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## Architecture

[*This entry contains two subentries:*

TRADITIONAL FORMS

CONTEMPORARY FORMS]

***Traditional Forms*** Irene Bierman's part has been deleted to save space.

Traditional forms provide images of the past: they enable a group to envision its origins, and they display its descent. The preservation of some forms and the alteration or obliteration of others are part of the ongoing fabrication, transformation, and maintenance of national, regional, and ethnic identities. The selection of past architectural forms creates a visually complex historical layering of shapes, materials, forms, and functions. "Traditional" is thus a relational term, from a given present moment to a directed understanding of the past.

Now, as in the past, governments are often the most active social force in deciding what forms are to be identified as traditional. What is built and where, which buildings are preserved and which are incorporated into the urban fabric, and the aesthetic judgments affecting the quality and use of

“Studies on Isfahan.” *Iranian Studies* 7.1–2 (1974). Proceedings of a colloquium on Isfahan, the articles offer a wide ranging study of this city. [Find It McGill](#)

Michell, George, ed. *Architecture of the Islamic World: Its History and Social Meaning*, 2nd ed. London: Thames and Hudson, 1995. An excellent introduction to a broad range of types of architecture, from palaces and citadels to houses. Most useful is a small compendium with plates of key monuments of Islamic architecture. Monuments from the western Mediterranean to the Far East are included.

*Mimar: Architecture in Development*. This journal, published from 1981 to 1992, focuses on contemporary architecture in Islamic lands. It has a glossy format, with ample color illustrations. It highlights new designs and contemporary architects, as well as vernacular traditions. The articles are aimed at a general audience. The lack of footnoting is made up for by the inclusion of images of little-known areas. [Find It McGill](#)

Mitchell, Timothy. *Colonising Egypt*. Berkeley: University of California Press, 1988. A thoroughgoing analysis of the effects of an international audience on a communal identity. [Find It McGill](#)

Mortada, Hisham. *Traditional Islamic Principles of Built Environment*. London: Routledge Curzon, 2003. [Find It McGill](#)

Petrucchioli, Att. *Understanding Islamic Architecture*. London: Routledge Curzon, 2003.

[Find It McGill](#)

Rogers, Michael. *The Spread of Islam*. Oxford: Elsevier-Phaidon, 1976. A useful thematic introduction to Islamic architecture. Good photographs and broad coverage. [Find It McGill](#)

Irene A. Bierman

## ***Contemporary Forms***

A number of common themes have characterized the development of architecture in the modern period throughout the Islamic world. The dissolution of the last Islamic empires and sultanates, phases of colonial rule, independence, developmentalist nation-building efforts, and more recently globalization have placed comparable pressures on the built environment and demands on the profession of architecture across a broad spectrum of Muslim societies. Despite similarities, differences between Muslim-majority countries, shaped by historical particularities as well as economic resources, are striking. For instance, some of the world's richest and poorest nations live side by side in the Islamic world; economic resources directly reflect on the contemporary forms of architecture.

## ***Studying the Architectural Heritage of the Islamic World.***

An important development in the modern period has been the invention of the idea of “Islamic

architecture” to describe the architecture produced in the Islamic world as one that represents the universal verities of Islam. This qualification of architecture by faith does not apply to other architectural traditions, such as Christianity or Buddhism, except for their temples.

The study of Islamic architecture is usually limited to the “core” lands between Egypt and Central Asia where the first Islamic empires flourished. The designation of the “Islamic world” usually refers to the land that stretches from the Indian Ocean in the east to the Atlantic coast of North Africa in the west where Islam spread during the seventh and eighth centuries. Yet regions that came under the influence of Islam later, such as the Balkans, western China, northern India, Malaysia, and Indonesia, are also central to the Islamic world, as are Muslim diaspora communities around the world. These diverse regions of the Islamic world have produced a wide variety of architectural traditions, which cannot be treated as a monolithic architectural heritage.

When the study of Islamic architecture was invented at the end of the nineteenth century, it was of most interest to European and, later, American scholars. Pioneering students of this field were European travelers, architects, and draftsmen who traveled to the “Orient” in the wake of European military interventions. They surveyed monuments, mostly of the medieval period, in the Arab Middle East, categorizing and cataloging them to introduce to Europeans the architectural heritage of the Islamic world. These earlier attempts portrayed Islamic architecture as insular, unchanging, unevolving, and homogeneous.

After groundbreaking critiques of Orientalism in the late 1970s and 1980s, students of Islamic architecture began questioning former historical, geographic, and cultural categories that allowed only a limited interpretation of non-Western architectures, especially of Islamic architecture. Some focused on intercultural development within Islamic architecture; others on intracultural contributions.

Post-1980 studies of the architectural heritage of the Islamic world started taking into consideration its dynamic historical trajectory, its multicultural quality, and its dialogic dimension. Most new research on Islamic architecture acknowledges that the architecture produced in the context of the Muslim faith is not static but changing; it cannot be reduced to a style, nor can it be subsumed under rhythms of Western architectural development and periodization. Secondly, Islamic architecture is not homogeneous but reflects the diversity of Muslim societies over a long, complex history. Thirdly, it is not only shaped by dominant rulers or dynasties but produced by a multiplicity of actors and agents, including both Muslim and non-Muslim patrons, users, workers, and designers.

Because of this critical reappraisal of Islamic architecture, architecture produced, used, or occupied by Muslims is studied increasingly as part of the architectural heritage of the world, with due emphasis on processes of contact, transmission, and translation. Earlier on, contemporary architecture of the Islamic world was frequently interpreted as an imitation of Western architecture. Today, more nuanced interpretations that credit the ingenuity of architecture produced in the Islamic world are available.

## ***Growth of the Architectural Profession.***

An important development in the modern period has been the gradual replacement by professionals of both state-employed architects and traditional master builders. In Islamic empires, palace organizations offered highly structured systems of apprenticeship training for architects. These architects are conceptualized today as bureaucrats whose primary task was representing the central rule of the state in the buildings and infrastructural projects they carried out. They were distinguished from traditional master builders who worked for the general public, mostly on small-scale private commissions, and were trained only in their craft. Starting in the nineteenth century, expatriate and non-Muslim architects were employed to work on modern buildings such as schools, hospitals, or barracks. Soon, new schools of architecture and university departments were opened in various countries, resulting in a considerable increase in the number of “native” professional architects, and professional associations and journals devoted to architecture were established.

### **Western architects in the Islamic world.**

The earliest professional architects to practice in the Islamic world were generally expatriates from western Europe and later from the U.S. who worked either for the local ruling elite or for colonial powers. These architects provided a crucial link through which Western approaches to architecture reached the Islamic world, arriving in its various parts at different periods. Many had tremendous influence on the architectural development of the regions in which they practiced.

Western architects who practiced in the Ottoman Empire include the Frenchman Antoine Vallaury, the chief instructor at the School of Fine Arts and the imperial architect for the palace in Istanbul. The structures he designed in Istanbul include the massive neo-Renaissance Ottoman Bank structure, built during the 1890s, and the 1907 neoclassical Archaeological Museum. A German architect usually identified as Jachmund Effendi designed numerous structures in Istanbul, including one of its earliest Islamic revival structures, the 1890 Sirkeci railroad station. The well-known Italian art nouveau architect Raymondo D’Aronco served as chief architect to the imperial court between 1896 and 1908.

Western architects who left their mark on the development of architecture in Egypt included Julius Franz, who participated in designing Cairo's first Islamic-revival structure, the Jazīrah Palace (1863, later turned into the Marriott Hotel) for the Egyptian ruler Ismā‘īl; the Italian architect Antoine Lasciac, who worked in Egypt from 1882 to 1936 and was the chief architect for the royal palaces between 1907 and 1917; and another Italian architect, Mario Rossi, who designed a number of mosques in Cairo and Alexandria during the 1940s.

In Iraq, a group of architects accompanied the British forces that occupied the country in 1915. A number of British architects, including J. M. Wilson, H. C. Mason, and J. B. Cooper, initially worked for the British authorities, serving the Iraqi government after the country achieved nominal independence in 1922. These architects introduced modern idioms to Iraq and worked on incorporating local traditions into their work. Wilson, who had been an assistant to the renowned British architect Sir Edwin Lutyens in New Delhi, became the first director of public works in Iraq. His numerous structures include Āl al-Bayt University in Baghdad (1922–1924). He also cooperated with

Cooper on a number of designs, including the 1931 Basra Airport and the Baghdad International Railway Station (1947–1951).

On the Indian subcontinent, the British government appointed Sir Edwin Lutyens as architect to the New Delhi Planning Commission. Beginning in 1912, he participated in developing the city plan for New Delhi. He also designed a number of important buildings in the new city, including the Viceroy's House Complex, combining neoclassical and Mughal elements. Numerous Dutch architects worked in Indonesia, where Dutch control extended from the late sixteenth century to the end of World War II. Notable was Henri Maclaine Pont, who worked in Indonesia from 1911 until the end of the Dutch colonial presence. His work aimed at incorporating local architectural traditions, as evident in the 1920 Institute of Technology in Bandung, which relies heavily on Javanese architectural elements.

In Morocco, more than 120 French architects were practicing during the 1920s, when the country was a French protectorate. Among the best known of these is the French planner Henri Prost, who was responsible for organizing the growth of Moroccan cities between 1914 and 1923. Western architects reached even relatively isolated Muslim regions such as Afghanistan. During the late nineteenth and early twentieth centuries, architects from Germany, Austria, Britain, Italy, and France designed buildings for the Afghani ruling elite.

With time, native architects trained in the West or in local institutions began to participate in the development of architecture in their regions. Colonialism, however, kept the role of local architects to a minimum, and many had to wait until independence before they could affect the architectural evolution of their countries.

Even during the postcolonial period, Western architects, many of international stature, have maintained an effective presence in the Islamic world. During the 1950s, the Iraqi government invited some of the West's most influential architects, including Alvar Aalto, Le Corbusier, Walter Gropius, and Frank Lloyd Wright, to design a series of public buildings in Baghdad. The American architect Louis Kahn designed the National Assembly complex in Dhaka, Bangladesh; planned in the 1960s but not completed until 1983, this is considered one of the masterpieces of twentieth-century architecture. The mausoleum of King Muḥammad V (r. 1963–1973) in Rabat, Morocco, which borrows heavily from traditional Moroccan architecture, was designed by Vo Toan, a Vietnamese-born French architect. The celebrated American architect Paul Rudolph has carried out numerous projects in Southeast Asia, including the 1986 Dharmala Sakti office building in Jakarta, Indonesia.

Major international architectural firms have established a strong presence in the Islamic world. The American firm of Hellmuth, Obata, and Kassabaum designed a number of projects, including the King Sa'ūd University campus (1975) and the King Khālid International Airport (1976), both in Riyadh. Another major American firm, Skidmore, Owings, and Merrill, designed the Ḥajj Terminal (1982) at 'Abd al-'Azīz International Airport in Jiddah. These two airports in Saudi Arabia are among the largest in the world.

Japanese architects have also been active in the Islamic world since the 1970s. Kenzo Tange has

designed public buildings throughout the Islamic world, including university campuses in Oran, Algeria (1972–1974); Irbid, Jordan (1979); Şakhir, Bahrain (1987); and al-Qāsim, Saudi Arabia (1983).

The practice of hiring foreign architects for prestige projects has continued into the late 2000s. As cities from Bilbao in Spain to Shanghai in China are investing in “starchitects” for added value in the competition for a place on the map, so are cities and governments in the Islamic world turning to architects with celebrity status, in the hope of becoming destinations in the itineraries of global consumers.

### **Native architects in the Islamic world.**

It took some time before professional architects from the Islamic world began to participate effectively in building their countries, and published information on these pioneers is scant but growing. The earliest indigenous professional architects appeared in Turkey and Egypt, both of which had established strong early contacts with the West but had managed to maintain a degree of political autonomy.

In the Ottoman Empire, the most important group of local professional architects to appear during the nineteenth century comprised members of the Armenian Balyan family, who served as architects to the Ottoman court for much of the nineteenth century. Their eldest members, Kirkor Balyan and his son Karabet, did not receive any formal training, but Kirkor's three grandsons, Nikogos, Sarkis, and Agop, studied architecture in France. Members of the family worked as a team on the design of numerous buildings. Kirkor Balyan's earliest major work is the Nusretiye Mosque in Istanbul (1826). Karabet Balyan's major work is the massive Empire-style Dolmabahçe Palace (1853), which supplanted the Topkapı Palace as the new imperial residence.

Mehmet Vedad and Ahmet Kemalettin are usually viewed as the first professional Muslim Turkish architects. Vedad was the son of a high official in the court of Sultan Abdülhamid II. Against the wish of his father, who like most affluent and educated Muslim Ottomans of his day considered architecture an inferior profession, Vedad completed his architectural education at the *École des Beaux Arts* in Paris and returned to Istanbul in 1897, where he opened a private practice and taught at the School of Fine Arts. His first major building was the Central Post Office in Istanbul (1909). Ahmet Kemalettin came from a more modest background and studied at the School of Civil Engineering in Istanbul. After graduating in 1891, he became an assistant to Jachmund. In 1896 he went to Germany, where he studied architecture for two years and worked before returning to Turkey in 1900. He held a number of professional governmental positions and taught at the School of Civil Engineering, as well as designing many religious, residential, commercial, and institutional buildings. Both architects worked on developing a national architectural idiom that combined classical revival vocabularies with traditional Ottoman ones. They are credited with developing what is referred to in Turkey as the First National Style.

One of Egypt's first professional architects was Maḥmūd Fahmī, who received a diploma from the

Cairo Polytechnic School in 1858. Like Kemalettin, he held a number of professional government positions, becoming chief architect for the Ministry of Waqfs. His designs include the Ministry of Waqfs building, the first phase of which was completed in 1896. Maḥmūd Fahmī's son, Muṣṭafā, is considered the founder of the modern Egyptian architectural profession. He studied at the École des Ponts et Chaussées in Paris and held various government positions, including minister of public works. His many buildings include the mausoleum of the Egyptian nationalist leader Saʿd Zaghlūl (1928) and the headquarters of the Egyptian Society of Engineers (1930). Like the Balyan family, the Fahmīs formed an architectural dynasty: in the early 1940s one of Muṣṭafā's nephews was head of the University of Alexandria's newly formed department of architecture, another nephew headed the department of architecture at the University of Cairo, and a third was head of the Government School of Design.

By the 1930s, a group of local architects trained both in local institutions and abroad had emerged in Turkey and Egypt. In Turkey, among the best known of this new generation of architects is Sedat Hakki Eldem. Eldem belonged to a wealthy, upper-class Turkish family and graduated from the Academy of Fine Arts in Istanbul in 1928. During his long professional career, he concentrated on developing a modern national style that combined modernist approaches with Turkey's vernacular architectural traditions. One of his better-known buildings is the Social Security Complex in Istanbul (1962–1964).

An Egyptian contemporary of Eldem is Sayyid Kurayyim. Kurayyim received his first architectural degree from the Cairo Polytechnic School in 1933 and continued his education in Switzerland. After returning to Egypt in 1938, he established an architectural practice that became one of the most active in the Arab world. Soon after his return, he also founded *al-ʿImārah*, the Arab world's first journal devoted to architecture, which appeared until the 1950s; it promoted twentieth-century architectural modernism, of which Kurayyim was a strong advocate.

The twentieth-century architect from the Muslim world to receive the most international recognition is another Egyptian, Hassan Fathy (Ḥasan Faṭḥī). Although Fathy started practicing architecture immediately after graduating from the University of Cairo in 1926, his work did not receive much attention until the 1970s, when the University of Chicago Press published his *Architecture for the Poor* (1973). The book discusses his experience of designing the village of New Gurna for displaced villagers in the Egyptian countryside during the 1940s. In his design Fathy relied on local traditional architectural forms, materials, and construction techniques, and the villagers built most of the structures themselves. Unlike Kurayyim, who strongly advocated a modernist approach to architecture, or Eldem, who attempted to combine modernist and traditional forms, Fathy rejected imported modernist forms and construction techniques and instead relied heavily on local vernacular ones.

Although several hundred local professional architects had established themselves in Egypt and Turkey by the 1930s, most Muslim countries had to wait until the middle of the century for similar development, often only after these countries achieved independence from colonial rule. For example, when the state of Pakistan came into existence in 1947, it had fewer than ten local

professional architects. Up to the mid-1950s, more than three decades after Iraq had achieved nominal independence from the British, the country had only about twenty professionally trained Iraqi architects. As Muslim countries gained their independence around the middle of the twentieth century, a strong need emerged for local professional architects who would replace Western ones and participate in constructing the residential, institutional, commercial, and industrial structures that these emerging states embarked on creating. Consequently, many students began to study architecture in both local and foreign institutions. These architects have followed varying approaches, from strict International Style modernism to literal historicism.

### **Architectural teaching institutions.**

An important phenomenon that has contributed to forming the architectural profession in the Islamic world since the late nineteenth century has been the founding of university-level architectural schools. Many of the important architects of the Islamic world have studied or taught in these institutions.

The earliest university-level architectural schools appeared in the Ottoman Empire and Egypt. In the Ottoman Empire, formal education in architecture was introduced in 1847 at the Royal School of Military Engineering. Its School of Civil Engineering assumed in 1883 the name “Engineering Academy,” with the aim of teaching essential skills needed in planning and implementing the country's new infrastructure projects. After the foundation of the republic, this school gained university status in 1928 and was incorporated into Istanbul Technical University in 1944. Secondly, the School of Fine Arts was established in 1883 and soon after that began to offer training in architecture. In 1928 it was converted to an “academy,” and in 1982 into the Mimar Sinan University of Fine Arts.

In Egypt, Cairo University began graduating architects in 1886. This school was followed by one in Alexandria. The fifth major school of architecture in the Islamic world until the end of World War II was Tehran University in Iran, founded by the French architect André Godard.

Following the war, development plans and rapid urbanization demanded a greater number of professional architects. The shortage was met with a series of new, state-sponsored universities. The Middle East Technical University in Ankara, American University in Cairo, and American University of Beirut were established to guide local needs, especially in rural and regional development. Other university-level departments of architecture were established in the 1950s in Lebanon, Iraq, and Indonesia, along with additional institutions in Egypt and Turkey. Departments of architecture multiplied during the following decades.

As a result of the new schools, the number of architects has reached, in some countries, tens of thousands. In Turkey, for instance, the number of architects gradually increased from only a couple hundred when the republic was founded in the 1920s to 33,742 in 2007. Nearly half (41 percent) of registered architects in Turkey reside in Istanbul, and 71 percent in the largest three cities, reflecting population aggregation trends. Not all these university-trained architects are practicing or working in



architecture-related jobs. In fact there is now a surplus in the profession.

An important development through the course of the twentieth century is the entry of women into the field. According to 2007 data, 36 percent of Turkish architects registered with the Chamber of Turkish Architects are women. The first female architect of Turkey, Leman Tomsu, graduated from the Academy of Fine Arts in 1934. Females in architectural education remained sparse in numbers, at around 5 percent until the 1960s, but with the opening of new state and private schools starting in the 1960s and the expansion of enrollment in all state universities, they reached 50 percent in the 1970s and 70 percent in 2000s. While this ratio reflects the teaching and research of architecture, it does not translate to the world of practitioners, which remains male-dominated—not only in Turkey or the Islamic world, but across the whole world.

### **Professional associations, journals, and awards.**

The earliest professional associations for architects appeared in the Ottoman Empire and Egypt. The Ottoman Society of Architects and Engineers was established in 1908; the Society of Turkish Architects was founded in 1927. The Society of Egyptian Architects was founded in 1917. Professional architectural associations came much later in other Muslim countries. These early associations were motivated to acquire legal control over building with respect to builders and, secondly, with respect to foreign practitioners. Architects' associations were often grouped with engineering associations.

In 1931, the Turkish architect Zeki Sayar established the Islamic world's first journal devoted to the profession of architecture, *Mimar*; in 1935, its name was changed to *Arkitekt*. The journal was published by Sayar until his retirement in 1980. A few years after the launch of Sayar's *Mimar*, Sayyid Kurayyim started *al-ʿImārah* in Egypt. The departments of architecture and professional architectural associations of the Islamic world have published other architectural journals, but these usually have only local circulation. The architectural journals of the Islamic world have played an important role in presenting the works of local and foreign architects to their readers and have provided a forum for discussing important issues.

More recently, architectural awards have played an important role in promoting architecture in the Islamic world. The best known is the Aga Khan Award for Architecture, which had its first cycle in 1980. It embraced and promoted a broad range of projects, from the scale of the house to cultural buildings, from *kampung* (informal settlement) development projects to historic preservation. Every three years, up to \$500,000 in prizes is awarded to architectural and urban projects that serve Muslim communities, making it the largest architectural prize in existence. The Aga Khan Trust for Culture has sponsored the study of Islamic architecture at two graduate-level architecture programs based at Harvard University and the Massachusetts Institute of Technology. The Trust has also sponsored ArchNet, a discussion forum and a very useful Web archive, accessible to all, of many important works in English on various aspects of Islamic architecture, historic and contemporary, that may not be otherwise readily available to an international audience. The available resources include back issues of *Mimar* (1981–1992), the English-language journal of contemporary

architecture.

## ***Building Types.***

One of the most important changes to affect the architecture of the Islamic world during the modern period has concerned building types. Some preexisting building types were no longer built, others were heavily modified, and new types were adopted as part of the process of modernization. The introduction of new building types has often been perceived as a sign of technological, cultural, economic, and political progress.

A wide variety of new building types has been introduced by the ruling elites. Many of the earliest examples began to appear in Istanbul and Cairo around the mid-nineteenth century. Just as the Ottoman rulers commissioned the Dolmabahçe Palace to replace the Topkapı Palace as their new official imperial residence, the Egyptian ruler Khedive Ismā'īl moved his official residence from the Cairo Citadel, from which Cairo had been ruled since the twelfth century, to 'Ābdīn Palace, an Empire-style structure built between 1863 and 1874.

During the 1860s Cairo acquired an opera house, and, in 1893, a large railway station. Around the turn of the century, the French architect Marcel Dourgnon built a monumental classical revival structure to house the collection of the Egyptian Museum. Cairo's Heliopolis Hotel, built by the Belgian architect Ernst Jaspar during the early twentieth century, was for a while the largest hotel in the world. The previously mentioned Antoine Lasciac designed the headquarters of Bank Misr in Cairo (1927), Egypt's first wholly national bank. Similar changes took place in Istanbul, which acquired a railroad station in the 1870s, an archaeological museum in 1881, and its first modern hotel in 1891 (built to host the passengers of the Orient Express); its early bank buildings include that of the Ottoman Bank (1892).

Although during the nineteenth century Tehran was relatively insulated, especially in comparison to Cairo and Istanbul, it also acquired new imported building types during that period. The newly built part of the city included hotels, embassy buildings, a telegraph building, and the imposing Imperial Bank of Persia.

Along with these new building types came new construction materials and techniques. New materials such as steel, reinforced concrete, and wide panes of glass allowed for the construction of larger and higher buildings with wider openings. By the middle of the twentieth century, a new set of building types and complexes had appeared. Two that were constructed in large numbers were the airport and the university campus. As the airplane replaced the train as the primary means of long-distance travel, airports appeared throughout the Islamic world. In many cases, relatively small airports built earlier have been replaced by much larger ones. Expansive university campuses have also been constructed since the 1960s, at costs of hundreds of millions or even billions of dollars. Many are in the Arabian Peninsula, but some have been built in North Africa, the Indian subcontinent, and Southeast Asia.

New types of mosques have even emerged during the twentieth century, in association with new political, demographic, and economic developments. One example is the large state or national mosque, often built as new countries have come into existence or gained their independence. In some ways, these state mosques, each of which functions as the official mosque of its country, hark back to the great congregational mosques of early Muslim cities and to the subsequent great imperial mosques of Islam, and they can be seen as twentieth-century nationalist versions of those.

An early example is the National Mosque in Kuala Lumpur, Malaysia, completed during the 1960s; it was the largest mosque in Southeast Asia at the time of its construction. Another national mosque from the same period and region is the Independence Mosque in Jakarta. Since the 1970s, such mosques have proliferated throughout the Islamic world, notably in Morocco, Jordan, Saudi Arabia, Kuwait, and Pakistan. During the last phase of his rule, Saddam Hussein became obsessed by mosque building. His large-scale Umm al-Mahare Mosque, meaning “Mother of All Battles Mosque” (2002), commemorated what is referred to as the Persian Gulf War with minarets designed to resemble Kalashnikov rifles and Scud missiles and was fitted with a copy of the Qurʿān supposedly written using Hussein's blood.

These large mosques, airports, and university campuses are among the numerous large-scale projects that have been built in the Islamic world since the 1970s. Such construction activity is partly the consequence of the dramatic rise in oil prices during that decade. Many of the world's oil-exporting countries are Muslim, and these countries saw their national incomes rise significantly. Even non-oil-exporting Muslim countries benefited from these rising revenues because of their economic ties with oil-producing countries.

The twentieth century also saw the construction of mosques built for Muslim communities outside the Islamic world, usually as the nucleus of an Islamic cultural center. Among the earliest of these is the mosque and cultural center that the French government built in Paris during the 1920s for the city's Muslim community. Since then, sizable similar complexes have been built in a number of Western capitals, including Washington, D.C., London, and Rome. Muslim communities in other Western cities and towns have built smaller Muslim religious centers, such as the 1981 Dar al-Islam mosque, which Hassan Fathy designed for a Muslim community living near Abiquiu, New Mexico.

## ***Architectural Vocabularies.***

The nineteenth century can be broadly conceptualized as a period of increased contact and exchange with the outside world through trade and colonial rule, with a concomitant experimentation and exploration in architecture, drawing from a wealth of architectural styles and influences. The first to come out of the remnants of the Ottoman Empire after World War I, the Republic of Turkey embraced architectural modernism early in the 1920s and 1930s because it signified a clear break with its imperial past. After World War II, many new Muslim independent nation-states—such as Syria, Iraq, Egypt, and Algeria, which initially declared themselves secular, socialist republics—emerged and opted for International Style modernism as their official architectural idiom. Pakistan, Malaysia, and Indonesia also adopted modernism, while still highlighting a shared Islamic heritage.

By the 1960s, modernism in architecture and planning was questioned all around the world for its homogenizing tendencies, and a search for regionalism and local expression emerged. This search became especially poignant because of the “explosion” in the population and extent of major cities—including the formation of squatter belts around modernizing cities—in many Muslim-majority countries. Kuwait, Saudi Arabia, and Iran translated their oil wealth to institutional and infrastructural projects to jump-start their economies. Previously avowed socialist countries such as Iraq and Algeria turned to architecture with explicit expressions of Islamic character for political purposes. The 1990s witnessed the rise of political Islam across the Islamic world, even in strictly secularist countries like Turkey, and local groups became key players in the production of built environments with overt formal references to Islamic heritage. In the 2000s, the rise in oil prices triggered a new phase of development, one that seeks to create global cities, with technologically sophisticated buildings that express Islamic identity more abstractly, for instance in their use of geometrical patterns. Exemplifying this trend are the Petronas Towers (1998) in Kuala Lumpur, Malaysia, designed by the Argentine-born American architect César Pelli.

### **Modernism.**

Since the 1920s, modernist movements rejecting architectural historicism began to play an increasingly important role in the architectural development of the Islamic world. Modernist vocabularies became increasingly popular as the Islamic world began to achieve political independence, especially around the middle of the twentieth century. Revivalist vocabularies were associated with colonialism; in contrast, modernist vocabularies, which called for the creation of universal architectural forms inspired by images of technology rather than geographic or historical factors, were associated with the idea of progress.

Architects who transferred principles of twentieth-century modernism to the Islamic world include Sayyid Kurayyim, who was greatly influential not only in Egypt but also throughout the eastern Arab world. In Turkey, modernist architecture began to replace revivalist vocabularies after the 1920s. Initially, Western architects such as the Austrian Clemens Holzheimer, Bruno Taut, and Ernst Egli carried out many modernist designs in the country. Turkish architects such as Seyfi Arkan soon began to participate effectively in the production of modernist architecture in Turkey. By the 1950s, modernism, especially the International Style, predominated in Turkey. The better-known examples of International Style modernism in Turkey include the 1952 Hilton Hotel in Istanbul, which Sedat Hakkı Eldem designed with Skidmore, Owings, and Merrill.

Modernism did not achieve complete victory in the architecture of the mosque. Throughout the modern period, the mosque predictably maintained higher levels of continuity with the traditional architectural heritage of the Islamic world than did other building types. The dome and minaret became standard features in most mosques, even in regions where they were not traditionally common. A degree of simplification affected the architecture of the mosque as a result of modernist influences, so that elaborate decorative details such as *muqarnaş* (or stalactite) vaults were abandoned, highly simplified, or abstracted. Nonetheless, mosque architecture remained historically defined, looking at past forms for models. A relatively small number of mosques designed during this

period, however, rejected historical references. One is Sherefuddin's White Mosque in Visoko, Bosnia-Herzegovina, which Zlatko Ugljen designed in 1967, but which was not completed until 1980. Some architects have combined highly abstracted forms with historical references in mosque designs; this approach has included an unusual reference to the cube-shaped Ka'bah in Mecca in the early-1970s mosque at the University of Kerman in Iran.

### **Regionalism, vernacularism, and postmodernism.**

By the 1960s, a reaction against the ahistoricism of modernism—against its lack of cultural specificity and its homogenizing tendencies—began to set in all around the world. Architects started searching for architectural vocabularies that established contacts with perceived notions of local traditions and vernacular environments. The discontent with modernist architecture and planning coalesced in the Islamic world with the rise of religious sentiment starting in the 1970s.

The search for new architectural forms initially avoided the nineteenth- and early twentieth-century examples of the Islamic revival; the connection between architectural revivalism and the colonial period was still alive. Moreover, architects were involved in a critique, rather than a rejection, of modernism and therefore were searching for vocabularies that would modify but still incorporate it. Numerous architects turned to local vernacular traditions, which many had been examining long before the 1970s. Sedat Hakkı Eldem had attempted to incorporate regional vernacular features within a modernist context since the 1940s, as evident in his Taşlık Coffee House in Istanbul, which makes references to traditional residential Turkish architecture.

Colonial architects had also worked with local architectural idioms in areas such as North and West Africa. Examples include the 1940s Controle Civil building in Bizerte, Tunisia, which Jacques Marmay designed using traditional building techniques and local building forms, as well as various administrative structures that French architects built in Mali during the 1920s and 1930s. The Dutch architect Henri Maclaine Pont also carried out similar attempts in Indonesia, as evident in his design for the Institute of Technology in Bandung.

The architect whose work with traditional vocabularies has emerged as a powerful guiding and inspirational force for architects throughout the Islamic world is Hassan Fathy. Fathy, too, had been working with vernacular traditions since the 1940s, when he designed the village of New Gournā. His work showed a commitment to improving the quality of life for villagers, an uncompromising dedication to local rural architectural traditions, and a firm rejection of modernist approaches to architecture on both the technological and formal levels. Yet his attempt failed in Gournā, because the villagers refused to move to New Gournā.

The negative memories of colonialism soon faded and a younger generation of architects born since the 1940s returned to the revivals of the nineteenth and early twentieth centuries and their literal reproduction of past forms. For example, the Tunisian architect Tarek Ben Miled (Tāriq ibn Mīlād) persuaded a client not to tear down a 1922 classical revival villa in Carthage, and instead renovated it and built an extension that maintained the villa's original character. The Egyptian architect Abdel

Wahed El-Wakil (ʿAbd al-Wāḥid al-Wakīl) has relied on an eclectic combination of Islamic revival vocabularies for the numerous mosques he designed in Saudi Arabia, such as the 1986 King Saʿūd Mosque in Jiddah. The mosque combines elements taken from Mamlūk Egyptian and Iranian Ṣafavid architecture.

Within the pluralism that has characterized the evolution of architecture in the Islamic world since the 1970s, a strong current has emphasized the need to develop regional vocabularies within the context of modern technologies and forms. The Iraqi architect Rifat Chadirji (Rifʿat Chādirjī) has most effectively articulated a theoretical framework for this view. Chadirji began practicing architecture in the early 1950s, but since the late 1970s he has devoted himself to writing on architectural theory and criticism in both English and Arabic. In his writings, he has explored the connection of architecture to themes including technology, aesthetics, and the role of the past.

### **Developments since the 1990s.**

In many Muslim-majority countries, the public sector or public-private partnerships are the major clients for architectural services. The logic of development persists, but the import substitution model of the 1960s and 1970s has been mostly abandoned in favor of market-oriented development with a global focus. Countries with oil revenues implement large-scale, ambitious projects to prepare their economies for when the oil runs out. Countries that do not have access to oil revenues have embraced tourism. Characteristic urban developments of the post-1980 period include the explosion in the number of high-rise buildings dotting the skylines of major cities, five-star international hotels, commercial centers, and tourism-oriented environmental reclamation and heritage preservation projects. As is typical of neoliberal urban development around the world, malls and gated communities have proliferated in many large cities of the Islamic world. Finally, ongoing wars in Afghanistan, Lebanon, Palestine, and Iraq have had negative impacts on both the built environment and the profession of architecture.

Some of the large-scale environmental reclamation and heritage preservation projects in the Islamic world include the Golden Horn cleanup, the Fener and Balat districts' rehabilitation projects in Istanbul; the Azhar Park and Darb al-Aḥmar Conservation Project in Cairo, and Lake Tunis in the city of Tunisia. These projects transformed with varying degrees of success those parts of the city in economic and environmental decline—the Azhar Park was literally built on a former city dump.

Developments in technology and transport infrastructure and the availability of low-budget airlines have made many types of tourism more affordable. Many countries in the Islamic world, especially those with coasts, have become destinations for international tourists. This has created a new type of demand for architectural services, lucrative but not always bringing out the best in terms of environmental and aesthetic impact. One that has received critical acclaim among the international architectural community is the Turkish architect Turgut Cansever's Demir Holiday Village in Bodrum, Turkey (1987), which uses local materials and contextual massing. Coasts of the Islamic world are dotted with hotels and resorts. A more recent trend is that of themed parks, resorts, and hotels, such as the Topkapı Palace and Kremlin Hotels in Antalya and Dreamland in Cairo.

One of the most publicized projects has been the rebuilding of war-torn Beirut. A private company with the name of Solidere was set up in 1994 as a “public-private partnership” enjoying powers of eminent domain to earn back the city's title of the “Paris of the Middle East.” Solidere rebuilt a large area around the Green Line dividing east and west Beirut, replacing the site of the war's most intense fighting with an upscale shopping district in the French colonial style, catering mostly to foreign investors and tourists. Some found the company's pseudo-historic vision of the city distasteful. Other critics were troubled by its sanitized, developer-driven nature, which appealed to global customers at the expense of the local population and the city's past.

Widely publicized because of successful public relations, Dubai has redefined architecture and urbanism in the Islamic world. Only a fishing village on the edges of a desert some decades ago, Dubai, some say, will become the New York of the twenty-first century. It boasts a skyline of the world's most publicized high-rises. It has built islands on its waterfront in shapes recognizable from satellites, with names such as “palm” and “the world.” In 2008 the emirate announced plans to build a replica of the French city of Lyons. This Disneyesque re-creation, like the rest of the new development in Dubai, will cater to global customers. This process of urban development elicits mixed responses from both the architectural community and the general public. While some applaud the vision and the human feats that created this alluring city, others criticize its ecological and social impacts. Nevertheless, Dubai has become the new standard against which cities in the Islamic world measure themselves.

Dubai exemplifies the new scale of investment in architecture—that of the city. Saudi Arabia has in the works a \$500 billion investment program to build six new cities that will diversify the economy beyond oil exports. Some see this trend as a continuation of the developmentalist logic that marked the 1970s, when Saudi Arabia invested heavily in growing crops and building desalinization plants. Much of this effort was stalled as oil prices fell in the 1980s. The current level of oil prices has made the newer vision possible. In the late 2000s, the kingdom is trying to move beyond oil to become an industrial power. One interesting architectural result of this phase of development in this part of the oil-rich Middle East is the trend toward commissioning outposts of Euro-American institutions of culture and learning. Abu Dhabi is planning to spend \$1 billion for a new museum (a Louvre), while some prestigious American institutions of higher education have already opened branches in the “Education City” in Doha, Qatar.

See also AGA KHAN FOUNDATION; MOSQUE, *subentry on* MOSQUE ARCHITECTURE; SAUDI ARABIA; UNITED ARAB EMIRATES; and URBAN PLANNING.

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