid plan
Miletus is laid out with straight streets intersecting at right angles, creating square or rectangular urban forms 16 by 7, 9 by 5 and 4 by 3 metres (52 by 23, 30 by 16 and 13 by 10 feet). Such grid plans are also known as Hippodamian plans, after the urban planner Hippodamus of Miletus.

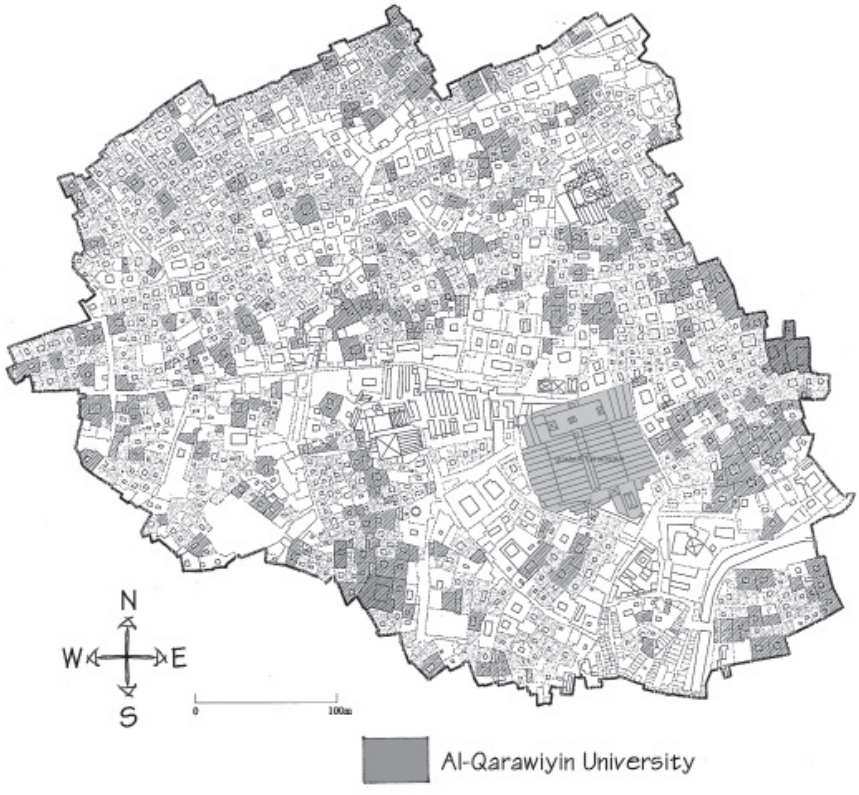
BELOW
Miletus, Turkey, c 610 bce: agora
The spatial configuration of the agora was proportionate with social and urban scale.

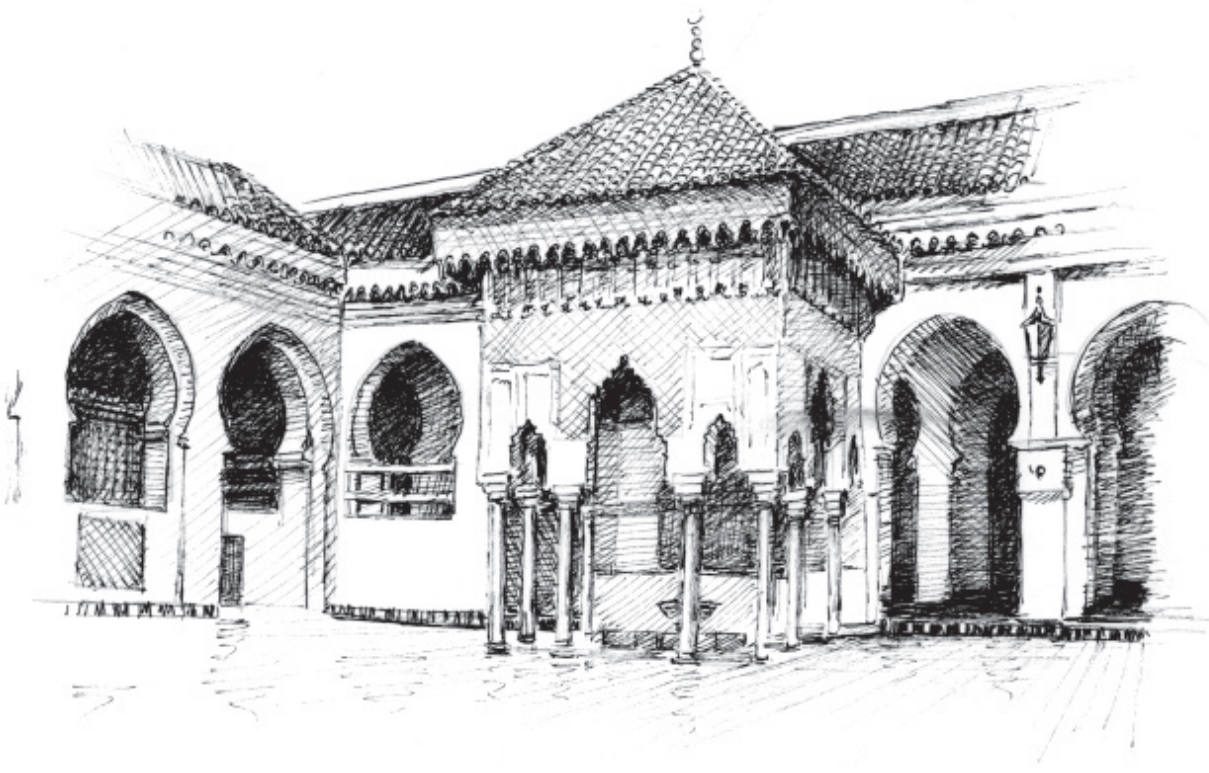


RIGHT
Baghdad, Iraq, 760s ce: layout and concept
The layout of Baghdad, founded by the Abbasid caliph al-Mansur in 762, was emphatically circular, its centre considered as the centre of the universe.



RIGHT
Medina of Fez, Morocco, 8th to 13th centuries: plan
Community-based organic urban organisation around a knowledge centre as a spiritual and social hub.





ABOVE
Courtyard of Al-Qarawiyin University, Fez, Morocco, 16th century
The urban core of the district of al-Qarawiyin in the medina of Fez, where its university is a strong converging social hub. The university is the world's oldest, founded under the Idrisid dynasty in 859 ce by Fatima al-Fihriya, a wealthy and educated merchant's daughter.

Architectural and Urban Classical Local Antecedents

The contextual forms of all the above-mentioned cultural expressions have had their impact on the architectural and urban production of the Middle East. It would be incongruous to consider that one form has superseded another just because of religious or political influence. The Middle East was and still is a ground for continuous enrichment through new concepts and ideas, and the products of contemporary architecture and urbanism ought to be no exception.

A simple examination of the portfolio of architectural forms and details over the history of the Middle East with its different rules, ideologies, sites and territories – regardless of who has done what as a political boundary – reveals a myriad of aesthetic idioms, technical solutions, spatial articulations and topographical adaptations.

From the first Mesopotamian temples in the form of ziggurats to the Egyptian pyramids that reflect a sense of grandeur and monumentality, architecture was primarily meant either to act as a symbol or to generate a vehicle of civic life with a cultural expression. Local building materials that led to the development of structural systems anchored architecture in its site. Building envelopes pursued a geometric order with intrinsic ornamentation. Facades were a medium of artistic representation of cultural, political or spiritual expression (Hillenbrand 1994).

RIGHT

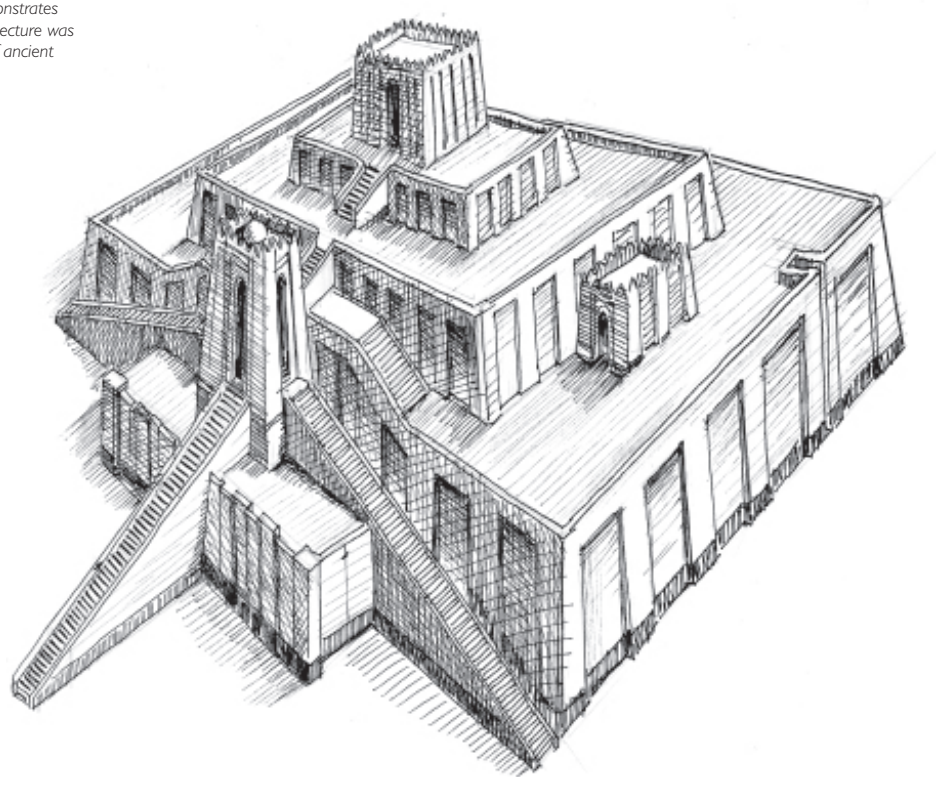
Palmyra, Syria, 41 bce: Tetrapylon

Situated at the intersection of Palmyra's Cardo and Decumanus, the Tetrapylon is an example of the use of monumentality and architectural symbolism to establish an urban culture.

RIGHT

Ur, Iraq, c 4000 bce: ziggurat

In Sumerian ideograms, 'ziggurat' means build upwards or very high. The most spectacular building in Mesopotamian civilisation, the ziggurat demonstrates how monumentality in architecture was used to serve the civic life of ancient civilisations.



The Assyrian royal palace of Dur-Sharrukin (now the village of Khorsabad in Iraq), which dates back to 720 bce, is a pertinent example of an imposing monumental architecture that symbolises royal authority through different courts and incorporated temples. The whole ensemble is emblematic not for being a mere aesthetic game but rather for translating the political and ideological intentions of the period with a clear ritual and processional route.

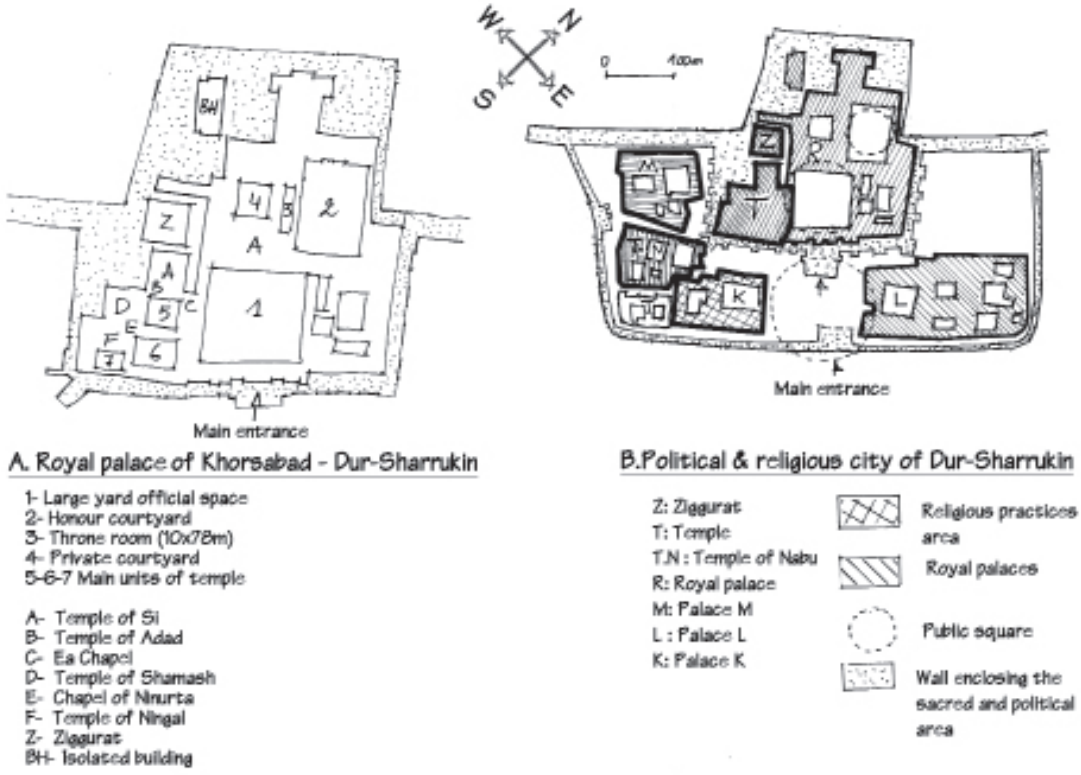
The Egyptian pyramids are another example of architecture's transcendence and its ability to espouse cosmological ends. The royal tombs and burial chambers became the centre of whole funerary rites that brought about an architectural structure and ornamentation by intersecting ritual spaces and representations. It is impressive how builders would design such eternal architectural complexes that are still considered among the wonders of the world.

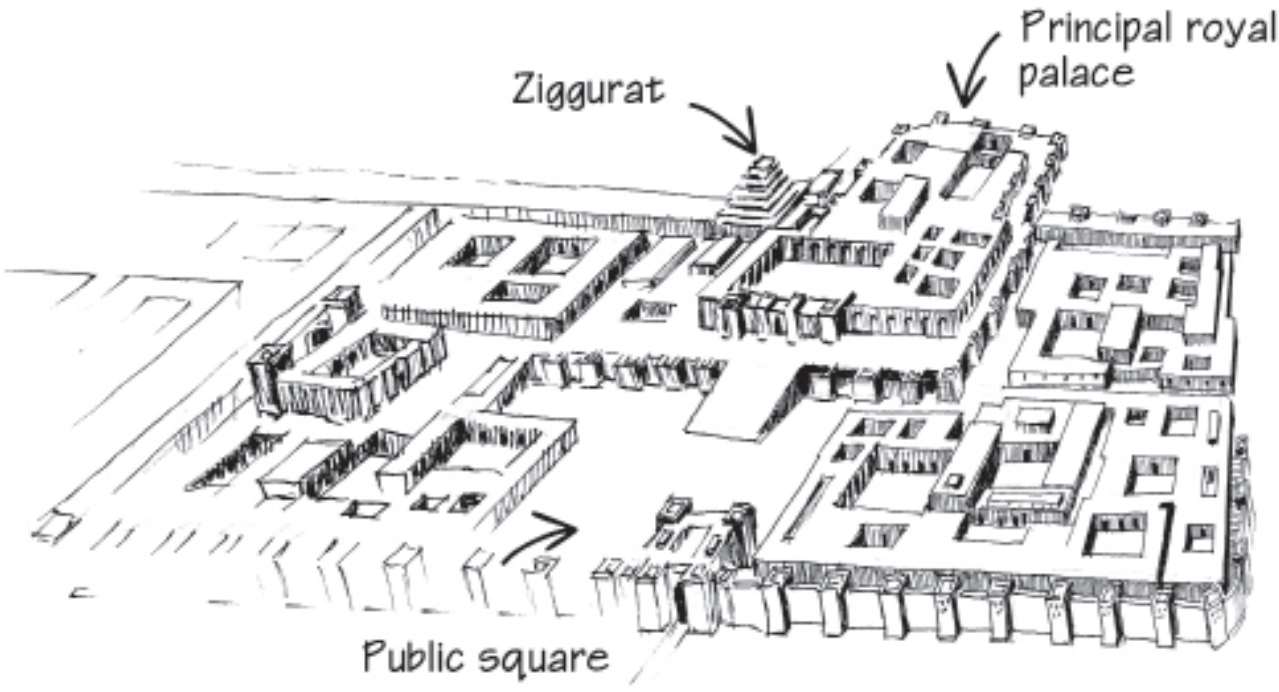
Thus, the issue is not about topographical and material constraints, but rather about the meaning given to the architectural masterpiece to translate the aspirations of its time and place. Following in the footsteps of the Egyptians and other early civilisations, the Greeks and Romans rationalised this continuous spirit of architecture of the Middle East by canonising orders as a set of aesthetic formulae. Monumental eternal architecture varied between expressing the power of religion or royalty by using different architectural styles, while uniting in using scale as a powerful passage.

BELOW

Dur-Sharrukin, Iraq, c 720 bce: plans of the royal palace and fortified city

*The palace contained a private side (*bitanu*), reserved for the royal family, and a public side (*babanu*) that served for administrative and public activities.*



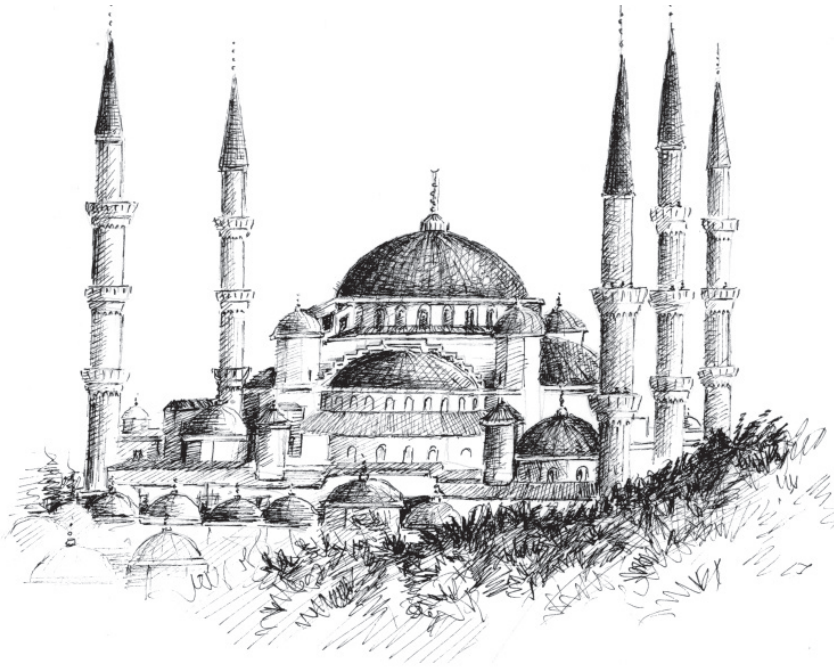


ABOVE
Dur-Sharrukin, Iraq, c 720 bce: perspective view of the political and religious complex
An elevated palace shows the importance of sovereign power and of the political life of the city.

With the decline of the classical civilisations in the Middle East, a new architectural paradigm took form with the rise of Islamic rule. Despite its problematic appellation as Islamic architecture, which has generated vehement debates on what is Islamic about it, the fact is that no one can deny its existence as a category. Accordingly, despite the implications that the adjective 'Islamic' may bear, Islamic architecture is an architecture that learned from all its antecedents. The focus should be more on the pragmatic side of this architecture as a perpetual encyclopaedia of ingenious solutions over the history of the Middle East.

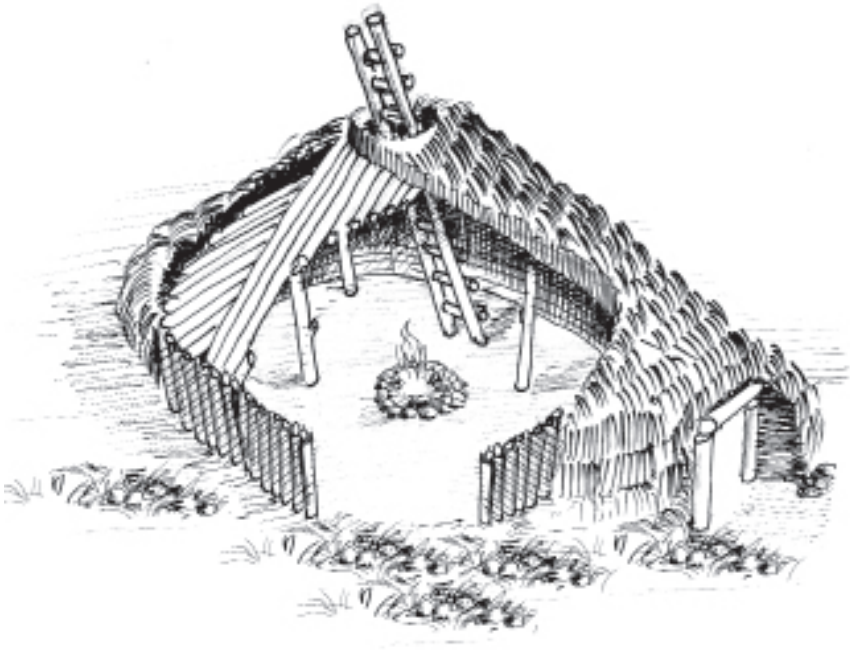
The inner courtyard as an element of architectural composition, for instance – regardless of whether it is Persian, Egyptian, Roman or Islamic – is essentially an ideal environmental solution for conceiving a protected space within the hot climate of the Middle East. In addition, while the courtyard certainly provides the privacy that is considered a cultural value, it is also an architectural form that deposited endless artistic and structural innovations without which the urban archetype of the medina could not exist.

The courtyard as an inner geometric-spatial ecosystem structured neighbourhoods of the medina by assembling its individual houses around organic



LEFT
Sedefkâr Mehmed Ağa, Blue Mosque, Istanbul, Turkey, 1609–16: perspective view
Islamic monuments have drawn upon regional architectural antecedents such as the central monumental Byzantine domes in Istanbul's famous Blue Mosque, or Sultan Ahmed Cammi, which was designed under the reign of Sultan Ahmed by the Ottoman architect Sedefkâr Mehmed Ağa.

dead-end alleys, where facades are blind in order to retain privacy and optimise thermal comfort within a compact and hierarchical urban fabric. It generated an urban system that evolved throughout history in order to espouse different geographical locations, topographical settings, functional arrangements and environmental conditions according to a certain level of premeditated planning as a mode of urban organisation.

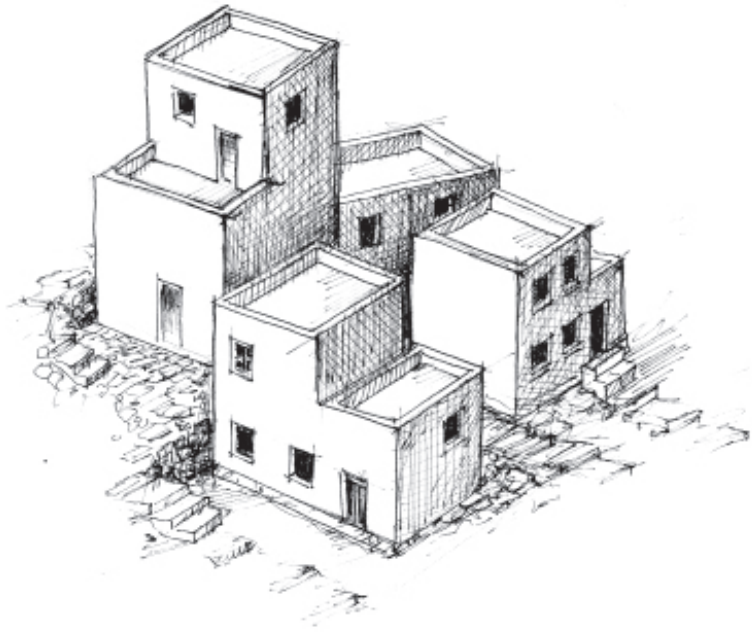


LEFT
Mallaha, Jordan valley, 12,000–10,000 bce: house typology (first stage of courtyard)
Mallaha's houses were built in pits using local materials with a stone facing, and the remaining traces of them suggest that they had a roof with an opening, covered by animal skins or small pieces of wood supported by posts. This was the first stage of the evolution of the courtyard.

RIGHT

Jericho, West Bank, Palestine, c 9600 bce: house typology (evolution of the courtyard)

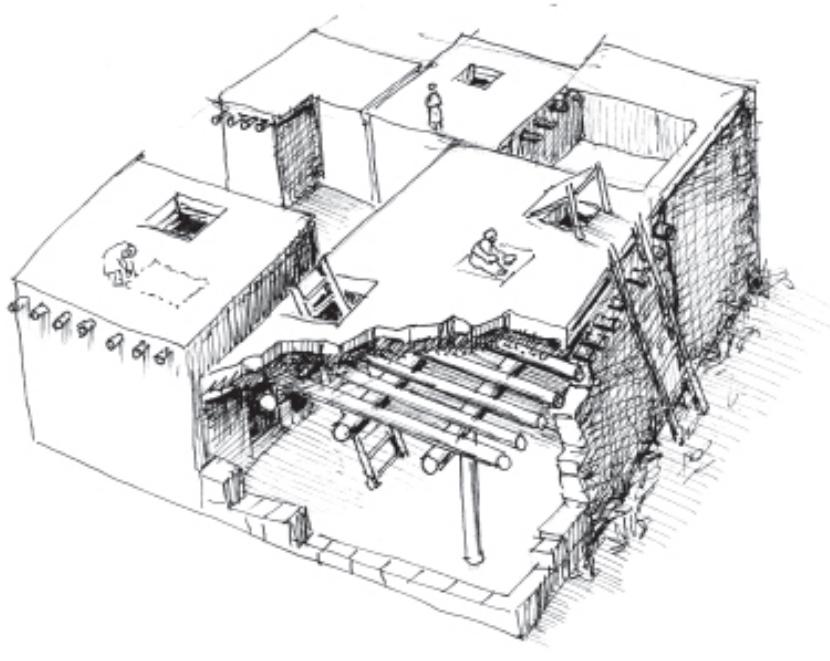
The first rectilinear buildings were made of mud bricks on stone foundations. The evolution of the courtyard started as a central space with a clay floor, around which all the rooms were clustered.

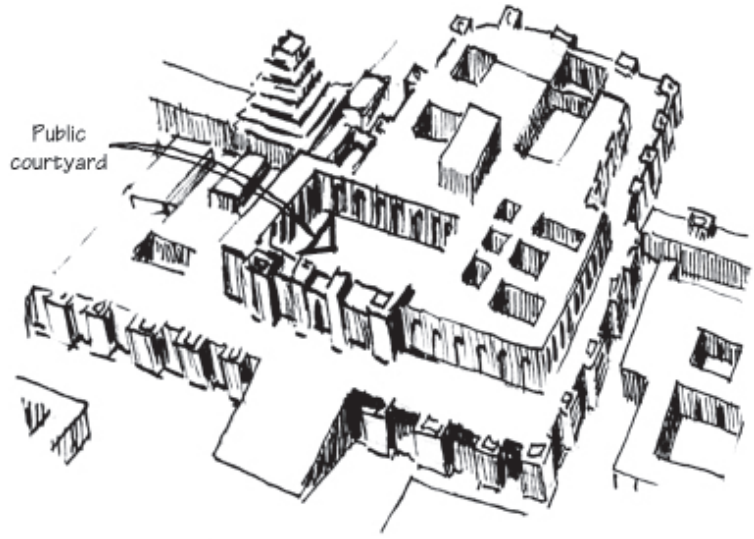


RIGHT

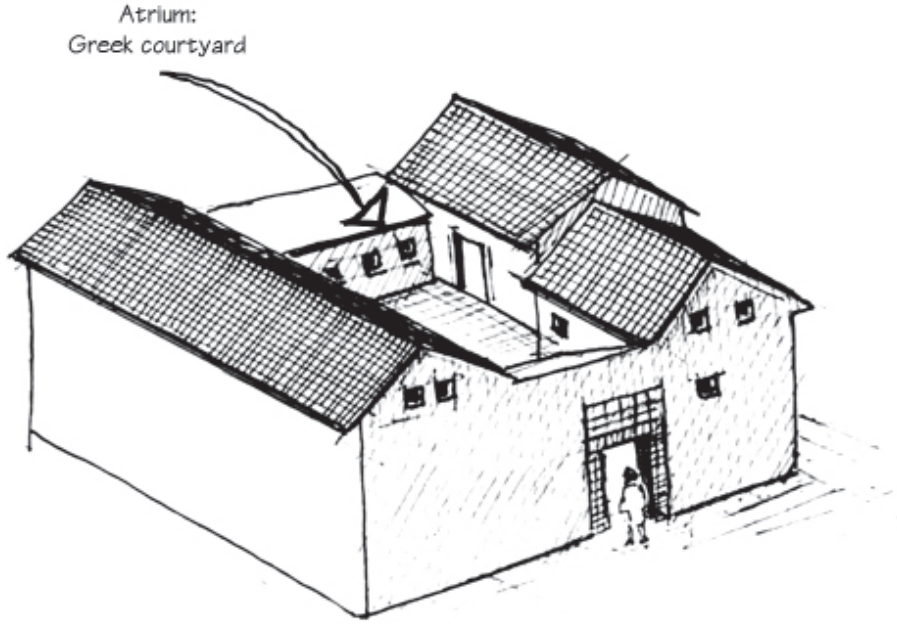
Çatalhöyük, Konya Plain, Anatolia, Turkey, c 7000 bce: house typology (evolution of the courtyard)

Made of mud bricks, covered with a thick layer of plaster, the houses backed onto each other and communicated through courtyards that served usually for animals and sometimes as a space for prayer. The houses had flat roofs and were accessible through an opening in the roof, with a wooden ladder leading to the kitchen.





LEFT
Dur-Sharrukin, Iraq, c 720 bce: royal palace with public courtyard
The Babylonians built houses of unbaked brick, consisting of rooms surrounding courtyards that were open to the sky. Light and air entered rooms only from the courtyard. There were no windows in the outer walls. The courtyard also served as a public reception space in official buildings.

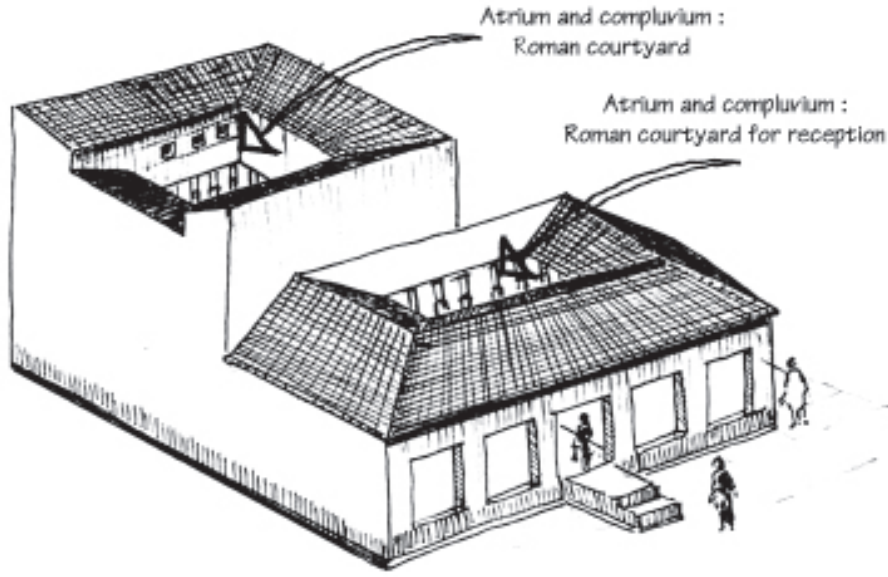


LEFT
Miletus, Turkey, c 610 bce: house typology with rationalised courtyard
The Greeks rationalised the organisation of the house around the courtyard.

RIGHT

Palmyra, Syria, 41 bce: house typology with social courtyard

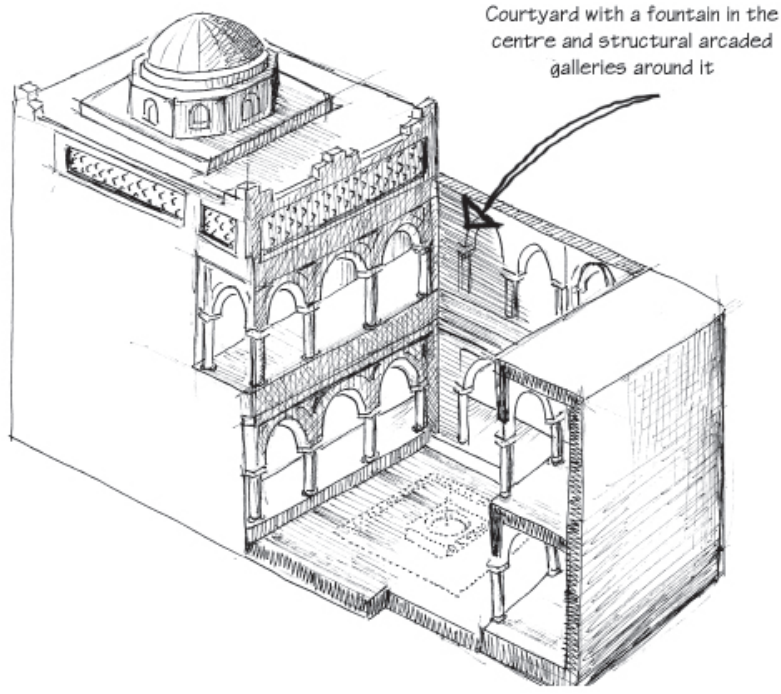
Courtyards had a social and cultural dimension in Roman houses. The atrium (courtyard), tablinum (room on the side of the atrium opposite the entrance) and compluvium (unroofed space) were designed to welcome customers who came to present themselves as part of the morning salutation, and were also intended to welcome visitors.



RIGHT

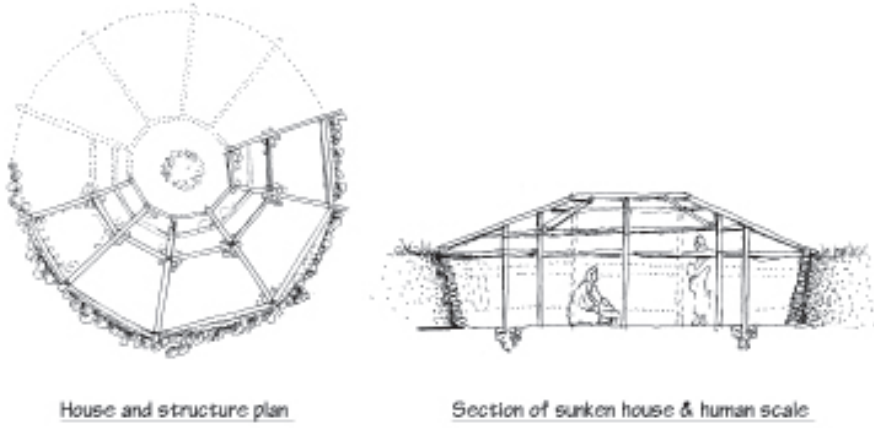
House typology with introverted courtyard in a medina

The structure of an internal courtyard within a blind envelope in a traditional house within a typical medina's fabric. The courtyard preserved its cultural, social, climatic and structural functions.

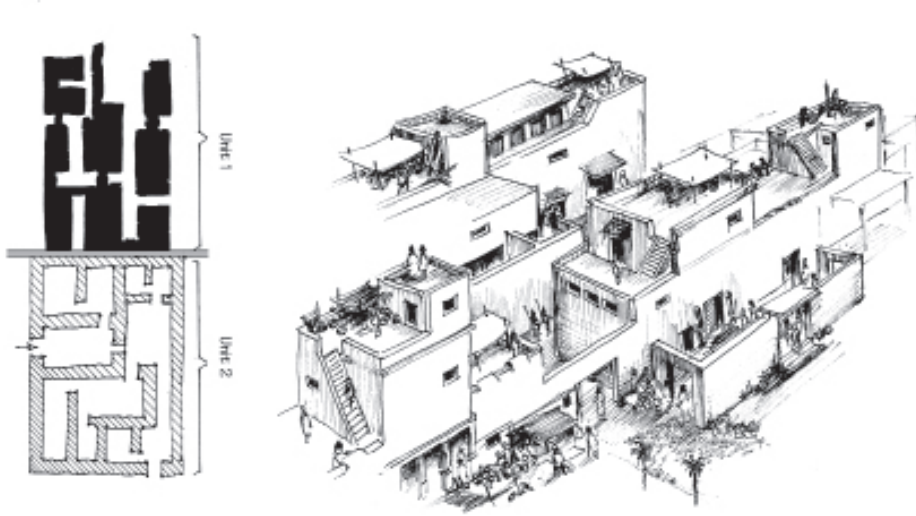


This planning was deduced from the different inherent social, economic and political mechanisms that took place not only at the macro level of the city, but also at the micro scale. The house (family), neighbourhood (community), city (citizens), region (rural and urban populations) and territory (rural and urban settlements and cities) were all part of indirect or direct organisational microcosms. These microcosms were a vehicle of a contextual urban expertise that stemmed from a long-lasting interaction with a certain locality – which engendered a cultural urban gist that identified this very locality.

The term 'planning' in the context of the medina consequently implies an accumulative urban course of interaction between space and human use following particular codes that were the result of the dialogue between builders, users, astrologers, ethnic groups, scholars, judges and sultans. Planning in the medina was rather of a type that sought to observe legal and social ideals, neither creating an absolute aestheticised physical form nor dictating a dominant function. The medina consequently embodied a sound communal fabric within a territory, which guaranteed its enduring sustainability.



LEFT
Mallaha, Jordan valley, 12,000 to 10,000 bce: house typology plans and sections
The houses of Mallaha were oriented towards the exterior: most human activities were done outdoors.



LEFT
El-Lahun, Fayum, Egypt, c 1800 bce: house typology plan and perspective view
The houses consisted of single rooms placed back-to-back and side-by-side, in blocks measuring 120 to 2,520 square metres (1,290 to 27,120 square feet). This was extrovert architecture, exposing buildings to external public spaces and creating shops and commercial galleries.

RIGHT

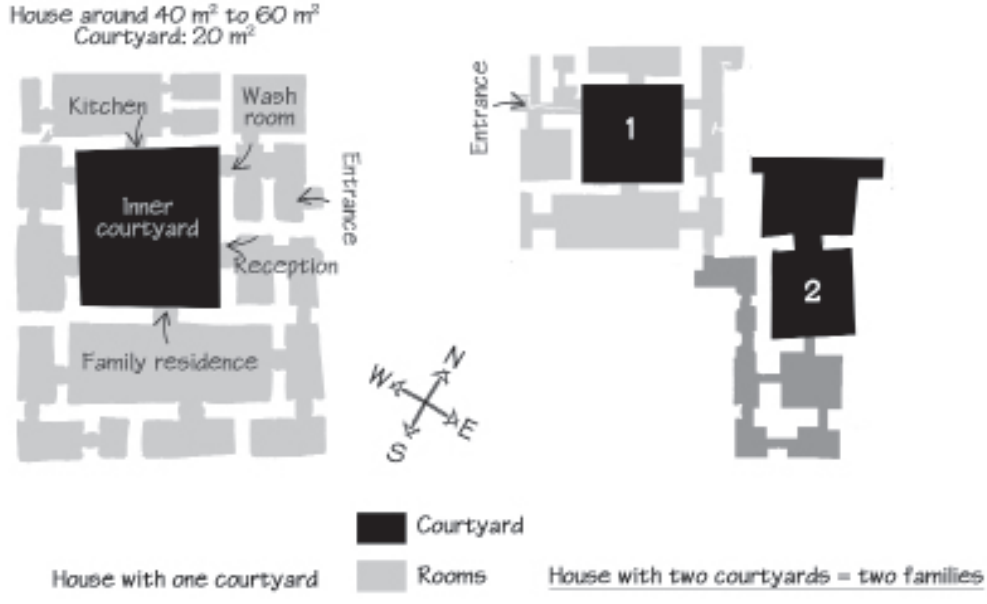
Ur, Iraq, c 4000 bce: house typology plans

Using the concept of the courtyard open to the sky, light and air entered rooms only from the courtyard. There was one entrance from the street and there were no windows in the outer walls. This combined introverted and social architecture.

RIGHT

Babylon, Iraq, c 2500 bce: house typology plans

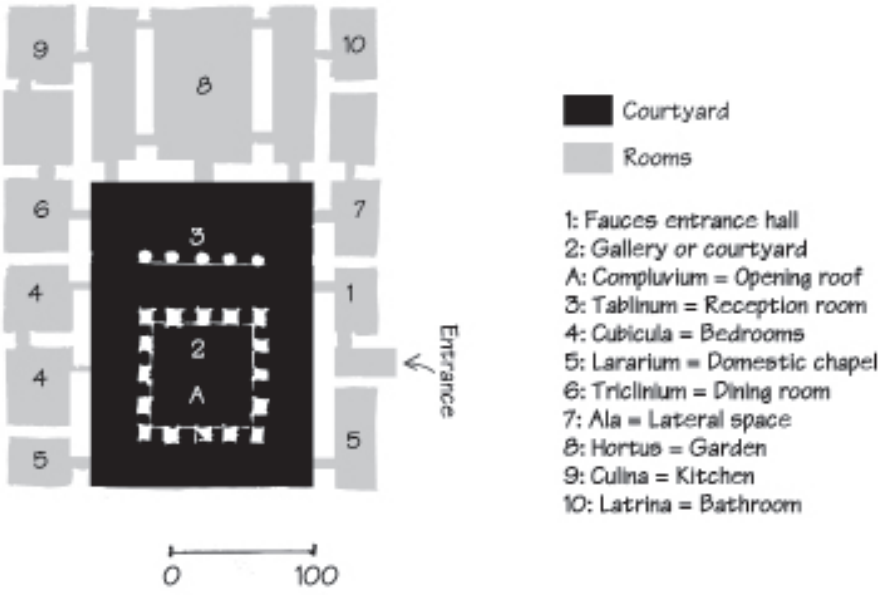
The physical and social extension of the courtyard: using the concept of centrality of the single-family courtyard, more than one courtyard meant an extended family such as a married son.



LEFT

Miletus, Turkey, c 610 bce: house typology floor plan

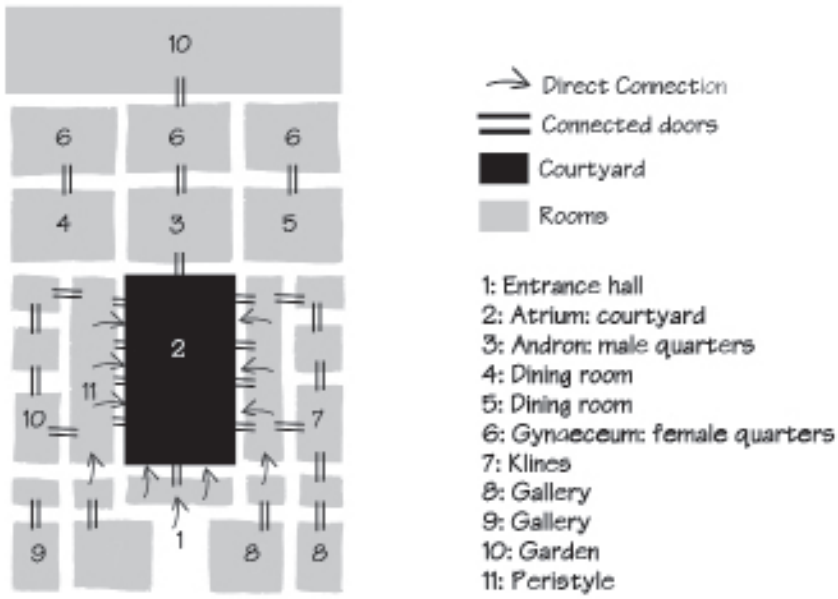
For the Greeks, it was enough to have only one courtyard for all functions, including reception.



LEFT

Palmyra, Syria, 41 bce: house typology floor plan

The Roman house had two parts: one for receiving visitors, and another for private family life. The domus *was an individual house for the wealthy, yet another type called the* insula *was completely open to external public space and had many floors.*



RIGHT
Sbaa Louyat alley, medina of Fez, Morocco, 13th century: courtyard organisation
The organic nature of the urban fabric and the regularity of the shapes of the courtyards create inner geometric microcosms within a community order.

With the colonisation of most Middle Eastern territories at the end of the 19th century and beginning of the 20th century, a new European model was introduced. With industrialisation, the introduction of new vehicular systems and population growth, no innovative solutions were sought to upgrade the medina or to explore its models in order to meet contemporary urban requirements.

RIGHT
Alley in the medina of Tangier, Morocco
Urban fabric with particular cultural codes, based on a human scale.

Colonial Architecture, East–West Encounters

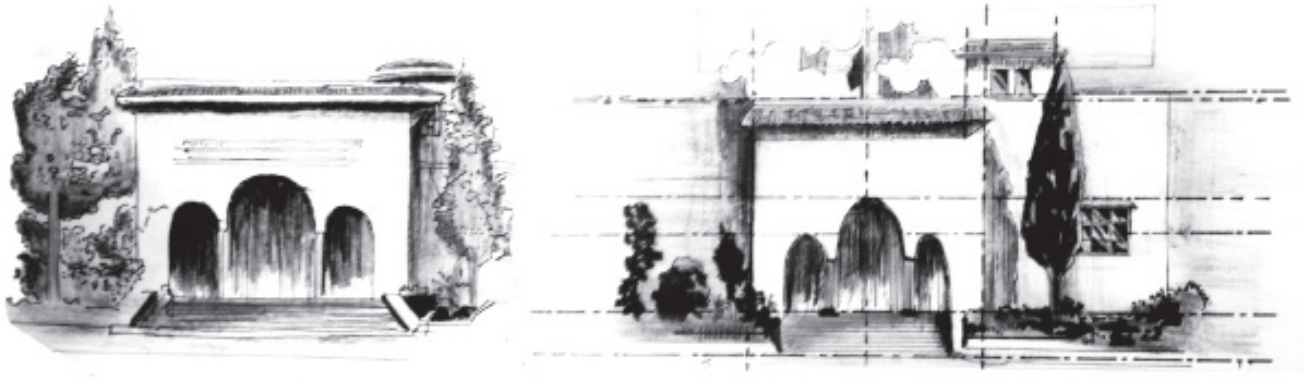
Although colonial architecture in the Middle East is criticised by postcolonial theorists, it nonetheless remains a rich laboratory for modernising local architecture. In addition to this, despite criticism of the colonial city as a segregating urban tool for European settlers, architects who designed In North Africa, such practitioners included under the auspices of colonial authority were pioneers of their time and were not always working in tandem with their military superiors. Equipped with high artistic and design talent, these architects attempted to reconcile East and West through architecture. In North Africa, such practitioners included Henri Prost, Maurice Tranchant de Lunel, Albert Laprade and Michel Écochard in Morocco; René Marché, Victor Valensi, Raphaël Guy, Henri Saladin, Joss Ellen and Jean-Émile Resplandy in Tunisia; Roland Simounet, Jules Voinot, Marius Toudoire, M.J. Coutereau and Henri Petit in Algeria; and Armando Brasini, Alberto Alpago Novello, Alessandro Limongelli and Florestano Di Fausto in Libya.

The encounter of East and West through the Middle East henceforth generated a typical architecture that has formed a genuine amalgam of forms and vocabularies – which still has its own melody and impact on the international practice of the profession. This architectural richness in the colonial period was also due to the fact that Europeans considered the region as a land of experimentation for both functionalist and culturalist architecture and urbanism. Practising in the colonies, far from the rigid European neoclassical academies, European architects were able to experiment with new avant-gardist architectural and urban concepts and had the possibility of implementing them.

BELOW

Adrien Laforgue, Water and Forestry Department building, administrative district of Rabat, Morocco, 1920: elevations

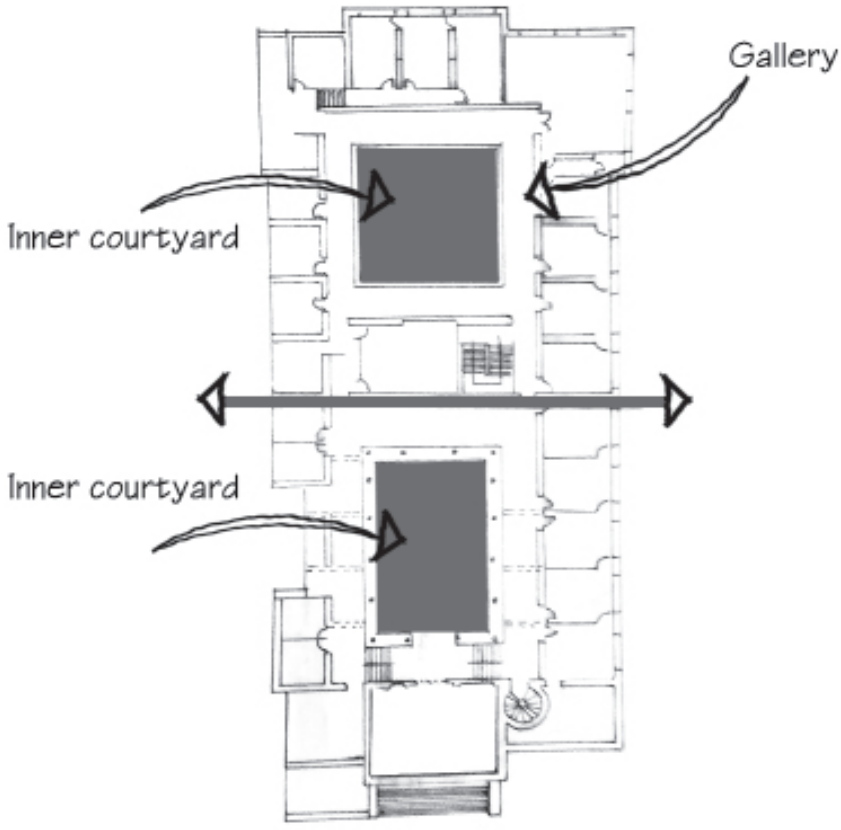
The encounter between Eastern and Western architecture, using architectural language elements from both sides: an extrovert rhythmic facade, functionality, monumentality, while on the other hand conserving a courtyard in the heart of the building and using some local materials (tile and stone) within a symmetrical colonial structure.



RIGHT

Adrien Laforgue, Water and Forestry Department building, administrative district of Rabat, Morocco, 1920: first-floor plan

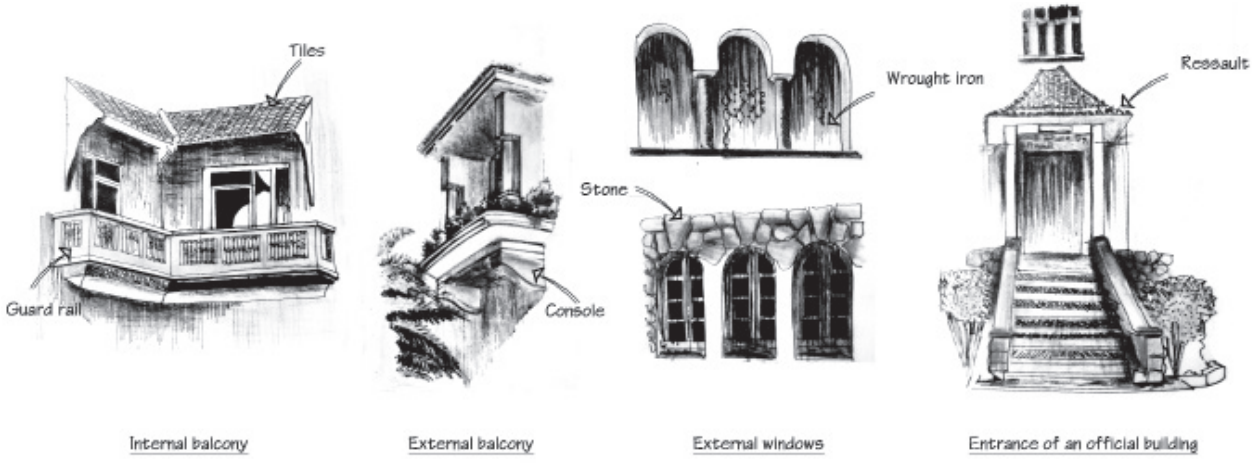
The plan shows the introverted courtyard at the heart of the building.

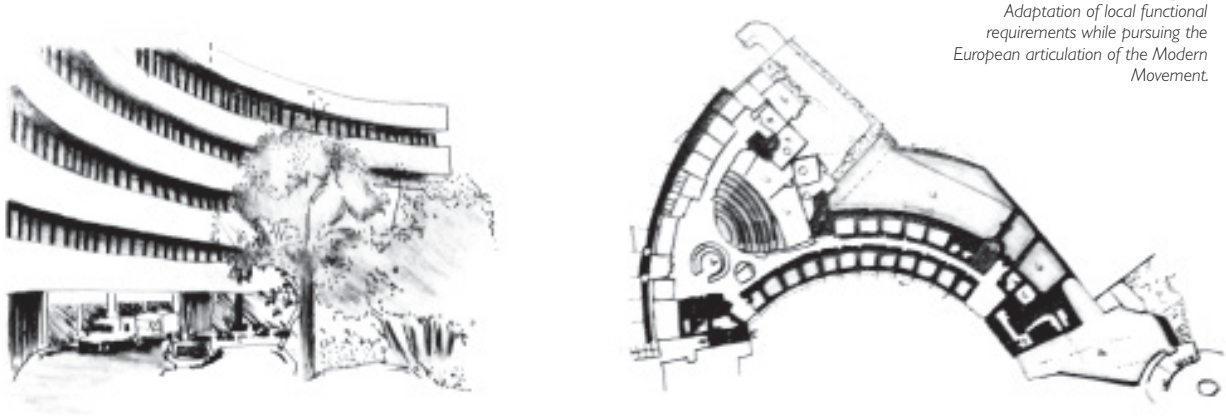


BELOW

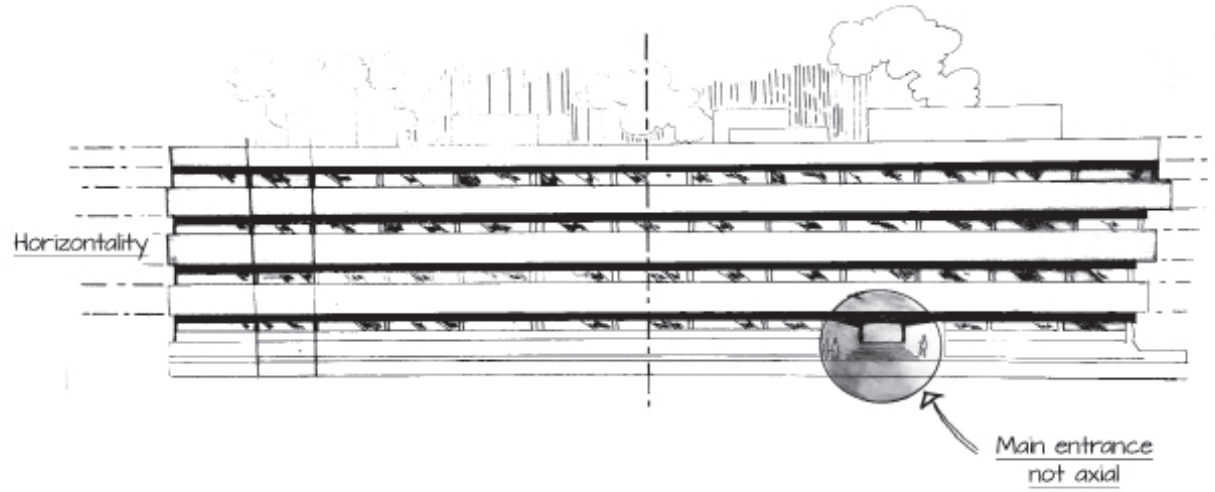
Administrative district of Rabat, Morocco: various architectural elements

Using the architectural elements to communicate with the context by adopting a mixed architectural language.





LEFT
Ali Idrissi and Hajji with SOCOTEC, Extension of the Finance Ministry, administrative district of Rabat, Morocco, 1983: facade view and first-floor plan
Adaptation of local functional requirements while pursuing the European articulation of the Modern Movement.



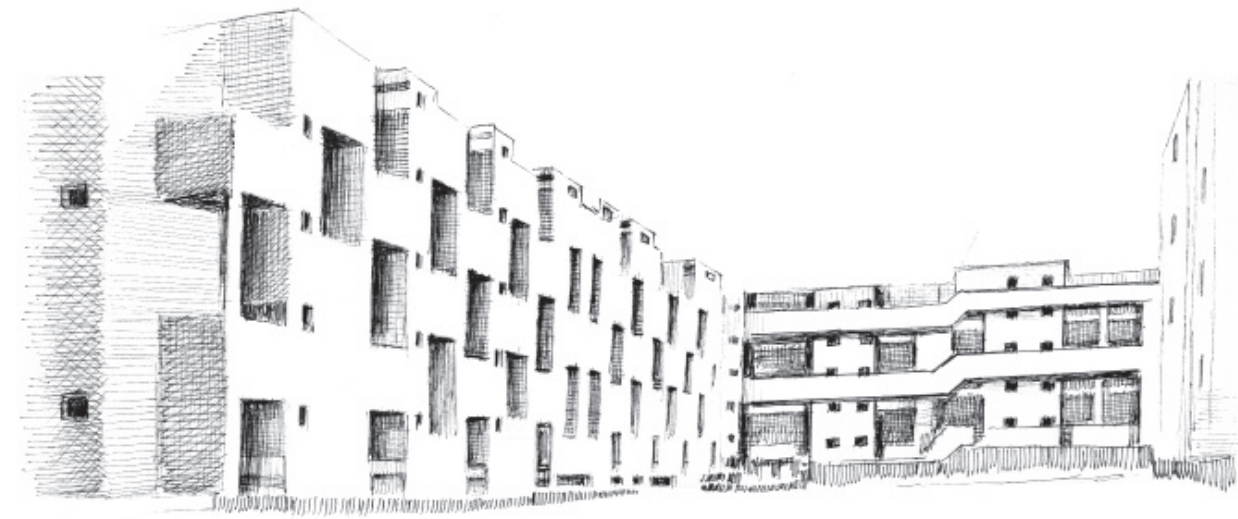
Nevertheless, the colonisation period created several architectural and urban dichotomies, exploring local architectural antecedents and the native rooted tradition of Arabo-Islamic architecture in order to forge new styles. These dichotomies cannot be overlooked when assessing contemporary architectural practice since the independence of the Middle Eastern countries. The key question herein is how a current architect or designer would deal with colonial architecture elements.

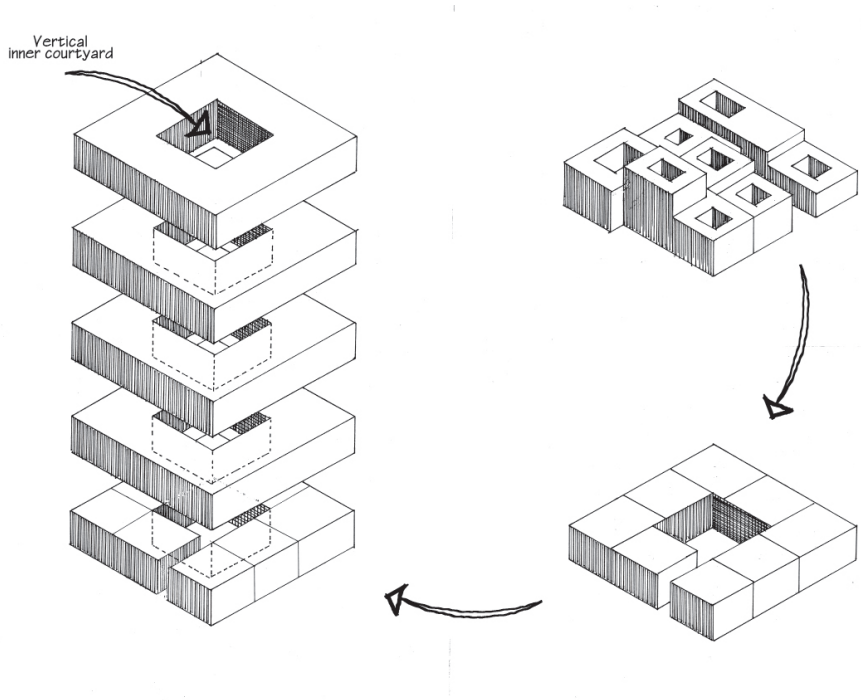
ABOVE
Ali Idrissi and Hajji with SOCOTEC, Extension of the Finance Ministry, administrative district of Rabat, Morocco, 1983: elevation
The design pursues the European articulation of the Modern Movement in many ways, such as the materials used and the composition of the facade (horizontal, asymmetric …).

ABOVE
Abderrahim Charai, Faculty of Letters and Human Sciences, Rabat, Morocco, 1970
After 1930, architects started to convert raw concrete with the rise of abstract modernism.

The response is not obvious, and a clear distinction needs to be made between, on the one hand, the colonial agenda of using architecture and urbanism as a tool of dominance where forms are charged with colonial symbolism, and on the other, instances where these colonial architects used their design talent to interpret local forms in order to generate new aesthetic vocabularies.

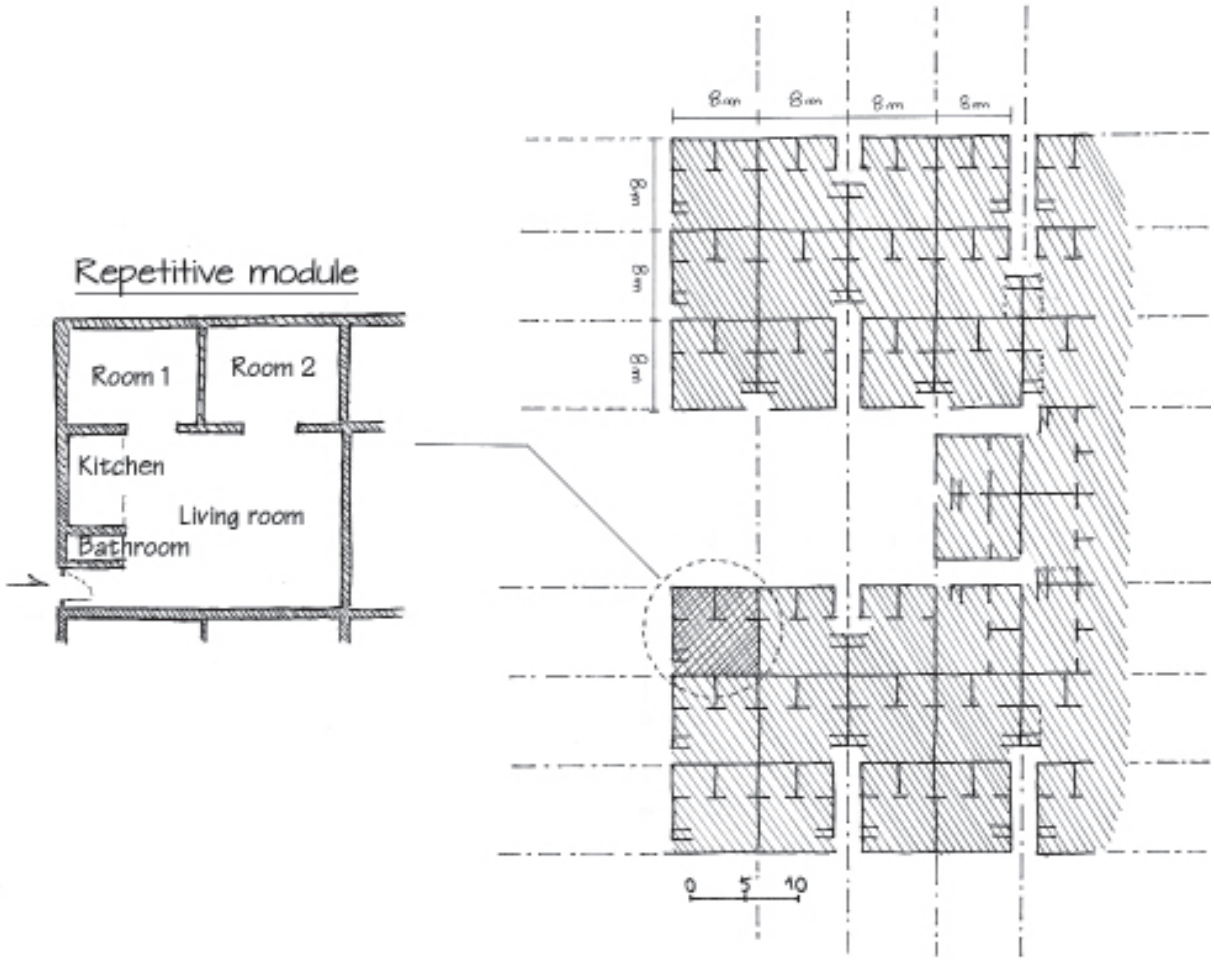
BELOW
Georges Candilis and Shadrach Woods, Nid d'Abeille (Beehive) block, Ain Chok, Casablanca, Morocco, 1952
A functionalist and modernist approach to local residential style, inspired by contextual elements.





LEFT
Development of the courtyard from horizontality to verticality
The exploration of the courtyard typology from empirical horizontal low-rise buildings to contemporary and modern vertical ones.

Since European colonialism was also about changing the cultural map of the Middle East, colonial architecture additionally served as a means of shifting the way of life of the native population, and particularly of the elite. This generated, for instance, a comprehensive adaptation of the functional programme of local residential style to espouse the spatial articulation of modern European housing. Michel Écochard, serving as head of the Service de l'Urbanisme (Urban Planning Department) under the French Protectorate in Morocco from 1946 to 1952, played a role in the latter: he led initiatives to contextualise the modernist and functionalist approach and to attract worldwide recognition for Moroccan housing, through the Congrès Internationaux d'Architecture Moderne (CIAM – founded by a group of European architects in 1928 to promote the principles of modernism). Écochard commissioned the Greek-French architect Georges Candilis and the American architect Shadrach Woods to design a residential complex in the Ain Chock area on the outskirts of Casablanca. The complex consisted of two blocks: the Nid d'Abeille (Beehive) block (1952) and the Sémiramis block (1953) – two examples of vertical housing with inner courtyards incorporated into all apartments. Candilis and Woods observed the architecture of local qasbahs (fortresses) in order to generate a contextualised European modern housing.



ABOVE
Michel Écochard, 8x8 Grid – Moroccan housing under the French Protectorate, 1940s
Evolutionary cellular housing with an internal courtyard.

Although this example of a housing project in North Africa was commissioned under colonial auspices, it represented the antithesis of the universal modernist tabula-rasa approach, and generated vehement criticism – even within CIAM itself – of CIAM's propaganda of standardising globally abstract modernist housing. Architects like Aldo van Eyck, Alison and Peter Smithson, Georges Candilis and Jacob Berend ('Jaap') Bakema, as key figures of the reformist group Team 10 (instigated in 1953), adopted this one example among others of contextualisation of modernism in order to bring CIAM to its end: the organisation was disbanded in 1959.

The Ain Chock example is highly relevant to the subject of this book: it illustrates how architects, whether local or foreign, have attempted to find an anchorage for their building designs in order to meet contextual requirements. It is also an example of the genuine interpretation of local architectural idioms in avant-gardist projects that has prepared the way for innovative solutions beyond mere abstract aestheticism. It shows how, when an exogenous architecture is brought to a territory, an architect can mould it to be contextual without falling into pastiche.

ABOVE
Hossein Amanat, Azadi Tower, Tehran, Iran, 1970
An expression of nationalism through architecture and urban planning.

Decolonising Architecture: Nation Building

The colonial period created several architectural and urban dichotomies, so as to reconcile European architectural antecedents and established local ones with two distinct philosophies. These dichotomies are key to assessing nationalistic attempts to decolonise architecture, as the latter was perceived as one of the most efficient tools for colonial pacification. The urban and architectural trends in most countries of the Middle East after they had achieved independence (Egypt in 1922, Syria in 1946, Libya in 1951, Morocco and Tunisia in 1956, Algeria in 1962) were demarcated according to how conservative or liberal architects were in dealing with the local architectural heritage vis-à-vis the colonial one.

Since architecture is a vehicle that reflects the societal image of a place, these independent states attempted to define themselves through emblematic national projects that resorted to local architectural and artisanal elements. From the 1930s onwards, national mosques, royal or presidential monuments, educational buildings, ministry headquarters and so forth were erected to symbolise the independent nation. Local and foreign architects met this requirement of the ruling system to create new local styles by applying artisanal ornamentation while adhering to the spirit of the time. This tendency was not about expanding the historical medina or duplicating its architectural styles around courtyards, but was more a question of following the colonial modern urban layout with exposed facades that formed a screen of all sorts of local artisanal decoration. With the exception of a few

successful projects, these buildings often lacked harmony in their proportions and promoted unprecedented pastiche because of the shortage of talented local architects who would merge the modern and the traditional through innovative designs.

However, the extensive architectural output of independent Middle Eastern countries fully promoted local human know-how. The ancestral craft of building was still a major asset that formed the backbone of all implemented architectural projects. This attracted attention from international architects willing to practise in this region, who would then often consider such unsurpassable local skill in their projects. A local workforce and local expertise in construction methods were frequently used for the execution of their buildings, in contrast with an entirely alien workforce or technology imported from elsewhere as in the case of some countries in the region.

Despite the decolonising attempts of architects who sought to offer an alternative architecture with a local imprint, most of the region's cities pursued the modernistic approach in their planning, and no genuine effort was made to consider, for instance, the elements of the existing living medinas. In addition,

BELOW
Abdelhak Fenjiro, Qasbah district, new town of Tamesna, Rabat, Morocco, 2004
A nostalgic model geared towards the consumer market.

the decolonising process of architecture often lacked a rigorous intellectual and empirical process to generate a contextual architecture that would compete with the fast-spreading internationalism.

On the other hand, these independent nation-states launched major conservation projects for the restoration and rehabilitation of important historical monuments and sites in order to perpetuate the local identity. These conservation projects were deemed as decolonising actions, even though their philosophies were imported and they did not have an anchored vision of how to sustain in particular the living medinas as centres of social, cultural and economic dynamism. Urban conservation geared towards the sustainable development of medinas continued apace until the 1980s.

However, the rich built heritage that represents different historical periods as well as cultural encounters situates the Middle East region among the most valuable heritage zones in the world. UNESCO's database of designated World Heritage Sites lists 76 sites in the Arab States, 15 in Turkey and 17 in Iran. These sites, ranging from historic buildings and archaeological remains to entire old cities, represent a rich portfolio of architectural experiences that this region has known. This makes the context of the Middle East far from an empty memory when it comes to designing new projects. In addition, this architectural richness engenders a kind of resistance to exogenous architecture.

The discourse of decolonisation is now outdated, as its practices did not issue in any alternative that might be valid functionally and aesthetically. In addition, a clear distinction should be made between colonial and modern architecture. Colonial architecture was about exporting superior European ideas to be transposed in the colonies in order to impose new urban and architectural systems. Modern architecture is more about the evolution of architecture around the global phenomenon of industrialisation, which seeks to internationalise means of design and construction. This was launched through CIAM by modernist architects who had no colonial agenda other than that of spreading their radical ideas of a new humanist and rational architecture.

After a decade or more of independence, and with the fall of nationalistic ideologies mainly in the Arab states, native architects pursued the modern schools of architecture with more a sense of context than the pursuit of a political stance of decolonisation. Therefore, the practice of architecture became regulated and responded to public and private commissions, following different masterplans of rather modern cities. With the postmodernist trend, these architects tried to reconcile their designs with the local context, but unfortunately this trend was very transient due to the rapid industrialisation and internationalisation of architecture. This initiated a new era of technological possibilities; and, due to the pressure on cities in terms of the housing crisis, the design process became weaker in all Middle Eastern countries – with the sole exception of the Gulf states, which started booming thanks to the boost provided to their economy by the exploitation of oil.

ARCHITECTURE OF DEVELOPMENT: AN URBAN AND HOUSING QUEST

Since the 1970s, several Middle Eastern governments – mainly Turkey, Iran, and those in the Levant region and North Africa – have launched major housing and infrastructure programmes in order to meet the needs of their growing urban populations. With their ongoing social issues, cities such as Cairo, Tunis, Algiers, Damascus, Istanbul, Tehran and Casablanca remain places of great economic and social disparities. These cities have faced a tremendous challenge to accommodate ever-increasing numbers of urban dwellers. Consequently, sprawling housing projects, built on a quantitative approach and totally standardised, have impacted cityscapes with monotonous ensembles of concrete boxes.

According to UN-Habitat, the greater Middle East had 16 cities with over 1 million inhabitants in 2000, 19 in 2005 and 24 in 2010. Currently, Istanbul, Tehran and Baghdad – neighbouring but distinct capital cities of three great Eastern civilisations – have a shared population of around 30 million. This rapid growth in Turkey, Iran and Iraq has engendered new urban forms, including large social housing compounds that have an immense impact on their image. Consequently, the 'ideal city' as planned by technocrats and politicians has succumbed to convergent developments.

Architecture within these powerful territories has been subject to an enduring nationalist ideology, as stated previously – from the powerful symbolism of the Turkish Republic's first president Mustafa Kemal Atatürk, to the Shah of Iran,

BELOW
Mass social housing in Casablanca, Morocco, 2001
Quantitative housing lacking minimum living conditions.

to Iraq's Saddam Hussein. This nationalism continues to affect government and public buildings in the Middle East and has had a tremendous impact on the image of its major cities. Among the different public institutions such as courts, hospitals, municipal authority headquarters, libraries and national banks, it is striking to see how neo-colonial styles have become intertwined with neoclassicism and Art Deco to assert an architectural language of power. In contrast, many contemporary projects in Istanbul, Tehran and Baghdad have been designed to weave into their city's urban fabric, which has evolved organically over the years.

Considering Iran and Iraq's position as oil producers, one can speculate that the future of their cityscapes may also include super-tall towers and megaprojects. These developments would certainly jeopardise the human scale of their authentic urban fabrics. Therefore, development in the Middle East means one of two things: either that of oil-rich places with super-fast and high construction to meet a global image; or that of non-oil places with rapid social development to meet the challenges of a fast-growing population of urban poor.

In the first case, architecture is evolving faster and higher, and in the second architecture has succumbed to a response consisting of social housing that has overwhelmed all Middle Eastern cityscapes in non-oil countries with jungles of concrete devoid of any sense of humanity. The latter has been and will continue to be the major source of social turmoil, as it lacks the resources to cater for basic human needs. With little consideration of either architecture or urbanism, these large housing projects often cover almost 30 per cent of a city's fabric through rapid mushrooming extensions fully governed by an informal building market.

CONTEMPORARY ARCHITECTURE: FASTER AND HIGHER

Since the 1990s, architectural production in the Middle East has shifted from heritage preservation, social housing, governmental buildings and hotels to mega 'theme parks', super-tall towers and artificial islands. New categories of architectural and urban projects have been taking shape mainly in the Gulf countries, where new urban centres have emerged as modern metropolises in the Arabian Desert.

Global architecture and engineering firms have contributed to erecting these new centres, producing a broad range of typologies. The super-tall tower has become the most distinctive feature of many Gulf cities, designed and engineered to accommodate the region's desire for fast iconic forms that will be recognisable worldwide. Thirty-nine super-tall buildings (defined as over 300 metres (980 feet)) and over 480 skyscrapers have been designed, built, or are in the process of being constructed in the region. Fierce competition to have the tallest structure has erupted among the Gulf states: both Saudi Arabia and Kuwait have plans for towers over 1,000 metres (3,280 feet) tall, which, when completed, will dwarf the much-publicised Burj Khalifa (at 830 metres (2,300 feet)).

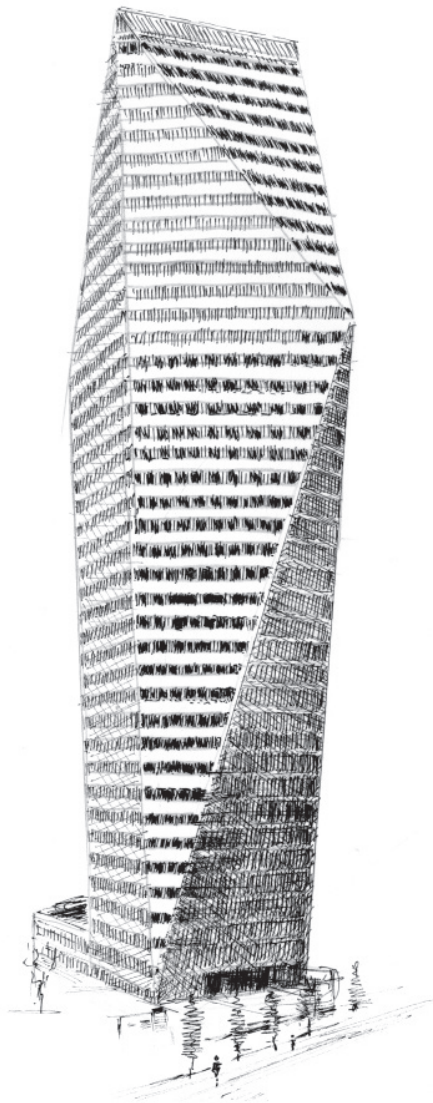
BELOW
Mohamed Ali Abdullah, renovated local market of Souq Waqif, Doha, Qatar, 2006
An example of heritage reconstruction in order to re-create a community and its open-air public life.

Accordingly, massive construction in the Gulf has come at the cost of the region's built heritage and environment. Subsequently, significant sites – such as Qatar's historic market building, the Souq Waqif – have been rehabilitated, and stand as examples of the recent trend to conserve cultural heritage and also to bridge the gap of time and place. This means the development process is very fast, and the sense of place and identity is under threat. The urge to reconstruct heritage is noticeable by the number of projects attempting to revive the memory of Gulf cities, to avoid losing forever the sense of belonging and context among the new generations.

Many clients in the Gulf states have likewise demanded the application of historical ornamentation and local styles in contemporary buildings. The success of such designs has been dependent on the knowledge and skill of the architect and has in some cases been received by the local community as pastiche rather than authentic designs. Several local and international architecture practices have attempted to contextualise their architectural design by borrowing antecedents common to Middle Eastern architecture: Saraya Bandar Jissah Resort in Muscat, Iran (by Dubai-based firm Godwin Austen Johnson (GAJ), 2016); Abu Dhabi Airport (by New York-based Kohn Pedersen Fox Associates (KPF), under construction); and King Abdullah Financial District Mosque in Riyadh (by New York-based FXFOWLE Architects, 2008) – to name but a few.

The rapid urbanisation of the Gulf states has an additional consequence: the region's alarming environmental status, one of the highest per-capita carbon footprints in the world. In view of this, Saudi Arabia, Qatar and the United Arab Emirates have made significant investments in renewable and alternative energy in recent years and are seeking ways to increase the efficiency of their cities' buildings. However, these undertakings remain limited vis-à-vis the amount of construction that generates the most energy-consuming buildings on the planet. This will be further elucidated in chapters 2 and 4 of this volume, so as to display the shortcomings of designing unconsciously when it comes to energy efficiency as well as social and cultural sustainability.

BELOW
Pei Cobb Freed & Partners, Soyak Crystal Tower, Istanbul, Turkey, 2015
An example of the Gulf states' influence on other countries where fast-built, high-rise urbanism is concerned. The headquarters building of the National Bank of Greece, the tower has 35 storeys and is 170 metres (560 feet) tall.



CONCLUSION

The rich tradition of building in the Middle East, in a semi-arid environment where sunlight is predominant, has helped to advance human know-how in terms of making cities and civilisations. This region was and still is a terrain for continuous innovation, and contemporary architectural and urban production is no exception. An understanding of this dynamic architectural continuum through time and place is essential to avoid the narrowness of pursuing tailored styles such as that of Islamic or Arabic Architecture as a set of sterile copy-and-paste forms. It was an embracing of all inputs – even colonial or extraneous ones – that initiated the transition to modernisation. How foreign and local architects have attempted to reconcile East and West through architecture, and to interpret local forms in order to generate contemporary vocabularies, is indeed inspiring.

The current conflict in the region and recent destruction of sites of rich multicultural memories, such as Palmyra and Dur-Sharrukin, are proof that the region is suffering from significant cultural and social decline. This decline hinders the embracing of the culture of diversity and plurality that once generated the rich portfolio of artistic, architectural and urban forms and typologies, as demonstrated in this chapter.

The discourse of decolonisation is outdated, and likewise its counterpart nationalism with its alien architecture of empty aesthetics. All succumbed to new universal design developments. Consequently, the region is currently caught between the super-fast, super-tall architecture of the oil-rich places to meet the desire for a global image, and the social architecture of the rest of the region that is struggling to meet the needs of a fast-growing poor urban population. The question is, how can this dichotomy be grasped so as to open up new avenues for designing in the region with more genuine contextual elements? And how can context be deconstructed to deduce practical triggers for creative design? These questions will be addressed in the following chapters of this book.

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CHAPTER 2

ARCHITECTURAL VOCABULARY: ELEMENTS OF LOCAL STYLES

Context ought not to be ignored when it comes to contemporary architectural design. But such a statement should not be interpreted as a call to refer to local heritage as the exclusive source for a pseudo-traditional architecture, but rather as encouragement to adopt an orientation that embraces the new trends of architectural design – whether they be modern or otherwise – whilst remaining careful not to sideline the genius loci of the region: in this case, the Middle East. Therefore, the regional architectural vocabulary, which is the subject of this

OPPOSITE4
Ghadamis, Libya
The pre-Saharan oasis town of Ghadamis is a Roman, Byzantine and Arabic urbanised human settlement, where the genius loci generates a unique physical and ecological realm.

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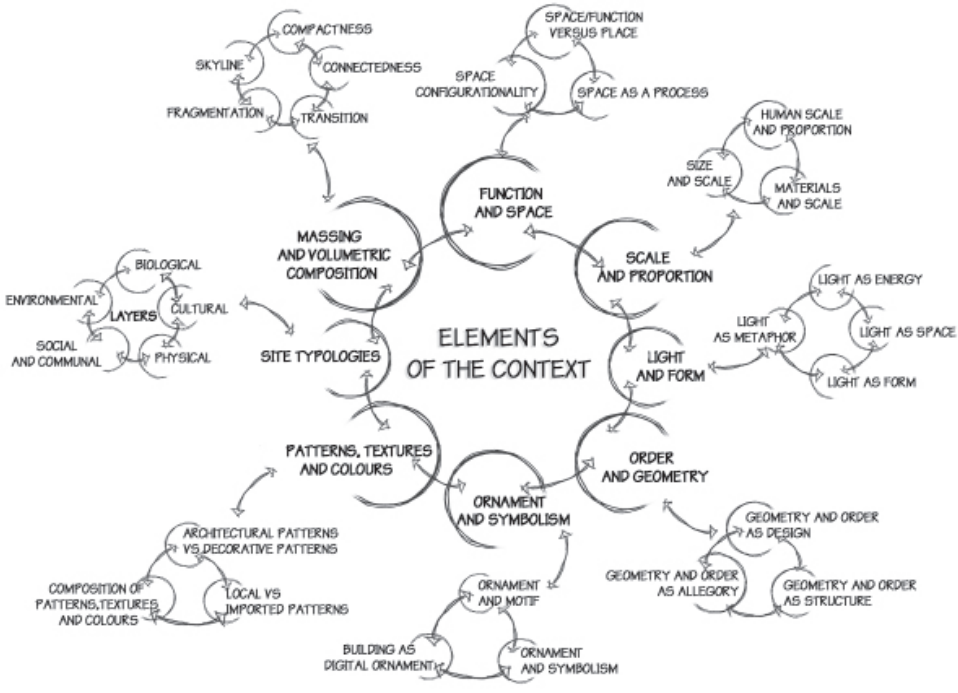
The organisation of the chapter
The interactive components of context, to boost the architectural design process.



ABOVE
The trend of out-of-context, 'parachuted-in' architectural projects in the Middle East
This phenomenon is especially prevalent in the Gulf region.

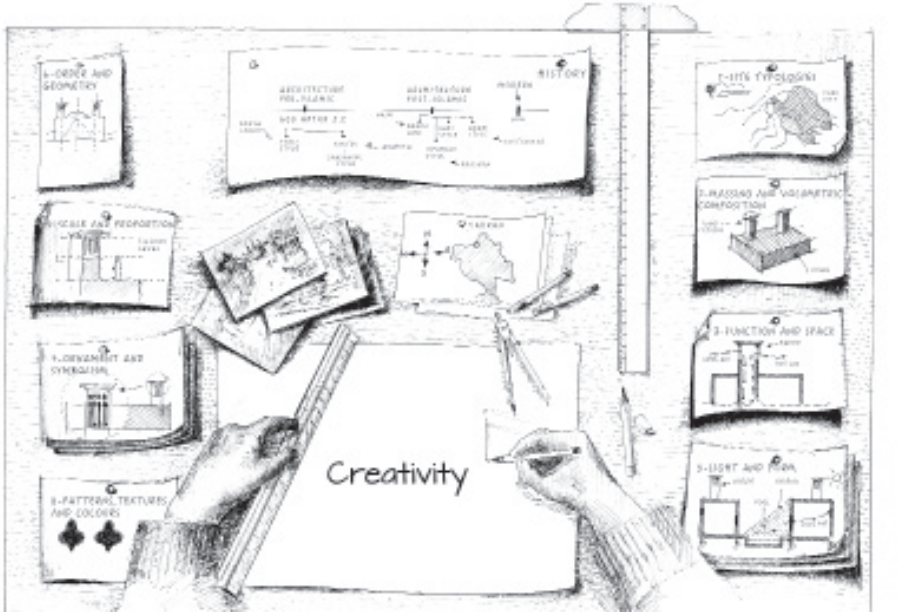
book, is not limited to existing current or historical architectural forms. Rather, it encompasses the notion of vocabulary to address all elements of the context that can inspire architectural works that are geared towards an intrinsic and comprehensive design. The aim is to avoid further proliferation of the kinds of tabula-rasa or pastiche-like projects that have recently plagued the region, appearing as though they had dropped out of the sky or been 'parachuted in'.

In the light of the prevailing discourse advocating the free creativity of the architect, particularly in relation to abstract modernism, some critics have questioned the validity of being contextual. However, architecture has a valid role to play as a vehicle of contextual and cultural representation of different communities. A failure to accept this can only lead to the phenomenon of placelessness, described by Edward Relph as 'the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place' (Relph 1976, Preface). In order to conceive a new architectural design pursuing this end, architects should be aware that all contextual elements are at play when it comes to creativity. Indeed, it is crucial that they assimilate the basic elements of local architectural styles if their new projects are to have a local image without obviously falling into pastiche or, as described by Kenneth Frampton in his 1983 essay 'Towards a Critical Regionalism', pursuing 'the ever-present tendency to regress into nostalgic historicism or the glibly decorative' (Frampton 2002, p 20).

The styles referred to herein do not represent an established academic discourse of a particular period, but a perceived architectural typology, which is consistent with time and place, that becomes a defined local architectural idiom referring to a form or a function embedded with local meanings. Elements of local styles are hence the elements that have contributed and still contribute to shaping a holistic architectural ensemble. These elements are not frozen but dynamic and, when reactivated and regenerated through the evolution of means and creativity, they do not automatically forge a copy of the past but underline the continuity of a context. This conscious design act of innovating while considering contextual parameters does not jeopardise the human spirit's ability to pursue a revolutionary design of the future.

Therefore, what steps does a project have to pursue in order to reach this end? How can it be made consistent in time and place with the process of designing? Which local style elements are changeable and which are unchanging? How do these elements guarantee the continuity of a context whilst embracing a new creative process of projecting the future? How far is a context embraced or interpreted in a project?

In order to respond to these key questions, it is imperative in this chapter to present the elements of local style that relate to the Middle Eastern context. Nevertheless, it is difficult to encapsulate these elements in a limited set of formulae. For the sake of simplicity of application in future projects, they are delineated as follows: Site Typologies; Massing and Volumetric Composition; Function and Space; Scale and Proportion; Light and Form; Order and Geometry; Ornament and Symbolism; and Patterns, Textures and Colours.



LEFT
How to prepare for the design process
All contextual potentials need to be at hand.

SITE TYPOLOGIES

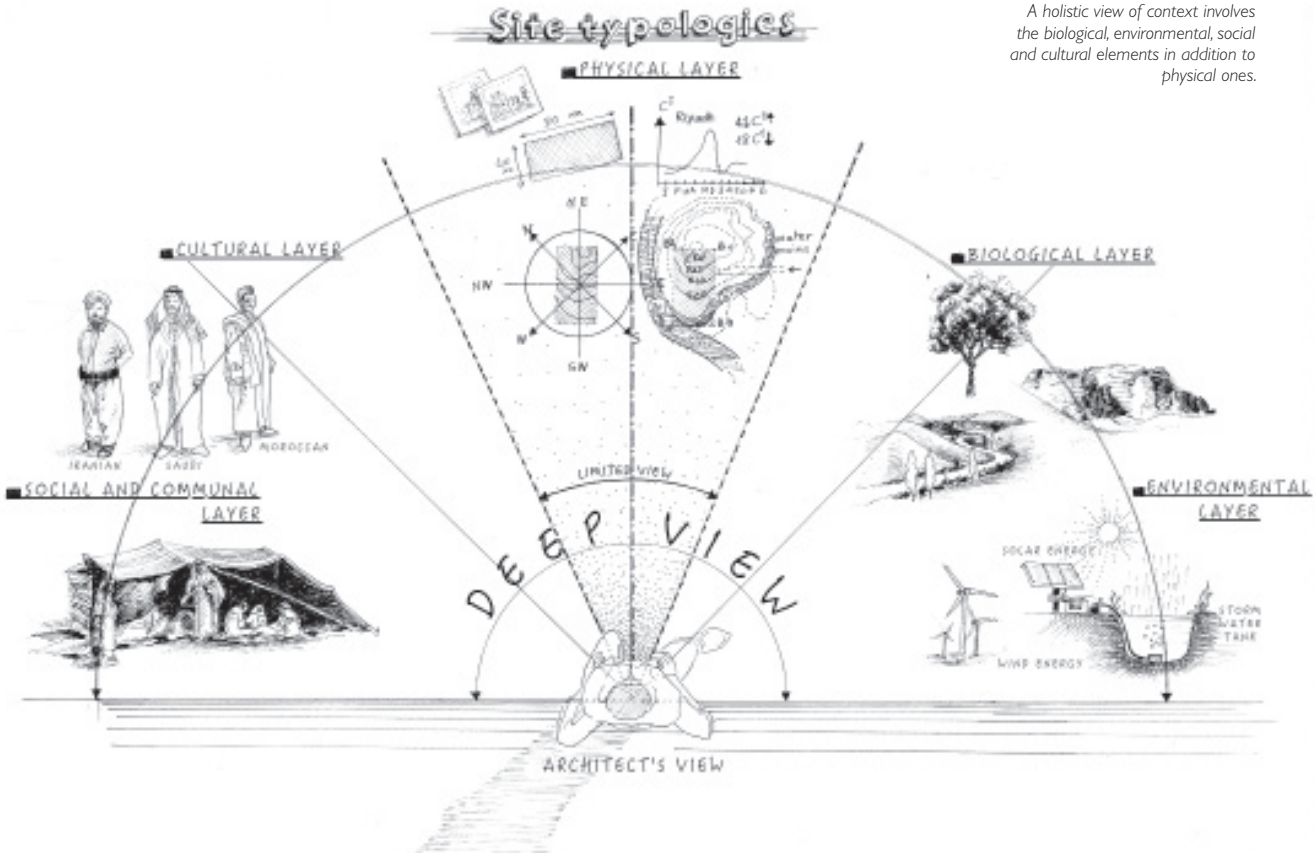
In the Middle East, the natural urban or rural settings present interesting sites for architectural projects. The diversity of topographies, ranging from mountain to desert, prescribes specific conditions for architectural production which, in spite of current technologies that ease construction, are still key criteria for designing buildings. The nature of the site together with local materials and climate provide a peculiar territory that over time has moulded the shapes and forms of buildings. This has accordingly generated an authentic architectural and urban landscape that is qualified by geographer and urban planner MRG Conzen as follows: 'in the course of time the landscape, whether that of a large region like a country or of a small locality like a market town, acquires its specific genius loci, its culture- and history-conditioned character which commonly reflects not only the work and aspirations of the society at present in occupancy but also that of its precursors in the area' (Conzen 1966, pp 56–7).

BELOW
Ghadamis, Libya
The pre-Saharan oasis town of Ghadamis is a Roman, Byzantine and Arabic urbanised human settlement, where the genius loci generates a unique physical and ecological realm.

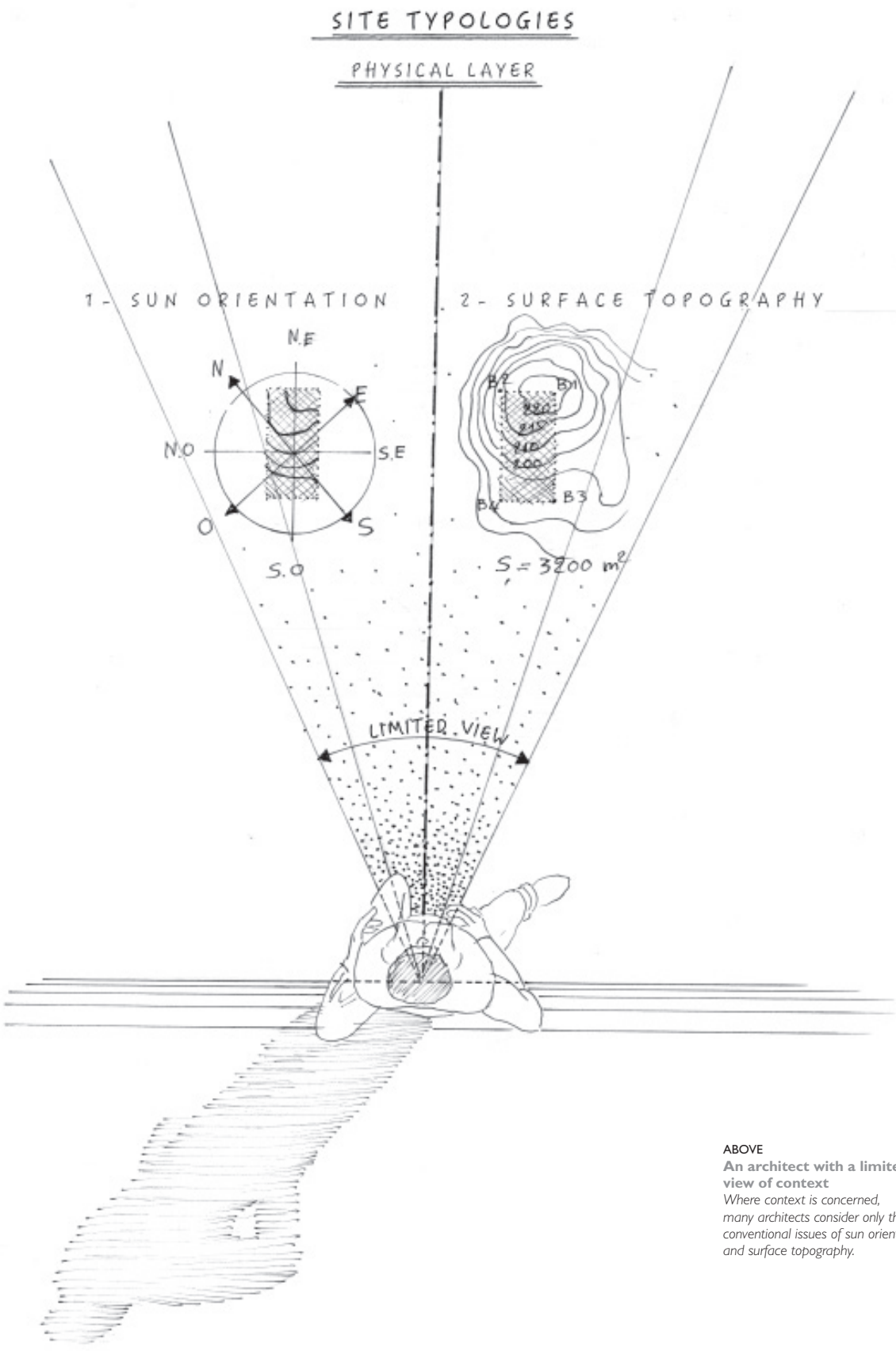
LEFT

An architect with a deep view of context

A holistic view of context involves the biological, environmental, social and cultural elements in addition to physical ones.

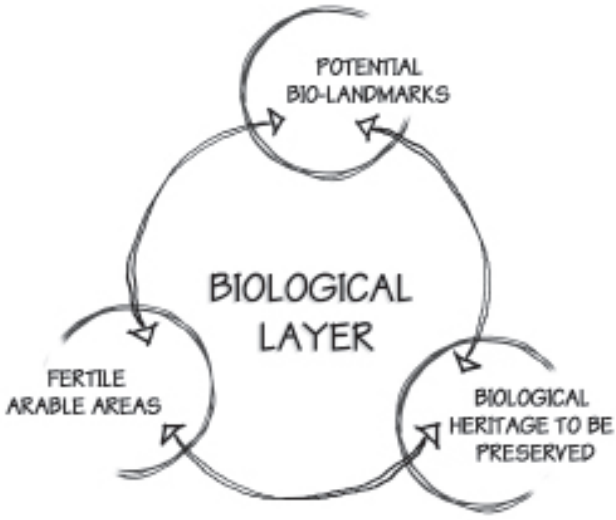


Architectural designs in the Middle East have often pursued a conventional view that solely considers sun orientation and surface topography, limiting architects' interventions and preventing them from exploring all elements of site typology. It is hence significant to observe the site typology and try to fully blend the project with a deep view of its different layers. The site typology in this region therefore presents an architecture of its own which contemporary architects often find perplexing but, when skilfully embraced, adds much to architectural innovation and continuity. Being mostly in the Mediterranean area, a large part of the Middle East often presents sites with mild climate and green topographies in the north and others with dry Saharan characteristics in the south. Key layers of the site to be considered in this context are the biological layer; the cultural layer; the physical layer; the social and communal layer; and the environmental layer (energy, light, wind, air movement etc).



ABOVE
An architect with a limited view of context
Where context is concerned, many architects consider only the conventional issues of sun orientation and surface topography.

Biological Layer



LEFT
Elements of the biological layer
Several elements should be taken into consideration when studying the biological layer.

The conventional view of the site often covers the common features of limitations of a project area: surface topography and sun orientation. However, a deeper view of the site that considers its underground and overground biological characteristics, particularly the preservation and sustainability of its energy and resources, is necessary in order to envisage the potential of the site in a future project. The biological layer can be analysed through three elements: the potential bio-landmarks, the biological heritage to be preserved, and the fertile arable areas.

The potential bio-landmarks are the intrinsic elements that mark a site and constitute its persisting image throughout time. As architect and theorist Christian Norberg-Schulz writes: 'Rocks, vegetation and water make a place meaningful. [...] In the environment [such places] function as "centres", they serve as objects of man's orientation and identification, and constitute a spatial structure' (Norberg-Schulz 1980, pp 27–8). They are often natural elements that grow and evolve with the site and mark its territory by providing natural directions without artificial intervention. For instance, some sites present peculiar tree patterns that recall a specific treatment in order to espouse their natural design vis-à-vis a new project framework. This is to enhance the durability of the living natural features of the site.

The biological heritage of the site consists of an ecosystem with exceptional biodiversity that has to be preserved. This is applied more delicately to large projects that may jeopardise the biological richness of the site and bring about a loss of its natural landscape.

RIGHT
Oriental plane tree (Platanus orientalis), Istanbul, Turkey
Biological heritage as an urban landmark: this monumental tree stands near Istanbul's Topkapı Palace.

RIGHT
Dragon's blood tree (Dracaena cinnabari), Socotra, Yemen
Such trees are an inspiring biological element of their native region of Yemen.

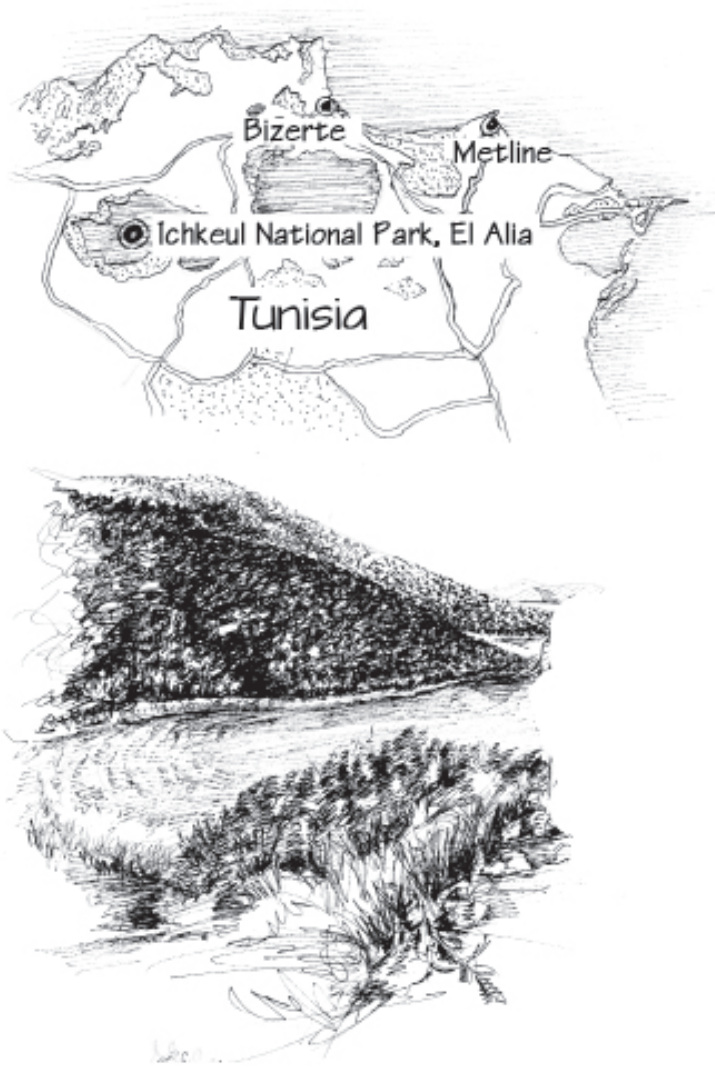
LEFT
Cedar of Lebanon (Cedrus libani)
A biological element as a national symbol: this species is seen as a sacred symbol of Lebanon.

LEFT
The cypress of Abarqu, Yazd province, Iran
A biological element protected as a national monument by the Cultural Heritage of Iran. The tree is more than 4,000 years old.

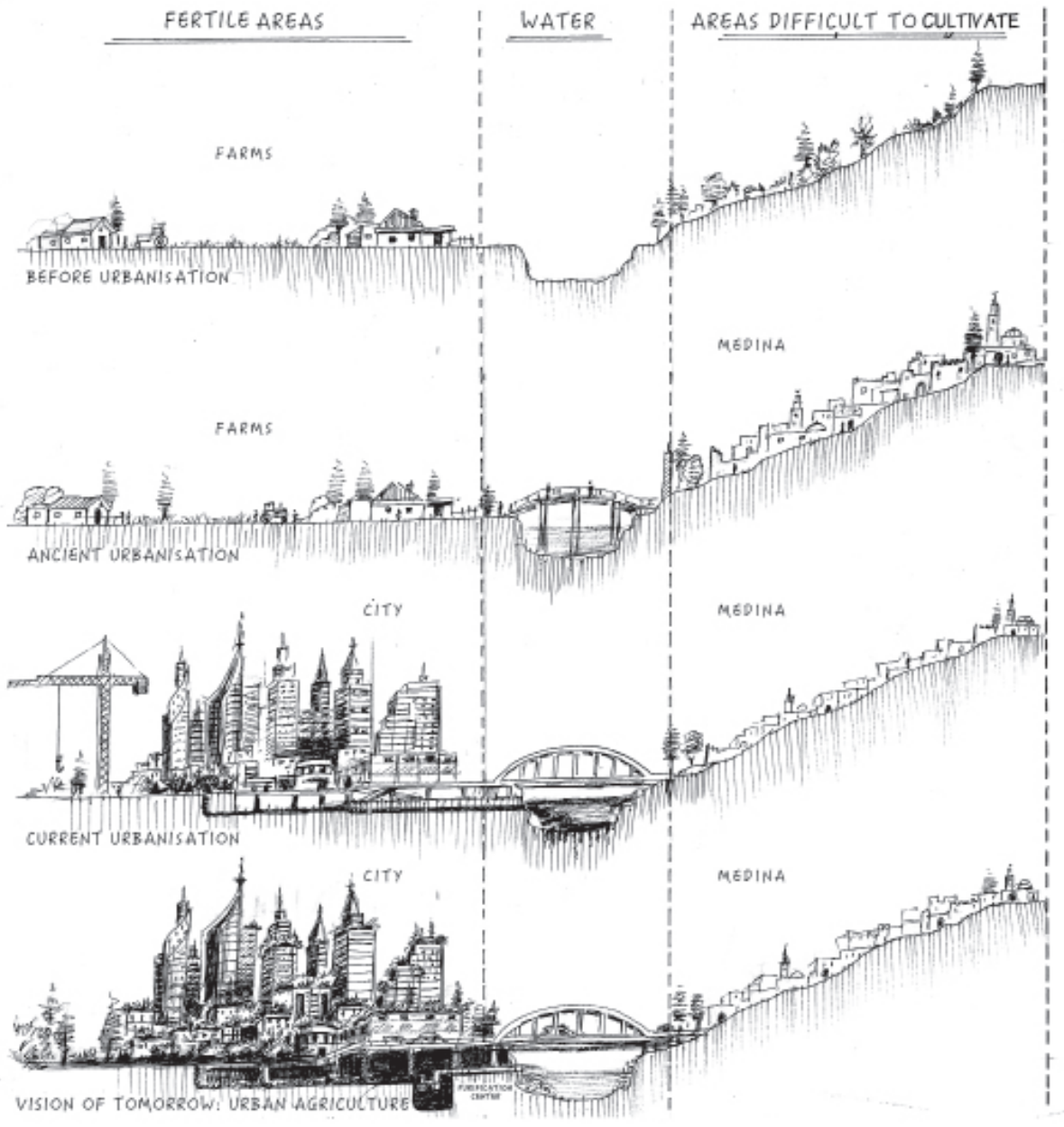
RIGHT
Uçhisar castle, Nevşehir province, Cappadocia, Turkey
A symbolic union between architecture and nature.

BELOW
Kandovan, Iran
Another example of an impressive union between rocks and rural architecture to shape a whole village.

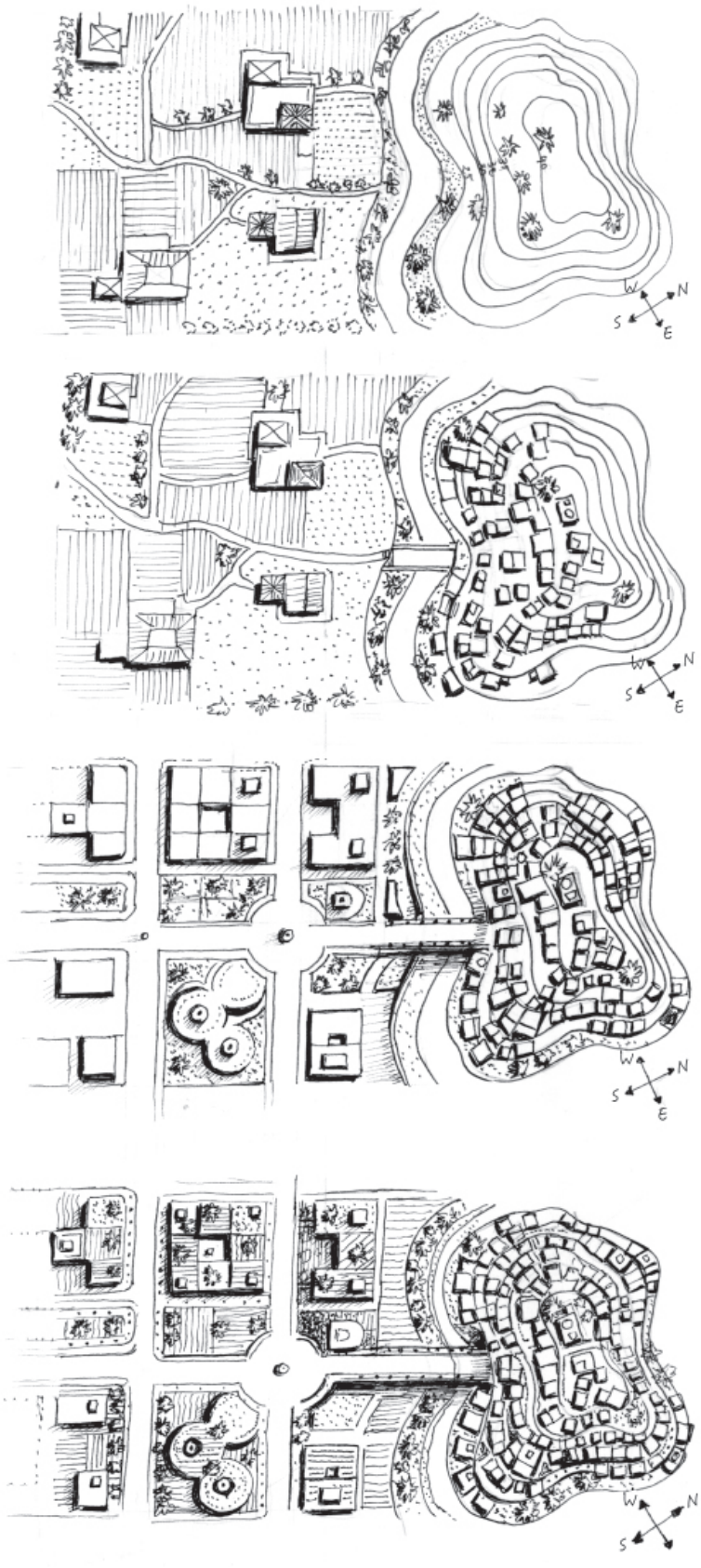
The fertile arable areas are those that can be agriculturally productive, but they are easy to integrate within a project's scope. It is not obvious to maintain such fertile lands, albeit there is a growing concern over invading such productive territories. Since urbanisation in the Middle East is incessantly consuming rich agricultural reservoirs, it is imperative to rethink the way architects and planners design and project the development of these rich territories.



LEFT
Ichkeul National Park, near Bizerte, Tunisia
Managed by the country's Ministry of Agriculture, this national park in northern Tunisia was classified as a Biosphere Reserve under UNESCO's 'Man and the Biosphere' programme in 1977 and listed as a World Heritage Site by UNESCO in 1980.



ABOVE
Evolution of vertical urban extension at the expense of fertile land
In the past, urban settlements were located on sloping and uncultivated sites to establish farms on plains. Currently, high-rise cities are taking over arable land.



LEFT

Evolution of horizontal urban extension at the expense of fertile land

Horizontal urban extensions are consuming more arable land than vertical extensions, threatening the agricultural zones around cities and even at the territorial level of countries.

Cultural Layer

Whether they are in urban or rural areas, most sites of projects in the Middle East present a complex manifestation of cultural memory. Although natural biological and physical elements make their own demands, from the layout of an architectural design to the constant variables that should be included in shaping the locality of the project, the cultural component of a site goes beyond the territory of the project. It should also include the architectonics of cultural transformations within the region or the country concerned. These expressions of architecture as linguistic manifestations reveal a certain meaning through an apparatus of vocabularies that are both fixed and dynamic through a continuous interpretation of the site. Having a semantic link, this cultural interpretation of the site either reproduces existing forms or invents new ones.

Despite modern changes that have brought new technological and aesthetic expressions to boost the image of the site, its topology in the Middle East is still closely linked to cultural practices that embrace any new form through connectedness, continuity and boundary. The site is accordingly transformed to accommodate the new project but preserves its typology on the whole because of persistent and already-existing elements that are often connected within a territory, as long as the scale does not exceed the size of the place in question. In the case of Dubai, for instance, most megaprojects go beyond the framework of their site and urban territory either, vertically or horizontally, so as to create an out-of-scale new project that radically mutates the culturally existing urban or Saharan settings. Regarding this rapid non-contextual change, philosopher Martin Heidegger states in his essay 'Building, Dwelling, Thinking' that 'dwelling' and hence 'being' in the existential meaning cannot take place in a domain that is not clearly bounded. 'A boundary,' he writes, 'is not that at which something stops, but […] the boundary is that from which something begins its presencing' (Heidegger 1954, p 154).

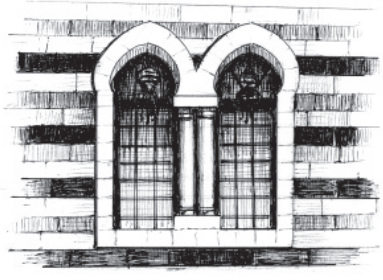
This cultural layer of the site is related both to an intangible memory that is often subjective and to a tangible one that reflects the physical architectural and archaeological heritage on the site. The existing cultural heritage within the sites of architectural projects is often barely explored in their design and remains problematic. With the current contemporary drive for design to be extremely modern and imposing, heritage and archaeological elements of the site have been reduced to a set of frozen elements that are not necessarily taken into consideration in the design process.

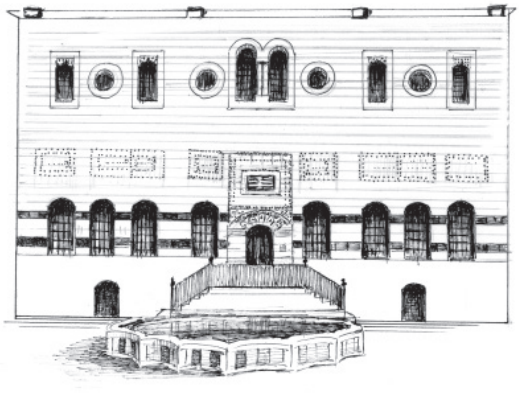
The common creative urge to propose designs that bring their own set of forms and shapes largely ignores the anchoring role of this physical heritage. However, in the Middle East, architects cannot fully escape from existing architectural and heritage memory, as users are constantly defending it. Accordingly, there is a recurrent demand from clients to investigate the cultural layer of the site in order to look at the sense of identity and belonging that is quintessential for a region so charged culturally and spiritually. The intangible cultural memory is hence

unequivocal when it comes to tracing existing dispositions of sites and how they entail a certain site character that cannot be ignored in new projects.

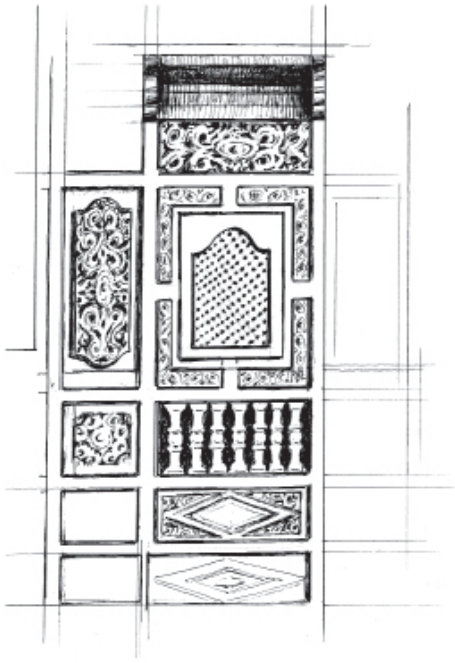
Even though this intangible cultural memory may seem unappealing, it has its own variations from one region to another, despite the uniform overall cultural image that is often imparted by viewers from elsewhere. A close analysis of the cultural layer of the site is therefore highly recommended in order to delineate the previous patterns of architectural practice and tradition there by looking for any physical cultural precedents worthy of inclusion in the design process. This is not an endorsement to restrain designers, but an attempt to sensitise them to the cultural essence of sites that cannot be merely repudiated.

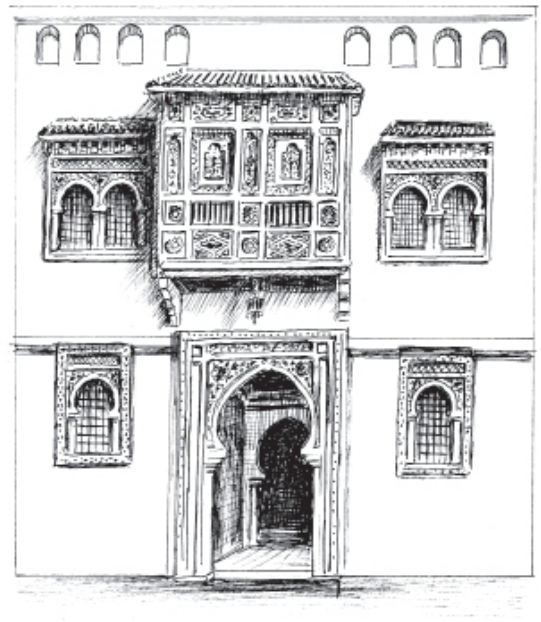
ABOVE
Chehel Sotoun Palace and Garden, Isfahan, Iran, mid-17th century
Chehel Sotoun is one of a number of Persian gardens collectively inscribed on UNESCO's World Heritage list as a prime example of human creativity. They were designed as a paradise on earth, symbolising Eden and the four Zoroastrian elements: sky, earth, water and plants.



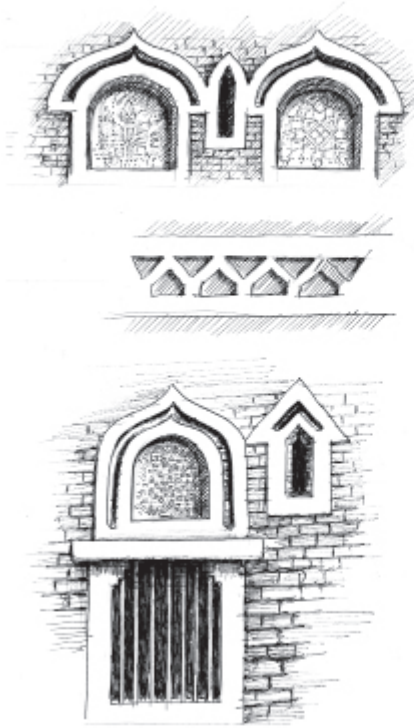


LEFT
Azm Palace, Damascus, Syria, 1750
Syrian architectural-cultural vocabularies explore several materials such as limestone, sandstone, basalt and marble. The facades are polychrome alternating ochre, white and black, and are decorated halfway with coloured stucco that shows the influence of 13th-century Mamluk dynasty art.





ABOVE
Traditional white-blue house in Kairouan, Tunisia
Tunisia has its own architectural-cultural vocabulary, significantly influenced by that of the Spanish region of Andalusia.



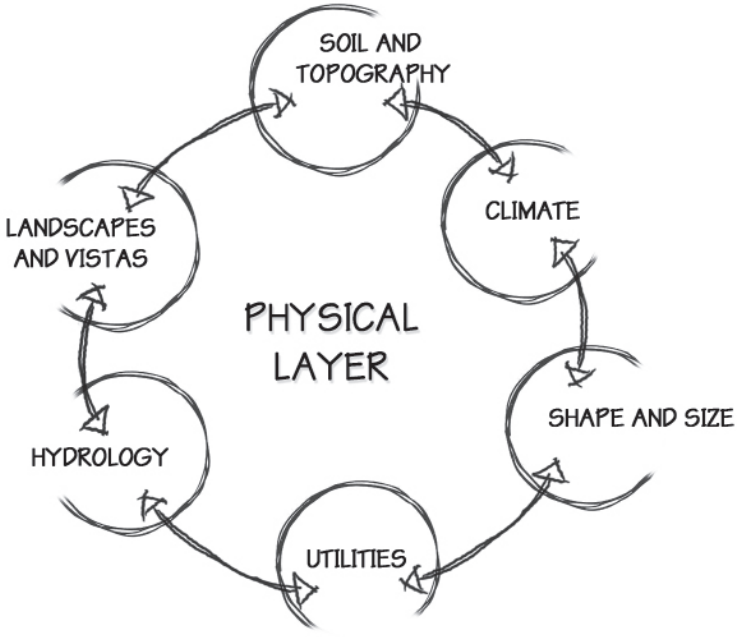
RIGHT
Perspectives on patterns, textures and colours
The three key fundamentals to be considered when approaching patterns, textures and colours.

Physical Layer

When we analyse the physical layer of a site, we directly deal with its material concrete reality constituted by its physical characteristics such as topography, climate, shape and size, utilities, hydrology, and landscape and vistas. However, in the Middle Eastern region, these characteristics may be stereotyped, being considered by some as having one geographical character while in reality they present a variety of physical peculiarities in their different geographical zones. These peculiarities define the physical nature of the place and often infuse its future realities, notwithstanding an artificial intervention.

The physical layer is therefore unchanging, manifesting continuing tangible components. If this aspect is neglected, the project loses its anchorage. The physical place or milieu of the project has a certain ostensible character that designers cannot disregard unless they bring an additional dimension through a material form that can compete with its shape and essence; otherwise it ruins its authentic morphology.

LEFT
Elements of the physical layer
Six key aspects need to be taken into consideration when studying the physical layer.



OPPOSITE
A landscape in northwestern Oman
A rich palette of natural textures and curves with diverse geological formations.

Soil and Topography

Soil and topography vary in the Middle East. The most striking example is the North African topography, extending from the depths of the Saharan desert and gradually mutating to become green and mountainous in the north, next to the Mediterranean. The nature of the soil changes accordingly, and it is often threatened in some parts by the occurrence of seismic movements. Unlike the entirely green topographies such as in northern Europe, this region presents a rich topographical palette of natural textures and curves with an abundance of geological formations. This has a tremendous impact on the morphology of architectural form.

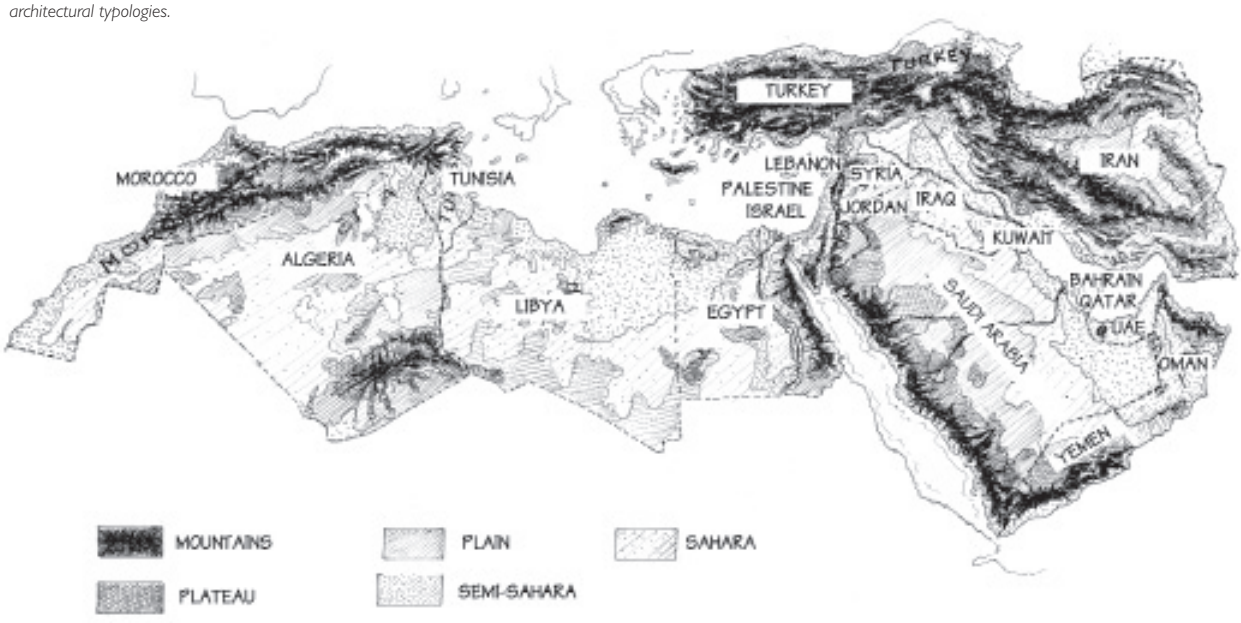
Although architects do study the sites of their projects, they rarely consider the nature of the soil because they mostly rely on engineers' findings, or because the regulations are loose. Beyond the conventional treatment of topographic curves of the terrain in a design process, there is often neglect in considering potential natural risks that sometimes lead to serious catastrophes.

BELOW
Settlement in the Luxor area, Egypt
The genuine morphology of the physical place has shaped the character of an architectural and urban fabric.

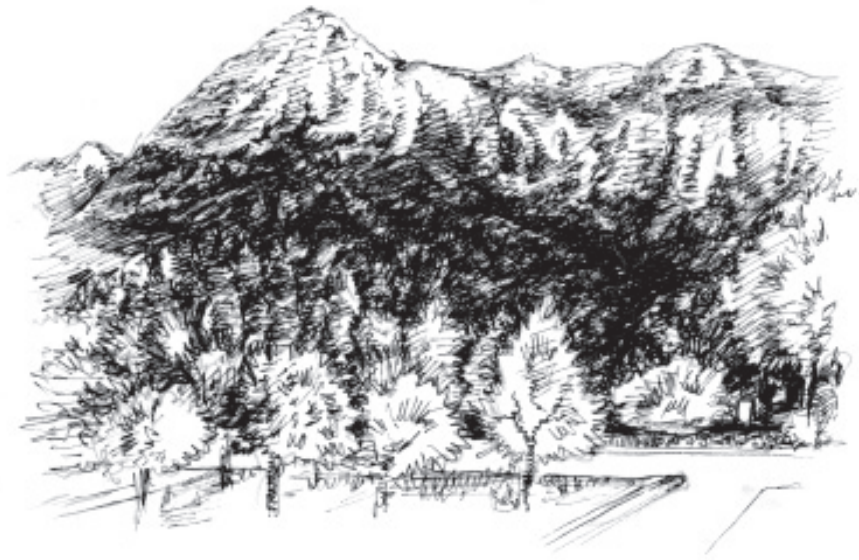
BELOW

Topographies of the Middle East

The diversity of landscapes and natural environments gives rise to diverse architectural typologies.



RIGHT
Djebel Zaghouan National Park, Zaghouan Governorate, Tunisia
Greenery in the Mediterranean areas of the Middle East.



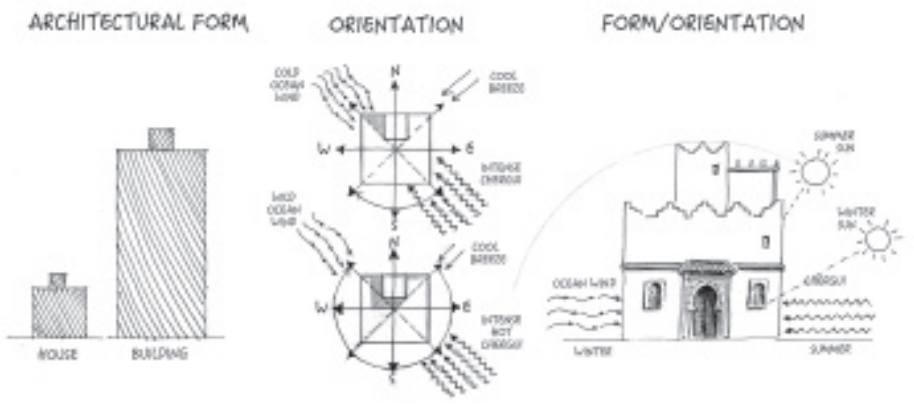
RIGHT
Mount Rum, Wadi Rum, Jordan
An encounter between rocky and semi-Saharan landscapes forms an original natural setting for the settlements of Jordan. Wadi Rum is a World Heritage Site.

RIGHT
The Moroccan Sahara
The Sahara desert is a typical landscape of the Middle East.

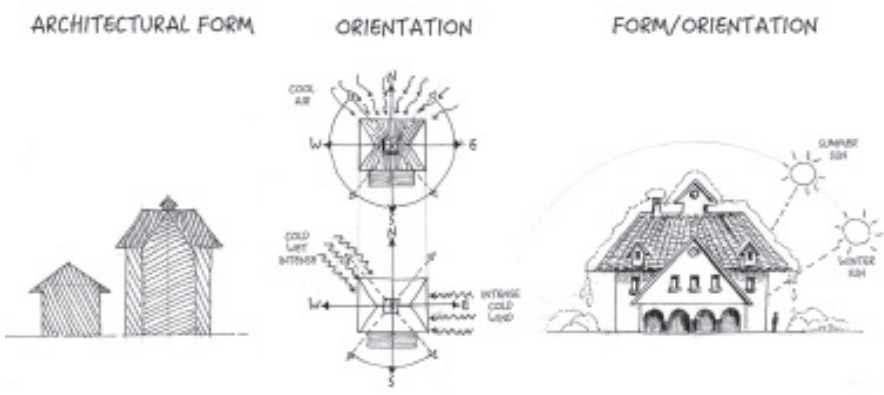
Climate

Climate follows topography and changes radically in some areas of the Middle East. Within the same season, it is possible to find snowy places and desert-like milieus not far from each other within the same zone. This contrast is common particularly in Iran and Morocco.

Architectural design ought to consider this sharp and sudden contrast that can occur in the same region within the same country. It is usually reflected by roofing techniques that range from flat to pitched roofs in order to deal with snow and heavy rainfall. With new building techniques and mechanical air-conditioning systems, forms that respect climate are under threat, and buildings are being pushed towards being more artificial rather than passive and self-reliant. In his article 'Junkspace' – a criticism of contemporary architectural and urban fabric – architect Rem Koolhaas states: 'Air-conditioning has launched the endless building. […] Air-conditioning has dictated mutant regimes of organization […] that leave architecture behind' (Koolhaas 2002, p 176).



LEFT
Roofing techniques: house in Tangier, Morocco
The drawings show how the building's cubic or parallelepiped shape and orientation deal with the Mediterranean climate in the northern region of Morocco, which is characterised by a mild winter and a hot dry summer.

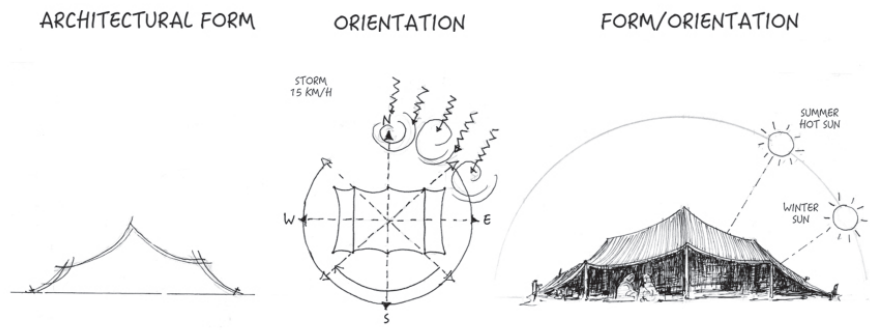


LEFT
Roofing techniques: house in Ifrane, Morocco
In a snowy and harsh winter with permanent frost and stormy summer, the pitched roof is the ideal shape.

RIGHT

Roofing techniques: tent in the southern Sahara, Morocco

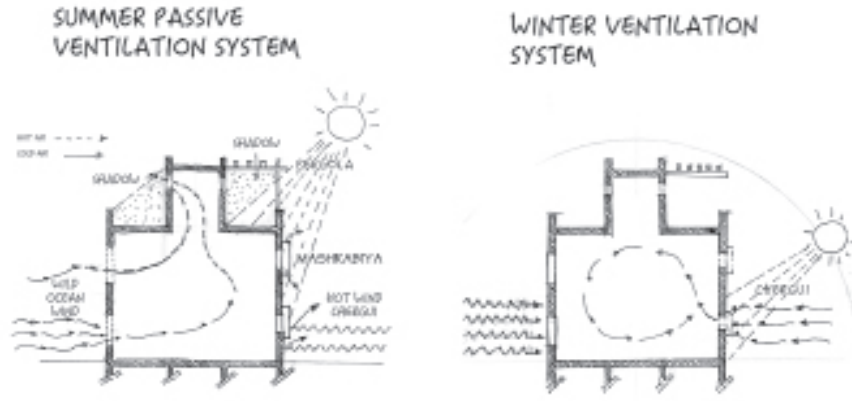
The taut roof of a tent is the perfect solution to withstand Saharan sandstorms. Using a cubic volumetric form causes serious problems when facing the climatic conditions in the Middle East, especially in the Gulf area.



RIGHT

Dealing with climate: house in Tangier, Morocco

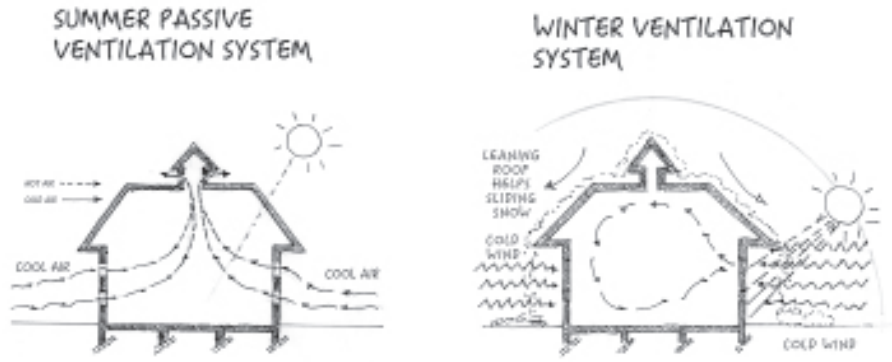
A mashrabiya, a pergola, window position and building orientation are used to manage the cool and hot air in a house during the winter and summer respectively.

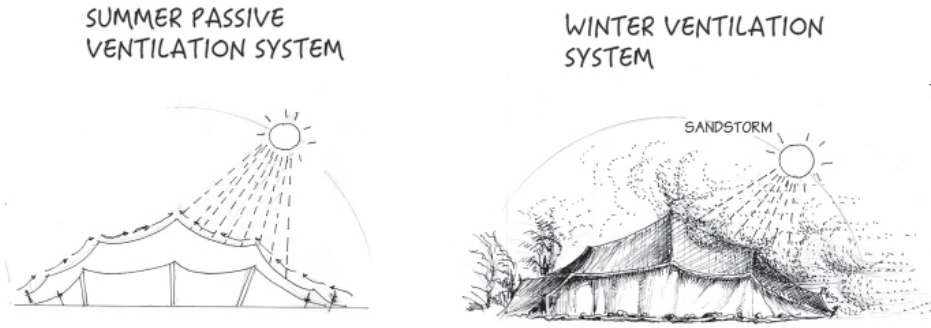


RIGHT

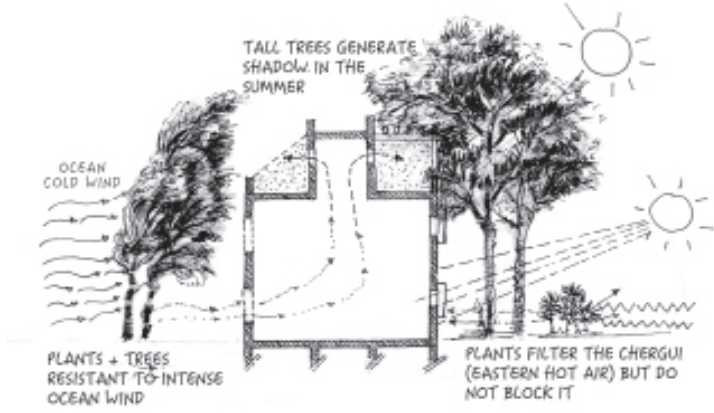
Dealing with climate: house in Ifrane, Morocco

A pitched roof, window positioning and a chimney are used to manage the cold air in a snowy region.

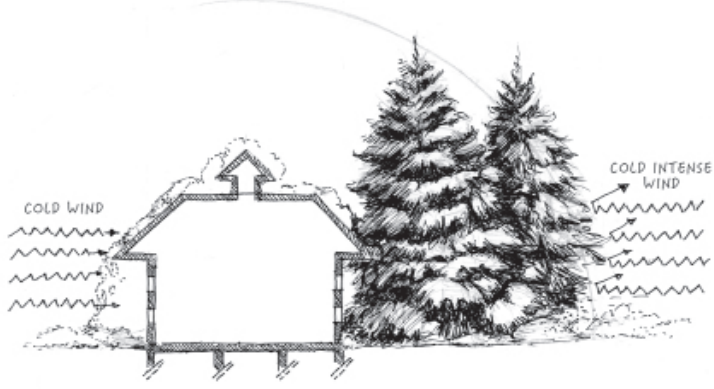




LEFT
Dealing with climate: tent in the southern Sahara, Morocco
The taut roof of a tent allows dry winds and strong sandstorms to flow across its surfaces in harsh Saharan climatic conditions.



LEFT
Environmental solutions in Mediterranean climatic conditions, Tangier, Morocco
Tall trees are used on the south side of the building to create a shaded area and allow the winter sun to reach the interior of the house. Lower-growing plants filter the sandy Chergui (hot east wind).

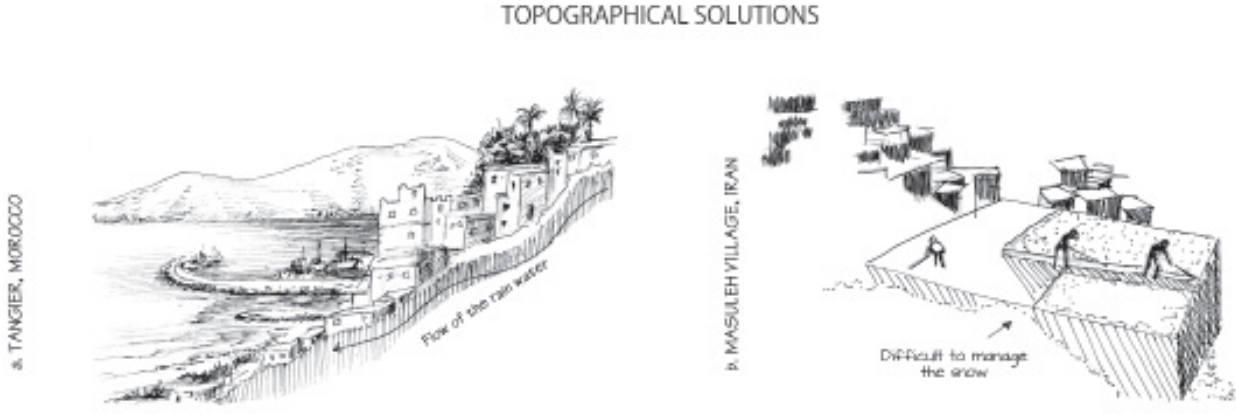


LEFT
Environmental solutions in snowy conditions, Ifrane, Morocco
Local trees such as cedar are used for their resistance to strong winds and the weight of snow, and their tolerance of humid and shady atmospheres.

RIGHT

Environmental solutions in Saharan conditions, Morocco

When nomads pitch their tent next to an oasis, they open it towards the west, facing the water source, for the winds to blow through it. The surrounding palms provide shaded areas that help cool the environment.

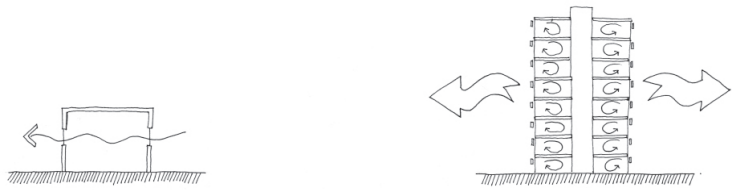


ABOVE

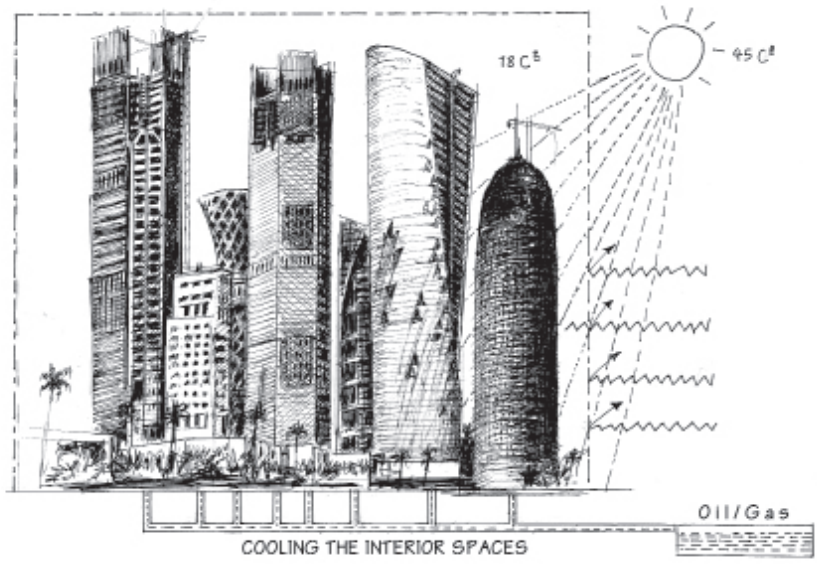
Topographical solutions in Tangier, Morocco, and in Masuleh village, Gilan province, Iran

In Tangier, the topography is an asset to a rainy city, ensuring the smooth flow of rainwater and decreasing the risk of flooding. However, in the Iranian village of Masuleh, which is subject to heavy snow, the roof-courtyards (roof for the building below, courtyard for that above) are flat, and inhabitants suffer from their continuous maintenance and also from the cold layer that persists during the snowy period.

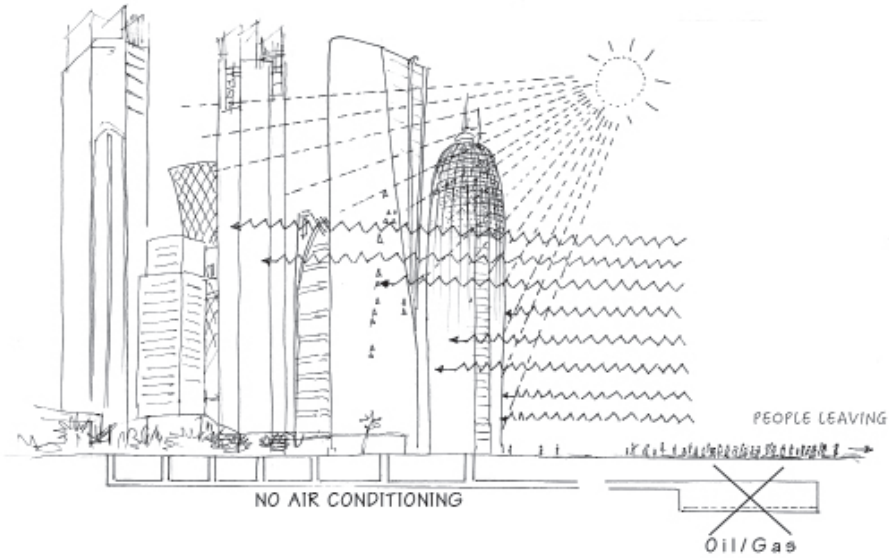
The new smart designs and increasing calls for sustainability advocate more diligence in coping with natural phenomena in order to shape climate-friendly buildings. Contemporary iconic architecture in the Gulf is consequently highly criticised on this front. This architecture, which looks as though it has been parachuted in, even presents a threat to flora and fauna, and it runs the risk of being abandoned once the oil reserves in this region have been fully depleted because it relies entirely on mechanical systems and artificial-breathing-air atmospheres. The climate is therefore not respected, and architecture thus contributes to amplifying heat, which needs to be cooled down through highly energy-consuming mechanical systems. It is time to start rethinking architectural design in these oil-rich zones so as to project hybrid or fully passive architecture that would reduce the region's energy consumption – the highest per capita on earth.



LEFT
Passive energy versus mechanical air-conditioning
The diagram shows how air flows naturally through a passive or hybrid building (left), while a building with mechanical air-conditioning systems (right) has a high level of energy consumption.



LEFT
Oil-reliant architecture
Many current architectural designs are fully reliant on artificial oil-energy, especially in the Gulf region.

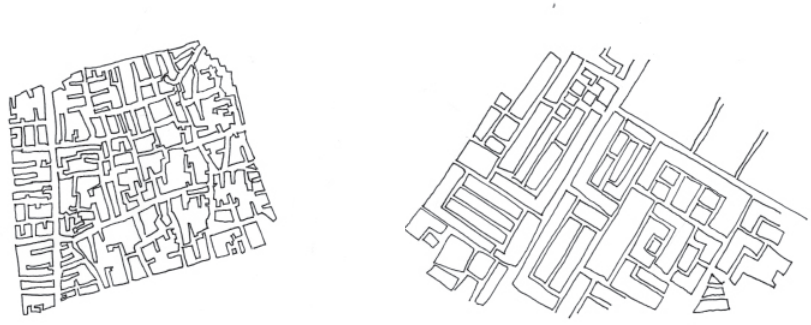


LEFTI
Oil-reliant architecture during a power cut
If a power cut occurs, the population must flee the buildings, as they are fully reliant on mechanical systems.

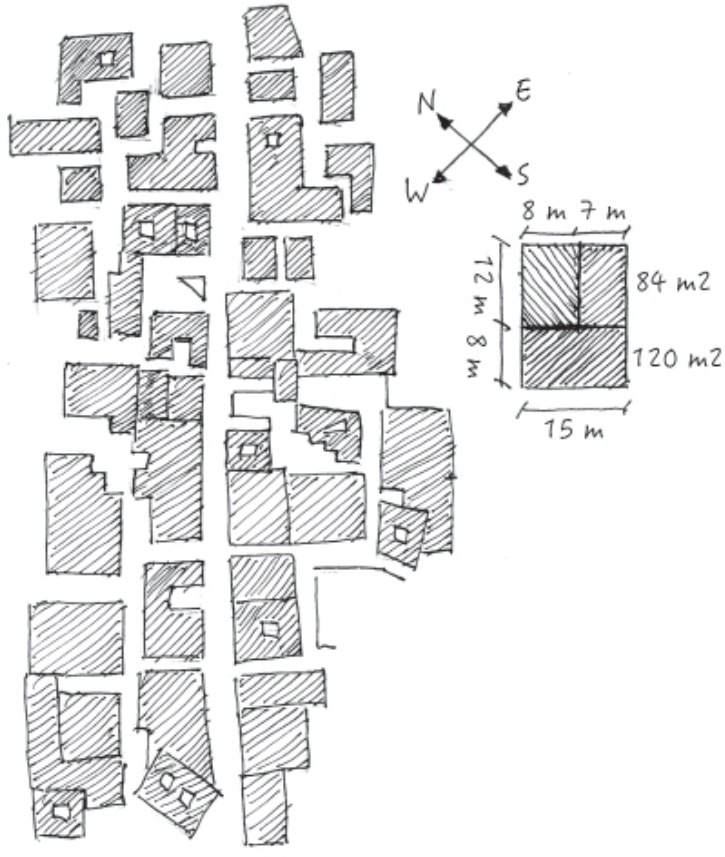
Shape and Size

The shape and size of sites in the Middle East changes according to different conditions such as urban or suburban, rural or mountainous settings. These may seem the same as anywhere else in the world, but it is important to consider the nature of Middle Eastern cities, whether they are modern or historical. Despite the contemporary distribution of land following modern masterplanning practice, it is striking to observe that the way in which land is subdivided into plots does not

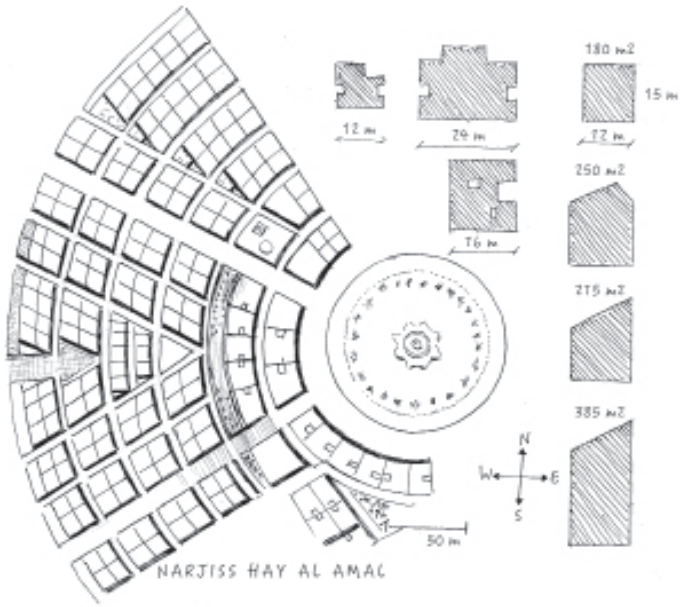
RIGHT
Traditional irregular plots versus modern masterplanning
The plan of the medina of Rabat, Morocco (left) shows irregular shapes and infinite variety in plot sizes, contrasting with the distribution of Dubai (right) following modern masterplanning.



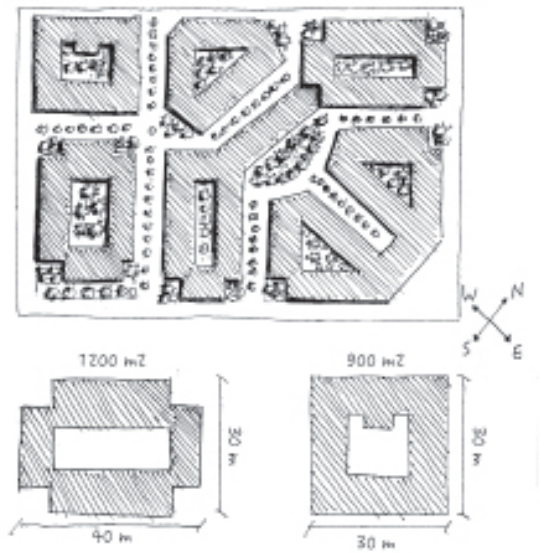
RIGHT
Medina, Qasbah of Algiers, Sidi Driss Hamidouch, Algeria
Irregular plot shapes in medinas are small in size, not exceeding 120 square metres (1,300 square feet) per unit.



often pursue the same rational urban block pattern as in European and American cities. It is still heavily linked to inheritance and communal land subdivision rules, and there is resistance to planning as a rational process to structure the overall city. Consequently, there are extremely irregular shapes and infinite sizes of plots due chiefly to complex topography, diverse landownership and fragmented urban zoning.

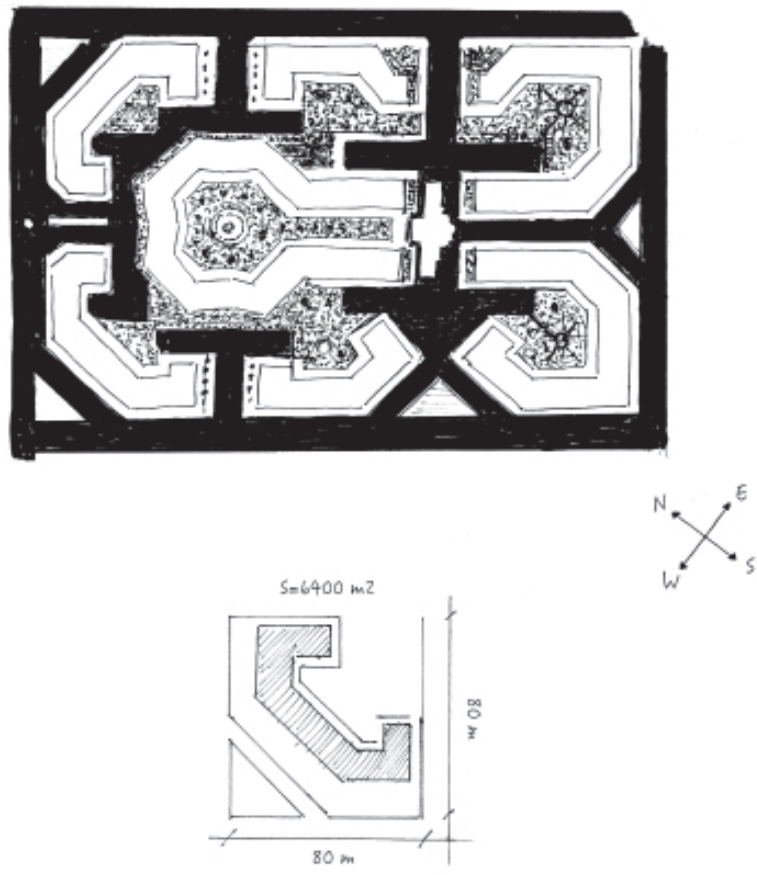


LEFT
Post-colonial urban planning, Narjiss Hay Al Amal, Fez, Morocco
Post-colonial patterns echoed colonial ones, with dictated regular plot shapes larger than those in the medina, at around 180 to 400 square metres (1,900 to 4,300 square feet) per unit.

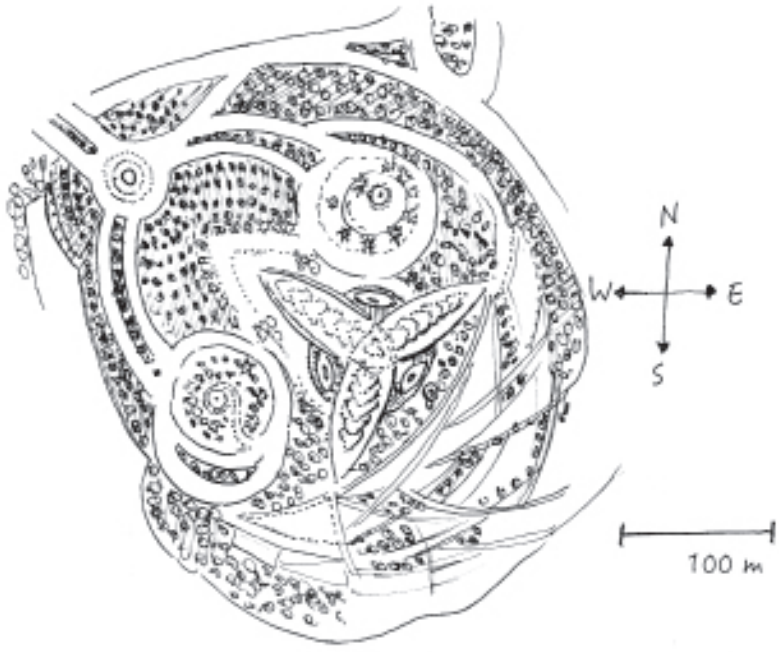


LEFT
The garden city concept at Ain Zaghouan, North Tunis, Tunisia
The garden city is a concept theorised by British urban planner Ebenezer Howard in 1898. The urban layout following this concept requires large plots of around 1,200 to 2,000 square metres (12,900 to 21,500 square feet) per unit. It encompasses parks and large green spaces.

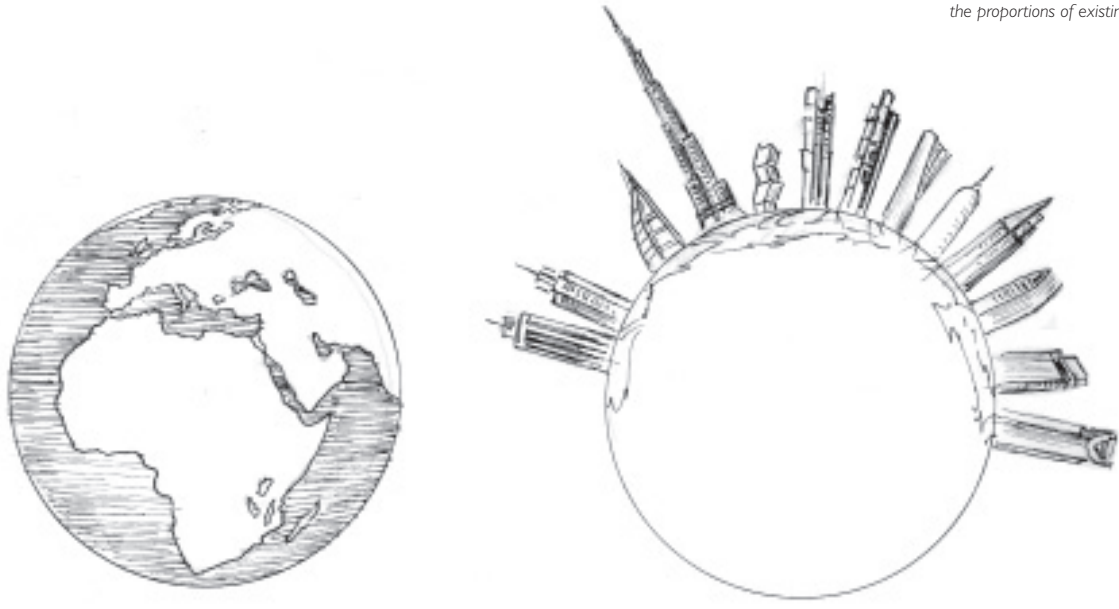
RIGHT
Modernist planning at Al Massira district, Rabat, Morocco
The planning of the Al Massira district follows the principles of Le Corbusier's 1943 'Athens Charter'. High-rise buildings are organised into separate zones according to four 'functions': life, work, recreation and transportation. The plot sizes were around 6,000 to 10,000 square metres (65,000 to 110,000 square feet) per unit.



However, there is a move in architecture towards fully new megaprojects, initiated by the Dubai model and now spreading all over the Middle East. This proves that few people own land, and this land hegemony threatens those places in the region that have an identity and communal building tradition. This new wave of mega-architecture creates its own planet regardless of its milieu. The shape and size of these projects is fully dictated by a new trend of designs related to isolated 'theme parks' that do not necessarily seek any integration in the city's urban fabric. On the other hand, in most of the region's cities, urban infill is still important, as land speculation always creates gaps within urban territories with unexploited plots. Meanwhile, in suburban and rural areas, architectural projects are still not controlled by urban regulations, so designers enjoy total freedom to explore their concepts fully with their clients, with access to non-urbanised terrains. This can be an opportunity but also a threat for ecological reserves in some countries if it is not managed well.



LEFT
Sketch of part of the masterplan by Skidmore, Owings & Merrill (with Hyder Consulting) for the Burj Khalifa megaproject, Dubai, United Arab Emirates, 2010
The megaproject is a new concept that brings the land occupied by an architectural project up to an average size of around 310,000 square metres (3.3 million square feet).



BELOW
The new wave of mega-architecture
Mega-architecture creates its own planet, regardless of its milieu and of the proportions of existing cities.

Utilities

The utilities of the site are crucial for projecting a design plan as far as the level of urban or rural development is concerned. Even in the richest countries such as Qatar, the capital Doha has no comprehensive sewer system, for instance, and some skyscrapers offload liquid waste directly into the sea, while large urban areas are still relying on septic tanks. During and after rainy periods, most Gulf cities suffer from overwhelming floods and traffic jams due to the absence of drainage systems in roads. The current iconic architectural designs cannot be integrated into the site if the urban setting is not developed in terms of planning of utilities, which proves that they are parachuted into the middle of nowhere. Hence the importance of considering all required utilities for a site, including accessibility.

Indeed, accessibility is a major issue: the unreliability of the road network means that future projects cannot be set in an ideal vehicular and pedestrian circulation structure relevant to the locality. In addition to circulation, connection to the energy network is an issue in most developing and non-oil-endowed countries of the region. It is crucial, then, to include measures to connect the site to all utilities that are conducive to better design, especially in urban areas; otherwise, alternative energy and sewer solutions will have to be considered within the design process.

BELOW
A street in Sharjah, United Arab Emirates
The infrastructure of the UAE's third-largest city is not planned proportionally to support urban development, and roads are set without sufficient drainage measures.

ABOVE
Vladimir Djurovic Landscape Architecture, Samir Kassir Square, Beirut, Lebanon, 2004
A contemporary water-focused design that perpetuates water's symbolic meaning in a Middle Eastern city while cooling a shaded public space with biological elements. The project received the Aga Khan Award for Architecture in 2007.

Hydrology

Though hydrology can be included in utilities, it is essential to present its challenges in designing, especially in a hot region like the Middle East which largely comprises arid or semi-arid zones. Natural water scarcity in this region with high population density, particularly in urbanised areas, creates a major obstacle to design projects. Water planning and management within site design is therefore imperative so as to erect a building that is environmentally friendly while optimising the use of water. However, scarcity of water in Saharan territories has been the origin of some creative architectural conceptions. For example, the traditional use of the courtyard in buildings throughout the region as an internal miniature oasis contributed significantly to cooling air within an insulated, introverted architectural envelope. Hydrology played and still accordingly plays a major role in shaping site typologies and architectural forms such as mashrabiyat (plural of mashrabiya – an oriel window with pierced screen that is typical of Islamic/Arab architecture), pools, fountains, gardens and aqueducts. In contemporary designs, hydrology, if explored with new passive techniques, can increase the preservation of water resources and infuse innovative design possibilities around aquatic features that are crucial in a hot environment.

LEFT
Bu-Inaniya madrasa, Fez, Morocco, 14th century: central fountain in courtyard
An example of the centrality of water that serves users' spiritual and environmental needs. This centrality orients the design of the whole building.

Landscape and Vistas

Across the Middle East, and even within the same country, the landscape changes considerably. However, the most common scenes in the region are the juxtaposed mountainous and Saharan sites located mainly around the Mediterranean belt. In terms of the influence of this landscape on universal architecture, Mediterranean sloping villages with simple white cubic architecture espousing the topography ignited the imagination of the founders of modernism. Le Corbusier, Aldo van Eyck, Álvaro Siza and others continuously emulated the simplicity of North African architecture that organically stems out of its site, as in the case of qasbahs (citadels). Thus, the design process in such a rich landscape with multifaceted vistas and textures dictates its own artistic natural traits that cannot be ignored by a designer unless there is a clear decision to import a complete project without consideration for this dimension. Landscape treatment differs nonetheless from an urban to a rural context, as well as from one climatic or geographical region to another.

ABOVE
Qasbah of Tangier, Morocco
Authentic Mediterranean villages and towns have inspired many architects such as Le Corbusier, Aldo van Eyck and Álvaro Siza.

BELOW
Landscape of the city of Tangier, Morocco
The qasbah of Tangier is on the right-hand side and the contemporary urban extension on the left, with a human-scale skyline. Any new design should consider incorporating this aesthetic and urban continuum.

Social and Communal Layer

The most important layer in a site's typology is the social and communal layer. This is often not fully considered by designers, either because of neglect or because it is overridden by other demands that limit the exploration of the project's site. Each site, be it virgin or previously used, has a memory of use. Therefore, there is always a pattern of social use that can be tangible or intangible. The tangible part has material evidence that varies from a simple pathway to a complex settlement. The intangible is often found in the narrative and myths generated by users over time – what philosopher Paul Ricoeur has described as 'mythical and ethical' and the 'creative nucleus of great cultures' (Ricoeur 1961, p 267). It is essential to establish a dialogue with the project's site in order to reveal its patterns of use, so that these can later adequately inform the course that the design takes.

RIGHT
Ain Al Barda hamlet, Ghafsai, Taounate province, Morocco
A settlement established in a mountainous setting around 1900 that shows the human and social memory of a site. It is a simple arrangement of existing elements of a locality that proves that it has traces of use as an intrinsic condition.

ABOVE
Urbanised banks of the Nile river, Cairo, Egypt
The high density and significant social dimension of the urban site cannot be ignored when designing new projects. The new tall buildings impede the human scale of the city, which is focused around the river as its source of resilience in a hot and dry climate.

With fast urbanisation and modern planning, these human traces on the site are overwhelmingly expunged. Although modern cities have generated an urban order of their own which is confined within a specific territory regardless of local memory, the social aspect of a site remains nonetheless resilient to any rapid change, and it belongs to a larger communal and territorial framework. This is proven currently with the decline of social and communal cohesion that has dire consequences on the quality of the built environment. Besides the vindication of creativity and the aesthetic exercise, designers ought to consider the human factor as an intrinsic component – not solely as a mere functional programme, but as a rooted human experience found or generated by the site of the project.

Nevertheless, unravelling this social and communal layer of a site is quite an intricate process; in fact, it is not always easy to choose what to consider and what to discard in order to engender an inherent experience around a project. How much a site is imbued with social practices and how much it is populated determine the level of intervention of a new project if the context is to be considered.

There are three categories of sites measured by their occupancy rate. The first is fully vacant and has only a social memory as part of a rural or urban territory. The second is semi-urban with low population density and has traceable existing social uses. The third is urban with medium or high population density where social use can be a significant element in the design process of a new project. Accordingly, the communal factor remains concomitant to social and spatial cohesion generated by a series of existing settings or projects to form an architectural or urban ensemble with a communal quintessence.

How a new project should explore the site's social and communal potential depends on the nature of the programme of this project. If it has a more social scope, such as having a residential function, the architect ought to consider this factor consciously in order to enhance – partially or fully – the social quality of the site. A new project can also resolve the increasing spatial fragmentation of sites by coming out with a creative social and communal design.

ABOVE
Village of Misfat Al Abriyin, Jebel Akhdar, Sultanate of Oman
An example of a historical village integrating every rock, stream, tree and slope to form a single fabric that stems from its environment and is part of it.

Environmental Layer

The environmental layer is indeed comprehensive if the concept of environment is considered holistically. Seeking this level of environment, the site of a project can offer a whole dynamic living metabolism. If thoroughly elaborated, key elements of climate, energy, daylighting, air and vegetation become an integral part of a design process and subsequently further nurture the existing ecosystem. The new project with its sustainable design thus enhances the potential of the site instead of imposing an abstract machinist design on it. There is no doubt that the human spirit can perform wonders on its own, but when it works in tandem with nature it becomes an integral part of a whole cosmological equilibrium.

Since the advent of industrialisation in the Middle East, as in many other regions of the world, the environmental opportunities of the site have been superseded by hasty design solutions based on mechanical systems that create their own artificial environment. Although some environmental aspects have been covered to a certain extent by previous points of site typologies above, focusing on environmental opportunities per se is highly important here as far as site design is concerned before embarking upon a project design.

Site environmental design encompasses, among other components: ecological adaptation; building footprint and disposition; energy consumption; landscape integration; land size and territoriality; fauna and flora conservation; and topographical and geological hazards and risks. Considering the diversity of the environment in the Middle East, it is advisable to look at each territory with a specific lens in order not to generalise the elements of environment and ecology.

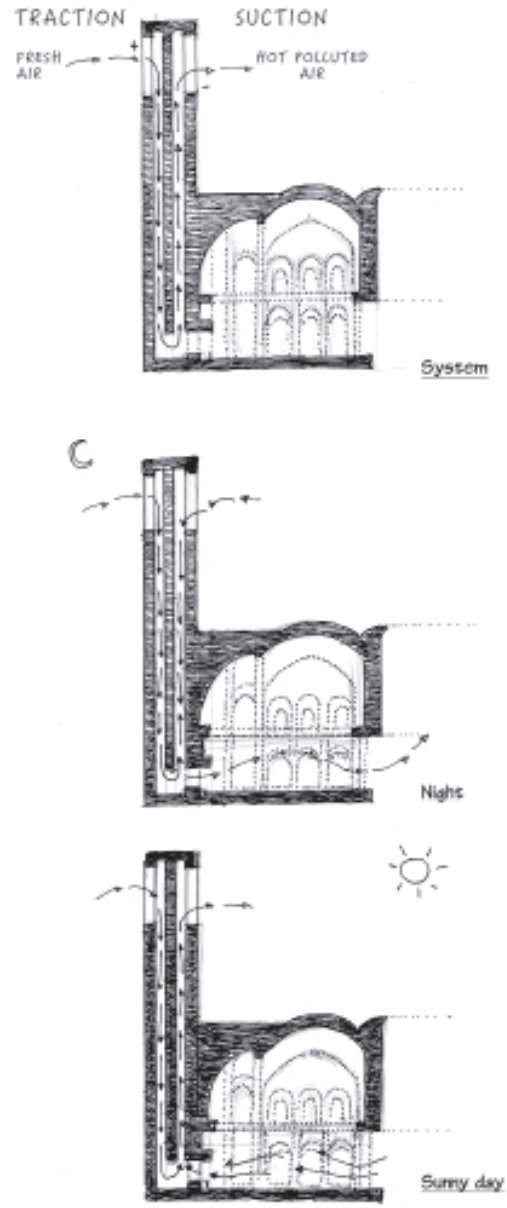
Consequent to the framework of construction and land regulations of a given site, the environmental design of a project goes beyond its mere piecemeal contours. Therefore, a project when it pursues partially or fully an environmentally friendly design can be a generator of good practice, either in a rural or an urban locality, and may henceforth drive a continuous synergy to foster embedded environmental potentials via other projects alongside it. The challenge is, nevertheless, how to explore environmental design in all steps – from the schematic conceptual phase, through the elaboration of design and execution documents, to the implementation on the ground.

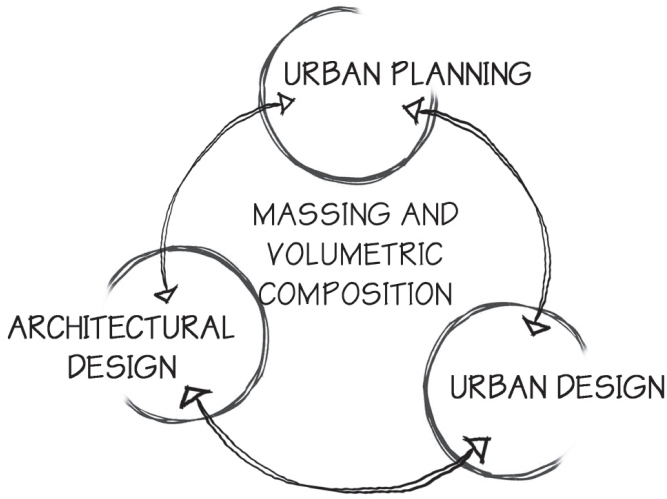
The designer's talent is required throughout this process, to negotiate resourcefully and set a dialogue between the environmental design of the site and the programme of the new project. This is in order to inform the design process so as to integrate for example solar, wind and precipitation patterns of the natural setting. These can be explored when investigating the links between the building and the site, between the site and its immediate setting, and between the site and its regional environmental and ecological microcosm. In this regard, the Middle East region is ideal for exploring the environmental design of sites, since temperatures usually range from mild to hot, allowing open-air activity throughout the year, which is not the case with freezing and rainfall regions. Passive design solutions are hence possible if the architect informs the design with the use of local environmental opportunities of the site.

BELOW
Elie Mouyal, residential villa, Oualidia, Morocco, 2014
This house by Marrakesh-based architect Elie Mouyal is an example of environmental design that explores architecture as a vehicle of integration through local materials and the composition of volumes.

The country of the Middle East with the most sophisticated environmental design is Iran. Both past and contemporary architects have excelled in integrating environmental solutions, mainly seeking thermal comfort through architectural forms. The badgir (wind-catcher or wind tower; also known as a barjeel) is a prime example of this, drawing wind in from the north to reservoirs and ponds built inside the building, because of the pressure created on the other south side, where the hot wind easily escapes the building.

RIGHT
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857: sections of badgir (wind-catcher)
The badgir (wind-catcher or wind tower) is an integrated environmental solution that offers thermal comfort through architectural forms and articulation of spaces. Two systems are at work in it: the first is based on traction and suction; the second on the temperature difference between day and night.

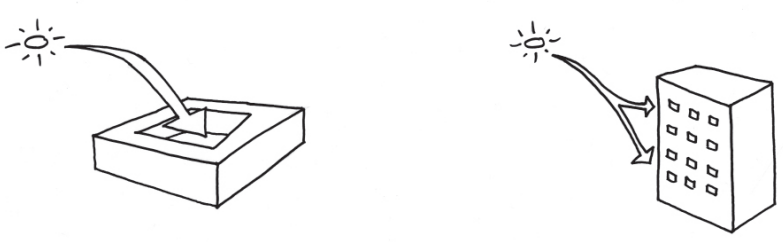




LEFT
Perspectives for massing and volumetric composition
Planners and architects should find a balance between urban planning, urban design and architectural design.

Architectural production throughout the Middle East is intertwined with its site typologies, as well as with the arid and semi-arid climate that has inevitably influenced the configuration of the whole existing built environment. A tradition of composing settlements over centuries by adapting buildings and their massing to harsh environmental conditions and a resilient cultural milieu cannot be ignored all of a sudden by less than a century of imported contemporary form, which is generated mainly by standardised building materials and high-energy-consuming mechanical systems.

The vast geographical areas of the Middle East have a large population, the majority of which has limited financial means and cannot afford to create fully-air-conditioned indoor spaces. The massing and composition of architectural ensembles accordingly remain problematic in terms of how to offer a minimum natural comfort without resorting to high-cost energy affordable only to the very few. Moreover, despite the fact that architects have been constrained by newly



LEFT
Introverted versus extrovert massing
Recent architecture and urbanism in the Middle East have seen a transformation from introverted massing, due to climate, to extrovert massing, imported without consideration of the local context.

devised urban regulations dictated by the modern planning process which have limited the creativeness of designs, there are always niches of exploring massing techniques which may be more efficient and at the same time aesthetically pleasing.

Throughout its history, Middle Eastern architecture has been largely introverted, and massing techniques have played a major role in preserving a core within a physical envelope. Instead of pursuing the search for an extrovert facade as in Western architecture, which throughout its history has presented a rich portfolio of facade styles and compositions, Middle Eastern architecture, due to the climate, has often sought to generate an environmental core around which volumes are composed in such a way as to frame an internal living microcosm.

Although this traditional model of architecture in this region has been substituted by a modern extrovert system of urban blocks, streets, facades and subdivided plots following a pre-planned urban fabric, the Middle Eastern household is still keen on its privacy whilst living in a modern city. Massing and volumetric composition are therefore essential for preserving a lifestyle while conforming to the modern urban layout that spawns an architecture with a facade. However, this is a true challenge, and when visiting different cities in the region it can be shocking to discover how architecture has never reached a visual and aesthetic balance: users still focus on the interior, and in some places there is a sheer neglect of facades.

In this regard, architects intervening in the region ought to act as mediators between designing for introverted families that glorify an internal space and the modern look of cities that seek to be global. In Saudi Arabia, the region's most conservative country in terms of heritage, this clash is very visible as oil money affords all technical means for global designs while its society is still very keen on living in absolute privacy. Thus, the external/internal dichotomy cannot be disregarded as far as massing is concerned, especially in urban settings.

This is not a blanket rule, as several countries in the Middle East are more open than others to modern change; but it is advisable for designers to consider this fact whenever they embark upon a project, particularly a residential one. For example, in the past, urban extension was horizontal and individual houses within a defined neighbourhood had a certain autonomy within their own boundary; while, at present, urban extension is vertical and it can even be said that neighbourhoods have become vertical, with apartments sharing a vertically dense space. This poses a tremendous challenge for designers to provide decent family spaces within a compact high-rise, but at the same time to be careful not to freeze the internal spatial organisation for these families, instead allowing them to adopt and adapt the new apartment typology in their own way.

It is true that plot areas have shrunk significantly compared to the way buildings were conceived in the past; but planners and architects ought nonetheless to find a balance between urban planning, urban design and architectural design so as to provide an integrated approach to how communities can endure despite the compactness of the urban fabric.

LEFT

Kenzo Tange Associates, King Faisal Foundation headquarters, Riyadh, Saudi Arabia, 1984

The contemporary vertical concrete massing of this building emulates the traditional introverted system in order to protect the interior as well as generate an aesthetic impression of the local architecture but at a different scale.

ABOVE
Horizontal versus vertical urban extension
There has been a transition from (left) horizontal urban extension within defined neighbourhoods to (right) vertical urban extension that challenges designers to provide the same quality of living and human scale as previously known.

Another challenge of massing is the introduction of monumental and iconic architecture that is so alien to the Middle Eastern skyline. In some cities, this creates a truly shocking contrast between modest historical horizontal skylines and imported machine-made iconic high-rise buildings that stray vastly from the ordinary existing visual and human scale. Since there was a time lapse between industrialisation as known in Europe and that of the Middle East region, which lagged far behind for almost a century, the sudden importation of the latest global engineering and technological advances has engendered a play of architectural massing for the sake of an awe effect.

The case of Dubai is quintessential in this regard, as many other Middle Eastern cities aspire to copy its model which portrays an attempt to compete with advanced cities such as New York, Paris and London for the sake of being global within an extremely short period of time. Accordingly, massing and volumetric composition of buildings no longer respect the skyline of an organically growing urban fabric but tend to revolutionise how cities are composed. Iconic architecture that pursues an out-of-scale volumetric opus creates its own urban image, regardless of its urban and natural setting. The continuation of this trend may jeopardise communities' own intrinsic building massing, which has shifted to an out-of-scale massing for the sake of enjoyment.

This out-of-scale massing did not occur even within the colonial period when foreign architects were keen to keep the local context. The colonial agenda involved greater caution in dealing with skylines in new colonial towns. What Henri Prost – the French architect commissioned by Morocco's military governor, General Lyautey – projected for major cities in Morocco between 1913 and 1923 was more than innovative in terms of massing as far as urban scale vis-à-vis context is concerned. This careful urban scale was accompanied by an architecture that has been unique in bridging the gap between European and Eastern vocabularies. Conversely, the latest hasty iconic-modernist architects appear to have no respect for any context when it comes to composing architectural

masses that not only appear alien, but noticeably seek an international individual signature. Their creations may undoubtedly reveal high aesthetics of their own, but sprout out of most local urban volumetric frames to create more of a sense of temporal euphoria than a lasting communal one.

Architect Tadao Ando elucidates the way architectural composition ought to be as follows: 'When I design buildings, I think of the overall composition, much as the parts of a body would fit together. On top of that, I think about how people will approach the building and experience that space' (Ando 2002). The body massing of a building is therefore essential to put a targeted programme within a real physical shell that would not only have its own aesthetic but also enhance the human experience, which is the essence of any design process. Consequently, five major elements are to be closely considered as far as massing and volumetric composition in a Middle Eastern context are concerned: compactness, connectedness, transition, fragmentation and skyline.

ABOVE
Landscape in Dubai, United Arab Emirates, photographed in 2013
There is a remarkable contrast between the scale of the existing city and the imported architecture that creates its own urban awe.

ABOVE
Sketch of IM Pei's Museum of Islamic Art, Doha, Qatar, 2006
An exemplary contemporary design that encapsulates the compactness of a building in a medina through an intricate interplay of simple volumes. According to Pei, the concept was driven by the Ibn Tulun mosque in Cairo (879 CE).

Compactness

Compactness is a valuable criterion in architectural design in a Middle Eastern context because of its current fragmented urban settings that have not reached full maturity in terms of how urban blocks and subdivided plots are organised. A designer of an architectural project has to emphatically respect the contours of the plot of land concerned, which often poses major constraints due to its irregular layout, but also has to optimise the use of massing in order to culturally and environmentally respond to local users' needs. Compactness in contemporary design can provide, as in the traditional fabric, maximum interior spaces while creating an external communal pattern. The only contrast with the traditional is that the massing follows current street layout and requires the presence of a facade within a predetermined urban order. However, the volumetric disposition when optimised avoids wasted volumes, jeopardising the internal core. This optimisation is not for the sake of solely envisaging an aesthetic ensemble, but it is a continuous process of compositional experimentation to find equilibrium.

Hence, compactness is to be explored for both use and aesthetic balance between inside and outside spaces without falling into a sense of denseness and crowdedness. Inadequate architectural designs often provide an unbalanced use of massing which leads to a loose spatial organisation at the architectural and urban scale. Seeking to compact volumes in a positive sense would remedy the weak planning of scattered land subdivisions. There is a strong correlation between architectural massing and urban form in terms of hierarchal disposition that better fits the human scale through compacting spaces – without, of course, losing other qualities such as daylighting and ventilation, as well as the visual and functional balance of different applied building heights.

BELOW
Medina of Fez, Morocco, photographed in 2012
An example of compactness in a traditional urban fabric.

LEFT
Skidmore, Owings & Merrill, Burj Khalifa, Dubai, United Arab Emirates, 2010
An iconic architectural design that contrasts with its immediate urban context in terms of massing and height, though it creates its own sense of symbolism.

OPPOSITE
Dubai Marina, Dubai, United Arab Emirates, photographed in 2012
Dubai Marina consists of a high density of disconnected tall buildings without a proportionate ground-level communal space. Daylighting – a key element in the modernist pursuit of health and hygiene in apartments – is obstructed.

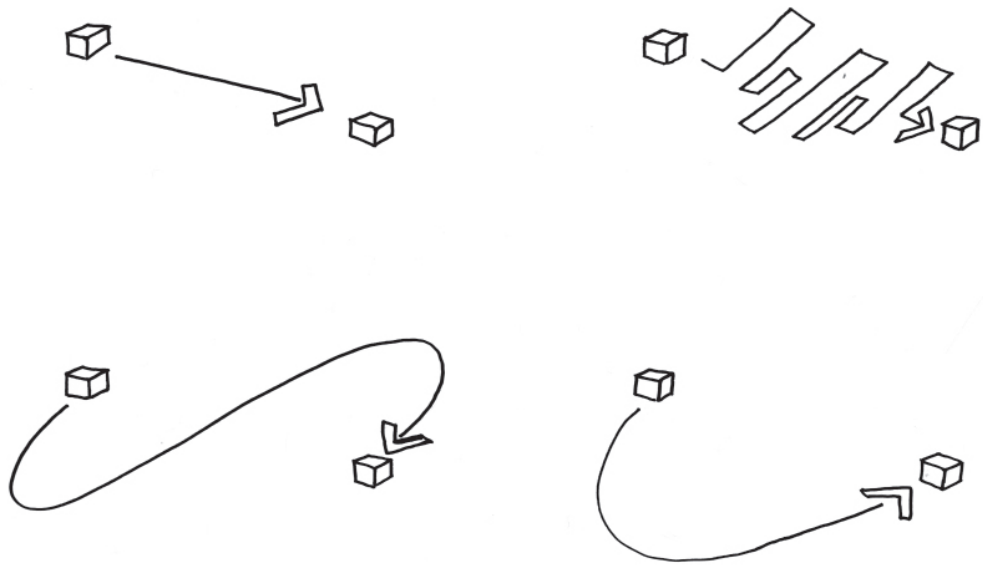
Connectedness

Connectedness consolidates the compactness of massing in order to generate useful spaces and functions. This design criterion is more relevant to projects that seek to provide a functional ensemble while observing the overall architectural or urban envelope. Either at the level of zoning, the urban block or plot areas, lack of connectedness can create leftover spaces which often result in unexplored corners that notably increase the disconnectedness of an architectural or urban function and form. The tendency to design an individual building in isolation from its immediate environs – though it may have its own consistency – engenders a disrupting volumetric play and a visual perplexity. The transition of Middle Eastern architecture from the introverted to the extrovert system has changed the functionality of how buildings work as a part in a whole, and this requires more focus on how buildings are connected visually and functionally. As already mentioned, in some cities of the Middle East, architectural projects seem to have been dropped from the sky, and no sense of connectedness is pursued either at the level of the building or at the level of its context, because of a sheer disregard for architectural cohesiveness in a contemporary urban setting.

Although connectedness in the design process can be a more cognitive exercise than mere considerations of the material to be assessed at the level of the building or its context, massing has its own language that can be read more freely when its forms are fully appropriated by users. Connectedness is accordingly implied rather than overt, and needs designers' talent to pursue it in an architectural conception while projecting its impact on the real life of the users. Therefore, connectedness involves emphasising the functionality of the building and group of buildings, but in the meantime can be applied in the visual sense to bring aesthetic harmony to the physical composition of the whole.

Transition

Transition as a means of design creates fluidity and motion in architectural compositions that encompass multifunctionality and volumetric diversity. In a context such as the Middle East, this function had never been enshrined within a specific space, as in modern spatial order where every space has a well-defined function or meaning. Be it at the level of a building or a group of buildings, transition from one space to another and the way the function is defined are more mental than material. The example of a house in this hot region is pertinent: the household makes different uses of spaces on its various floors according to the winter and summer seasons. This transitional dimension ought to be considered in this context. Consequently, volumetric composition should provide flexibility in order that users adopt and continuously adapt their spaces. Spatial articulation through massing transition is fundamental to how a design can generate intrinsic architectural forms associated with human use patterns specific to the region. This is relevant both to individual buildings and to the transition from one to another so as to reach an integrative massing resolution for the whole architectural or urban ensemble.



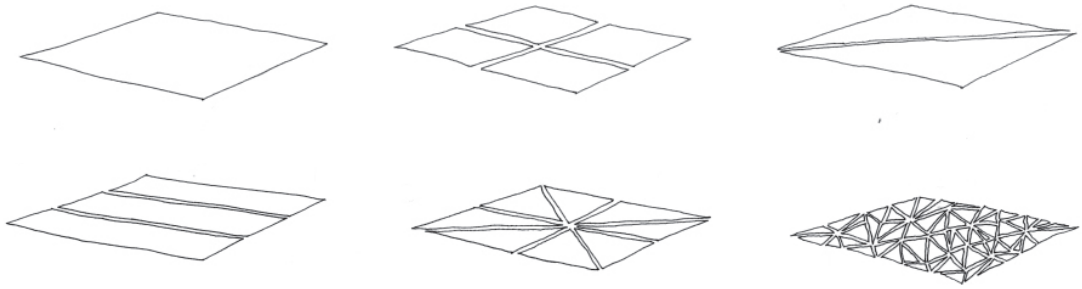
ABOVE
Different forms of transition between buildings or spaces in order to reach an integrative massing resolution
Transition forms include: (upper left) a direct link without obstacles; (upper right) a geometrical resolution in either existing fabric or a projected functional programme; (lower left) an S-curve resolution for either topographical form or negotiated spatial configuration; and (lower right) a C-curve as a projected form or as the result of an existing massing arrangement.

Beyond the mere preset massing assemblage that stems out of a metaphorical abstract design, and when massing is tailored to engender a meaning, transition as a medium to set a dialogue between form and its content becomes quintessential. This exercise of transition in a functional and spatial configuration is more complex when cultural meaning is sought rather than an ephemeral fashion act to produce an architecture of amusement.

Fragmentation

Despite carrying negative connotations of dispersion and disunity, fragmentation carries elements of creativity when a design is monotonous or presents too much compactness. It can also prompt a visual contrast most needed to enrich the aesthetic level of a volumetric configuration. In the Middle Eastern context, where architectural and urban spaces are already fragmented, fragmentation can be explored to reorganise the existing or integrate the new without a major aesthetic clash. It is a kind of deconstructivism, but not in the way it is applied by icon-architects (dubbed 'starchitects') to produce fantasy. It is rather to decongest massing in order to foster richer design or to encompass complex spaces. It is exactly like nature when it displays exoteric fragmented parts in order to have an esoteric holistic order. Accordingly, fragmentation in architectural design provides a multitude of resolutions when designing takes place in a complex context such as the Middle East, where order is a strange matter amidst a more mental construct led more by intuition than by the straightforward meaning of architecture.

OPPOSITE
Preston Scott Cohen, Tel Aviv Museum of Art, Tel Aviv, Israel, 2011
An example of a contextual design that explores fragmentation as a tool for adaptation. The building features a play of fragments that give a rocky impression, with multifaceted surfaces revolutionising the conventional nature of an architectural facade.



ABOVE

Fragmentation of a compact design to enrich the aesthetic level of a volumetric configuration

Fragmentation in design provides a myriad of resolutions to enhance the integration of antagonistic architectural entities, especially in Middle Eastern cities where sometimes a sense of disorder prevails.

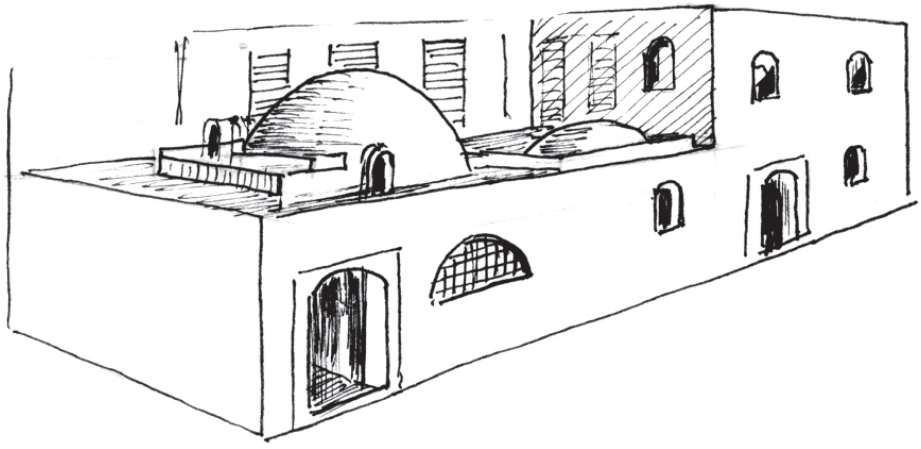
Skyline

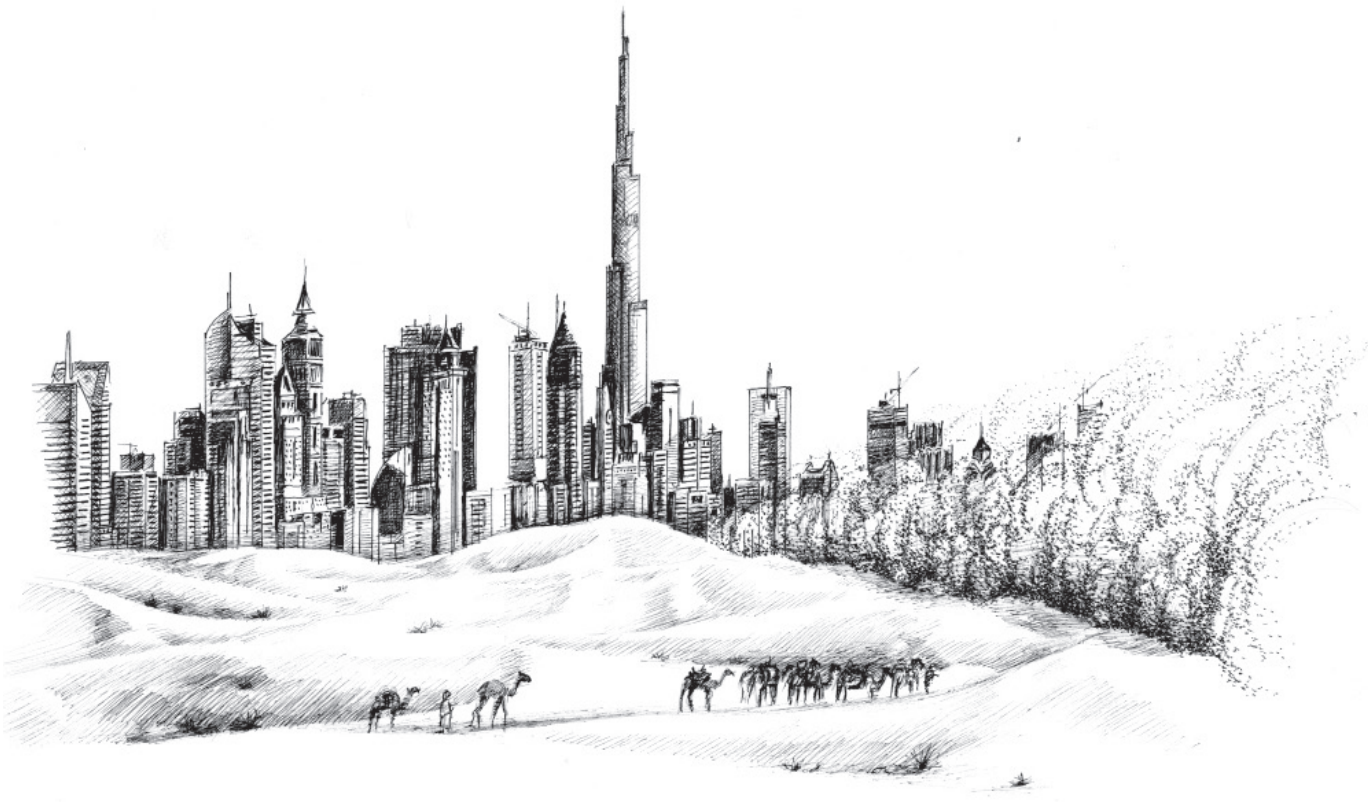
Skyline is certainly a major design issue in the Middle East. The skyline of the colonial town shook the human-scale medina that espouses verbatim topography. Currently, beyond the colonial town or medina, the height of the contemporary city has shifted to a more shocking skyline. With a new imported architecture that was born elsewhere, such as in New York, skyscrapers are now common features of Middle Eastern cities, particularly in the Gulf region.

However, the challenge to designers is how to project such extreme vertical structures in the middle of nowhere. When it ascends in the skyline of New York or Chicago, a skyscraper makes sense as far as the American city has gradually evolved since 1900. Conversely when architects are encouraged to use skyline to try out challenging approaches to erect the tallest buildings possible, the matter becomes more delicate as far as local community needs are concerned. It is therefore no wonder that Dubai is now facing a continuous contradiction between isolated high-rise buildings and the lack of an urban structure with a communal spirit.

Thus, the notion of skyline needs to be revisited before it is too late in a region that is considered the most densely populated, and where cities like Cairo have struggled to enable their inhabitants to dwell in decent housing since architect Hassan Fathy's dream of building lodgings for the poor (notably demonstrated by his model community project at New Gourna near Luxor, built between 1946 and 1952, which inspired his 1973 book *Architecture for the Poor*).

BELOW
Sketch of a building in Hassan Fathy's New Gourna village, Egypt, 1952
An example of a building typology drawn by Fathy within his comprehensive masterplan to revive the sense of community in the village of New Gourna.

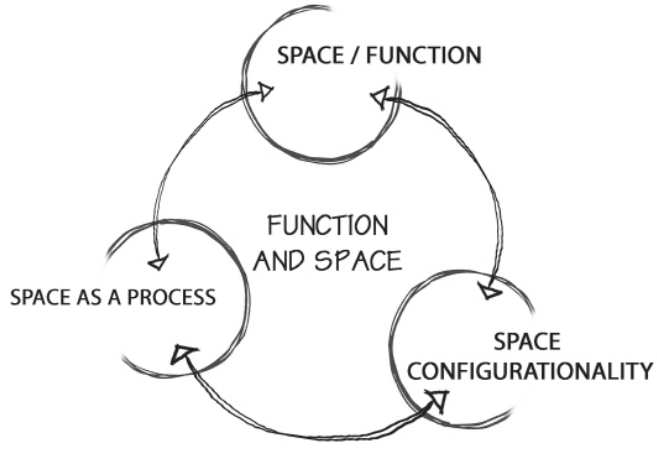




ABOVE
The skyline of Dubai, United Arab Emirates
Dubai's skyline shows the contrast between the void of the Sahara with its sweeping sandstorms and a modern megalopolis making its own cosmos.

Nevertheless, what should be stressed is that the purpose here is not to advocate a resistance to progress and modernity, but to explore skyline and massing to preserve a certain sense of belonging that is essential for local communities. In fact, although they seem senseless, high skylines in the middle of the Arabian desert are popping up in giant Saharan voids, where there is no significant tangible urban memory. On the other hand, in places like Morocco, Tunisia, Turkey, Iran and Iraq, skylines of buildings and cities are more related to existing urban and natural assets that are part of centuries of building. A balance is consequently required for designers and patrons to revolutionise the skyline but in the meantime to avoid 'Dubaisation', as a bubble city of its own. It is all about urban re-imaging and how architecture is explored as an instrument to express power and wealth. The debate on this point shows no sign of ending, and designers in regions like the Middle East are advised to alleviate the existing antagonism of heights. With a sense of ingenuity, design resolutions between the common urban skyline and avant-garde architectural projects should further enhance the sense of place.

RIGHT
Elements related to function and space
Various aspects should be taken into consideration by architects and planners when dealing with function and space.



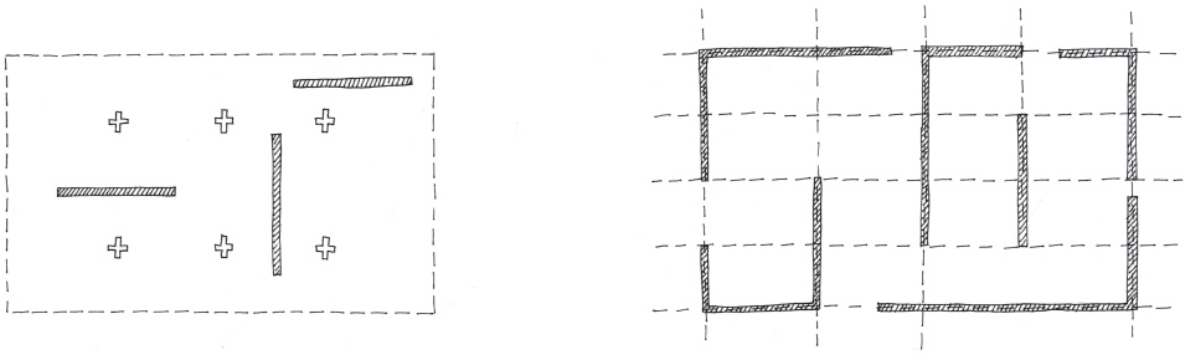
As previously discussed, function and space in Middle Eastern architecture – not only of the past but also most importantly of the present – have diverse rationales. For modern architecture, they are two neologisms which have come to herald a prophecy according to the Corbusian paradigm about how architectural performance would be optimised in a new way thanks to new machines. Nevertheless, if this paradigm is better understood in its European milieu, it is viewed differently in remote African, Asian and Middle Eastern contemporary contexts where the two concepts of function and space are interpreted differently. In fact, in order to discern how function and space are explored in architectural design in the Middle East, key perceptions need to be demystified.

Space/Function versus Place

The most striking aspect of the space/function dichotomy is that neither space nor function when combined can inherently embody the representative meaning of a place. Space, which should be the result of a combination of tangible surfaces in order to be defined, and function that is a mere predetermined role of this predetermined space often as a consequence of an aesthetic process, cannot comprehensively embrace human needs and intentions.

Although the myth of the 'free plan' (Bafna 2005) in a sense freed space from its own boundaries, it has been modified to a sheer theatrical spectacle of vistas instead of wisely considering the human factor as its central element.

How, then, can these philosophies that are smart, fast recipes help contemporary designers to face the challenging local contexts charged with social and ethico-mythical (Colquhoun 1997) dimensions? To rely on the sole dialogue of

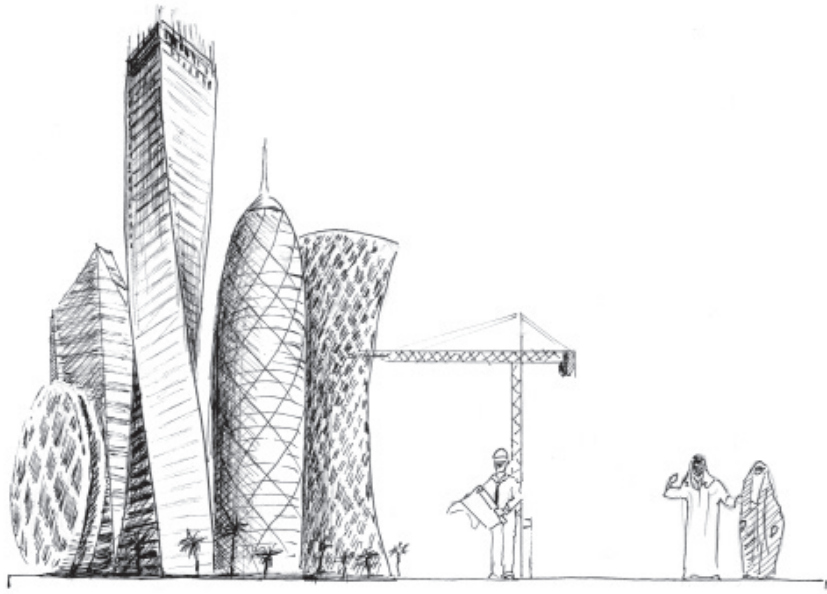


ABOVE
Free planning versus defined clusters
The sketch illustrates (left) Mies van der Rohe's free plan, where function is subjective, and (right) Louis Kahn's defined clusters and room-space units.

space and function so as to breed an inclusive human experience around a place would be a fiction. Designers are therefore required to fathom the socio-cultural pattern of use of architectural entities in a region, in order not only to project a frozen space with an ephemeral function that may change (as history has taught us), but also to pursue the intentional perspective of the user for years to come. This is no prophecy, but it is a call to have at least a minimum of consideration for the people for whom we build.

Perceived space is that which is whittled in the mind of the user following previous memories that cannot be without defined spaces; it is how a user perceives space beyond the technical drawing board of an architect. Conceptual space is the virtual element that a designer projects to encompass future intentions of the use of planned space within a logic of spatial articulation to reach an architectural ensemble. Both perceived and conceptual space need to be taken into account in order to engage in designing in the Middle East, as they are imperative to avoid freezing architecture in a purely material envelope or a mere play on aesthetics.

The region dazzles archaeologists who are digging to understand the complexity of its architectural spaces that bear layers of a rich human experience. This heritage cannot be substituted by 'theme parks' executed by one or two 'starchitects'. Such transient architecture would not last for more than one or two decades because of its superficial nature. Young designers who are not aware of this reality are seeking only to pursue the path of fame, rather than to leave a real architectural legacy that has more to do with a sustainable imprint than a senseless skyscraper in the void of a desert. The pragmatic strategy consequently consists in making people understand that what we design for them is not a dictated programme of functions or distorted fancy form, but an articulation of a socio-spatial dimension that goes beyond interpreting this programme and form to a calculated space framed by a mere concrete box. Although pursuing gravity-defying technological engineering possibilities is highly desirable, caution is needed when dealing with space. Indeed, space ought to be challenged with the sense of place, with its human essence, in order to create an idyllic bond between the perceived and the conceived. Function shifts accordingly from being statically framed to being dynamic, enhancing the interconnectedness of interactive meaningful spaces.



RIGHT
Extrovert architecture versus introverted social culture
A drawing showing the contrast between the introverted local family and the extrovert buildings that are designed by a foreign architect who is not considering the contextual environment.

Space as a Process

Beyond the modernist architect Ludwig Mies van der Rohe's architectonic space that is the result of a structural skeleton, it is obvious that in the regional context of the Middle East, space is more a process than a framed entity with an illusionary envelope made out of glass or other materials. This reductionist design of space has been misinterpreted in other areas of the world, producing negative outcomes. The raison d'être of Mies's architecture may differ radically in other places, and the attempt to universalise these conceptualisations of individual architects elsewhere means reducing worldwide cultural perceptions of space to a mere minimalist materiality. Upon seeing giant glass curtain walls in a hot climate like the Middle East, one might well question the whole purpose of architecture. If for Mies they were an absolute aesthetic definition of a space or a representative expression of the progressive machine era, for others they are a source of thermal discomfort and a lack of privacy. However, contemporary architects keep emulating these talented architects outside their specific context.

They attempt to design with the same aesthetic ideology regardless of the climates of different localities, materials and patterns of spatial use. But space as a key element of design cannot be randomly duplicated as a tectonic entity. It should rather be a process that gives rise to an empirical human experience. Designers are thus required to generate a process of purposeful spatiality that responds primarily to users' needs by challenging tectonics to surrender to this noble end of easing people's lives. This is the opposite of creating an aesthetic space to please the eye while the user is obliged to adapt to the consequently warped interior environment. Space as a process is hence a series of actions carried out in order to achieve a holistic programme, not of mere fragmented functions, but of a fluid ensemble of connected essential uses as intended by users, and not dictated by a designer's matrix of static functions.

Space Configurationality

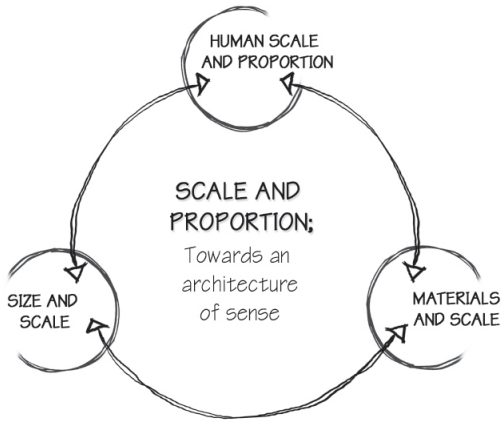
Spatial design often requires a configurational strategy in order to take concrete form. When programming spatial organisation as a process to embody the real needs of the user in terms of a dynamic function, according to different projects and their purpose, it is indispensible to follow a configurational strategy so as to materialise the anticipated voids. This configurational strategy, which is based on balancing enduring and changing functions, would inform the design process with a configurational space structure based on a hierarchy of spatial priorities. It would then provide configurational space constructions which, once matched with configurational technical massing, would give birth to a representational form.

However, this representational form would be the outcome not of a vain metaphorical design, but rather of a whole configurational strategy that embraces all layers of complexity following a dialogue between a nucleus of meaningful space and its consequent representational architectural shell. It would hence be argued that this shell is ugly and no aesthetic strategy was launched a priori to make it attractive. The answer is that no beauty can be at its utmost without serving an essence. The most attractive element of the human face – the eye – cannot be so without being the guiding centre of the whole human body. In an architecture of sense, form represents a core. Indeed, the shell needs to be designed according to certain aesthetic rules, but without jeopardising the raison d'être of architecture. Accordingly, conceptual improvements are to be sought in order to orient representational matters so as to achieve harmony between space and form. To train a new generation of architects who are keen to design

LEFT
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857: exterior of dome
The central dome presents an example of a configurational strategy that balances and optimises the structural system vis-à-vis functional and aesthetic considerations. Its space-age volumetry crowns the top opening in order to catch wind and protect the internal dome from weather changes.

RIGHT
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857: interior of dome
As well as performing a functional purpose, the dome produces a magnificent interior void.

meaningful architecture requires a painstaking shift from a global dogmatic aestheticism towards a more meaningful sustainable design based on multilayered configurational strategies that deal with a resilient core, and not merely with an ephemeral shell. Given the onslaught of fashion architecture that is plaguing the whole Middle East, it is urgent for these spatial dimensions to be addressed, with the purpose of building sustainable places before it is too late.

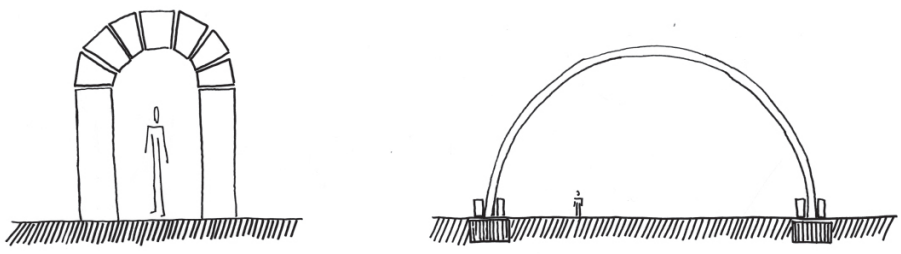


LEFT
Perspectives on scale and proportion
The three strategies that are proposed to grasp the relationship between scale and proportion.

The changing choice of building materials and techniques in the Middle East has brought about an important shift in terms of scale and proportion, both for cities and for individual buildings. For example, the arch that was generated out of stone or baked brick and followed rigorous geometric proportions in order to be self-supporting has become a slanted form with imbalanced proportions. This is due to its being erected out of concrete, which offers a flexible use of forms with wider spans and heights, but with the result that the proportional system has been lost.

Instead of reflecting its intrinsic harmony as a genuine structural system, the arch is currently being vainly duplicated, with fantasist shapes pursued for the sake of a pseudo-Islamic architecture that is little more than pastiche. Proportion, which has been an embedded tool for architectural beauty across different scales, has been substituted with illusionary aesthetic form under the alibi of an architectural style. Scale, which has been proportionate with the significance of buildings and their social value, has been falsified in order to create a mere effect of awe.

Scale has hence gone out of control, with no sense of proportion. Proportion is but a visual equilibrium of interconnected ratios, born of a sensible composition of parts within a well-adjusted architectural whole. In order to grasp the relationship between scale and proportion, three strategies are proposed here: one concerning the relationship between human scale and proportion; a second that between materials and scale; and a third that between size and scale.

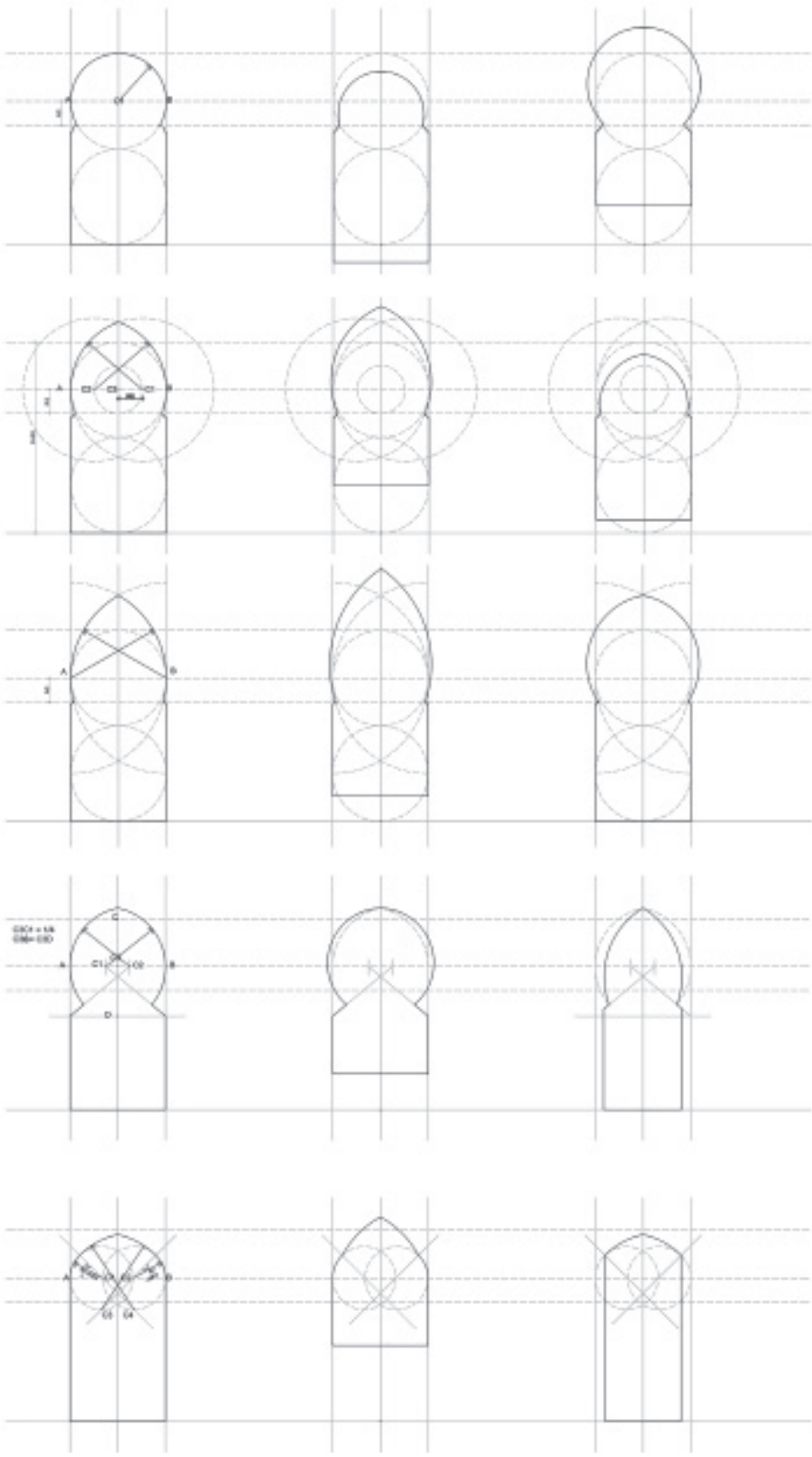


LEFT
The loss of sense in arches
Originally (left), the arch was proportional with human scale and was derived from the structural system that gave it its symbolism. Possibilities of making arches with new materials and techniques (right) have lost their proportions, spawning new monumental arches that allow wider and higher spaces.

RIGHT

Traditional (harmonious) versus modern (distorted) arches

All arches in the left column are proportionally drawn with their geometric system, as they exist in authentic monuments and buildings in the Middle Eastern region. All arches in the middle and right columns are falsified and confused by current architects who have lost the original vocabulary and pursued fantasist forms.



Human Scale and Proportion

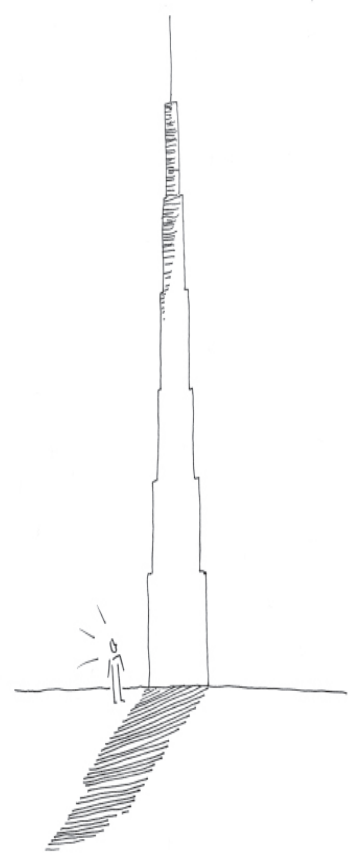
If architects and master builders succeeded in shaping successful proportional systems in the past, one of their major triggers was observing the human scale. Working closely with their local communities, these masters generated contextual proportionate architectural forms, albeit seeking a sense of monumentality. When a physical envelope of a building primarily translates a human need into a space and technical form, the scale of this building reflects an inherent visual composition. While an architectural language is needed to define the rules of composition, the meaningful purpose of the building remains the essence of its regulating aesthetic lines.

Far from referring to Le Corbusier's Modulor system (1945), linking proportion to human form, as a manipulating visual device to bring harmony, it is rather the form that informs us organically about what strategy should be pursued so as to reach the proportion of the architectural ensemble. Devising a proportional building system is not about dictating an ergonomic system, as in the case of designing a chair. Proportion goes beyond a metric equation of the human body, to embrace different scales of human expectations and feelings emanating out of a sensible space. Such a space is not robotically a static systematic shape with a staged proportion for the sake of a spectacular visual order. It is rather a morphological construction in which the visual proportion is a grass-roots rendition of a needed core with a harmonious scale. When scale is overstated with no reason other than to achieve a dramatised materiality, the significance of architecture as an ensemble is set adrift.

Therefore, there is no one set recipe for scale and proportion to be pursued as a universal canonical ergonomic equation, but it is a generative strategy of seeking harmony and unity in finding an appropriate scale and a proportional system related to a building or a group of buildings. It is an exercise of exposing different relationships between parts and wholes so as to tune a design with a sense of balanced multidimensionality. A building's monumentality is thus an intrinsic quality not because of an intimidating giant scale but because of a majestic visual experience that is the result of genuine proportional composition.

How does this relate to the Middle Eastern context? When cities of this region present a dialogue between past and present scales and proportions, a strategy is needed to find an ideal equilibrium based on a design enquiry in order to reach a relationship between the scale of existing human-proportionate fabric and that of the projected new fabric driven by globalism. Despite the fact that the contemporary Middle Eastern urban environment has known numerous competing out-of-scale buildings, the scale and proportion of buildings in this region ought to respect the nature of its sustainable natural and urban traditions. This is not a vindication of historicism and its architectural scales, but it is a conscious attempt to sustain local communities within a living environment that is a continuum of a sustainable natural habitat, for which scale and proportion are integral elements necessary to its survival.

BELOW|
The effect of giant scale
If designed at an intimidating giant scale, without a sense of proportional composition that can lend them a sense of monumentality, buildings remain incomprehensible to users.



Materials and Scale

In Middle Eastern urban landscapes, it is common to see white concrete high-rise buildings contrasting with low-rise reddish baked brick ones. Since the colonial period, there has been a significant materials-related scale change, but within the last decade, this scale in some cities has become critical.

The question of scale is often linked to local versus imported building materials and know-how, which is related to mastering the use of technologies proportionate with the size of local economies. This accordingly influences the design process of local architects who execute their projects within given parameters. On the other hand, despite its high aesthetic value, the current out-of-scale architecture is devoid of any human sense. It uses imported materials and techniques with endless construction possibilities, but is mostly non-contextual and non-communal, failing to respond to local communities' needs and aspirations. Happily, there are already signs of a backlash against this attitude: one example is the development plan launched in 2013 by Sheikh Sultan bin Mohammed, the Ruler of Sharjah in the United Arab Emirates, to bring back the human scale to the centre of Sharjah.

The Middle East region is rich in terms of diversity of local building materials – wood, stone, marble, granite, travertine and others – that are currently not fully explored in design. This is due first to an abrupt change of use of materials because of the possibility of importing industrialised and engineered materials such as aluminium, steel and titanium; and second to a dramatic transformation of architectural representation. The new smart materials have undoubtedly broadened the scope of building design in terms of how facades and interiors are to be conceived, far from the constraints of conventional materials. Nonetheless, there is confusion among local and foreign architects on how to explore materials properly to design buildings in a hybrid built environment where periods, styles and scales are different.

The proportional capacity of materials is poorly mastered when it comes to scale. Materials that were previously used for instance for their carrying strengths have mutated to be randomly explored in surface and visual treatments. These materials, which were once normative in terms of setting the rules of building composition with a specific technical rendering, have been replaced by new unlimited materials and structural possibilities. Thus, beyond material properties that would constrain design, designers are freely pursuing larger and taller scales. However, the issue of the detachment of traditional materials from modern construction and its contemporary structural composition has rendered these materials mere elements of veneer on facades. The modern structural systems have interrupted the human scale, and opened up possibilities of ever-taller buildings disproportionate to the lines of existing cityscapes in the region.

Accordingly, focusing on modern structural systems, contemporary architects find themselves confronted with a critical dilemma: how might they bridge the gap between, on the one hand, a contextual architecture, which is a cultural vehicle

LEFT
Wael Al-Masri Planners & Architects, Al-Majaz Waterfront development, Sharjah, United Arab Emirates, 2012
The outer stone walls and wooden latticework openings are part of a major landscape improvement project that contrasts with the tall residential and office buildings behind, where there is no ground-level communal area. The use of natural materials is explored to cultivate a sense of public living space.

of enduring building-material crafts that fosters a human scale, and on the other, an imported architecture, which is a neutral building-based technology vehicle engendering a monumental scale.

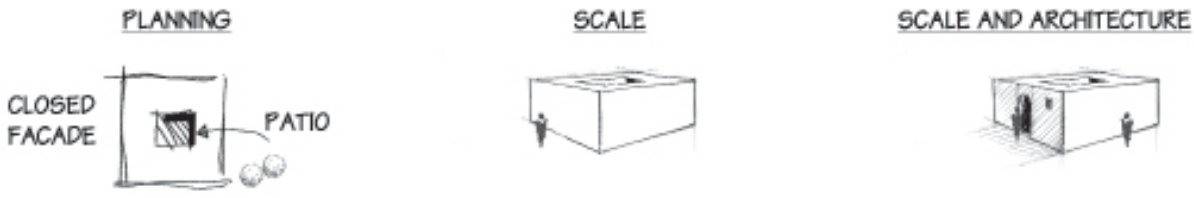
Size and Scale

To grasp the importance of size and scale in designing in the Middle East, analogies are needed to clarify this quintessential feature in design. If a microscopic metabolism is compared with one that is visible to the naked eye, though they may show a coherent functioning system as an ensemble, their sizes belong to different scales of existence. A living system the size of blood cells versus that of a rainforest: both have the same quality of fostering life but in different scales proportionate with their size. Therefore, the size of a city or a building has to be proportionate with a scale concurrent with their inherent functioning metabolisms.

When the human spirit intervenes to change the proportionate scale of nature-made systems, there can be catastrophic consequences. Scale has been manipulated to present false sizes of architectural and urban fabric for the sake of design fantasies through illusionary aesthetic tricks. When the 19th-century French architect Eugène Emmanuel Viollet-le-Duc challenged Gothic architecture with his invented structural systems of cast and wrought iron, he was not seeking to create architecture of illusion or fantasy, but rather to enhance the functionality and size of architecture concurrent with its cultural milieu. A strategy of applying scale is hence needed among designers who are intervening in the Middle East region.

Though this may sound like an attempt to set biblical rules, in practice what it implies in a design process is a better consideration of existing urban and architectural patterns and forms, so as to arrive at an appropriate scale following a careful understanding of the reciprocal size of projects in both rural and urban developments. A proportionate relationship is therefore to be established between size and scale in order to create an architecture of sense and not one of ephemeral euphoria.

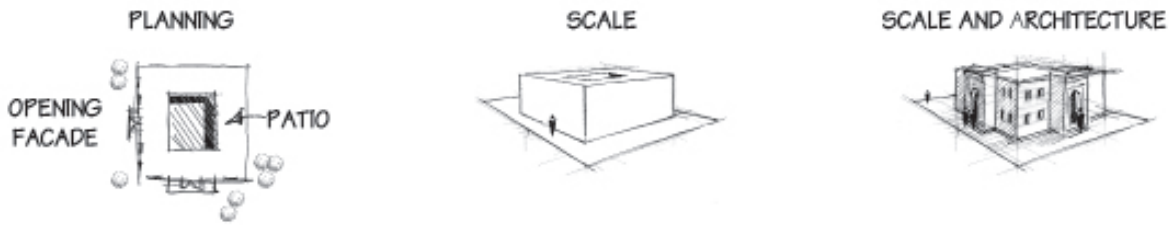
BELOW
Evolution of architectural form in the Middle East: introverted architecture
Traditional Middle Eastern architecture is introverted, focusing on the internal space around a void, with austere external facades.



BELOW

Evolution of architectural form in the Middle East: extrovert architecture

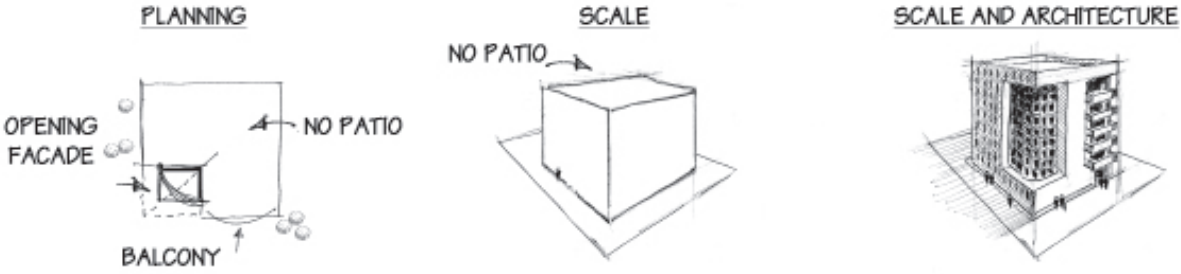
Extrovert architecture came with the notion of beautiful facades, and is often described as colonial style. The human scale is retained.



BELOW

Evolution of architectural form in the Middle East: 'modern'/'international' architecture

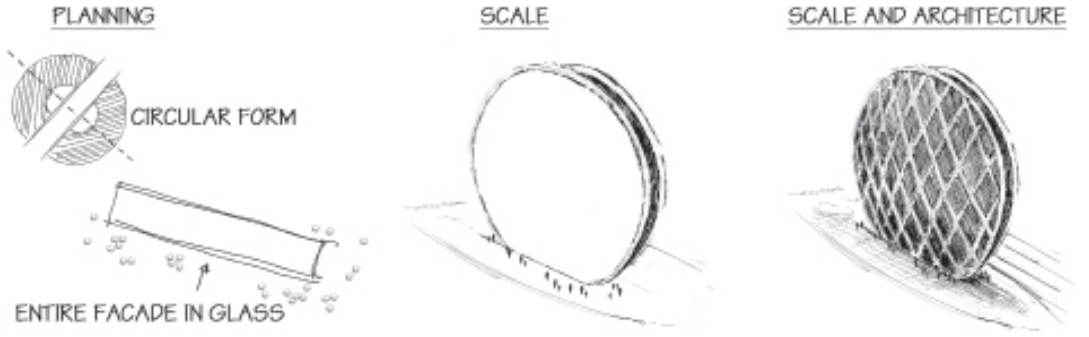
The 'modern' or 'international' style extended vertically while observing the contemporary urban scale.



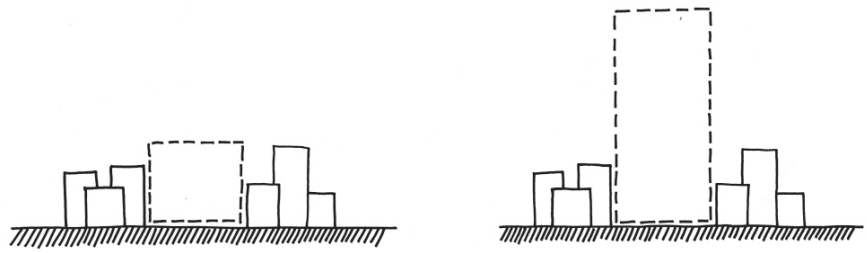
BELOW

Evolution of architectural form in the Middle East: out-of-scale architecture

An extravagant out-of-scale architecture, purely aesthetic and iconic, designed to fascinate and completely ignoring human scale.

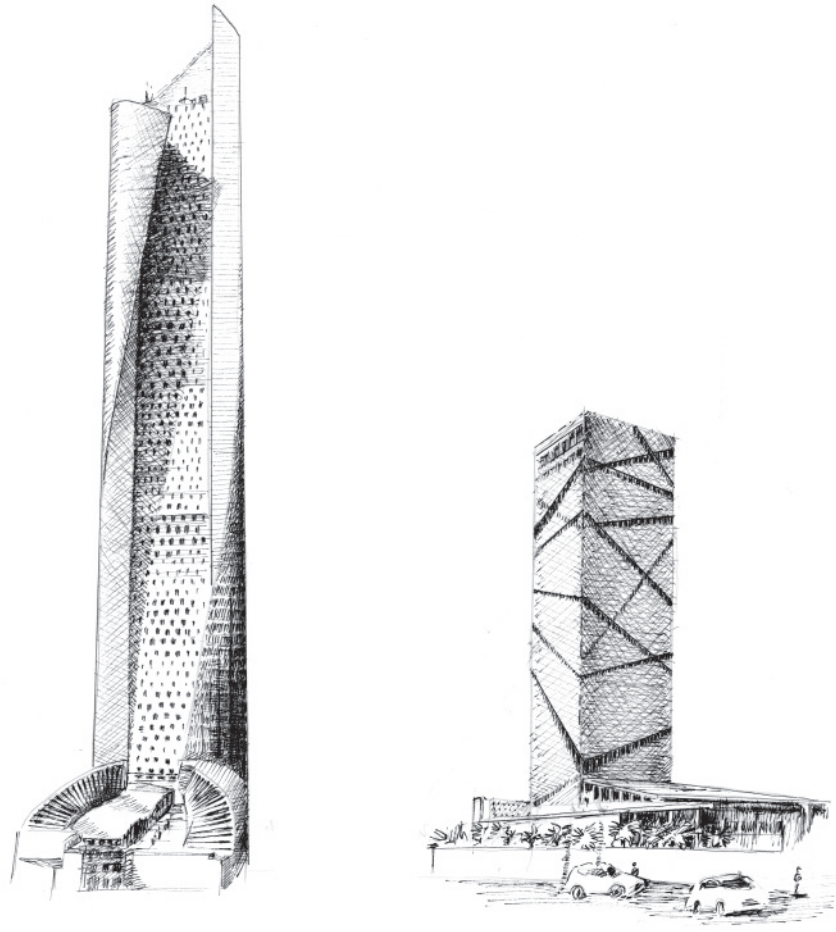


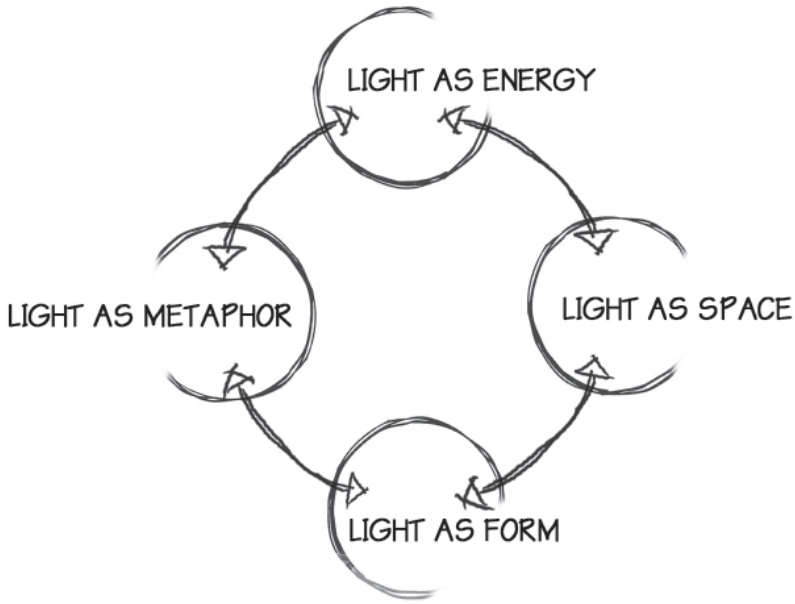
RIGHT
Appropriate and inappropriate building scales
Given the context, the building in the sketch at the left is of appropriate scale, while that in the sketch at right is not.



Beyond the mere pursuit of an out-of-scale architecture of power for individual regimes to forge a global image, a balance is needed so as to render scale and technology as a medium of designing a sustainable and liveable built environment that is desperately needed for the densely populated Middle East region. Despite urban regulations and current zoning distribution, the scale of developments ought to consider proportionate ratios with adjacent urban and rural contexts – unless they are entirely detached from these, as in the case of distant isolated 'theme parks' and detached super-tall buildings.

RIGHT
Sketches of Dar Al Jazera Consultants Al Hamra Tower, Kuwait City, Kuwait, 2010, and Skidmore, Owings & Merrill's JW Marriott Hotel Tripoli, Tripoli, Libya, 2011
These towers typify the pursuit of a giant-scale architecture of power and wealth to forge a swift global image for certain cities in the Middle East. The Al Hamra Tower is 412 metres (1,350 foot) tall, with 77 floors; and the JW Marriott Hotel Tripoli is 126 metres (412 foot) tall, with 35 floors.





LEFT
Four perspectives on light and form
Consideration of these four elements can forge a reliable spatial experience where the play between form and light is intrinsic.

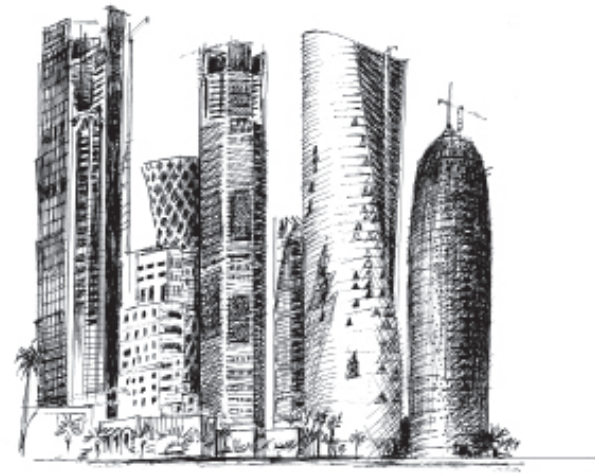
In a hot and dry region like the Middle East, with some exceptions such as a few green and rainy areas particularly in its northern parts, sunlight plays a major role in the life of local people. The sunny sky and dryness enhance visibility in the immense void of the desert, and significantly expose the contours of any architectural form.

Within this contextual frame, where light is a quintessential element of conceiving architecture, the new skyscrapers of Doha need, for example, thousands of workers per week to clean their shiny surfaces. These surfaces generate extreme thermal heat that is cooled down by the most energy-consuming mechanical systems on the planet.

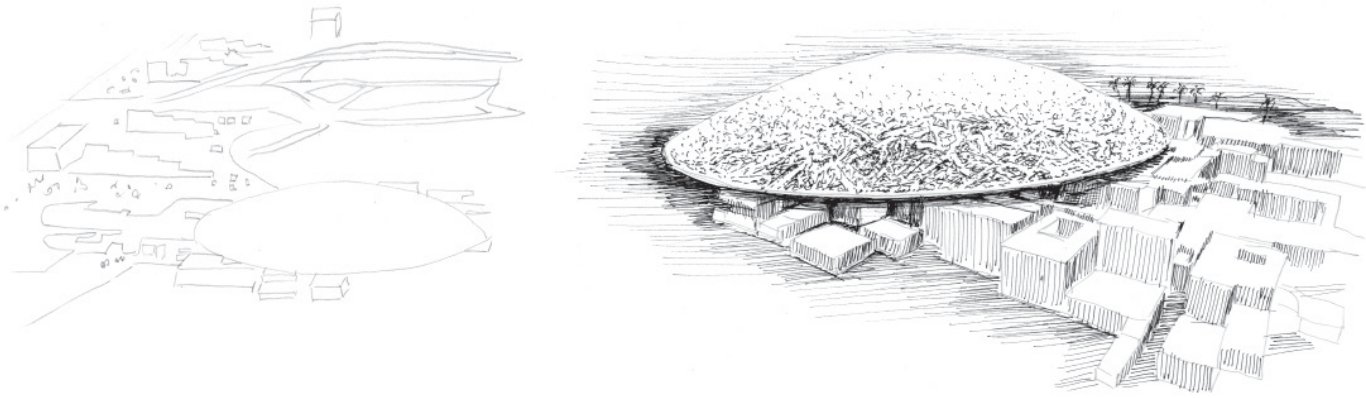
In addition, besides this thermal inconvenience in buildings with extensive glass curtain-wall facades, the architectural form provides no protection from the burning sun in public areas. Public and community outdoor activities are replaced with the giant artificial atmospheres of commercial malls.

Despite some design ideas, including shading devices and maximising shading zones, the current design process has surrendered to the new culture of

BELOW
The artificial environment: mechanical systems
Skyscraper forms are predetermined, and their large surfaces exposed to sunlight generate extreme thermal heat that is cooled down by the most oil-energy-consuming mechanical systems on the planet.



ARTIFICIAL ENVIRONMENT: MECHANICAL SYSTEMS

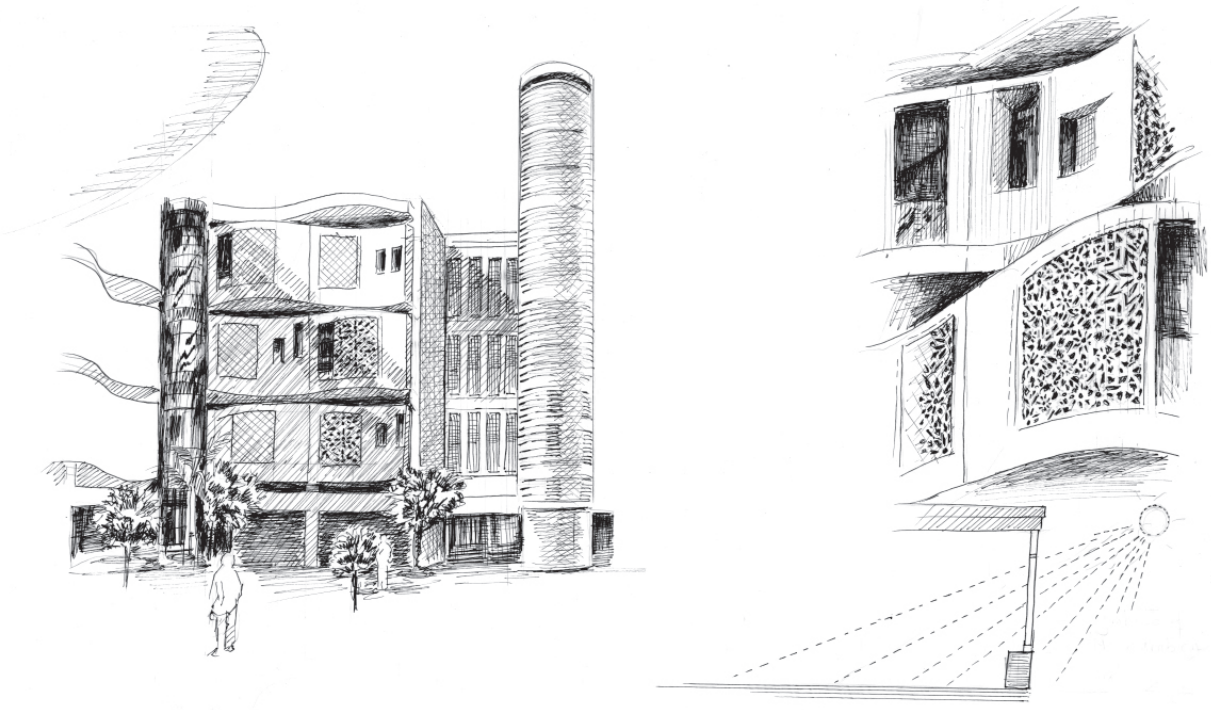


ABOVE
Sketch of Jean Nouvel's Louvre Abu Dhabi, United Arab Emirates, 2015
The massive dome is an engineered membrane to filter light, creating a shaded space made of out of lower-scale volumes in the image of a medina. The architectural dome creates an interesting play of light but engenders a space of its own.

a fully manufactured and computerised architecture out of its context. Accordingly, the great resemblance between the new imported fast-computerised designs, with their eccentric polymorphic forms, calls into question the relevance of such designs in a place where daily existence has moulded a whole enduring physical environment around seizing light and exploring passive energy.

Among recent high-profile projects in the region, the great dome of Jean Nouvel's Louvre Abu Dhabi (2015) covers a fragmented cubic composition as an emulation of a medina, and Norman Foster's Masdar Institute (2015), also in Abu Dhabi, uses the sense of mashrabiyat trickling light via a geometric arabesque treatment to endow it with an oriental flavour. These are nonetheless two examples among others that show how contextual architectural vocabulary can be interpreted to convince local patrons of an emotional regionalism.

RIGHT
Jean Nouvel, Louvre Abu Dhabi, United Arab Emirates: model, 2012
The giant dome upheld by Nouvel's team members in a model-scale presentation in 2012.



ABOVE
Sketches of Norman Foster's Masdar Institute, Abu Dhabi, United Arab Emirates, 2015
The geometric arabesque treatment was added to facades so as to create an aesthetic contextual image.

To explore the dichotomy of light and form in designing in the Middle East, four resolutions are to be underscored. They concern light as energy, light as space, light as form, and light as metaphor.

Light as Energy

The most striking purpose of light is that it brings natural energy to the building, which is crucial to foster a healthy living environment. The amount of light penetrating an interior gauges the level of habitability of the space. Due to the early sunrise and late sunset in the Middle East region, light has dictated a whole rhythm of life for centuries. Architecture translates this dimension by providing a shelter from the extreme heat, and regulating thermal transmission in a passive way through exploring architectural forms and materials. The shape of the building envelope thus plays a strategic role in regulating energy, with the support of organic materials that enable the building to be a breathing microcosm within an arid or semi-arid environment.

Accordingly, if light is fully explored in the design process as a source of energy, it can prove a significant stimulus for energy conservation solutions as well as passive cooling and heating options.

Despite the regulatory framework of each country in the Middle East, designers need to challenge repetitive architectural forms in order to find a suitable light-energy performance solution. This solution can be optimal if the building is

ABOVE
Qatar Foundation, Education City, Doha, Qatar, 1995
Light explored through solar panels integrated in architectural design to provide energy.

designed with a consideration of its natural surroundings such as lakes, mountains, valleys, rivers and desert landscapes. In the urban context, it is more difficult to consider the natural elements, and more attention is given to the adjacent buildings and the urban patterns they generate. Orientation is thus essential to achieving an ideal layout for the building envelope.

Designing in a predetermined contemporary urban fabric that is dictated by a modern checkerboard layout is not necessarily desirable. Designers face a double task: first to respond to current restricting regulations, and second to find an optimum adjustment to monitor daylighting according to hot or cold geographical areas.

The medina that controls light and energy as an articulate urban ensemble of parts within a holistic whole is an empirical model that needs to be explored in current design practices. Conversely, the design of buildings at the scale of 1/100 is left as an individual act often detached from the masterplanning which manoeuvres at a higher scale of 1/2,000 and above. Besides the current trend of megaprojects that may offer possibilities of designing holistically in terms of composing assorted architectural and urban forms, designers are generally locked into finding light-energy solutions within a constrained orthogonal urban frame.

However, when this dimension is consciously considered, there can be a mediation between macro and micro form and function so as to optimise the exploration of light as energy. This is most particularly required for social housing, which is invading all Middle Eastern cityscapes, and which presents a catastrophic architecture with no sense of light, energy or hygiene.

Light as energy is to be recommended at all scales of urban and architectural design in order to create a healthy built environment. Exploring solar-energy solutions, which are increasingly becoming affordable for all social classes, can also enhance design solutions. The Middle East can be a leading region in this field since it has a sunny climate and a tradition of exploring daylight in its regional architecture.

Light as Space

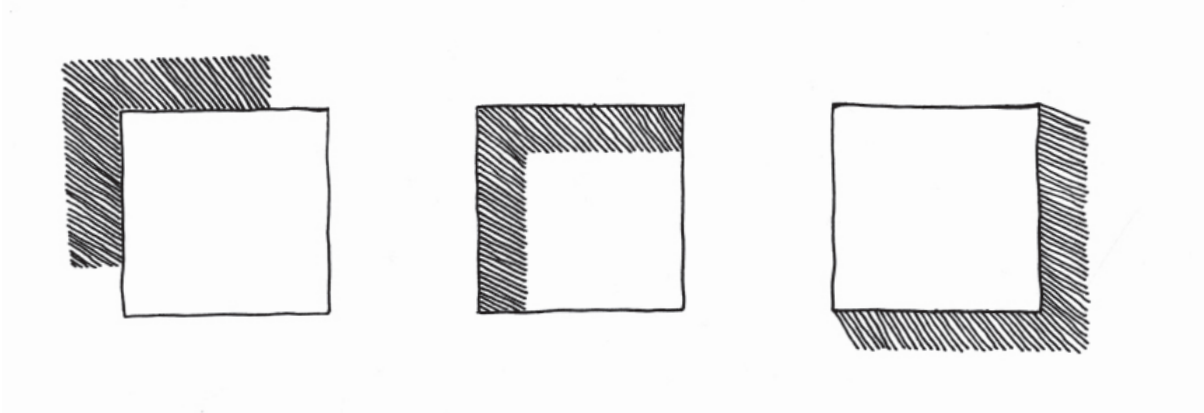
Natural light not only makes form visible and tangible, but also defines invisible space. The less space is defined by concrete walls, the more it is sensorial. Light therefore enhances the visibility of space by highlighting its material constituents. It changes the perception of materials and surfaces, and boosts the immateriality of architecture.

Accordingly, in addition to being controlled as an energy source, light can also be made to play a major role in prioritising the importance of spaces within the interior and exterior of buildings. The choice of materials, surfaces and colours is crucial as far as their degree of reflectivity is concerned. This may be a determining factor in bringing forward spatial quality, which accentuates both the designated function and the aesthetic/sensorial value of a designed space. Consequently, in a design process, mastering natural light as a spatial experience establishes the quality of the overall architectural project.

In the historical architecture of the Middle East, lighting played an important function in defining interior spaces. Due to an introverted system of architecture where exterior facades were almost absent, the lighting system changes radically, as the main source of light to the interior would be from above the courtyard. This enabled the building to capture maximum light and permeated its rays through a series of vertical juxtaposed spaces. The window of the current conventional facade that brings light horizontally through a limited geometric opening was substituted by a giant opening direct to the sky. Hence, a whole cycle of lighting was captured in order to illuminate the core of the building directly by both sunlight and moonlight.

Even though in contemporary designs it would be difficult to have courtyards all the time, it is judicious to move away from the conventional modern facade, with a limited number of windows, in order to illuminate all spaces generously by exploring vertical natural lighting whenever this is possible. Vertical and horizontal lighting are both essential to enhance visibility in all spaces. Due to a concern for privacy, households in the Middle East often resort to covering their external windows with shutters. This instigates a permanent lack of natural lighting in living spaces and thus causes a reliance on artificial lighting as a source of perceptibility of space. This, in turn, triggers enduring problems regarding hygiene and health. The vertical lighting model reduces horizontal views in densely populated neighbourhoods of the Middle East so as to generate more much-needed privacy. Spaces that are naturally defined by sunlight are healthier and visible, and engender a sustainable human experience.

RIGHT
Historical house in a derb (alley), Sbaa Luyat, Fez, Morocco, 15th century
An example of mediation between forms and light so as to create a hierarchy of spaces with different roles.



Light as Form

The conscious and unconscious perception of form through light is essential for the design process. From the ancient pyramids in Egypt to the 14th-century mosque of Timbuktu in Mali, the Middle East represents an architecture demarcated by light. Fluid or geometric forms are enhanced by the play of light that contrasts the visible and the invisible, and shadow is part of an exquisite genuine aesthetic composition.

Light forms form, and form forms light. Form that is merely a structural framework with an envelope cannot be fully perceived without natural lighting. Despite the discovery of artificial light, natural light remains quintessential in defining architectural characteristics in the Middle East. At Ait-Ben-Haddou in southern Morocco, a traditional ksar (fortified residential neighbourhood) springs up out of an immense desert void as the only tangible landmark. Sun orientation and shade make its forms appear to mutate over different periods of the day. The play between light and shade without the disturbance of extravagant colours and reflective glass surfaces produces a crystal-clear architecture of pure forms and materials.

ABOVE
Changing light and shade throughout the day
Light is essential to defining form, both through the play of shadows and through the visual assimilation that cannot occur without it. Light alters the perception of form with its dynamic spectrum that changes throughout the day.

BELOW
Ksar of Ait-Ben-Haddou, Morocco, 17th century
Natural light remains quintessential in defining architectural characteristics, as in the case of this ksar (fortified residential neighbourhood) that springs up out of an immense desert void in southern Morocco as the only tangible man-made landmark. It has been designated a World Heritage Site.

ABOVE
Charles Boccara, central dome of the Théâtre Royal, Marrakesh, Morocco, 2013
The visual and sensorial impact of light in defining the invisible matter that becomes but light.

The optical dimension of light magnificently defines architectural massing through enhancing its visual silhouette. The cubic interconnected forms in a medina are shaped out of light and shade and generate a visual phenomenon. The physical and visual aspects of the form are denoted through the dynamic spectrum of light. Form takes on a material arrangement as part of an existentialist environment where space has a meaning through all sensorial mediums. Therefore, designing with light becomes essential to creating a form of existence and survival with a transformative action to enhance the experience of being there in a cosmic place.

Thus, when lighting is reduced – as it so often is today – to a simple artificial technicality, the formal and spatial experience is reduced to a self-consuming aesthetic temporal form with no enduring visual or sensorial impact. Natural light is the origin of all visible and liveable forms, and should remain the key source of all creations, including the twin birth of form and space.

Light as Metaphor

Light transcends form to espouse the realm of the symbolic. A form that does not embody light is a mere physical shell. The history of Middle Eastern architecture proves how important light and its metaphysical dimension are to the making of buildings. Anyone tempted to reduce Middle Eastern architecture to an architecture of compacted, twisted medinas should consider the 16th-century towers of Shibam in Yemen which present a revolutionary pre-industrial tall-building typology, where light transposes form to an aesthetic performance with a mythical sense.

The metaphor of light in the late 14th-century Courtyard of the Lions at the Alhambra in Granada, Spain, is another pertinent example of how architectural elements can go beyond material architectonics to embrace a paradisiacal image. A multitude of svelte marble pillars are permeated with light to create a metaphorical forest of trees and branches diverging from a central source of water, the Lions Fountain. Light, water, vegetation and topography are all synchronised to engender space where intangibility is perceived beyond the realm of building materials, structural forms and construction techniques. The arabesque latticework openings high in the walls of the Alhambra's Hall of the Ambassadors are also a metaphor

BELOW
Shibam old city, Yemen, founded 16th century
An example of different architectural and urban typologies in which volumetric and massing features are delineated with light and shade.

ABOVE
Courtyard of the Lions, Alhambra, Granada, Spain, 14th century
A metaphorical forest of pillars permeated with light to create a sensual realm.

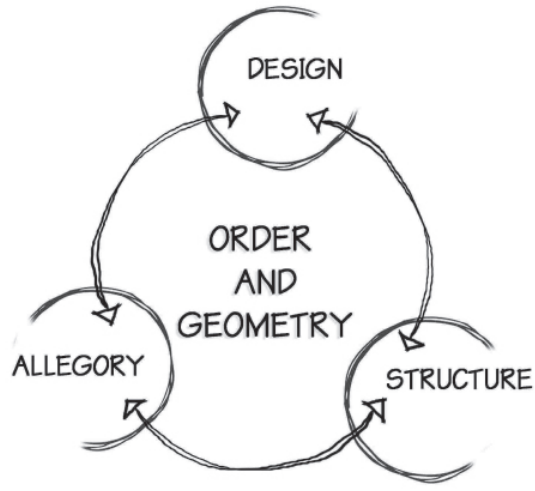
of cosmic order that renders the architectural form a vehicle of endless symbolic-abstract geometry dexterously chiselled in mosaic, stucco and wood to honour the power of intelligible calligraphy. Thus, light works as a medium to awaken metaphorical embedded meanings that the building conveys to users and visitors.

How can this be applied in contemporary designs without falling into historical themes that may not be relevant to the modern age? The easy answer is that the key lasting shared principle of all humanity is a mystical and ethical nucleus. This nucleus is manifested only through the realm of the invisible and the sensorial. Light enters this sphere of immateriality in order to enhance the architectural experience with an enigmatic dimension. Accordingly, designers need to seize light in all its states so as to either support the themes of space or simply orient its positive energy, as a source of life, to bring about a sense of wellbeing.

Capturing, managing, dosing and orienting light in a design process is not an obvious exercise. However, neglecting its radiance and allowing it to be randomly dominated by a dictated physicality would be futile. The power of a design is evident when light and shade are at play to attenuate, enhance or empower architectural forms and spaces following the user's intentions when guided by a subtle designer. Whether it is natural daylight, nocturnal light or artificial light, such a designer has a sacred element at hand to render a space vivid and radiant.

OPPOSITE
Bu-Inaniya madrasa, Fez, Morocco, 14th century: interior view
Whether it is natural daylight, nocturnal or artificial, light is a sacred element that renders a space vivid and radiant.

RIGHT
Perspectives on order and geometry
The interactive elements of order and geometry that should be taken into consideration to bridge the gap between global and local designers.

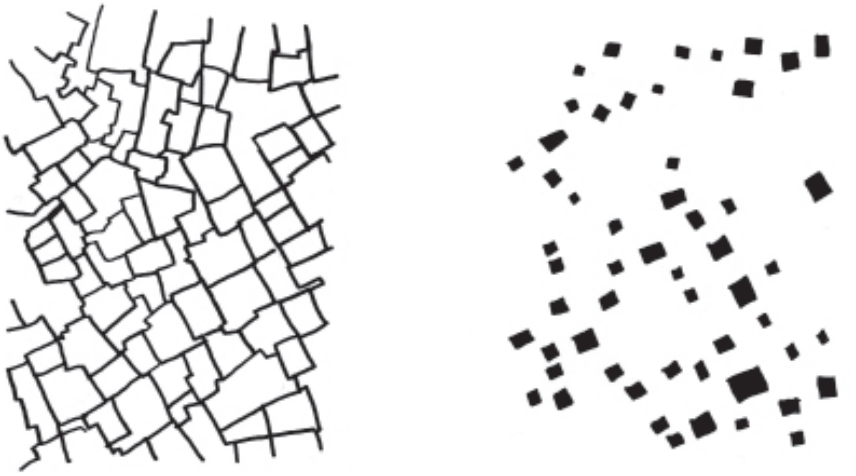


The notion of order and geometry in the past and present architecture and urbanism of the Middle East is intriguing. On the one hand, the historical fabric of the medina arguably presents an image of urban chaos; on the other, the courtyards of its compacted buildings present a sense of order with a stringent geometry.

This dichotomy of order and disorder is what brings current architectural design in the region under scrutiny. Modern designers working in this area display their knowledge of a contemporary philosophy of design that pursues the regularity of facades with respect to a rectilinear street ordinance whilst seeking a local vocabulary that has a different design philosophy with a sense of vernacularism and regionalism. The act of hybridising these two styles is continuously perplexing.

Despite the current ironic trends of copying traditional stylistic forms verbatim and pasting them on imported modern facades, which leads directly to pastiche and shallowness, designers need to grasp how geometry and order might be applied so as to bridge the gap between global and local designs. The global approach follows a predetermined order based on standardised structural systems and materials, while the local one is governed by structural systems acting in tandem with local know-how and materials. The two generate two different geometries of space and form that are not easy to merge if a designer is not well acquainted with both of the systems of designing.

In order to elucidate this dimension of geometry and order in architectural design, three stratagems are to be highlighted. They concern geometry and order as design, geometry and order as structure, and geometry and order as allegory.



LEFT
Irregularity and order in a medina
On the left is an overall urban layout of a medina, with a sense of irregularity. On the right is the internal order of courtyards in the same medina, with a stringent geometry.

Geometry and Order as Design

The geometry that generates order is not meant here as a particular rational orthogonality. It is rather the different applications of schemata of curvilinear or fractal geometry that bring direct or indirect balance to a composition of a plan, facade or volume. Unfortunately, most drawing tools are currently inseparable from a sense of a predetermined rationality, and geometry is not fully explored to prompt an intrinsic beauty as in the case of historic buildings and nature. For example, while a geometric trail behind form is never seen, all trees and flowers

BELOW
Planquadrat, Maze Tower, Dubai, United Arab Emirates, 2012
The 57-storey Maze Tower by German practice Planquadrat has the largest vertical maze in the world recognised by Guinness World Records. It is a contemporary design using geometry in a tall building as an integrated design and not a superficial treatment.

have a sense of beauty in an outwardly random play of parts. This randomness with a geometric essence is what makes order go beyond the illusion of a direct symmetry or centrality. Order is thus the result of multilayered geometries that create a holistic composition of parts in order to prompt a beautiful whole.

The applications of geometry in a building should differ according to design situations based on a sharp visualisation of the unseen possibilities of a hierarchical order. Young architects learn this when they study the anatomy of historical and recent buildings that were not just the result of a technical board but rather of an act of moulding the whole building in situ as a sculptural composition. When architecture is governed by a strict order of a plan or a facade, it becomes a mere technical frame that imprisons space, a core that requires multidimensional planes so as to fathom all human perceptions and uses. Order as design signifies, then, that geometry is to be creatively explored so as to produce layered aesthetic forms without freezing them in a pre-calculated rational ensemble.

The order brought by geometry does not show an obvious square or compass effect as an instrumental means, but overlays all geometric planes according to a conceptual composition that is often a creative order. When geometrical tools dictate their order verbatim, beyond the control of a designer, the design falls into unjustified rationalisation. The infinite geometric trails behind the abstract themes of mosaic panels are pertinent here. Whether in Al-Qarawiyin University in Fez

RIGHT
Sketch of Imam Yahya Muhammad Hamiddin's Dar Al-Hajar, Sanaa, Yemen, 1930
The geometry of the architectural ensemble follows that of the site to create a natural aesthetic architecture and settlement.

ABOVE
Foster + Partners, Queen Alia International Airport, Amman, Jordan, 2005
The structural system is itself a geometrical structure, like the skeleton of a living creature.

(859), the Süleymaniye Mosque in Istanbul (1558), or the Dar Al-Hajar in Sanaa, Yemen (1930), the geometry enhances the spiritual and aesthetic dimensions of these buildings without giving the feeling that their plan, facades and massing are governed by an apparent dominating instrumental shape. They prove the mastery of geometry through its diverse applications in all scales of a building, conducive to complex hierarchical optical manifestations.

Several contemporary projects in the Middle East today are applying geometry as a veneer by pasting panels decorated with arabesque, mashrabiya and Islamic geometric motifs. This has plagued the region with dominant pastiche and showy screens that are a mere transient fashion rather than an intrinsic design solution to contextualise architecture. Some other projects apply Islamic geometry in their plan by adopting, for instance, an eight-sided star, or other Islamic patterns that are often seen in crafts to be the rationale of certain building plans. This represents an oversimplification of Middle Eastern architecture.

Beyond a surface or cladding treatment, it is possible to succeed in intrinsically exploring contextual geometric designs if a genuine conceptualisation of geometry is pursued as a connecting tool between different two- and three-dimensional planes. This should be done without automatically making a geometrical macro pattern as a statement, unless it has an embedded meaning that supports the design ensemble. Second, it is possible to succeed in this vein by making geometry part of a design process that seeks an inherent visual, functional and spatial order.

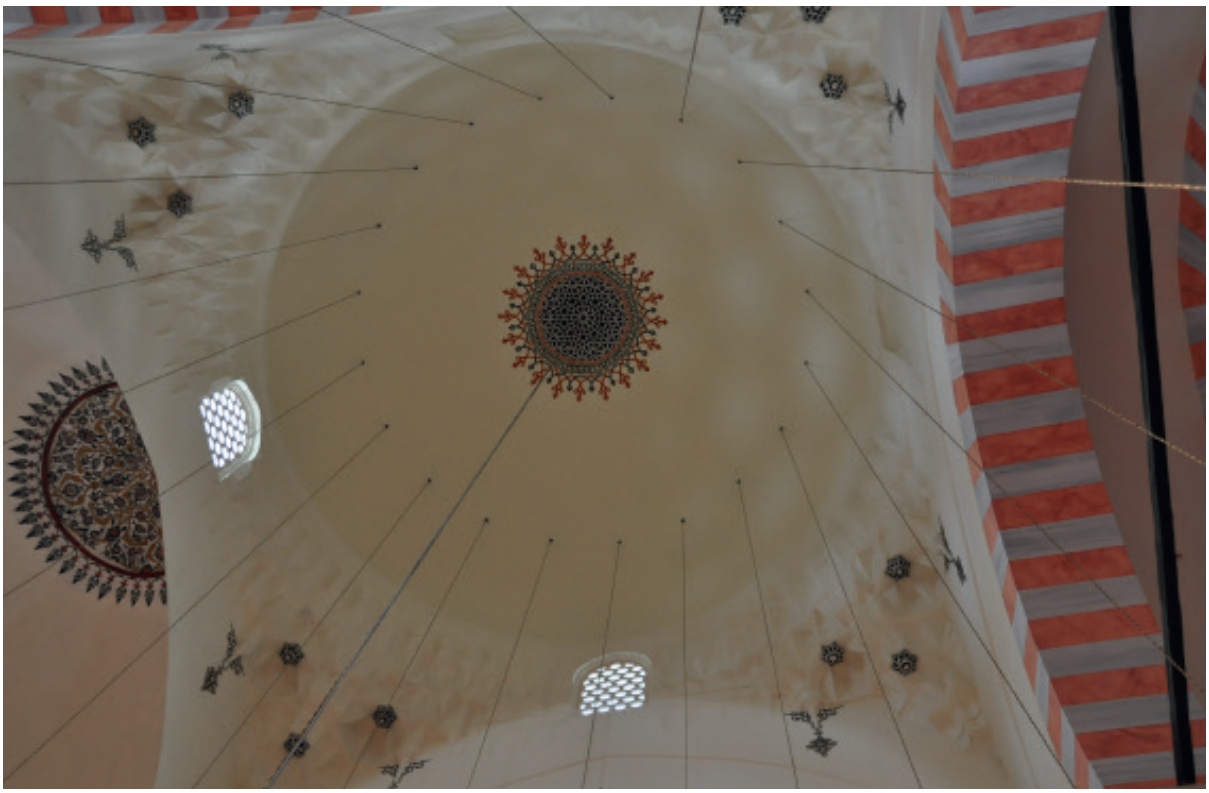
Geometry and Order as Structure

As stated above, the evolution of structural systems in Middle Eastern buildings is strongly related to material constraints. In turn, they pursue an inherent order and geometry as a cause and not a consequence. Structure has been born out of an order of materials that becomes a catalyst of new aesthetic dispositions. This logic of working order through structure from within often generates an essential geometry, as in the case of the human skeleton.

There are inspiring examples of architects who have explored structure as a primordial element of design, such as Viollet-le-Duc. He revolutionised the Gothic style by expanding the possibilities of its structural systems. This can be considered the first design exercise that ignites the spirit of a building in order to espouse contemporary technology.

Building know-how in the Middle East region is very resilient vis-à-vis contemporary technology, and therefore mediation is to be sought in order to design hybrid structural systems that preserve the inner core of a spatial arrangement, which is charged with cultural and symbolic meanings. Accordingly, the two systems of structure dictate different geometries: hence the challenge for contemporary designers. How can both local building know-how and its imported counterpart that has its own structural order and geometry be utilised? The response is not obvious and requires creative solutions through a delicate design process.

BELOW
Mimar Sinan, built by Sultan Suleyman, Süleymaniye Mosque, Istanbul, Turkey, 1558
Sinan explored a new geometric structural system by emulating the 6th-century Byzantine structural system of the great church-turned-mosque Hagia Sophia in the same city. Sinan's new spatial disposition is a reflection of bridging domes and vaults by minimising the number of supporting pillars.



This challenge is not new, and the example of the 16th-century Ottoman architect Mimar Sinan in Turkey is pertinent. Sinan would invent a new geometric structural system for his new projects, such as the Süleymaniye Mosque, while exploring the Byzantine structural system of the nearby 6th-century church-turned mosque, the Hagia Sophia. The outcome is unique, as Sinan's contribution surpassed all expectations in moulding a new spatial disposition, reinventing structural frames that consist of bridging domes and vaults by minimising the number of supporting pillars. Therefore, what renders design a genuine exercise is that geometry and order are generated by a structure and accordingly define the space as a holistic entity.

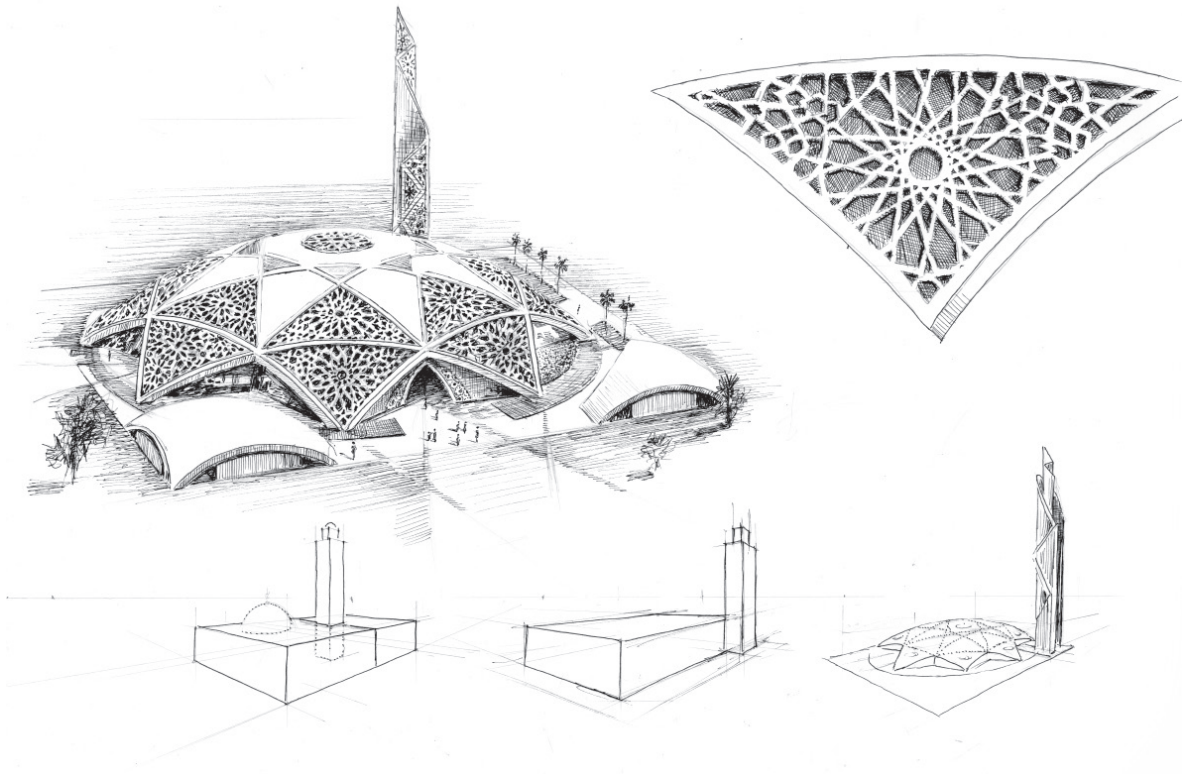
How might this be applied in contemporary design? Instead of resorting only to metaphorical concepts that seek an aesthetic ensemble without the rules of geometry as a structural order, it is advisable to conceptualise the project through its materials and structural possibilities. If a designer is pursuing a more contextual project, it is at this stage that local materials ought to be explored with modern ones in order to generate an original building skeleton. This would significantly enhance the local aesthetic aspect from within and would avoid falling into superficial pastiche.

Geometry and Order as Allegory

When geometry is not a generator of a structural system as a logical construct, it becomes an element of an allegorical order. In Middle Eastern architecture, it is common to find different geometric compositions that reveal more a representational realm than a tangible one. However, this representational realm that is brought about through a play of geometry is more complex to explore in contemporary design. The geometry of the shape of a fountain, garden, courtyard or suchlike is often copied in current designs without stressing the meaningful side that goes beyond its physical order. This means that this architecture is not constructed on the basis of a modern fragmentation of parts connected by a newly established structural frame, but rather it is an assemblage of metaphorical parts that try to convey a socio-cultural dimension through architectural forms.

However, this geometric allegory is being used today for a more aesthetic form, as in the case of the Hamdan Bin Zayed Mosque in Al Ain, Abu Dhabi, designed by Dewan Architects + Engineers (under construction at the time of writing). It is a good example of how geometry and order are being utilised in the Middle Eastern context to bring about a fashionable identity more quickly. However, the whole dome is an eight-sided geometrical star forming a screen with pierced arabesque motifs that outline the whole mosque. Certainly it is a work of innovative design, but this one micro-geometrical pattern – the eight-sided star – is magnified in order to generate the order and structure of the entire building.

The use of geometry as allegory in a more constructive sense would involve first grasping the different regional vocabularies in the Middle East, and then trying to integrate geometry with a defining theme relevant to the purpose of

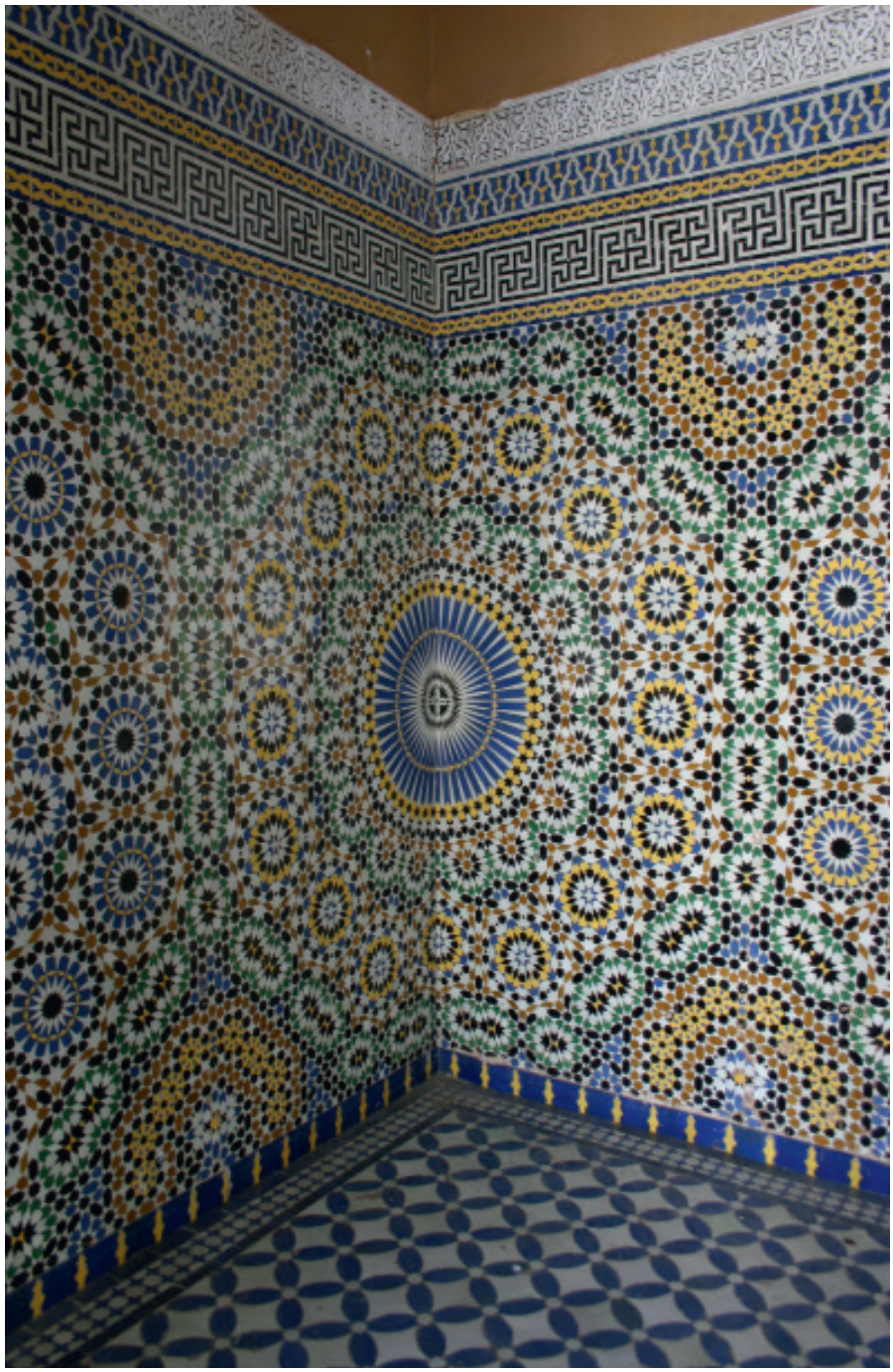


ABOVE
Sketches of Dewan Architects + Engineers' Hamdan Bin Zayed Mosque, Al Ain, Abu Dhabi, United Arab Emirates (under construction)
The whole mosque is taking the shape of an eight-sided star that is a metaphor of Islamic design. This is a core concept of the design.

the project. Although Islamic geometry displays similarities in different regions of the Middle East, it is very diverse in terms of application. The diversity of this geometry is enhanced by different construction techniques, craft-related materials, monumentalism, and interior–exterior/micro–macro applications.

Nevertheless, the ironic use of geometric allegory is very apparent when a designer does not master the proportional order and semantic meaning of Islamic geometric designs. For example, a panel of zellij (glazed terracotta tilework in intricate geometric patterns) has a different metaphorical meaning if it is positioned surrounding a water spring than if it is covering a courtyard wall up to eye level. A zellij panel surrounding a spring glorifies water as a sacred source of life and thus exemplifies a green order of nature. One that is applied on the wall of a courtyard is more an illusion tool to optically regulate the spatial disorder of an irregular plot within a twisted alley, or to generate a sense of infinity by reducing the impression of the wall as a visual obstacle.

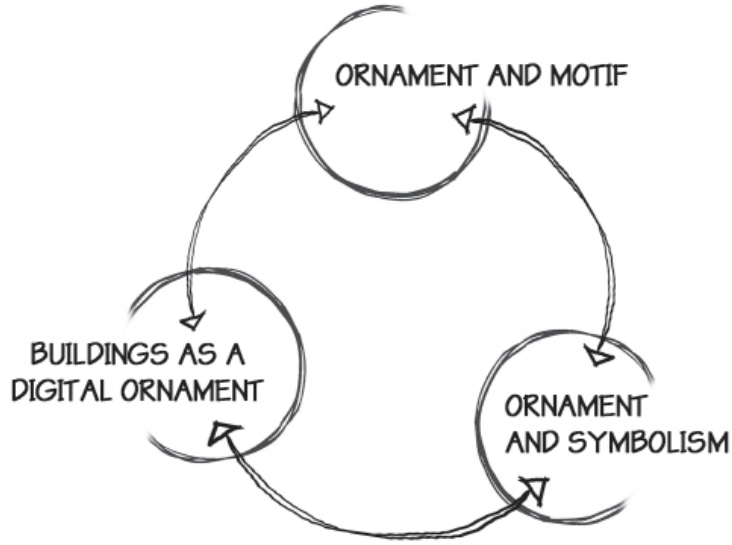
Allegory here means the multiple readings of geometric orders in an architectural design. The multiple significations a geometric panel or element creates offer a positive illusion in order to achieve visual balance by hiding a building's deformities. However, this illusion is unfortunately used today in some designs as a principle, resulting in vain designs just for the sake of visual amusement. Allegorical geometry has to have a meaning, as in buildings with a



LEFT
Zellij (tile mosaic) in Dar al-Moqri, medina of Fez, Morocco
A star of mosaic covering the area of the angle of the room renders it optically flat. It is the force of geometry that makes the viewer think that the surface is two-dimensional. Dar al-Moqri is one of the historical palaces of Fez's medina.

spiritual or mythical significance where the intangible is sought through different visual mediums, including geometry, symmetry and centrality to underline themes or subjects in the building. If it is used for a secular building, it has to fulfil the role of enhancing users' experience around a space with a meaning, even if this meaning is invisible and abstract.

RIGHT
Perspectives on ornament and symbolism
The three approaches of ornament and symbolism and the interaction between them.



The quantity of ornamentation and motifs used in contemporary architectural designs in the Middle East is quite alarming. As already stated, ornamentation and motifs are employed in order to impart an instantaneous Islamic vibe to architecture – a quality currently much in demand among the wealthy patrons of the Middle East for their iconic buildings. Certain starchitects have no qualms about responding to these patrons' will by projecting all kinds of stars and arabesque motifs onto buildings' surfaces so as to hastily render them 'contextual'.

Architectural heritage antecedents have been constantly abused by forcing the locally inherent ornamentation of historical buildings to be part of a current architectural circus and eclecticism. Due to an ongoing ignorance of local architectural idioms, and to the near disappearance of master builders who understand contextual architectural vocabularies, this practice goes uncriticised, since most patrons are satisfied with a dominant aesthetic effect which seems hard to reject, having become a cultural phenomenon.

In order to present some aspects of how ornament and symbolism should be understood and applied in current Middle Eastern architecture, three major points need to be elucidated: the perception of ornament as motif; the perception of ornament as symbolism; and the issue of building as digital ornament.

Ornament as Motif

The nature of ornament goes far beyond the current use of the word to signify superficial motifs and patterns on buildings' surfaces. Ornament has a deeper meaning than motif, because it stems from intrinsic structural elements that have a double function of being useful to the body of the building and of being decorative. Ornament can be considered for Middle Eastern architecture as an element of both representation and communication of power, spirituality, cultural codification and aesthetics.

There are micro and macro forms of ornamentation, the location of which differs according to the function of a building. Some ornamentation is public; some is private. This nuance is significant in a culture that is seen as introverted. In the past, the notion of the facade was not prevalent as it is in European architecture, and ornament was generally considered private. The prevailing attitude in the Middle East favoured hiding signs of wealth out of humility, and being focused around the inner void of a courtyard. However, these days, exteriorising ornament has become common everywhere.

Ornament was generated in the past with a specific intention to enhance the cultural and visual experience in a contextual architecture of limited local materials. Thus, copying traditional ornaments in contemporary designs is a complex exercise. First, ornament was the result of a building technique or an

BELOW
Youssef Méléhi, Marrakesh railway station, Marrakesh, Morocco, 2008: gateway
The building displays an attempt to explore local ornament in a contemporary design in order to insinuate an identity of the building as a new gateway to the city of Marrakesh.

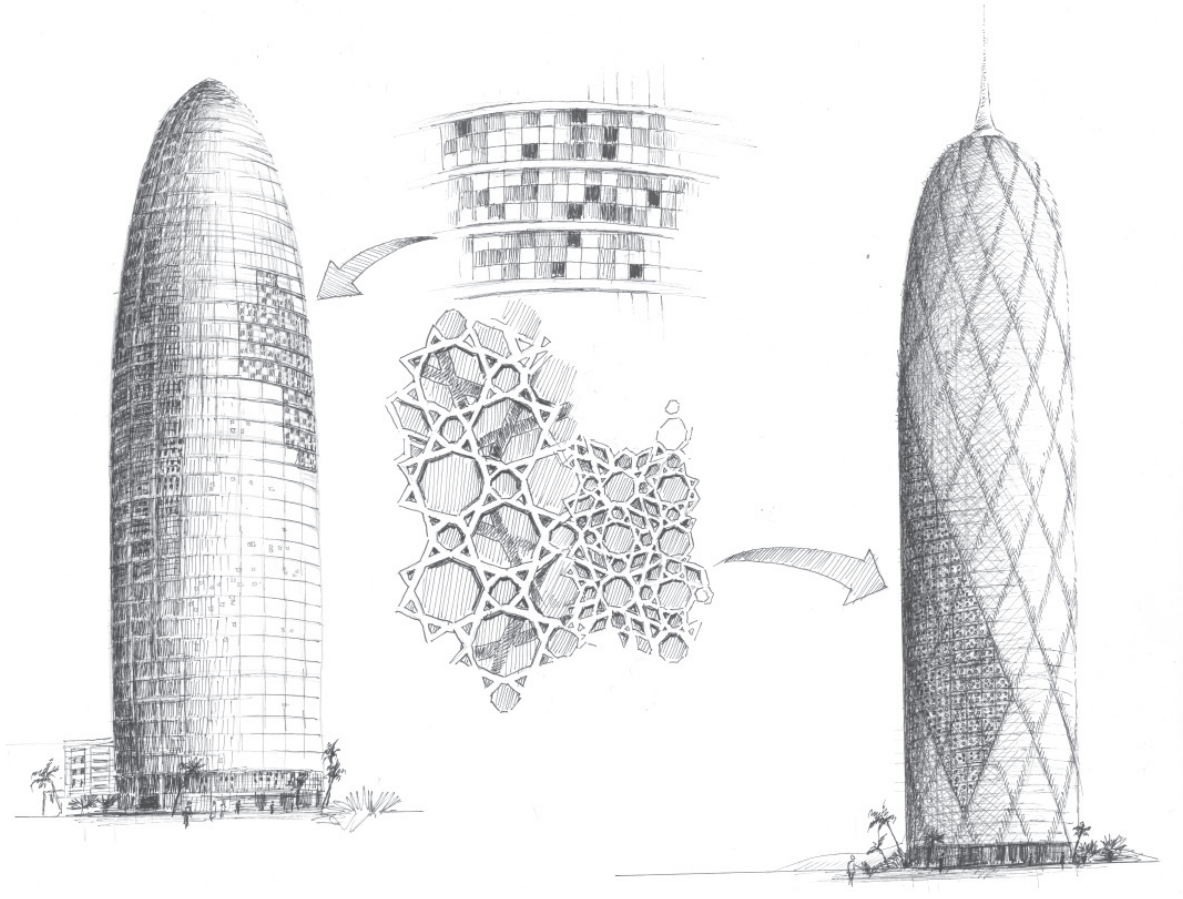
exploration of materials that generated a particular aesthetic shape: one that was derived from the ordinary but was an enhanced version of it. Second, ornament was charged with cultural meanings of either identification or distinction. This purpose of ornament has been subdued to become merely a system of motifs for the beautification of an external facade.

To attempt to revive the tradition of ornament in designs, it is important to consider the value of ornament as a system of symbols and representational tools with a cultural meaning. Some contemporary architectural projects succeed in bringing this dimension of ornament as an element of communication through a design process. When ornament is genuinely explored in current architectural designs, it anchors the identity of the building.

BELOW

Sketches of Jean Nouvel's Torre Agbar, Barcelona, Spain, 2005, and Burj Doha, Doha, Qatar, 2012

Despite the fact that the two buildings show high-tech details, their similar form and design is striking. It seems that the same tower is duplicated by Nouvel in two different contexts – Spain and Qatar. The Qatar building does display one contextualising detail: the Islamic patterns embedded in its lattice cladding. The buildings have 38 and 46 floors respectively.



LEFT
Old Sharjah district, Sharjah, United Arab Emirates
A contrast between the human-scale earthen buildings and the contemporary tall building that is decorated at the top with fake badgirs (wind-catchers) used merely for decor.

ABOVE
Louis Kahn, National Assembly Building of Bangladesh, Dhaka, Bangladesh, 1982
Kahn explored simple geometry to create intrinsic ornament in order to design a most symbolic building in Bangladesh: the country's house of parliament. He revolutionised the then austere modernist architecture to bring back monumentality and character to modern buildings in different contexts.

As ornament is losing its original meaning, it is imperative to be selective so as not to dramatise buildings with senseless symbols. For example, a badgir (wind tower) form should not be added to the top of a tall modern building for purely cosmetic reasons. This sort of practice empties ornament of its original function and meaning and damages the logic of building in the past and present.

There is no reason not to design contemporary ornaments, but it is recommendable to find new meanings relevant to the functions and purposes of buildings. Monumental projects in the Middle East need ornament, since it is considered a cultural requirement by patrons who are often seeking symbols of wealth, power and distinction. However, designers need to be very careful not to turn facades and buildings into pieces of fashionable jewellery. Architecture has a sense, and if this sense is threatened it becomes a simple act of showing off.

Ornament as Symbolism

Ornament in the past was primarily symbolic. A symbol is a medium of representation of a cultural, religious or political sign. When an ornament loses its symbolism it becomes mere decor. Contemporary architectural projects in the Middle East often disregard the power of symbolism and fall into the category of international abstract designs. Symbolism is what made architecture a valuable cultural asset throughout time, and its replacement with superficial pastiche has diminished the value of architecture in the Middle East.

On the other hand, modern architecture has stripped buildings of ornaments as symbols because they bore negative connotations of feudal wealth, religious hegemony and social injustice. This radical abolition of cultural ornament has in turn had a negative impact on applying positive cultural signs. In the case of native Saharan architecture, ornaments and symbols are part of communal coexistence. When the modern austere concrete box dominated all regions as the standardised model of building, architecture lost its cultural link with its context.

How might symbolism and ornamentation be explored in contemporary designs in the Middle East? Even some modern architects, such as Louis Kahn, have criticised the lack of monumentality and symbolism in modernist architecture. The National Assembly Building project for Dhaka, Bangladesh (1962–82) is a pertinent example of how Kahn explored geometry to create intrinsic ornament for the design of a most symbolic building in this country. Although not a recent example, it reflects the genius of a designer who mediates between local and global through symbolism and ornamentation without copying the past verbatim.

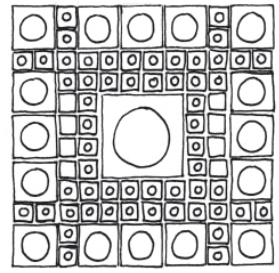
Nevertheless, the most critical use of ornament lies in designing contemporary mosques. Religious symbols inherited from historical mosques are misused in contemporary designs for this building type. The sense of spirituality is lost in most of these new designs, which lack immateriality and simplicity. With continuous competition to build national grand mosques in the Middle East, some of these buildings have become out-of-scale. The ornamentation that was applied in a human-scale mosque is thus magnified in a disproportionate way.

BELOW
Halcrow Group, Sharjah International Airport, Sharjah, United Arab Emirates, 1975
The form of the airport resembles a congregational mosque with its minarets.

RIGHT

Traditional versus modern arabesque motifs

On the left is an example of a traditional wooden motif from a door in Marrakesh, while on the right is an example of a modernised metallic arabesque design – one of the shading devices from Jean Nouvel's Institut du Monde Arabe, Paris (1987).



The proportionate ratios of the key symbols of the mihrab (niche oriented towards Mecca), minbar (pulpit) and minaret (tower for the call to prayer) in a mosque have been lost, and all kinds of fantastically disproportionate forms have sprung up. The mosque form has also been applied to all sorts of public facilities such as airports, hotels, stadiums and so forth.

Designing with ornament is not an easy task, and extensive visual and cultural research is required before embarking on copying and pasting symbols that are charged with significance. Designers should comprehend the meaning of ornament both structurally and aesthetically in order to feed into their symbolism or – why not? – invent new ornament that is relevant to the contemporary context of the Middle East.

BELOW

Asymptote Architecture, Yas Viceroy Abu Dhabi hotel, Abu Dhabi, United Arab Emirates, 2010

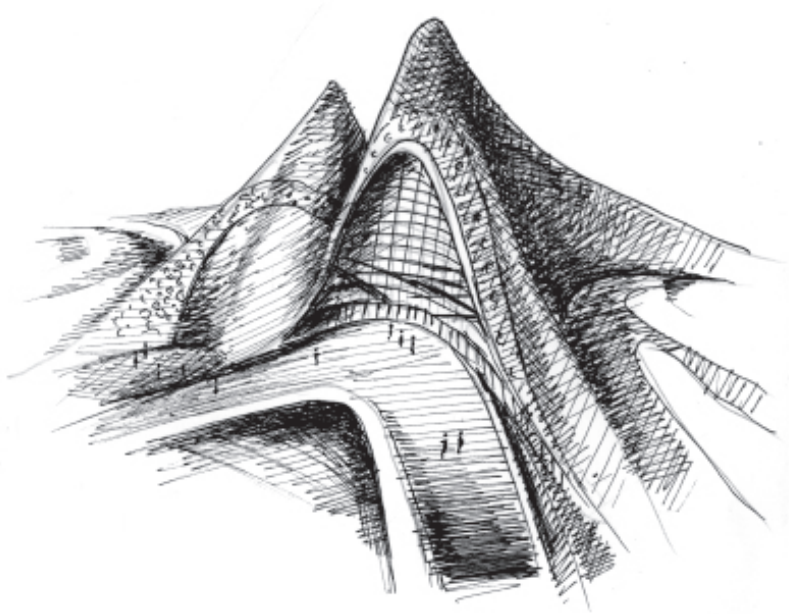
The whole building becomes a digital metaphorical ornament with an external envelope following all kinds of technomorphic shapes. Designed by Asymptote Architecture's founding partners Hani Rashid and Lise Anne Couture, it embodies an avant-gardist form covered with a giant grid shell featuring Islamic geometry.

Building as Digital Ornament

In the current digital era, computer-aided design (CAD) tools have facilitated the manipulation of drawing and rendering of buildings. However, these tools have generated their own cyber-architecture. The easy digitisation of existing ornament and motifs has ignited a whole new world of architecture as a fashion with a large quantity of transient styles. Pursuing a commercial production line, contextualism has become easily accessible through superficial applications of copied ornamentation that rarely fits the building's scale or function. This is very alarming, particularly in 'theme park' projects that seek a swift and attractive local image. Ornament has been digitally transformed into a design-object, the scope and scale of which often exceeds its proportionality and originality.

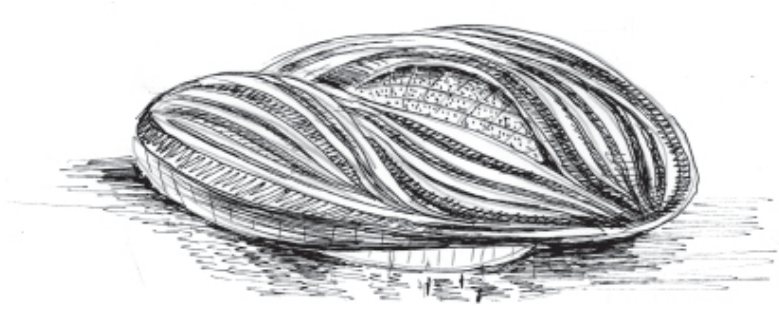
Digital ornament has also replaced the conventional way of conceptualising a project based on multiple layers of site, massing, plan and elevation. It has transmuted the whole building into a metaphorical ornament that emulates different fictional forms in order to shape its external envelope according to all kinds of techno-morphic profiles.

Consequently, contemporary Middle Eastern architecture has mutated into a series of massive artificial ornaments with modern extravagant designs that often display the individual signature of a famous architect with a worldwide style. Zaha Hadid's Performing Arts Centre in Abu Dhabi and Grand Theatre in Rabat, Morocco (both under construction at time of writing) are like pieces of jewellery fashioned as similar techno-ornaments. Although these techno-ornaments may have a high aesthetic value of their own, it is hard to see physical evidence of a respect for their context – despite their rhetoric that sets out to defend their concepts with some elements of site or culture.

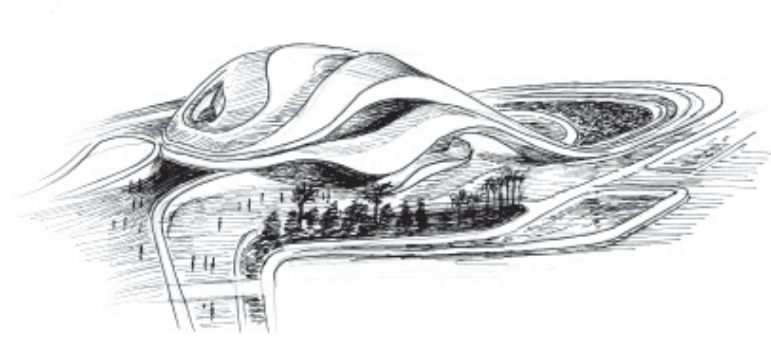


BELOW
Sketch of Zaha Hadid's design for Dubai Opera House, Dubai, United Arab Emirates, 2008
A project of high aesthetics that remains unexecuted, having been dropped in favour of a design by a different architect.

RIGHT
Sketch of Zaha Hadid's Al Wakrah Stadium, Doha, Qatar (under construction)
A project of high aesthetics as in fashion jewellery design, designed for the 2022 World Cup.

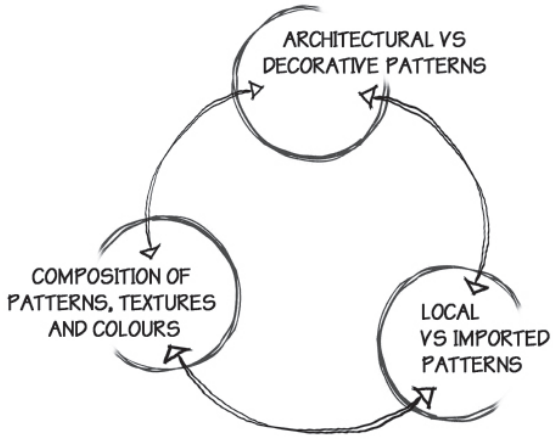


RIGHT
Sketch of Zaha Hadid's Grand Theatre, Rabat, Morocco (under construction)
Another project of high aesthetics where, the designer's signature, rather than the context, is key.



For a design to holistically explore the use of ornament, it is advisable to give it a signification within its context. Ornament cannot be a symbol if the community does not recognise it as part of its culture. Thus, before making an architectural ornament either at the scale of the building or as a part of it, it is worth asking key questions such as: How would this ornament be interpreted in its locality? How would it work as a part of a facade, elevation or volume? If the whole building is chosen to be a macro-ornament, why is this decision made? Is there a serious spiritual, political or cultural message to be conveyed through a monumental or symbolic architectural form?

Playing with ornament through digitisation may generate attractive aesthetic forms, but it perpetuates confusion among users and viewers. Nonetheless, this is neither a vindication for refraining from creative digital forms nor an emotional advocacy of historical ornament. Rather, it is an attempt to encourage the design of ornament with a purpose, keeping in mind that these symbolic forms have to have a meaning beyond their iconic empty shell. The iconic architecture that has recently spread all over the Middle East has no sense of the symbolism that always played a role in defining cityscapes with key landmarks. Although they are massive and tall, these buildings are vainly duplicated without concern for how they will look within the city fabric, and stand alien to the local context.



LEFT
Perspectives on patterns, textures and colours
The three key fundamentals to be considered when approaching patterns, textures and colours.

Moving away from the subject of symbolism-charged ornament and on to the matter of motif, the palette of architectural decorative patterns in the Middle East is very diverse from one region to another. These patterns come with multiple textures and colours, and they are not only related to the body of the building but also to interiors and furniture. This complicates their application and requires more subtlety in integrating their endless geometries and shapes into a contemporary architectural project.

The main challenge facing contemporary designers where patterns, textures and colours are concerned – whether in the Middle East or elsewhere – is that architecture no longer supports the same extravagance that it did in the past. Contemporary buildings are well defined in terms of structure, and their architectural elements are more refined, with the use of smart materials. This minimises the surfaces and massiveness that once provided a rich territory where decoration and colouring could be explored. In historical buildings, heavy decoration was manipulated to hide constructional deformities and structural masses. Although patterns also may have a symbolic side, their aim was more to soften the volume of the building and make architecture more tactile and gentle.

Accordingly, if a contemporary design is to integrate patterns, textures and colours in a subtle way without losing the refinements presented by modern structural and architectural systems, it is important to be aware of the level of their mutual connectedness as well as their intentional and unintentional meanings. Therefore, three fundamental themes are to be considered: architectural patterns versus decorative patterns; local versus imported patterns; and the composition of patterns, textures and colours.

Architectural Patterns versus Decorative Patterns

The use of patterns may seem simple, but they can have a considerable negative impact if they are not wisely handled. While it is easy to copy patterns and paste them everywhere, understanding both their logical and illogical sides is an intricate business. Since they range from micro to macro scales, their size has an important role to play in determining their spatial, functional and aesthetic significance.

It is therefore crucial to make the distinction between architectural patterns, which often follow the logic of the constructional system and scale, and decorative ones, which can be assimilated more to a surface treatment. The application of patterns at the architectural level first requires that the designer understand the meaning of these patterns, if they are local, since they have their own significance and previous design settings from which they have branched out. As an example, in traditional buildings, structural elements also provided patterns, as in the case of a series of sculptured wooden beams in a room's ceiling. These beams played a structural role but additionally became a rhythmic pattern of stripes with an aesthetic value.

BELOW

Dewan Architects + Engineers, Hamdan Bin Zayed Mosque, Al Ain, Abu Dhabi, United Arab Emirates (under construction)

A self-supporting structure with a form of an Islamic eight-sided star pierced with geometric arabesque motifs. This design represents a new wave of architecture that is applying Islamic designs in a larger scope beyond topical decoration.

ABOVE
Bu-Inaniya madrasa, Fez, Morocco, 14th century: courtyard
An example of the way structural elements are also intrinsic ornaments. The cedar-wood corbels crown the inner courtyard of the building in order to carry the tiles that protect the internal facades from rainwater.

The ribs of a dome are another pertinent example: the dome is a self-supporting structure with a high aesthetic role that is underscored by exposing these ribs through painting or carving. One may ask the question as to what the difference is between Middle Eastern domes and those elsewhere; the answer lies in the way their structural patterns are set in a macro way, as well as their textures, motifs and colours which pursue Islamic/Arabic or other local geometric orders.

To elucidate this point further, the example of wooden lintels that crown the four facades of a courtyard is also relevant. As well as being structural elements, they are used as strategic zones to apply significant macro friezes that carry messages in Arabic calligraphy or abstract geometric motifs. These wooden structures terminate the massiveness of stone and brick walls in such a way as to give a sense of lightness high up on the internal facades of the courtyard. Thus, their patterns are macro ones, so that the viewer can see them proportionally and optically from the ground-floor position.

The current great mistake of designers is that they sometimes apply these macro patterns related to structural elements everywhere in a modern design as a surface decoration. This significantly falsifies the visual and functional purpose of these patterns, which have a more structural sense. Therefore, the use of decorative patterns – unrelated to structural elements and easily transferable

ABOVE
Chapman Taylor, Rabat Centre, Rabat, Morocco, 2015
An example of a decorative pattern that is normally chiselled in plaster, carved in wood or applied in mosaic panels becoming a topical film that gives the illusion of a concrete structural form.

from one place to another in a design – is more appropriate in this case, so as not to confuse the viewer. However, decorative patterns do need to follow the logic of contextual designs if they are related to local crafts whose rules of application have been established for centuries.

In this regard, the example of the use of zellij (tile mosaics) is critical, as contemporary designers apply decorative panels of zellij everywhere, sometimes going so far as to coat a whole wall or facade with these tiny geometric forms. Historically, zellij was always applied from the base of a facade up to the viewer's eye level: this was both because of its rigidity, to protect the wall from frequent use, and in order to create an infinite horizon to open up a virtual vista in the introverted system of traditional buildings. To crown the zellij panels, a calligraphic frieze was set, easily read by the building's users and visitors since it is located at their line of their sight. How can this logic be altered by putting zellij all over a building – even in the ceiling, which should be treated with wood or stucco? Such practices display no creativity when it comes to exploring traditional elements so as to embrace the modern physical and spatial order. Design has the power to work out controversies and contradictions; but instead of that, hasty designers are abruptly resorting to cosmetic applications of these local patterns in all kinds of spaces and places.

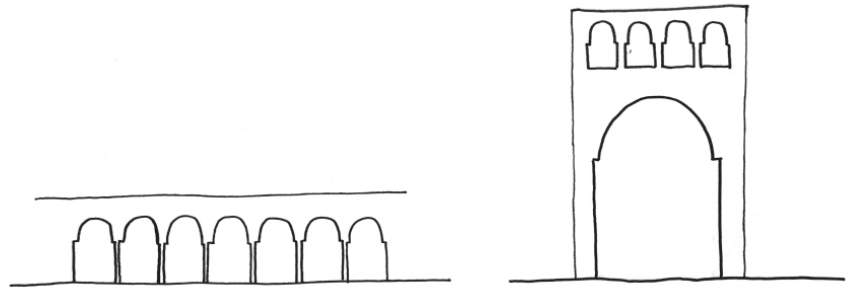
LEFT
Bu-Inaniya madrasa, Fez, Morocco, 14th century: zellij
The zellij (tile mosaic) is applied up to the viewer's eye level where a calligraphic frieze crowns this infinite horizon in an introverted architectural system.

Local versus Imported Patterns

Pursuing a compositional order that embraces the logic and purpose of local patterns is highly recommended. However, it is important to understand the complexity of applying a variety of patterns from different architectural cultures such as Islamic, Asian or European. The logic of the application of patterns differs from one culture to another, as they are often related to a meaning, and are indeed part of the realm of symbolism established through time.

This is very apparent when several styles of arches are used with no consciousness of their origin and context. In some cases, Persian, Moorish, Roman and Indian/Moghul arches are applied in the same contemporary building. This certainly creates a fictional oriental fiesta, but it is an aberration with regard to the birth of arches and their raison d'être that was linked to particular materials, local know-how and related symbolism. A contemporary designer may decide to create a series of these arches, sometimes even in a single colonnade, in order to engender a sense of Middle Eastern spatial experience. However, this mixture of arch styles merely produces an awkward eclecticism, distorting the way design was carried out in this region. Very often, foreigners and non-specialists who encounter this new style for the first time consider that this is the reality of the Middle Eastern architecture, and therefore never get the chance to grasp the unique contribution in this area of centuries of creativity and innovation. They have no idea that what they are seeing is one designer's ignorant corruption of architectural heritage.

There is nothing wrong with importing patterns from other places; but working with their sense of composition in order to reach a negotiated hybridity is an intricate process. It may provide a rich opportunity for creative and complex designs, but it takes talent to espouse two or three imported and/or local patterns at once. This is not a new challenge: as craftsmen in the past confronted the hybridisation of patterns, integration occurred with the gradual mastering of the logic of foreign elements vis-à-vis local ones until an aesthetic maturity was achieved.



RIGHT
Awkward eclecticism through ill-informed use of arches
Two common practices among non-specialist designers are creating an awkward eclecticism: (left) typical Middle Eastern colonnades but with monotonous arches applied to facades during construction or after; and (right) a giant arch, alone or topped with small arched openings, often added to a building so as to orientalise it or make it appear exotic.

ABOVE
Bultin Design, Corinthia Bab Africa Hotel, Tripoli, Libya, 2001
A contemporary complex with tall austere imported concrete buildings contextualised through a regional giant arch and a couple of arabesque panels in the main entrance.

This hybridisation can also lead to the application of textures of different materials as an intermediary between different patterns, or the application of colours to unify the overall effect. Nevertheless, colours are not obvious to explore because of their power to hide intrinsic structural patterns. Therefore, designers face a complex task of primarily setting the compositional layers of the spatial order that is consistent with a meaning and brings the aesthetic realm through different contextual elements of designs, without vandalising local ornament and patterns through the use of overly dominant textures and colours.

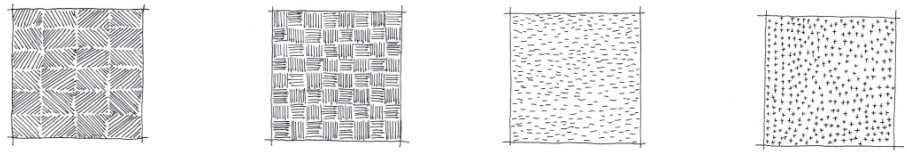
Composition of Patterns, Textures and Colours

Although the concern here is not interior design but rather architectural design, the relationship between patterns, textures and colours is critical. The austere nature of contemporary and modern architecture invites designers to bring a particular treatment in order to adapt it to the Middle Eastern context. This exercise is often carried out with decorative elements such as patterns, textures and colours. Conversely, the link between the three elements is subtle because they are applied to an architecture that was born to refute ornamentation and decoration. Modern architecture sought to strip buildings of all symbolism and to distil the primary structural and spatial elements in order to render them simple, reliable and functional.

ABOVE
nARCHITECTS, ABC Dbayeh department store, Beirut, Lebanon, 2012
An example of local geometry and pattern exploration through well-worked imported design that adds an aesthetic value to the facade and softens the robustness of its bulky structure.

While there are some successful contemporary pattern-based architectural designs that explore patterns as a structural or architectural composition, few designers succeed in diligently applying this dimension of patterns beyond their superficial decorative role. However, with the power of digitisation, together with a command of the local language of patterns, designers can invent architectural and aesthetic marvels without falling into pastiche. The King Abdullah University of Science and Technology (KAUST) in Saudia Arabia (2009) – designed by HOK Planning Group – which is the world's largest LEED Platinum project (the highest rating awarded by the Leadership in Energy and Environmental Design certification programme), presents a highly sustainable design with an adapted local vocabulary. It is an example of the exploration of local patterns and colours fully integrated in the body of the building without slavishly copying architectural antecedents.

RIGHT
A range of textures
It is important for designers to explore materials and their full potential in creating a tactile architecture.



ABOVE
HOK Planning Group, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, 2009
This photo of the atrium shows the creative exploration of local patterns and colours fully integrated in the body of the building and enhanced with natural light piercing the mosaic of a Saharan-coloured lattice ceiling.

The three elements of patterns, textures and colours should, then, be delicately explored in contemporary architecture of the Middle East. Nonetheless, they should not be reproduced verbatim from historical buildings whose logic was different, to be blindly transferred to a new standardised and monotonous architecture.

Even though texture is applied through different materials and brings a particular richness to contemporary designs, when its use is exaggerated with overly rough surfaces using robust local materials, a whole visual and tactile disorder is at play. One example of this is the notable current fashion of using Jordanian stone and other imported hard materials in facing the walls and interiors of buildings in the Gulf region. Architects and patrons abuse the application of this sturdy stone in order to display wealth. Aesthetically, however, the result is sheer oddness. The fully faced buildings look like mammoth rocks with no sense of refinement. Each material has a level of texture and should be explored according to the different sizes and scales of buildings, walls and interiors.

In this regard, the third element – colours – is more problematic in view of the advancement and ease of application of artificial painting. Since there are often no regulations on how colours may be used in Middle Eastern cities, their application has yet to be analysed and managed vis-à-vis this context, which is

more accustomed to the blank and austere walls of the medinas with no sense of an exhibitionist facade.

Currently, designers are exploring all kinds of unusual colours, and Middle Eastern cityscapes have started changing. These colours are often not part of the design thinking, but they are a veneer that intensifies the appearance of individual facades and buildings at the expense of urban aesthetics. As discussed in the section of this chapter on 'Light and Form', the Middle East is a sunny region, and this should be taken into consideration when planning the application of colours. Strong reflective colours are always at odds with their surrounding fabric, although an architect may want to make a design distinction or statement. At the level of the interior, colours may be more tolerable – as long as they do not disturb a public space or cityscape.

ABOVE
Ricardo Legorreta, Victor Legorreta, Miguel Almaraz, Adriana Ciklik and Carlos Vargas, Texas A&M campus, Qatar Foundation Education City, Doha, Qatar, 2007
Brownish stone and other materials are here used to coat an ornamented central cubic volume that is surrounded with a series of pyramids and towers in order to evoke the Middle Eastern desert through local colours, textures and various sorts of symbolic forms.

OPPOSITE
Alleyway in the Medina of Fez, Morocco, photographed in 2007
The photograph shows the blank and austere nature of walls in an alley with no sense of an exhibitionist facade, and the ochre colour enhances its anchored earthen organic environment.

CONCLUSION

Architectural vocabulary has been presented, analysed and deduced in this chapter as a combination of genuine architectural elements that are intertwined with the context of the Middle East region. As has been shown, it is necessary to go beyond the limits of current or historical architectural forms in order to utilise local potentials and gear them towards a comprehensive architectural design. This would help to break the trend of parachuted-in, tabula-rasa or pastiche projects that have recently plagued the whole region.

Local architectural idioms are embedded with local cultural, social and environmental meaning. All the elements covered above – site typologies; massing and volumetric composition; function and space; scale and proportion; light and form; order and geometry; ornament and symbolism; and patterns, textures and colours – are hence but examples of dynamic triggers to boost contextual design processes without jeopardising the creativity and technical possibilities offered by the current universal design practice. The consideration of these elements in sustaining the potential of the context while embracing an innovative contemporary design depends on the creativity and level of dexterity of each designer and architect.

Current architectural design in the Middle East often pursues a conventional view, solely considering sun orientation and surface topography while overlooking the exploration of all layers of context. Attempting to fully blend projects with a deep view of these layers would add much value to their social, cultural and environmental sustainability. Such an approach would also help to reorient the widespread current creative urge to propose rushed designs consisting of ungrounded forms and shapes. This urge is largely to blame for today's out-of-scale architecture, which generally uses imported materials and techniques with endless construction possibilities and is devoid of any communal or environmental sense. How projects and designs might be imbued with a cultural and contextual meaning will be explored in the following chapter.

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Architecture in Context Designing in the Middle East
By Hassan Radoine

CHAPTER 3

CULTURAL AND CONTEXTUAL MEANING

The act of designing cannot be dissociated from the cultural and environmental background of the project concerned. A detailed understanding of a given cultural setting that involves languages, customs, memory of place, and lifestyles is a prerequisite for conscious design. A newly designed spatial environment can be either a trigger to enhance a cultural experience or a means to expunge it.

OPPOSITE
Entrance to a dead-end alley (derb) in a medina, Tangier, Morocco
Example of a saba *(covered alley) as the beginning of a dead-end in a medina. The derb is a shared territory that helps to cultivate neighbourliness.*

The extent of cultural implication in an act of design cannot be easily measured, which is why judging projects based on this hitherto strategic variable is such a challenging process. However, the capacity to decode cultural and contextual environments is a skill that most schools of architecture do not bother to include in their curricula. A reliance on artistic judgment alone is the prime medium to capture the value of a locality, which reduces the existing physical environment to simplistic copy-and-paste cultural clichés. These clichés are often the result of misinterpreted complex cultural settings. In their highly influential 1972 book *Learning from Las Vegas*, Robert Venturi, Denise Scott Brown and Steven Izenour echo the value of learning from the existing landscape as follows:

> Learning from the existing landscape is a way of being revolutionary for an architect. Not the obvious way, which is to tear down Paris and begin again, as Le Corbusier suggested in the 1920s, but another, more tolerant way; that is, to question how we look at things [. . .] Architects are out of the habit of looking nonjudgmentally at the environment, because orthodox Modern architecture is progressive, if not revolutionary, utopian, and puristic; it is dissatisfied with existing conditions. Modern architecture has been anything but permissive: Architects have preferred to change the existing environment rather than enhance what is there.
>
> (VENTURI ET AL. 2001, P 3)

Accordingly, the interaction of a design process with the existing cultural and contextual environment of a place is currently rather more visual than it is empirical or experimental. This cannot be seen just after the completion of a given architectural project, but it is often clearly exposed when the users realise that the design of their place has nothing to do with their modes of occupation and cultural continuum. In such cases, the gap between a design and a project as a human experience becomes wider and wider. Throughout the history of architecture, the building was not an end in itself but rather a means to serve an individual or a community, so as to leave a long-lasting cultural memory and experience.

Great architects in history from the Roman Marcus Vitruvius Pollio (c 80–15 bce) and the Italian Leon Battista Alberti (1404–1472) to the Egyptian Hassan Fathy (1900–1989) all stressed the holistic nature of buildings not as mere artistic artefacts but as a reflective medium of the integrated skills and knowledge that premeditate a project.

Fathy, in his 1973 book *Architecture for the Poor*, challenged the inability of modern architecture as a sophisticated building process to produce a more genuine communal and environmental physical context (Steele 1992, p 51). As with the writings of the 19th-century British art and architecture critic John Ruskin, Fathy's position is highly ethical vis-à-vis the people's context. As will be discussed in chapter 4 of the present volume, he exposed the ways in which modern and imported practices were isolated from the spirit of place that he attempted to genuinely embrace in his building designs involving people's will and not the architect's self-image.

Therefore, the cultural and contextual meaning of architectural forms is of utmost importance in order to design sustainable architectural projects. This meaning is to be extracted or projected, hence the complexity of the exercise. Extracting meaning is often a problematic task since not all architects are from the same region, and because of the current nature of architectural practice that favours rapidly executed projects and neglects investing in serious research on the cultural and contextual parameters of the site prior to the design of the project.

In order to dismantle this cultural and contextual construct in terms of architectural design, it is imperative to present some key meanings, representations and expressions related to the Middle East. Although the term 'culture' is difficult to fathom, Amos Rapoport articulated its dimensions related to design as follows: 'One describes it as a way of life typical of a group, the second as a system of symbols, meanings and cognitive schemata transmitted through symbolic codes, the third as a set of adaptive strategies for survival related to ecology and resources' (Rapoport et al 1980, p 9).

However, besides Rapoport's three valid points – way of life; system of symbols, meaning and cognitive schemata; and adaptive strategies of survival – further points should be explored regarding the link between design and culture. In this respect, based on Rapoport and his co-editors Irwin Altman and Joachim F. Wohlwill, as well as Venturi, Scott Brown, Izenour and others who have

investigated the role of culture and environment in the making of existing and projected physical spaces and settings, a project can be culturally and contextually valuable if the following variables are partially or fully met according to different given design milieus:

- cultural value judgment and symbolic codes (cognitive schemata, transmission)
- representation and expression of cultural meaning
- spatial-cultural arrangement (transformation and experience)
- climate and environment (adaptive and creative sustainability)
- building know-how and processes of production
- morality, ethics and responsibility.

CULTURAL VALUE JUDGMENT AND SYMBOLIC CODES (COGNITIVE SCHEMATA, TRANSMISSION)

The fundamental questions to start with here are: Can the architectural and urban fabrics foster a cultural message? How do both user and designer share symbolic codes that a project may transmit? How can we judge whether a project has a cultural value? Are there cognitive schemata of deduced or preconceived behavioural patterns that charge a design with a cultural load? These questions, among others, present the complexity of designing in regions where cultural value judgments and symbolic codes are still vibrant; the Middle East is in this respect a relevant case.

In order to understand the cultural messages and modes of symbolic transmission, it is necessary to investigate the existing and historical architectural and urban fabrics of a region. In the Middle East, these fabrics are still breathing, and can potentially inform current designers about their cognitive schemata as long as there are still large populations living in urban and rural heritage areas, where historical spaces are not obsolete. Beyond the realm of dogmatisation or any sort of stereotype, this exercise, if well explored by local and foreign architects, would bring useful cues concerning living cultural behavioural patterns related to existing architectural and urban archetypes. This is a pertinent scheme of projecting concrete signals of modes of space-use into future projects without solely mimicking the empty form.

In the past three decades, architects in the Middle East have been continuously faced with local communities reclaiming cultural representation in their contemporary space. Denaturalisation of the cityscape with its monotonous

repetitive architectural and urban forms generated unfriendly and decontextualised spaces. While sustainability is still viewed as a technical matter focusing on carbon emissions, energy consumption, waste management or economic development, it has become increasingly vital to consider cultural signals and their new potential to render contemporary architecture humane and memorable.

Accordingly, the relationship between cultural practices and contemporary architecture, which has conventionally been perceived as conflicting, ought to be explored as a key catalyst for sustainable architecture and urbanism. The historical urban and natural landscape gives a sense of community representation that maintains an interactive dimension for currently fragmented architectural and urban space. The key value of cultural resilience in architecture and urbanism is the focus on the momentum of community participation through activating its dormant memories and refreshing its living ones through a new holistic design.

This approach pledges a broader perception of a cultural environment that ignites human, social and cultural resources and triggers. Culture can be defined as the 'set of distinctive spiritual, material, intellectual and emotional features of society or a social group… that encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs' (UNESCO 2001).

The cultural dimension of architecture was often its raison d'être, but with the modernist fiction, it became devoid of context (Rowe 1978, p 38). The social dimension cannot be reached without a permanent cultural meaning of an architectural and urban space to foster the messages of forms and their embedded collective memory (Boyer 1996). However, the arguments of contemporary architects often collide with those of conservationists in the unsolvable dichotomy of past and future legitimacy. It seems that the relationship between reason and progress has continuously widened the gap between memory and the testimony of the built environment (Gregotti 1996, p 65). Users are now caught in an artificial order that jeopardises the cultural richness and meaning of living spaces. This order is embodied in the recurring checkerboard layout of new cities (Choay 1970, p 7). The continuity of image and memory of the architectural and urban environment is therefore not related only to its physical permanence but, more interestingly, to its standing patterns of human activity in space and time (Lynch 1972, p 72). Cultural value is thus resilient through the momentum of its living memory, particularly in a rich cultural context such as that of the Middle East.

As a striking example, the spatial context of the medina, with both its tangible and intangible dimensions, seems immune to eradication from memory when it comes to social and cultural representation. Users and their communities are continuously connected through enduring cultural memory. Thus, users are part of a complex system of codes that intertwines place with a sense of a cultural reference.

The Egyptologist Jan Assmann states:

> Cultural memory is characterized by its distance from the everyday. Distance from the everyday (transcendence) marks its temporal horizon. Cultural memory has its fixed point; its horizon does not change with the passing of time. These fixed points are fateful events of the past, whose memory is maintained through cultural formation (texts, rites, monuments) and institutional communication (recitation, practice, observance).
>
> (ASSMANN 1995, P 129)

The vibrancy of this cultural memory challenges contemporary architectural and urban form that is lacking cultural content. Therefore, in the Middle East today, the contrast between the cultural and the modern built environments is enormous.

Accordingly, future design projects ought to foster a cultural value, and designers, without subduing their creativity, can widely contribute to making these projects embody perceived and experienced cultural codes. Perceived codes are those understood by the designer and intrinsically included in the design process. Experienced codes are those experienced by a user through an established design project. This exchange between the perceived and experienced imparts new intangible dimensions that are often subdued or overlooked if the designer is only considering aesthetic dictums. When a level of maturity is reached in a project, its spaces develop rich behavioural patterns, and the architectural space becomes that of orientation, education and continuous adaptability.

In this regard, if a project has observed intangible and tangible cultural parameters, cognitive schemata of behavioural patterns of use can be nurtured since the space is always charged with community codes and symbols. Hence, through a smart design and organisational programme, the architectural realm itself becomes a cultural system that communicates with its users. Architects therefore have a crucial role to play in enhancing communal memory and practice in architectural and urban projects by exploring signs through spatial articulation, materials, proportions, shapes and patterns (as explained in chapter 2).

While it is a challenge to provide intangible communal signs in a tangible design process based on physical parameters, it is advisable for young architects to invest more in understanding behavioural mechanisms of existing and projected forms. The meaning of a form explores the user's sensory, tactile, imaginative, cognitive and perceptive faculties so as to embrace its full content.

Nevertheless, the key issue in the act of designing with cultural cues in the Middle East is how far the planned is taking over the spontaneous and vice versa. The planned signifies modern projects where there is always an established functional programme offered by clear terms of reference in order to design an edifice with a specific function. The spontaneous signifies the continuous community acts of building that are still recurrent in both rural and urban environments. The spontaneous here is not the informal that stems from other areas of concern, but the forces of building by an individual and a community that often are not in accordance with modern planning in rural and urban territories. The clash between

RIGHT
Staircase in the residential district of the Fort of Nizwa, Sultanate of Oman, 17th century
Spatial configuration that stimulates the user's sensory, tactile, imaginative, cognitive and perceptive faculties.

the two is quite considerable, despite the efforts of government agencies to contain it. This is exacerbated by the arsenal of very technocratic laws that have rendered the act of building a mere matter of bowing down to rigid regulations devised more for control than for genuine communal development.

The task of the architect in this sense is quite complex as it is difficult to mediate between these two states of environments. However, if the spontaneous is taken as the true will of the community that reflects its social and cultural aspirations, then it can offer concrete responses towards designing formally.

REPRESENTATION AND EXPRESSION OF CULTURAL MEANING

With fast-paced consumerism hitting all the regions of the world, cultural meaning is becoming very transient and its mode of production is shifting from the traditional rooted process of transition of cultural cues to a temporal manufacture of images according to advertising, fashion and commercial propaganda (Gawlikowska 2013). Architecture is therefore shifting from being a vehicle of cultural meaning to a commodity at the service of illusionary images (Benjamin 2003). Even though the mode of transmission of cultural meaning is faster thanks to current information and communications technology, the resilience of this meaning with a specific form as locally unique is jeopardised through globally repetitive patterns of visual occurrences that are unknowingly mistaken for genuine cultural idioms.

To provide a clear instance of such a state, we can consider how in the religious realm some objects and spaces become liturgical symbols charged with a spiritual attachment to a certain faith. On the other hand, in the secular realm, some architectural forms have become symbols of places or cities. Therefore, the cultural meaning of architecture stems from the functional content taking a particular architectural and urban form through a creative design process. In places like the Middle East where cultural ties are still very present, local users of space are very attached to cultural signals that are still used as language patterns among community members.

In order to elucidate this dimension in the architectural realm as well as the potential of capturing cultural signals to be explored in design processes, three elements are to be considered: representation/expression; identification/communication/transmission; and integration/development.

Representation/Expression

The representation and expression of cultural and contextual meaning is of utmost importance in order to understand an existing setting and cultivate a new one. It is about the images in the collective memory that provide signals of communal expressions of how a form is connoted. Regular human use, movement, frequentation and occupation of a space determine its cultural patterns that go beyond its spatiality in order to denote its persistent cognitive images. The collected cognitive images establish the cultural capital around a place, where physical elements become anchors of individual or shared memory. For instance, the ritual or frequent use of a space can create an intensive sense of belonging: cognitive expression is the essential image to sustain a cultural memory, while a visual expression can become but a virtual one.

In the Middle East, the individual and the community are engrained in a spatiality of cultural meaning. For instance, the derb (dead-end alley) in a medina is not only for accessibility, but is also a shared territory where a limited number of neighbours cultivate a true sense of neighbourliness. Thus, a derb is a representation

of a symbolic space for boosting the bonds between families, thus reducing the social anonymity that is a common trait in urban environments based around modern grid planning – as stated by Jane Jacobs in her key work *The Death and Life of Great American Cities* (Jacobs 1992). The narrowness of the alley enhances human encounters, where the human body is the focus within visually neutral blank walls. Accordingly, the street becomes more a trigger to enhance a shared communal territory of lasting cognitive memories than just a crossing line with no sense of place or belonging.

Architectural design was and is thus the best medium of representation and expression of the ideas, ideals and values of a culture. Since this representation needs to stem from a specific materiality, it has a particular symbolic realm vis-à-vis the universal that makes its architectural tectonics unique. This distinctiveness of representation, as an expression of a communal practice manifested in particular architectural or urban design, guarantees the continuity of a collective memory, an essential condition for social and cultural sustainability.

ABOVE
Entrance to a private alley, Chefchaouen Medina, Morocco
Ritual or frequent use of a space can create an intensive sense of belonging where visual expression becomes virtual, while the cognitive image is essential to sustain a cultural memory.

OPPOSITE
Entrance to a dead-end alley (derb) in a medina, Tangier, Morocco
Example of a saba *(covered alley) as the beginning of a dead-end in a medina. The derb is a shared territory that helps to cultivate neighbourliness.*

RIGHT
Dead-end alley (derb) in a medina, Tangier, Morocco
The derb's narrow dimensions fit it to human scale.

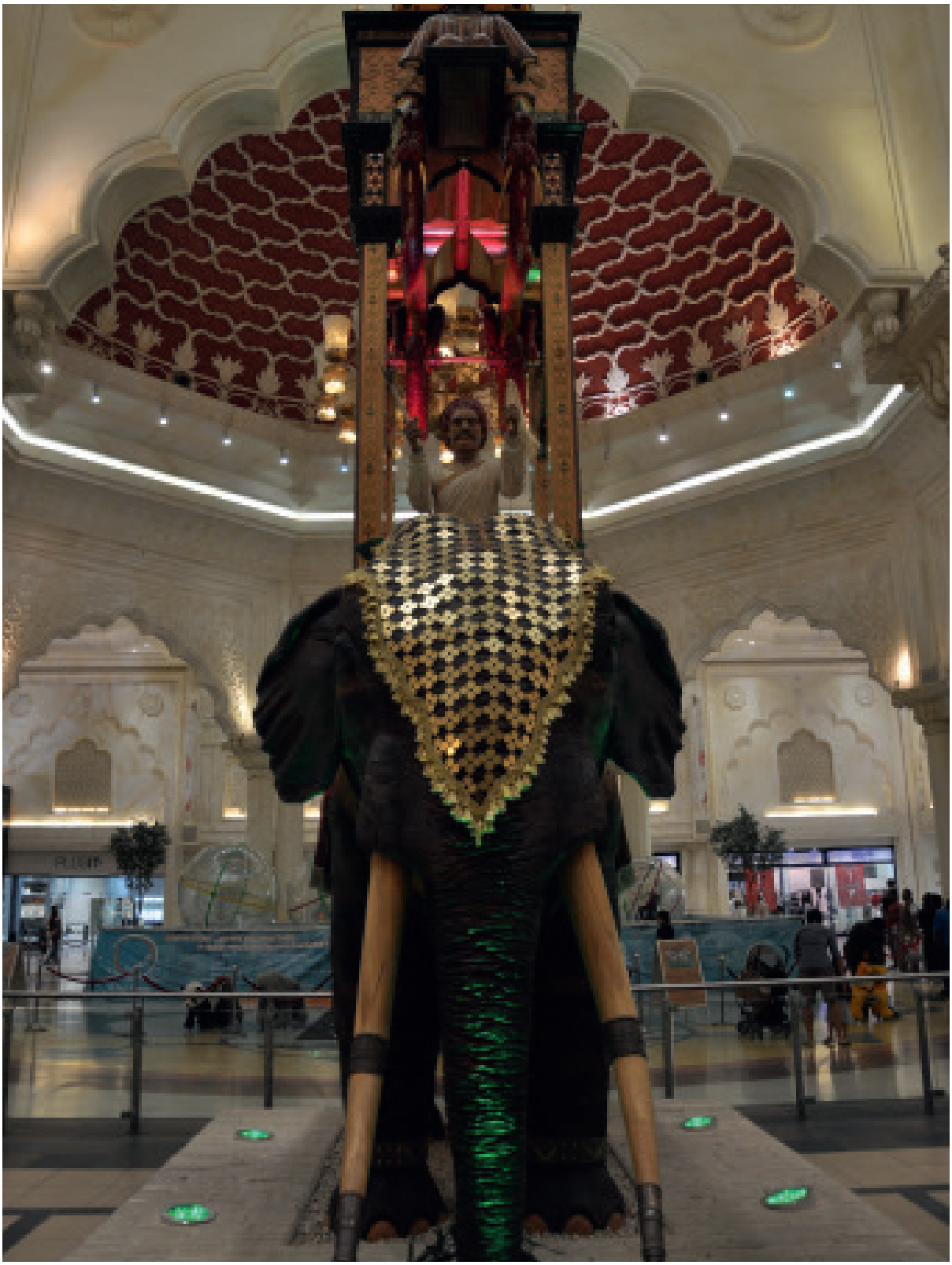
Identification/Communication/Transmission

When architecture lost its capacity as a vector for the communication and transmission of cultural environments, the community lost the ability to identify with its immediate context as a trigger of its continuity. The subjective design of the architect that brings its own unidentified materiality took over the objective language pattern of the material culture of existing communities. Consequently, architecture has become more and more alien, and its language of communication has no specific context to sustain it as a vehicle of cultural and contextual rootedness.

Accordingly, in the case of commercial megabuildings such as shopping malls, the human encounter goes beyond the realm of a communal construct, instead mainly serving the fashion universe of ephemeral propaganda of globalism and consumerism. What communal experience a visitor may get is somewhat rare, as the space is designed to fully serve the major brands with their powerful visuals of attraction. When used in this context, culture is primarily an alibi to confuse the visitor's identification with a commercial space that is extremely transient, in order to generate a sense of belonging and guarantee a maximum desire to purchase. This is what happens in most modern shopping spaces when thematic scenes are created for a special occasion linked to a given culture or particular event, such as Christmas or other festivities.

It is revealing to compare a modern shopping centre with the structure of a typical Middle Eastern bazaar. For instance, the Ibn Battuta Mall in Dubai (2005, by Dewan Architects + Engineers) transposes a whole cultural history through mimicking the famous 14th-century voyager Ibn Battuta's travel itinerary through Africa and Asia. The sequences of that journey become a vehicle of visual

OPPOSITE
Dewan Architects + Engineers, Ibn Battuta Mall, Dubai, United Arab Emirates, 2005
A fabricated cultural space that creates a fake identification with the legendary traveller Ibn Battuta's discoveries in order to boost the drive to purchase.



and sensual appeal. On the level of sheer aesthetic schemes, this mall may be considered a highly artistic work where design-based cultural research is explored to hybridise the global and the local, with the intention of attracting consumers. On the other hand, the bazaar complex of Tabriz in Iran (which dates back to the 13th century and is now designated by UNESCO as a World Heritage Site) generated the body of the city for centuries as a sustainable authentic cultural–commercial experience. Located on the Silk Road – the trade route that linked the Eastern to the Western world – it served as a strategic regional commercial hub. Certainly, it is a business locality; but it is also a communal one, since it has sustained a whole city's existence for centuries. The bazaar's buildings are designed to foster flows of visitors, but also to create a genuine cultural experience where local communities present their goods made in situ. The architecture of the bazaar is conceived according to a commercial programme, but when visitors walk around its spaces there is a great sense of cultural rootedness that serves both business and the communal setting at the level of the city and its region.

In this regard, identification with architectural form and context is crucial in current design projects in order to sustain a genuine communication and transmission of cultural experiences. While it may be argued that two antagonistic situations of past and present environments can exist in such settings, the fact remains that for a design to genuinely foster seeds of a high-quality communal life, it has to go beyond the temporalities of modern fast-built settings.

Integration/Development

Contemporary architecture in the Middle East can be both embedded in history and a catalyst for a change of culture. Therefore, the smart integration of cultural antecedents with a genuine transmission of cultural signals in current design processes may provide a new path for sustainable developments. A change of culture can occur only if it is performed with the community, and the history of the region proves that it has gone through several golden periods of inventions and development. In fact, this region has always witnessed an art of building that now needs to be explored in order to plan an adequate built environment for a community which is yearning to have a decent life in the era of democracy.

This integration cannot be partial, through mimicking 'Ali Baba' forms, but rather through understanding the communal cognitive images and language patterns of an existing culture and context, so as to design sustainable environments with a sense of a future resilience that is needed to anchor communities in their planned places.

Development in this sense is more a question of promoting and reactivating cultural elements as an intrinsic condition in order to assure the integration of the spirit of place in projects designed in the future. This would certainly improve the adaptability, user adoption and resilience of newly designed projects by bridging the gap between the aesthetics of the envelope and spatial arrangements that genuinely meet human needs.

SPATIAL-CULTURAL ARRANGEMENT (TRANSFORMATION AND EXPERIENCE)

In the previous chapter (under the heading 'Function and Space'), space configurationality was discussed as a medium of design. In this current chapter, it is more about exploring the cultural and social meaning behind this configurationality as an existing and projected condition. Beyond representational form, it is also an exploration of how a spatial arrangement may translate cultural and social signals that endow space with its symbolic dimension of both permanency and impermanency. Permanency is the extent to which cultural production of space may give rise to enduring human experience in a particular designed space. As to impermanency, it is how a space does not bring about a lasting human experience. This is either because it serves a particular category of individuals, or because it represents one individual's ego and desire to dictate architectural and urban forms for all. Hence, any communal space generated out of a designed realm would last and foster social and cultural sustainability.

This oscillation between permanency and impermanency that engenders the continuous transformability of space is a crucial element of design in a cultural context such as the Middle East. The nature of the human space in this region is still identified by social and cultural triggers rather than by the ephemeral rule of power. Hence the difficulty of creating and designing spaces of democratic existence that may lead to a real clash between civic society and those in authority.

Spatial arrangement for cultural ends is therefore not the ruling powers' priority, and this is why rich clients in the region are commissioning 'starchitects' to design super-attractive projects, hurrying in a symbolism of global power, while the place is still dominated by the spontaneous production of space as local communities attempt to cater for their everyday needs.

Accordingly, the seemingly international order of Cartesian space that effectively serves the designs of the global power game is no longer fashionable for existing communities that are reclaiming their experienced spaces with cultural memories. They are seeking spaces that help them to anchor their identity of being, and they are rejecting detached spaces with cinematographic orientalist allegories, sometimes described as 'Islamic'. Regarding the definition of this social space vis-à-vis strictly geometrical space, philosopher Henri Lefebvre states:

> Not so many years ago, the word 'space' had a strictly geometrical meaning: the idea it evoked was simply that of an empty area. In scholarly use it was generally accompanied by some such epithet as 'Euclidean', 'isotropic' or 'infinite', and the general feeling was that the concept of space was ultimately a mathematical one. To speak of 'social space', therefore, would have sounded strange.
>
> (LEFEBVRE 1991, P 1)

In order to grasp and explore this multidimensionality of space beyond its geometrically dictated order, it is fruitful to introduce young designers to some guiding concepts that can orient the spatial configuration of a project so that it cultivates a greater sense of cultural meaning. These concepts are prioritisation, accessibility, orientation, interactability, connectability, visibility, assemblage, polycentrality, contrast and integration. They can be defined as follows:

- Prioritisation involves understanding human needs in a space and prioritising them according to the different stages of that space. It is mainly about evaluating the social and cultural value of functions, and establishing a hierarchy of them, in accordance with their scale of importance for users. It pursues sound spatial articulation over and above beauty: an essence rather than a polished shell.

- Accessibility is a strategic element for a space to be dynamic. It is not only the physical accessibility that is important here, but also the social permeability that invites all those who are socially involved, within different categories, to embrace and fully access a designed space. Accessibility ought not to be forced by geometric strictness, but it can be attained through fluid access that often enhances spatial articulation.

- Orientation involves orienting a user within the realm of a newly designed space through creative tangible and intangible social and cultural signals. Without orientation, a space would be insufficiently explored, and its content would be weakened through time.

- Interactability is about how much chance is given to users to interact and prompt a social and cultural experience. It is not only about the interaction of physical elements, but is more a question of premeditating how a space will add meaning to an existing or projected social and cultural milieu.

- Connectability concerns envisaging different modes of connection between parts of spaces in order to smoothen the communication and transmission of cultural signals. It can be achieved through the connection of functions or physical spaces, but the end target is an enhancement of social connection.

- Visibility follows on from the prioritisation of the content of a space, and should trigger the hidden synergies of a place. When utilised only to show off attractive but empty shells, it confuses the reading of the cultural meaning of a newly designed place. Visibility is thus the tool that bolsters all the other concepts in generating a visual experience of comfort prior to that of temporal wonderment.

- Polycentrality, together with multifunctionality, adds layers of complexity to space value so as to nurture the richness of existing and projected cultural experiences

and meanings. It is crucial to cross boundaries of given territories making a place, and to connect between self-projected cognitive realms and shared or collective ones. The dynamics of space and place are related to how centralities around different social focuses are translated through an active polycentric momentum that coalesces the subjective and the objective in a design process.

- Contrast, taken in conjunction with the above concepts, may nevertheless seem to be creating a sort of antagonism in the cultural and social realm, but it is required in the spatial arrangement of cultural experience in order to stress some cultural practices or to imbue space with a rich texture of symbols and codes. This means that even aesthetic contrast can be a means to visualise perennial cultural manifestations in the architectural and urban contexts.

- Integration is the possibility of designing culturally oriented spaces and exploring how users might embrace their new meanings in order to enrich their existing cultural milieu. Some spatial articulations may be the result of accidental linkages of how a spatial configuration is adopted by users who in turn explore their own interpretations of spatial fragments. However, the planned linkages of a spatial design show the designer's ability to integrate different intentional and possible unintentional interactions in a future project.

The above key concepts aim to upgrade a design exercise from mere two-dimensionality to three-dimensionality, where space is moulded to foster a human experience. As continuous research on this area may give rise to more concepts and tools to shift the realm of design from being only a formal expression to being a cultural one, the task of designing in regional settings, such as the Middle East, becomes more and more intricate and complex if a comprehensive design is sought. Facing this complexity, today's architects run the risk of rushing to interpret traditional or cultural icons into lowbrow, kitsch designs of an evanescent art.

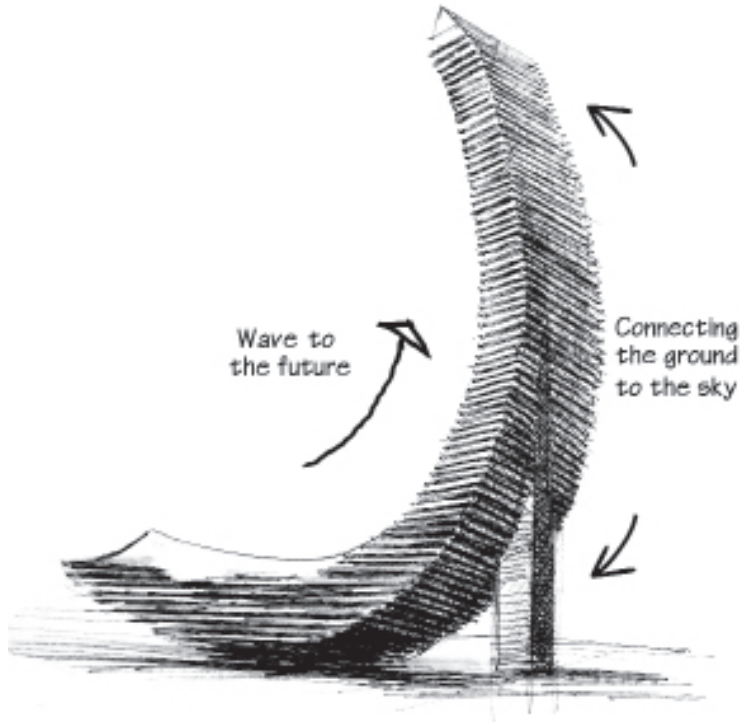
Considering all the above concepts, spatial arrangement and configuration may help designers to exercise schematic strategies in the design process and engage in a more fruitful production of space in a complex cultural region like that of the Middle East. As a critical example, in a video clip, architect Daniel Libeskind presents one of his future projects in Abu Dhabi – the Innovation City at the Higher Colleges of Technology – as a potential paradisiacal and cosmological solution, stating:

> To be an icon the building has to be rooted in Abu Dhabi, it has to tell the story of the place, it has to link the visible and the invisible, it has to show what is on the ground and what is in the sky. And it has to become a building that connects itself with the hearts and souls of people.
>
> (LIBESKIND – ABU DHABI)

In this author's opinion, what is concerning in this video clip is that Libeskind is setting out to visually bring together a circular sun ('the open hand, the hand of generosity open to the world') and a magic curve ('the wave of the future'), in order to produce a sculptural icon that meets Abu Dhabi's aspirations. However, the outcome is what I would describe as a fantasist magic curve under the form of an 'Islamic crescent', and little is mentioned about the content of the project or how its users might find their sense of belonging.

To design with cultural meaning and experience, architects need to be determinedly responsible and ethical; they should not consider a play of magical forms with a metaphorical discourse as an alternative for a genuine culturally responsive design. Thus, the responsible considerations discussed in this chapter can provide a starting point for researching generative tools to capture cultural meanings in a comprehensive design process.

RIGHT
Daniel Libeskind, Innovation City, Higher Colleges of Technology, Abu Dhabi, United Arab Emirates, 2012
An example of a metaphorical design with high aesthetics.

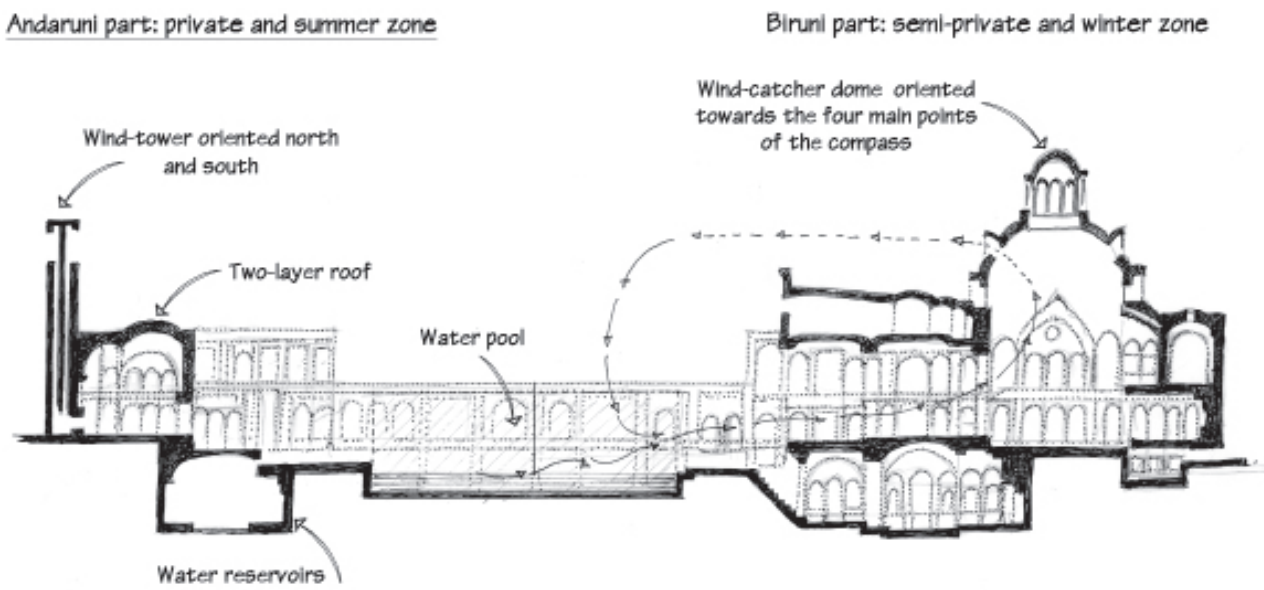


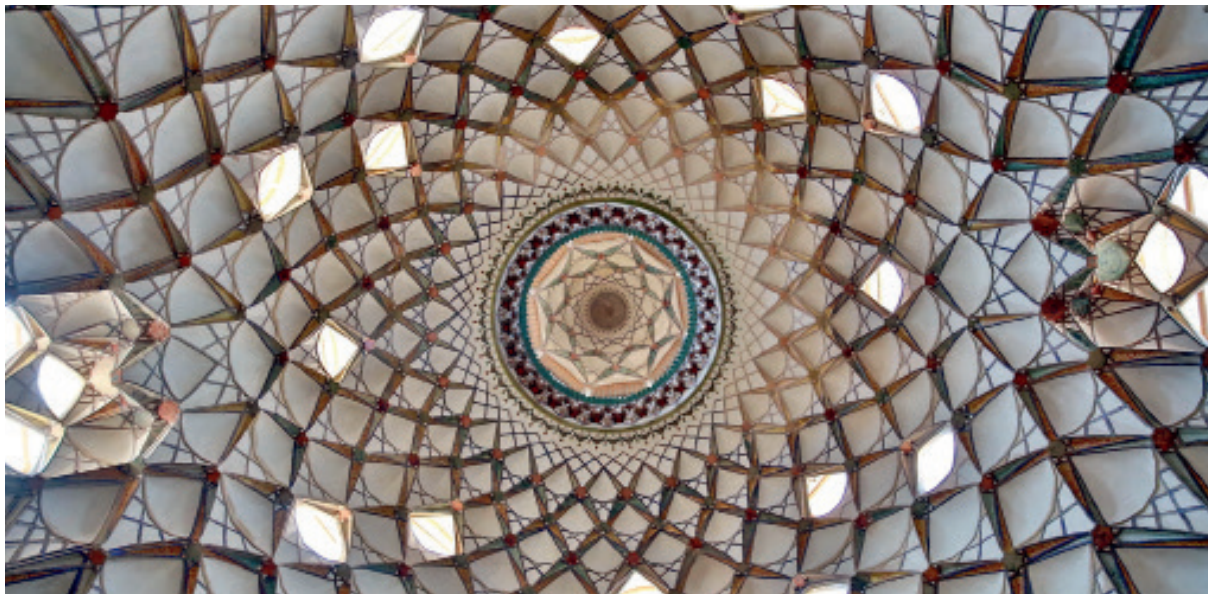
CLIMATE AND ENVIRONMENT (ADAPTIVE AND CREATIVE SUSTAINABILITY)

The aspect of climate and environment to be discussed here is not energy as a technical ingredient to achieve climatic comfort in a space, but rather how climate can shape a particular cultural character. The climate of the Middle East has generated a characteristic built environment throughout history. This built environment has a character rooted in the Saharan cultural landscape. Settlements and cities over the Saharan territory survived through ingenious methods of exploring local climate, and this reflects their cultural character (Norberg-Schulz 1980, p 97). Despite modernisation, the local population still identifies with its nomadic Saharan environment and cultural lifestyle. This is proven through social and urban patterns that are particularly persistent in residential areas where climatic considerations are of the utmost importance for existence, especially in non-oil-producing countries where mechanical systems remain unaffordable.

In light of environmental concerns due to climate change, public and private agencies are currently being urged to review the building process that is often the highest consumer of energy. Building designs that are not adapted to local climate have not only created peculiar architectural and urban forms but also put pressure on local communities to adapt to a physical environment that is alien to them. As an example, openings in traditional buildings are smaller, to protect their interiors from the scorching summer sun; but in modern buildings, the size of openings often follows the Northern European standard. This puts a great deal of pressure on

BELOW
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857: summer and winter zones
Climatic conditions and techniques engender a handsome and functional form, and guide users to visually explore the summer and winter sides as a cultural experience.



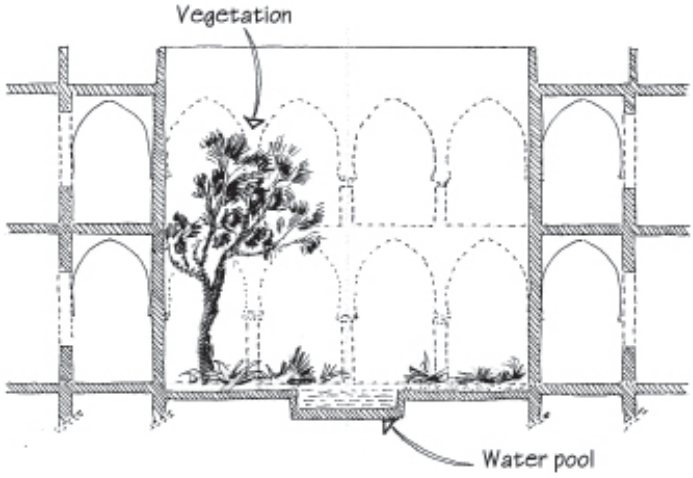


ABOVE
Ustad Ali Maryam, Borujerdi house, Kashan, Iran, 1857: openings in dome
The dome allows the sunlight to heat the top layer of air in the living space without direct sunrays into the living room.

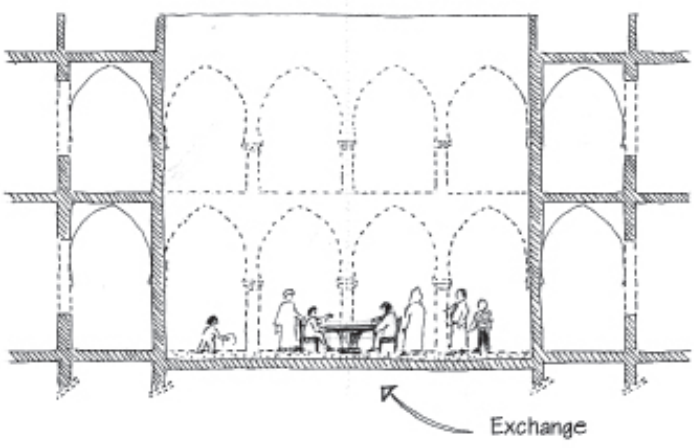
mechanical air-conditioning systems that make indoor life become largely artificial throughout the year. This is not only archaic in terms of high energy consumption, but it affects entire ecosystems. For instance, electricity consumption in the United Arab Emirates shifted from 5.5 billion kilowatt-hours in 1980 to 36 billion kilowatt-hours in the year 2000 (Al-Iriani 2005). This represents an average annual growth rate of 10 per cent, far above the 3 per cent world average.

This artificial built environment may offer some physical comfort, but besides its high energy consumption it has lost a certain communal life. It may be argued that life is tough in the desert, but when the equilibrium of an ecosystem is at stake, the whole way of life is questioned in terms of health quality. Climatic conditions generated typical cultural forms, and currently inhabitants are less dynamic in the public realm. This is not a rejection of modern comfort, but it is more a questioning of the design process, which needs to take into consideration how to adapt climate smartly by finding a balance between interior and exterior and enhancing existing cultural and social patterns in urban spaces.

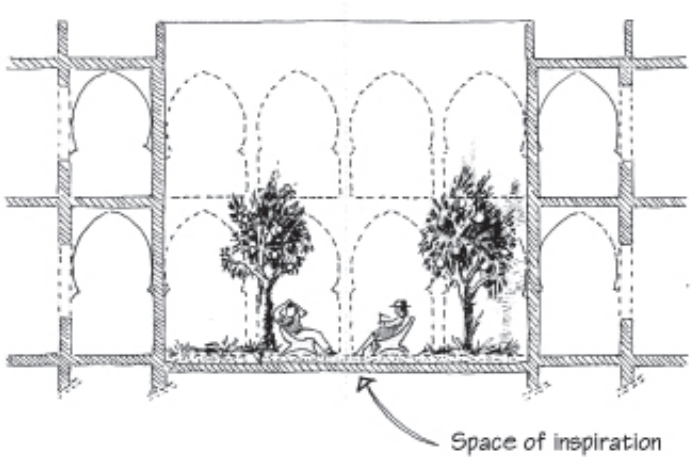
In addition, the pre-industrial architecture and urbanism of the Middle East provided genuine climatic solutions as far as sustainability was concerned. It generated special models of building envelope that not only satisfied the social codes relevant to local culture but also the contextual variables discussed in the previous chapter, such as topography, climate and energy use. The building was thus a microcosm within the macrocosm of the intricate urban fabric of the city (medina). The morphology of the city has evolved to foster an empirical sustainability, the driving force of which is a particular spatial arrangement that optimises the use of energy: it harnesses cool air, explores water sources, creates ecological realms (green courtyards) and provides highly insulated buildings within protected compact blocks.



LEFT
Traditional house in a medina: ecological dimension of the courtyard
The courtyard is a void generated by the surrounding walls so as to create an outdoor space protected from the harsh hot climate. This creates an ideal ecological environment where different plants and trees can grow.

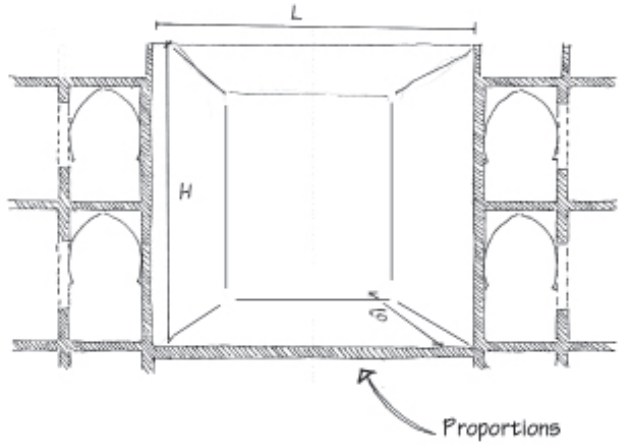


LEFT
Traditional house in a medina: cultural dimension of the courtyard
The courtyard is a space of cultural representation and gathering around the inner garden.

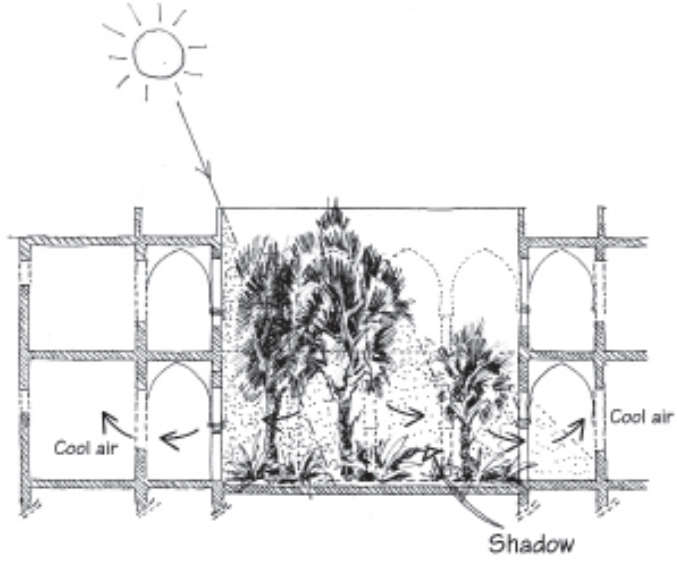


LEFT
Traditional house in a medina: metaphorical dimension of the courtyard
Through the presence of vital elements of life (water, vegetation, air, open sky), the courtyard is a cosmological space of meditation.

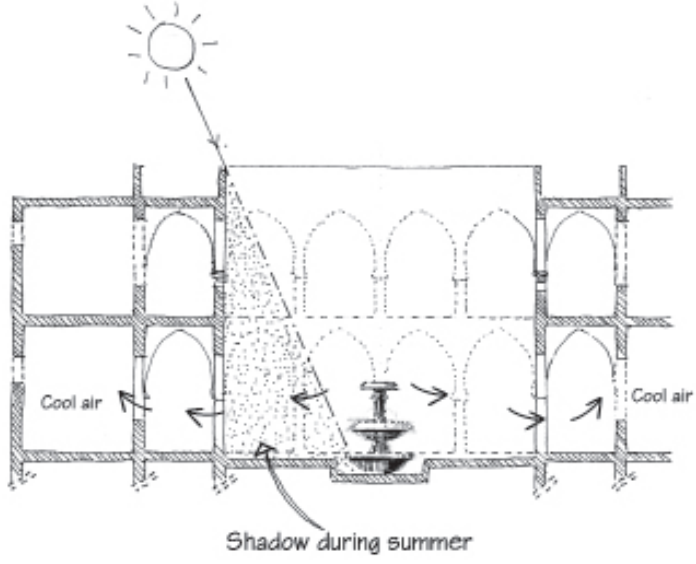
RIGHT
Traditional house in a medina: proportions of the courtyard
The proportions of the courtyard are always calibrated in order to enable light to reach all rooms. The taller this void is, the more complex the structure, according to which materials are available in each region of the Middle East.



RIGHT
Traditional house in a medina: using environmental factors to produce cool air
In the hot climate, the courtyard plays a major role in cooling air through the presence of vegetation and water.



RIGHT
Traditional house in a medina: using technical tools to produce cool air
Different mechanisms and tools are explored to cool air, such as central and mural fountains, water channels, basins etc.



Research on the empirical sustainability of pre-industrial climatic solutions and their genuine living patterns is still in its infancy in the Middle East region and elsewhere, and further exploration of contemporary passive solutions is highly desirable in order to project new architectural and urban typologies. Urban planning and urban design regulations should include measures for seeking passive thermal comfort by orienting these typologies. This can be attained through clear guidelines such as:

- increasing shaded territory to encourage walking between locations
- opting for more compact urban design elements that reduce surface heat
- integrating the green landscape within residential complexes
- seeking more separation between heavy vehicular roads and communal ones
- orienting tall buildings so as not to obstruct airflow
- applying more light-coloured surfaces on horizontal and vertical planes
- designing buildings with larger surface areas and high thermal mass
- creating urban courtyards that allow groups of buildings to have an environmental heat sink
- aiming at ideal built proportions (surface to volume ratio, shadow density, daylight distribution and so on)
- planning future urban contexts that alleviate the excessive use of air conditioning.

This mutation of urban geometry from a dispersed urban pattern to a more climate-conscious one cannot be achieved without continuous thermal simulation of the current urban fabric in order to assess its thermal performance and identify the environmental variables that are of interest. This will help architects and planners to seek suitable urban forms that include surface to volume ratios, shadow densities, daylight accessibility and view factors from the city to the sky. In addition, the 'urban heat island' phenomenon – meaning the increase of temperature in an urban context when compared with its rural surroundings – is a major indicator for planners and architects to design environmentally conscious urban and architectural forms.

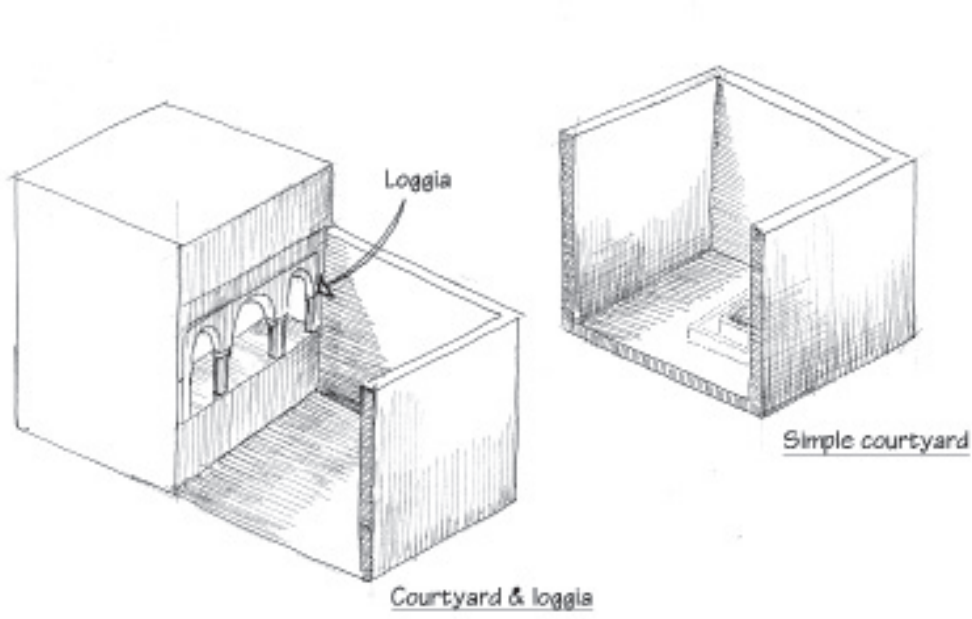
Therefore, it must be underlined that the historical and contextual built environment in the Middle East is a key point of reference in terms of how vernacular buildings were adapted to the hot and dry climate. Although they may

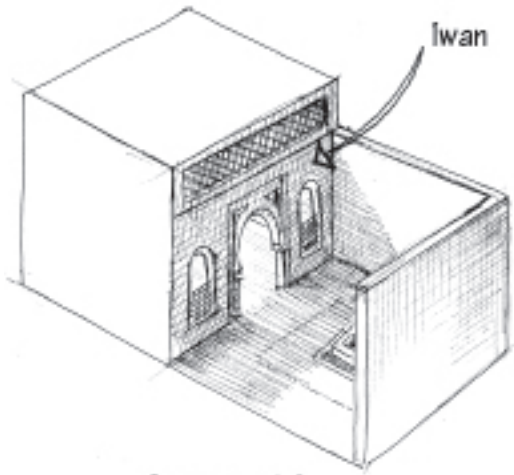
have numerous defects due to a lack of modern experimentation, the ingenious methods applied by master builders capitalise on centuries of lessons learned on how to address the integrated climatic mechanism in buildings.

As discussed above, the typology of buildings and urban geometry is an integral part of environmental and cultural design. Dense urban geometry has proved its thermal efficiency. Despite the heat island effect, thermal comfort is improved significantly through high shade density. In addition to this typical urban geometry, another structural element is at play: the courtyard. Being the heart of a Middle Eastern house for its ecological dimension (water, air and vegetation), the courtyard not only responds to the need for privacy but also proves that it is an environmentally responsive building form. Therefore, both the macro urban geometry and the micro building typology are crucial for future thermally responsive urban planning and design in the whole region, and in the Gulf region in particular.

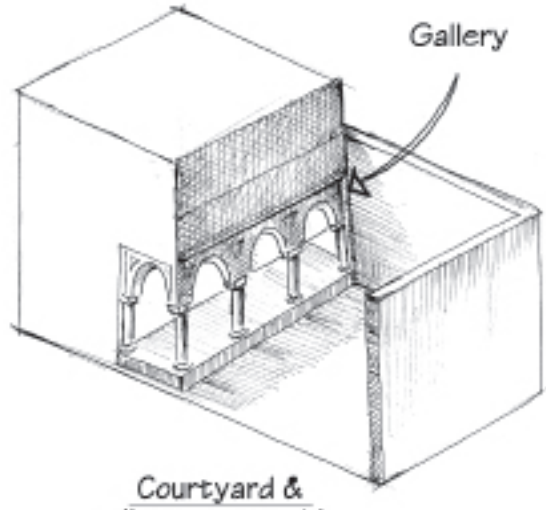
In order to deduce practical applications from pre-industrial settings for the design of climate-led architectural and urban forms, further scientific research is needed. Nevertheless, it is important to keep in mind that emulating the vernacular form of the past may not provide a complete solution to the crisis of the current built environment, which is more complex in terms of size, proportion, function and technology. Thus, this approach of attempting to learn from the existing contextual realm is neither a blind apology for past forms nor a sheer denial of modern ones. It is essentially meant to awaken the creativity of scientists and designers alike in relation to how the current built environment could be contemporary yet at the same time authentic as far as climate and culture are concerned.

RIGHT AND OPPOSITE
Ingenious methods applied in the courtyard of a traditional house
A simple courtyard can be covered by a wooden structure; accompanied by a loggia; given an iwan (open vaulted porch) or a gallery on one side; or surrounded by galleries on all four sides. The latter is a characteristic typology of medina courtyards, ensuring air circulation, and it plays a very important structural and cultural role.

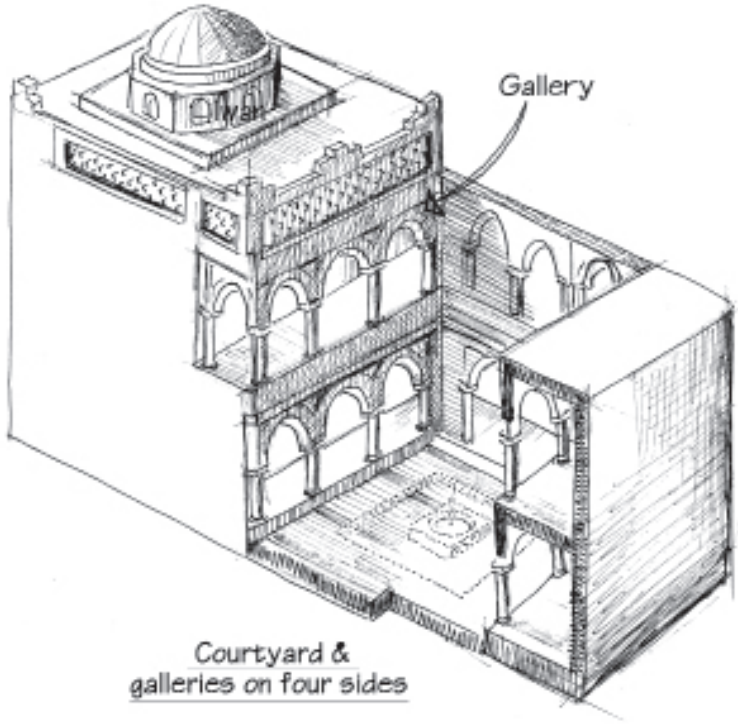




Courtyard &
Iwan

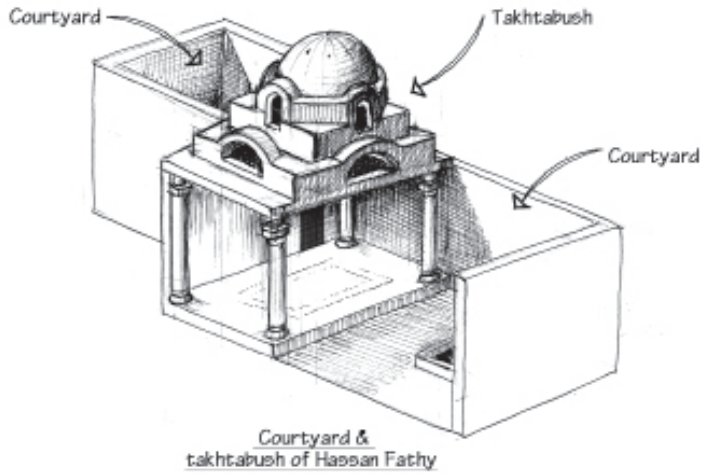


Courtyard &
gallery on one side

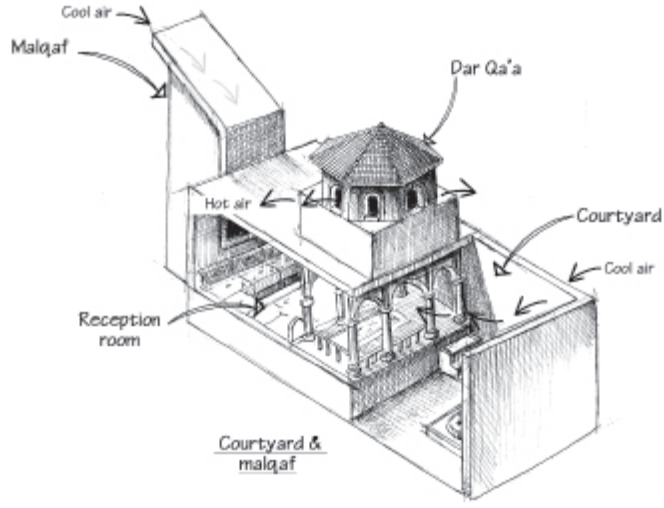


Courtyard &
galleries on four sides

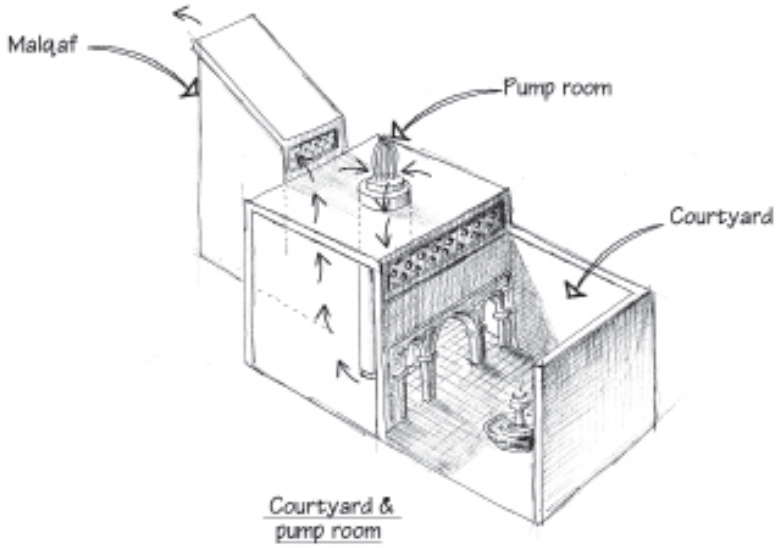
RIGHT
The takhtabush, as explored by Hassan Fathy in his designs
The takhtabush is a space between two courtyards that creates a balance of air conditions in the house.



RIGHT
The malqaf, as explored by Hassan Fathy in his designs
The malqaf (one-directional wind tower) is an ingenious tool of traditional Persian architecture that Hassan Fathy used in his buildings to cool air by employing the dome of the qa'a (living room) to eject hot air.



RIGHT
Pump room, as explored by Hassan Fathy in his designs
The pump room is a transitional space that generates a ventilation movement between the malqaf, the courtyard, and the top opening on the central roof so as to pump hot air out and bring cool air in. This space is often strategic in terms of its function.



BUILDING KNOW-HOW AND PROCESSES OF PRODUCTION

The current built environment in the Middle East is taking form through processes of production and engineering possibilities involving both local and international materials. However, the modes of production of buildings have shifted radically in the last four decades, becoming more reliant on manufactured imported materials and systems. This has caused a serious clash between the continuity of a traditional and vernacular architecture that still exists within a living community, and the imported version that heavily relies on exogenous means of designing and making.

While over the course of history the mastery of materials has constituted the key source of possibilities for architectural design that is widely related to an existing locality, designers now generally have no concern to explore or research the local crafts of materials handling. They deem it as constraining their creativity.

How can architecture be sustainable and contextual if its association with the natural and cultural milieu from which it stems is lost? It goes without saying that it is imperative to explore international innovations in terms of technology. Nonetheless, it is also vital to boost local know-how in order to smartly adapt internationalism without being enslaved to it. To guide young designers on this matter, it is important to consider the following points.

Local/Global Building Know-How

The cultural and contextual meaning of architectural creation is extensively related to local know-how, which goes in tandem with community aspirations. It is the fundamental requirement in order to induce a certain connection with the physical making of living environments, which are indeed conditioned by locally or globally generated forms. As discussed in Chapter 2, the form cannot be divorced from its materials, scale and proportions. Its cultural meaning consists therefore in preserving its raison d'être, which is closely related to its system of construction as a generator of its material symbolic dimension.

The dynamic understanding of local know-how is a trigger to mastering comprehensive design in a time of hegemony of philosophies and tools of globalism. Sustaining local building know-how guarantees that negative effects on the cohesiveness of a society, and on its architecture – which is a mirror of its cultural development – will be subdued. This matter is often viewed purely from a technological angle, but it is also psychological, spiritual and existential.

The philosopher Jürgen Habermas describes globalisation as follows: 'By "globalization" is meant the cumulative processes of a worldwide expansion of trade and production, commodity and financial markets, fashions, the media and computer programs, news and communications networks, transportation systems and flows of migration, the risks engendered by large-scale technology, environmental damage and epidemics, as well as organized crime and terrorism' (Habermas 2006, p 175). Building know-how is hence the level of preparedness

of the local to cope with global phenomena in order to keep abreast of rapid globalisation while possessing an immune system to sustain an intrinsic social and cultural production.

Therefore, local know-how cultivates a sense of constructional contextualism that is not meant to lead to uniformity, as some critics may claim. It is more to support local communities' right to have a say in terms of shaping their physical environment. Hence, the critical role of conscious and responsible design is to mitigate the forces of globalisation so as not to eradicate the sustainable cultural potential and capital of a context. In the Middle East, the living crafts are, for instance, a form of cultural capital that cannot be disregarded when it comes to architectural design and making. Some of these crafts may be obsolete, but those that do still thrive should be taken as triggers for a smart integrative design where the past is drawn upon to meet the creativity of the future. This task is rather difficult because the new generation of designers and architects are not equipped with knowledge about how these crafts work.

It is worth mentioning, in terms of business, that there is a significant market for crafts all over the Middle East. Investigating this market does not simply involve discovering tourist objects, but more particularly it also enables the local know-how to explore the building sector through architectural design that embraces their living techniques. More importantly, it ensures their continuous linkage with the local materials and elements of the site. In addition to the exploration of crafts, major investment is needed in education and in cultivating an understanding of the contextual knowledge that may enhance design thinking and practice, without causing it to fall into pastiche or promoting mere consumption of traditionalism and historicism.

RIGHT
Master builder with students, Morocco, 1997
A master builder passing his know-how on to the new generation of architects.

Technology-Based Culture

Technology without culture is what prompted empty forms that have no spirit and no sense of belonging. However, technology is not the sole culprit in this regard; also to blame is a lack of self-confidence, combined with an inclination to bow down to internationalism as the only source of creativity. Each community has its designers and inventors, and this home-grown creativity produces uniqueness. This uniqueness, which engenders a true universalism, is based on value-based content, and not on the monotonous repetitive forms of the 'International Style' that plagues the planet.

Technology-based culture can be equated with an advanced techne in the Greek sense: a culture of know-how with a certain established local art and knowledge. In contrast with modern technology, the significance of techne, according to philosopher Martin Heidegger, is to allow 'the earth to be "earth"' (Heidegger 1971, p 46). Empirical technology was accordingly not only a tool, but a 'revealing that brings forth truth into the splendor of radiant appearing' (Heidegger 1977, p 34). When technology becomes but imported 'manufacturing' to flood distant localities with rootless 'instrumentality', these localities and their know-how are not invited to adopt and adapt its rules because of its 'unrevealing' nature and lack of 'truth'.

This means that no adequate built environment can be transposed from one setting and into another. No principles of workmanship can be cultivated without a sense of truth of cultural transmission. Accordingly, technology ought to be pursued as a means to enhance workmanship, and not as an artificiality that transposes gadgets without a cultural identification and value as discussed earlier. The 14th-century Arab historian Abdurraḥmūn Ibn Khaldūn underlined the importance of crafts and practices, and among cognitive states he presented crafts as techne, scientific knowledge as episteme, and practical wisdom as phronesis (Zaid 2003, p 20). The combination of the three is what gives a holistic dimension to the act of making and designing with the support of science and knowledge that are the product of an established culture of a region.

Ibn Khaldūn epitomises this with these words:

> It should be known that a craft is the habit of something concerned with action and thought. Inasmuch as it is concerned with action, it is something corporeal and perceptible to the senses. Things that are corporeal and perceptible to the senses are transmitted through direct practice more comprehensively and more perfectly [than otherwise] because direct practice is more useful with regard to them [...] The transmission of things one has observed with one's own eyes is something more comprehensive and complete than the transmission of information of things one has learned about [...] .
>
> (IBN KHALDŪN 1969 [1377])

The transmission of techne, technology of knowledge, is not what is currently occurring in the Middle East. For example, in the Gulf area, the transmission of

RIGHT

WOHA, The Met, Bangkok, Thailand, 2009

This high-rise building designed by Singapore-based architectural practice WOHA is based on current technology and explores techno-cultural aspects of low-rise tropical housing by adapting local cross-ventilation devices and environmental arrangements to create sustainable vertical housing units.

technology is that of instrumentality of consumption and not the grassroots technology of a sustainable nature.

Without cultivating a perpetual local know-how of technology, the Middle Eastern countries, where the instrumentality is fully imported with its knowledge base and research foundation, cannot build a grassroots technology as Asian countries have. In some of these countries, technology is fully embraced as an integral part of the Asian culture; hence, the act of designing and making is sounder as far as social and cultural context is concerned. Nevertheless, without local know-how regarding designing, making and technology, architecture would be but whimsical and metaphorical dreams parachuted into the desert, and fabricated in ivory-tower offices in London or Paris. This is not to reject international architects who design in remote localities, but it is rather an invitation to these architects, whoever and wherever they are, to judiciously cater to communities' social, cultural, spiritual and environmental needs, and not to serve their stardom with iconic, unhuman and unsustainable architecture.

MORALITY, ETHICS AND RESPONSIBILITY

Although many architects would argue differently, any given design is largely dictated by the nature of the commission and the client. What should be stressed is that more effort should be made to orient these clients and patrons, who often ordain the rules of design under the alibi of wealth and power. In a time of globalism when the sense of judgment of holistic beauty has declined, the strategic role of architects' organisations to defend the position of architectural practice is of the utmost importance. The flood of images from the media has hindered our ability to distinguish between real and fake. The way in which aggressive marketing is dictating the rules, through its ephemeral fashions that have hijacked genuine design, is alarming.

Consequently, the standard of ethics is under continuous influence, and the market has deeply impacted the moral integrity of professions. Thus, designers and architects – especially those of the younger generation – need to be equipped during their education and immersion into practice with an arsenal of core values in order to design liveable and sustainable environments for communities.

As John Ruskin argued, architecture ought to be subject to ethical and moral scrutiny and evaluation (Ruskin 1849). Therefore, this very discipline needs to re-establish its lost status as the vehicle of human genius rather than a set of gadgets and toys for a momentary visual ecstasy. Besides functional, technical and artistic considerations, architecture needs hitherto to effectively observe cultural, psychological and symbolic considerations.

Philosopher Paul Ricoeur, in his essay 'Universal Civilization and National Cultures', has echoed these last considerations by alerting architects and others to the threat of erasing the ethical-mythical nucleus of living cultures. He declares:

> Then the question of fidelity is raised: what happens to my values when I understand those of other nations? Understanding is a dangerous venture in which all cultural heritages risk being swallowed up in a vague syncretism [...] Only a living culture, at once faithful to its origins and ready for creativity on the levels of art, literature, philosophy and spirituality, is capable of sustaining the encounter of other cultures – not merely capable of sustaining but also of giving meaning to that encounter.
>
> (RICOEUR 1965, PP 282–3)

Accordingly, the sense of judgment of the aesthetic vis-à-vis this mythical-ethical content of a project needs to be further cultivated among young architects. The design purpose (Who, What, Where and How) is therefore essential to gauging the architect's level of responsibility. Is the design performed out of necessity, need, or luxury? Necessity is what covers the existential means of life: without it, a being may perish. Need comes after necessity and is important to complement the role of necessity in order to sustain. Luxury comes when necessity and need are covered; its presence or absence does not affect people's established living conditions.

For instance, if a design is one of necessity and it pursues an illusionary industrialised fashion without considering people's primordial conditions that shape their lives, in this case the architect is not sensible or responsible. This occurs especially in projects geared towards social ends, where the architect's prime duty is to be creative, to design decent living spaces with a certain degree of aesthetics that derive from his or her talent to go beyond the limits of conventional design.

In a region like the Middle East, where large communities live below the poverty line, and where cities are of high density such as Cairo, it would be at odds to import a model like that of Dubai. In the first case, the architecture is more one of existence and resistance, while in the second case, it is more one of high aesthetics and iconicism. This is not intended as a criticism of Dubai in its orientation as a global hub, but is rather to voice concern about how the whole Middle East can pursue a grounded architecture that enhances the quality of human conditions, even in some countries whose economies are based on oil production.

Hassan Fathy warned architects about the impact of insensitive architectural production, asserting: 'Profoundly affected is the mass of the population, which is pressured to consume industrially produced goods. The result is cultural, psychological, moral, and material havoc' (Fathy 1986). The urgency of addressing the cultural and social dimension in the design process is hence vital for sustaining human establishments in the Middle East. Accordingly, by being elitist, architecture in this specific region has lost its human anchor, causing a serious clash between the built environment on the one side and the human environment on the other.

CONCLUSION

Good design takes account of cultural and environmental meaning. A close understanding of a given cultural setting that involves languages, customs, memory of place, and lifestyles is highly recommended for responsible design. If architects rely only on artistic judgments as the prime medium to capture the value of a locality, the newly designed physical environments may be reduced to mere copy-and-paste cultural clichés.

Accordingly, the interaction of a design process with the cultural and contextual existing environment of a place should be empirical and experimental in order to bridge the growing gap between design and projects as human experiences. The cultural and contextual meaning of architectural forms is therefore of the utmost importance in order to design sustainable architectural projects. While this meaning needs to be extracted or projected, not all architects are trained to reach this stage of consciousness in exploring how cultural meaning can be represented and expressed by architectural design.

If this exercise is carried out well by local and foreign architects, it brings useful cues concerning living cultural behavioural patterns related to existing architectural and urban archetypes. The key value of cultural resilience in architecture is the focus on the momentum of community participation through activating its positive cultural memories, and refreshing its living ones through a new holistic design. Thus, the responsible considerations discussed in this chapter can be the starting point for researching generative tools to capture cultural meanings in comprehensive design processes.

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Architecture in Context Designing in the Middle East
By Hassan Radoine

CHAPTER 4

TRENDS AND DISCOURSES OF CONTEXTUAL ARCHITECTURE

The lack of a sound conceptual framework and the current highly eclectic built environment in the Middle East make it difficult to have a lucid image of contemporary architectural trends in the region. A growing number of contradictions, dichotomies and ideological controversies as well as the current political and social turmoil appear to be complicating the way contemporary architecture might be revisited. Apart from the seemingly stable, wealthy Gulf countries where avant-gardist projects are being carried out, many projects developed in other areas in the region are more concerned with addressing more prosaic issues, such as pressure to solve the problem of social housing. However, it is necessary to go beyond what has occurred in the last decade in order to review architectural practice vis-à-vis a certain conceptual construct that is unfortunately almost absent among young architects and students of architecture today.

What young architects need to know is that in the last century, the Middle East became a battleground where local and imported ideologies were always clashing. In terms of architecture, the reactions of both local and foreign architects damaged the normal understanding of the act of designing as a genuine endeavour that ought to be geared towards producing an architecture of democracy and wellbeing for people, rather than being interlocked with ideologies of East or West. In addition, as mentioned in chapter 2, the act of designing among young architects is highly influenced by the present trend of parachuting in progressive gadgets of illusionary aesthetics without any regard for the architectural or cultural legacy of the local populations.

Accordingly, since the beginning of the century, local and foreign contemporary architects practising in this region have often pursued two lines of thought. The first group – local architects – lacked a close understanding of their context and its cultural complexity, having been mainly educated in the West. Some of them

OPPOSITE
Driss Kettani with Mohamed Amine Siana and Saad El Kabbaj, École Supérieure de Technologie de Guelmim, Guelmim, Morocco, 2011
A project that explores both contextualism and sustainability in order to generate human-scale spaces with passive thermal comfort in the hot south of Morocco. It also demonstrates that sustainability can be generated in situ without resorting to foreign materials.

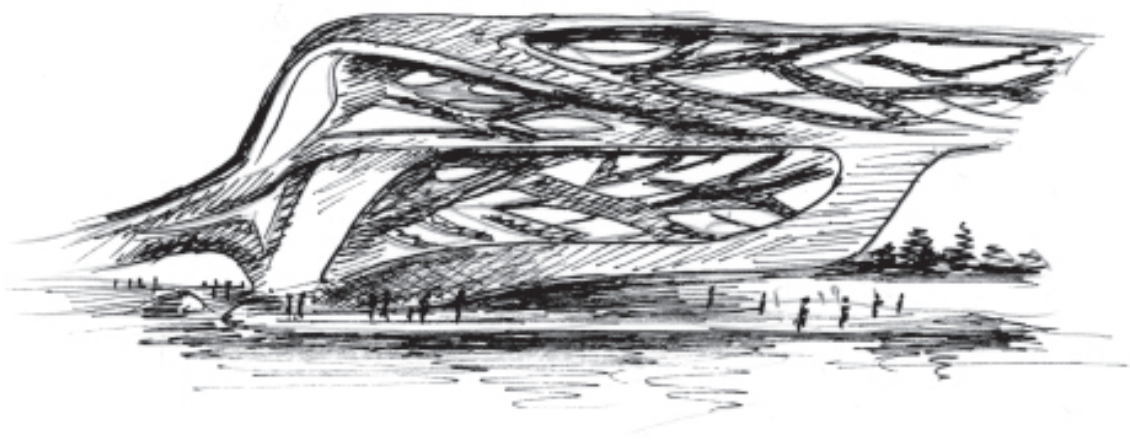
resorted to radical modernism to prove their progressivist ideology, while others resorted to its counterpart – radical emotional 'Islamic' or 'Arabic' – to recover a lost identity, resulting in the use of sheer pastiche all over the Middle East.

On the other hand, the second group – foreign architects – have shown no willingness to genuinely learn about other contexts outside their Eurocentric comfort zone. Thus, they have resorted to the so-called 'International Style' that has been considered a magic potion for every time and place since the 1940s. The International Style was defined by the 1932 'Modern Architecture: International Exhibition' at the Museum of Modern Art in New York, curated by Henry-Russell Hitchcock and Philip Johnson, as a set of buildings that share common features such as plain facades stripped of any decoration, structural consistency, use of glass and steel, and an overall rectilinearity (*Encyclopaedia Britannica* 2005). This attempt at an internationalisation of architecture that plagued the Middle East and all the regions of the world is currently shifting to an architecture of high aesthetics and the exploration of technological and materials innovation. Rectilinearity is becoming a thing of the past, thanks to the sensual computer-generated fictional forms that are spreading everywhere.

BELOW
Sketch of CICO Consulting Architects & Engineers' (with associate architects SIAT Architekten & Ingenieure and structural engineers Stroh + Ernst), Tornado Tower, Doha, Qatar, 2008
Design based on high aesthetics of new technological and material possibilities often results in computer-generated curvilinear forms.

In addition to these major exported styles, the dearth of in-depth critical research and of a grounded discourse of contemporary architecture have recently made young local architects in the region vulnerable to these parachuted-in architectural models by 'starchitects', based on no sound aesthetics or discourse but on a forced individualistic signature – as in the case of the transient fashion world. It is therefore imperative to investigate how some local architects have interpreted contextualism or globalism, regardless of their success or failure. Indeed, it is important to understand what has occurred in the contemporary Middle East in relation to architectural theory and practice as seen by local critics in particular, without the influence of continuous oversimplified extraneous stereotyping.

In this regard, the progressive architectural ideas of the first generation of local architects in the Middle East, who practised between the 1930s and the 1950s, are of interest. These architects viewed technology as an end in itself, and not as a means with architecture serving as its vehicle. Following in the footsteps of modernists who were comforted by an amalgam of ideologies, these architects attempted to convert raw concrete, steel and glass into utilitarian designed forms that spread all over the place. This movement invaded all schools of architecture in the Middle East, and faced little or no resistance during both the colonial and postcolonial periods.

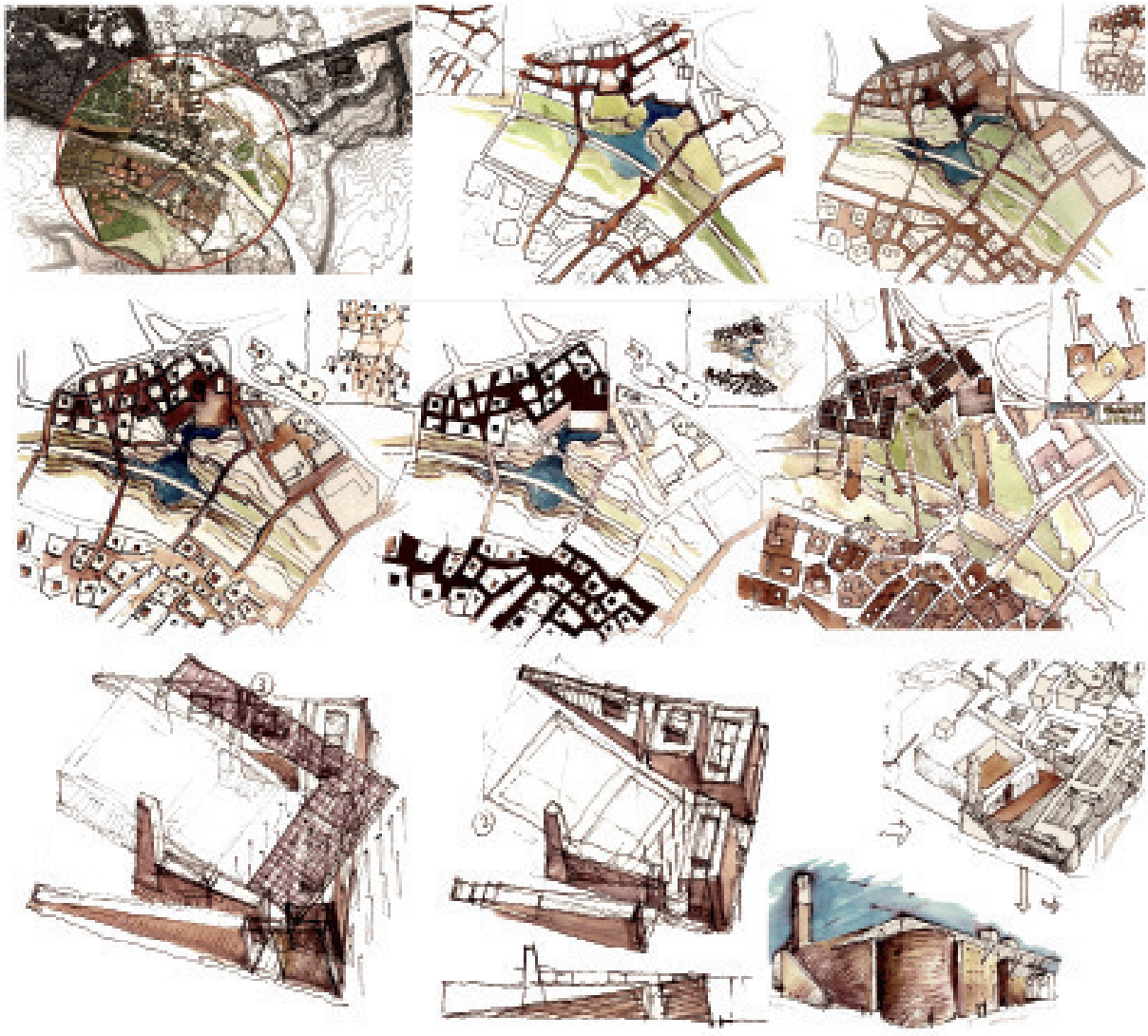


ABOVE
Sketch of Zaha Hadid's Performing Arts Centre, Abu Dhabi, United Arab Emirates (under construction)
Signature architecture has become very fashionable. Despite its high aesthetics, this type of architecture cannot be applied on all building types, but only on those of a public or monumental nature.

Accordingly, graduates of these schools applied modernist architectural models in their countries, regardless of whether or not they were in harmony with the local climate and culture. With the rise of abstract modernism, these young architects also pursued the same European ideological position of rejecting their cultural antecedents. Traditional architecture therefore appeared to be perceived as a conglomeration of sterile archaeological vestiges or obsolete buildings incongruous with the modern era.

For example, in the case of Egyptian architects, Abdelbaki Ibrahim, a former Chairman of the Center of Planning and Architecture Studies (CPAS) in Cairo, published an article regarding this situation in 1998 (Ibrahim 1998, p 5). In it, he describes what had been designed by foreign architects in some Arab countries as an attempt to manipulate imported forms and building materials without any relevance to local culture or environment. He states that most of the Egyptian architects were attracted to this 'circus' and tried to play the same games. However, he exempts a few who either resented this attitude or tried to find innovative ways to apply the values learned from the rich existing architectural setting of Egypt.

Very few local architects in the region resented imported forms and saw the potential of exploring local architectural antecedents or sustainable contextual elements. Of those who somehow pursued a contextual approach, mainly in the Arab-speaking countries, some of the most prominent were Hassan Fathy, Abdel Wahid El-Wakil, Mohamed Saleh Makiya, Rifat Chadirji, Maath Alousi and Rasem Badran. They formed the first wave of contemporary architects that shifted the paradigm of modernism. They offered a fresh appraisal of a constructive regionalism and a premise of an environmental and contextual design. The coming sections of this chapter will present their work according to a given approach rather than focus on the work of any in particular.



ABOVE
Rasem Badran, Bujeiri Development, Riyadh, Saudi Arabia, 2015: concept drawings
Badran experiments with contextual elements through different design scenarios, and is a master of visual research that seeks a deeper grasp of the project's locality.

If future generations of architects do not attempt to discover and comprehend how the above local architects viewed and practised context in a period where this concern was still fresh and contact with the cultural milieu was still sound, they may lose the link with local building know-how and community-based design forever, especially given that they are constantly bombarded with digital images and global cultures. This is not a call to turn our backs on technological innovation, but rather an attempt to orient smart solutions to generate a design of value and content.

The presentation of tools that allow a contextual understanding and projection of space is essential at this particular moment in the history of the Middle East, where forces blindly leaning towards the 'ethos' of abstract internationalism

have inflicted serious damage on the built environment, despite its fast solutions to several issues such as the housing shortage. This positioning of architectural theory and practice according to contextual value needs to be grasped, because the looming loss of this value in the near future may be not only physical, but also mental. Hence the urgency of presenting some guiding conceptual elements and of establishing a roadmap of how the global and the local can merge through conscious design that balances their opposing forces.

To do so, it seems useful to start by suggesting a new definition of regionalism vis-à-vis internationalism, and showing how, if closely revisited in the context of the Middle East, this may reveal some positive triggers.

ABOVE
Rasem Badran, Bujeiri Development, Riyadh, Saudi Arabia, 2015
Badran deconstructs and reconstructs context in responsive design processes that create innovative spatial and formal configurations as in traditional architectural settings. The design goes beyond the question of aesthetics in order to integrate environmental and cultural solutions into architectural envelopes.

REGIONALISM AND INTERNATIONALISM: A DESIGN REFERENCE

Internationalism is the move towards the globalisation of modern architecture, to make forms transcend beyond the individual and contextual levels through a modern aestheticism devoid of a sense of place. Despite the fact that this internationalism seems to be an attempt to liberate humanity from some of the negative aspects of power-heritage, it has had an adverse impact on the 'creative nucleus' of cultures and traditions that persist (Ricoeur 1965, p 278).

It is often assumed that culture ought to be modernised and therefore globalised. However, both terms are antagonistic. Is modernisation only a question of a change of tools, or is it a change of the 'creative nucleus'? If modernisation is concerned with standardising the means of building and living, which surely provided a standard of comfort for the global masses, it can hardly be possible for a particular culture to meet the requirements of standardisation in order to produce comfort at its own level. Modernisation of a culture cannot escape from the philosophy and dogma of modernism.

The main issue of modernism is that it enforces so-called rational rules on regional and vernacular architecture in order to attune it to modern reason, labelling it as primitive or disorderly without consulting its users in order to decipher its complexity. To remedy the defects of modernism in coping with this complexity, some trends of regionalism attempt to mitigate abstract aestheticism in order to establish the global. Instead of questioning the reliability of modernism, place is criticised for not being subservient to it.

Regionalism and modernism are two sides of the same coin because the first was invented to cure the emptiness of the second. Whenever a spirit of place is revealed in an architectural project, the concept of regionalism is applied to situate it vis-à-vis modernism, in conformity with its international minimalist abstraction. When tradition is explored in order to regenerate and revive a certain genuine continuity with the past, a number of associations are made such as fabrication of tradition, invention of tradition, and historicism.

However, these associations should be applied in places where tradition is lost forever and what remains is merely its static archaeological artefacts or symbols. Nonetheless, in places with living traditions, these associations would be idiosyncratic. The abandonment of a cultural past to fully espouse future moves will only generate chaos in the evolutionary patterns of architecture that are intertwined with embedded social constructs.

Modernism is seldom applied in the Middle East as an ideology. Rather, it is more of a fascination with technology and its subsequent instrumentality that generates new rapid forms. Thus, architect Alan Colquhoun's question about the relationship between cultural patterns and technologies is pertinent. For him, this relationship is 'to some extent, obscured in the West, because industrialization evolved out of local cultural traditions, and the adaptation to a post-industrialized

culture is already quite far advanced' (Colquhoun 1997, p. 22). He adds that 'the problem is glaring, however, in the East and in Africa because of the friction between two worlds and two times: the agrarian and the industrial. The questions that arise from such a situation are the following: Are cultural patterns absolutely dependent on an industrial base, or can they maintain certain independence? Is an industrialized culture irrevocably Eurocentric?' (*ibid*).

The link between industrialisation and modernisation is essential for grasping the complexity of architecture in the Middle East, where tradition is viewed and differently embraced in comparison with the industrialised world. The gap between imported modernism and local sustainable cultures is therefore wide. People of these cultures have never fully understood what it means to be modern and are in continuous conflict with modernisation (*ibid*). To resolve this paradox, a retrospective measure must be sought. What is lost due to modernism? And what is to be gained from sustainable cultures? Unquestionably, the solution is beyond 'critical regionalism'. Architecture in the Middle East is thus trapped between corrective measures of its own tradition and imported dictated rules.

Kenneth Frampton's description of the 'universal civilization' as a victory over 'inflected culture' in order to advocate a 'critical regionalism' is subjective (Frampton 2002, p 17). To use Ernesto Nathan Rogers's 'formalistic aestheticism', the 'freestanding high-rise and the serpentine freeway' are yet to surrender to the pre-existences of their milieu: 'The context is the place of these preexistences and anything that did not feel their influence would be vague and indeterminate' (Rogers 1993, p 202). When Frampton proposes 'critical regionalism' as a way to counterbalance 'sentimental regionalism', it seems that he creates a vicious cycle rather than solving the dilemma. If regionalism stems from a rectification of modernism, then on what new basis does Frampton suggest the pursuit of this new approach? In addition to Alex Tzonis and Liliane Lefaivre's argument in 'The Grid and the Pathway' (Tzonis and Lefaivre 1981) regarding regionalism, it is essential to state that this regionalism that has not dominated 'architecture in almost all countries at some time during the past two centuries and a half' (Frampton 2002, p 20) has been revoked by a specific architecture that has dominated all regions. This specific architecture is a compound of ready-made modernist philosophies, idioms and aesthetics.

The challenge of contemporary architecture in the Middle East is therefore the establishment of a provision that permits an escape from the canon of pre-framed concepts such as regionalism, critical regionalism and modernism, particularly its uniform internationalism. This provision cannot be attained without first understanding technological advancement in order to be gradually integrated in the social and cultural fabric of the region. Claude Lévi-Strauss, in his essay *Tristes Tropiques*, explains eloquently that the adaptability of a culture to civilised tools is just a matter of time perception, and not of a lack of ability (Lévi-Strauss 1973). To use the tools of other cultures presupposes the understanding of one's own tools (Ricoeur 1965, pp 282–3).

Architects in the Middle East ought to assimilate the cultural and geographical peculiarities of modernism, and be reminded that the technological tools that prompted it should serve as a facilitator and not as an end in a contextual design process. When the time gap widens between people and their architecture, confusion prevails, making a sense of belonging irrecoverable. This sense of belonging is an identification with a place and a community. It is a crucial human need in order to cultivate a sense of identity that derives from sustainable physical and mental references. Architecture is among the key vehicles of memory and belonging that translate communal, spiritual and environmental elements to living contexts.

If the sense of belonging is lost, architecture will need time to recover the link between people and their places. The Middle East in particular has suffered from the architecture of order and rule that has a dramatic impact on the physical and human level. A sense of belonging is more genuine than a sense of a region (regionalism) that signifies applying regional materials and forms to a modern design in order to make it local. This regionalism resulted in a 'postmodernism' that promoted a kitsch form of architecture and discarded the living history, memory and tradition of the region.

The sense of belonging is currently enhanced by the sustainability movement, which cannot be realised without durable contextual and regional parameters. However, sustainability in the Middle East ought to be more inclusive of cultural identity to further embrace the human and social factors that are often overlooked.

It is thus imperative after discerning the meaning of these key common concepts of regionalism and contextualism to present different trends related to how the content of previous chapters can be practically projected. This cannot be done without understanding the controversial concepts and practices of local contemporary architecture in this region.

A PARADOXICAL DESIGN: REACTIVATING OR MIMICKING 'ISLAMIC'/'ARABIC' ARCHITECTURE

It is not possible to talk about contemporary architecture in the Middle East without referring to several much-debated adjectives related to the theory and practice of architecture in this region. The most problematic among them for young architects to grasp are the adjectives 'Arabic' (or 'Arab') and 'Islamic'. The term 'Arabic' may refer to the Arab region, which contains a majority Muslim population; the term 'Islamic' may cover a larger geographical area, where Arabic-speaking communities are but a part of a wider multi-ethnic and cultural Middle Eastern region, as explained in chapter 1. The focus of this book is contemporary architecture located in this second, broader, Middle East.

Nonetheless, the term 'Islamic' may intersect with 'Arabic' and other adjectives such as 'Christian', 'Jewish' and 'Buddhist', as well as other cultural minorities that have contributed to forming the cultural vehicle of architecture in this broad Middle East. For the sake of consistency, the trends dealt with here concern the geographical and cultural constructs that are partly defined by modern politics which have shaped and subdivided modern states in the Middle East.

In this regard, it would be accurate to use the two adjectives 'Islamic' and 'Arabic' as determining all architectural styles and vocabularies in the whole Middle East. Without dwelling too long on endless academic arguments that have already consumed all definitions to discern these adjectives, and in an attempt to avoid sparking off further controversies among academics who specialise in these topics, the objective here is to present some thoughts on some orientations for young architects about how to situate these types of architecture within contemporary discourse and practice.

Conversely, a major concern is that these adjectives have been vehemently debated or criticised to a point where the majority of literature on the subject has become very difficult for the public and professionals such as architects, who are seeking to understand forms better, to fathom. Accordingly, architects, who are uninformed about the subtleties and details of what makes architecture 'Arabic' or 'Islamic' as debated by eminent scholars, may end up replicating superficial clichés and exacerbating the unfortunate practice of reproducing pointed arches and domes everywhere.

In addition, and as covered in chapter 1, architectural antecedents in the Middle East region go beyond one historical period or one religion to encompass centuries of accumulation of architectural idioms, shapes, symbols and techniques. It must also be admitted that during the long Islamic period, some forms of architectural articulation were intertwined with some Islamic cultural codes that became critical cultural symbols of identification of place. How did this happen? And how should it be presented in the context of this chapter?

The blind pursuit of aestheticism has aggravated the severe separation between genuine cultural and spiritual content on the one hand and architecture

on the other (Vesely 1985). This separation has driven the rise of designing pseudo-Islamic architecture according to a mere graphical synthesis of forms and symbols, especially in the Middle East. The result has been the reduction of Islamic architecture to a simple collection of images. The local spirit of reactivating the Islamic architectural heritage has lost its momentum: hence the standardisation and copying of empty forms of Islamic architecture without understanding their meanings and raisons d'être.

The rooted expertise of living craftsmanship in the Islamic world that challenged contextual parameters such as building materials, climate, users' needs and different geographical environments in order to mould an architecture, transcending the physical constraints, has been perverted to a new industrialised process that focuses on copying forms of Islamic architecture. This industrialisation has also generated a new myth of consecrating the object as a work of art, at the expense of its cultural, spiritual and contextual values. This has generated an unethical architecture of mere polished objects (Harries 1998).

Thus, the creative solutions developed by 'Islamic' architecture as a highly interactive architecture, where behaviour, conduct, senses and spirituality were part of its fabric, are now interlocked in formulas of either Orientalists' fiction or natives' romanticism. Islamic architecture, throughout centuries, has been enhanced by its historically rich antecedents, which adapted to time and place in order to create sustainable spaces for its diverse communities. It ought to be explored within its generative contents and forms. Beyond hermeneutical and ideological bias, there is, then, no issue in calling this architecture 'Islamic'. Accordingly, Christian Norberg-Schulz defends the use of 'Islamic' as an adjective for architecture by asserting that: 'We should not be reluctant to use the word "Islamic", but rather be happy and proud to use it. Let us avoid the error so common in Europe which is to deny one's identity and lose self-confidence' (Evin 1986, p 25).

Since the beginning of the 20th century, several architects from the contemporary Muslim world have embarked upon this daunting task of reviving an Islamic architecture that responds to the memory and tradition of current Middle Eastern societies. However, it is unrealistic to conceive a contemporary Islamic architecture as that of the past, fulfilling the same purpose through the same means in an era of globalism. As architecture is the vehicle of representation of societies, Islamic architecture has lost its momentum with the lack of adaptability to technological progress as well as social and artistic decadence.

The possibility of igniting or regenerating the synergy of Islamic architecture is therefore concomitant to an assimilation of contemporary technologies and forms and a level of creativity capable of encompassing vibrant cultural evolution. This will not happen unless its current producers are fully equipped with sound research and constructive criticism, together with a sense of technical pragmatism. The lack of such conditions results solely in adoring its glorious historical symbols while the consequence is an architecture of pastiche that is neither Islamic nor contemporary,

OPPOSITE
Cico Consultants, Supreme Education Council building, Doha, Qatar, 2002
An exotic eclecticism that, in this author's opinion, reduces the quality of authentic forms and proportions.

and which spreads shallow forms throughout the current physical environment of the whole Middle East.

Accordingly, all these enquiries are legitimate to further decode an architecture connoted as Islamic or Arabic. While Islamic/Arabic architecture is still mysterious for most practising young architects as a grassroots process, the urgency of redefining its elements is important in order to orient a large number of architectural competitions and commissions launched under the umbrella of these ill-defined adjectives related to architecture. The result of such designs mimicking Islamic motifs, often commissioned by wealthy clients in the Middle East, underlies the 'theme-park' approach that produces an absolute eclecticism and aestheticism for the mere sake of creating the glamorous and exotic.

It is therefore advisable for young architects who are inclined to explore this trend of Islamic/Arabic architecture even further to deepen their research on this complex theme in order to construct a reasonable knowledge of its vocabulary, proportions and meaning of forms. It is indeed a specialisation that does not just resort to copying and pasting authentic idioms without prior knowledge. If the tradition of this architecture is seriously investigated, its elements can be drawn upon to cope with rapid contemporary technical and social changes.

REINVENTION OF TRADITION OR HERITAGE IN DESIGN: CONTINUITY OR DISCONTINUITY

Contemporaneity has always challenged the capacity of a tradition to adapt and integrate change. It means exploring contemporary tools and methods in order to shape anew an existing architecture. It comes out of the challenge of history to deliver its link with a new reality. Accordingly, a tradition that cannot regenerate itself to deliver a contemporary link can be thought to be sterile. When a link is possible between different periods of time, historical continuity becomes dynamic and produces new forms and functions that push the momentum of the architectural tradition forward.

While it is tradition that is dynamic and transposes time to embrace contemporaneity, heritage is but an act to identify and save its object. If heritage has no guaranteed continuity with contemporaneity, it often remains in the realm of solely material memory. Since the rise of the term 'heritage', its significance became problematic in the last century as a counterpart of the modern movement that distances itself from the architecture of the past. It has become intertwined with the conservation movement, and it does not require a living human link as it often serves as a museum showcase (Choay 1992).

Hence, it is tradition that is related more to human experience and its sustainability because it bears the seed of progressive forces to move human know-how forward while bridging past, present and future. What supports this statement is the Latin origin of the term tradition – *tradere* – which is a verb meaning to hand over or to transmit (*Collins English Dictionary*). It signifies an inherent dynamic transmission of human know-how, and is thus stronger than the term 'heritage' which signifies merely an inheritance of possessions.

Therefore, the architecture of 'tradition' and not only of 'heritage' has generated continuous links throughout centuries. It came to a halt when its living legitimacy was questioned by the encounter, beginning in the 19th century, with the new 'universal' modernist school. This encounter raised several nagging questions on how this architecture of tradition continues to perform and keep its living culture while facing the pressure of modern radical change. Ricoeur puts it as follows: 'Only a living culture, at once faithful to its origins and ready for creativity of the levels of art, literature, philosophy and spirituality, is capable of sustaining the encounter of other cultures – not merely capable of sustaining but also of giving meaning to that encounter' (Ricoeur 1965, pp 282–3).

The quest for historical continuity while being open to learning from other cultures has sustained the contemporaneity of architecture in the Middle East. The architectural tradition in this region has had a capacity to project itself into the future whenever challenged. Thus, this tradition, if not limited to obsolete objects or dogmas, can be an active element in shaping new contemporary physical environments.

Among the key figures that have pursued this architectural discourse is Mohamed Saleh Makiya. His years of architectural practice in Baghdad and London

enabled him to establish several conceptual guidelines for new contemporary architecture in the Arab region. He was born in Baghdad in 1914, and received a degree in architecture from the Liverpool School of Architecture in 1941. He also held a PhD from King's College, Cambridge (1946). He established Makiya Associates in Baghdad in 1946. Among his best-known projects are the Khulafa Central Mosque in Baghdad (1963), the Rafidain Bank in Kufa, Iraq (1970), and the Kuwait State Mosque in Kuwait City (1984).

Makiya defines architecture as a cultural continuity between past, present and future. He delineated contemporaneity as that which when 'in its apogee and quality of parameters has never passed over its traditional values. When it did so by following formal seductions, the price was high and the quality was low' (Makiya 1983). Accordingly, when contemporaneity limits innovation by relating it solely to technological methods, architecture becomes but a slave of its own tools.

When studying the archaeological remains of a lost architecture, the main vector for understanding its forgotten tradition is how this architecture was able to transmit its social, cultural and political meaning for a specific period. This reflects the status quo of contemporaneity relevant to each epoch in order to assess the historical evolution or devolution of architecture as a vehicle of progress or decadence.

Makiya's approach can therefore be considered as an attempt to assess the input of the architectural tradition of different periods in the contemporary architectural context of the Middle East in order to create a time-relevant architecture for the region. In his Kuwait State Mosque, he explored contemporary modern engineering and raw concrete while infusing the building with the traditional architectural vocabulary.

Makiya's projects are hence proof of his skilful manoeuvring of contemporary architectural and engineering structural systems to cope with the symbolism of the building envelope. Contemporaneity, according to Makiya, involves projecting a building as an evolving entity according to technological advancement, while tradition fosters its sense of living memory and belonging. He avoided the formalities dictated by modern aesthetics and focused on the essential elements of making architecture a common ground for all architectures. Modernism for Makiya is almost synonymous with Westernism, and, as he argued, to be Western is to be modern. He openly criticised the contemporary architectural scene created by prestigious firms from all over the world that created a schism with the continuing history of Middle Eastern culture. He considered the new environment created by this architecture as unworthy, stating:

> Buildings, may be [sic] good in themselves, have been imported without consideration of the local environment. Their architects have proved not up to the task because of the limitations imposed by their own background and education. Opportunities unique in history have been missed for three decades. These handicaps can only be overcome by additional research

ABOVE
Mohamed Makiya, Kuwait State Mosque, Kuwait City, 1984
An exploration of the engineering possibilities of raw concrete to generate a traditional architectural vocabulary.

> towards a clearer understanding of the context. We are now in a transitional phase where a new intellectual approach is evident, and the traditional quality of space and architectural form is being reassessed. This approach is very different from Western modernism.
>
> (MAKIYA 1990, P 125)

Makiya was therefore at the centre of the 1980s search for a meaning of contemporary architecture in the Middle East, particularly in the Arab region. He became engaged both intellectually and practically in revealing the antagonism of tradition and contemporaneity with the aim of finding lost opportunities in history for a contemporary context. Accordingly, his regionalism is neither a 'critical regionalism' nor a 'postmodernism'. Rather, it is a genuine exploration of modern structural innovation and heritage tectonics that generates a contemporary architecture, which responds to future shifts while being embedded in the symbolism of a progressive tradition. He states accordingly that:

> The architectural forms, whether past or present, should be sympathetically and deeply rooted in meaningful and significant responses. Symbolism extends the concept of functionalism to the higher level of the intellectual aptitude demanded by the designer and asserted by its social meaning [...] They are so much part of the natural setting that they stand beyond the label of 'traditional' or 'contemporary'.
>
> (MAKIYA 1986, P 12)

Makiya's early buildings, such as the Rafidain Bank in Kufa (which he began to design in 1968), reflected what could be termed as 'contemporary regionalism'. This sought to present regional architecture as competing with European modernism, and to prove that it had its own sense of local 'monumentalism' without necessarily bowing down to shallow 'postmodernism'. Thus, the lesson to be learnt from Makiya is that the design process should be guided by an insightful reactivation of a progressive tradition that transcends the historical form as a mere frozen shape in order to start a dialogue with technological possibilities, without falling into preconceived ideological or instrumental recipes of imported modernist architecture.

Therefore, the design guideline to be retained in this section is to pursue the reinvention of tradition, as it has a sense of dynamism that can open up creative channels for nurturing historical continuity, not through static forms of heritage, but through embracing contemporary technical means that enhance the performance of a building while at the same time underlying the living symbolism of a locality. On the other hand, heritage by its conservationist statement prompts more discontinuity and provokes clashes a priori in the creative design process. This is why designers are sceptical of heritage when it becomes sacrosanct, as it hinders temporal dynamism to embrace the spirit of a contemporary setting.

DESIGNING WITH NATURE

Before the spread of landscape design as a discipline, and before the invention of the term 'sustainability' to save natural resources, the exploration of nature was common practice among artists, architects, biologists and others in the pre-industrial era. If tradition sustains human practice through cultural momentum, nature sustains the energy and synergy of a locality to foster ecological and environmental conditions of existence. Before the proliferation of modernisation, architecture was closely connected to its own setting where – as seen in chapter 2 – local materials, landscape and other resources oriented design through a local tradition of building.

Designing with nature is an established practice in the Middle East because of its harsh climate and environment. Throughout time, the nomadic tradition has proved its adaptability to different environmental conditions, where architecture is always light in order to maintain minimum materiality and thus embrace different localities, as the focus is on seeking more living resources rather than setting up a luxurious material culture. It is this resilience of dwelling in the desert that has shaped an architecture with nature as its key trigger. The oasis in a vast desert is a source of life, sustaining human existence in a dry land. The greenery is therefore sacred matter that allows life to be sustained under a burning sun. Hence the importance of the compact fabric of medinas that creates living environmental microcosms to protect the human condition. The inner garden in a courtyard of a house in this compact fabric becomes but a metaphor of this oasis in the crystal realm of a sand universe.

BELOW
Rasem Badran, Dubai cultural village, Dubai, United Arab Emirates, 2014
Badran reinterprets the local vocabulary of designing with nature through considering contextual and environmental elements in this architectural and landscape complex.

ABOVE
Ksar of Ait-Ben-Haddou, Morocco, 17th century
An example of how climate and physical context considerations have given local architecture its character.

Architecture of nature in the Middle East is not that of landscaping, as in the European context where the whole land is green, but is instead that of continuously developing techniques to manage resources and protect subsistence. This has certainly given a character to local architecture, as in the case of the ksar of Ait-Ben-Haddou in southern Morocco (see chapter 2). Architecture in this case becomes an intrinsic element of nature, and springs from it. Every shift in the shape of a building is a delicate matter, in order to find ways to capture cool air, insulate walls from external heat, optimise the use of water, sustain an internal green spot, raise thick walls to offer protection from sandstorms, and adapt spaces to the dramatic changes in temperature between day and night.

The evolution of adaptation with nature has generated not only an architecture that has been deemed organic, but also techniques of building and living in a peculiar environmental territory. This is why architecture in the Middle East has endured for centuries in one of the most extreme environments on earth.

Among local architects in the contemporary period who grasped this dimension of architecture in the Middle East is Hassan Fathy. He was born in Alexandria in 1900 and died in 1989 in Cairo. He graduated as an architect in 1926 from Cairo University, where he also taught (1930–46). Beyond his success or failure in what he did, he did not attempt to transpose an exotic aesthetic form, as is sometimes claimed; rather, he sought to revive techniques of building that sustained living and subsisting conditions in a harsh environment. His key project was the village of New Gourna, built entirely with mud brick in Upper Egypt between 1946 and 1952.

As a result of observing the architectural crisis of imported forms in the Middle East region, and in Egypt in particular, Fathy searched for a constructive

regional response. During a critical period of colonisation and the Second World War, Fathy sought more to re-establish a system than to design mere forms. From childhood, he had a fascination for the countryside and rural areas, and this had a great influence on his work. He saw in it a source for conceiving an architecture suited to the peasant way of life. In his book *Architecture for the Poor*, he wrote: 'This second wish had deep roots, going back to my childhood. I had always had a deep love for the country, but it was a love for an idea, not for something I really knew. The country, the place where the fellaheen [peasants] lived' (Fathy 1973, p 1).

Fathy's main ideal was based on the 'sustainability' of nature and place in building. In order to preserve communal and natural living traditions, he vehemently defended the use of local materials and the building techniques relevant to them. Ancestral crafts are affordable for peasants and adequate to their natural milieu. On his earthen village project, New Gourna, Fathy wrote the following:

> Besides the man-made environment of Gourna, with which the village would have to harmonize, there is the natural environment of landscape, flora, and fauna. A traditional architecture would have accommodated itself to this natural environment, both visually and practically, over many centuries. The new village would have to tone with this environment from the very beginning, and its buildings must look as if they were the product of centuries of tradition [...].
>
> (FATHY 1973, P 1)

BELOW
Hassan Fathy, Public Theatre, New Gourna, Egypt, 1948
Fathy's interpretation of the 'sustainability' of nature and place in building in order to preserve the communal and natural tradition of living.

However, Fathy's position vis-à-vis modernism was more about the way it caused the decline of traditional building methods due to industrial standardisation. He stated: 'The tradition is lost, and we have been cut off from our past […] This gap of continuity in Egyptian tradition has been felt by many people and all sorts of remedies have been proposed' (Fathy 1973, p 19). Fathy thus explored building techniques in order to generate an intrinsic contemporary physical environment through the reactivation of peasants' memory of skills around their surrounding nature.

The subtlety of Fathy's environmental approach is clear from his reproaches of his peers who, in their contemporary Egyptian architecture, mimicked forms of the past without exploring their cultural and contextual meaning. He wrote: 'We condemn contemporaneity in architecture as decorative architectural details such as *mukarnassat*, arches, or *musharabiat*. This is an archaeological view that is very afar from the concept of architecture, which is based on the principles of design' (Sugish 1999). Fathy pushed the dynamic regional design process to explore sustainable elements, including climate, landscape, local materials, culture and nature.

Fathy's school of thought was very influential and had many followers in the Middle East. Abdel Wahid El-Wakil, a prominent student of Fathy, emulated

BELOW
Foster + Partners, Aldar Central Market, Abu Dhabi, United Arab Emirates, 2006
An example of the application of decorative traditional mashrabiyat (latticework screens) in contemporary facades, a trend of replicating historical treatments that started around 1900 and remains popular today.

the formal side of his master's architecture by duplicating its invented rural vocabularies for a different clientele and purpose. El-Wakil departed from his master's path. Nonetheless, Fathy's theory and practice created a new academic discourse of architecture in the region. He was indeed among the few Middle Eastern architects who aroused international interest. His projects and writings remain influential in schools of architecture worldwide.

As JM Richards observes, 'News of Hassan Fathy's enterprises and beliefs in Egypt first reached the Western world, perhaps not coincidently, just as concern was becoming widespread about the growing gap between what technology claimed to do for human welfare and what it was actually achieving in buildings that answered the needs of ordinary people' (Richards 1985, p 11). Fathy's prophecy came true when modernism came to an end because of its break with people and their building tradition. Richards adds: 'Their [modernists'] philosophy required a total break with the past, whereas Fathy has looked always for continuity. Modernists' break with the past proved disastrous to the relationship between architecture and the public' (*ibid*).

Accordingly, Fathy's purpose was not to waste time attacking modernists, but to work with his own people, tradition and nature in order to realise sustainable design solutions. Indeed, as Fathy once said in a lecture at Dar al-Islam, his was a spiritual mission:

> If the architect does not respect the God-made environment, he commits a sin against God. The God-made environment is the landscape, the atmosphere, the flora, the fauna, and the human beings who live in this environment. In this God-made environment there is nothing that is inharmonious. If we become one with nature, beauty is defined as it is. Beauty, then is obtained when form considers the forces that are working on it.
>
> (STEELE 1992, P 51)

Fathy's painstaking endeavour to find an ideal architecture that is original and rooted in the local community made him, par excellence, one of the precursors of the sustainability movement. Despite the general view that his New Gourna project was not a success, it remains a unique experiment at a time when regionalism was seen as backward-looking and modernism as forward-looking. His work inspired several action groups: ADAUA, based in Ouagadougou but international in scope, which promotes indigenous African architecture; CRAterre, a research laboratory on earthen architecture based at the École Nationale Supérieure d'Architecture in Grenoble, France; and Development Workshop, with offices in France, the UK and Canada, which focuses on improving living conditions in the indigenous architecture of the Middle East.

Hassan Fathy's model is accordingly a valuable contribution to cultural and technological sustainability that indisputably roots architecture in its contextual rural and urban milieus.

NATIONALIST, POST-ORIENTALIST AND FANTASIST DESIGN

The nationalist, post-Orientalist and fantasist trends seek to duplicate or dramatise local architectural patterns and forms in order to make an architectural statement. Nationalist designs mimic past forms for the sake of symbolising a nation that is often the modern state, and reduce the understanding of architecture to a set of ideological symbols while adhering to a certain monumentalism. Post-Orientalist design copies what Orientalist artists have imagined in their artistic work about the Orient, and this worsens the interpretation of authentic local architectural language in contemporary designs. Fantasist designs have no rules, and are more about dramatising and imagining exotic forms in order to create an architecture of bewilderment and amusement.

To meet the demand of either local clients who seek to appear distinguished or foreign tourists who are attracted by exotic architectural ensembles, both native and foreign architects pursue one or more of these trends. What is particularly unfortunate is that these projects are often grandiose and very visible in any rural or urban setting. In addition, their disproportionate scales dictate the rule of orienting cityscapes to go beyond the scale of community fabric, especially in the Gulf countries where there is no established urbanism.

The first group started following nationalist movements to establish an iconic architecture reflecting the greatness of a nation or to epitomise new political powers, particularly in several modern Arab states, through fantasising traditional architectural idioms. Thus, many administrative and ministerial buildings in these states have been shaped with unprecedented monumentalism in order to create effects of awe and intimidation among the public.

This trend has overstated pseudo-traditional forms, and their urban and communal settings have rejected their peculiar burly aesthetics. The key observation here is that these iconic buildings of power recall local emotional symbolism to convey their message of leadership. During the Arab Spring movements of 2010–12, some of the power-oriented architectural symbols of former dictators – such as Mu'ammar Gaddafi in Libya and Hosni Mubarak in Egypt – were demolished by the people. As reported by numerous international media organisations, on the afternoon of 9 April 2003, Iraqi civilians demolished the statue of Saddam Hussein in Firdos Square in Baghdad. Therefore, these symbols that exploited architectural antecedents as a medium for a fictionalist contemporary architecture varied from the personal statues and palaces of these dictators to central headquarters of their ruling powers.

However, the main argument to explain this phenomenon is that architecture throughout the Middle East has always been hijacked to symbolise powers and intimidate local communities. From the grandiose circular city of Madinat al-Salam (the core of what is now Baghdad), erected by the 8th-century caliph Al-Mansur, to current rulers' prodigal edifices, architecture has had a significant role in shaping an iconography of power.

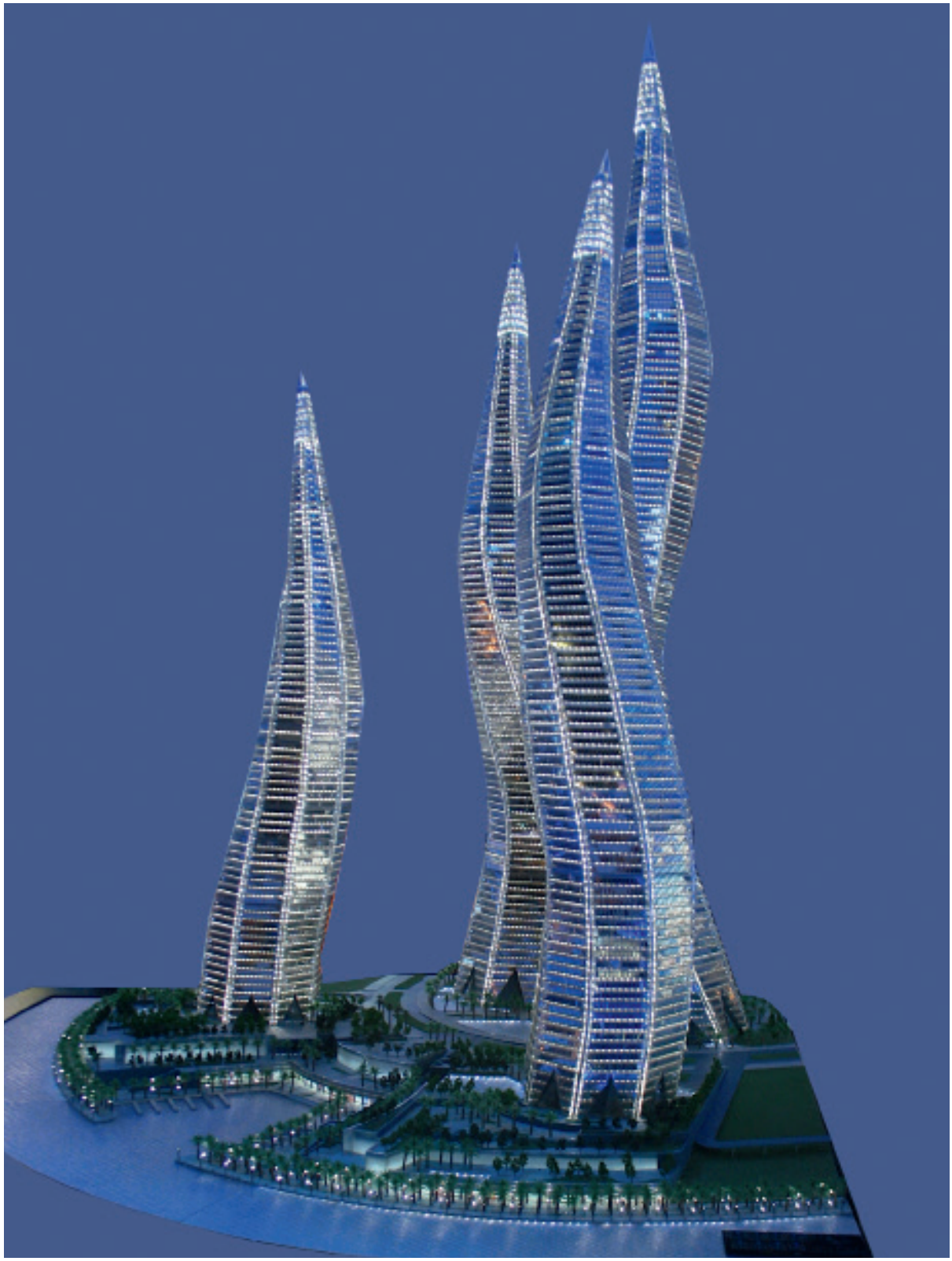
LEFT
Demolition of the statue of Saddam Hussein, Baghdad, Iraq, 9 April 2003
Local Iraqis came together to demolish the symbols of power of the deposed regime, starting with the statue of Saddam in central Baghdad.

OPPOSITE
tvsdesign, Dubai Towers, Dubai, designed 2008
A fantasist design – construction of which is on hold – of exotic sensation and illusionary aesthetics, representing a surreal realm as in the Thousand and One Nights.

Continuing this trend has latterly become a delicate issue for absolute powers in the Middle East, and there is an increased awareness about democratising architecture by moving to a more considerate model for state buildings that respect human scale and focus more on service quality for the public. This trend that replicated the colonialist dominance of the local population through extravagant styles is no longer in fashion, and its romanticised architectural symbols are entirely rejected by the general public.

In parallel to this power-greedy architecture of fantasised symbols are the tourist-oriented projects that plagued all areas of the Middle East with 'Ali Baba' architecture of a fictional exotic Orient. I categorise the latter as a post-Orientalist trend because of its similarities, whether voluntary or involuntary, with the Orientalists' exaggerated images. While the Orientalists' images and drawings have been severely criticised by post-colonialists – as false images of the East with a European bias – some architects, both local and international, still apply their fictional aestheticism to interpret them in present reality. This is mainly due to their ignorance of the intrinsic principles of the traditional architectural language or simply due to the fact that they follow the precepts of colonial designs that used local antecedents as pastiche elements in order to relish a colonised land.

BELOW
Atkins, Madinat Jumeirah, Dubai, 2003
An example of the invented heritage of 'theme-park' architecture that engenders a visual experience.



Nevertheless, the key reason for the current spread of this post-Orientalist trend is to attract more tourists. Many cities in the Middle East have been invaded by fantasised oriental theme parks. One of the best examples is the city of Marrakesh. Despite its glorious history and exquisite monuments, new-fashioned Orientalist styles have been invented outside its walls with an utter eclecticism of Orientalist contemporary metaphors. The point is to create an exotic sensation that transposes the visitor to a surreal realm of the *Thousand and One Nights*.

Marrakesh is only one example among others, as various cities in the Arab region are following the same trend in order to enhance their sense of exotic adventurism. Dubai currently contains the largest number of invented exotic theme parks, such as Old Town Island adjacent to the Burj Khalifa. It is a business and residential island that mimics a lost traditional medina.

Therefore, this post-Orientalist architecture is neither embracing an intelligent regionalism nor a genuine contextualism, but it is an amalgam of fantasies that extrapolates Orientalist images for the sake of consumerism. It is mainly created to please tourists and boost their desire to bring their dream about the East to life, so that they are ready to come back again and again. However, due to a lack of understanding of the compositional and artistic logic of local forms, both local and foreign architects produce twisted architectural images of the East that are sometimes worse than those of the first Orientalists of the past.

Young architects should be aware of this unrealistic trend that harms the continuity of genuine architectural cultures. Indeed, owing to the ease of visual transmission today, this trend is disseminating designs which might be considered authentic references for local architectures in the Middle East. Further and careful research on the outcome of the trend needs to be carried out in order to sensitise young architects to what is real and what is fake where architectural antecedents are concerned.

'THEME PARKS' AND MEGAPROJECTS: DESIGNING IN THE GULF

If all architectural trends in the Middle East are well defined according to how conservative or liberal architects are, the 'theme-park' design trend is more about a fully imported architecture (as explained in chapters 1 and 2). However, in this section where design perspective is our concern, it should be noted that this trend is mainly present in the Gulf region, where there is a lack of sound urban setting and there are still possibilities for more architectural adventures. With the standardisation of construction methods and competition processes, the Gulf cityscapes such as in Dubai, Doha, Manama and Riyadh often look similar to the 'theme-park' projects that are taking over large Saharan territories.

BELOW
View of Dubai from the Burj Khalif
Standardisation of construction methods and the pursuit of faster and higher architecture are rendering cities of the Middle East monotonous and highly disproportionate. The fragmented and contrasting scales of building in downtown Dubai are clearly visible in this view from what is currently the world's tallest building.

Some of these projects remain avant-gardist and experimental, with contemporary architects endeavouring to explore the limits of new technologies. Young architects should understand this 'theme-park' architecture as a contemporary design trend that is moving forwards. It presents new parameters of design through advanced innovation, mainly in technological instrumentality. Research is needed in order to orient this fast-spreading movement that goes beyond the realm of the human scale and conventional ways of understanding the built environment. This trend may be widely criticised, but it is a strong one as it is generating whole fabricated architectural and urban settings for wealthy places, not only in Arabia but also in China.

However, as this theme-park and mega architecture starts spreading to other countries of the Middle East that do not have energy resources, the phenomenon of 'Dubaisation' poses a threat to both the natural and the cultural environment. Hence the trend of projects focusing on sustainability is growing in order to deal with these alarmingly decontextualised designs and their impact on climate change.

Accordingly, Gulf states are starting to revisit their competitive plans to symbolise their oil wealth, which is under threat of extinction in the near future. They urgently need to comply with global calls to protect the ecosystem of our existence and find alternatives to oil as the only source of energy through boosting sustainability projects. This issue is the subject of the next section.

SUSTAINABILITY-BASED DESIGN

The first daring large-scale attempt to launch architectural and urban sustainability – Masdar City – was initiated in 2006, largely funded by the government of Abu Dhabi. Although it is not yet proven that Masdar will perform as envisaged by its designers (principally the British firm Foster + Partners), it remains a unique case in a country that has one of the highest levels of energy consumption and the largest per capita ecological footprints in the world. On a broader urban level, the Estidama (Arabic translation of sustainability) initiative that is integrated into Abu Dhabi's Plan 2030 is pioneering in the Gulf region. Estidama proposes more holistic and culturally sensitive ways of achieving a sustainable environment in the capital Abu Dhabi.

Following the Masdar model, Saudi Arabia and Qatar have made significant investments in renewable and alternative energy in recent years and are seeking ways to increase the energy efficiency of their cities' buildings. Nonetheless, architects are not trained locally and internationally to engage in this new vital requirement in a way that goes beyond veneer elements, such as shading devices, and rather constitutes an intrinsic practice to guide design processes in response to national and international concerns over nature and the environment.

BELOW.
Driss Kettani with Mohamed Amine Siana and Saad El Kabbaj, École Supérieure de Technologie de Guelmim, Guelmim, Morocco, 2011
A project that explores both contextualism and sustainability in order to generate human-scale spaces with passive thermal comfort in the hot south of Morocco. It also demonstrates that sustainability can be generated in situ without resorting to foreign materials.

ABOVE
Driss Kettani with Mohamed Amine Siana and Saad El Kabbaj, École Supérieure de Technologie de Guelmim, Guelmim, Morocco, 2011
A project that explores both contextualism and sustainability in order to generate human-scale spaces with passive thermal comfort in the hot south of Morocco. It also demonstrates that sustainability can be generated in situ without resorting to foreign materials.

Sustainability-based design invites architects to get out of their individualistic sphere and cooperate with other disciplines concerned with triggers of sustainability, so as to devise new methods of conceiving and building. Innovative ways of integrating sustainability need to be introduced into architectural educational programmes' design studios and practical courses at all levels, to equip a new generation of graduates to explore this promising area as part of their thinking and practice.

To achieve sustainability in design, students and young architects are required to be aware of environmental issues, and to develop a knowledge base that is sufficient to intrinsically orient design to reach a measurable standard of sustainability. However, the key issue in most architectural programmes in the Middle East is that they do not include scientific training. Hence the importance of encouraging cross-disciplinary exchange in design studios by involving other disciplines concerned with sustainability from different colleges.

This holistic, sustainability-focused approach to design would include the optimisation of resources, the post-implementation impact of design, and the contextual condition that fixes a project in its cultural, physical and natural setting. The optimisation of resources ranges from water and energy to building materials. It is indeed timely to review how designers design, given the detachment

from physical matter that can result from digital design possibilities. The post-implementation impact of design concerns aspects such as building maintenance: it is crucial for designers to be conscious of the practical issues and not merely distracted by transient aesthetics.

Sustainability in design is thus multifaceted, and needs to go beyond technological optimisation to consider the human aspects that are central to architecture as a vehicle of social and cultural permanence. It is more about the holistic responsiveness of buildings where the design process calls upon a range of means to conceive future high-performance architecture.

The chief aim is to achieve natural, comfortable living environments with a sense of resilience in the context of the Middle East, where the hot climate dictates a greater consideration of contextual conditions. Contextual enquiry-based design – as outlined in the Appendix to this volume – offers a way for students and young architects to engage in practical stimulators of sustainability in a given context that would boost the performance of design through known economic, environmental and social sustainability themes.

BELOW.
Driss Kettani with Mohamed Amine Siana and Saad El Kabbaj, École Supérieure de Technologie de Guelmim, Guelmim, Morocco, 2011
A project that explores both contextualism and sustainability in order to generate human-scale spaces with passive thermal comfort in the hot south of Morocco. It also demonstrates that sustainability can be generated in situ without resorting to foreign materials.

CONCLUSION

Since the beginning of the century, local and foreign contemporary architects practising in the Middle East have attempted to draw up conceptual and practical constructs regarding how to contextualise the architecture of globalism through creative design solutions. However, the complexity and diversity of the region's cultural and geographical environments require not only smart designs, but also engrained knowledge in order to conceive comprehensively sustainable projects. Therefore, revisiting how these architects perceived and practised contextuality in their design thinking and practice would be instructive for the current architectural status quo.

The Middle East has been a battleground between the local and imported ideologies of both local and foreign architects, turning design away from its normal purpose of producing an architecture aimed at people's wellbeing. This has resulted in a lack of any serious school of thought or established constructive criticism regarding architectural culture in the region. Local architects have either been fully driven by Western modernism or resorted to its counterpart, an emotional regionalism. Consequently, if no attempt is made to refer to a certain framework on how to view and practise context in designing, future generations of architects may lose the link with local building know-how and community-based design forever. Architecture was, and still is, among the key vehicles of memory and belonging that translate communal, spiritual and environmental elements into a living material and visual culture.

The quest for cultural continuity while being open to learning from other cultures has sustained the contemporaneity of architecture in the Middle East. Architectural sustainability in this region has had a capacity to project itself into the future whenever challenged. Sustainability-based design requires cooperation between architects and specialists of other disciplines in order to innovate methods of conceiving and building. Concurrently, architectural educational programmes in the region need to cultivate new methods of integrating cultural and environmental sustainability into their curricula. This would ostensibly enable a new generation of architects to explore sustainable contextual solutions in their design practice as a genuine process of generating an architecture of good sense, rather than one of ephemeral and empty aesthetics.

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CONCLUSION

This book's presentation of the architectural tradition, architectural vocabulary (namely the multifarious elements of local styles), cultural and contextual meaning, and contemporary trends and discourses of contextual architecture in the Middle East aims to take readers back through history and retrace the way in which the region's architecture has evolved according to geopolitical, cultural, social, ideological and environmental changes. This is an overview that enables young architects and students to grasp key elements of context that have shaped the built environment in this part of the world. But even more so, it presents a new orientation to foster a responsive design practice that seeks to anchor a comprehensive sustainable built environment which incorporates all the different dimensions of context.

Without a designer's or architect's sense of creativity to bring this knowledge to a state of design maturity, the goal of responsive design cannot be attained. Architects and designers need constantly to strengthen their analysis and correlation skills in order to enrich this process of design. They need to put the spotlight on the symptomatic elements comprising context and culture whereby a contextual knowledge can be constructed. Then, their challenge is to cope with the transition from inspiration to realisation and to spatially transcribe this contextual knowledge into genuine architectural design. Contextual knowledge gives the means to grasp spatial articulation and the composition of human-oriented design according to social and cultural values, and to express cultural meaning through architectural design. Therefore, the design process is presented as a strategy of spatial configuration, with the project design charged with cultural and social meaning as far as is possible.

Related to this are the need to master the realm of environmental and social sustainability and align the contingencies of building production with high responsibility and a sense of ethics. Thus, a high-value design transcends aesthetics and technical performance to further encompass social, cultural and environmental manifestations, and reach a synergy not only between the built environment and its occupants but also between the man-made and natural environments.

Accordingly, the book has launched a debate on contemporary architecture in the Middle East by questioning architectural theory and practice in the region since 1900, in order to prove the validity of context in design, and how the local/global dichotomy has been translated through different architectural discourses and trends. This has exposed the crisis of schools of thought and the lack of constructive criticism related to architectural thinking and practice in this region. Local architects have thus become vulnerable and hidden behind emotional applications of folk tradition, mimicking verbatim the forms of the past or pursuing mere aestheticism with an Orientalist, nationalist or fantasist veneer.

The region's architectural design has undergone a fast-paced transformation in the last two decades in terms of scale and scope. The Gulf phenomenon is one example of the fulfilment of the desire for ever bigger, taller and more quickly constructed buildings without consideration of long-term sustainable human and environmental potentials. To balance this phenomenon, the book is a contribution towards cultivating a whole generation of local architects who would be more knowledgeable on contextual potentials in the era of globalism. The strategic role of schools and programmes of architecture in the region is vital, and they need to revise their curricula so as to boost contextual knowledge in design. This book is thus a useful aid to support and provide follow-up to courses and design studios, and to enable students and young architects to achieve this end.

The ideas and strategies suggested in this book are merely a presentation of different processes that may guide design theory and practice in order to establish a spatial revival and create a better everyday life for people and communities. They aim to boost the dialectic of place and design to redirect focus on the human factor as the backbone of design practice, which has been driven by a building market that seeks excessive profit at the expense of people's comfort and wellbeing.

This alarming status quo of contemporary architecture in the era of fast-spreading consumerism and mere aesthetics requires new conscious generations of architects and other stakeholders to effectively change the paradigm of design theory and practice. Such a paradigm shift cannot occur without continuously echoing calls to bring architecture back to its users – who have been an integral part of its shaping as practised throughout human history – without discarding technological advancement or rejecting positive progress for the centuries to come.

Ultimately, it takes courage, humility and perseverance for young architects and architecture students to design while remaining respectful towards the comprehensive and collective context, especially given that its legacy is periodically restructured. They can all too easily find themselves contributing to the loss of global culture. However, if they adopt a comprehensive and empirical approach as proposed in this book, they can achieve a balanced model of design.

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Architecture in Context Designing in the Middle East
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APPENDIX

TOWARDS A MODEL OF CONTEXTUAL ENQUIRY-BASED DESIGN

In order to be more responsive in terms of contextual and sustainable values, the design process should be comprehensive and integrative. This book suggests a plethora of guiding tools and techniques for design with regard to genius loci, and since design is becoming more universal, it also offers information on the contextual background of architecture in the Middle East. It incites young architects to hone their vision and sharpen their tools in order to grasp the triggers of human, cultural and environmental parameters through more responsible design in the era of globalism.

A redirection towards a more comprehensive approach will ultimately help architects to explore local cultures, to adapt to and adopt a universal civilisation without falling into redundancy, emptiness and meaningless design. This book aims to help readers take the first step on the journey towards assembling and nurturing its guidance and tools, but the pivotal element is each architect's own creativity: the skills and abilities to advance the thinking and practice of design in complex cultural and environmental contexts.

Therefore, it is high time for architectural practices and schools of architecture to engage in further research on the context and environment of contemporary projects so as to develop a comprehensive and sustainable design approach. What is needed is applied research: an exploration of research-based designs in order to bridge the gap between local and international thinking and practice geared towards cultivating grassroots contextual designs.

Accordingly, enquiry-based design explores the design process as a research medium in order to cultivate good-sense design practices. Since the purpose of this book is to encourage the development of a more efficient way to meet contextual needs within creative design, enquiry-based design sets out to find the right balance between what the designer conceives and what the user experiences. It seeks enhanced communal experiences in the built project through highly responsive design that bridges the gap between design and reality.

It is geared towards addressing the trilogy of context, content and process. Context needs to be analysed in order to highlight all its components. Content is the project's programme as required by clients and stakeholders according to the nature and size of the project. Process is the dynamic procedure of choosing the right scenarios where stakeholders and methods are defined with a clear implementation strategy. Accordingly, these three terms can be symbolised as follows: context is discovery (definition and building knowledge); content is design (anticipation and conception); and process is prospection (alternatives and scenarios).

This representational trilogy as a structural framework to practise contextual enquiry-based design can be simplified for students and young architects in the following practical steps.

1. Description of the project (terms of reference – TOR)

This concerns how the project is presented by the client, and the objectives that the architect is required to follow. It defines the project background, and reveals certain issues to be explored that require specific expertise. In addition, it establishes terms of reference that set out the implementation challenges and deadlines. They also seek to evaluate the project in terms of categorisation, so as to estimate the scope and breadth of design and implementation required according to the intended outcomes.

2. Statement of the project's challenges (SPC)

The architect needs to have a clear idea about the statement of the project's challenges in order to explore the key problems that the project poses in terms of opportunities and their counterpart constraints and issues that may hinder the creativity of the design process. It is a clear statement that the architect should make according to the TOR in order to understand major elements of the problem-solving strategy, and to situate the project in the context in which it is to be located. This framing of the project defines the subject of an inclusive site investigation.

3. Context enquiry and analysis (CEA)

Context enquiry and analysis is a thorough and comprehensive study of the site. It goes beyond the conventional physical considerations that an ordinary architect would have, as explained in Chapter 2. It extends the field of enquiry to embrace holistically the historical, physical, biological, social and cultural layers of the locality of a project. In order for this enquiry to be pragmatic and lead to creative elements to be considered in design, each layer should yield a set of triggers relevant to design scenarios and solutions.

4. Authentication and benchmarking (AB)

Authentication and benchmarking is a critical stage in the design process that explores both theory and practice so as to investigate all the triggers deduced from CEA in order to establish the sustainability and contextual framework (SCF – see point 5 below). This is done through the analysis of similar contextual and sustainable projects whose validity and soundness have been proven. An authentication of different models of design vis-à-vis a given context would lead to an all-encompassing SCF.

5. Sustainability and contextual framework (SCF)

The sustainability and contextual framework is a synthesis of schemata which superimposes all explored layers of data that underline spatial and contextual qualifiers to be converted to design triggers. It is a guiding framework for orienting design so that it does not lose sight of the key sustainability and contextual elements that are often overlooked in favour of aesthetics.

6. Design qualifiers and values (DQV)

Based on AB and SCF, a set of design qualifiers and values are defined. They represent a guiding grid of qualifiers that can be translated into creative design solutions. This is a transitional stage that aims to transform constraints into design opportunities. The DVQ can provide an a priori set of evaluation indicators for a contextual enquiry-based design.

7. Design scenarios (DS)

At an advanced stage in the design process, different problem-solving scenarios are triggered but with an artistic lens, in order to explore the SCF through deduced DQV. It is all about finding an angle of attack in terms of establishing the key guiding design tactics that can comprehensively boost design outcomes without subduing the critical elements of the functional programme of TOR, while fully exploring the rich elements of the site and context. A minimum of three design scenarios should be presented in order to find the strengths and weaknesses of each one and thus to find the ideal design master integrative scenario (DMIS – see point 8 below).

8. Design master integrative scenario (DMIS)

The design master integrative scenario is not the best scenario but rather the one that is most all-encompassing and comprehensive in considering the outcomes of all the previous stages. It is also the one that allows the design process to move forward so as to take its final spatial form, be it at the urban or the architectural level. This definitive scenario has to be finalised through technical details that boost its visibility as a master design for an architectural project or masterplan for an urban project, in which all the content is well represented graphically.

9. Feasibility strategy (FS) and environmental impact assessment (EIA)

In order to decide on the various actions that are necessary to reach the final executive technical plan (ETP – see point 10 below), a feasibility strategy and environmental impact assessment are needed. The FS involves the designer using economic and operational tools to help prioritise or optimise resources in a design process through DMIS. The aim is to anticipate strategic actions and to make the project feasible through implementation tactics. This can be more efficient when it is combined at this stage with an EIA as a simulated reality in order to boost the standard of the design in terms of sustainable contextual promises.

10. Executive technical plan (ETP)

The executive technical plan provides details of future practical actions for the project to be implemented. It is the final rendering of the project, which leads to the final actions related to every executive detail. In the case of enquiry-based design, it needs to integrate contextual input in design not as a veneer in a plan, section or elevation, but as a grassroots outcome generated by the different graphical mediums that are currently very advanced.

11. Scheme for implementation (SI)

The scheme for implementation is related to the different ways the ETP is to be implemented on the ground. While the architect may here seem only to be delivering a brief of a design, it is nevertheless about a team-building action that oversees the execution of a holistic design: all stakeholders should be involved in approving the project, allocating required resources and following the construction process so as to realise all the elements of the project's design (functional, aesthetic, contextual, environmental, cultural, social and economic). The scope of the SI is related to the size of the project, and its post-implementation impact can concern one user, a whole community or a whole city.

12. Project post-mortem analysis (PPMA)

Project post-mortem analysis is seldom carried out, and it is rare for architects even to think of going back to see how their design has performed. Hence the strong criticisms aimed at contemporary designs that focus on how a building will look, while failing to consider what happens after implementation and in use. Indeed, designers are above the law in terms of their creative signature, but they need to be responsible for the consequences of their work and its impact on people's lives. PPMA is the evaluation of the project's success in reaching the intended outcomes, and the assessment of the gap between the designer's 'conceived' and the user's 'experienced' realms. The term 'post-mortem' signifies literally the examination of a 'dead body' so as to detect

the causes of its death. If a building can be metaphorically compared to a body, it is essential then to know how it lives and how it dies if its purpose is not fulfilled. How many buildings fail to last because of weak designs that do not meet human expectations of use? Continuous research based on the post-mortem analysis of buildings and their designs would thus inform architects on how designs show responsiveness in terms of their human, social, cultural and environmental context. Although critics may state that architects are beyond evaluation and that their buildings are works of art, it is crucial to have a programmatic lens in order to decide whether or not they are reliable – as in other industries that succeed or fail according to their human-factor reliability.

The steps listed above may seem beyond the reach of an architect alone, and some may rather concern other involved parties during the implementation of a project; but this comprehensiveness is a necessity, especially in community projects that cannot be confined to aesthetic diagrams. The steps are essential for starting to build momentum around projects where all stakeholders ought to be part of the design process. Thus, for a design to be sound and not fragmented, the architect's role should be gradually re-established so that the design is conceived with the community on the ground, and not in an 'ivory tower' of a distant office, parachuting designs into other regions of the world.

BELOW
Schematic illustration of the different steps of the process of contextual and sustainable enquiry-based design

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