

Vernacular Architecture in Saudi Arabia: Revival of Displaced Traditions

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ABSTRACT: Since 1950s Saudi Arabia has undergone immense changes in its social, economic and physical environments as a result of the dramatic increase in its national income that has accompanied the development of the oil industry. In less than half a century, Saudi Arabia has been transformed from nomadic and rural societies into modern urban ones. As a result of the extensive adoption of modern technologies and urbanization, most Saudis had fast quitted their vernacular traditions or lost functional relationships with it. The paper aims to examine traditional design and construction methods in three regions of Saudi Arabia (Western, Eastern and Central), how they had been abandoned and almost disappeared in the past 60 years or so, and the recent formal and informal efforts to revive and reinvent those traditional design and construction methods.

1 INTRODUCTION

In the past six decades or so, Saudi Arabia have undergone immense changes in the economic, social and the physical environment as a result of the dramatic increase in national income that has come with the development of the oil industry. The extensive adoption of modern technologies, urbanization, rapid development and modernization has resulted in major social and economic transformation in the Saudi society. In less than half a century, the Kingdom has been transformed from nomadic and rural societies into modern urban ones. These transformations has had a great impact on inhabitants' life style and their needs from the built environment. As a result of these dramatic changes, most of the people had fast quitted their local traditions or lost functional relationships with it. Some research showed major concerns about the swift and radical disappearing of local traditions in the Kingdom (Al-Naim 2011, Al-Ibrabim 1995).

Vernacular traditions are vulnerable in the face of the strong waves of modernization and globalization. In response, research on vernacular architecture has focused on studying, documenting, and preserving historical and traditional buildings before they lost. Such research tend to deal with vernacular architecture as static and place-specific entities from the past. This paper aims to go beyond this static concept of the vernacular by examining the role of vernacular traditions in contemporary architecture of Saudi Arabia and their positive contribution in providing more sustainable buildings for the future.

The paper attempts to review traditional design and construction methods in the different regions of Saudi Arabia and the recent formal and informal efforts to revive and reinvent those traditions in response to the social and physical context of the region.

The rest of the paper is organized into the following main sections. Part two examines vernacular architecture in the three regions of Saudi Arabia and how they responded to the social and physical context of the region; part three examines and analyzes the various vernacular traditions that have been abandoned in modern architecture of Saudi Arabia. Part four examines the recent formal and informal efforts to revive and reinvent Saudi vernacular architectural traditions.

2 VERNACULAR ARCHITECTURE IN SAUDI ARABIA

Saudi Arabia is a large country thus has well established vernacular traditions in different regions. Most researchers (King 1998, Ishteaque & Al-Said 2008) divide Saudi Arabia into four regions that differ in their architecture style, construction techniques, and materials. These regions are:

- 1) The Western (*Hijaz*) region, a hot humid coastal plain along the Red Sea.
- 2) The Central and northern (*Najd*) region, mainly a vast hot dry plateau in the center of the country.

- 3) The Eastern region, a hot humid region along the Arabian Gulf.
- 4) The Southern (*Asir*) region, a high mountainous province to the southwest side.

Vernacular architecture in the four regions is starkly different. The four vernacular styles were evolved over time to create a comfortable living environment in response to multiple factors such as harsh climate, culture, economy, and availability of local building materials (Ishteeaque & Al-Said 2008). The main vernacular architectural styles and their basic building techniques in the four regions are summarized in Figure 1.

The paper will focus on three regions (Hijaz, Eastern, and Najd) as case studies to represent the essence of the study, which builds its argument based on the literature review.

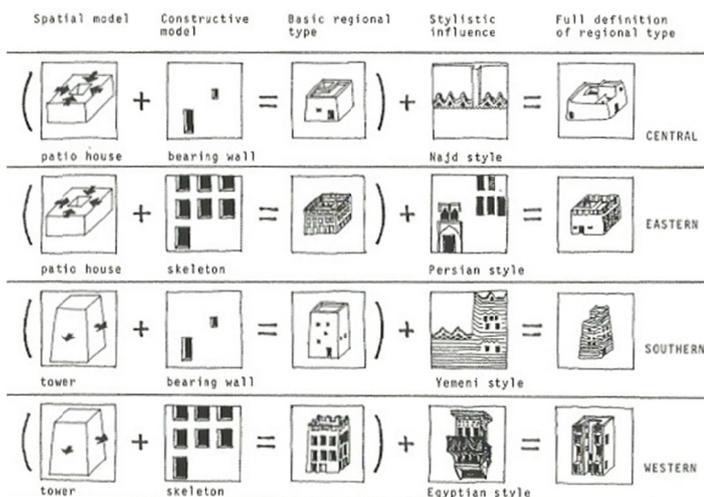


Figure 1: The Basic Equations for Regional Architecture in Saudi Arabia (source: Ishteeaque & Al-Said 2008)

2.1 Architecture of the Western Region (Hijaz)

The Architecture in this region has a unique character as found in major cities such as Makkah, Madinah, and Jeddah. Although these cities have slightly different climate conditions (i.e. hot-dry in Makkah and Madinah, while hot-humid in Jeddah), however, the traditional Architecture exhibited in such cities follow common design attributes.

Researchers (King 1998, Taleb 2001, Ishteeaque & Al-Said 2008) showed that traditional architecture in Hijaz region attends to the hot-humid climate by adopting the following sustainable techniques:

- Developing multi-story buildings (five to six floors). These are extroverted towers in which functional rooms were positioned toward the external facades with windows to allow cross ventilation in each floor. Sleeping rooms were typically located on upper floors to take advantage of land and sea breezes.
- Installing Mashrabiyyahs as a unique sustainable solution that allow natural ventilation while providing the required privacy.

- Using a structural skeleton of massive coral columns, and with wooden floors and roofs.

Hijaz and its strong ties with international trade lines and pilgrims have influenced the way Hijazi societies live and build, resulted in importing some building materials and techniques not available locally (such as the concept of Mashrabiyyah which is an Egyptian influence), and in general have resulted in a superior quality architecture compared to other regions of Saudi Arabia (Taleb 2001).

The Mashrabiyyah installed on exterior wall were developed for two main functions; to provide privacy to the residents; and to naturally ventilate the interior spaces (Fig. 2a). The construction materials in Western region include coral stones, volcanic stones, wood, and gypsum.

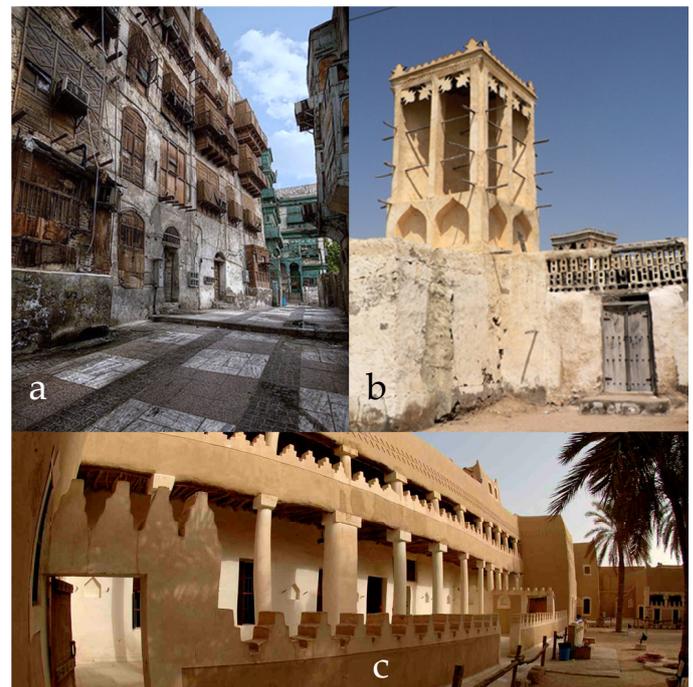


Figure 2: Elements of Vernacular Architecture in Saudi Arabia - a: Western, b: Eastern, and c: Central (source: non-copyrighted images from the internet)

2.2 Architecture of the Eastern Region

The coastal areas along the Arabian Gulf exhibits extreme weather, during the summer months with persistent high heat and humidity. The main building material was coral aggregates coming from the Gulf with walls that were plastered and painted white. The traditional house design was a courtyard style with rooms opening on it, and arcaded verandahs around it. The buildings are distinguished from other regions in Saudi Arabia by fine gypsum decoration inspired by the Architecture of neighboring countries of the Gulf and Iran. A distinct passive cooling technique using wind towers (locally called Badgeers) found in Iran, Bahrain, Qatar, and Emirates was also used in many buildings of the Eastern region (Fig. 2b).

According to King (1998) and Ishteeaque & Al-Said (2008), a typical house in the Eastern region responded to climate harshness by maintaining the following characteristics:

- One to three stories height, with houses massed together to create narrow passages.
- Thick walls for greater heat resistant.
- Layered roofing system of wooden beams, and palm trunks covered with palm leaves.
- Installation of wind catchers (Badgeers) to create natural ventilation.

2.3 Architecture of the Central Region (Najd)

Typical houses of the Central region (Najd) are introverted type where the house is built around one or more courtyards that are normally a pure geometrical form of either a square or a rectangle. The courtyard serves two functions: microclimate moderator and maintain the family life privacy life. As a microclimate regulator, the courtyard produce three air movement cycles in the house creating a desirable comfort level to the residents. This is because the fluctuation of temperature between day and night varies from 10c to 20c (Fig. 2c).

The traditional construction material in the Najd region was earth in the form of sun-dried mud bricks. The mud also used as a plastering material for internal and external walls which, in essence, proved suitable for the sandy weather since building colors remain unaffected by the weather (Facey 1997). Walls are load-bearing walls with limited small openings. External walls were thick (about 80-100cm at the base) which acted as highly effective insulation from excessive heat in summer. The prominent features of Najd vernacular architecture can be summarized as follows:

- Houses are generally arranged around courtyards that act as lungs of the houses to regulate the micro-climate.
- Houses have a compacted design where houses were built with shared sidewalls (sometimes from three sides) so they shade one another reducing the solar heat gain and glare.
- Small opening were arranged on the exterior walls to allow air circulation to the court while maintaining the privacy.
- Triangular-shape decoration and Sharfat on top of wall parapet are two prominent feature.

3 DISPLACED TRADITIONS: ABANDONING LOCAL/VERNACULAR TRADITIONS

During the past six decades or so, Saudi Arabia has given high priority to modernization, industrialization and urbanization. The rapid development and

modernization in the Kingdom has resulted in major transformations in the economic, social, and physical environments. These dramatic changes have resulted in eroding and abandoning vernacular traditions, and particularly traditions related to vernacular architecture. Below is an outline and analysis of some aspects of the vernacular traditions that have been abandoned:

3.1 Building and Zoning Regulations

One of the main reasons that led to disappearing of the vernacular traditions in Saudi Arabia is the adoption of new Western building and planning regulations without taking into account the particularities of the region. Since early 1950s, Western building regulations and zoning ordinances have been applied to the Saudi built environment without any consideration for the region's long traditions particularly the building regulations history that extended to hundreds of years.

One of the earliest projects that has adopted the imported Western building regulations is al-Malaz project, a 500-acre satellite suburb near Riyadh completed late 1950s. Al-Malaz project has introduced for the first time the gridiron and hierarchic pattern of streets, the square land lots, the setbacks on all sides of the lot, and ignored the local built environment traditions.

Since 1968, when Doxiadis started planning Riyadh, the Saudi government initiated tens of plans for most of the Saudi cities, based on Western Modern physical planning principles with little or no attention to the long planning and regulations of the Arab Islamic cities or to inhabitants' social and cultural attributes. Since then, foreign urban planning concepts have been applied heavily and replaced all local planning regulations. These regulations, as we will show in coming sections, has changed the contemporary Saudi cities and led to the disappearance of Saudi vernacular traditions on a vast scale.

3.2 Building Materials and Construction Methods

The movement of people from rural areas to cities has resulted in an unprecedented population growth in Saudi cities and urban centers. The level of urbanization in Saudi Arabia has increased from 10% to 75% between the years 1950 and 1992 (Mubarak 1999). To accommodate the rise in demand for new buildings, the government and large companies such as the national oil company ARAMCO (the Arabian American Oil Company) had abandoned traditional building materials and turned to imported building materials and modern techniques. Contemporary manufactured building materials, imported design styles and building techniques have become the new paradigm; symbolizing modernity, prosperity, and social status. Furthermore, government moderniza-

tion programs and media encouraged the adoption of the new imported building types, and the techniques and building materials associated with them (Fadan 1983).

Till mid-twentieth century, the Saudis used to build their buildings using natural construction materials (such as mud, stone, and wood) mainly obtained from the local environment and used according to traditional methods. The vernacular traditions of construction, as detailed in Section 2 above, remained the prevailing approaches used in residential buildings until late 1960s (Mubarak 1999). For example, by 1968, residential buildings built with mud comprised 46% of the Riyadh city compared to 34% built with cement block and concrete. In 1992, the percentage of residential buildings containing mud has dropped down to 1% (Mubarak 1999).

3.3 *The Saudi house*

The traditional Saudi house in many regions, an introverted complex build mainly of mud and/or stone, has remained the main type of residence in use until 1950. The detached villa and apartment buildings as new foreign types of residence were first introduced in 1951 by ARAMCO in its Home Ownership Plan in cities of al-Dammam and al-Khobar, and in al-Malaz suburb of Riyadh built by the government during the 1950s. The villa has been adopted by the majority of the Saudi population and became the popular residential type for the upper middle-class in the 1960s (Al-Naim 2011, Al-Gabbani 1984).

The adoption of new imported residential types (villa and apartment buildings), building techniques, and construction materials had changed the perception of the Saudis of the house and its requirements, and as a result, the traditional Saudi house was no more the preferred house solution (Boon 1982, Al-Naim 2011).

The current Saudi villa is a kind of hybrid; it is the imported Western villa appropriated to fit the Saudi family needs. For example, separate male and female reception rooms were built in the front part of the villa to accommodate traditional hospitality and gender segregation. A family living area is introduced within the house for informal family activities instead of the traditional courtyard.

3.4 *Courtyards and Mashrabbiyah*

In modern Saudi architecture, it is hard to find surviving examples of traditional vernacular elements such as internal courtyards, Mashrabbiyah, wind towers, small openings, and shaded passageways. In addition to other functions, these traditional architectural elements has major role as passive cooling elements. These traditional passive cooling elements have been substituted by modern air cooling tech-

nologies that enable an effective protection against the Country's boiling heat and humidity.

The harsh weather of the country (for five months of the year, the temperature can range from 39– 45 centigrade with close to 95% humidity in coastal areas) make it a must to use cooling methods – either passive or active. While traditional vernacular architecture has used successfully well-established passive cooling techniques to modify the country hostile climates, modern architecture in Jeddah, Riyadh and other Saudi cities has ignored these passive cooling techniques, and turned toward unsustainable solutions of modern mechanical cooling systems.

The courtyard, an important feature of domestic architecture in Saudi Arabia has almost disappeared in modern times because of adopting inappropriate building regulations that allowed the building of high rise buildings near courtyard houses which violates the neighbor rights of private life in the courtyard of his house. In modern houses, courtyard has been replaced by an outside space or garden in which privacy is lacking because of the small setbacks that cannot prevent neighbors of seeing over this space (Al-Ibrahim 1990)

3.5 *Loss of Identity*

Abandoning vernacular traditions in the Kingdom was so swift and on a vast scale during the 1950 and 1960s. Many architects and researchers have pointed out the dramatic loss of identity in the Saudi built environment (Al-Naim 2011). Ben Saleh (1980) pointed out that "Recent buildings have lost their traditional identities and have become hybrids of exotic character in their architectural form, main concepts, arrangement of spaces, organization of elements, and building techniques employed."

Abu-Ghazze (1997) has pointed out that modern architecture in Saudi Arabia is seem to be "culturally destructive". He criticized the desire of Saudi architects to reflect images of economic and technological development through the adoption of Western images and designs. Other researchers indicated that fascination by Western life-style have drawn Saudi attention away from developing a clear and concise understanding of the evolution of a traditional living environment (Fadan 1983).

4 RECENT FORMAL AND INFORMAL EFFORTS TO REVIVE AND REINVENT VERNACULAR TRADITIONS

As pointed out in previous sections, urban developments in Saudi Arabia during the 1950s till late 1970s has been characterized by abandoning local traditions and adopting imported Western ideas. In 1980s things have changed. In an attempt to search for an identity for the Saudi urban environment, sev-

eral architects have adopted local as well as Arab-Islamic traditional elements and concepts in their designs (Al-Naim 2011). These efforts somehow echoed postmodernism and regionalism movements, which are the prevailing international architectural trends in that period. These approaches aimed at creating regional identity in architecture based on utilizing traditional or vernacular elements (See Figure 3). It worth mentioning here that foreign architects and engineering firms were the pioneers who introduced such approaches to Saudi Arabia.

In addition to formal architecture led by local and international architects, informal (popular) architecture in Saudi Arabia is also tended to utilize and incorporate lots of traditional elements. Using of traditional elements in architecture by ordinary people shows that they are interested in reviving and/or continuing the particular and the local. Contemporary popular architecture in Saudi Arabia is characterized by heavy use of architectural elements and vocabularies borrowed from vernacular traditions. Below we will outline and analyze some of the recent practices used to revive and re-invent vernacular traditions in Saudi Arabia. These practices are as much the product of the clients as the architects:

4.1 Incorporating Traditional Elements

Saudi architects and ordinary people (as reflected in informal or pop architecture) have adopted and incorporated preexisting elements and treatments from the traditional architecture of the various regions in Saudi Arabia. For example, using sawtooth parapet, small triangular windows and some triangular relief decoration are very popular vocabulary in contemporary formal and informal Saudi architecture, especially in the central region (Fig. 3c & a). Mashrabiyyah (Fig. 3f) and wind towers (Fig. 3b & d) are other vernacular elements that have been used extensively in contemporary buildings. Although Mashrabiyyah and wind towers were originally designed and used in residential buildings, recent applications of them mostly were in commercial and public buildings and in some cases in houses of the wealthy.

Many of those applications are aimed at maintaining the Saudi identity in the built environment (Boon 1982, Al-Nowaiser, Al-Naim 2011). The argument is that through using local vernacular elements in contemporary Saudi urban environment, a genuine local identity will be created. The resulting architecture is usually called neotraditional architecture as it aims to inventing or re-inventing the past traditions. However, as we will point out latter, this neotraditional approach has been criticized by many architects and researchers for the bad /unskillful use of traditional elements.

4.2 The Use of Earth and Other Natural Materials as Construction or Finishing Materials

As part of the efforts to revive local traditions, there has been some attempts to expand the use of local materials such as sand, mud and stone. In these contemporary attempts, mud has been used as construction material or as finishing material. In the latter approach, the building will be a modern one with a steel or concrete structure that enable large span spaces. However, the exterior facades of the building are finished with mud to give it a traditional appearance. Furthermore, since mud tends to erode badly with rain, in many cases it will be sprayed with a thin coating of transparent polymer to make it waterproof.

In Saudi Arabia, the efficient use of the earth's resources is not a luxury, but a necessity. Four fifths or more of the country is barren desert. Scarce water resources and a population which is one of the fastest growing of the world make the region most vulnerable to climate change. Work with mud needs skills that have disappeared since long time. To build local capacity, Al-Turath Foundation (a non-governmental organization promotes traditional architecture) has conducted continuous training programs to train skilled workers in mud construction.

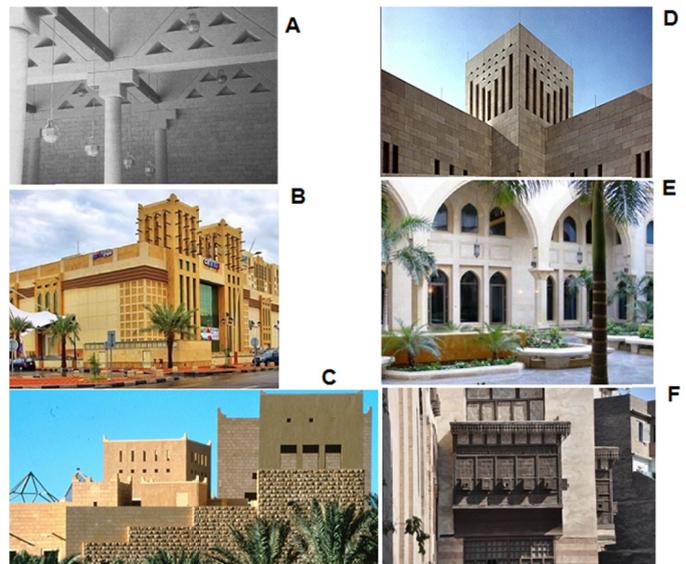


Figure 3: Examples of contemporary buildings that utilize vernacular elements (source: non-copyrighted images from the internet)

In late 20th century, local natural stone has been used extensively. Local stone from Riyadh and other regions has been commercialize as a local construction material and is being used more and more in residential and public buildings. Another approach that has been used is to give buildings the color of sand or mud. The rational is that using colors of local traditional materials such as sand, mud or stone gives the building a local character.

4.3 *The Use of Courtyards*

The central court has been reintroduced in many contemporary governmental, commercial and residential buildings (Fig. 3e). However, since these buildings are entirely air-conditioned, in most cases the courtyard has been enclosed and separated by glass walls with doors to access. In other cases, the courtyard is covered by a roofing structure or skylight and thus becoming an internal space within the building. In both cases the courtyard has lost its social and passive cooling purposes. In addition, the courtyard is used in commercial, public and governmental buildings but rarely in residential buildings, which was the context in which the courtyard concept developed in Saudi Arabia (Al-Ibrabim 1995).

4.4 *Critic for Applied Approaches*

Many researchers have criticized the above listed approaches for reviving or re-inventing the Saudi traditions for their tendency towards superficiality and sheer visual attractiveness (Al-Naim 2011). They have been criticized as iconographic approaches that aim toward "packaging tradition" and applying it to the surfaces of buildings that were in essence modern and unrelated to local traditions. The critics claim that the interest in issues of iconography and appearance had diverted attention away from the important issues in architecture and the built environment toward trivial matters of surface. In Saudi Arabia, those approaches have resulted in many cases in kitsch "bad taste" architecture.

Another critic for those approaches is that in many cases the traditional elements incorporated were used in the wrong context. For example, the use of Mashrabbiyah in office and public buildings and in hot arid regions has been criticized by many researchers as the Mashrabbiyah was originally used to provide privacy to females in residential buildings, while keeping the windows open for breeze in hot humid regions. Wind towers also used in many buildings without any functional purpose. Furthermore, in many cases, traditional elements from one region are used in another region, while in other cases a mixture of vernacular elements from different regions are used in one building. Thus those approaches have isolated form from production and meaning; that is they are unable to reconcile form with content. The main purpose of such approaches remains to create local character regardless of the fit of the treatment to the context or whether this treatment is functional or not.

One way to overcome such problems within those approaches is to relate and associate them with deep understanding of the relationship between space and people, rather than just being led by nostalgia for the past. That is more efforts should be given to under-

stand how spaces are utilized, justified, and re-justified by contemporary residents and users. Ismail Serageldin (1989: 58) suggested that "the issue is not whether the structure conforms exactly to the criteria of the past; it clearly cannot do so and remain relevant to today's concerns. Instead, the issue is whether the designer has learnt the lessons of the past, internalized them, and used them as an input, although partial, in defining the solution to a contemporary problem for contemporary clients".

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