

ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF SCIENCE
ENGINEERING AND TECHNOLOGY

**ARCHITECTURAL DESIGN THOUGHT BETWEEN HERITAGE AND
CONTEMPORARY ARAB ARCHITECTURE
(CASE STUDY OF DOHA/QATAR)**

M.Sc. THESIS

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Department of Architecture

Architectural Design Programme

JANUARY 2014

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ

**KÜLTÜREL MİRAS VE ÇAĞDAŞ ARAP MİMARLIĞI İLİŞKİSİ
BAĞLAMINDA MİMARLIK DÜŞÜNCESİ
(DOHA/QATAR ÖRNEĞİ)**

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To my family,

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ABBREVIATIONS

FIFA	: Federation of International Football Associations
MIT	: Massachusetts Institute of Technology
OICC	: Organization of Islamic Capitals and Cities
UNESCO	: United Nations Educational, Scientific and Cultural Organization
USA	: United States of America

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ARCHITECTURAL DESIGN THOUGHT BETWEEN HERITAGE AND CONTEMPORARY ARAB ARCHITECTURE (CASE STUDY OF DOHA/QATAR)

SUMMARY

Present is past for tomorrow what we see now as contemporary, will be heritage tomorrow. In this research an attempt is made to outline the relation between heritage and contemporary Arab architecture of Doha/Qatar in order to understand the future vision of architecture. The relation between heritage and contemporary is a complex issue, especially in the culture. One goal of this thesis is to investigate the importance of using the local data in respect of nature and culture to learn from the architecture experience to reach a sustainable architecture.

This thesis illustrated the example of ' Doha/Qatar ', the city is affected by fast urban transformations and changing social structures. Hence examined questions how the architecture and culture in Doha/Qatar were affected by this transformation. The study elaborates how we can achieve the sustainability of the architectural heritage in order to evaluate the issue of architectural design for the future vision.

The current urban development and contemporary architecture in Doha/Qatar has been explained through several case studies highlighting the needs for designing parameters for the future design taking into account traditional elements that should be incorporated and transmitted to the present time. This issue has been defined by hypothesis that: *analyzing inherited architecture and making its components workable in contemporary architecture, it would be possible to produce a contemporary architecture corresponding to our aspiration.* In addition, the using of the local data in respect of nature and culture to learn from the architecture experience is very important to reach a sustainable architecture.

Also, this situation is evident in most Arab countries. Particularly the case study of Doha/Qatar, elaborates the rapid changing based on very fast economic development. This economic boom is encouraging increased foreign population of about 80% through migration to local inhabitation and economic activities have changed the way people live. Again the expectations of city authority to meet the standards of 'FIFA Qatar World Cup 2022' has led to acceleration of architecture in Doha and this has made the city one of the most advanced cities in architecture globally. As most advanced architectural city with dynamic economy and its potential to influence Arab and world architectural design, Doha/Qatar provides the basis for further case studies. Moreover, it should be noted that the aspect of architectural heritage and its preservation has been neglected; and it should be one of the major issues that need to be discussed as well as attempts to deal with it.

This study is aiming to prove that architectural heritage is not contrary to contemporary, but it is a sign of communities' maturity in this age. It warns against the

hazard that endangers the future of architecture in those areas and emphasizes the use of inherited methods of architecture in contemporary and future one. Many studies had noticed that contemporary Arab architecture does not meet current needs, and this is used as a base for the hypothesis that inherited traditional architecture and its components can be integrated in contemporary architecture. On the way to produce a more expressive type of contemporary architecture corresponding with our aspiration.

Key components of both inherited and contemporary architecture will be analyzed in order to prove the hypothesis, aiming to discover the best methods of using inherited architecture designs in our contemporary architecture to achieve a more valuable architecture. In addition, this thesis is to investigate the importance of using the local data in respect of nature and culture to learn from the architectural experience to reach a sustainable architecture, and to develop a link between the values of traditional architecture, the use of technology and the influence of contemporary design methods. Furthermore, it tries to develop optimal standards for contemporary architecture and housing architecture in Doha city taking into consideration that housing represents more than 90% of all urban structures in any city.

The methodology of this thesis firstly provides a literary review of the Arab Gulf architectural heritage and contemporary architecture, starting from its various concepts and attributions, followed by background for the case study of "Doha/Qatar". The methodology followed here is based on three main steps: analyzing, comparison, and synthesis. In this regard architectural elements, materials and methods of structure, in addition to the factors affecting architectural designs were analyzed, and then comparing contemporary architecture with the traditional one. The final stage is forming the architectural thinking and identifying the factors which can or cannot be used, concluding with the recommendations to better architectural design especially the Qatari houses to match with human, cultural and social values.

This study has been put some conclusions, results and recommendations that tries to develop an optimal standards and design parameters for contemporary and future architectural design and housing design in Doha city. This will allow us to derive lessons to be useful in our professional practice now a days and in the future. Each design parameter addressed in this study was evolved according to the information given by the comparison between the traditional and contemporary architecture of Doha in the previous chapter. This process was developed by selecting the advantages of each value system as a design basis, and rejecting the disadvantages.

The thesis is divided into four chapters. In the first chapter, "Introduction" the subject of thesis, scope, purposes, methodology and structure of study were explained.

Second chapter, "The Concepts of Arab Gulf Architectural Heritage and Contemporary Architecture" deals mainly with the heritage and contemporary architecture in the Arab world in general, and also contemporary outlook to the architectural heritage used in the study, by discussing general attitudes, theoretical approaches and application were discussed.

The third chapter, "Case Study of Doha/Qatar" deals mainly with the traditional and contemporary architecture of "Doha/Qatar". An understanding of the factors affecting the traditional and modern houses design relation of nature and culture are stimulated. Lastly, a comparison between the traditional and contemporary architecture with reference to housing problems is addressed. The assumption behind this comparison is that one can facilitate the advantages of each type as a basic material for any future design. Another point worthy of note is that one can learn from the past. The study of

the past can certify those elements which are constant and those which change. Hence we cannot accept a sudden break with all that went before. On the other hand one cannot say that we and our problems are so different that the past has no lessons for us. While technology may progress, architecture does not necessarily do so.

The last chapter - "Conclusion" summarized recommendations and a methodology for appropriate architectural design in Doha city relevant to educators, designers and professionals, as well as policy-makers.

KÜLTÜREL MİRAS VE ÇAĞDAŞ ARAP MİMARLIĞI İLİŞKİSİ BAĞLAMINDA MİMARLIK DÜŞÜNCE Sİ (DOHA/QATAR ÖRNEĞİ)

ÖZET

Yaşadığımız an, yarın için geçmiştir ve şimdi modern olarak gördüklerimiz ise yarına miras kalacaktır. Bu, gelecekte ele alınacak önemli bir meseledir. Bu araştırmada, mimarın gelecek vizyonunu anlamak amacıyla bize miras kalan ile modern Arap mimarisi arasındaki ilişkinin ana hatları belirlenmeye çalışılmaktadır. Modern ile miras arasındaki ilişki tartışmalı bir konu olmakla birlikte, genelde kültürel düzeyde özelde ise mimari meseleler açısından büyük bir öneme sahiptir. Bu tez çalışmasının temel hedefi, sürdürülebilir bir mimariyi gerçekleştirmek adına mimari deneyimlerden yararlanmak için doğa ve kültür açısından yerel verileri kullanmanın önemini araştırmaktır.

Bu tez çalışması, hızlı kentsel dönüşümleri ve değişmekte olan sosyal yapı tarafından etkilenen ‘Doha/Katar’ canlı örneğini kullanarak meseleyi açıklamaktadır. Bu araştırma, gelecek vizyonu için mimari tasarım konusunu değerlendirmek amacıyla mimari mirasın sürdürülebilirliğini nasıl sağlayabileceğimizi sorgulamaktadır. Çalışma ayrıca, Doha/Katar’daki mimarın, hızlı kentsel dönüşümden nasıl etkilendiğini araştırmaktadır.

Bu mütevazı çalışma, modern Arap mimarisi, mevcut ihtiyaçları karşılamadığından dolayı gerçekleştirilmektedir. Miras kalan mimariyi analiz etmek ve bileşenlerini modern mimaride çalışır duruma getirmek suretiyle amaçladığımız modern bir mimari meydana getirmek mümkün olacaktır. Bununla birlikte, mimari deneyimlerinden yararlanmak için doğa ve kültür açısından yerel verileri kullanmak, sürdürülebilir bir mimariyi gerçekleştirmek açısından çok önemlidir.

Bu çalışma, Doha kentindeki modern mimari ve konut tasarımı için en iyi ve uygun standartları geliştirmeye çalışan bazı çıkarımları, sonuçları ve önerileri ortaya koymaktadır. Bu ayrıca, günümüz ve gelecekteki mesleki uygulamamızda yararlı olabilecek dersler çıkarmamızı sağlayacaktır.

Mimari, her devrin vesikası olarak kabul edilmektedir. Onu araştırmak, mimarların bu etkileme unsurlarıyla nasıl başa çıkacağı ve çeşitli faktörlerin etkileri ile ilgili net bir fotoğraf görmemizi sağlamaktadır. Mimari ayrıca, sosyal yaşamları ve bireylerin istekleri ile birlikte toplumları yansıtmakta ve bir mirası ifade etmektedir. Mimarın çalışmalarını ve üslubunu doğrudan etkileyen bu değerler, onu oluşturan şartlara göre uygun ve arzu edilen bir mimariyi meydana getirmektedir.

Günümüzde, en son mimari gelişmeleri ve dünyadaki ilerlemeyi yansıttıkları için batı mimari motiflerini benimsemekle temsil edilen küresel mimariye doğru güçlü bir yaklaşma bulunmaktadır. Bu yaklaşma, yerel mimarimizin kendine özgü karakteristik özelliklerinin kaybolmasına ve bizim için hem doğal hem de kültürel düzeyde uygun olmayan ithal bir mimari şekille değiştirilmesine neden olmaktadır.

Arap Körfezi, yaratıcı ve köklerine bağlı olmayı teşvik eden çok sayıda tarihi başarının yaşandığı yüzyıllar boyunca süregelen miras ve medeniyetin bulunduğu yerdir. Modern mimari uygulamalarda miras ikilemi, göz ardı edilemeyecek derecede kendini göstermektedir. Diğer taraftan modern, bütün teknoloji ve felsefeleriyle dünyada gerçekleşen yeni değişimlere ayak uydurmak anlamına gelmektedir. Bütün Arap ülkeleri ve özellikle günümüzde Katar, bu sorunla karşı karşıya kalmaktadır.

Miras kalan ve modern mimari birlikte, her alandaki yaratıcıların karşılaştığı bir soruna işaret etmek için düşünür ve bilim adamlarının sürekli kullandığı bir tür belirsizliği açık ve kesin bir şekilde ifade etmektedir. Bu araştırma, mimari ile ilgili sorunu ele almayı amaçlamaktadır. Ayrıca küreselleşmeden dolayı bu sorun çok büyük gibi görünmekte ve bilinmeyen trendlerin yerel mimaride ortaya çıkmasına neden olmak suretiyle Arap mimarisi üzerinde olumsuz bir etki yaratmaktadır.

Bu güçlü küresel akımın karşısında duramayız ancak ulusal ve bölgesel bazda işleyerek onu zenginleştirebiliriz. İşte bundan dolayı biz bunun sahte değil gerçek bir sorun olduğunu iddia etmekteyiz. Ve eğer gelişme ve restorasyon, gelişmekte olan herhangi bir medeniyet için kaçınılmazsa, mirasla ilgilenmek, bu medeniyetin günü ve geçmişine yönelik hassas bir özelliktir. Böylece miras kalan ve modern, kültür için entelektüel bir ölçüt teşkil etmektedir.

Bu sorun, birçok Arap ülkesinde ve genel anlamda batı ülkelerinde görülmesine rağmen, kendini bu Katar örnek olay incelemesinde daha açık bir şekilde göstermektedir; bunun sebebi de özellikle petrol üretiminden sonra gerçekleşen hızlı mimari değişimler ve ekonomik gelişmelerdir. Ayrıca, Katar'da düzenlenecek olan 2022 Olimpiyatlarının insanların yaşam şekillerini değiştirdiği ve dünyanın her yerinden Doha'ya göç edenlerin, yabancı nüfusu %80 oranında arttırdığının da belirtilmesi gerekmektedir. Bu, sırasıyla, mimari açıdan uluslar arası anlamda en gelişmiş şehir olan Doha'da, yapılaşmanın artmasına yol açmaktadır. Örnek olay çalışması için seçilmesi de bundan kaynaklanmaktadır. Mimari miras, Doha'daki en temel sorunlardan birisi olduğu halde, hem olumlu hem de olumsuz etkileri ile ilgili çalışmalar yapılmaya devam etmektedir.

Bu çalışma, mimari mirasın modern olana aykırı olmadığını, sadece bu devirdeki toplumların olgunluk göstergesi olduğunu açıkça ortaya koymaktadır. Bu bölgelerde mimarinin geleceğini tehdit eden tehlikeye karşı uyarmakta ve miras kalan mimari yöntemlerin günümüzde ve gelecekte kullanımı üzerinde önemle durmaktadır.

Varsayım nedir: modern Arap mimarisinin, mevcut ihtiyacı karşılamadığını görmekteyiz, ve bu da, miras kalan mimariyi analiz etmek ve bileşenlerini modern mimaride çalışabilir kılmak varsayımıyla eşleşmektedir. Bunun üzerine, isteklerimizi karşılayan, daha etkileyici ve modern bir mimari şekli meydana getirmek mümkün olacaktır.

Bu araştırmanın varsayımından hareketle, çalışmanın amacı, hem miras kalan hem de modern mimariyi analiz etmek ve süreklilik arz eden bir mimari şekli oluşturmak için miras kalan mimari tasarımlarını modern mimarimize uygulamada kullanılacak en iyi yöntemleri keşfetmeye çalışmaktır. Bu tez çalışmasının temel hedefi, sürdürülebilir bir mimariyi gerçekleştirmek adına mimari deneyimlerden yararlanmak için doğa ve kültür açısından yerel verileri kullanmanın önemini araştırmaktır.

Bu çalışma, geleneksel mimari değerler, teknoloji kullanımı ve modern tasarım yöntemlerinin etkileri arasında bir bağlantı oluşturmayı amaçlamaktadır. Bununla

birlikte, Doha şehrinde, modern mimari ve konut tasarımı için en iyi ve uygun standartları geliştirmeye çalışmaktadır.

Burada izlenen metodoloji üç temel aşamaya dayanmaktadır: analiz etme, karşılaştırma ve sentez. Bu bağlamda, mimari tasarımları etkileyen faktörlerin yanında mimari unsurlar, materyaller ve yapı yöntemleri analiz edilerek modern mimari ile geleneksel mimari arasında bir karşılaştırma yapıldı. Son aşama ise, mimari düşünceyi şekillendirmekte ve kullanılabilen ve kullanılamayan faktörleri tanımlamaktadır. Bunun yanında, daha iyi mimari performans ve insan, kültür ve sosyal değerlerle uyumlu olan Katar evlerinin tasarlanmasına yönelik önerilerde bulunmaktadır.

Bu çalışma dört bölüme ayrılmaktadır. Birinci bölümde, tezin konusu, kapsamı, amaçları, yöntem ve yapısının açıklandığı ‘Giriş’ bölümüdür.

İkinci bölüm olan “Arap Mimari Mirasının Kavramları ve Modern Mimari”, genel olarak Arap dünyasındaki eski ve modern mimari, ve ayrıca, genel tutumlar, teorik yaklaşımlar ve uygulamalar ele alınmak suretiyle, bu çalışmada kullanılan mimari mirasa modern bir bakış açısı sağlamak ile ilgilenmektedir.

Üçüncü bölüm olan “Katar’ın Başkenti Doha Örnek Olay Çalışması” daha çok, “Doha/Katar”ın modern ve geleneksel mimarisiyle ilgilenmektedir. Geleneksel ve modern yapıların tasarımını, doğa ve kültür ilişkisini etkileyen faktörlerin anlaşılması sağlanmaktadır. Son olarak, yapı sorunlarına ilişkin geleneksel ve modern mimarisi arasında bir karşılaştırma yapılmaktadır. Bu karşılaştırmanın arkasındaki amaç, her iki çeşidin avantajlarının gelecekte gerçekleştirilecek herhangi bir tasarım için temel bir materyal olarak kullanılabilmesidir. Dikkate değer başka bir nokta da, geçmişten çok şeyin öğrenildiğidir. Geçmişini araştırmak, sabit ve değişen unsurları teyit etmektedir. Dolayısıyla, bütün bir geçmişin aniden kesintiye uğramasını kabul edemeyiz. Diğer taraftan hiç kimse, kendimiz ve sorunlarımızın çok farklı olduğunu ve geçmişten ders çıkaracak bir şeylerin olmadığını söyleyemez. Teknoloji gelişirken, mimari her zaman bunu sergilemez.

Son bölüm olan “Sonuç” bölümü, Doha kentindeki gelecek mimarisi adına uygun tasarım parametreleri oluşturmak için bir yöntem geliştirmeyi ileri sürmektedir. Bu daha çok, hükümet yetkileri ve aynı zamanda uygulayıcı konumundaki mimar ve tasarımcıların karşılaştıkları meselelerle de uyumluluk göstermektedir. Sonuç bölümünde, bu ve benzeri fikirlerin uygulanması ve yaygınlaştırılması için önemli olarak görülen sonuç ve öneriler kısaca belirtilmektedir.

Bu çalışma, Doha kentindeki modern mimari ve konut tasarımı için en iyi ve uygun standartları geliştirmeye çalışan bazı çıkarımları, sonuçları ve önerileri ortaya koymaktadır. Bu ayrıca, günümüz ve gelecekteki mesleki uygulamalarımızda yararlı olabilecek dersler çıkarmamızı sağlayacaktır.

Bu çalışmada belirtilen her bir tasarım parametresi, Doha’nın geleneksel ve modern mimarisi arasındaki karşılaştırma tarafından sağlanan bilgiler ışığında geliştirildi. Bu süreç, bir tasarım temeli olarak her bir değer sisteminin avantajlarını seçmek ve dezavantajları reddetmek suretiyle geliştirildi.

Doha’daki mimari miras, uzun dönemler boyunca süren deneme ve yanılma sonucu tekâmül etti. Mekan ve çevre kalitesini kademeli olarak geliştirmek ve iyileştirmek, yüzlerce yıl sürmektedir. Gelecek beş yıl içerisinde, inşaat alanında yoğun bir seri üretime geçilmesi ve özellikle 2022 Olimpiyatları hazırlıklarından sonra Doha’daki kentleşmede büyük bir artışın meydana gelmesiyle birlikte, ortaya konan mimari eserler Batının alakasız kopyaları olacaktır. Yeni mekanlar, buldukları bölgeye ait

orijinal mimari hassasiyetten yoksun olacaktır. Hiç şüphe yok ki bu yapılar etkili olacak ancak kesinlikle insancıl olmayacaktır. Mimari mirasın temel ilkelerini ve değerlerini anlamak belki kolay olabilmekte ancak yeni kentler planlamak ve günümüzün yeni binalarını tasarlamak için doğru ve uygun çözümler bulmak kolay olmamaktadır.

Bu araştırma şu sonuçları ortaya koymaktadır; Arap mimarisi günümüzde, gelecekte onu sosyo-görsel bir kültür olarak yansıtmada başarılı olabilen bir mimari nesilden yoksun durumdadır. Arap kentlerindeki miras kalan mimari, ayırt edici özelliklere sahip mevcut etkili bir mimari meydana getirmek için zaruri parametreler olan yer, çevre ve iklim koşullarıyla uyum sağlamasından kaynaklanan mimari ilkeler yönünden zengindir. Miras ve çağdaşlık birbirine zıt unsurlar değildir; her ikisi arasında, sosyal değerlerden miras kalan yerel kimlik yönünden geniş bir yenilik ve modern düşünce alanı bulunmaktadır. Miras kalan mimariden söz ederken bunun sadece unsurların bir mimarisi olarak düşünmememiz gerekmektedir. Bu aynı zamanda, ihtiyaçlarımızı karşılayacak bir mimari ortaya koyabilen kavram ve değerler açısından bir zenginliğe sahiptir. Zihnin miras alınan ilkeleri, gelişmiş teknoloji ile birlikte kullanılabilir ve mimari programa ekonomi de dahil edilmelidir. Yüksek bina, avlu kullanılarak engellenmemeli ve modern mimaride bu olanağın kullanımına bağlı olan akıllıca fikirler ve geleneksel olmayan çözümler bulunmalıdır. Miras alınan mimari fikirlerden yararlanmak mümkündür çünkü bu fikirler bizi zaman ve mekana uyum sağlayan gerçek ve sürdürülebilir Arap mimarisine yönlendirebilecektir.

Son olarak fakat bir o kadar da önemlisi, geçmişte muhteşem bir mimariye sahip olan Arap mimarların, modern ve gelecek tasarımlarını ortaya koyarken Geleneksel Arap Mimari ruhunu örnek almaları gerektiğini hiçbir zaman unutmamalıdır.

1. INTRODUCTION

Architecture is considered to be a record of all ages. The study of it provides us with a clear picture of the impact of different factors, and the way how architects get to deal with these influencing factors. It also reflects communities with their social life and aspiration of individuals and expresses heritage. These values which directly influence the architect's works and styles, produce desirable architecture that is appropriate to the circumstances which created it.

There is an overwhelming approach nowadays towards global architecture, represented by adopting pattern from the most economically developed countries popular called western architectural patterns as they reflect the utmost architectural developments and progress in the world. Such approach resulted in our local architecture loss of its own characteristics and being replaced by an imported type of architecture which is not suitable for us at all levels; natural and cultural.

1.1 Scope and Purpose of Thesis

Arab Gulf is a place of rich heritage and civilization, in which there have been a lot of accumulative historical achievements that could be as incentives for creativity and connectivity. At contemporary practices of architecture the dilemma of heritage came into being as it could not be ignored, while contemporary means keeping pace with the new changes in the world with all their new technology and philosophy. Majority of the countries having this problem, and Qatar also.

Heritage and contemporary have together formulated some sort of ambiguity that thinkers and scholars have always used, to indicate a problem facing inventors of all fields. This research attempts dealing with the problem in respect to architecture. And because of globalization, this problem appears to be so big and has strong effects on Arab Gulf architecture by causing unknown trends to emerge in local architecture seducing public taste.

It is difficult to stand against the powerful current of globalization, it is possible to enrich it by engraving the national and regional basis. And if development and restoration are inevitable for any civilization to prosper, dealing with heritage is a sensitive feature for this civilization toward its past and present, so heritage and contemporary form an intellectual measuring for culture. Also, this situation is evident in most Arab countries. Particularly the case study of Doha/Qatar, elaborates the rapid changing based on very fast economic development. This economic boom is encouraging increased foreign population of about 80% through migration to local inhabitation and economic activities have changed the way people live. Again the expectations of city authority to meet the standards of 'FIFA Qatar World Cup 2022' has led to acceleration of architecture in Doha and this has made the city one of the most advanced cities in architecture globally. As most advanced architectural city with dynamic economy and its potential to influence Arab and world architectural design, Doha/Qatar provides the basis for further case studies. Moreover, it should be noted that the aspect of architectural heritage and its preservation has been neglected; and it should be one of the major issues that need to be discussed as well as attempts to deal with it.

This study is aiming to prove that architectural heritage is not contrary to contemporary, but it is a sign of communities' maturity in this age. It warns against the hazard that endangers the future of architecture in those areas and emphasizes the use of inherited methods of architecture in contemporary and future one.

Many studies had noticed that contemporary Arab architecture does not meet current needs, and this is used as a base for the hypothesis that inherited traditional architecture and its components can be integrated in contemporary architecture. On the way to produce a more expressive type of contemporary architecture corresponding with our aspiration.

Key components of both inherited and contemporary architecture will be analyzed in order to prove the hypothesis, aiming to discover the best methods of using inherited architecture designs in our contemporary architecture to achieve a more valuable architecture. In addition, this thesis is to investigate the importance of using the local data in respect of nature and culture to learn from the architectural experience to reach a sustainable architecture, and to develop a link between the values of traditional architecture, the use of technology and the influence of contemporary design methods.

Furthermore, it tries to develop optimal standards for contemporary architecture and housing architecture in Doha city taking into consideration that housing represents more than 90% of all urban structures in any city.

Also, the focus will be on both traditional and contemporary houses in Doha city, in order to understand the relations between the day's contemporary housing and tomorrow's contemporary housing. Traditional houses are considered to be the most important architectural component of a traditional Qatari city. It is known that a house does reflect, in a clear way, all the different distinctive architectural components, and tells of the community true nature and type. It also helps understand the way how people live and apprehend their social and economic status. The house explains how people get to deal with their natural environment adapting themselves to climatic factors and using available resources. In this regard this research observes that, the shift towards reinforced concrete, high-rise housing from the traditional ones can hardly solve the housing problems in terms of social, cultural, and economical factors in Doha city and also tries to develop an optimal standards for contemporary housing design in Doha city.

1.2 Methodology of Thesis

This study firstly provides a literary review of the Arab Gulf architectural heritage and contemporary architecture, starting from its various concepts and attributions, followed by background for the case study of "Doha/Qatar". The methodology followed here is based on three main steps: analyzing, comparison, and synthesis. In this regard architectural elements, materials and methods of structure, in addition to the factors affecting architectural designs were analyzed, and then comparing contemporary architecture with the traditional one. The final stage is forming the architectural thinking and identifying the factors which can or cannot be used, concluding with the recommendations to better architectural design especially the Qatari houses to match with human, cultural and social values.

1.3 Structure of thesis

The study is divided into four chapters. In the first chapter, "Introduction" the subject of thesis, scope, purposes, methodology and structure of study were explained.

Second chapter, "The Concepts of Arab Gulf Architectural Heritage and Contemporary Architecture" deals mainly with the heritage and contemporary architecture in the Arab world in general, and also contemporary outlook to the architectural heritage used in the study, by discussing general attitudes, theoretical approaches and application were discussed.

The third chapter, "Case Study of Doha/Qatar" deals mainly with the traditional and contemporary architecture of "Doha/Qatar". An understanding of the factors affecting the traditional and modern houses design relation of nature and culture are stimulated. Lastly, a comparison between the traditional and contemporary architecture with reference to housing problems is addressed. The assumption behind this comparison is that one can facilitate the advantages of each type as a basic material for any future design. Another point worthy of note is that one can learn from the past. The study of the past can certify those elements which are constant and those which change. Hence we cannot accept a sudden break with all that went before. On the other hand one cannot say that we and our problems are so different that the past has no lessons for us. While technology may progress, architecture does not necessarily do so.

The last chapter - "Conclusion" summarized recommendations and a methodology for appropriate architectural design in Doha city relevant to educators, designers and professionals, as well as policy-makers.

2. THE CONCEPTS OF ARAB GULF ARCHITECTURAL HERITAGE AND CONTEMPORARY ARCHITECTURE

To study the relation between traditional architecture and contemporary one and the effects of other tidal factors on them, this study must be based on accurate knowledge of the basis of traditional architecture, and the present currents of Arab's school of contemporary architecture. This study provides a hint to some of the special basis related to traditional architecture, and also there is a suggestion to reviving Arab's architectural heritage and to apply it in contemporary architecture. Hence getting back to examples and establishing Arab architectural identity through awareness based on analytical culture and enlightening. But at the same time this does not mean using primitive substances or applying traditional systems without study. It is rather a suggestion to implement a thorough investigation about the initiation of architectural heritage and the circumstances that lead to its emergence, with the developing methods of structure and the ingenuity of traditional buildings.

The concerns about the identity of contemporary architectural philosophy in Arab countries are leading to the escalation of methods and stereotypes of equivocal features and establishing spillover approaches of the concept of placidity, unjustified excerption and transference due to persistent absence of a unified Arab architecture school, apparently. These concerns with state of modern Arab architecture should be done frankly and freely, a matter that is seen by Arabian architects and others as self-criticism; we could set appropriate environment to work by and go to great length (Al-Naaim et al, 2005; Al-Naaim et al, 2006).

2.1 Arab Architectural Heritage

There are a few questions posing themselves here: 1. Is Arab heritage in Gulf area applied in modern architecture, or not? 2. Should heritage be regarded as sacred and thereby should be copied, or in the contrary it should be considered as past with no

correlation, whatsoever, with present? 3. Can we refer to it in time of need? 4. Shall we continue adding up to it as did our ancestors?

To answer these questions we first need to identify both heritage and contemporary in the architecture, and know the axioms and changes influencing it.

2.1.1 Heritage

The term 'heritage' has gradually arrived in vogue since the 1970s. Originally, it meant 'that which has been or may be inherited; any property, and esp. land which develops by right of inheritance' (Oxford Dictionary, 1970, p.242). Before the 1970s, the terms 'cultural property' and 'historical monument' were more applied to historical and cultural assets. In 1972, UNESCO adopted a convention to protect cultural assets from armed conflict by selecting the term 'cultural heritage' (UNESCO, 1972). Modern researchers flung a number of definitions to heritage, like those who went to say that it is what has been left by our ancestors both materially and psychologically. 'Hanafi' assumes that it is what has reached us from the past as legacy and now become a part of our modernity at many levels (Hanafi, 1981). Elsayed defines heritage by stating that it is all that have been brought to us from the past. He philosophically argues that if legacy denotes vanishing of the father and evolving of the son, then heritage means presence of the former in the later (Elsayed, 1995). This is a vital definition to bridge the gap between the past and the present upon which we can deem the past as extending up to the present.

Makiya comments that defining heritage is not that easy, but it is a bunch of conceptions and understanding for human inner self and individuality which react with the post. Urban architecture acquires its human parameters out of this individuality and gets the so called quality of urban gaining (Makiya, 1983).

The importance of heritage appears by contemplating on the mechanism of progress in all times and nations. It is clear that progress in the world started by looking into heritage, not because it could be regarded as a foundation of growth in a past era, but because it can be a basis to establish criticism for our present and near past, and then leap to the future. Heilbroner (1995) says "The connection between the past and the future has often interested historians and there are good reasons why in the contemporary world this pre-occupation is particularly resonant".

Heritage, then, is a diversity of definitions every nation use according to their specific qualities, and it is helpful to know that the very early origins out of which legacy has stemmed, allow for this diversity. Reality is the basis upon which diversity is established. So heritage is not a bunch of practices for certain theories on certain circumstances, neither it confines itself in a specific historical incident, nor could be granted to a special class of people who formulate their views to the world (Hanafi, 1981). So, each nation has its own peculiar spiritual and material heritage, which gives it its distinguishing identity.

What history offers you is a chance to observe and analysis the whole gamut of human behaviors, including our species' remarkable capacity for deception, this is a salutary experience an opportunity to develop valuable transferable skills which you can make use of in the real world (Robert, 1998, p. 244).

Robert continued, Just what is it that we want from the past? History provides us with true stories about the past; heritage sells or provides us with the past we appear to desire. The dividing line between history and heritage is, however, far from clear; and the debate over that divide has often descended into the rhetoric of the Punch-and-Judy show. But is the past now available on tap, to be turned on and off at our whim? Or is it inescapable, always present on our lives and always making demands upon our futures? (Robert, 1998, p. 249).

There is some sort of ambiguity amongst cultural and literature communities when it comes to the use of the words heritage and history. Tizini (1979) says "If history is a past in its developmental dimension, then heritage is a form of developed extending past which intermingles with the present". Tizini distinguishes between heritage and history by stating that: the moment of progress embodied by historic incidents serves to give identity to these incidents (Tizini, 1979). He adds that this moment of progress terminates with the emergence of present state, though this termination is only a relative one resulting from stopping the past at the borders of present; so it follows that history is the past in its developmental dimension (Figure 2.1) (Tizini, 1979).

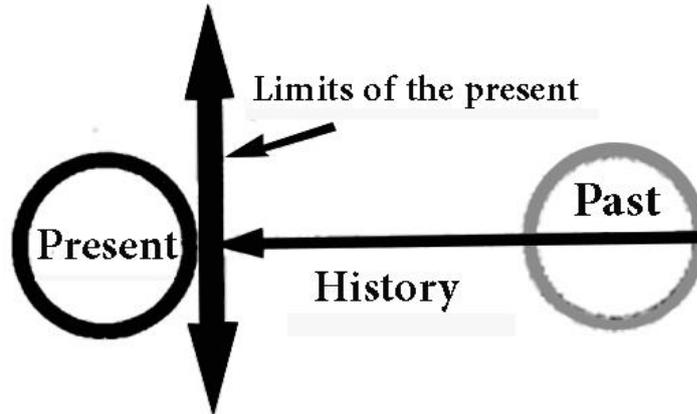


Figure 2.1 : History as extension of the past, but stops and cut off at the borders of the present and discontinue after that, adapted from (Elsayed, 1995).

If historic past is only just continuous with the borders of the present and not advancing any further, then heritage embodies the progression process from the past to the present (Elsayid 1995). In their developmental dimension they create the heritage, so we discover a linear relationship between continuity and discontinuity, as they represent the relationship between history and heritage (Figure 2.2).

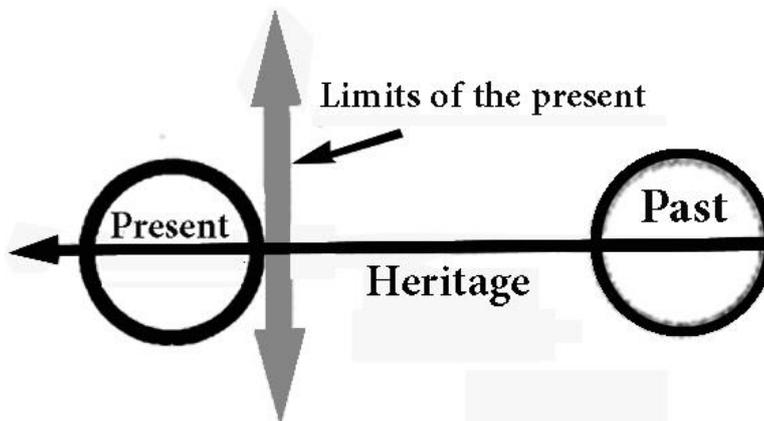


Figure 2.2 : Heritage as extension from the past and exceeding the present and continuing after that, adapted from (Elsayed, 1995).

We notice thereof a tendency to track history rather than heritage in our architectural heritage, and this is due to the fact that heritage is not running in our current way of living. Thus, the task towards this heritage is to take it out of his being rigid to live dynamic historical heritage.

2.1.2 Architectural heritage

Architecture heritage is thought to be civilizational wealth cherished by a large variety of nations, because in it the true essence and identity of those nations are existed, and that is a strong reason why nations should seek protecting this identity and ensure its continuity so that it may stay coping with time.

The importance of the architectural heritage for the historical identity of a region, town or nation is now widely recognized throughout the world. In order to take care of our heritage we need to look beyond borders to benefit from the experience gained by others and to gain a better understanding of its cultural background (Tallinn, 2009). The importance of vernacular architecture is increasingly being acknowledged worldwide. This is particularly true of developing economies where the globalization process is progressively being questioned, and where appropriateness of approaches and technologies has become increasingly topical (Tallinn, 2009).

We must realize that architecture is both a historical and progressing process, so we plead maintaining and protecting constructional heritage, which in turn necessitates benefiting from other people's participation in the field of architecture, not only by staying puzzled and worshipping other people's achievements, but also by getting to understand the causes which create the circumstances of evolving such ideas and thoughts of construction, and use them in reviving our today's architecture so that it becomes the ever unique and immortal statue of architecture that astonished the world for ages.

Velden defines architectural heritage as part of civilizational heritage, and that it is a physical image and material embodying of unique human constituents where man is the base of creation (Velden, 1984).

It is worth mentioning that the architectural development in this area was parallel to its civilizational and structural development. It is clearly reflected in the special units built by organic materials available at the local environment. First houses were built by fronds, stones and mud and straw. Then the process of building gradually developed when building materials such as timber, mosaic and colored faience were imported from Africa, India and Iran. Stones and grout entered the process of building and they proved capable of an upper floor building. Ornamentation appeared dazzlingly on the

corners of doors and windows telling of who the owner is. That, however, was the tendency for a long time so such architectural patterns mixed with the nature of people there and became a part of heritage that is passed from one generation to the other.

2.1.3 Threats on the architectural heritage

Immortality is probably one of the outstanding features of architectural and structural heritage, and through this immortality heritage managed to reach us telling us of our forefather's exploits and achievements, and it is likely that through this sense of immortality heritage could survive several disastrous factors which could otherwise damage it. So, we all are under a big responsibility to protect what is left from architectural and structural heritage and save it from complete loss or distortion, either by human-made activities or natural factors which cause buildings to flaw and collapse. So our big challenge now is to maintain such buildings and keep them in a good condition.

Waked mentions a number of causes which lead to cracking of heritage buildings and possibly falling down, regardless of their building material (Waked, 1996). These causes include contraction, creep, and increase of marbling due to overload; in addition to other causes like fire, earthquakes and humidity (Waked, 1996). It is also important to learn that there are several indicators which can cause a building to crack and collapse; and such indicators could be summarized as having human and natural effects as follows:

Human effects: Human effects have a great impact on structural and architectural heritage. Some of these effects are intended while others are not. Some effects are influential on the moral sense of heritage, and others influence the material aspect of it. The most serious moral effect is probably western invasion which is turning so many people against their own heritage and making others stand puzzled at what has been invented and brought by the Western products; those products which, in the other hand, could never have seen light unless some great thinkers and architects who were our Arab Muslim forefathers opened the door of invention to them and to a unique civilization, which is still as outstanding as ever. Some people, however, refuse to accept their heritage or, to be more accurate, glorify heritage, and thus contribute indirectly to damaging it, as they turn it into a frozen picture. They do not learn from

heritage how to cope with the present. Some other people tend to exaggerate in maintaining heritage, and regard rehabilitation and reuse of it as insulting it. No doubt the result was damaging heritage, as such heritage buildings were not rehabilitated or maintained, but left to deteriorate and disappear from existence. We conclude from all that, extensive studies are required to attain work efficiency and good outcomes which can only come true through acts issued to maintain and rehabilitate our heritage architecture (Elmaliki, 2000).

Attaining economic gains and destruction of heritage buildings for political or ideological reasons related to a change of time, is thought to be one of the intended human-made damages to destroy heritage, in addition to theft and processes of demolishing, etc.

Damages due to wars, negligence or misuse; are regarded as unintentional human-made damages.

A-Natural effects: these effects are found either inside the heritage building, for instance humidity and its effects (Elmaliki, 2000). Humidity has different sources by which it can get inside the building as during the process of building or by ground water, ice, or even human activities inside the building (Waked, 1996). Natural effects might be factors coming from outside such as volcanoes, floods. All forms of mechanical power cause cracks in the walls of the struck buildings. These cracks appear in a sloping manner leading to walls leaning to a high degree, or cracks between walls (Waked, 1996). Climate factors such as heat, wind, sun rays, ice and harmful insects are all among the natural factors affecting buildings.

B-Such factors and their effect on our heritage structural and architectural heritage have made thinkers and researchers to think seriously of how to maintain what is left of our Arab heritage, as it represents a genuine indispensable art. We have to be aware that we are hemmed by two realities: one represents our dying heritage and the other is experiencing a difficult birth (Almaliki, 1997).

2.2 Contemporary Outlook to the Architectural Heritage

2.2.1 General Attitudes

Contemporary Arab architecture is directly influenced one way or another by whatever western method suggested, that any scholar in the field of contemporary Arab architecture cannot discuss the issues related to Arabic architecture unless thoroughly investigating the western thought first. There are several reasons for that, the most important of which is that the Western contributory role is more than just an influencing factor on the new history of Arab architecture.

The concern about architectural heritage has tremendously grown more recently because of the economic importance of heritage facilities and sites to villages and small towns. The massive growth of tourism has drawn attention to this indispensable economical source (Ibada, 2006).

It follows that taking care of local structuring is not to be dealt with superficially, but it should be a question of connectivity amongst socio-cultural and human development in one hand and maintaining the environment in the other. The fact that heritage architecture is not contrary to contemporaneity, but a sign of maturity of societies of the present time must be always highlighted. Human heritage involves all that brought to us by our ancestor's civilization, including arts, philosophy, architecture, construction in all aspects of life.

The concern about architectural heritage in the world, particularly the Arab World, has extended to include all walks of life, the thing which caused two opposing contemporary parties of people to emerge. One party is ashamed of what has been inherited and deny it. So this party relates modern-contemporary progress to an opposing opinion of abandoning what is inherited altogether, without providing a better alternative; and this is, of course, a silly conception of constructional heritage. The other party, however, clings at heritage, just may be to oppose their counterpart; the first party, so its support for heritage is that extreme; they honor and even worship what has been inherited and in the other hand, refuse modernity (Al-Ashaab, 1984). So the two parties are at extremes and they both prompt some sort of deterioration to heritage. Heritage, then, is a necessity, not a longing for the past, and new inventions come out of things which went before them along the way of life. Things which established a base to build the future. Thus abandoning heritage means casting the past

away and killing authenticity, which, in turn, does not mean copying. Authenticity is a wide conception of what is suitable and matching with current ages, and that goes to form quite a contemporary view of a third party towards heritage, supporting some areas of heritage in a balanced way and trying to modernize them so they become as good as heritage (Al-Ashaab, 1984). This party emphasizes the fact that reviving heritage is not necessarily going back, but it could be regarded as onward steps toward the future; so that modern work is based on a solid heritage, the thing that has been approved by Arab and non-Arab scholars, as Poladian (1991) who states that no contemporaneity without heritage and no true heritage without contemporaneity.

There is no such work as purely modern or purely original; the two things go together. Authenticity does not mean that we should construct our contemporary cities in a traditional urban way that they become copies of our old cities, which were built with good planning solution in mind which makes them adapt with man's social, religious and human requirements, in addition to their coping with environmental and climatic factors. Modernity, in the other hand, imposes developing or sometimes refusing some solutions so that contemporary architecture and cities become exceptionally beautiful as those older traditional cities. Thus, we are under a big responsibility and challenge of studying urban constructional and architectural heritage thoroughly, with analysis and evaluation to of all points of its strength and weakness, and benefit by these points to establish our contemporary architecture that it may, in turn, be a strong basis for tomorrow's architecture. Coping with present is carried out through modernization of our inherited roots and the authenticity of our productions, and that is when we put our feet on the right place toward the future.

First we should clarify that authenticity is the civilizational harvest of a community's legacy along the road of history. And contemporaneity is the inevitable outcome of the continual reactions of civilization which is related to history. Contemporaneity brings to communities whatever possible cultural harvest, and it is affected by the geographical dimension of those communities and the influence of other civilizations with both their positive and negative effects. Authenticity adheres to contemporaneity in a series of actions which push the community upward and downward, having a strong impact on architecture as well as other cultural and social areas (Seraj el-Dein, 1991).

In its definition Arab Islamic architecture is no longer subject to formation or variation, as orientalist's view the architecture of the Islamic World as related to a specific era and place. Arab Islamic architecture is a set of Islamic teachings and values that are not subject to time or place changes (Abdel Gawad, 1090). Islamic architecture has then two components: 1. Content which adheres to religion socially and economically, in a way adapting with natural, civilization and climatic environment. Referring to architectural heritage is rather a type of contemplation than a model to copy.

2.2.2 Theoretical approaches

2.2.2.1 Trends and intellectual renaissance in contemporary Arab architecture

During two last decades, contemporary Arabian architecture experienced a remarkable activity related to architectural education synchronized with emergence of early pioneers of contemporary Arabian architects. The establishment of institutions and bodies concerned with contemporary Islamic Arabian architecture affairs assist out to accelerate and push forward educational activity. One of the most excellent institutions is Aga Khan Trust for Culture supports conferences deal with issues of architecture and planning in the third World, beside it rewards a periodical Prize to the most successful and outstanding architecture or planning works in Islamic World. Further, it used a remarkable knowledge institutes as scientific forums like (Harvard MIT) universities in USA, also delegated students in scholarships to good-quality universities, whereas students had taken learning. In addition to that, Architecture teachers and delegated students are both given great concern to Architectural issues in Arab World. The same institution also identified contemporary Arab architecture in large scale. The efforts done by an architect, Hassan Fathi, all through 50 years round instated him as the first chairman to Prize Nomination Committee .Architecture concept and stimulus educational activity were informatively covered by (Eemar) published magazine, beside the magazines dealt with architecture issues and specialized books published by The Aga Khan Trust for Culture and others such as Saudi magazine “AL-BiNAA” of which played significant role in supporting and enhancing mental perception of new generation of architects and acquainting with works of early pioneers of architects and their intellectual thesis.

This concept renaissance came out in 1970s and plot thickens in 1980s, led to two foremost issues in the contemporary Arabian architecture: first, formation of contemporary architecture concept between groups of Arabian architects based on adaption of heritage as turning-point towards conceptions of pioneers of architects. Second, formation of newly generation of architects generated by foresaid educational and concept movement, who, by one way or another, constitute an extension to early pioneers of architecture either by modernity and directly accompaniment or by concerning with conception of those pioneers. To know architecture concept ambience where those pioneers were brought up, and what are the most prominent architectural trends prevailing throughout this period and before? What are pulling and pushing factors behind this formation?

The sector of architectural education in Arab World, through studying modern architecture theories or history of modern architecture, incline to quantify the following trends as the most prevailing ones during 20th century (that setting the background and architectural concept ambience for early pioneers of Arabian architects and sector of education (Al-Sayed, 2003). These trends setting architectural concept and they considered as the most prominent pulling and pushing factors in contemporary Arabian architecture, as follows:

Modern architecture:

It was prevailing as a trend and as a theory. It based essentially on technological deliverables and time givens. It came out in multi-story buildings. It does not express specific cultural identity, but it relies on profession as one factor of main designs thereof. It could be adopted in patterns and stereotypes of buildings such as banks; commercial complexes, trade chambers, facilities, hotels and others. This stereotype of architecture was prevailing in West by the end of 19th century and beginning of 20th century. By early of 20th century, it was transferred to Arab World by a few architects then. Most of them were contemporaneous to Hassan Fathi and belonged to the same generation. Dirran, of those architects, whose buildings were gone around in Jordan which expressed this trend. Subsequently in 1970s, well-known architect Jafar Tukan combined different trends in architecture. One of the most prominent architectural trends in his designs was shown in Beirut. The house of engineering in Cairo and Beirut also inclines to the same trend essentially in its designs. Dirran was

distinguished by his accurate architecture designs and balance in expression from other architects (Seraj el-Dein, 1991).

A trend of post-modernity architecture:

It became prevailing by the end of 1970s and early of 1980s in Arab World. It relies on re-read of classical architecture source (origin) together with combination of technology and reasonableness. It is seen in different patterns of housing and public buildings. It is notably that colors and modern materials being used with accurate and highly skills. This type of architecture becomes prevailing all over the Arab World (Seraj el-Dein, 1991).



Figure 2.3 : Richness of the traditional elements in the diplomatic club in Doha-Qatar, adapted from (Url-1, 2013).

A trend of reasonableness:

It sometimes inclines to classicalism and apprehension of not using modern materials. It uses accurate and appropriate sizes and colors; moreover, it inclines to plane geometry together with professional balance much more than other trends with no disregard to aesthetic aspects and simplicity in formation (Fathy, 1986).



Figure 2.4 : Home of architect Sami Angawi in Jeddah, adapted from (Url-2, 2013).

A trend of deconstruction:

This type of architecture prevails to technical and figurative aspects much more than that expressed by an architecture of other trends. The remarkable pioneer is Zaha Hadid from Iraq. Abstraction, usage of modern materials and different angles prevail in the same architecture work (Al-Sayed, 2003).

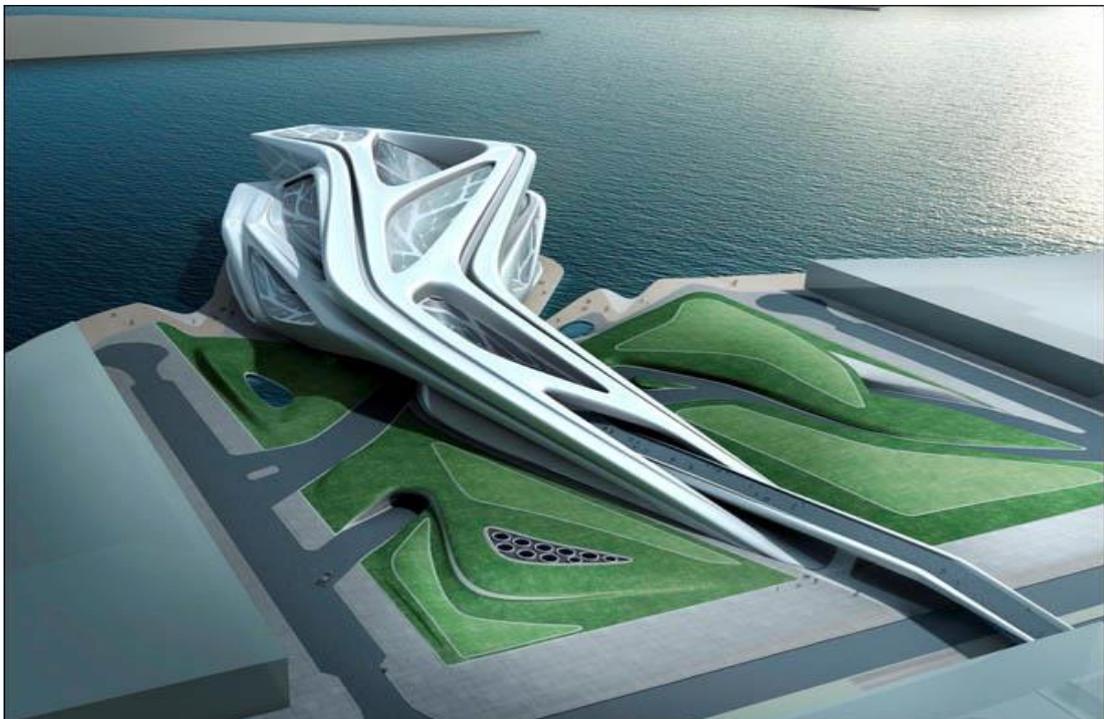


Figure 2.5: The performing arts centre in Abu Dhabi by Zaha Hadid, adapted from (Url-3, 2013).

Heritage trend:

This type of architecture comprises the majority of pioneer architects. It is a collection of trends such as domestic, regional and ostensible-selective trends. An architect, Abdual Wahied AL-Wakeel is classified as one of its followers. These trends formed concept ambience and climate where subsequent generation of pioneer architects were brought up (Seraj el-Dein, 1991).



Figure 2.6 : Qiblatain Mosque, Medina, Saudi Arabia by Abdel-Wahed El-Wakil, adapted from (Url-4, 2013).

Given general view to contemporary Arabian architecture will depict that there are foremost figures in Arab World such as Hassan Fathi in Egypt till the end of 1980s, Abadual Haliem Ibrahim in 1990s, Rasem Badran and Rifat Chaderji in Jordan and other pioneers of different trends. Interaction between these concept dissertations in point of fact has emerged in Gulf States which have gone through accelerating development by last ending century, as architectural thought. Many are contemporary with Hassan Fathi and affected by his style like Abd Elhaleem Ibraheem and Rasem Badran and others. Saudi Environment Office and Dr. Ali AL-Shuayibi are considered as the most prominent architecture concept figures in Saudi Arabia. As a result of educational movement on one hand and concept and practical activity on the other

hand, a group of architects, who were distinguished by their style, talent and stayed constantly with the pioneer architects, emerged in an early of 1990s.

2.2.2.2 The pioneers of intellectual renaissance:

Though two centuries for a direct contact with West and pervasion of modernity terminology in contemporary Arabian communities had passed, Arabian architecture found no one to encourage or pave the way for it and transformed it into school of criticism to be called Arabian criticism school of architecture. The absence of this school not only affected ever decadent Arabian towns but also influenced on Arabian sense. No one seeks for preference and excellency especially at public level.

The obscure features of architecture in Arab World at concept and practical level increase by passing of time. Failure became prevailing in the mind of initial Architect. All attempts by early pioneers such as Hassan Fathi and Mohammed Makia to engrave a picture in Arab community fall through. We dare to say that those pioneers failed to change the fade picture of Arabian architecture since it has given up its source. No one denies that prize of architecture plays great role in setting Arabian conception. It stimulates others to compete and critics to study successful and victorious work and analyze them. It is curious that all these mechanisms have been absent in spite of the prize awarded by Organization of Islamic Capitals and Cities since two decades. OICC found in 1983. Since then and up to now, the prize awarded seven times, but architect prize was not awarded for three subsequent periods the matter that shown critical stage bad of contemporary Arabian architecture.

We need to tackle with the reasons behind this decline of architecture in Arab World. Why couldn't we generate well qualified Architects? Is that a crisis lived by both Arabian towns and Arabian architect? Or is that an educational and technical problem making us staying behind? In one interview with well-known Palestinian architect Rasem Badran, he talked about economic hardship encountered Arabian architect. "An architect doesn't receive real wage in comparison with Western architect," He said. One of the reasons advocated by well-known Saudi architect Ali AL-Shuaiybi is that "low wage received by Arabian architect". Many of well-known architects such as Le Corbusier, who was on the top, earned little wage although he presented and provided everlasting architecture works. The problem is not of wage earning despite it is so important, but I believe that it is a problem of confidence in Arabian architect when a

large or complex project entitled to him / her under the pretense that he / she has no experience or technical capabilities. When Shanghai Bank design was given to the architect Norman Foster, he had no design experience of such buildings at that time, but he is now one of the most famous architects in the World in designing multi-story buildings. The most important question raises itself is that how could we generate a generation of Arabian architects assume the responsibilities of architectural message as visualized-social culture which can reflect future of Arabian culture?

In this part of this research, this thesis review some pioneers of Arabian architecture in Arab World, who presented and provided their theories, works and new thoughts that enrich Arabian architecture with fascinating projects. It competes to build up and draw unified picture for Arabian architecture identity, highlight on architecture as step to create intellectual space for dialogue and identify the boundaries of architecture which we dare say it is an Arabian one.

Architects selected as follows: Hassan Fathi – Rifat Chaderji – Rasem Badran – Jafar Tukan.

The reason behind my selection is their joint expectations and aspirations to create Arabian architecture identity to reflect the nature of the region. But each one has a way and mode of life-style, Hassan Fathi calls for a return to nature that based on local building materials while Rifat Chaderji affirms on the characteristics and features of Arabian architecture as to develop it into a form that can cope with contemporary reality. Rasem Badran and Tukan attempt to harmonize between modern intellectual dissertations and details of traditional architecture within a framework comprises between authenticity and heritage.

Concept features of the most important pioneers of concept renaissance in contemporary Arab World as follows:

Hasan Fathi

He is a pioneer of contemporary Arabian architecture in Arab World. He was born in 1900. He studied in University of Foad” Current University of Cairo” He awarded State Encouragement Prize in 1959. He awarded State Assessment prize. He was not married and died in 1989 despite he devoted all his life for his thoughts. He had his own respective stand point of view based on nation’s heritage and at the same time took full advantages of others achievements. Construction was not walls and ceiling

to him, but it was life and civilization. He believed that the most foremost problems of architecture and housing in developing countries such as Egypt emanating from terrifying differences between financial capabilities, inhabitants annual income and building costs. They lead to disability to build sufficient number of houses needed by society members so impecunious majority still remained without shelter. Accumulating 10 members of Family in a tent or in one flat composes of a room and a hall leads to continuous psycho-community problems. He believed that the financial aids granted to inhabitants by the governments or by international institutions would go down the drain and readymade house, building machines or use western methods of building would not be also solving for all problems (Seraj el-Dein, 1991).

He provided such solutions for the problems as follows:

Inhabitants should build their houses by themselves through traditional cooperation and not by cooperative societies established for bureaucratic employees. Technology and engineering sciences should be devoted for low-income inhabitants to allow them to build houses in conformity with their incomes. He outlined that it required establishing of social, administrative and financial system, of not the same system which became so inefficient too early for the majority due to social and economic transformations that affected all the world particularly Third World Countries, lead to persistence traditional cooperative system efficiency in these current situations.

The flexible concept of Culture and Heritage was a doorway to his own philosophy in architecture field. He believes that “culture defines as an interaction between human intelligence and environment to obtain his psychical and spiritual needs “. This definition can be applied on plastic arts including Architecture. It is not logical that Swiss photographer took a photo of camels and palm trees to express his own country nature. It is also not logical that Arabian architect builds Swiss chalet in Egypt or Kuwait with camels and palm trees near to it, it will be funny as in comic films. Unfortunately, that is typically happened to day in Arab countries, not only by building Swiss chalets in the region but also by building modern buildings with modern western architecture style which is inconsistent to the nature of the country and people who will be looked like camels and palm trees whenever we see them standing nearby these buildings. He quipped “Imagine a Sudanese man dressed in Louis VI clothes or Saudi man lived in glassy house,” He believed that an architect should not be mere engineer but he/ she should be perceptive to different dimensions of environment and

inhabitants socially ,psychologically, biologically and historically. The architect should put into account the harmony of building and place (valley/desert/mountain) to avoid being unsightly and inappropriate to the environment. He refused Pharoic, Coptic, Babylonian, Ashorian and Islamic style to be synthetic decoration in Western stereotype building. expressing his mindedness, he says” There are old temporal elements in traditional architecture unreasonable to day usage in comparison to other progress- efficient elements which should be extracted from domestic building materials,” architectural art according to his understanding is not a constant style cope with all times, but it is in debt to prevailing features and variable conditions. He adopted and applied his philosophy in village of AL- Garrana that located on western bank -south Nile valley–looking on at AL-Uksour and also in village of Mashrabiya. He depicted his philosophy of Architecture in his book “Architecture of Poor “which translated into several of languages, given him a worldwide reputation.

The houses built by architect Hassan Fathy were perfected and distinguished. He inspired their architecture style from Nubba style which is not only suitable to environment but also cheap. Types of these houses ventilate and get a light from inner court where house’s windows looked on to that court, it also protects household from dust and unwell-liked air currents. In addition, it gives privacy to the family and it copes with Islamic teachings. These two outstanding advantages might not been given by designs of modern houses prepared by traditional architects whose architecture philosophy being sought inspiration from European architecture style.

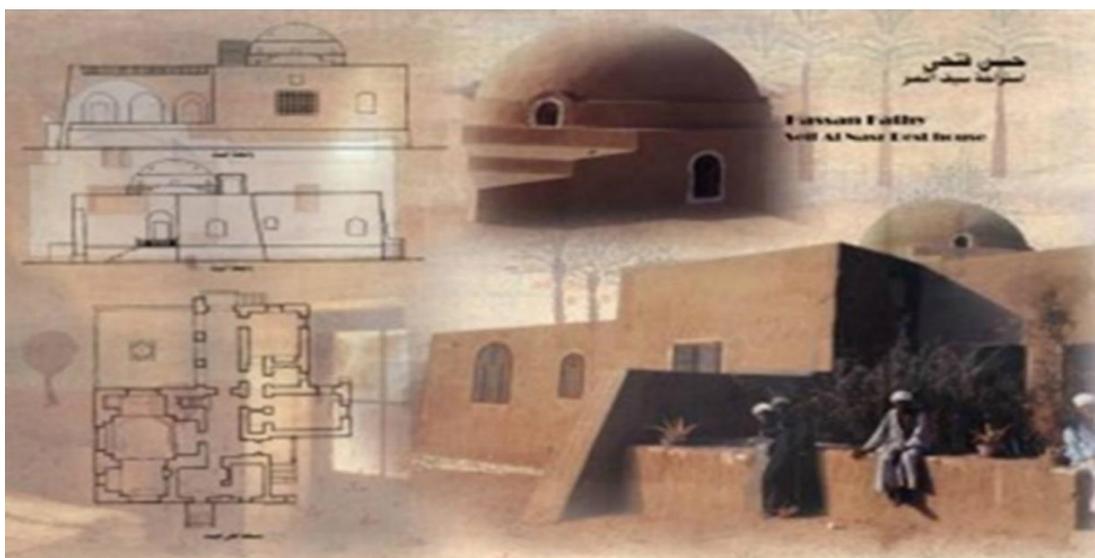


Figure 2.7: Seif Al-Nasr Residence, Egypt by Hassan Fathy, adapted from (Url-5, 2013).

We would like to conformed that Hassan Fathi used merely clay in building of houses where a clay naturally available on their locations. When houses built by him in desert, he sought for materials that available in desert environment. He precisely applied that by used stones to build houses in desert. He persuaded to use clay that available in desert as cheap material and much more better that imported one.

Rifat Chaderji

Rifat Chaderji was born in Baghdad in 1926. He obtained diploma in architecture engineering from Homir Smith Crafts and Arts School – England. Post-graduating, he worked in his office” Iraqi Consultant”. He appointed chairman of buildings in Iraqi Public Awqaf. He also worked for Iraqi planning ministry and as chairman for planning in Ministry of Housing. He participated in number of architectural shows in Beirut, Spain, Sudan, Ghana, Tunisia and Britain. He awarded several Prizes such as first prize of international competition for Iraqi bank building in Bagdad. He also awarded half-first prize of Kuwaiti parliament complex competition and first-prize of National Theatre Competition in Arab Emirates State (Al-Sayed, 2003).



Figure 2.8: Commercial bank and Soldier sculpture in Iraq, done by Rifat Chaderji, adapted from (Url-6, 2013).

He says about his own orientation in architecture art “My concern focused on creating appropriate style for contemporary Arab architecture, depending on persistent

discussions among architects, painters, sculptors and Arabian scholars were the starting-point“(Chaderji, 1987). An important question raised itself whether our architecture art would still susceptible to Western-European concepts or it should predispose to domestic environment, natural traditions and available materials?

Chaderji (1987) says, "As for me, I began to learn from traditional architect and I try to get matching between traditional forms and modern technologies. My key objective fixed on creating architecture style that matching with spatial actuality where a building might be established. “On the same time, I concerned with analyzing the current consideration in traditional ways of natural supremacy and reflections”. He went on saying “(Chaderji, 1987). He continued, "my early attempts to seek for traditional elements have left some effect on junior architects, and my current concern focused on developing non-objectivism in traditional, domestic and national forms and its aesthetic values separated from constructional concept of building” (Chaderji, 1987).

His works shown harmonization between the early effects of French architect Le Corbusier and Dutch Mies van der Rohe, and his progressive inference for characteristics of traditional Iraqi and Arabian architecture and his attempts to combine between the traditions and ancient cultural heritage.

Chaderji mixing of international modern and local traditional style was reflected on the building that he re-maintain such as old place mosque monasteries in Iraq many young Arab architects influenced by Chaderji when he presented for them substitutes for international systematized architectural style which is more available in middle east he leading them to renewal diversity and difference.

Rifat Chaderji supports his architectural works with controversial critical thought that appeared in a number of his writings specially in his book (concepts and impacts to international architectural art with regional base) he viewed that we can enrich our contemporary architecture history with regional architecture that springs from inherited architecture, he views that architecture is an output of controversial interaction there is no equaling between regional privacy and copying from the past, every age have its own techniques and expressions and its special beauty virtue as the returning to the past is hindering the notable progress (Chaderji, 1995).

Rasem Badran

Rasem Badran (born in Palestine) is one of the most important Arab classical architects who was a pioneer in renewing and modernizing of Arabic contemporary architecture.

The designs of Badran are based on a triangle its three sides are past, present and future. Badran is studying the site history and intending to its future development to reach the present, he is passing from the past accumulating to the future to reach with his works to the present and here. He let the social , cultural and environmental sides flowing in his works, and this is applied on the buildings of the one family (Hanzal building, Oman) as on whole districts (Fohaice district, Jordan). It is clear that the romantic place where he was born is attending in all his works (Seraj el-Dein, 1991).



Figure 2.9 : The Great Mosque of Riyadh (1992), Badran was inspired by the traditional architecture of Najd, Saudi Arabia, adapted from (Url-7, 2013).

The collective structure of the cubes and the graduation and overlapping shapes is always repeated to give the great buildings a kind of simplicity (the grand mosque, Baghdad). The visual communication between the buildings and the gaps facilitate by the openings, paths and the axis, to see the rooftops and the flow of streets, is giving public or semipublic areas for meetings, to call for amusing in the place. He is sensitively for the role of nature is reflected clearly in his designs, the designs designed

according to sun and wind movement to maintain healthy atmosphere (residential building, Wadi Jamil, Beirut).



Figure 2.10 : Wadi Jamil Housing project in Beirut, Lebanon by Rasem Badran, adapted from (Url-8, 2013).

Badran gathering between traditions and modernization, he is making his works unique, and make him an authentically artist, and Arabic contemporary skillful architect giving an energy to the places which he designed and he is repeating writing of its stories again (Al-Sayed, 2003).

Jafar Tukan (1976- 1995)

Jafar Tukan was born in Jerusalem 1938, his father Ibrahim Tukan was a well-known poet, he studied school in Nablus, and he studied architecture in (American University, Beirut) he graduated in 1960, he worked for one year in Jordan then he returned back to Beirut, and he worked at engineering houses which have distinguished great activities in the gulf countries, until 1966, after that he worked at his own office in Beirut until 1976, he constructed a number of buildings, the most important one is (Aisha Baker mosque, Beirut 1971), in 1976 Tukan returned back to work in Jordan through his office which have many branches in gulf countries, also he has many works in United Arab Emirates, Kuwait, Jordan, Saudi Arabia, Lebanon and China (Bushnaq, 1992).



Figure 2.11 : SOS Children's village association of Jordan by Jafar Tukan, adapted from (Url-9, 2013).

Tuqan's theory concepts in his architectural style as follows:

- The role of the designer is to put himself in the business owner mind, and then he subjects these thoughts to the design process (Tukan, 1988).
- Architecture must be based on specific application, accuracy of details, skilled execution and impartial expression (Tukan, 1988).
- Architecture is not stable, it is dynamic and changeable, i.e. the emotional respond to any architecture work, to translate it to reality, is a variable respond, different from a case to another one, so it is not possible to start from premature stable thoughts (Tukan, 1988).
- The rejection to start from variables is strengthening the dynamic design process, and give it an accumulative development.
- Establish a good architecture needs to prepare a suitable cultural, political and economic atmosphere. And this preparation is a collective process; the role of architecture is only enriching the sensory experiment by bringing up architectural patterns to promote and direct the general sense by building architecture, not by talking about it (Abu Hamdan, 1984).



Figure 2.12 : Amman city hall located on the edge of Amman's historic sites by Jafar Tukan, adapted from (Url-10, 2013).

2.2.3 Application

Architectural principles should be available in the contemporary architecture (This main factors addressed in this study was evolved according to the inherited Architecture and the last study of pioneers of Arab architecture):

2.2.3.1 Climatic adaptation

The building must be adapted with the climate and its various elements, at the moment of the termination of the building, it becomes a part of the environment like a tree or a stone and becomes vulnerable to the same effects of the sun, rain or wind like anything else exists in the environment. If the building was able to face the climate's pressures and problems, at the same time, using all the available natural and climatic resources, in order to achieve human comfort inside the building. This building can be called as a balanced climatically (Fathi, 1986).

The problem of climate control and create a suitable atmosphere for human life is as old as humanity itself, man was careful to build a shelter that includes two main components which are: Protection of climate and try to find an appropriate internal atmosphere for his comfort. From these ancient environmental processors and briefly

mention the following: The internal courtyard, malqaf (wind-tower), fountain, and selsebil, Iwan, rattle, mashrabiyya (oriel), domed and vaulted roofs (Fathi, 1986).

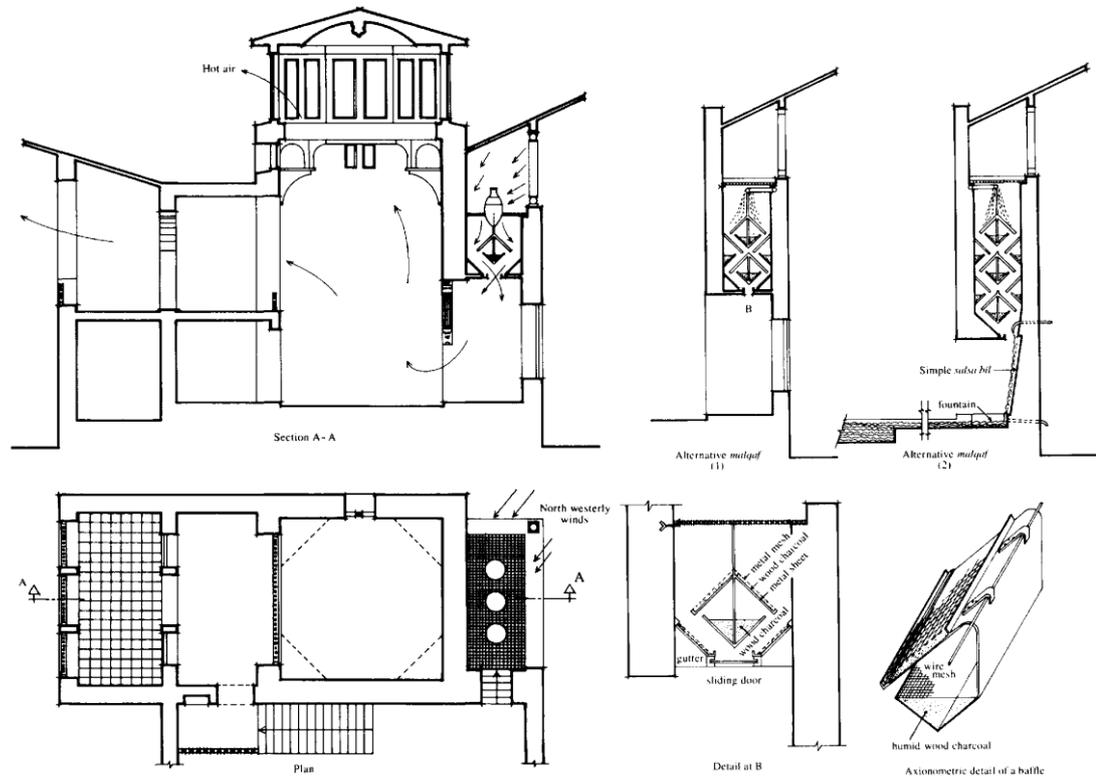


Figure 2.13 : Malqaf with wetted baffles and a wind-escape. Design by Hassan Fathy, 1986, adapted from (Url-11, 2013).

2.2.3.2 Respect the site

The main objective of this principle is that the building set foot in land in a style does not work on fundamental changes in the parameters of reality from the ideal and exemplary standpoint, that if the building has been removed, or moved from its location, the site dates back to its status before the building be built.

The domes and tents of nomadic one of the most expressive examples of this principle, these tents are woven from the hair of sheep and camels, and is supported and installed with only some wooden wedges and ropes, In the departure of the Bedouins to other places in search of pasture to graze their sheep, we notice the absence of any substantial changes in the site and may not inferred to their stay, except from the remains of the fire which they light it for cooking or heating at night (Fathi, 1986).

The principle of respect for the site call for designers to use design techniques and ideas that would bring less change possible construction site especially in drilling operations or backfill or grab some trees from their places, one of the most contemporary examples in this area is to create a developed new system to house the pilgrims in the valley of Mina, the design attempts have led to exploit the foothills of the mountains to house the pilgrims while maintaining the natural environment of the sacred feelings and the topography of the site to invent a kind of removable and innovation structural installations (Elsayed, 1995). He continues, the system of structural, applicable and Multiplexes tents is wholly in line with the nature of its position and with its facilities neighbors to house the pilgrims in the valley of Mina, also preserves the environment in which the Muslims are performing a large part of the rituals of Hajj (Figure 2.14).



Figure 2.14 : Tents line the valley of Mina – example of respect the sight, adapted from (Url-12, 2013).

2.2.3.3 Passive energy-climatization

Fathi (1986) says, the influence of climatic factors appears - both in the cold or warm areas-on humans and the built environment through the use of energy for cooling

heating according to climatic zone to provide the so-called (thermal comfort inside the building) and other defines thermal comfort as a fully physiological (physical) and mental sense of comfort, and in this regard, it was necessary to clarify the conscious climate design strategies to energy which seeks to achieve two main objectives:

First: in winter must be taken into account in the design of the building the maximum benefit of the acquisition warming by solar radiation while minimizing heat loss from inside the building.

Second: In the summer, where the building needs cooling so work to avoid solar radiation and reduce heat and acquisition work on heat loss from inside the building and the internal spaces cooling by different architectural styles.

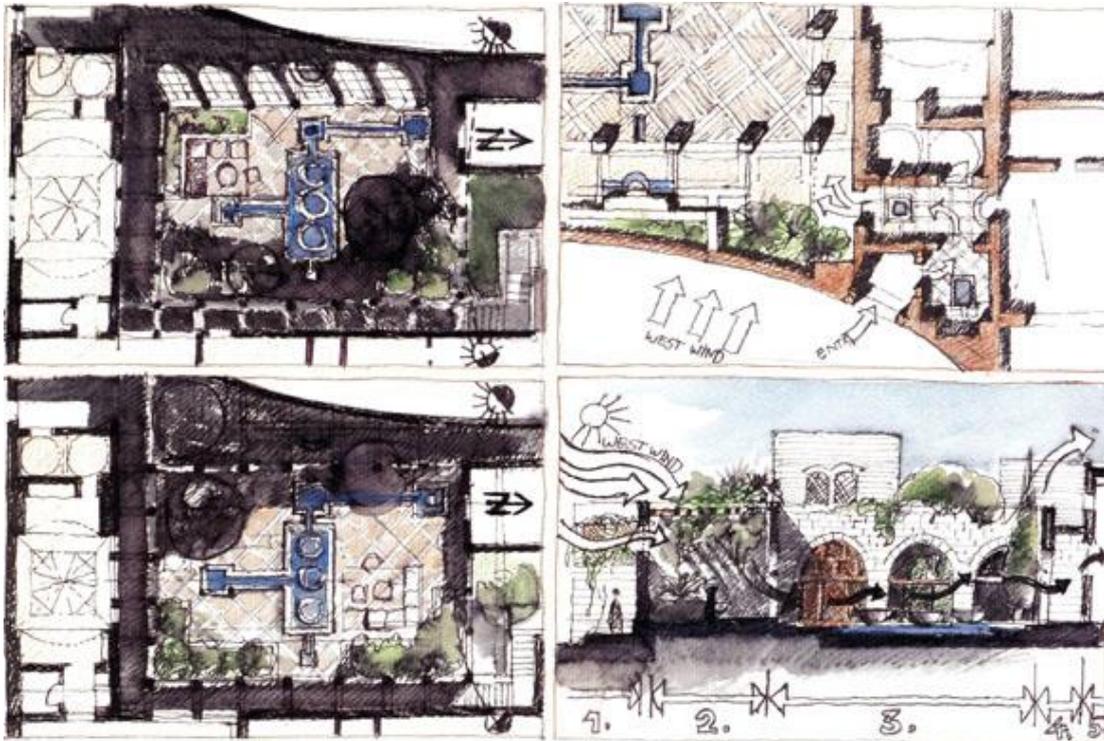


Figure 2.15 : Al-Talhouni residence, Jordan by Rasem Badran. The orientation of each courtyard must be carefully adjusted to permit maximum airflow, with sectional proportions adjusted accordingly, adapted from (Url-13, 2013).

In order to heating or cooling the building, this requires tools and systems, whether they rely on electricity (Air Conditions) or natural (using natural energy like the sun, wind and rain), and look reflective of modern buildings, we find that most of them depend entirely on operations of heating or cooling the air conditioners in spite of damage and negatives resulting from the use of air conditioners, the trend of its usage

is steadily increasing, while the natural resources and energy, which are the solar and wind power is available and can be used in certain methods of design that was happening in the old traditional buildings, These buildings were used building materials with large thermal capacity such as stone or clay (Badran, 1988).

For example, in the sense that this kind of construction materials are delaying the transfer of heat through them into the building until late hours of the day and it remains internal air of the building comfortable in the most of the warming daylight hours, as it was external openings were narrow (as opposed to what we see in a large plate glass in modern buildings) in order to avoid the entry of a large amount of direct solar radiation, with the development of some of the top openings which let in natural light without exposed who sits underneath to direct radiation, while in the case of large openings were used mashrabiyya wood with wood turning, which works to break the sharp of the sun's rays and allowing air to enter with a reasonable proportion of light (Badran, 1988).

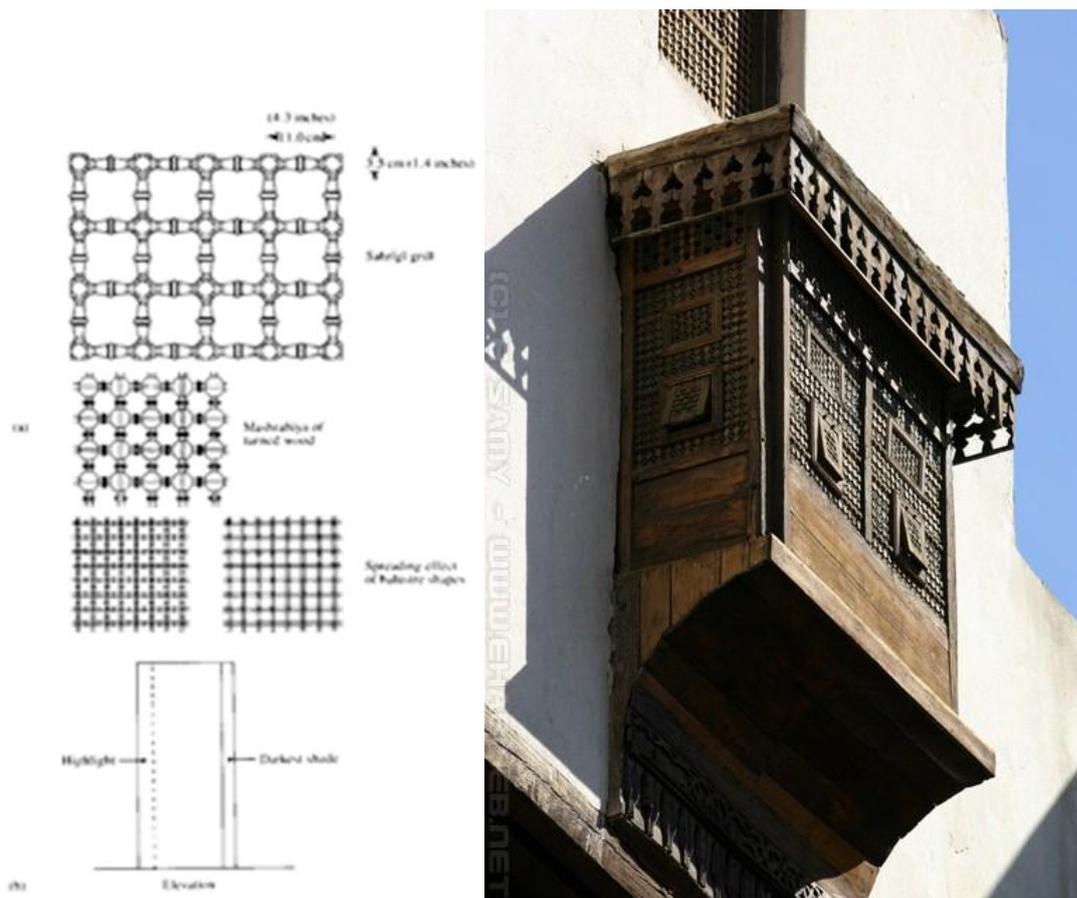


Figure 2.16 : A mashrabiya by Fathi; examples of lattice arrangements, adapted from (Url-14, 2013).

Also it has been used Malqaf air in some of the buildings and homes to ventilate some closets or halls while the internal backyards exposed and which was the common denominator between these buildings, it provided shaded places in summer and a reasonable amount of the entry of the sun during winter as well as that provided by the courtyard of complete privacy for the people of the home and a safe place for kids toys (Fathi, 1986).

2.2.3.4 Environmental solutions

One of the important characteristics that must be provided in a building is architectural feature that should be in line with environment from historical and social part, and also with habit and custom of community uses this building, whatever the function that is performed, because architecture feature reflects human civilization in any time and place, which affects the social characteristic. The word (feature) means the human nature, spontaneity without contrivance, when we specified the meaning for architectural feature, so the spontaneity is the part of environment that appears with using architectural forms adapted with the conditions of this environment to face the nature of human being, though the architectural feature doesn't come suddenly and from emptiness, but it comes as a result of developing many architectural stages to contemporary with environment and social needs (Chadirji, 1987). He continues, the factors that affected the architectural feature can be summarized into two major groups:

The First group: natural environmental factors which determine the characteristics of the place that is influenced directly through alternation ages, so it has fixed effectiveness on architectural feature, such as climate, geographical factors and building materials. The Second group: Civilization factors which are outcome of human reaction with his natural environment, and it includes religious, social, political and economical factor, beside the philosophical, scientific and technical ideas.



Figure 2.17: Khan and market by Hassan Fathy, in Egypt, adapted from (Url-15, 2013).

As for contemporary architecture, we find the global model of architectural which western architect made it on global society, in order to unite the architectural and planning ideas all over the world, which became dominant without caring about the environmental, civilize and cultural differences of each community. Here is the importance of focusing on special architectural heritage of each area appears, and then evaluates it for the purpose of knowing what is valid for application in an environment and contemporary society, so here is the beginning of finding unique architectural feature for local contemporary architecture (Al-Naaim et al, 2005).

2.2.3.5 Green architecture

It is general remark that the decrees of civilized architectural awareness in some societies, whereas it considered the call for existence of the gardens on the level of towns, buildings as luxury or accessories, but if we consider carefully this call, we find that it is civilized trend affirmed by Holy Qur'an, Allah the Almighty said (Or, who has created the heavens and the earth, and who sends you down rain from the sky? Yea, with it we cause to grow well-planted orchards full of beauty and delight: it is not in your power to cause the growth of the trees in them. (Can there be another) god besides Allah? Nay, they are a people who swerve from justice.(An-Naml, State 60)). The holy verse describes the gardens with happiness, which point to the beautiful part of the gardens; in addition to healthy advantages of the gardens for green areas by purifying the air from dust, steams, and many remainders, also it has direct influence

in softening the air and improves the local climate especially in hot areas, in addition to good psychological and social effect of green areas especially on the level of groups and neighbor residences. It is important for creating social ties and relation among different families (Al-Naaim et al, 2006).

The internal courtyard in old building was the perfect place for building garden. In addition to its function of decreasing the temperature, it was the main place of the family life, children playing, safety and privacy. It found in the center of the house or building.



Figure 2.18: Garden inside Syrian courtyard house, adapted from (Url-16, 2013).

2.2.3.6 Renewal, innovation and contemporary

The Arab traditional architecture was always renewal with place and region. It created for different constructs and climate solves through history. The important factor of the architect is the innovation, in order to be able to add new ideas during his work, which requires hard working and insight for dealing with dimensions, formation relation and material as who looks for the new (Siraj El-Din, 1991).

Architect must be contemporary and bound by our civilization commitment and care about our heritage through studying, however the continuous research for artistic style that represents our age, it is an important thing and it has a role in confirming architectural character; in other word, the architect must be contemporary in his hart, though not Isolated from historical roots, and research must be modern picture of architecture and a kind of our civilization through history, today we are different and not like previous days (Fathi, 1986). This is clear in old Jerusalem architecture in

comparison with Islamic Umayyad, Abbasid, Ayubi and Ottoman. We must inform with the necessity of being with age including all its technological capabilities and what is new in thought and application.

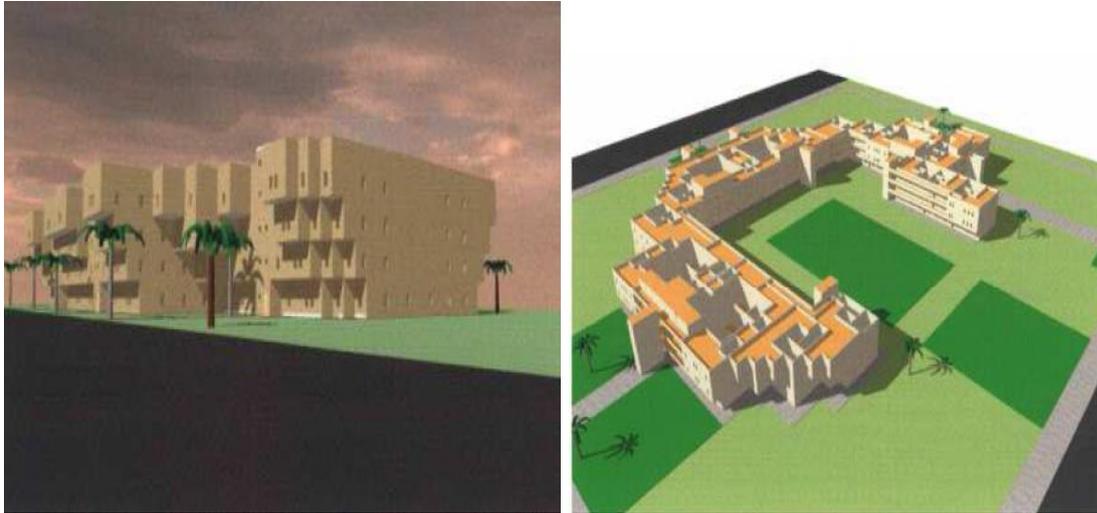


Figure 2.19: Housing in a modern way, according to the inherited architecture by Dr. Hakimi, adapted from (Url-17, 2013).

According to the study it can be stated that Arab contemporary architecture should follow 15 principles in order to be sustainable:

- Shape should follow function.
- Spatial unit and space integration.
- Tendency to direct the house toward the inside.
- Climatic adaptability.
- Simplicity in the organic composition.
- Contrast between closed and open levels.
- Toning or modulation of the architectural shaping.
- The care of engineering shapes.
- Caring for the site coordination, garden and water element.
- Respect for site, environment and adaptability to place.
- Respect of human scale.
- Renewing and innovation.
- Interaction between light and shade.
- Energy preservation.
- Coping with modern technology.

2.3 Contemporary Arab Architecture

The question of architecture appears to be more complicated than planning of cities, due to the abundance of contemporary Arab architectural production in addition to the variety of designing systems and viewing history. Mohamed Arkoon divides

architectural achievements in the last twenty years into two classes; either contemporary or traditional-Islamic. The rich various norms that characterized the classical ages of Islam, as in mosques, are no longer used (Arkoun, 1986).

2.3.1 Contemporary architecture and modern architecture

Contemporaneity is connected with the general sense of time, as being contemporary to one thing necessitates a correlation with the other. Though this conception is very primitive. If we are to discuss this word, contemporaneity, we should address its connectivity with sympathy. We cannot adopt all that is contemporary to us unless it feels conforming to us. Nor even then can we belong to it completely, as it only touches some areas of our life.

Contemporaneity, in its wide sense, involves three constituents: time, contents which lay a barrier between the past and the present, and a regional constituent which postulating the present as better than the past, Al-Jaberi differentiates between contemporaneity and vogue by stating that the first is a type of developmental movements while the second is fashioned temporary changes that are intended to make some sort of difference or uniqueness in people (Al-Jaberi, 1991).

Modernity, unlike contemporaneity, is based on sensible choice while the latter is an entity which is not based on choice (Asfor, 1985). Some people describe modernity as a comprehensive review of conception and recognition system, thus it could be said that it is a review for values and standards (Saaid, 1985). Some people go to add that modernity is a sense of self-consciousness of time which does address the present in isolation, but through its connectivity with the past (Abu-Deib, 1985).

In order to understand the clash between modernity and change of cultures under Islam to traditional Arab architecture, Pasic (2011) says, "Modernity as a way of life, and modernism as an architectural revolution have affected lives and cultural expressions worldwide, and cultures under Islam have naturally not been indifferent to these changes. Modernist architecture demanded simple, functional, industrially producible, sub lime and honest expressions in built form. With the pervasive use of reinforced concrete, which became abundant and inexpensively available, whole townscapes changed all over the world. Even though it is unfair to blame Modernism for the worldwide spread of uniform, tedious and uninteresting buildings and urban environments built mainly for profit, modernism has been seen by many to

promulgate a set of values and premises that fails to respect cultural identity, historical continuity and climatic relevance" (Pasic, 2011).

In this regard we can find the new reproaches towards modernism, Pasic continues, "The reaction against modernism has taken many forms such as (post-modernism) and (the architecture of freedom). However, (vernacularism) was the most serious of the reactions against modernism, is 'vernacularism'. Of the many aspects that have placed vernacularism critically at the center of architectural theory, the most important are research into vernacular architecture and the revitalization of traditional building practices" (Pasic, 2011).

Adonies states that modernity has three features: 1. the first is that it is timeless and not confined to a specific period of time, In other words we can say it is a continuous process of leaping; as what is going around now is regarded as modern to what has gone before it, and the future will, of course, be more advanced than now, this view is only abstract as it favors time to content; a superficial view (Jayeda, 1985).

Jayeda (1985) continues, modernity does not necessarily mean contemporaneity, because it is about a content not a time; 2. The second feature is the common misunderstanding that changing from the past in pattern and shape is thought to be modernity, and this is a destructive view that makes things deny one another unthoughtfully, with an unexplained beforehand hatred to the past. 3. This feature does not consider the importance of resemblance, as some people think western countries are modernity producers, in all its various forms: material, arts and thoughts, according to this believe modernity is not likely to take place without imitating the West (Jayeda, 1985).

Mohamed Arkoun supports this conception of modernity, and points out that advance in time alone does not mean modernity; we cannot assume that we are more advanced than our ancestors because we live in a new era. Modernity belongs to all eras. Each of the historical eras has its own modernity, and there were very strong occasions in history embodied modernity (Arkoun, 1989). So when we talk about modernity we need to specify what modernity do we talk about: Arab or Western, as both of them have their own identity within a different cultural frame (Al-Jaberi, Bahnacy, 1991).

2.3.2 The contemporary Arab architecture and globalization

In architects' communities the issues of regionalism and localization are related to identity. It was in the early seventies of the twentieth century when regionalism and locality appeared in Arab architecture, and was actually presented by the architects Hussein Fathi and Rifat Chadirji, and through their different extending projects which expanded beyond regional limits, there comes the question: what is the importance of distinguishing between the two, and how do they affect architecture applications?

It is useful to define what is meant by both conceptions before we attempt answering the question. It is to be noted that the group handling research in regionalism and localization is the same group concerned with the conception of environmental architecture. The three conceptions are strongly bond together.

In order to understand the conception of regionalism we need to raise issues related to climate and topographical geological factors and building materials as well. According to these factors, regionalism and localization are at extremes though they are intermingling. If we are to talk about a geographical area, regionalism is more expressive as it includes climatic, environmental and social factors (Ibada, 2006). He continues, simply environment is the natural outlook or appearance of architecture without the architect in question, in other words it is the natural process of building using available resources and abilities, avoiding the complicated methods of drawing and planning processes that go prior to building.

So now, the problem appears to be in the absence of natural means and local resources, the thing that calls for experience and knowledge of building traditions in the past.

The complicated building process today which is based on imported steel, concrete, and glass has led to the emergence of new styles of architecture. This tendency towards regionalism is forced to take place as the building materials are similar, extending even out of the geographical areas in question.

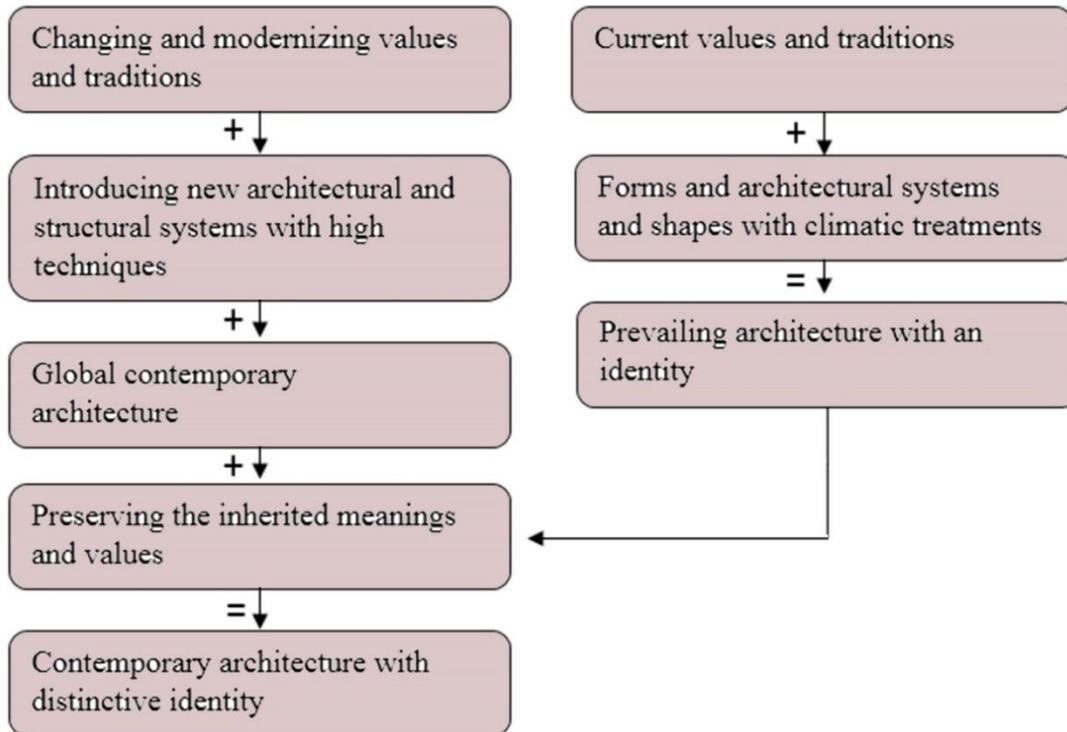


Figure 2.20 : The architectural identity is resulting from inherited traditions and values, adapted from (Ibada, 2006).

Inclination to regionalism at the expense of localization leads to architectural patterns that can fit into all places notwithstanding the unique features of the geographical place; accordingly localization is bound with the environment in a more detailed manner than regionalism (Ibada, 2006). So a house built in Qatar for example must have features adapting with the prevailing factors and controlling social behavior of the community. It is different from houses built in neighboring areas, not only different in shape or ornamentation but also structure. But still there is a degree of resemblance amongst all those Arab houses, because they belong to one civilization; the Arabs, and this is what is meant by identity.

The problem of identity is connected with different cultures, and ideas brought from other cultures. One thing to observe in modern Arab's architecture that it is rare to concentrate on building mechanism apart from the outcome; except for the efforts of the architect Hassan Fathi. But there is a likelihood for a crisis to emerge in the form of ready-made architectural frames which could be used in different spots, however, local factors present at these spots (Arkoun, 1989).

In a general way contemporary architects target joining between the blight of copying and transferring ideas to the different Arab countries in one hand, and reaching groups of solutions for the smaller region and local spots in the other; which is a very tough process that requires study and well conducted research prior to designing and presenting the architectural solution (Fathi, 1972). So architects are in a tense state between these two issues, as for time and place; they are still subject to the attempts of architects who seek an appropriate architectural language.

2.3.3 Challenges of the contemporary Arab architecture

2.3.3.1 Theoretical problems in contemporary architecture

Tackled with the problems of architecture in Arab World is multiple. It needs prolonged studies once we tackle with the reasons behind the problems of architecture in Arab World. Firstly, we should signal out to identity, concept of the problem and the meaning of architectural identity related to the region which is partial to overall community identity that shaping aggregate public form of community identity.

The problem of architecture resulting in loss of architectural identity and wandering among different trends, negatively affected main features of Arab architectural identity. Seeking for the reasons causing problems of architecture in Arab World is not an easy job but it is hard and complicated one. There are several inter-complicated reasons lead to make this issue.

If we considered that style and methods of architecture teaching that shared in great amount in making this problem, we would also find that western theory of dominance transformed from economic, military and political dominance to intellectual dominance subsequently jumped over architecture side (Ibrahim, 1985). The theory was supported by Oriented and Arabian theory of adapting all of western made as role model and exemplary without conscious study for the reasons that have led to emergence of this style and to what extend matching our social conditions, traditions, economic capabilities and accessible technology “ Application of social and economic dimensions on our community “,one of the strongest reasons that led to crisis of architecture in Arab World is a variance of cultural level (Al-Naaim et al, 2005; Al-Naaim et al, 2006).

When in fact, the State gives no efforts to culture generally and culture of architecture specifically in its technical and scientific sides which may create gap and deepen cultural distance between the Architect and remaining members of community, therefore, it may influence on architectural culture of specialist Architect as well as architectural work and depict to what extent community responds to it as an influencing factor in architectural production. The architecture that progresses in its value and high level is in fact, a reflection of a community that progresses and enhances its architectural culture to same level, simultaneously, that underdeveloped communities suffer from great variation between level of architectural culture of community and architectural conception for Architects. This cultural distance, on one hand, creates influence of the Architect in underdeveloped communities that affected by Western architectural concept, the matter that increase this cultural gap. This distinction, in reality, is a gap between Western architectural Culture and domestic architectural culture. (Al-Naaim et al, 2005; Al-Naaim et al, 2006).

Architecture, as all cultures, is not merely linked with intellectual and technical part, but it links also with technological and scientific part that represents social and economic dimension of architecture. The architectural culture becomes a complex culture, distinguished by its intellectual, technical, social, and economic and architectural culture aspects, linked with several aspects forming architectural works (Ibrahim, 1985).

It is so hard to restrict the problems encounter Arabian architecture. It seems the problem of identity of architecture, challenging all Arabian architecture attempts, extending throughout contemporary history that lasting for two decades, which has not yet solved.

2.3.3.2 Loss of identity

The sense of place is prior to the sense of time, though both place and time formulate the architectural identity. If either place or time sense is missed, the architectural place identity is lost too, or architecture is expressive only of time. Therefore, what we see in this century is a spread of international styles all over the world and extending influence to affect architecture, that buildings and roads have become much alike in different places. (Al-Naaim et al, 2005; Al-Naaim et al, 2006).

Thus cities have lost their own place identity and another form of international identity came into view due to the international trade movement. To get away from old cities has become the trend these days so that old cities faded and are now tourist places. All airports are the same and so are hotels, the meals eaten there are nothing but the same, so the only pleasure a tourist can find is in an old heritage place. So place identity is lost followed by the loss of man's identity, so he can't be recognized unless for his identity card.

2.3.3.3 Architectural degradation

The discussion about this crisis has many aspects and it calls for a lot of studies to cover. Here a small part of the crisis is signaled out to cast light on and diagnose the problem in order to reach a cure.

Well, at the beginning we need to tell what a crisis in architecture is. This crisis reflects itself in a great loss of identity of Arab architectural features due to a large variety of trends which negatively affect the prominent features of Arab architecture. However, it is not easy to get to the bottom of this deterioration as the causes happen to be too complicated and mixed (Kaje, 2005).

If it is to be believed that our system of architecture education has had a big role creating this crisis, we also find that there is the western influence and domination for all aspects of life: economic, politic and in the field of architecture as well, and also there is a beforehand belief in our communities that whatever comes from the west is a model and should be copied without knowing the workability-"socio-economic dimension" of that model in our environment (Kaje, 2005).

Other causes of this crisis include the absence of legislative and organizational laws, which do not resist the flow of different ideas coming from different communities. In addition to all that there comes the participation of non-specialists in the field, which negatively affects our architecture.

Architecture is a fruit of different stages interconnected and integrated to establish architecture thought, beginning by education and then practice. And here comes the challenges of economic and politic values in one hand and technical architectural values in the other. Thus the crisis of architecture is represented by the nature of interrelation amongst social, politic and economic components; and of course the educational component which underpins the practice of architecture (Al-Jaberi, 1991).

Architecture has always been like a mirror, reflecting social, economic and cultural standards of societies over the years, though at present it has lost its civilizational power that it is no longer a part of the Arab cultural entity, but only shapes of concrete, steel and bricks functioning materially. It seems that our contemporary Arab man is no longer interested in architecture as it used to be, that even media turned a deaf ear to architecture. Architecture actually is the environment that man grows in; it is his security and original science as it is the essence of his productivity (Al-Sayed, 2003).

The relation between architecture and culture is known by all people, experts and ordinary people; it stands as a center for all engineering sciences in structure and accommodation, it is the mother of arts; so it is not likely that a community can be developed without giving architecture proper care. Some people, however, say that architecture is only for architects, while, in fact it is for all the community, and can be regarded as an indication for advancement (Al-Naaim et al, 2005; Al-Naaim et al, 2006).

3. CASE STUDY OF "DOHA" THE CAPITAL OF QATAR

3.1 An Overview of Regional Architecture in the Gulf Region

Though Gulf States divided into Kingdoms, States and Emirates, but they formed harmonized cultural identity, which experienced various common events, which affected the history. The architecture in Arab Gulf States Region affects by variance of physical environment. The Civilization in Arabian Peninsula settled on eastern, western and southern costal parts of Peninsula because they considered as centers for cultural exchange with external world as in Iraq, Persia, India, Africa, Egypt and the Levant (Ibrahim and Ibrahim, 1978). During that time, the desert central part of Arabian Peninsula stick to its nomadic style for a long period of time, by beginning of 1940s, a tremendous oil wealth appeared in the region of Gulf States which influenced on course of world economy and internal constructional movement (Ibrahim and Ibrahim, 1978).

Arabian Peninsula remained undeveloped region until the beginning of 20th century. By elimination of tribal conflicts and sectarianism existing in AL-Hejaz Kingdom, Emirates of Haile, AL-Qassim, AL-Taif and AL-Eihsa, a unified State was established by King Abdul Aziz under name of Saudi Arabia where Arab Gulf States, Qatar, Bahrain, Kuwait, United Arab Emirates, Oman and Yemen, were separated from it later. At this stage, architecture in Arabian Peninsula experienced new stages of development. Each State began to establish administrative systems, economic and social development and architectural projects in towns and villages (El-qutb, 1981).

Architecture in Gulf States relied on using primary building materials that available in the region such as clay, sand and using timber in ceiling and widows. These materials expressed the face of the architecture existed in the desert. Buildings often composed of two stores with the exclusion of Al-Hejaz region where stones available for building. Building materials matched with air vents and architectural structures to prevent walls from seasonal rain” heavy rain in south and light rain in north”. Palaces

architecture distinguished by courtyards encircled by buildings from all sides to protect them from hardness of desert and expressed good relationship of both family and tribe. Towns were encircled by high intramurals made of clay and also used as defensive methods beside the main gates of towns which allowed people in and out. When the architecture movement began in addition to emergence of oil by the end of 1940s, architecture flourished and expanded where the features of the region had changed although towns' gates still remained but as ruins of past. Architecture moved out to reach desert lands. Towns expanded towards north ward owing to appropriate climate conditions (Hasan, 1994). He continues, before stage of oil emergence, the architecture in Arabian Peninsula could be labeled by architecture of clay. In reality, it is vertical expansion by nature of land which formed specific styles such as building thick walls, narrow streams, woody ceilings, inner courtyards and fewer outdoor ward air vents or never being used in most of time. Clay is a primary material for building in desert, but constructional features vary from one place to another according to climate conditions. Architecture, in area of Assier which distinguished by heavy rain, used stone tiles jetty closed courses to keep clay dried and away from raindrops. Architecture in Najd area used only triangle spiked in each story to help in keeping raindrops away at least. The stereotype of desert architecture in Najd area is an expression to inhabitant's needs, their relationships and social structure. The architecture in this region is quasi- architecture to that of African desert regions.

Generally, this architecture expressed economic, social and religious reality in the region. By emergence of oil at the end of 40s and early of 50s, outer contacts were increased and brought with economic and social advantages taking no times to appear on urban entities of towns of Arabian Gulf States. Architecture in Gulf States began to move towards West's openness as an essential element of oil wealth. Stereotypes of west's architecture and towns planning penetrated into domestic architecture values. People of Arabian Peninsula introduced into a new stage where they were required to balance between technology, contemporary requirements on one hand and values and inherited traditions from other hand. Pursuant to "Historical prospective on architecture in Arab East book" by Dr. Abdul Baqi Ibrahim, this generated defamed architecture carries neither European Style nor Arabian identity. This phase resulted in all features of culture in the region (Ibrahim and Ibrahim, 1987).

Patterns of architecture appeared in Gulf States following oil upswing and intensive migrations towards them by two ways:

First, by large projects of architecture that designed and done alone by foreign Architect who suffered no economic or technical constrains. Based on his architectural concept and technological achievements, Western architect designed these tremendous Edifices and Buildings in Gulf region such as banks, hotels, public facilities, governmental buildings and service identities, employing foreign labors to achieve these projects. The region was depicted by one of the architecture magazines as a playground, when Western Architect was allowed to play his own trick. Domestic Architect played secondary role pursuant to his little experience of study, assessment, administration and organization. These constrain and determinants gradually decrease with enhancement of local experience, acquisition of modern technology and contemporary architectural concept. Subsequently, domestic Architect could stand in face of Western cultural overflow by depending on his local architectural experience to direct architectural works. Recently, architectural works in Jeddah, Saudi Arabia, have been subjected to directions of officials in public secretariat and municipalities (Ibrahim and Ibrahim, 1987).

Second, patterns of architecture introduced into the region through folk architecture applied by community members either in their private houses or in residential buildings. Then architectural works will yield to economic, cultural and social desires of house's owner who almost compels the Architect to exercise his own desires. A number of Architects who came from neighboring countries to work for domestic architecture offices which practice folk architecture. Architectural patterns introduced into the region by the architects who came from Egypt, Syria, Leonean, India and Pakistan. Great number of technicians overflowed from the same countries to work in architectural field (Ibrahim and Ibrahim, 1987).

An expert could inspire and understand modern domestic architecture through designed pattern that spread in all Gulf States. Domestic architecture had lost its social and environmental roots seeing that physical architecture overstepped human architecture owing to spreading of odd architectural patterns in the towns of the regions.

Desert architecture lasted for long period of time in country sides and villages whereby internal migration had increased from country sides towards new towns situated round oil wealth sources, ports or capitals which led to disequilibrium in population structure of these villages and architectural pattern in general. Desert architecture began to lose its essence as well as its followers. Back to nature of countryside call, no longer, began to create balance between urban and rural areas when economic and architectural movement had concentrated on towns and centers. Concerned with rural services was related to economic, agricultural and livestock development. Village began to be affected by exotic patterns because old architecture of village became inefficient. No attempts sought for authenticity in contemporary or extracted domestic rural features from contemporary architecture despite fast local development. Mutual effectiveness between rural architecture and town architecture emerged in the architectural movement in most of Arab countries (Alkuwari, 1987).

Many settlements and new towns included facilities, public services, administrative and commercial buildings, housing units, educational and sports compounds and hospitals were established and oil returns highly increased together with vast expansion in planned architectural projects after war of 1973; although these projects haven't abided by values of planning or domestic architecture, but they concern with specific architectural and planning trends to narrow contemporary architectural variance appeared in Arab Gulf States which brought with foreign architectural concepts, materials, building methods of advanced towns and imported furniture (Ibrahim and Ibrahim, 1987). Tremendous integrated projects appeared, especially universities projects in Saudi Arabia, Kuwait, Qatar and Jordan as well as military towns and commercial and administrative compounds, to transform Arab Gulf States into an open area for global contemporary architecture Some of them tried to keep domestic features in truck and sometimes not.

3.1.1 Historical overview of Qatar and Doha

Qatar is a sovereign Arab state in which the religion is Islam, and Muslim law 'Sharee-ah' is the main source of legislation. The main communication language is Arabic. In 2013, the population of Qatar is about 1,963,124. The major cities in Qatar are: Doha; the capital of Qatar, and Mesaieed which is the industrial city, Al-Khor, Al-Wakrah, Dukhan and Al-Shamal. Qatar has got independence on the third of

September 1971. The regime in Qatar is Islamic and based on counseling. The provisional government controlling system prescribes a separation between the major authorities in one hand, and legislative, executive and judicial authorities in the other.



Figure 3.1 : Location of Qatar in the world map, adapted from (Url-18, 2013).

According to the archaeological discoveries the birth of Qatar is dated back to pre-Roman eras, and between the fourteenth and sixteenth centuries it was a part of Bahrain region which stretched from the south of Basra to Oman coasts ending in the desert (El-qutb, 1981).

Qatar has been inhabited by a lot of Arab tribes stemming from Qahtanite and Adnanite origins, such as Quda'a, Bani-Iyaad, Bani Abdu-al-Qays and others. When Islam arrived to the region, the ruler was El-Munzir Ibn Sawi who converted to Islam as Arabs and Persians. The Kharijites, commanded by Qatari Ibn Elfujaa conquered Bahrain from 67 – 73 Hegira years. Descendents of Ismaelis; Qaramitta and Awaynees took control the Gulf area and Qatar in 1076, till the Portuguese came to conquer Qatar in 1517. In 1555, the Ottomans chased the Portuguese out of Qatar, and during the Ottoman rule Arab princesses and senates were the actual authority. It was the turn of Al-Hamid to throne themselves in Ihsa region in 1669 as the Ottoman Emperor got weaker, and soon they were able to extend their rule to Najd, Qatar and others (El-qutb, 1981).



Figure 3.2 : Heart of Doha in 1940s, adapted from (Url-19, 2013).

El-qutb (1981) says in the seventeenth century rulers of Kuwait, Al-Sabah and rulers of Bahrain, Al-Khalifa settled in Al-Zobbarah in Qatar, but they were compelled to desert it due to tribal conflicts, and Qatar went under the rule of Wahabis. Mohamed Ibn Khalifa took hold of Al-Zobbarah a second time establishing a new state in Qatar, till his followers changed the capital city from Al-Zobbarah to Manama.

Sheikh Qasim Ibn-Mohamed Ibn-Thani is thought to be the actual founder of Qatar, soon after Al-Thani settlement in Doha in 1847; in difficult circumstances. It was he who united Qatar, and then Qatar fell under the British protection, when El-Sheikh Abdullah Ibn Qassim Al-Thani, son of the former, was the ruler, and it was then when oil and gas have begun to produce. Then followed Sheikh Hamad Ibn Abdullah Al-Thani and Sheikh Ali Ibn Abdullah Al-Thani till independence in 1971, and Qatar has become a sovereign state. Al-Sheikh Khalifa Ibn Hamad Al-Thani took the rule in Qatar (El-qutb, 1981).

Doha is located on the eastern coast of the Qatar peninsula, and has a wide coastal extension, which has flourished as the city itself, and contained a shallow bay (9m

deep), this bay is protected by shapes of Coral reefs, and small streams stemmed out of it to run inside the city (Hasan, 1994). The bay was and still a vital port for small fishing ships (Figure 3.2). The city is regarded as the first fruit of the economic growth of the state, though it may not be dated back too far in history. The wide strides taken structurally in the city, in a relatively short period, were by no means a basis for further studies and planning research. Alkuwari (1987) says a lot of factors helped the city to flourish and become a vital trading center, and the most important are:

- Choosing the city as a place of residence for the governor in 1878
- Being far located from areas of tribal conflicts.
- Abundance of clean water resources.
- The existence of social support in the form of small villages stretching along the coast.
- The variety of economic activities, such as building, diving and concentration of administrative bodies.
- The city is chosen as the best place of residence for the most prominent job holders and businessmen.

Before the fifties of this century, Doha was no more than small congregations of villages all along the coast extending in a five kilometers distance, when petrol has come into view, in the middle of this century, a new stage of development started with it. And this, of course, calls for much effort and a lot of laborers in all fields, who come from all the surrounding areas and outside, there is also a flow of immigrants from neighboring states, that the population of Doha now is about 144,000; twelve times bigger than that of 1950, So now there is an urgent need and demand for more houses to be built increasing the area of the city ten times bigger (Hasan, 1994).

3.1.2 Socio-economic development in Doha

By thrown light on Qatar towns, we found that Doha city is the largest city in Qatar where for around 80% of Qatar population live in Doha. Although Qatar established great number of buildings in many sites to settle in Qataris and expatriates. The city of Doha is still the most flourish city and attracts population migrations, investments, private and governmental economic activities.

Doha city began its comprehensive growth stage with exploration of oil at half of 20th century. Increased number of labors needed to work in different fields in form of out-migration adding to in-migration from all parts of Qatar Peninsula, (figure 3.6).



Figure 3.3: BBC: Qatar is world’s fastest growing country, adapted from (Url-20, 2013).

Increased economic abilities have great influence on realization of vast civilization blooming. Doha was given, as capital of State, seat of government, governmental departments, ministries, corporations and different institutions, great concern and keen interest. The main commercial center and premises for foreign embassies and delegations are in Doha.

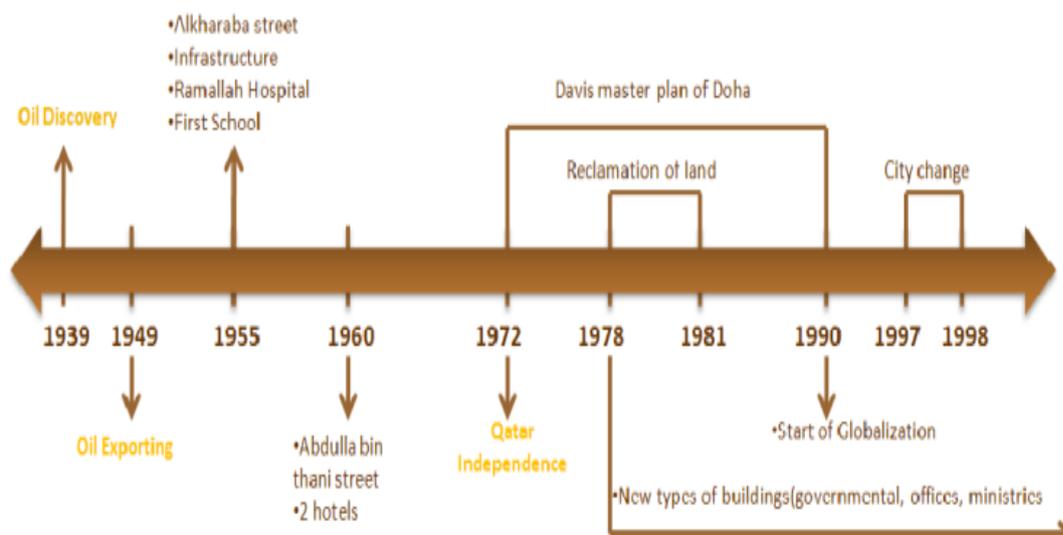


Figure 3.4 : (a) Qatar’s Development time line 1939-1998, adapted from (Url-21, 2013).

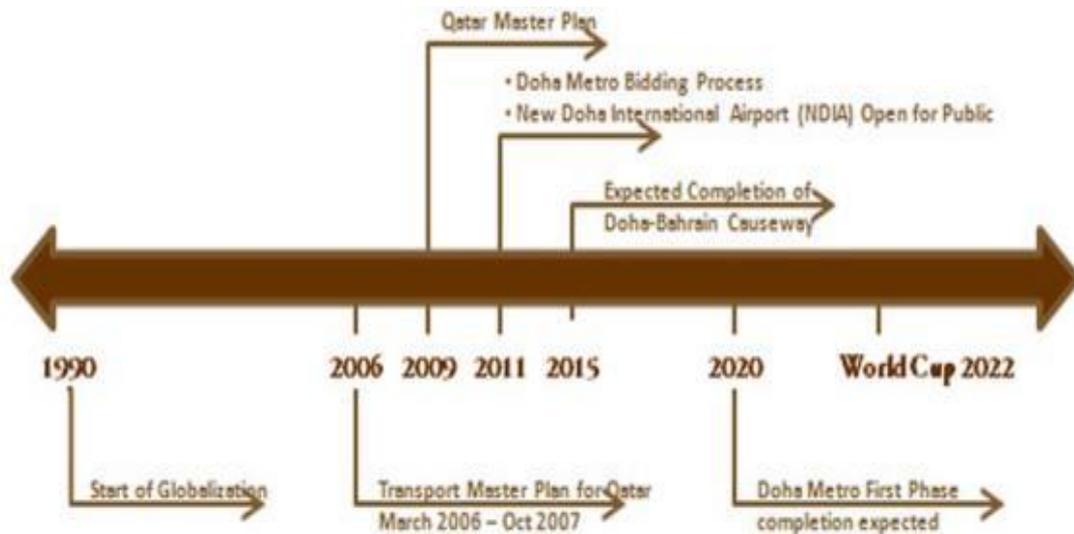


Figure 3.4 : (b) Qatar’s Development time line 1990-2022, adapted from (Url-21, 2013).

Transformation in societies is found to be related, mostly, to changes in economy, structure of the society, culture and political authority. There are strong relations between all social world's features, but the relation is stronger between economy and the other features. Economy is considered the base on which other features depend. Transformation in urban fabric of cities is due most of the time to the economic and political changes. These are so interrelated factors that affect society's social worlds. This is simply because, such factors have long-term effects and their results are presented in an urban scale. Many architects like-Lefebvre-conceived of three great moments in the world that had different effects on house architecture. The three moments were related to changes in the type of economy occupied by certain society, and the political authority. The first was characterized by agriculture, in which the form was not separated from content, buildings consisted of peasant dwellings monuments and palaces, and the labor changed sacredness of the elements from nature into religious and political monuments. The second moment was fixed in the historical era that involved the separation of form from content and time from space as the latter became an abstract entity and abstraction became significant. The third moment the present moment which is characterized by the accumulation of money and knowledge, "the political space of capitalism" (Pearson & Richards, 1997, pp.55).

In the case of Doha there is example that explains the effect of economy on society's social worlds and their urban environment is the study of Nagy (1998) at Qatar. Oil discovery had brought a wide range of foreign planners who had come to work and

make money in a needs many developed technologies for its oil industry since it hasn't such experiences locally. Thus foreign planners and contractors influenced Qatar's urban fabric through the urban projects they had implemented. Oil discovery had influenced government's preference of the high profile urban design and building projects as a way of expressing their prestige and welfare through the aesthetic and spatial presentation of Doha's urban form (Nagy, 1998). It follows that, the local rich state (ruling elite) involved themselves in the global economic relations seeking to achieve their objectives and interests. By their emphasis on external urbanization- as a means of economic development they permitted to the foreign ideas and technologies, whether they are suitable for Qatar or not, to be imported, adapted and changed. The direct effect of that discovery was the rapid growth of the residents of Doha, the capital of Qatar which brought the need for extra buildings and urban projects for both the oil industry and the residents (Nagy, 1998). The planning concepts and technologies that introduced to build the infrastructure needed for oil industrial development were foreigners. The new foreign concepts spread to be applied to the other commercial and even to residential projects - houses (Nagy, 1998). Here we see the strong relation between economics-money and wealth-and architecture, is clear in case of Doha.

Political conditions, also, are essential in forming the urban fabric through the process of global planning projects. Politics has strong relation with economics as it does with all of the other features of social worlds. It has strong relation with cultural aspects as we have seen previously. Its effect is presented at the urban scale more than the house scale. For example, the colonial urban planning projects, first of all are seen as ways of modernity and investment that provide economic and cultural benefits for the Gulf region. They sought to displace the older (traditional) conceptualization with new ideas and models of the new trend globalization, to create iconic city in Doha. This case observe Doha's architecture is a cultural tool which reflects the layers of history with their technology and their social and political conditions.

Culture is a characteristic that distinguishes society from another not certain individuals from others. Thus it is related to the group. Rapoport (1977) defined culture as being about a group of people who share a set of values, beliefs, a world view and symbol system which are learned and transmitted. These create a system of rules and habits which reflect ideals and create a lifestyle, guiding behavior, roles,

manners the food eaten-as well as built form (Rapoport, 1977, pp.14). Individuals within a society acquired their culture from generation to generation. Thus people like to live with others who belong to the same culture; share values, ideas and norms; understand and respond to the same symbols, agree about child rearing, interaction, density and lifestyle. Shortly one cannot have friends who are not equals (Duncan J., 1971; Rapoport A., 1977).

Culture does not change easily. It needs long time that may take hundreds of years. But the change in culture, which is usually a process of hybridization, includes the social worlds in a certain society and its built environment. Qatari culture is affected, also, by ethnicity and religious reforms, foreigners, and those latter affect city's architecture. This could be clear if we compare between traditional and contemporary architecture.

Like political conditions, are the economic conditions, they affect and change culture. The urban tissue of Doha is, also, affected. The stimulator of changes in every case is the desire for renewable images of modernity. Such desires are the result of what is so called globalization. As it is mentioned earlier, social world's features are so interrelated, and it is difficult to talk about political conditions apart from culture, values or economic conditions. In the case of Qatar, the oil discovery had changed people's culture specially that of the new ruling. The new influence affected their urban fabric. Nagy (1998), had found that the new changes in Qatar after the discovery of oil changed its population from 12,000 Bedouin trips in 1908, to 500,000 mixed residents in 1990. Annually coming foreign workers in addition to the migration of local Qataris from different parts of Qatar, made Doha crowded with residents of different nationalities. Foreigners, today, are 80% of the population living in Qatar. Clearly, this enormous number of foreigners should affect and change the social worlds (the cultural and social life of the country) of Qatar and especially Doha. New ideas, practices and goods were brought and adapted. Local Qataris, as Nagy found, were not aware of the new changes. They wanted to have the advantages of wealthy-feeling comfort and pride of luxury objects-and at the same time they had the nostalgia to the traditional natural life of the past days before discovering oil.

Family is the main unit in community composition and constructional compounds volumes. Their sizes and functions essentially base on family. It takes control over criteria and principles which composed elements of community. All features of

Arabian Peninsula family expressed in Qatari family since long periods of times and until oil revolution era in the region. Families lived in one house or off-side houses and ruled by traditions, norms and inherited cultures. People of these families moved to modern areas established in towns after exploration of oil expanded families which began to lose their untidiness and supremacy (Hassan, 1994).

Foremost features of transformation by Qatari family structure study:

1/ Family volume decreased. Prevailing family in the region distinguished by expansion of its generations who lived in one house for over 50 years, so it is found that family structure composed of large members. Composition of small family began to take place depending on house volume (Hassan, 1994).

2/ Multi-economic activities appeared. An emergence of non-existing economic activities means changing of work types of the family. Productive relationships governing grazing community subsequently changed because new jobs and productive relationships were established which directly led to several and different changes in a family structure (Hassan, 1994).

3/ General family expenses expanded. This expansion came under three stages (Hassan, 1994).

3(a) Family's expenses was little and only for grazing, hunting and some other activities such as trade, handicrafts and farming for family in period previous to 1950s or after that (Hassan, 1994).

3(b) Hassan (1994) continues, economic stage or what so called petroleum blooming which began in half of 1970s and to half of 1990s approximately. During this period, general expense of Qatari family largely expanded which brought with non-existing features in the history of the region, as follows:

3/a/b) Great expenses on food staff exceeded family basic needs.

3/b/b) Possession of more than one car led to high rates of traffic congestion.

3/b/c) Increase expenses on houses construction and excessive use of electric appliances, electricity, pure water and high pressure on street networks and public facilities.

3/b/d) Employment of Servants and labors in great number by families.

3/b/e) Availability of different types of food staff and great growth in demand and supply.

3/b/f) Families make for rationalization of expenses and expenses rates decrease at present stage.

Changes in Qatari Family Structures can be attributed to such factors and variables:

1/ Qatari community had turned into modern economic system after oil exploration which created modern institutions. Individuals employed in professions neither related to family nor relatives surroundings the matter that considered as an indicator for community development from one hand and Qatari family change from other hand.

2/ Qatari girl goes out for learning and work as result of development and modernity then she obtains self-independence as well as independent income which backs economic situations in some families and consolidates woman's position in family (Ismael, 1993).

3/ Mass media and information methods are main factors behind Qatari family structure change. Press, Radio, TV, Technical and theatrical progress made such changes by means of disseminating values in Qatari culture to replace old values.

4/ Despite the social gap between Qatar natives and immigrant labors, excluding field of works and other activities needed by family such as foreign servants and governesses, immigrant labors played basic role in changing Qatari family structure. It is natural that immigrant labors behavior and performance influenced on Qatari family members especially waives .This created and disseminated new values and behavior. Modern social policies, especially polices of housing and housing construction, could be one of the main factors that influenced on social structure of Qatari family (Ismael, 1993).

On the other side, Arabic heritage resists these changes and supports family unity and relativeness. It estimates respecting of old people such as parents, grandfathers and grandmothers and consolidates their positions in addition to organize other social relationships. But it can't be denied that much of changes taken place in Qatari family structure.

3.1.3 Urban and architectural development

Any person who visits Doha/Qatar or the Arab Gulf now will notice, that all historical development was preserved today it will be just a few proceeds of the whole urban fabric; and also, but not without regret, the disappearance of traditional architecture, and contemporary patterns of buildings coming to take place of older ones. Such multi-rooted new patterns that some view as a sign of progress, are not to be criticized for the variety they have, and structuring new building in place of old ones is not at all bad, nor using contemporary means and methods of architecture could be blamed. The defect arises when this variation and contemporary is accompanied by a deliberate intension to randomly get rid of heritage and replacing the traditional environment of architectural constructions which came to being just naturally and gradually by rapid structures which are not studied, and are just here to attract attention to them and occupy spaces showing off. Such rapid structures which do not observe the psychological, social and natural aspects of environment, and which do not take on account the negative effects that they create in people of those areas, are the aim of this research.

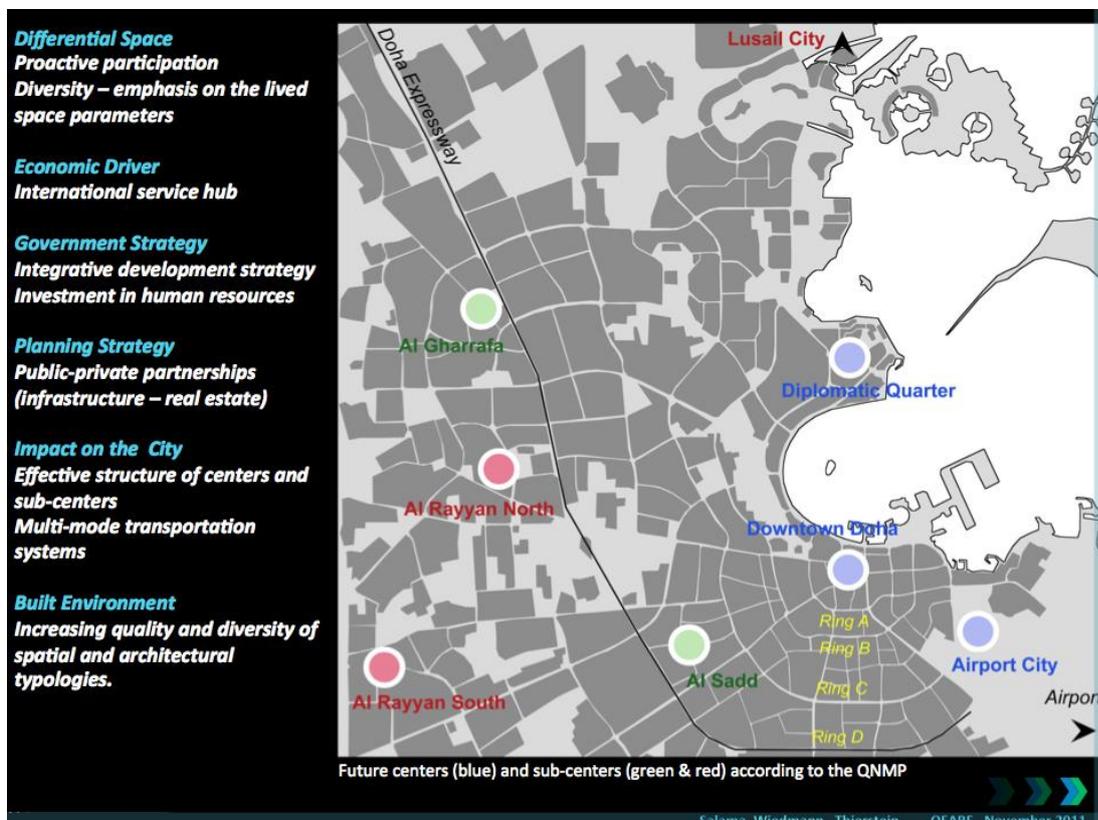


Figure 3.5 : Projected city centers according to Qatar national master plan, adapted from (Url-22, 2013).



Figure 3.6 : Doha City Development through Rapid Modernization Phase (2013)
, adapted from (Url-23, 2013).



Figure 3.7 : Heart of Doha in 2022, as a future vision, adapted from (Url-24, 2013).

Doha town is a model of planned town. Lands use of Doha and its society had come under many changes after exploration of oil, gas and the 'FIFA Qatar World Cup 2022' preparations. Doha experienced vast growth and lands size dilation followed by obvious changes in its internal society. A tremendous rural development seen by Doha, during the period oil exploration had followed by outstanding growth in commercial areas (Ismael, 1993). Ismael continued "Doha town is distinguished with outstanding constructional style because of accumulated factors such as governmental housing policies which aim at taking possession of lands of the old town and planning them into new different projects" (Figure 3.8).



Figure 3.8 : Doha city development zones and elements of Doha Cornice Area, adapted from (Url-25, 2013).

The impact of immigration on morphology of Doha

Out migrations to Qatar in the last decades influenced on morphology of Doha town population either by extension or expansion. New patterns of residential houses appeared related to immigrant's preference such as multi-story buildings beside other demographic phenomenon associated with dwelling, economic and social conditions of immigrants as well as collective dwellings; as result, different patterns of dwellings established in Doha where it is impossible to classify dwellings in Doha according to their standards of living or economic situations. Modern-style villas situated off multi-story buildings, cottages built nearby palaces, workshops established nearby supermarkets and labors dwelling units built off family residential units so the outside appearance of such dwellings in Doha town did not express and show specific pattern of residential units where zones in Doha could be classify accordingly (Ismael, 1993).

In 1970s, Doha experienced large economic and social transformations, these transformations haven't restricted whole tribes or part of them to relocate into other places, social mobility of local tribes lived in modern town such as Doha indicated to cohesiveness of social structure in local urban society on one hand and new residential units capacity couldn't respond to all families belonging to chief tribe from other hand, These families divided into many parts and distributed into several dwellings and areas (Ismael, 1993). In view of, specific cultural and tribal textures found in certain area while large number of immigrants belonging to one nationality who are in great number than Qatari people prevail other dwellings; In addition to, Families of different social and cultural backgrounds are neighbored by people from different nationalities who dwell in such dwellings (Ismael, 1993).

We could single out to such population distributions which associated with social structure of Doha people, for example, southern part of Doha town, dwelt by no well-known tribe where almost immigrants and some Qatari people dwell here. Qatari tribal people prefer to dwell in the area extended from Al-Hillal street to Prince street and the areas that situated behind it, specifically residential suburb of new AL-Mirgab, new Budaah and AL-Azizziya, at the same time, Single-male immigrants or married immigrants, who didn't bring along their families, prefer to dwell in dwellings situated nearby down town between first square and second square while married immigrants, who brought with their families, prefer to dwell in AL-Saad area and in other areas that connected with suburbs of town because of their low rent (Ismael, 1993).

It is notably that people dwell in different areas or in one area are heterogenetic and this phenomenon is not taken for granted to all areas, but it relies on number of immigrants who dwell in the area and their nationalities so the phenomenon of cultural variance shown by people who dwell in different areas or in one area which could be easily observed through the stereotype of their clothes or by vary languages and accents beside other features such as educational or professional variance, individual income and standards of living.



Figure 3.9 : Suk Wakif in in old Doha shows people with diferent features, adapted from (Url-26, 2013).

It is note that there are several different types of dwelling patterns, especially mass housing pattern which drawn the attention. Population density differs from one area to another due to residential building patterns beside variance of services and health levels in each area. All these variances are in view of an increase in migration volume towards Doha society.

3.2 Architecture of Doha between tradition and contemporaneity

After oil production all Gulf countries including Qatar have entered a new phase of socio-economic and political change. 'FIFA Qatar World Cup 2022' and Oil production resulted in such architectural prosperity in the Qatari peninsula with the establishment of several structural projects and building contemporary houses in both cities and villages, and substantial alteration for houses took place with the rising of individuals income, so the traditional pattern gave place to contemporary pattern, however, varied they are.



Figure 3.10 : The Doha skyline in 2005 – 2010 and 2013, adapted from (Url-27, 2013).

3.2.1 Factors affecting the traditional and modern houses design relation of nature and culture

Designing a house in Doha in the past was not subject to any drawings by architects, but houses were built according to the mood of the owner, in a plain traditional way inherited from past generations. We can divide the factors that affect the designing of houses in Doha into two parts: Natural factors and Cultural factors. The natural factors are related to climate and topography, while the cultural factors are represented in economic and social factors. As for the natural factors it has not changed and also the climate it has not changed, but there is a change in the cultural factors which include:

3.2.1.1 Natural factors

No doubt that natural factors have a direct impact on architectural progress, and they also affect designing standards. It has been proven that applying the West theory which

is based on the different western environment, contradicts the local environment of Doha, that it misses a vital architectural component. There are, however, two sides for the environmental factors; the first of which is the natural geographic environment and the cultural side evolving the values and practices of the local community.



Figure 3.11 : Doha, desert and city, adapted from (Url-28, 2013).

The way how a man behaves in a cold rainy green area differs from that a man living in hot climates does. If openness toward the outer world is justifiable in the first case, it is not the same in the second one. The green spaces in the first environment are only part of nature and they need little work, but the second environment requires a lot of efforts and money. As these green areas match with the community as they stand in the first case, they should be established inside houses in the second environment, to be cherished and invested. So architectural fabric originating from the western theory is different from the architectural fabric that meets the requirements of the Qatari environment.

The Arab-Qatari house, with its large courtyard and few openings met the need of the environment at that time, when thick-walled rooms were to exist, but as western architecture encroached buildings with balconies came into being preventing the view

of the sky, and so buildings have become so different from the climatic conditions of Doha.

As humidity is high in Qatar and the Arab Gulf and the amount of rain is little you find that the houses are flat-roofed and have shaded areas in front of them the courtyard in order to escape the excessive heat. And because of the abundance of light in the day, lighting openings are made relatively narrow, and it is to be noticed that the rectangular-shaped windows (Al-Dresha) of houses in Qatar and the gulf open at the courtyard of the house and the street. There are also the ventilation and lighting openings called (AL-Badjir) on the upper story rooms (Ismael, 1993).

The topography of the land is considered to be the most essential component for building a house, and the accelerated population growth in Qatar has led to an increasing demand of residential locations that are provided with basic services, the thing which has caused the price of these locations shoot up so high (Ismael, 1993).

3.2.1.2 Cultural factors

The cultural environment of the Qatari society involves a batch of inherited customs and traditions which have been affected by western cultures and technological requirements such as instruments and means of transportation or air-conditioning systems. All this technology is now mixed with the inherited traditions, and is to be passed into successive generations, but not without consideration to age, gender, intellectual and financial abilities; the thing which requires concrete consideration to the type of practices that run indoors and outdoors of architectural patterns.

The general structure of the community has changes according to technological advancement and contemporary means of telecommunication, which has affected an openness to globalization and a change in social relations, rendering the later a less important position. The sense of belonging to the local environment has diminished with the accelerated mixing of cultures and ideas that are easy to obtain, which in all has boosted the influence of the global western culture.

3.2.1.2.1 Social factors

As vernacular architecture is a relatively direct spatial crystallization of man's thinking and behavior, the built form could hardly remain unaffected by this cultural coherency (Pasic, 2011). When we look to the social patterns of inhabitants in the past, we find

that these patterns varied according to craft. The inhabitants were either Towner's who lived in coastal towns supporting their lives by the crafts of fishing, diamond trade, and also farming in villages where they were sources of irrigation water, or nomads wandering the desert from place to place in search of grass to their cattle (Wahbi, 1991). Each group has its distinct way of living that is imposed by the circumstances of their daily life. Wahbi (1991) so inhabitants of Qatar can be divided into two major groups:

A. Bedouins group: This group includes three classes of Bedouins tribes; they are:

- 1- Migratory group that keeps moving from place to place throughout the year, and whose members take to breeding animals, especially camels.
- 2- A group that is accustomed to seasonal migration and breeding sheep, goats and cows.
- 3- The third class which represents the majority is a semi-nomad one that possess both qualities of Bedouins and Towner's.

B- The Urbanites: This class represents Towner's or villagers settling in one place, however, different their lifestyles are Wahbi (1991). So social considerations, consequently reflect themselves on types of houses and the spaces allowed. These considerations include social and religious aspects as families live close by in contiguous houses and irregular tracks that ensure security of the houses.

Traditional houses were dwelled by extended families, including grandparents, parents, sons and other relations all living together in harmony and strong ties of trust. There was a sense of cordiality amongst families, that social cooperation became a matter of fact. They all got together in occasions such as wedding, circumcision, or even death reflecting a most picturesque example of burden sharing (Ismael, 1993). So the need of a traditional house arises here, in preserving these inherited customs and habits, and married brothers would come to live at the same residential area so cousins in the future grow up in a good strong relation.

The contemporary new houses of Qatar have seen different social relations from those of the traditional houses, due to the fact that every member of the family live in their own rooms, and such severance resulted in the members not having been together for long (Ismael, 1993). The disperse of families in many districts has created a sense of repulsion which did not exist in traditional houses where regular visits and cooperation

in times of joy and sadness were the habit, Other values now have come; values that support severance and not interfering into other people's affairs, so the relation amongst neighbors has weakened and the social neighborhood, for the most part, turned into a physical one (Ismael 1993).

The emergence of contemporary houses and separation of the original family from the extended one has, by far, strengthened the tendency toward individuality. It has become so different from the time when the habit of team-working was a distinct feature for those living in traditional districts.

3.2.1.2.2 Economic factors

The economic activities in the past time were too limited because of hard circumstances, the economical state of Bedouin tribes depended on breeding goats and sheep and so they lived near oases, some Bedouin took to collecting firewood and selling it to the inhabitants of coastal towns, thus bettering their economic situation, and a portion of them practiced farming in areas where water resources are found (Wahbi, 1991). On the other hand the economic status of urbanites has undergone a recession because of the invention of artificial pearls, so a large portion of them has sought other activities to make living; Of course, all this has had an impact on the architecture of the old traditional house, the financial capacity of the inhabitants of some coastal towns helped them import good building materials to build their houses and provided the opportunity for experts to do the job (Wahbi, 1991).

The economical factor of individuals has played an important role determining the nature of buildings in Doha and the method of their structure. This, undoubtedly, has affected a noticeable change in the contemporary architecture of Doha due to the direct connectivity with new products both visually and intellectually, and in its attempts to be a building-oriented factor, the economical factor is still subject to the financial capacity of the owner.

The concentration on profit maximization principle regarding the property building has directly influenced designing methods, shaping of the product and materials being used. The major goal of such architecture is to attain the best possible profit, not caring for the purposes that the product is meant to achieve, such as related to the climate or environment or artistic creativity. Profit maximization is now a power influencing

contemporary Qatari architecture, particularly what we might call it consumption architecture.

3.2.2 Use of local factors in traditional architecture

Traditional architecture in Doha and in all Arab Gulf States is characterized with a feature that express style and tasteful of people in constructing dwellings. Those who dwelt these dwellings were restricted by ties and inherited social traditions which enforced them to abide by them. They were also abiding by surrounding environmental conditions and climate in choosing building materials.

Traditions almost linked relatively to near past which its impacts still remain and exist which will have been inherited by coming generations throughout years. Therefore, Traditionalism is not in contrast to or in likeness with contemporaneity or could be taken as time dimension is difference. What is contemporary now might not be tradition in future; so this emphasize that traditionalism is linked to concept of authenticity which primarily based on characteristics and features that refer to glorious past where its impacts are worthy of concern and deserved respect and sustainable with the present and future.

3.2.2.1 Architectural elements

One of the most important items of traditional architecture is the decorative and constructional processes used in building which gives it a personal identity. Economic, social, natural and environmental factors are indicated by these processes which therefore determine type of materials used in building and their matching to climate and its fluctuations, in addition to the basic constructional pattern of building structure and its ceilings, pedestals and walls. Traditional architecture ways in Doha/Qatar affected by civilizations and cultures of nearby regions, especially old regions on coast of Iran and South of Iraq. Generally, traditional architecture in Doha/Qatar is distinguished by outstanding characteristics. Significant architectural constructional and decorative items of traditional Architecture in Doha as follows:

A structural arches styles

Arches used by traditional architecture for two functions: First, for constructional purpose, as courtyards built dwellings, corridors of mosques and minarets of the mosques; second, for decorative purpose, as in Niches (recessed walls). There are

types of arches: 1- Pointed Arch. 2- Circular Arch. 3- Mufasas (Polymorph) Arch (AL-Khaleifi, 1990). The usage of arches in traditional architecture referred to Greek, Roman and Sasanian civilizations which were prior to Islamic civilization (Figure 3.12).



Figure 3.12 : Traditional arches in Suq-Wakif, Doha, adapted from (Url-29, 2013).

Domes

Domes used to cover mosques Corridors, in doorways of niches and in some minarets of mosques and in covering (Hamams) bathrooms. The main reason behind usage of domes might be the scarcity of timber at that time or it might be to imitate other neighbor countries patterns (AL-Khaleifi, 1990).

Wooden beams

Palm trucks and Dinsheel tree used to make windows and doors blinds in outmoded houses, linking corners of the rooms and sometimes to separate courses from each other. Wooden bridges were liked cement bridges of today (AL-Khaleifi, 1990), (Figure 3.13).



Figure 3.13: Traditional Wooden Bridges, adapted from (Url-30, 2013).

Muqarnas

Muqarnas are embellishments shaped into bandy lines. They configured in the form of overlapping circles opposite to each other. They used for constructional method. Muqarnas enabled people to shift square-shape into a circle-shape to build circular domes or used for decorations on fronts and doorways of the rooms throughout Islamic eras (AL-Khaleifi, 1990).

Niches (recessed walls)

Traditional architecture in Qatar and in all Gulf States characterized by decoration of interior and outside walls by vertical and rectangular recesses where widows made through especially outer walls of living rooms and upstairs rooms. Niches (recessed walls) used for two purposes. They used for constructional function, they reduce load of building. The second function is a decorative one as its cut off monotony of large walls. (AL-Khaleifi, 1990), (Figure 3.14).



Figure 3.14: Traditional niches, adapted from (Url-31, 2013).

Wooden doors

Qatar and Gulf States region in general are famous for decorative wooden doors. A part of these doors manufactured inside Qatar and some others imported for India, Eastern coast of Africa, Basra or Persia through trade exchanges in that time (Figure 3.15), a rapper fixed on the door to knock the door, these types of rappers were common recently (AL-Khaleifi, 1990).



Figure 3.15: Traditional wooden doors, adapted from (Url-32, 2013).

Alshamsiyat-Alqamriyat (Sunshades)

Alshamsiyat are decorative items which became spread in Arabian Islamic Architecture, they are made of stones, plaster or marble plates fixed on lighting slots and air vents. They are decorated with geometric holes, plants decorations or inscription, Alshamsiyat used continuously in Gulf States in general and in Qatar particularly, they fixed above rooms doors and walls look on to courtyards in traditional houses (AL-Khaleifi, 1990).



Figure 3.16 : Traditional shamsiyat-Alqamriyat, adapted from (Url-33, 2013).

Balconies (Al-Musananat)

Top tip of towers, upper rooms and minarets are decorated with various balconies matching buildings in Gulf States in general, traditional architecture in Qatar characterized by using balconies. Tops fronts of houses often decorate with balconies in forms of half-back balconies, pointed top balconies or laminas (AL-Khaleifi, 1990). They shaped either into form of spearhead or into form of half-moon with star in the middle, (Figure 2.4). Two types of balconies “jagged and conic balconies “became

prevailing in Qatar and Arab Gulf region especially in military buildings (AL-Khaleifi, 1990).

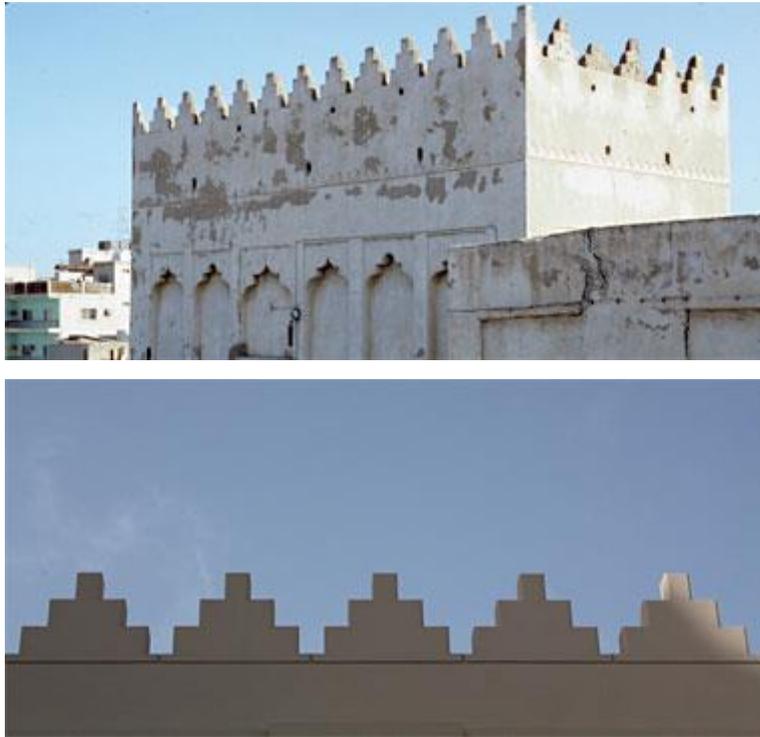


Figure 3.17: Traditional Musananat, adapted from (Url-34, 2013).

Spandrels (Alhamaem, Rukniyat)

Spandrels are decorative items reflex esthetic features of the building beside their constructional function of easing loads on bridges and beams. Using this type of decoration expresses the innovated style to break the monotony of vertical lines and right angles on corners of air vents and give dynamic visual of traditional architecture style, when spandrels are in corresponding position, they show the shape of arrows. (AL-Khaleifi, 1990). Spandrels often made of molded stucco and then constructed on the structure.



Figure 3.18 : Traditional rukniyat, adapted from (Url-35, 2013).

Arches and banuhat

Arches, as architectural items, have two functions. The first function is constructional function where they ease loads on columns and posts beside their fine visual function. They used excessively in architecture of traditional houses in Qatar. Arches fixed on main doorways, lighting and air vents, interior fronts, round corridors and courtyards, vestibules, passageways and between column, they usually contain decorative items in forms of strips and plaster decorations. Traditional houses had formations of semi-circular arches and pointed arches. Banuhat used frequently and in diversity either in interior or outside walls in all parts of Qatari traditional houses, which used as an architectural treatment for horizontal spaces between columns, they are often a bit extruded from the level of the wall and become clearer especially when sun lights and shadows strike on them (AL-Khaleifi, 1990).

Stucco decoration

They used frequently in traditional architecture particularly in different parts of traditional houses in Qatar, they are in various forms such as decorative strips which fixed on upper parts of walls and used as frames for windows, vents, arches, doors, beams, Banuhat, joints, outside fronts, interior walls, corridors (AL-Khaleifi, 1990). He continued, Stucco decorative items are, as esthetic item, related to economic and social conditions of inhabitants, we note that Stucco decorations used extensively and frequently in houses of senior traders, tribes chief men, sheikhs and rich people because of their high cost where they require skillful handcrafts. It is thus seen as way to distinguish for traditional houses and rich classes.

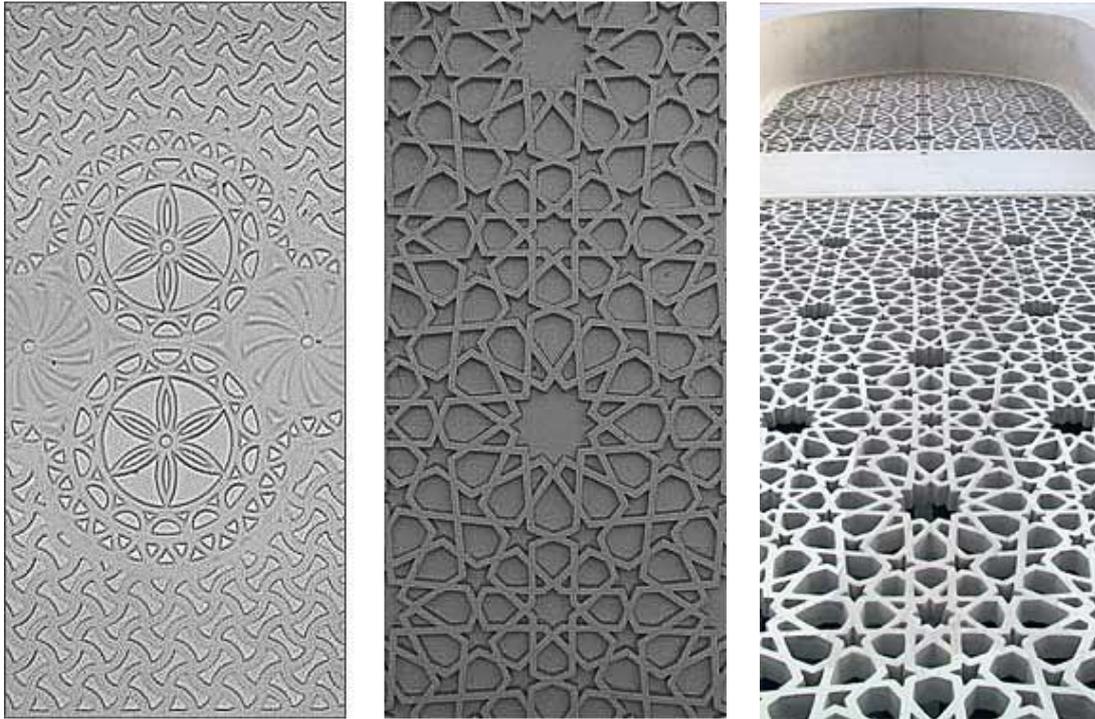


Figure 3.19: Traditional Stucco decoration, adapted from (Url-36, 2013).

Wooden and metal works

Traditional architecture in Qatar featuring with use of wooden works particularly in ceilings, columns, doors, shelves, wall cupboards, balconies, wind towers and joints either inside the house or in outside fronts, wooden doors in Qatar and Gulf States represent an important architectural item where they are varied in forms and features especially in gates as labels of houses, (Figure 29); stucco decorative items used in stripes and frames surrounding wooden door or in arches around it to show the importance of affluent house owner (AL-Khaleifi, 1990).

Metal works are not frequently used in traditional architecture in old Qatar due to damp and hot climate which played key role in limiting use of metal, some metal works appeared in vents such as widows of main doorways as well as used as outside frames of stained glass windows to determine outside decorative shape (AL-Khaleifi, 1990).

Lighting vents and glass windows

It is one of architectural treatment for outside vents in main fronts of Qatari traditional buildings, in addition, they use in living rooms and interior main rooms, colored glass used in fronts which opposite sun lights to reduce and moderate hot sun lights, lighting

slots give esthetic colors, shapes and features to internal gap, these lighting slots are often in form of semi-circular shapes above vents of rectangular windows particularly in upper rooms (AL-Khaleifi, 1990).



Figure 3.20: Example of traditional glass windows, adapted from (Url-37, 2013).

3.2.2.2 Construction systems

Method and order of traditional architecture in Qatar based on nature of building materials and building void required beside treatment requirements of hot and damp climate which mainly are vertical piles made of stones bearing beams or repeated horizontal beams and empty spaces among columns fill with coral and marine rocks in with gaps or vents for ventilation and easing loads, this pattern of architecture is preferable because multi-air vents are needed to allow air currents in and out of the building. Walls in general were thick, wall thickness is very positive for thermal insulation and protection from harsh climate (cold or hot) (AL-Khaleifi, 2000), (Figure 3.21).

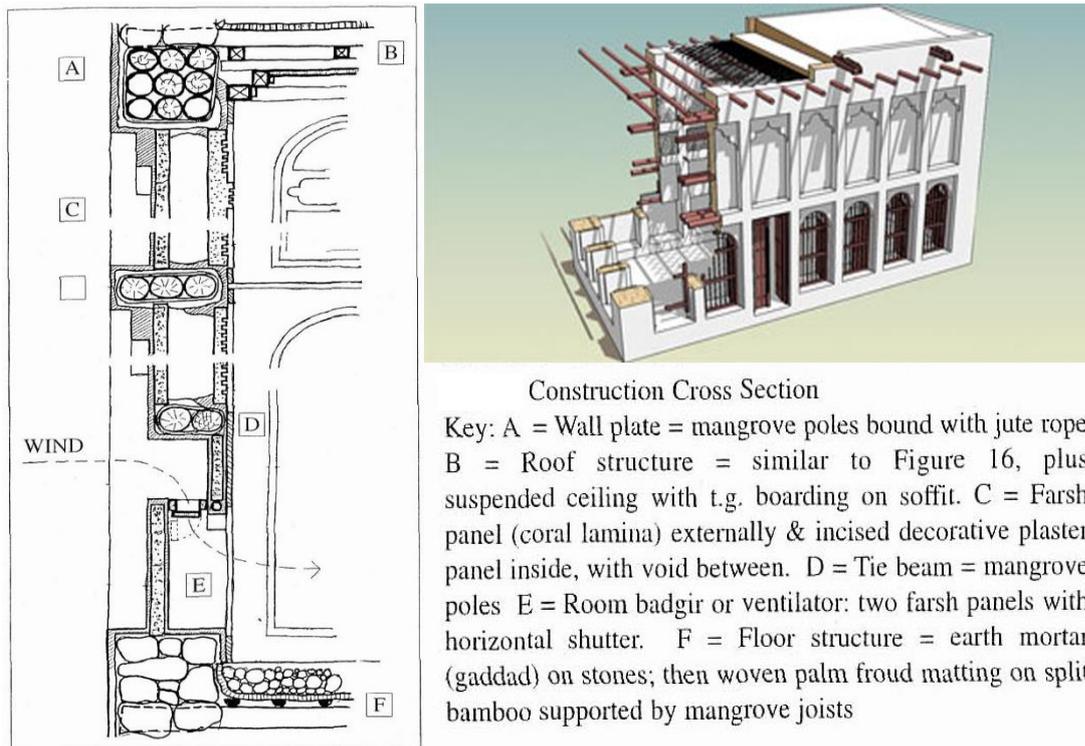


Figure 3.21 : Construction systems in traditional Qatari architecture, adapted from (Uri-38, 2013).

Ceilings and floors of upper stories are made of tamarix (alathal) or mangrove (denshel) wood beams placed at distances “40cm” approximately then wooden clips made of palm branches pinned, layer of mat made of straw placed at it and finally a layer of clay and plaster-stucco placed, lower front of ceilings and bridges left uncover and often they paint with bright color (AL-Khaleifi, 2000).

We noticed that using of repeated units between column and beams with equal and close distances have played great role in using architectural and decorative elements such as arches, Banuhat and spandrels where they designed in different styles by using of stucco and timbers in a way that distinguishes traditional architecture in Doha.

3.2.2.3 Building materials

Main materials used in traditional architecture in Qatar are materials that naturally available such as stucco, rocks and coral and marine stones, they used for several reasons some of them related to climate especially their porosity properties missing out heat moreover for an important constructional purpose that of their relative light weight, these rocks were cut into thin plates” not exceeding 4cm in thickness”, they were used to fill in gaps between columns and beams and as partitions, timbers and

palm trees trunks used to strengthen constructional structure, they also used in ceilings because of matching damp and hot climate, a mixture of lime and plaster to strengthen walls and fill in out gaps existing in rocks and stones and cover interior fronts and walls to become smooth (AL-Khaleifi, 2000).

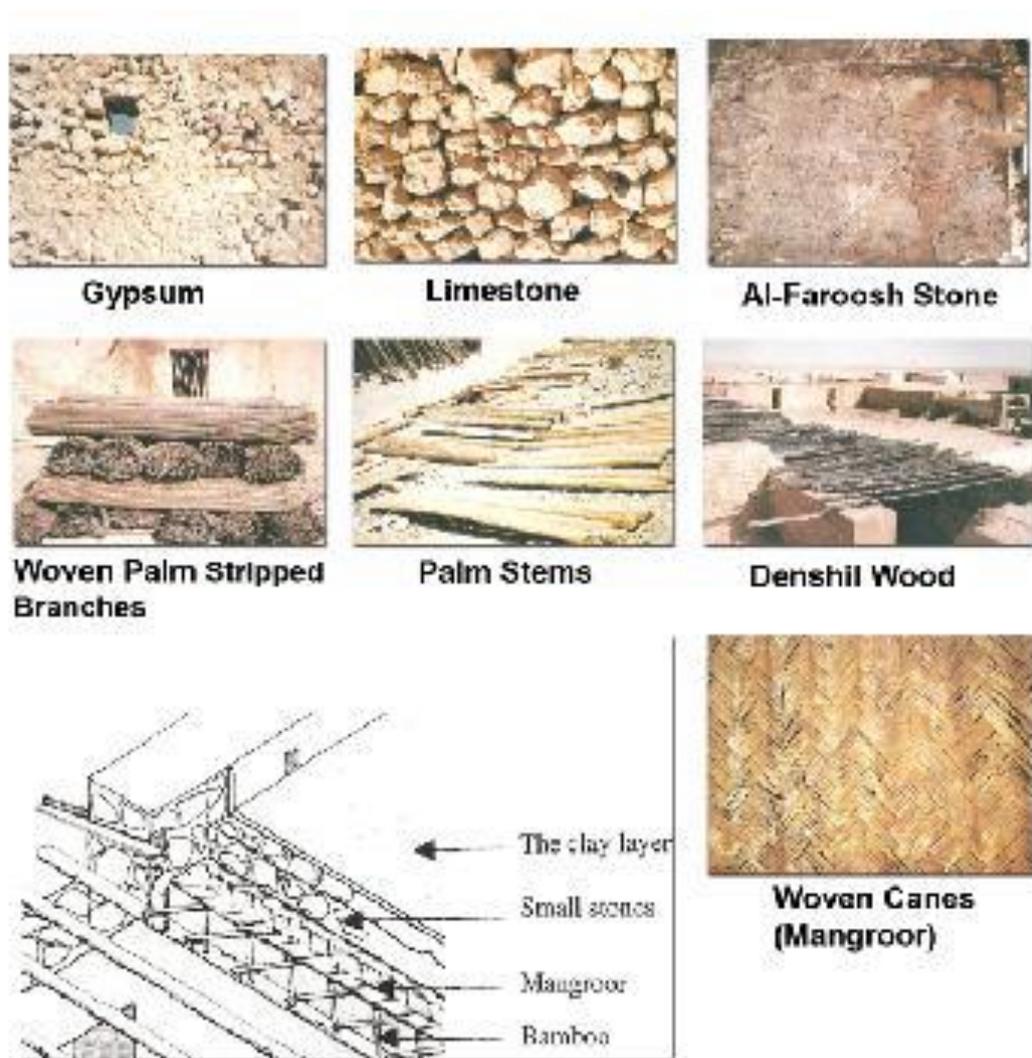
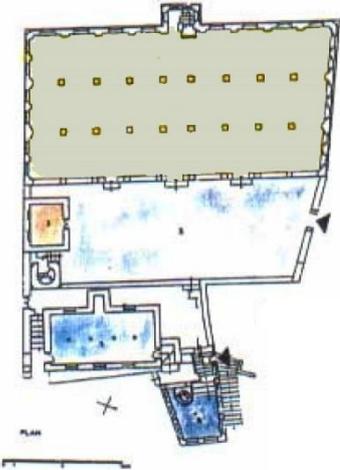


Figure 3.22: Example of different materials been used in traditional Qatari architecture, adapted from (Language for Contemporary Qatari Architecture, Qatar University, 2010).

3.2.2.4 Examples of traditional architecture in Qatar

Old buildings in Qatar and as in other Arab Gulf and Arabian Peninsula States dated back to 17th century and the beginning of 20th century (AL-Khaleifi, 2000). According to AL-Khaleifi (2000) traditional architecture in Qatar could be divided into three types as follow:

Table 3.1: Traditional architectural types in Doha city.

Patterns of traditional architecture	Architectural descriptions	Examples
<p>1-Religious architecture including mosques (Figure 3.23, 3.24)</p>	<ul style="list-style-type: none"> - Mosques composes of rectangular or square courtyard that built in the front part of it. - Mihrab (prayer niche) situated in the middle of wall that face the Qiblah and Mihrab doorway is on the left side of it. - Three gates let into the courtyard of the mosque, one is on the side that looks on to Qiblah and the two others are on the right and left sides of the courtyard. - Almidah often situated nearby right side of the doorway opposite to corridor of Qiblah where the tower of mosque situated on left side of it. -Semi-circular Arch of Mihrab situated in the middle of Qiblah corridor which covered either by dome or half dome. - Qiblah corridor decorated with either pointed vault or rectilinear vault and often looks on to the courtyard of the mosque. - The columns of mosques in Qatar are square- shaped. -Stones and stucco used to build circular-shaped domes that covered mosque’s ceiling. 	
	<p>Figure 3.23: Imam Muhammad ibn Abdul Wahhab Mosque in Doha –Qatar, adapted from (Url-39, 2013).</p>	

- There are many windows and vents in Qiblah corridor to let air and light in and out.

2-Military

architecture includes:

a) Castles and forts. They were military buildings which built nearby borders.

Towers built on their top corners for monitoring.

The main purpose for constructing castle of AL-Ziyada in Qatar was to monitoring and defense western coast (Figure 3.25, 3.26).

b) Towers (figure 3.27).

-Castle of Al-Zubara is square-shaped. It is side length was (24m).

-It contained four cornered towers, three of them were circular-shaped and the fourth was rectangular -shaped.

-The castle distinguished by its tall walls and 1meter thickness.

-There were slots on the tops of towers for monitoring and shooting with bows and arrows.

Castle had two ascending stairs and four towers upper rooms.

-Castles were built of clay and stones.

- They were built on high place looked on to the Sea where anything coming into the region could be seen and control.

- They had defensive function as well as its reconnaissance function.



Figure 3.25: Castle of Al-Zubara in Qatar, adapted from (Url-41, 2013).

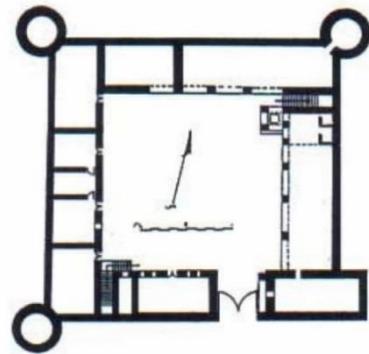


Figure 3.26: Plan of Al-Zubara Castle, adapted from (Url-42, 2013).



Figure 3.27: Traditional Towers in Al Khor, Qatar, adapted from (Url-43, 2013).

3- Civil architecture includes: Markets (figure 3, 28, 3, 29)

- Traditional markets in Qatar and Arab Gulf States were similar-shaped.
- Architectural design prevailing in markets was constructing of shops in line offset another shops in line. Terraces were placed between the two shops in the line.
- The passageway between shops was covered with one ceiling made of palm straws or sackcloth to protect passersby from sun lights.



Figure 3, 28: Souq Waqif (The Old Market) in Doha, Qatar, adapted from (Url-44, 2013).



Figure 3.29: Interior shot of Souq Waqif, adapted from (Url-45, 2013).

Traditional houses: One of the most important houses remained in Qatar are Mohammed Saied Nasrallah house where it situated at market area in old Doha town

- The houses composed of 13 rectangular rooms in ground floor and first floor surrounding the yard.
- The main gate situated in south-east side of the dwelling.
- Living room could be reach with come cross or nearby private family rooms.
- Stairs led to upstairs floor of the house.



Figure 3.30: Mohammed Saied house (Museum of Popular Traditions) observe niches and

elements and ornamentation and the method of structuring, collectively give clear indications to the social and economic status of the dwellers of the house and so to the whole community. In this regard the research puts a spot on traditional and also contemporary houses in Doha city.



Figure 3.32: Traditional houses - Umm Salal Muhammad in 1898, adapted from (Url-47, 2013).

3.2.2.5.1 Typology of traditional houses

According to AL-Khaleifi (2000) the distinctive features of traditional Qatari houses: The architecture of traditional Qatari houses has been greatly affected by some environmental, social and cultural factors which made these houses acquire distinct features; that can listed as follows:

1. Social background of Qatari traditional life.
2. Traditional Arab generosity indicated by the presence of a terrace as an essential part of the house.
3. Taking into account climatic circumstances and security.
4. Males and females are separated in houses according to Islamic values.

AL-Khaleifi (2000) continued, Features of a traditional Qatari house:

1. Consists of a group of buildings with inward view.
2. Square site plan with a courtyard surrounded by columns.

3. The height is up to 2-3 floors, and a flat roof.
4. The main entrance is refracted to ensure privacy.
5. Women's rooms are separated from men's, except for the guest room where they can mix according to circumstances.
6. The iwan (sitting room) opens at the yard of the house, annexing the house by means of straight vaults or pointed or half-circular. People generally live here, and they sometimes take their meals too.
7. The entrance is refracted by 90 degrees to prevent looking inside.
8. Small windows to retain coolness inside the rooms in summer and keep warm in winter.
9. The rooms distinguished by decorations and work of arts to decorate the inner walls as well as the rectangular or square vents near the roof of the wall that overlooking on house's courtyard.
10. Niches with half-circular ends on external walls gives aesthetics view.
11. Walls are higher than the roof to ensure privacy.
12. There is a well of water for all uses.
13. There are ventilation openings (Badjir) in some rooms of the house.

3.2.2.5.2 Architectural elements of traditional houses

The most important elements and architectural spaces in a traditional Qatari house. As a general rule a traditional Qatari house; like all other Arab houses built traditionally all over Arabia, includes the various elements that shaped a traditional Arab houses, and that's because of the similarity of cultural, social and economic circumstances and oneness of religion.

Table 3.2 : The following table shows the most important and architectural spaces in a traditional Qatari house according to the study by AL-Khaleifi (2000).

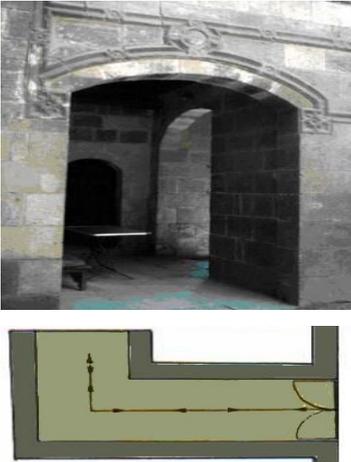
Space element	Architectural descriptions	Examples
<p>1. Refracted entrance (Figure: 3.33)</p>	<ul style="list-style-type: none"> - Refracted entrance is a prevailing custom in traditional houses and is regarded as a religious obligation. - It is a way to prevent looking into the house and a method of defense. 	
<p>2. Wind tower (Badjir) Figures (3.34, 3.34)</p>	<ul style="list-style-type: none"> -The Badjir (wind tower) is regarded as the most important element in traditional houses, and they are used to cope with hot climates. - Badjir is a wind tower with the height of a two-floor building. It has openings to let air pass inside to cool the spaces -The horizontal plane of the tower consists of two crossing diameters which shape four spaces (1.5-2m) above the space to be cooled. - Besides its environmental function, it can be a watch spot with visual amenity effect, as a mark for the house of Al-Farij (a group of houses) - These wind-towers include some pieces of ornaments like arches, Alhamaem, Rukniyat and Banohat 	

Figure 3.33: Refracted entrance in Doha –Qatar, adapted from (Url-48, 2013).

Figure 3.34: Badjir style-Museum of popular traditions, adapted from (Url-49, 2013).

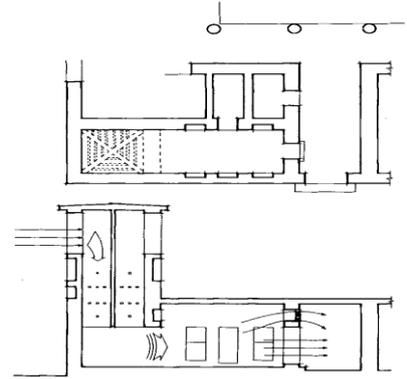


Figure 3.35: plan and section of Wind -tower (Badjir), adapted from (Url-50, 2013).

3-
Courtyard
(figure
3.36, 3.37)

- The courtyard is the central space for a traditional house, and it is the center of social life of the Qatari people. It acts as a heart that controls directions of other elements of the traditional house.
- The courtyard has a separate refracted entrance that opens outside.
- It always has an iwan (terrace) that runs along the internal walls or one side.
- It is the living area of the Qatari family.

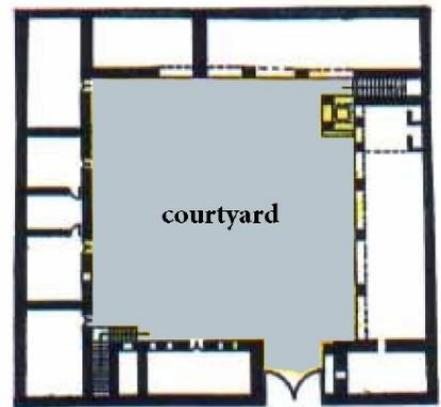


Figure 3.36: plan shows Courtyard house in Doha, Qatar. Resource: Language for Contemporary Qatari Architecture, Qatar University, 2010.



Figure 3.37: Courtyard house in Doha, Qatar, adapted from (Url-51, 2013).

-The iwan (terrace) is the roofed space of the courtyard on the ground floor of the house.

- The terrace opens at the courtyard, with openings have vaults.

4-Iwan
(Figure 3.37, 3.38).

- It is also an architectural intermediate element between the open space and the closed one

- It is often (1.5-2m) deep.

-The terrace is an architectural element that reflects the social standard of the Qatari family. It is always found in traditional houses of the aristocrats.

- Most Qatari traditional houses, however, standards of living have guest rooms

5.Guest room (Al-Majlis)
(Figure 3.39).

_ This guest room is always on the right or left of the main entrance.

- There is always a wall separating it from the house so that guests may not say inside.

_ Guest rooms are rectangular with stucco-ornamented walls and glass windows.

-Traditional houses in Qatar and the Arab Gulf have bathrooms of different shapes and sizes.

6.Bathroom (Al-Masbah)

- One common type of bathrooms pools is a square-shaped one covered with a half-circled dome which is built on the wall, and located ta room's corner or near the terrace

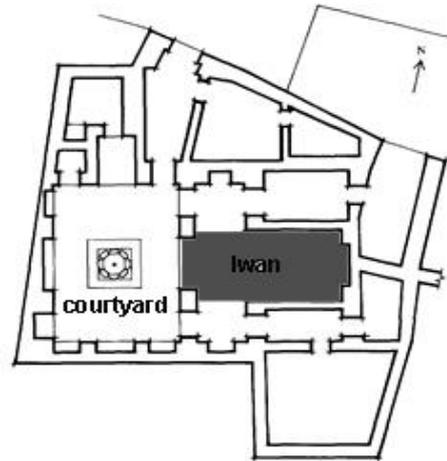


Figure 3.38: Traditional iwan house, adapted from (Url-52, 2013).



Figure 3.39: Guest room (Al-Majlis), adapted from (Url-53, 2013).

Before oil production Doha was divided into small neighborhoods as a groups which called (Furjan) with narrow streets and houses built of mud and stone. The traditional house conforms to the geographical and environmental circumstances and well adapts to the socio-economic activities of the Qatari society. It has a modest outlook and simple contents with enough rooms and space. Houses generally contains three generations: grandparents, parents and married sons with their children i.e. extended families. It is natural that such houses would differ in size and outlook according to the social status.

Therefore, it can be concluded that the traditional Qatari house before oil production was the core of social and economic life, and these two factors are the designing requirements for the traditional house, which represents a unity for different aspects of the Qatari community.

3.2.3 Use of local factors in contemporary architecture

After a brief study of the Doha's traditional architecture and the traditional house with all its elements and components, it is useful to study the contemporary architecture in general and the contemporary house in particular in the present time. This will help us to compare these two types of architecture in order to assess and evaluate both of them and try to answer the following questions: What has happened to the traditional architecture? How has this jump occurred between the traditional and the so-called contemporary architecture? Why has there been a new style? Which type has been affected by the society and people's needs?

To begin with, going back to a critical time in history when the changing of style and form in the building environment started to take place. It may be useful here to quote Hassan Fathi, a remarkable Egyptian architect who worked intensively on the traditional Arab house trying to retain its elements and its essence. And implement them in our present time. He says: "Modern Arab architecture is passing through a very critical stage of its history in almost all Arab countries. Indeed, we may ask if modern Arab architecture exists at all. Nowadays we can speak only of the Western house in Arab countries." (Fathy, 1972 p.10).

The courtyard house progressively disappeared and a new tall multi-story building with its wide opened windows and exposure to the outer street began to replace it.

Fathy continues: “To explain this phenomenon we must go back to the beginning of the Nineteenth Century. The turning point in Arab architecture was marked by the introduction of Western Culture, which came suddenly and before the people were ready for it. The moment started in Egypt, conditioned by political and economic factors. It came partly from without, imposed by the rules of the land, and partly from within, where the people, impressed by the technology of Europe, chose to take ready-made solutions to the problems created by contact with Western Culture” (Fathy, 1972 p.10).

For reasons, the new architectural types in Doha were adopted by architects, allowed them to introduction of new technological methods of building and new materials. This trend was transferred to the neighboring of Doha, which followed Arab countries footsteps in Westernizing architecture.



Figure 3.40: Contemporary architecture in Doha, adapted from (Url-54, 2013).

3.2.3.1 Contemporary construction systems and building materials

Throughout history both the general appearance of buildings and their styles have been determined by the knowledge of building and construction techniques available, as well as by the materials and the tools used and, of course, also by fashion and taste as we will see later.

Undoubtedly, both contemporary and traditional architecture are conditioned by similar factors. Traditionally, people used to build by using the available building

materials at any specific time or place. They used sun-dried, backed brick, stone where available, thatch, wood, etc. As a result of using these materials - and many other reasons - the Doha's house emerged in its form which could vary from one region to another according to the availability of building materials. For example, the stone is very essential material in traditional houses in Palestine and can be obtained from an adjacent mountainous area, whereas the major building material, in traditional houses of Doha/Qatar is mud mixed with thatch and other materials were discussed.

Now by looking at the contemporary architecture in Doha, one can find an extreme difference from that in traditional type, either by considering its appearance or by going further deep to its essence. These forms of contemporary architecture which emerged unexpectedly and suddenly are due to the new materials that become available this time more than the past.

The most important of the new materials are steel structure and reinforced concrete. The concrete and the steel were widely known. J.M. Richards gives a brief description of their history. He says: "It is necessary to stress the adjectives 'structural' and 'reinforced' to these materials because steel as a material was of course known for centuries before' it was applied to buildings and concrete, in the form of masses of solid buildings made by mixing stones and cement, was used widely by the Romans." (Richards, 1972, p.51).

But steel beams and columns are a product of modern industry and only date from the middle of the last century. Richards continues: "Reinforced concrete was invented in France by the engineers Henne-bique and Coignet, in the nineties of last Century" (Richards, 1972, p.52).

The most obvious advantage of steel and reinforced concrete is that they span very great distances. This first of all enables large spaces to be covered in easily and economically. They also allow architects to make openings in their walls of whatever size they want. Previously the size of the windows in buildings was determined by the width of openings possible; that is by the distance that could be spanned by a stone or wooden lintel or a brick arch. The exterior appearance of most traditional buildings is based on this distance. It is not surprising, therefore, that the use of steel and concrete for construction should produce new types of architectural design and adapt with the local architecture.

When these materials were applied to architecture in Europe it was the right answer to their problems which had been produced by industrialization and the development of rapid transport. Contemporary European architects took the opportunity provided by the new materials and methods that science had made available to achieve two major goals: (1) to design for the new life with its different sophistication and different level of advanced science. (2) To rescue the architecture from the stagnation of stylistic revivals at the time. They found it necessary, nevertheless, to return to first principles, and among the first principles of architecture is that it should do the job as sufficiently as possible. They sometimes failed, but they could fulfil their task in one way or another.

The transference of these materials with their special methods of building from industrialized to developing country, Like all the Arab countries and especially in case of Doha/Qatar, where technology and development are making just their first steps, and the industry, if there is any, is very 'primitive' will put these countries in a very artificial situation and will upset all its architectural principles which have been adopted for centuries.

In fact this is exactly what happened to Doha/Qatar. The new technology which is the outcome of the post-industrial Western society was transferred directly to Gulf countries. What was the result? Full designs made originally for the west by Western architects were directly re-used in Doha.

The technology which belonged more to science fiction was applied to design new vision of Doha "iconic city", with different needs and realities. It was the complete misunderstanding of using this technology.

3.2.3.2 Contemporary houses in Doha

After oil production all Gulf countries including Qatar have entered a new phase of socio-economic and political change. Oil production resulted in such architectural prosperity in the Qatari peninsula with the establishment of several structural projects and building modern houses in both cities and villages, and substantial alteration for houses took place with the rising of individuals income, so the traditional pattern gave place to modern houses, however, varied they are.

3.2.3.2.1 Typology of contemporary houses

Doha town is a model of planned town. Lands use of Doha and its society had come under many changes after exploration of oil and the 'World Cup 2022' preparations. Doha experienced vast growth and lands size dilation followed by obvious changes in its internal society. A tremendous rural development seen by Doha, during the period oil exploration had followed by outstanding growth in commercial areas. Doha town is distinguished with outstanding constructional style because of accumulated factors such as governmental housing policies, which aim at taking possession of lands of the old town and planning them into new different projects (Figure 3.41).

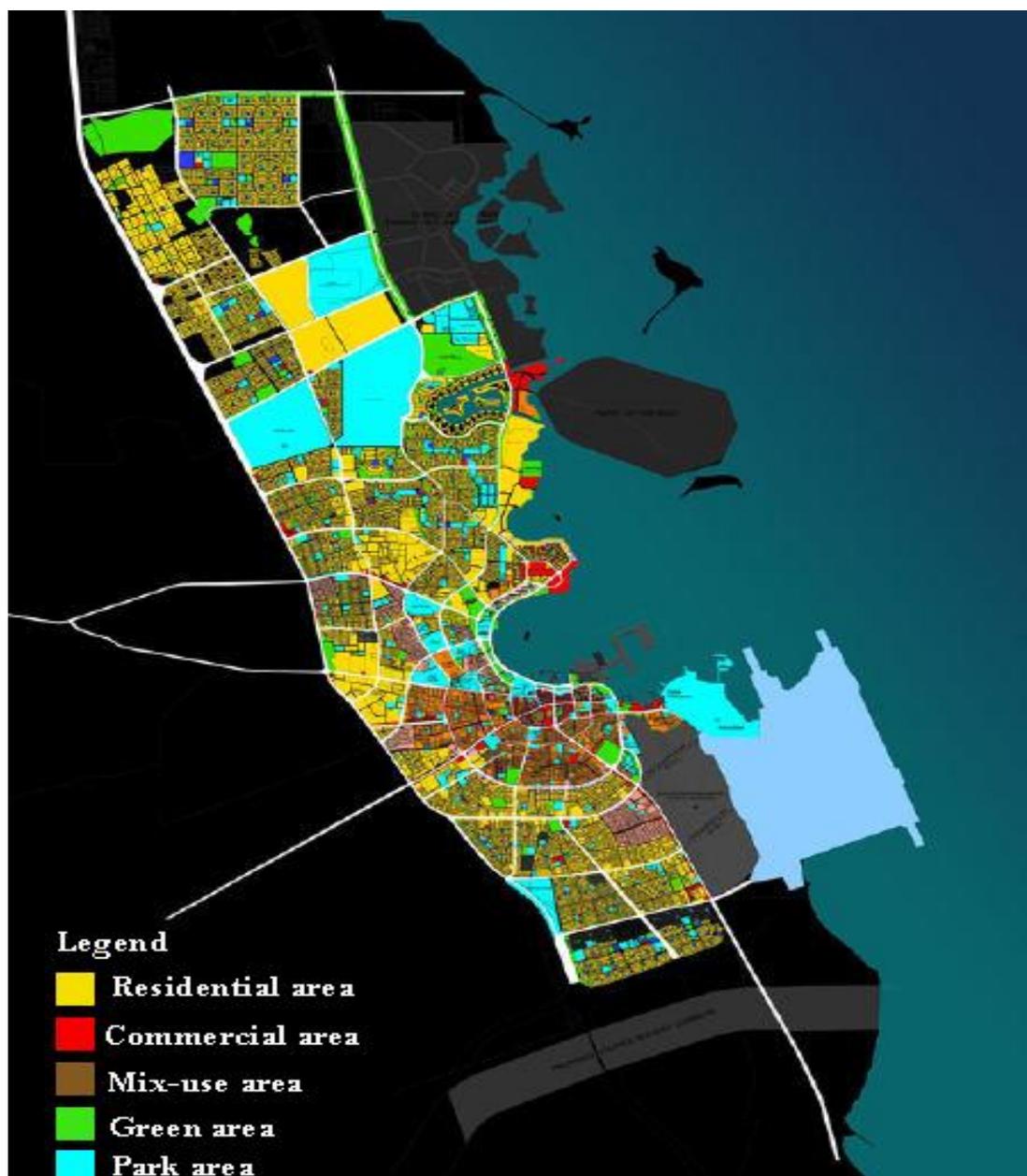


Figure 3.41: (a) Land uses of Doha city, adapted from (Url-55, 2013).



Figure 3.41: (b) Land uses of Doha city, adapted from (Url-55, 2013).

Residential areas in Doha are over much than commercial centers. Commercial areas interacted with service zones and residential areas in Doha. Traditional houses were replaced, after they departed by their inhabitants, by buildings of traditional and contemporary style. Buildings all most compose of several residential units. They rent to Arabian communities who enjoy better standards of living than Asian communities most likely. Commercial shops often establish on ground floors where Pakistanis and Indians either employ or possess one of them by sponsorship of Qatari citizen.



Figure 3.42: Al Ain centre residential in Doha, adapted from (Url-56, 2013).

A number of traditional style houses, built with traditional materials such clay and stones, existed in Doha, they are very narrow in size and in bad conditions and used by more than 45 Asian labors most likely, a number of 10 people may occupy one room and use one water close (Ismael, 1993). Houses with relatively modern style also exist in Doha, a number of 20 to 25 people at average live in one house most likely, both types of modern and traditional house are preferable to single labors in general (Ismael, 1993). He continues, "Folk house style became prevailing as a result of social welfare polices applied the State. A few number of these house are still dwelt by their owners who repaired them".



Figure 3.43: Example of folk house style in Doha, adapted from (Url-57, 2013).

Great number of modern houses “villas“ built on outskirts of Doha and allocated for State’s senior officials, there are also a number of traditional houses, built from stones and clay, lived by low-income people, orphans and widows, these traditional houses situated among schools, educational institutes and residential houses (Ismael, 1993).



Figure 3.44: Example of villa for state’s senior officials in Doha, adapted from (Ur58-1, 2013).

No doubt, all types of these types of land uses such as, residential, commercial centers and other services interacted with each other on similar streets of Doha city. Therefore, it can be deduct that lands uses and planning in Doha referred to prior period of strategic planning whereas random constructional growth, economic and administrative activities became prevailing.

According to study of "Social map of Doha city" by Ismael (1993), the following table describes a common patterns of the contemporary houses in Doha.

Table 3.3 : Common patterns of the contemporary houses in Doha, Ismael (1993).

Patterns of contemporary houses	Positives	Drawbacks
<p>1. Independent units: The building is structured in a limited area with limited defections , according to Doha Municipality Codes, (Figure 3.45).</p>	<ul style="list-style-type: none"> -This pattern provides gardens all around the house. -Provides privacy. -Easy ventilation to internal spaces. -Boosting security and safety of the building. 	<ul style="list-style-type: none"> - Both structure and maintenance processes are expensive. - It takes large areas of land -Horizontal extension - Direct climatic effects on wall frames.
<p>2. Repeated houses: (Figure 3.45). This pattern is suitable for large numbers of residential units, to make regular flexible models with different areas to facilitate the process of building (Public-folk housing).</p>	<ul style="list-style-type: none"> - low cost. -The process of construction is fast. - Low cost maintenance. - Availability of designs with few problems. - cut down the waste of materials. 	<ul style="list-style-type: none"> - Non-flexibility of designing. - Suitable only for small area.
<p>3. Extended- flexible house (Figure 3.48): A flexible design is used here, that allows for changes or addition of new rooms in the future, or combining</p>	<ul style="list-style-type: none"> - It offers a better capacity for the low income community. -It observes socio-economic situation. 	<ul style="list-style-type: none"> -Doing without some architectural aspects. -Creates external spaces that cannot be used on the first stage.

available rooms. This pattern allows the owner to finish the house at different stages, according to the financial situation. The first stage, however, should be finishing the basic residential units.

-The necessity of good designing to observe the future might bring about technical problems in designing.

4. Adjacent houses: (Figure 3.49): These are built with common edges between them from one side or more (duplex), for the low income people.

- Reducing the number of flat walls.
- Reducing the sides exposed to climatic effects.
- Providing privacy from neighbors.
- Lessening the service of infrastructure.
- Economization of external-finishing materials.
- Availability of maintenance.
- Limited security between houses.
- Relative dependence.
- More suitable for small areas.
- The ability to extend only vertically.
- Less ventilation for some spaces.
- Similarity of external design and finishing.

5. Residential flats: multi-story building contains apartments (Figure 3.50).

- Provides residences for a large number of people.
- Save land and limit of horizontal extension.
- Save infrastructure services.
- Save maintenance cost.
- Save energy.
- Less finishing materials.
- Save cost of structuring.
- Non-privacy.
- Limited security.
- Socio-economic influence among residents.
- Suitable for small families.
- Necessitates a number of car-parks.
- The need of elevators.
- Limited safety.



Figure 3.45: (A) Independent units of contemporary villa in Doha city. - Plans, adapted from (Url-59, 2013).



Figure 3.46: (B) Independent units of contemporary villa in Doha city. -Elevation, adapted from (Url-60, 2013).



Figure 3.47 : Repeated houses in Doha city, adapted from (Url-61, 2013).



Figure 3.48: Extended- flexible house in Doha Qatar, adapted from (Url-62, 2013).

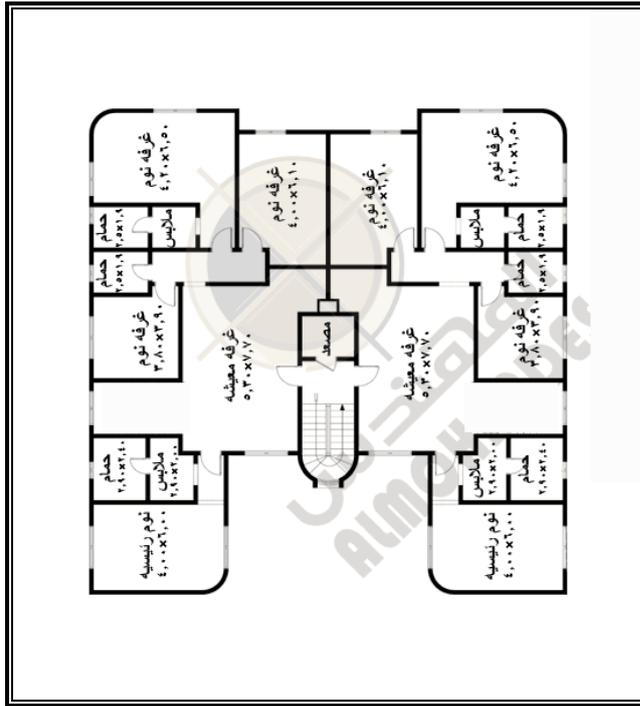


Figure 3.49: Adjacent houses - duplex in Doha Qatar, adapted from (Url-63, 2013).



Figure 3.50: Residential flats: multi-story building contains apartments With common entrance and other services Al-Jassimya tower in Doha, Qatar, adapted from (Url-64, 2013).

The contemporary house has expanded to include the components of the traditional one, not to mention other occupational elements which were missed in the traditional house. In a contemporary house a foreign expert could be hired to fix the curtains or air-conditioning systems and other appliances. Also a contemporary house is provided with electricity, drinking water and drainage systems to ensure welfare of the dwellers. The contemporary houses accommodate for one family, with a private room to parents and other rooms for boys and girls. It is so different from the inherited customs and traditions of the Qatari community that used to live in association.

It can be said socio-economic and cultural factors are no longer required in the process of designing the contemporary Qatari house post oil production and FIFA Qatar World Cup 2022 preparations. There are now factors far from the socio-cultural heritage of the Qatari community. Individual necessities are now the factor that controls the process of designing a contemporary Qatari house.

This research observes that, the shift towards reinforced concrete high-rise buildings from the traditional ones can hardly solve the housing problems in terms of social, cultural, and economical factors in Doha.

Rather than attempting to rationalize the traditional building types and construction methods to cope with the new needs and contemporary life of people, the contemporary buildings in Doha are trying to adopt imported ones. As a result of the gradual replacement of traditional forms by European ones, the dependency on foreign designs, materials and high technology is likely to increase, especially after the FIFA Qatar World Cup 2022 preparation and the government's policy to create "iconic city".

The reliance on Western architecture in the developing plans in Doha/Qatar could be a step towards the development of this country. Factories were constructed to make parts of buildings, and roads were built to take these parts to the site. In itself it is an enormous investment and it is a worthy thing to do. Nevertheless, this reliance has its two major disadvantages in Doha city. On the one hand, the housing programs resulting were usually inefficient and difficult to work. On the other hand, great losses had been caused and big social, economical and architectural problems have emerged. So what was intended to solve the problem has become a problem itself.

3.3 A comparison between traditional and contemporary architecture in Doha

Those who are concerned with the future of built environment in Doha should firstly refer to their rich relatively architectural heritage, study its forms and elements and understand the essence behind it. Secondly they should analyses the imagery of the contemporary world as expressed by global-modern buildings. This kind of analysis is aiming at explaining the potential continuity of traditional architectural patterns by exemplifying how some of them can be adopted or re-interpreted in a contemporary context (Pasic, 2011).

For designing contemporary Doha in the future and according to traditional principles, one must dissociate the essential from the accidental to define what is still relevant and what is to be rejected. In this case, certainly one would wish neither to preserve all old elements in new cities, nor to build new ones that are mere copies of the west. Pasic (2011) says, Encouragement of vernacular building types and technologies that have been developed and transferred from one generation to the next also secures the continuity of building traditions.

Regarding the former analytical study, a comparison between the traditional and contemporary Qatari settlements is set up in this chapter according to contemporary norms of people's aspiration. Each pattern statement is anticipated by a short description, followed by the advantages of this pattern and then by its disadvantages.

It is hoped that this analogy can offer an insight into the basic nature of both traditional and contemporary dwelling and settlement in the case study of Doha, which represent the problem of contemporary Arab architecture.



Figure 3.51 : Doha: from a traditional settlements to a globalized City, adapted from (Url-65, 2013).

3.3.1 Urban morphology

3.3.1.1 Urban fabric

Traditional town of Doha

The traditional town was compact and emerged from within. Houses, schools, mosques were grouped spontaneously by a process of accretion. Therefore, it was the outcome of many relationships, such as natural and cultural factors.

As a result, the core of every building, private as well as public, was the inner courtyard. Courtyards were the only regularly shaped, planned spaces in the town's organism. They vary in size and decorative elements such as fountain and vegetation according to the wealth of each family.

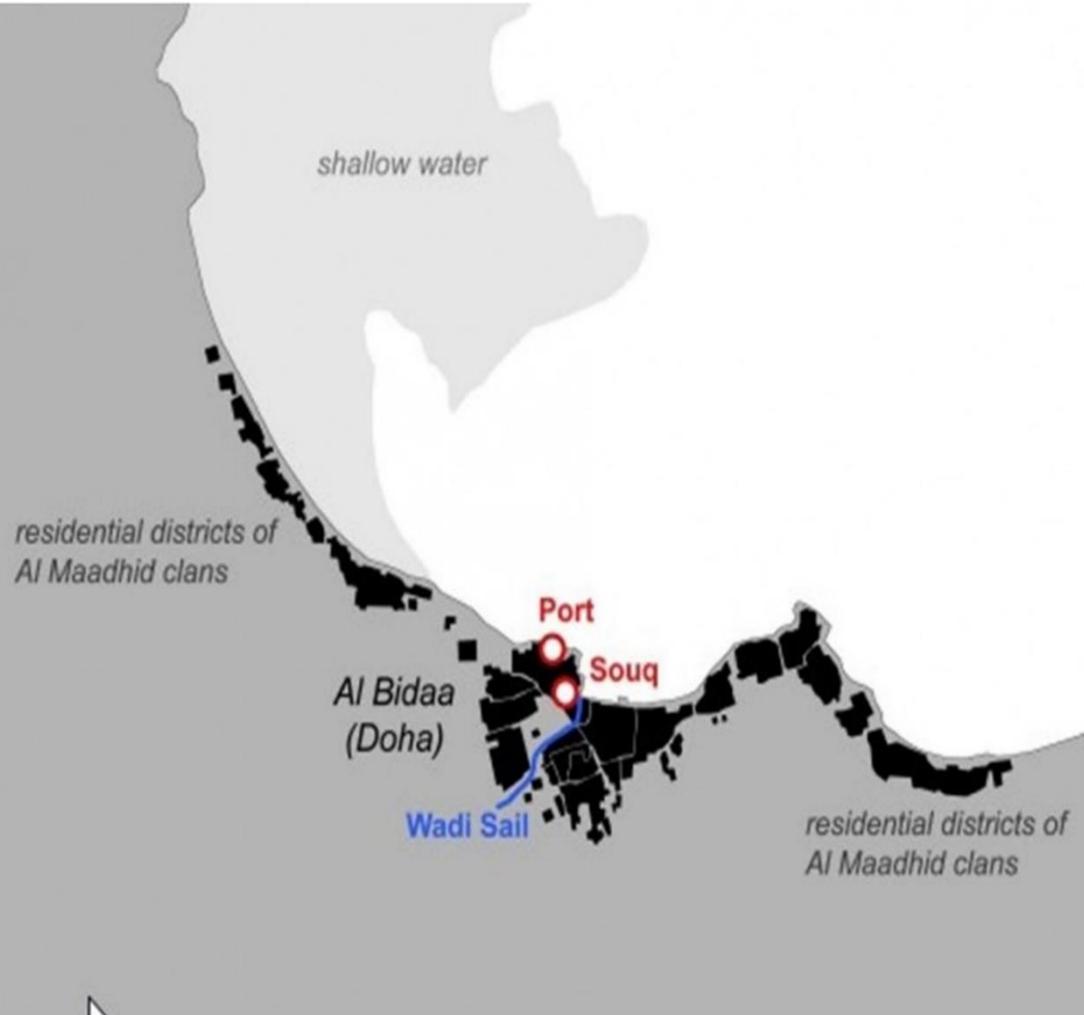


Figure 3.52 : Doha city development through Its early traditional phase shows the Pre-Oil settlement in 1947, adapted from (Url-66, 2013).

Islam seems to influence the physical pattern of the city. This influence could be seen in locating the mosque and its immediate neighborhood in the central space of the city. Then comes the bazaar (Souq) inns (Khan) etc. (Figure 3.53).



Figure 3.53 : The traditional urban fabric of old Doha, adapted from (Url-67, 2013).

As it has been inherited and built from one generation to another, the traditional town plan is the outcome of the people. The people have learnt how to make the optimum use of local materials and techniques to protect themselves from the surrounding environment and different climatic conditions. However, the traditional Qatari people insisted on the compact planning for environmental, cultural and economic reasons;

- Environmental: The Compact plan and narrow streets gave a better chance for buildings to protect each other from the heat of the sun and also shade pedestrian paths which in turn reduces glare. Therefore, it was much easier to create a positive relationship between the external and the internal environments.

- Cultural: The compact plan helps to achieve association between the inhabitants, i.e. friends and relatives can be within easy walking distance, hence the fact that traditional people were closer to each other than the newer generations, and more likely to support and help each other.

- Economical: One of the reasons of the organic compact planning was to bring together many people so that, through direct communication with each other they may exchange goods and ideas. This should be done without undue loss of energy and time.

Disadvantages

Doha city now is being occupied by numerous people, they are usually over populated. As a result, unprecedented large scale of developments are needed. Therefore, the Principles of the spontaneously growth planning cannot solve the problems which emerged from the housing shortage. Fast, planned, and organize a towns are needed.

The organic compact planning does not provide the required standard of necessary infrastructure needed today, such as roads for cars and buses, sewerage systems, electricity supply, etc.

Contemporary town of Doha

Most of the current urban developments in Doha is not Arab-Islamic in the traditional sense as described before, but rather of an international contemporary-"global" style. This style has ignored the valuable concepts of traditional planning, and emphasized the garden city pattern and western planning ideas. These ideas are based firstly on the

use of wide, gridiron street pattern, easily penetrated by moving vehicles. Secondly, by the use of free standing layouts filled with high rise buildings.

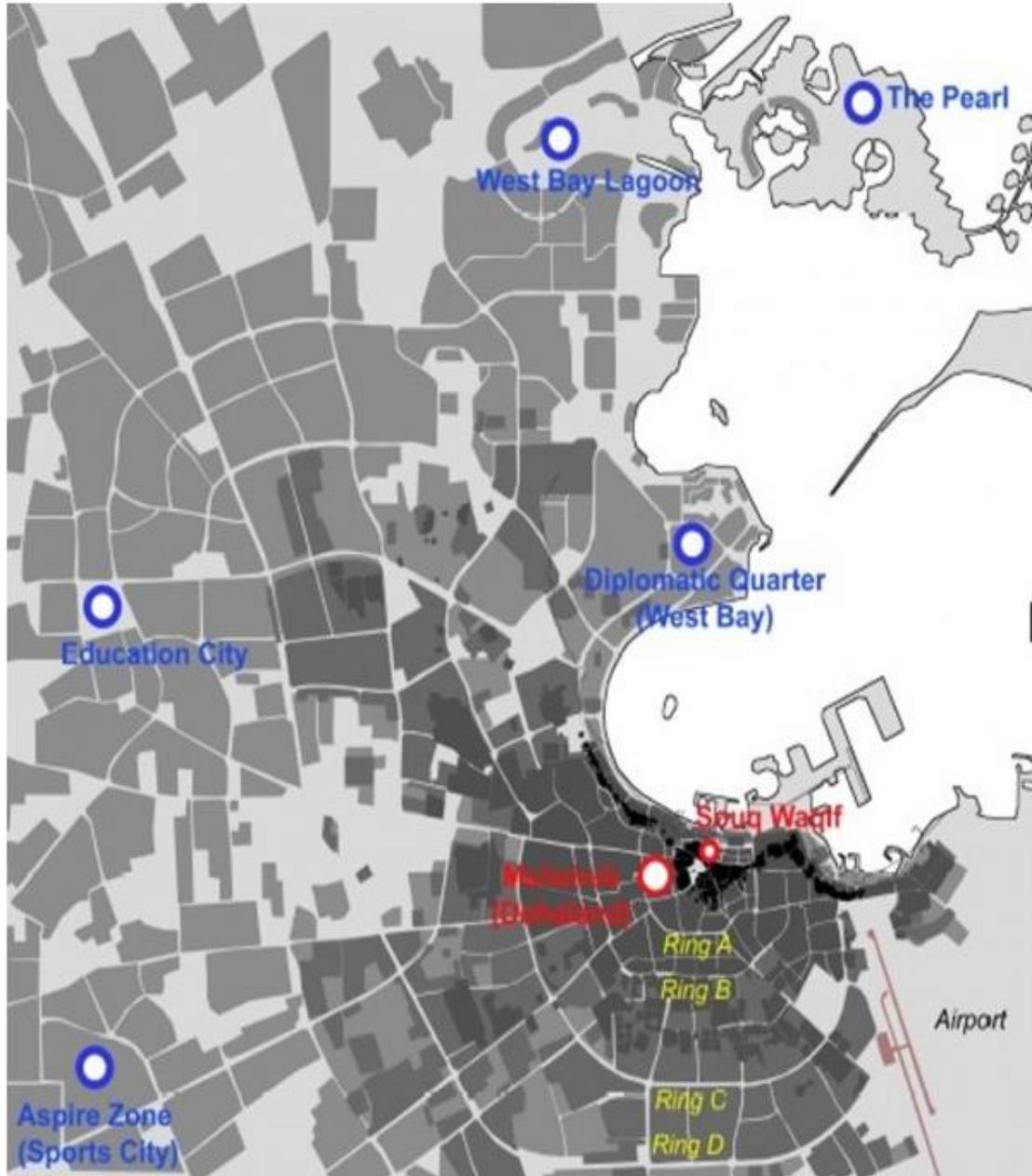


Figure 3.54 : Doha now: The reaction and result of the global condition, adapted from (Url-68, 2013).

Here. In the planning process, people hardly have the opportunity to take part in the decision-making. As a result the whole arrangement of new cities tends to serve people in a different manner than in the traditional one.



Figure 3.55 : The contemporary urban fabric of Doha, adapted from (Url-69, 2013).

Advantages

The planned town can be the answer for fast built housing projects when needed. It can produce the required quantity of houses, and solve the problems adjoined with housing shortage.

Nurseries, schools, mosques, clinics, among others, can be located in adequate places in the town quarters to serve the given number of occupants in these quarters. Planning the city helps the architect, planner, engineers..., to work together for providing all the facilities to a contemporary city such as roads and footpaths, water drainage, water supply, sanitation, street lighting, electricity supply, refuse collections and many others.

Disadvantages

As it is not the direct reflection of people's needs, it does not serve them in either the cultural or the social sense. Nowadays, the relationships between neighbors, kids and friends hardly exists as it used to be in the traditional town. Most activities are inspired by television rather than by active participation.

From a natural and climatic point of view, streets and buildings are exposed to the glare and heat. As a result air conditioning equipment are used instead of natural solutions for cooling.

Whether by design or accident, the new settlements are often, based on the idea of locating the residential units far from the community facilities, schools, clinics, market and so on.

While the compact planning helped in reducing the cast of all kinds of services, public and private transport, the new planning seemed not to take this point into account. There is a considerable cost of transportation which must be taken into consideration while planning the city. In most of the town plans adopted in Doha city, there is no clear connection between housing and public spaces.

Last but not least, houses which are adjacent to main roads are at risk of noise disturbance and more seriously to air pollution from the passing vehicles.

3.3.1.2 Streets

Traditional streets of Doha

Traditional street was designed mostly for pedestrian and domestic animals. Streets were characterized by both simplicity and unlimited variety. They were full of artistic and aesthetical pleasure at the same time. The street layout is expressed by organic compact planning and narrow winding paths. Many dead end streets can be evaluated as the visible result of the Arab's great estimation of the private area; unlike our modern planning, it is so rare to find any two main roads crossing at right angles, they are often staggered (Nour, 1984).



Figure 3.56 : Traditional streets of Souq Waqif during the day; a catalyst for urban diversity, adapted from (Salama, 2010).

Advantages

Traditionally, the street acted as a semi-private space. Men used to enjoy sitting in the street having a chat. Thus the traditional street pattern usually gave the sense of containment and it was more suitable for intimate grouping.

As a narrow street between buildings of two or three stories high, it decreases the heat gain on external walls and reduces the areas of exposed surface of roads, it is therefore shaded most of the day. This is probably what made the traditional street a continuous space to the courtyard.

By being, winding, it prevents sand storms from spreading out. This is one of the advantages of the traditional street which made it the place where “people stay in rather than “puss-through” Since it is characterized by winding lines and close vistas with many interesting features (minarets, mashrabiyyas, arches, etc....), the passers through the street will not feel bored by being in it. On the contrary, they will spend their time happily till they arrive at their destination.

Disadvantages

Traditional Street has never been designed for vehicles. Although it is suitable for climate and encouraging the social life, it is incompatible with the free circulation of motor traffic. It can cope with donkeys, horse traffic, bicycles and even motor bicycles. But the streets are too narrow to accept motor vehicles. Some experiments to introduce the car to old quarters in many Arab cities have failed to do so. It was devastating to the whole area, streets became neither sufficient for cars nor efficient for pedestrians.

In case of emergency and fire accidents, narrow streets do not function enough to serve the emergency cars, the thing which makes it difficult sometimes to live in an old quarter of the city.

It is difficult to apply an organized and planned sewerage network according to the modern norms by following the traditional street pattern. If this can be achieved, it will be very costly.

Contemporary streets of Doha

In contrast to the traditional street, Modern Street looks wide, straight and designed mainly to serve vehicles. Consequently, the horizontal surface of the new cities is

covered by black asphalt. Such a desert of asphalt and buildings, from the climatic point of view often makes the city of Doha hot, more than usual.

Furthermore, as a result of the poor harmony of the street, it seems that the contemporary street is unlikely to be human and interesting as the traditional one. Each building is only a separate portion of endless wide streets. Hence the weakness of the effect of the modern architecture on the man who passes from one part to another of the city.



Figure 3.57 : Contemporary streets of Doha, adapted from (Url-70, 2013).

Advantages

Wide streets provide the easy movement of car, bus, van, truck, etc., into most parts of the city. All parts of the city can be reached by Ambulance, fire, and emergency cars. Nowadays, streets have to deal with cars of all sizes, and only being wide they can serve this need.

Street furniture and facilities such as electricity columns, street lights, telephone boxes, trees, etc, can be easily installed and planned for. Sewerage network can be planned with planning for the street itself, and cheaper than being under narrow winding streets.

Disadvantages

contemporary streets are mainly designed for travelling alone fastly, thus discouraging the social contact. They are boring and unattractive that they serve as an inducement for people to remain inside their houses. Most of wealth Qatari people, do most of their travelling by car, and park inside their houses or just outside the house, allowing no other social interaction. While the populace are left behind for being not able to use the street, either for driving cars or for social intercourse.

The street is left abandoned for its little shadow, heat and glare. It is not an easy task to plant the street with trees and look after them in a hot dry climate of Doha. Therefore, modern streets are usually full of dust and sand. Sand-storms can spread easily without any barrier.

As the contemporary street seems designed essentially for vehicles and transport, it lacks organic irregularity and characteristics of the traditional street, and loses the human scale.

In addition, the contemporary street pattern usually makes it difficult to orientate buildings towards any goal, such as the prevailing cool breeze. This is because of the great similarity of buildings and lack of reference points.

3.3.2 Architectural design

3.3.2.1 House design and form

Traditional house design and form in Doha

The traditional Qatari house is not simply the result of physical forces or any single casual factor, but is the consequences of a whole range of socio-cultural factors. The form was modified by climatic conditions and methods of construction, materials available and the technology at the time. By the effect of these factors, the house emerged with its courtyard as the basic unit in the house.

Traditional Muslim architecture used to work on different premises altogether: buildings were not conceived as detached "objects" but as living architectural shells, shaped according to the internal needs of distinct social micro-units and responding to the enclosed activities (Pasic, 2011). To experience a building, one has to enter and to apprehend it from within, which corresponds to the Islamic concept of sacred privacy

and relative autonomy of each social unit. Being enveloped by omnipresent architectural enclosures, one always feels being at the center, wherever one may stand. Buildings exude a definite sense of place and identity, and provide the users with a feeling of security, peace and equilibrium (Pasic, 2011).

The Qatari house has generally two stories. The lower floor consists mainly of reception room, living room, study room, kitchen, bathroom and storage. Usually the reception room is separated from the rest of the other rooms therefore providing adequate privacy to the house. On the upper floor, we find the bedrooms, a living room and a bathroom. The roof is usually flat and might be used for sleeping purposes in hot summer and as storage as well. Touch of life might be added to the courtyard by planting some trees, or constructing a fountain. These elements could be a climate modifier as well as a vision of paradise.



Figure 3.58 : Traditional house of Doha, adapted from (Url-71, 2013).

Advantages

The traditional Qatari house is the direct and useful conscious translation of the culture into a physical form. The needs, and values of this culture, as well as the desires, dreams and passion of its people, are translated to a physical setting represented by the form of the house.

The standard of privacy required by Islam has been achieved by the introverted plan. The house turns inward into a courtyard, where the woman can act out-door as she does indoor rooms without being disturbed.

The house is the right response to the surrounding environment. The courtyard-house has proved to be the ideal form for hot-dry climate (Nour, 1984). The extendibility and adaptability of the house has the advantage of responding to the increasing size of the family which is generally an extended one.

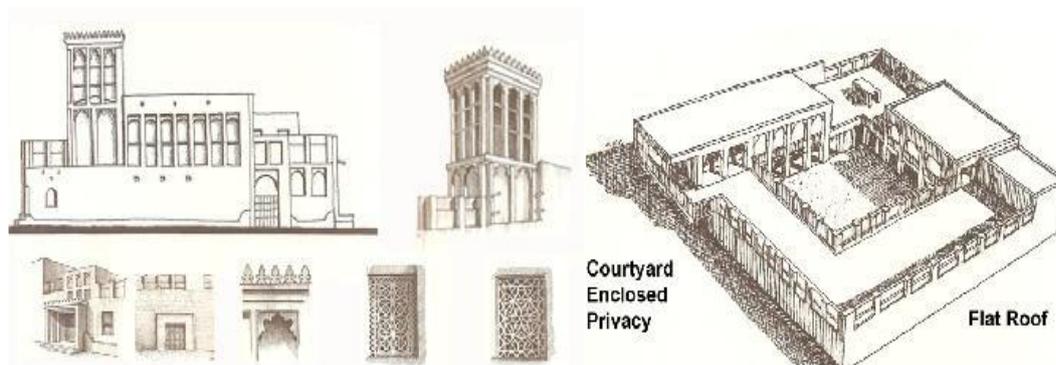


Figure 3.59 : Example of different elements of traditional house, adapted from Language for Contemporary Qatari Architecture, Qatar University, 2010).

Disadvantages

In our present time, such houses are not accessible to all groups of people. In fact it might be truer to say it is only accessible to the wealthy people.

Not all people like to live together in large families as they used to do. Young generations prefer to live separately when they get married and form a small family. Yet, they keep in contact with the larger family.

Because the traditional house used to embody a relatively large lot of land, it is difficult to be applied to housing schemes in the cities where the land is very expensive.

Because the use of local building materials, it usually requires frequent maintenance which adds extra cost to the house.

Contemporary house design and form in Doha

The newer buildings present a dramatic contrast to the older traditional ones described previously. These tend to be the high-rise type arranged in regular patterns along a grid system of streets. The Modern architecture tended to design houses in a vacuum and to produce blocks floating in an abstract urban space emptied of all its essential qualities; individual blocks do not contribute to a meaningful definition of public open space, as related to corresponding community activities (Pasic, 2011).

The contrast with the traditional form can be seen in the almost total abandonment of the interior courtyard. It has become extroverted. Again, in contrast to the dull exteriors of the traditional houses, the newer houses display a wide-ranging set of ornamental features such as colored facing, stonework and aluminum windows which are of low quality and are not air-tight. The visual impact of all of this is discontinuity and inertia.

The house in general consists of a living room, bedroom(s), a kitchen, a bathroom and eventually a guest room. The main door leads to an entrance which in turn, leads to the other parts of the house.



Figure 3.60: Example of contemporary houses, adapted from (Url-72, 2013).



Figure 3.61 : Example of contemporary houses in Doha downtown, adapted from (Url-73, 2013).

Advantages

The contemporary houses are suitable for small families or professional people who might ask for just a small flat to live in.

Mass housing projects produce the required quantity of buildings for the given quantity of people within the given time limit (Rasem, 1984). Actually, this is what induces the governments to adopt this style.

Since these houses are built by strong and durable materials, they do not require frequent maintenance. The houses are expected to last for 60 years at least.

Multi story housing is promoted because of the need to house many people in a limited space, and it is assumed that it is the only possible solution for high-density areas because of 'FIFA Qatar World Cup 2022' preparations and migration of foreigners to Doha. Nevertheless, it is not necessarily so (traditional town plan).

Disadvantages

It is hard to modify the design, or expand the house. Now, contemporary houses are built to last at least sixty years. During this time, higher incomes and changing life

style are likely to lead the families needing more space in the home. It is important, therefore, that new houses do not become absolute in terms of their size or plans.

The main problem of contemporary public housing is that there is a great neglect of social factors concerning privacy and the way of life.

The need for individual expression of each occupant is neglected. Housing units are used in many parts of each country regardless of the difference in the environment and climate of each region.

Most of the housing lay-out is based on the free standing concept and multi-story flats, as a result, each house is exposed to the street noises, heat and pollution.

3.3.2.2 Thermal comfort and acclimatization

The comfort is defined as the sensation of complete physical and mental well-being, and this is, undoubtedly, related to the relationship between the environment and the human body (John, 1980). Conventional modern building technologies almost invariably fail to provide the type of built environment which could match the sophisticated visual reference system of traditional Muslim architecture (Pasic, 2011).

The evaluation of human comfort requirement in a hot-dry climate is usually based on the mechanism of heat exchange between the human body and its environment. This heat exchange process depends on for basic factors; air temperature, humidity, air movement and radiation. These factors directly affect the thermal body balance as each may help or hinder the dissipation of surplus heat from the body.

The deep body temperature must remain at a balanced and constant 37C. In order to maintain this, the body should be able to release all its surplus heat to its environment, by means of convection, radiation, evaporation and conduction. (Leniharn, 1978)

As long as the average temperature of the atmosphere is below the skin temperature (31-34 degree Celsius), the human body will dissipate the surplus heat and feels comfort. Otherwise the deep body temperature will increase, coma may occur, and death will be unavoidable when deep body temperature reaches 45C.

Hence the importance of providing a comfortable shelter which can protect the human body from the harsh environment, cooling the air and make a tolerable life beneath the shelter.

Thermal comfort of traditional Qatari house

The thermal comfort was ideally achieved in the traditional Qatari house and settlement, when people adopted their dwellings to their particular environmental requirements, and the awareness of climate was successfully integrated with local technology, materials and craftsmanship to solve problems of comfort and protection. There were prescribed ways of doing or not doing things, and certain forms were taken for granted as the appropriate solutions to people's needs.

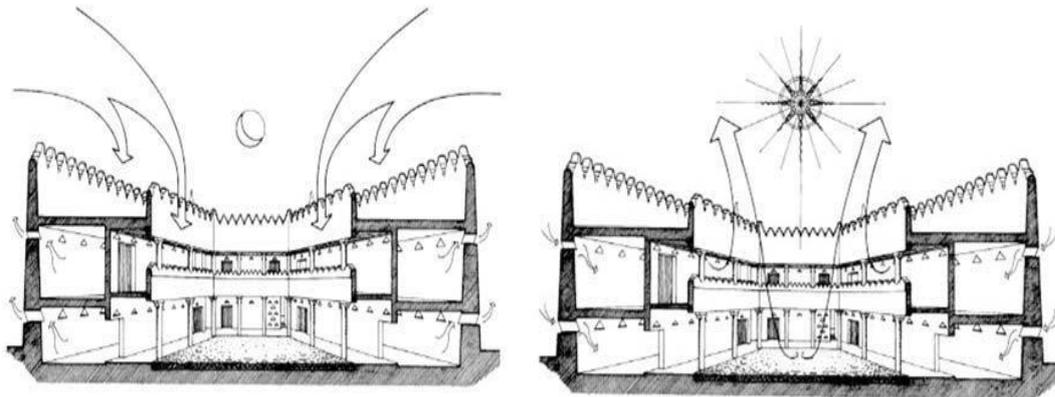


Figure 3.62 : Since protected from the morning sun, all surrounding spaces stay cool till well into the day, adapted from (Language for Contemporary Qatari Architecture, Qatar University, 2010).

The traditional Qatari house surrounded a courtyard with garden and fountain which formed a cool pleasant micro-environment. It was built from heavy weight, thick walls and roof of highly thermal resistant materials. However, from a climatic point of view, there are many advantages provided by the traditional house:

1. The courtyard played as cooling well inside the house. It was a thermal regulator during the night and day. (John, Nour)
2. Vegetation provided a shady place in the house and protected it from the wind and dust.
3. The delicate use of water helped in cooling the environment and added some humanity to the atmosphere.
4. Thick heavy weight construction, combined with small openings, usually at high level, used to give a sufficient delay to the heat passing through from the outside to the inside surface. The temperature of the inside surface of walls/roof will, not start to rise until the outside air has cooled after sunset.

5. The temperature in the ground floor rooms is relatively lower than that of the upper floor. Therefore, these rooms could be used during the hot day, while the upper floor rooms could be used at night.

6. For many months of the year it is possible to sleep outside under the clear sky, flat roofs were an ideal solution for this purpose.

7. When all the former devices failed to modify the inner environment, wind catchers “malkaf” were constructed to catch the air flow and cool it by evaporation before it enters the room. This process will be ideally achieved by allowing the air to pass over a porous pot filled with water.

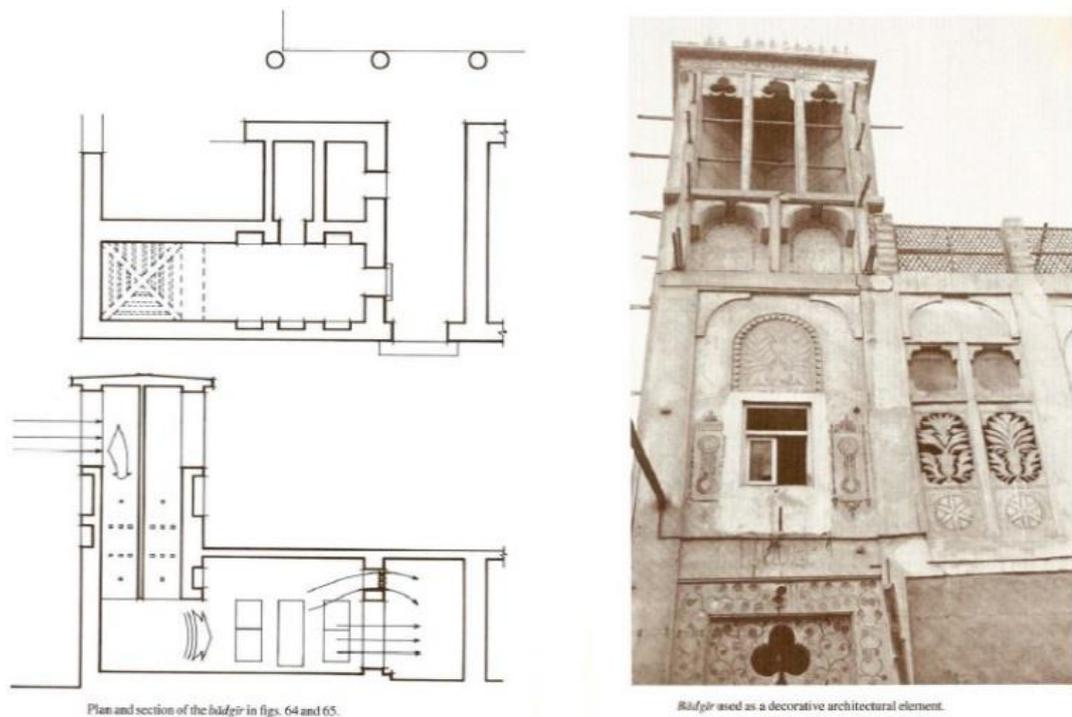


Figure 3.63 : Almalkaf, natural energy and vernacular architecture, adapted from (Fathi, 1968).

Thermal comfort of contemporary house

Unfortunately, the traditional Qatari house is now reversed. Contemporary but alien pattern of multi-story blocks have been recently adopted instead, which is depending on Western technology and patterns that have their origins in different climatic conditions not to mention the socio-economic ones.

Building materials have also been changed from traditional to contemporary ones which are mainly suitable for cold climates, and are not able to solve the problems of

housing where heat is the dominant factor. As a result, the new settlements of Doha lands are full of curtain-walled buildings and shutters, and facades are devastated by plugging air conditioners almost in every window.



Figure 3.64 : Contemporary construction types in Doha, adapted from (Url-74, 2013).



Figure 3.65 : Contemporary construction types in Doha, adapted from (Url-75, 2013).

The use of new materials is now adopted unthinkingly without analysis of its thermal function. They are introduced by reason of their durability, strength or even modernity. For example burnt brick or poured concrete are used in the exposed solid walls. They are usually too thin so the time of delay to the heat passing through from the outside to the inside surface is too short, and the temperature of the inside surface will heat up in the afternoon while the outside air is still too hot to bring any relief.

The simple fact that "six inches of reinforced concrete is the worst possible building skin to put between a human being and the external environment of the hot-dry regions" (Leniharn, 1980) .

Some wealthy people have attempted to ameliorate the situation and depended on air conditioning or other expensive mechanical means of cooling. But in addition to their efficiency in cooling the air inside the building, there are many problems associated with air conditioners:

If the air in a space is to be cooled, the whole space must be fully enclosed, otherwise the cooler inside air and the warm outside air will mix together. This obviously will decrease the efficiency of the air conditioner.

If doors and windows are closed, the fresh air needed by the occupants must be supplied mechanically, otherwise insufficient ventilation will occur.

The big difference between the internal and external atmospheres causes an uncomfortable situation for someone who has to move in and out frequently.

Air conditioners are usually noisy and rusting.

Last but not least, these devices of air conditioners are greedy in their consumption of electricity. Even in the rich states of the Gulf and especially Qatar state, the capital cost of them is considerably expensive.

3.3.3 Construction

3.3.3.1 Building materials and techniques

Traditional building in Doha

Building techniques were mostly dependent on the available building materials at the time which were varying from one region to another. In order to sustain and take advantage of the traditional know-how new models of built form and of direct interaction with the traditional modes of building need to be established (Pasic, 2011).

The Qatari people, everywhere they went, took the fullest advantage of the available materials, encouraged local craftsmanship and, of course, took regional and climatic conditions into consideration. Despite these local and regional differences, however, there was a distinct stamp in the architecture of Doha.

Lime stone was used when available. Clay/mud bricks were made by mixing mud with water and straw, it was largely used for building walls. The roofs were invariably flat, and are constructed of timber beams or palm trunks covered with cement or mud mixed with straw, reed or thatch.

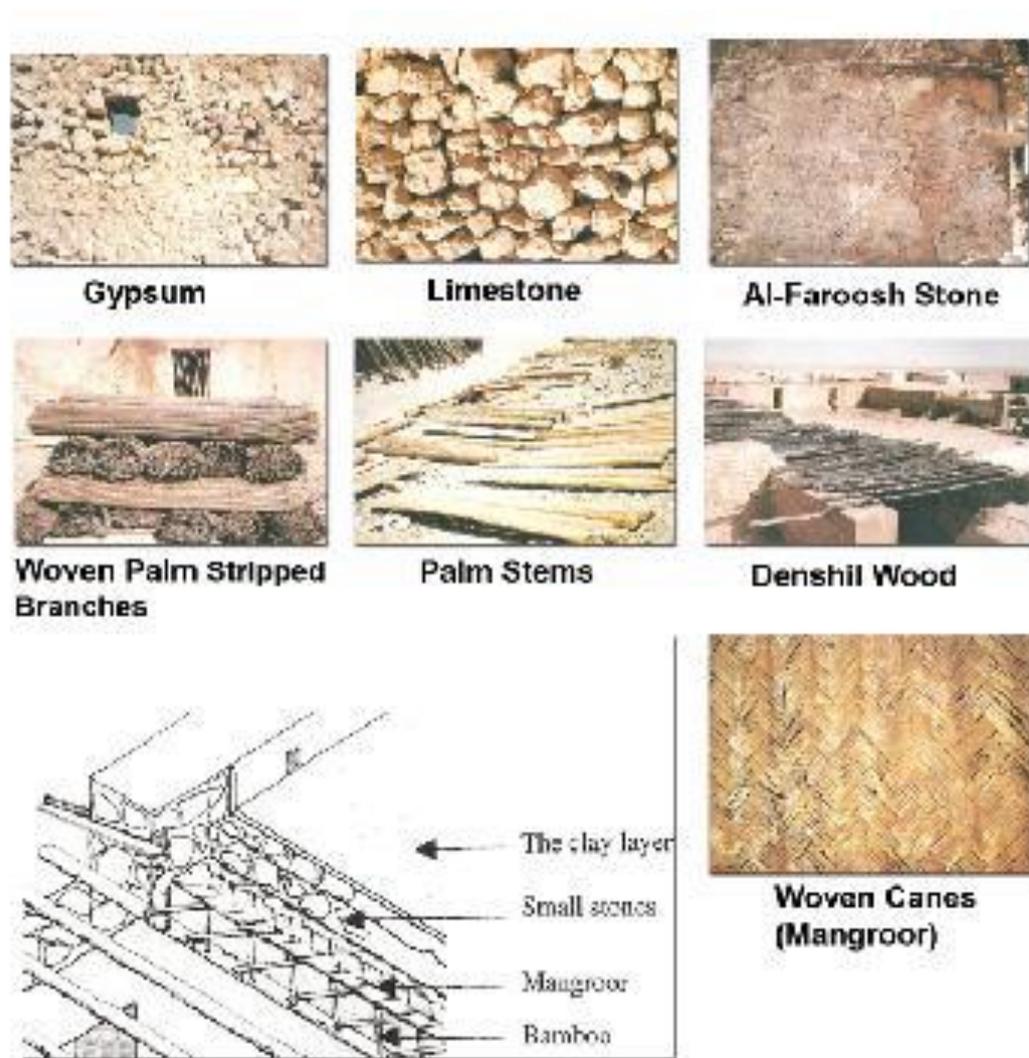


Figure 3.66 : Example of different materials been used in traditional Qatari architecture, adapted from (Language for Contemporary Qatari Architecture, Qatar University, 2010).

Advantages

These materials were available on the site of building varied from one region to another. The desert provided the clay for making mud bricks as the dominant low cost building materials.

The high cost of new building materials which has been affected mainly by the cost of importation and transportation were totally saved in the dependence on the local ones.

Construction methods were very simple to the craftsmen to whom every details of the work had become familiar over many years, for it was their own technique. They knew by heart the way of constructing every element of the building and the right proportion of it.

Unlike the concrete or other new building materials traditional materials like mud, stone and timber have high thermal resistance. This made it suitable to maintain the temperature within the house to an acceptable level in the harsh environment in Doha.

Disadvantages

Traditional building materials have short durability and life span. This is one of the disadvantages (which made it) unacceptable by people who prefer permanent houses with long durability.

Houses built by mud brick are subject to strong winds, storms and earthquakes. Therefore they are not resistant to the disasters.

Frequent maintenance is needed for the houses built with such materials. Traditionally, Qatari people used to maintain their houses every year especially before and after the rainy season.

Lack of standards required may occur. Since the traditional Qatari house is built by people, they may avoid openings for privacy. The thing which could prevent achieving adequate ventilation in some parts of the house.

Contemporary/industrial building in Doha

The contemporary building materials are mostly structural steel and reinforced concrete blocks and the entire surface covered with colored stucco. All of which are of low quality and structurally substandard for the environment. Pasic (2011) says, apart from the typological incompatibilities, modern Western architecture also shows a lack of consideration for local building technologies, due to its bias towards heavy industrial means of environmental control. He continues, Western tools and methods through a selective process of adaptation and gradual integration should be followed, guided by a strong awareness of existing local values and by an informed evaluation of the successes and failures of modern development trends (Pasic, 2011).

Depending on these materials the prefabrication building methods have emerged to take a major part in housing industry in Doha.



Figure 3.67 : Reinforced concrete and steel structure blocks, adapted from (Url-76, 2013).



Figure 3.68 : Reinforced concrete and steel structure blocks, adapted from (Url-77, 2013).

Advantages

They are suitable for mass production. They can help to respond to the urgent need for housing. In fact this is related to the large output of these materials, accompanied with the modern contemporary of construction in a given time.

They are suitable for setting good building standards. Prefabrication system can provide the acceptable standards for light and ventilation.

They are good industry for provision of future development programs such as hospitals, schools, universities, etc.

These materials are mainly introduced by reason of their durability, strength and the excess of forms it can produce. Their life span is ranging between medium to high (60 years) according to the quality, standards and maintenance of buildings.

Disadvantages

- The use of contemporary materials is often adopted unthinkingly without analysis of its thermal function. They are usually unsuitable for hot climate in Doha.
- High initial cost, unless large contract is needed.
- Small details are usually completed by traditional ways, which can affect the standard of the building.
- It provides a restricted range of choice. Highly skilled personnel is required, they might be unavailable in most of the developing countries.
- Mobility and high cost of transport of the products.
- Subject to be monopolized by some enterprises.
- The new methods of construction depend mainly on imported materials, skills and technology.
- Regarding the former, i.e. is not suitable for low-income groups.

N.J. Habraken has defined the disadvantages associated with prefabrication system in the following points. (Habraken, 1983)

- a) The economics of scale never really worked, and houses are always more expensive than expected.
- b) If an element is damaged during transportation or assembly, the project is either delayed or halted altogether.
- c) Mistakes cannot easily be remedied, loss of time.

d) Spare parts of the equipment are not available, they have to stand idle waiting for the provision of the parts.

e) Because units have to contain windows, doors and appliances that are easily damaged, vulnerability is increased.

f) It is difficult to make new designs compatible with established elements. The new designs are often not easily adaptable to quantity-oriented market conditions.

Table 3.4: Comparison between traditional house and contemporary one according to the design parameters in the previous study.

Parameters		Traditional house	Contemporary house
	Environmental adaptability	Understanding climatic factors and using available materials lead to solutions against heat inside the houses.	The only way to control heat is by means of technology.
Urban morphology	Financial adaptability	Traditional houses were different in size and shape according to the financial situation of the family.	Because of the high income of the Qatari and facilities provided by the State, a contemporary house does not tell of the economic status of families.
	Socio-economic adaptability	The design of traditional houses was suitable for the socio-economic environment and customs of the Qatari traditional society.	Contemporary houses are so different from the traditional socio-cultural heritage, but good for the contemporary practical life. The

			change of structure in the Qatari family lead to a subsequent change in house designing.
	Designing the house	The design is always made by the owner and his family. The building elements are chosen according to need.	The owner does not always participate in designing his house or choosing the elements. Other partners do the designing.
Architectural design	Flexibility of elements and architectural spaces	Traditional house has a flexible design, and the spaces could be used for many purposes. The courtyard, for instance, could be a place for cooking, sleeping or playing.	Contemporary house is not as flexible as a traditional one except for its spaces which are more, but each space can be used only for a specified purpose.
	Privacy	Traditional house provides high privacy because the house is directed toward the inside with the help of the internal courtyard.	Disappearance of the inside space in the contemporary house causes the house to lose privacy, and so a high wall is needed to surround the house.
Construction	Methods of construction	The builder; a (local architect) with the local	The family do not participate in building

manpower, uses simple their house. The traditional methods to process of building is build the house, quite done by specialist often with the companies which use participation of the contemporary owner's family. methods and foreign labor.

Construction materials which are Contemporary available in the natural structural materials environment of Qatar and are imported from that are suitable for the abroad and which climatic conditions of might not be suitable Qatar. The porous quality for use in Qatar, in of these materials is heat- addition to the need of resistant and they are not a lot of machinery and expensive because of their labor. light load.

To conclude the former comparisons between the traditional and contemporary development in the case study of Doha provide useful information which could help to identify and define the advantages of both types. However the following points are drawn:

1. Regarding the traditional social values which still exist in the contemporary sitting, the traditional house provides a high standard of privacy and help to strengthen the relationships between members of the community, whereas the contemporary house provides a lower standard of the same values.
2. The objectives of the traditional development were to provide the inhabitants and pedestrians with all means of satisfaction of Islamic requirements of family and social life, while the objective of the contemporary development are mainly exclusive for the materialistic issues, it provides vehicular access and convenience of rapid movement only.

3. The adaptation of built form to the physical environment is clearly seen in the traditional Qatari house form and settlement. In the contemporary settlements, this is totally abandoned by means of wide streets, multi-story buildings, and poorly shaded and defined open spaces.

Obviously, with some modification to our contemporary needs, the traditional type is the most appropriate alternative for housing development in "Doha". This alternative was developed over many generations of use and most closely approximates a satisfaction of social and physical needs in housing for people living in Doha city.

Consequently, if the organic principles of the traditional Qatari town can be evolved to accommodate our contemporary challenges and needs, it will reduce, to a large extent, the reliance on all means of public and private transportation, and a great reduction of traffic noise and pollution will be available. These advantages are simple to be achieved through a good understanding of the architectural heritage of compact architectural design.

4. CONCLUSIONS AND RECOMMENDATIONS

Parameters for the future architectural design of Doha/Qatar

This study has been put some conclusions, results and recommendations that tries to develop an optimal standards and design parameters for contemporary and future architectural design and housing design in Doha city. This will allows us to derive lessons to be useful in our professional practice now a days and in the future. Each design parameter addressed in this study was evolved according to the information given by the comparison between the traditional and contemporary architecture of Doha in the previous chapter. This process was developed by selecting the advantages of each value system as a design basis, and rejecting the disadvantages.

Architectural heritage in Doha evolved over long periods of trial and error. It took hundreds of years to gradually develop and refine the quality of space and environment. It is becoming apparent that in the next few years, with the use of intensive mass production in construction and the explosion of urbanization in Doha especially after the preparation of 'FIFA Qatar World Cup 2022', that the resulting architectural products will be irrelevant copies of the foreign-architecture. The new environments will have none of the original architectural sensitivity of their regions. No doubt, they might be efficient but certainly not human. It is perhaps easier to understand the basic principles and values of architectural heritage, but not so easy to find an adequate and appropriate solution for planning new cities and designing the new buildings of today.

Looking at the task of designing a housing scheme, the architect finds himself facing a practical problem that must be solved in a practical way; a problem of accommodating so many people so that they can pursue certain activities, comfortably, conveniently and economically, and at the same time with the feeling of pleasure in their surroundings. A new view of architecture must be obtained to fulfil this task. Arab architects, faced with new challenges “should not apply Western Concepts, which represent only one choice among the many possible to the problems. Instead,

they must go back to elementary traditional principles, separate the essential from the accidental and ask what is still relevant and what must be jettisoned. By doing so, they certainly would not wish neither to preserve everything in the past, nor to build new ones that are mere copies of the old.

So what is needed at this stage is to form an architecture which functions as the traditional one with new functions added to it. Hassan Fathy summarizes the role of the Arab architect today, he says “He must renew Arab architecture from the moment when it was abandoned; and he must try to bridge the existing gap in its development by analyzing the elements of change, by applying modern techniques modified by the valid ones of the past which were established by our ancestors, and then by working to find new solutions for these new elements” (Fathi, 1988).

The aim is therefore, to form a contemporary Doha/Arabic architectural language, and reduce building types and elements to the small number that the previous centuries were able to manage with, and of course, with regards to the present century.

The following design parameters are dealing mainly with the urban morphology, architectural design and construction. The objectives by this are addressed as follows:

1. The City is an organic process of human growth and should not be laid out immediately on a methodical grid without any concern of the natural and spontaneous growth sometimes.
2. Life style must be a key factor for the design.
3. Large area should be kept free of vehicles except under special conditions for emergency vehicles only.
4. Flow of air and shadings of sun should be considered in developing roads and public spaces. This could be achieved by providing arcades and awnings (movable covers).
5. Green landscaping should be used only where it is realistic in terms of available water.
6. Prefabrication techniques using precast concrete or simply block construction should be used in a flexible manner that will allow some level of individuality and uniqueness in each occupant to expand and add according to his own needs.

7. Local materials certainly should be used as much as possible in a manner that allows full expression and form in the finished architecture. But also new building materials and techniques must be used.

8. The main objectives should be the unity, harmony and continuity of space.

Design parameters

These design parameters are presented to express a generally varied principles which can be used over and over again. Since all of them deal specifically with Doha/Qatar, it is hoped that they may be particularly useful to architects, builders and policy makers in GULF region.

Urban morphology-urban fabric of Doha

Any discussion of urban design in Qatari environment must take account of tradition as described earlier, with some modifications to ideally function in the present time. A study of the traditional Doha's town helps to identify the important or common features of the urban design which should be considered in the planning of new towns or neighborhoods.

The principal elements of the traditional Qatari style as previously described, included narrow lanes (not wide enough to accommodate cars), the irregular street pattern, and the courtyard house, must be emphasized in the design. The traditional set of Arab/Qatari values for the development of neighborhoods and towns must be appreciated. These are:

1. The need for family privacy.
2. The need to maintain and enhance a sense of neighborhood social community.
3. The importance of introducing passive cooling features in the design and construction of the house.
4. The importance of providing a visual distinction between public and private places.
5. The importance of creation a hierarchy of spaces from first level or neighborhood spaces through second level or district spaces, to third level or village-town. To achieve this hierarchy of spaces we have to include the following elements in the design:

(1) The neighborhood spaces must be free of vehicles, and accessible only by pedestrian movement except in case of emergency need for rapid movement and vehicular access. Each neighborhood should have its own plaza or open space for neighborhood social contact.

(2) The district or quarter which might be composed of several neighborhoods could be defined by a set of surrounding streets which can have vehicular traffic movement. There is no penetration (except in emergency need) of the quarter.

(3) Residential quarters should contain all the social, cultural, commercial and religion activity necessary for the social and family life of their residents.

Urban morphology-streets

In the traditional Doha, and for centuries, the street provided city dwellers with usable public space, right outside their houses. Now, the modern city have made streets which are for “going through” not for “staying in”, and which are so unattractive to stay in, that they almost force people into their houses.

All this contributes to the fact that people in the new settlements feel isolated, insecure, detached from society. Therefore, careful consideration to the street should be accounted in the two plan. These considerations must regard three main features:

Street patterns

Street pattern should be irregular, they should follow the contours of the land. Irregularity of street pattern contributes to passive cooling and fosters the sense of privacy which is so important to Muslim family life.

The pedestrian world outside houses must be made into the kind of place where people ‘stay’, rather than the kind of place people ‘move through’. It should be partly enclosed, by partial or removable roofing; houses should open towards it, not turn their backs on it; and seats should be provided round the edges.

Street widths

Street widths should be as narrow as possible to facilitate passive cooling and shading of the neighborhood or town. Whenever possible, street widths should be so developed as to prevent vehicular penetration of neighborhoods. Neighborhood or district streets should be pedestrian whenever possible. Within the pedestrian streets, a hierarchy of public social spaces must exist which provides residents with a convenient means to

move from one level of activity to another. By so doing, the street acts not only as a connector but also as an integrator of spaces.

Major streets

Street arcades should be used whenever street widths are too great to permit shading. Commercial areas should be located whenever possible, along arcaded streets.

Through traffic in the new developments is fast, noisy and dangerous. At the same time, cars are important, and cannot be excluded altogether from the areas where people live. To safeguard these areas, the roads must be laid out to discourage all through traffic.

The road network must be designed in such a way to accommodate only local traffic. Through-traffic must be directed around the town. Parking for automobiles could be provided principally within a series of parking lots or bays. This way will eliminate vehicular traffic from the central streets of the town, and the development of a pedestrian street system. Thereby increasing safety for all the inhabitants.

Architectural design-house design and form

From the comparison between the traditional Qatari house and the contemporary Qatari house, it is precisely seen that the traditional house was, and in many aspects still is the perfect solution for the existing culture and people with their surrounding environment. Yet it is not functional enough for the people who are going to occupy it now, or in the near future, because of the new needs and life style of those people.

The contemporary Qatari house, on the other hand, has got its advantages in the present time in terms of speed and efficiency. But it is unlikely to serve the socio-cultural needs of people.

A comparison of both types is needed for housing designs which should attempt to accommodate the important social needs for privacy and for neighborhood social life in opposition to the values adopted in many of the new housing states. At the same time, the house should be mainly influenced by the urban environment and the conditions it imposes. This will result in two things; the size and shape of the house will be affected by the changing family structure and changing of life style, as it is mentioned in previous chapter.

“The idea of the house as a dwelling, an adobe within a fixed territory is being altered by the smaller family structure and its constant movement” (Fathi, 1988).

Therefore, the architect has to adapt his knowledge to take on the problems of changing in the society and the life style. He also had to adapt the inherent functionalism of traditional Qatari architecture and urban form to demonstrate an alternative to current urban expansion processes through use of vernacular architecture, as far as possible, with its intrinsic qualities of privacy, fitness or appropriateness for local climatic conditions and spatial form. This could be achieved by implementing the essential features of the Qatari dwelling unit which are:

1. The dwelling is attached to its neighbors: thus there should be a continuity in the building facades.
2. The building is introverted. The focus for the arrangement of interior spaces must be the courtyard.
3. The dwelling is low-rise, usually consisting of one or two story and a roof terrace. The overall spatial arrangement for the new housing schemes must be characterized as low-rise high-density developments. Housing shall conform as much as possible to the form and spirit of the traditional vernacular Qatari style.
4. The use of active and natural cooling systems rather than artificial ones. The system which has largely vitiated the strength of traditional Qatari Urban form. The introverted character of the building design and lack of space between buildings contributes to passive cooling and shading.
5. Extendibility and adaptability.

In fact, we can now do much more than was possible in the past, and critically is lower than ever. We have both the experience of the past and the present. The problem is the excessive choice that we have, and the difficulty of selecting or folding constraints-which arose naturally in the past and which are necessary for the creation of meaningful house form today.

Therefore, the objective is to provide a synthesis of Western design technology and traditional values for urban living. Great emphasis has been placed upon identifying the critical urban values associated with tradition and how these can be incorporated

into a modern urbanization plan. It is hoped that in this way, new development firmly anchored to past experiences and cultural traditions can be achieved.

As we have already seen, the courtyard house is of paramount importance in fostering the physical setting for Qatari family life because it permits the orientation of the room toward the interior of the site. This introverted focus for family life enhances the sense of privacy demanded by Islam; In addition, the courtyard house is extremely well adapted to the climatic conditions of the hot, arid Arabian environment (Fathi, 1986).

The design of the courtyard in terms of proportions is very critical. In a two story house, if the courtyard is too small, the rooms are dark and gloomy; if the courtyard is too open, the light is harsh and pleasant. It is difficult to calculate this effect by means of daylight factors.

Awnings (movable covers) were traditionally used very efficiently for covering private as well as public spaces. The house, the courtyard and the semi-private places could be sealed against wind, cold, low and direct sunshine by the use of movable awnings.

The process of watching the street from upper story window is strongly embedded in traditional Qatari culture, in the form of Masharbiyya, the beautiful ornamental gallery which sticks out over the street from many buildings.

When contemporary houses have windows facing onto the street at lower levels, they are always boarded up, heavily curtained and screened by curtains, shutters, blinds, paint or other opaque materials. People are extremely private, they do not want passers-by to see into their houses. Therefore, it is important to take this point in the future Qatari house.

Construction/building materials and techniques

The introduction of new materials such as structural steel and reinforced concrete, and the technology which accompanied them, should not produce a revolution in the Doha's architecture and new styles. They have to represent the natural development of traditional architecture in a contemporary form.

Without proper understanding of or empathy for the cultural, social and religious characteristics of Doha, Western technologists and architects propose the direct use of Western mass production which followed imported materials and techniques. Such an

approach, applied first to the overall plan of the new Doha's neighborhoods, and then to the placement of complete look alike buildings creates a totally alien environment.

Some people may argue that the change of materials and building methods will necessarily change the form of the architecture. They may also suggest that the use of reinforced concrete will directly led to high-rise buildings and prefabricated systems. But those people must understand that it is proved that just because man can do something does not mean he will do it. Therefore, two major points are to be considered regarding Building materials and techniques:

1. Now, we know more exactly than our ancestors how materials behave in different circumstances, and we have a number of new materials. For both these reasons our vocabulary is greater, and we have to use it in full by applying the modern techniques and materials with the use of the valid ones inherited from the traditional methods. This will impress and distinct the architecture of each region with a different impression according to the availability of building materials in Doha city.

2. Materials, construction, and technology are to be treated as modifying factors. They do not determine what to build or its form. They may facilitate and make possible or impossible certain decisions, but never decide or determine form.

Results:

- Heritage and contemporaneity are not opposites; there is a wide common area of innovation and modern thoughts between them, in respect of local identity which inherited from social values.
- The poor quality of Arab architecture at present is a clear reflection to the socio-intellectual status and our fading culture. Arab architecture currently lacks a generation of architecture that can manage to reflect it as a socio-visual culture in the future.
- Inherited architecture in Arab cities is rich with architectural principles originated from the adaptability with place, environment, climate and human scale; which are indispensable parameters to achieve a current efficient architecture with distinct features.
- We should not think of inherited architecture as an architecture of elements alone. It has an abundance of values and concepts that can create an architecture to satisfy our needs. Inherited Arab architecture is a three-dimensional philosophy: functional, adapting with climatic and environmental conditions and developed. In addition, inherited architecture is a group of varying principles, which should be used with new developed technology. The inherited principles of intellect could be used along with the advanced technology and economy should be allowed in the architectural curriculum.
- Forming the new architectural appearance for contemporary architecture is not to be done by dispensing with inherited architecture but by consulting its principles.
- Handling the contemporary architecture and architectural condition will not come true just by heraldry or taking for granted the principles of westerner pioneers. It is to be noted here that these principles are contradictory to one another though each one can be true in itself.
- The high building should not hinder using the courtyard and there should be intelligent thoughts and non-traditional solutions regarding the use of this utility in contemporary architecture.
- It is possible to benefit by inherited architectural thought as it can lead us toward a genuine and sustainable contemporary Arab architecture adapting to time and place.

Future research

This research is a first step to encourage the evolution of contemporary architectural patterns and houses design in Doha city, through the analysis and comparison between traditional and contemporary local architecture. This is followed by a developing of optimal standards in respect of nature and culture. The learning from the previous architectural experience is very important to reach a sustainable architecture for the Doha city; this is an overwhelming concern at present especially after the polices to accelerate the construction pace to meet the FIFA Qatar World Cup in 2022.

Although most of the Arab governments seem convinced that industrial building systems and multi-story housing projects provide the best response to housing deficit, it is our duty as architects to guide them towards an appreciation of the beauty of traditional architecture. Hence, there must be more open discussions between local architects and politicians, administrative and construction industrials. It is hoped, therefore, that this study will contribute to revival the spirit of the traditional Arab architecture.

Recommendations

- An invitation to authenticity and breaking the chains of foreign influence by accurately understanding the elements and units of traditional architecture, and analyzing them.
- Confirming the authenticity of Arabic architectural heritage and its concrete breakthrough which is based on Arab values.
- Not taking after the fashion of foreign architecture as if it is a fixed rule and suitable for any time and place.
- Studying the thought and designs of contemporary Arab pioneer architects and analyze them scientifically with no sense of tribalism to benefit from them.
- Opening the eyes of next generations to the true rich architectural heritage we have that can spare us the use of a rapid unknown architecture.
- Using contemporary technology to form new architectural principles for the essentials of architectural thought.
- Taking into account the materials which cope with the environment, policy and socio-economic status in the Arab World.
- Activation to the role of rewards which motivates architects to make the features of inherited architecture obvious.
- Stressing liability of the government in maintaining contemporary and contemporaneity of current state buildings.
- Re-examining the legislations which slows down the architectural creativity.
- The need of fresh evaluation to syllabus of architectural education to help students implement heritage in educational projects, and they can use this experience in real work after graduation. It is important to speed up finishing the curricular-academic studies to classify heritage constants, analyze them comparatively and then refer them to their causative factors. The genuine of these constants should be developed for applicability in our contemporary architecture.

- It is known that residences are made out of the need of people who live in certain societies. It is crucial to lessen upper-floor buildings to balance population density and prevent psychological diseases of high buildings.
- The economic factor is to be considered when designing public buildings. An appropriate technology which observes the economic capacity of the society can be used with little importing from outside. Glass should not be overused in building as it increases the heating load of the building and natural light and air should be taken into account when designing a building because this will lessen the need of electrical power.
- It is the duty of the architect in the Arab World to establish a unique form of architecture which is suitable for Arabs benefiting from socio-economic and natural resources. He should, by far, avoid copying least widening the gap between our architecture and real situation, and in order to make of the Arab World a creative one.
- A contemporary architect should represent the past, present and future in his works and designs as this, undoubtedly, tells of his own architecture and the identity of his homeland.

Last but not least, having had a magnificent architecture in the past, Arab architects must bear in mind that their contemporary and future designs should be rooted within a spirit of Arab traditional architecture.

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APPENDICES

APPENDIX A: A case study: Al Musheireb neighborhood rebuilding project

APPENDIX A

After reviewing the inherited traditional and contemporary architecture in Doha city, it was noticed that the city has been engulfed by stereotypes of unidentified styles, which created the iconic city. Nevertheless the following attempt by Mushieb, tries to focus on Quatrain cultural architecture in the old downtown of Doha.

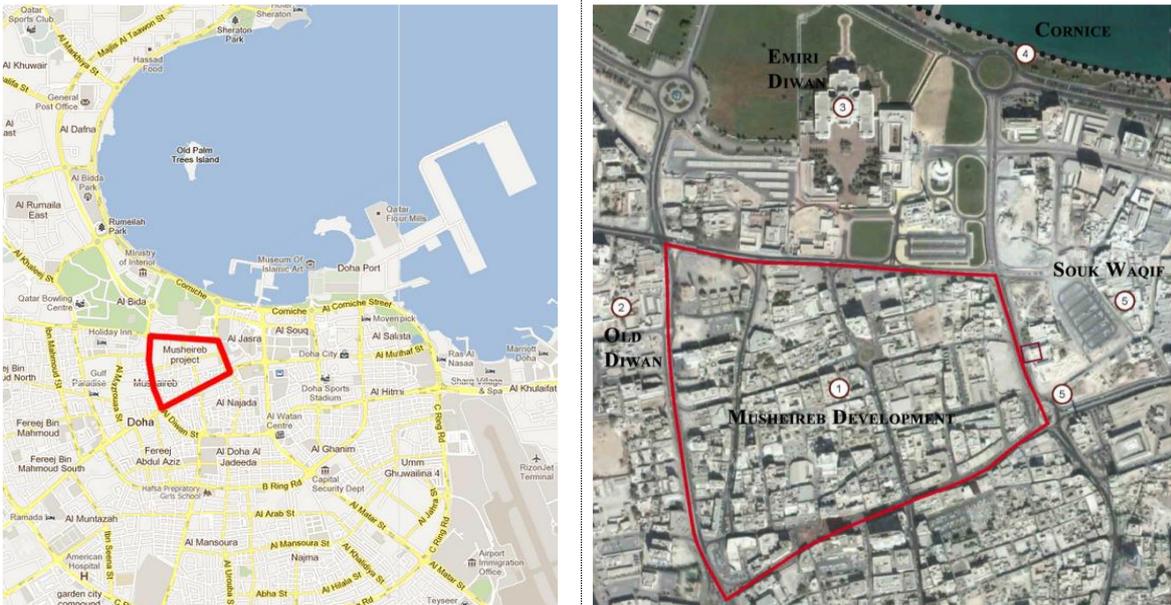


Figure A.1 : Location of Musheireb development, also known as “the heat of Doha”, adapted from (Url-78, 2013).



Figure A.2 : The fabric of the current downtown with the Dafna area located on the opposite side of the bay, adapted from (Url-78, 2013).



(a)



(b)

Figure A.3 : (a) Musheireb development sustainable master plan; (b) Massing study, adapted from (Url-78, 2013).



(a)

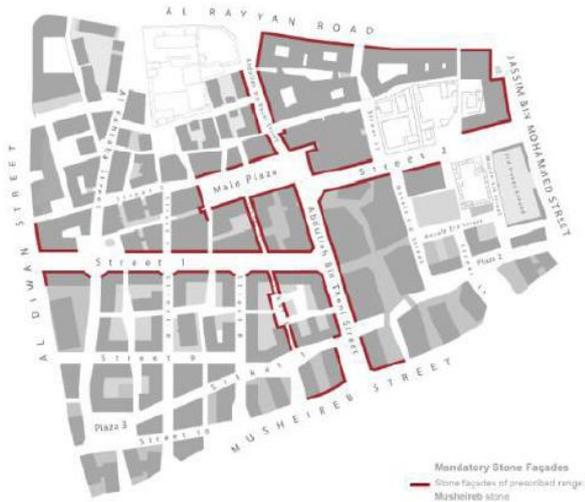


(b)

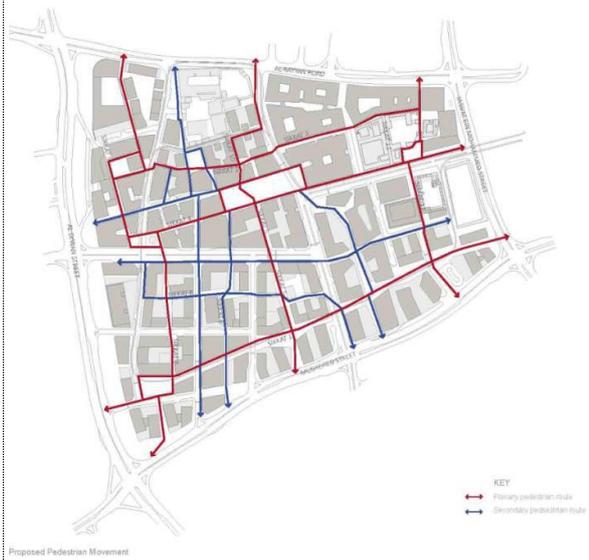
Figure A.4 : (a) Musheireb old fabric; (b) Musheireb development proposed fabric, adapted from (Url-78, 2013).



Figure A.5 : (a) Skyline of Musheireb development; (b) Skyline 2010 as seen from Musheireb development location, adapted from (Url-78, 2013).

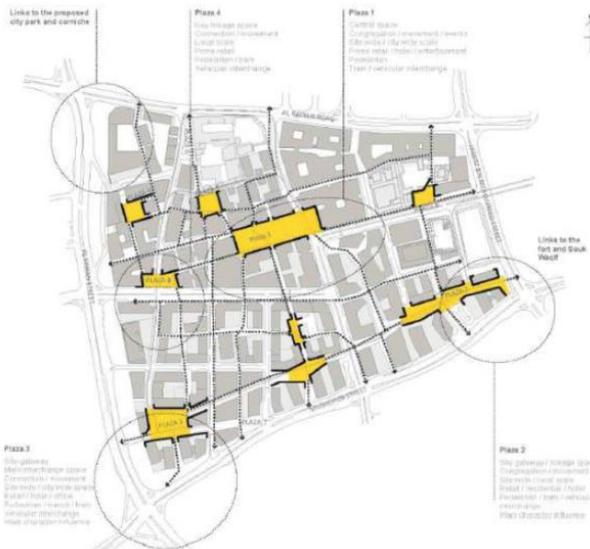


(a)

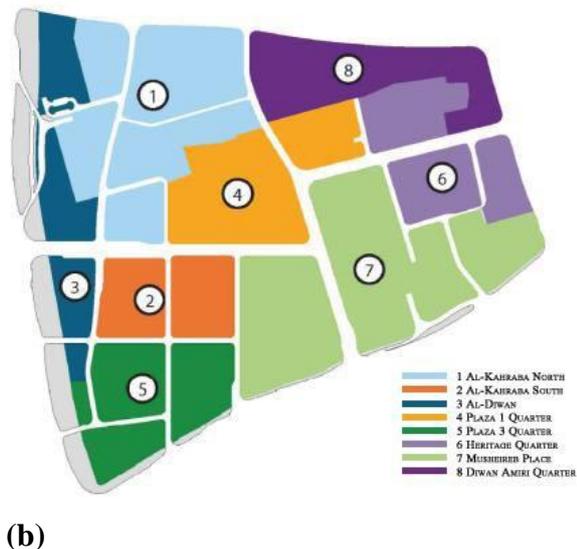


(b)

Figure A.6 : (a) Musheireb development major paths; (b) Pedestrian paths, adapted from (Url-78, 2013).



(a)



(b)

Figure A.7 : (a) Musheireb development nodes (Doha Land, 2010); (b) Musheireb development districts, adapted from (Url-78, 2013).

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