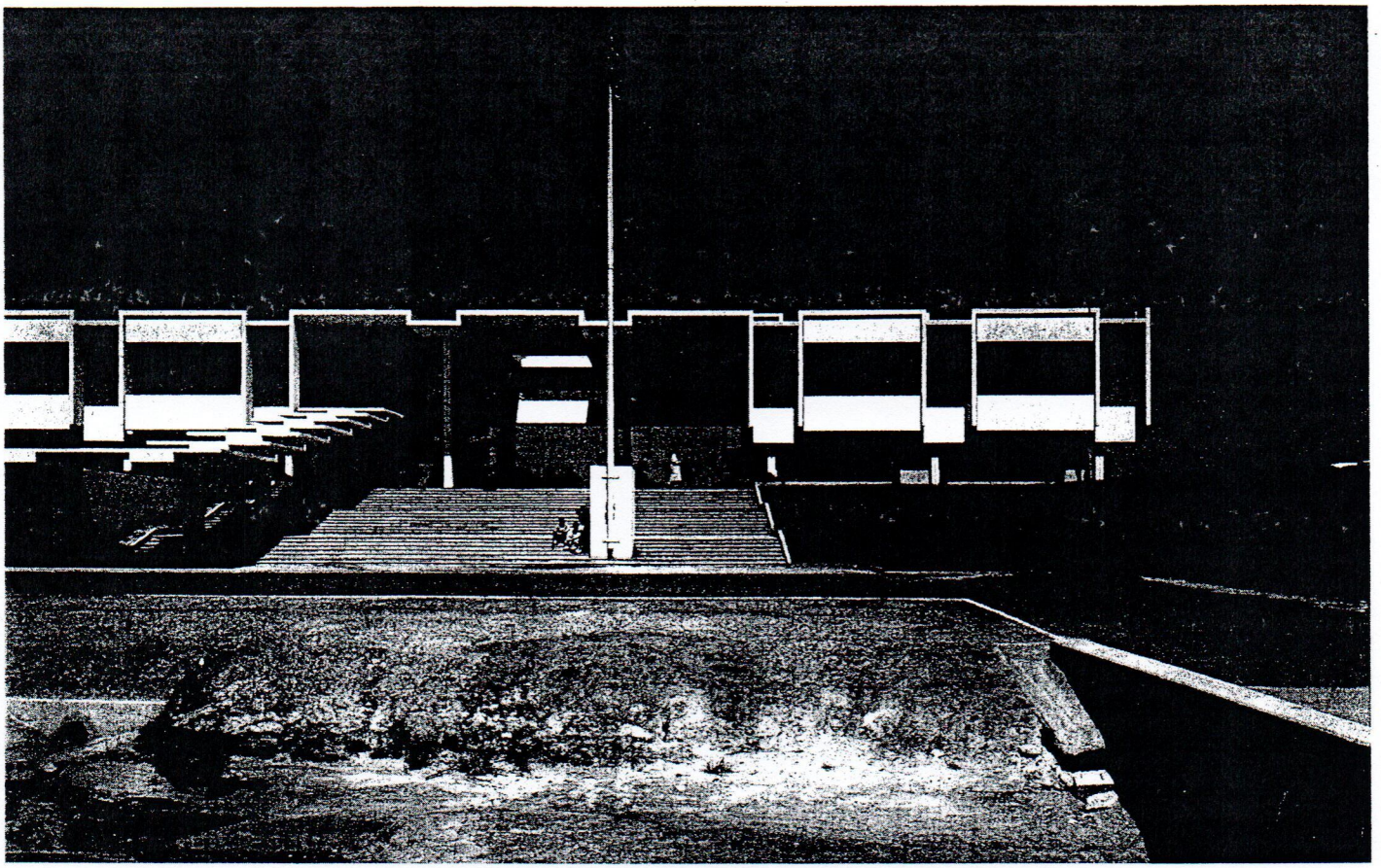


Sarasota High School, Sarasota, Florida, designed by Paul Rudolph (1959)
Ezra Stoller © Esto

Although the American architectural profession has been slow to recognize the quality of the work of the Sarasota School (having failed to award Rudolph the American Institute of Architecture Gold Medal at his death in 1997), it received extensive and immediate international attention. Typical is the experience of British architects and Team 10 founders, Alison and Peter Smithson, who, in their search for alternatives to the universal formula of the International Style in the early 1950s, were inspired by the works being built in Sarasota. The Sarasota School exemplified the concept of a regionally inflected modern architecture, true to the universal intentions of spatial liberation yet capable of engaging local climate, landscape, and building culture and demonstrating the significant benefits of an evolutionary rather than revolutionary development of modern architecture.

ROBERT MCCARTER

*See also* **Foster, Norman (England); Rogers, Richard (England); Rudolph, Paul (United States); Smithson, Peter and Alison (England); Team 10 (Netherlands)**

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## SAUDI ARABIA

With a land area in excess of 2.2 million square kilometers, the kingdom of Saudi Arabia today covers most of the Arabian peninsula. The recent history of its architectural and urban development has been closely linked to its emergence as a modern nation and to the development of a powerful economy based

on the exploitation of natural resources. Saudi Arabia's opening to the international economy from the 1950s on introduced new building technologies and styles that have today largely replaced centuries-old traditional practices. However, since the 1980s, the maturation of native Saudi institutions and the work of Saudi designers, engineers, and planners has led to many successful projects that bridge modern design practices and technologies and still-valued traditional forms and lifestyles.

Climate has played a key role in urban form and architectural production in Saudi Arabia for centuries. The kingdom generally lies within one of the world's hottest and driest regions, with more than 50 percent of its land being desert. Yet within this dominant climatic milieu, local characteristics vary considerably. This relationship was long evident in the traditional approaches to the built environment in Saudi Arabia's four principal regions: the Central (*Najd*) and Northern region; the Western (*Hijaz*) region; the Eastern region along the Persian Gulf; and the Southern mountainous region.

In the extremely hot and arid areas of the Central and Northern region, the courtyard was long the main feature of any building. Courtyards traditionally acted as climatic moderators and allowed a unique private lifestyle to develop. In desert communities, built largely of adobe, open spaces generally only took the form of private courtyards and narrow, winding streets.

In the Western (*Hijaz*) region, with its hot and humid climate of Red Sea coastal communities, the basic traditional building type was the multistory row house built of coral stone and imported wood. The refined building art of this region was also influenced by an intermixing of cultures and the import of technological skills as the result of trade and pilgrimage. One distinct vernacular form that developed here was the *mashrabiyah*, a facade of transparent wooden screens, originally used in the houses of Jeddah to afford both ventilation and visual privacy. When this form gained popularity as a decorative element, it in turn influenced house design in the hot and dry inland cities of Mecca and Medina and in the upland city of Taif.

The Eastern Region along the Persian Gulf includes the cities of al-Ahsa, Qatif, Dammam, and Jubail and is characterized by a maritime inland desert climate. Here, two-story courtyard houses built of mud were the typical building type. Such dwellings often featured traditional *bagdir* or *malqaf*, wind catchers used to control ventilation.

The Southern region, which includes the Asir Mountains and extends from Taif through Baha to Abha, is characterized by a cooler climate with considerable seasonal rain. In its settlements, many located at altitudes greater than 2000 meters, buildings generally took the form of square, multistory towers. Four principal construction types developed based on the local microclimate and available materials: mud tower houses, stone rubble houses, stone apron houses, and mud and slate tower buildings. A particularly characteristic form of the Asir region was the *qasabah*, a freestanding tower of mud or stone used in isolated farming villages both for defense and to warn of the approach of raiders from other tribes.

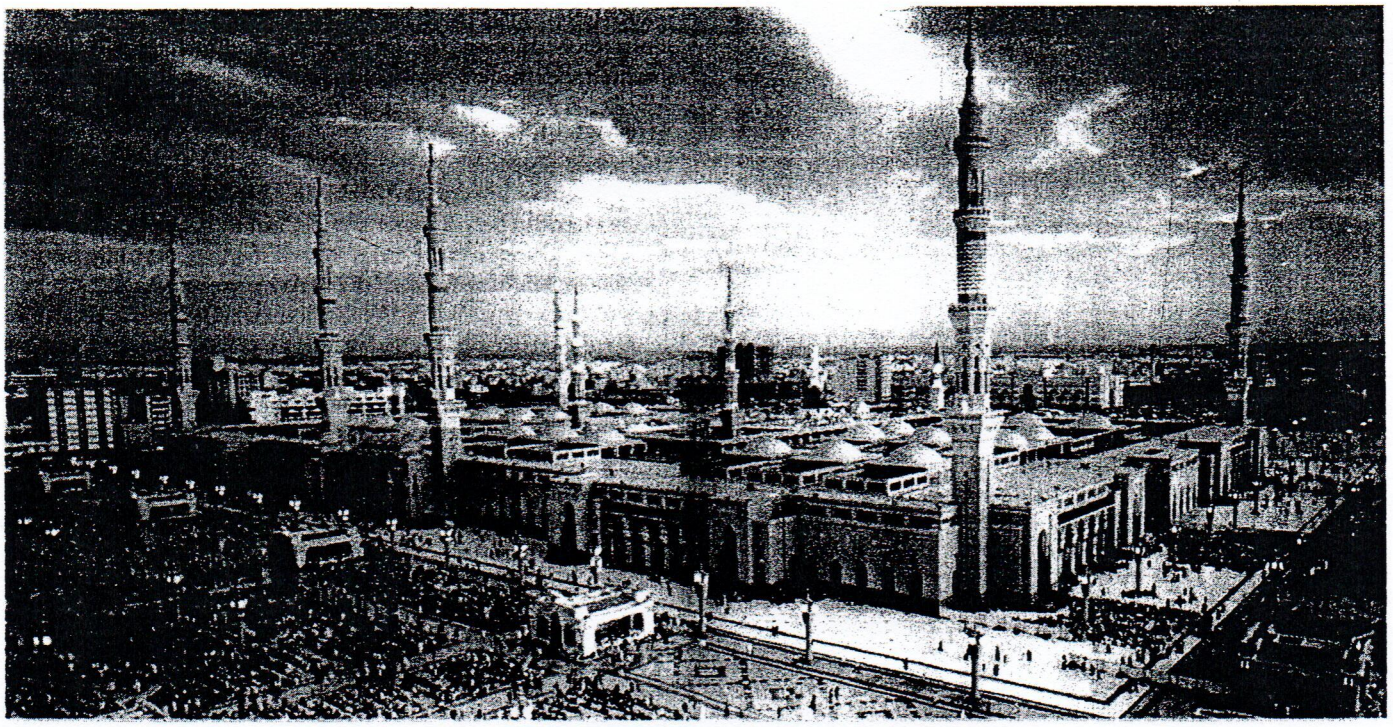
Until the second half of the 20th century, these regional urban and architectural traditions responded well to local cultural and material conditions and allowed people to adjust their activity cycles to climatic variations. In more recent times, however, modern forms and patterns have been introduced that have largely replaced these traditional practices.

Two major building campaigns of the 1950s can today be judged as having initiated this process: the expansion of the holy mosques of Mecca and Medina and the huge program involved in transferring the nation's capital from Mecca to Riyadh. From 1951 to 1955, the government undertook a major effort to repair and expand the Prophet Mosque in Medina, with the result being a fourfold increase in the area for prayer; a second huge project from 1955 to 1974 expanded the holy mosque in Mecca, where the area available for prayer was increased from 29,127 to 193,000 square meters. The building program in Riyadh likewise spanned many years. Its first phase, in the mid-1950s, included construction of both a complex of ministry buildings on the airport road and a housing project for government employees in the Malaz area. Also a part of the early work were the rebuilding and expansion of the royal palace at Nasirriyah to cover 250 hectares, the rebuilding of the main mosque and government palace in the city center, and the widening of the two main streets leading into the city.

Coupled with the Aramco grid plans for al-Khobar and Dammam in 1947 and the Aramco Employees Home Ownership program launched in 1951, these government building campaigns laid a foundation for the development of contemporary building and planning practices in Saudi Arabia. However, the introduction of new processes, materials, and techniques was first carried out largely through the import of foreign expertise to the kingdom. From the early 1960s on, the gridded street pattern and the villa as a preferred house type assumed primacy in the development of most every city and town. Processes of urban change and expansion were given further impetus by the compensation given private property owners in Mecca, Medina, and Riyadh following the expropriation of their traditional city center houses to make way for government projects. Apartment buildings also first began to appear in Riyadh, Mecca, Medina, and Jeddah from the late 1950s on. In the mid-1950s, the government launched a national school-building program, which brought international-style design in reinforced concrete and cement block to the smallest towns and villages.

A further change in Saudi cities and towns in the 1960s was the introduction of high-rise construction. Distinct among the earliest such projects were the Saudi Arabian Airlines and the Saudi Radio Broadcasting buildings in Jeddah. However, the twenty-two-story Queen building (1972) in Jeddah represented the most radical break with tradition, and for many years it stood as a principal landmark on the city's skyline. Other notable projects in the early 1970s included the UPM Campus in Dhahran by CRS, whose design considered the natural terrain and employed an exposed-aggregate texture to blend with its surroundings; the Equestrian Club Building (1973) in Riyadh by Frank Basil, which responded effectively to climate using new architectural forms; and the Intercontinental Hotels and Conference Centers (1971) in Riyadh by Trevord Dannat and in Mecca (1973) by Rolf Gutbrod and Frei Otto, which emerged from international design competitions.

Following the oil boom of 1973, the new wealth had profound, wide-reaching consequences for Saudi cities and towns. This was particularly evident in campaigns of infrastructure development and in the design and construction of new universities, schools, hospitals, hotels, airports and seaports, factories, housing estates, and entire new towns. The oil boom also led to the establishment of the national Real Estate Development



Holy Prophet Mosque of Medina (1950–55, first phase; 1983–1994, second phase)
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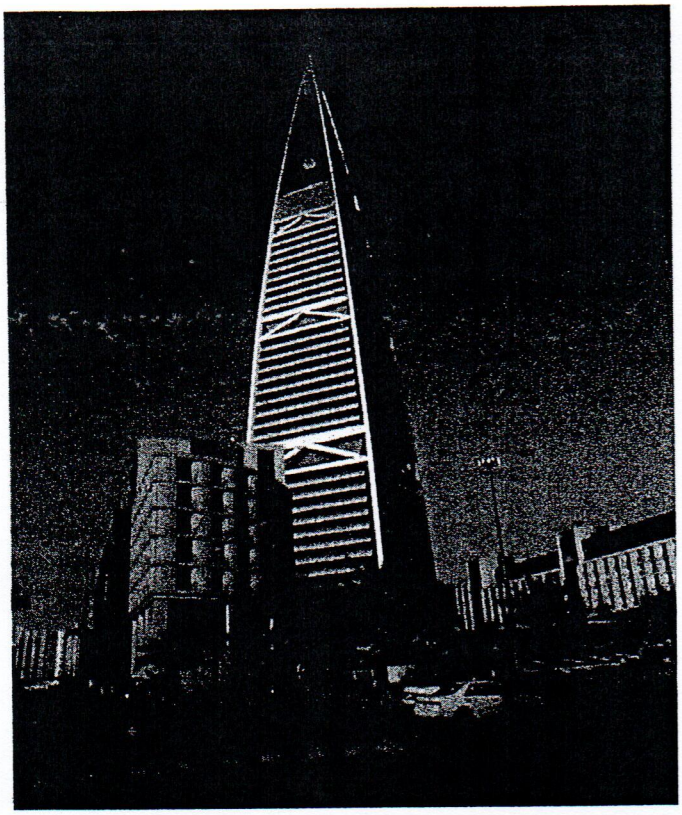
Fund, offering individual Saudi citizens subsidized long-term loans to build private houses, apartments, and office buildings. Half the country's housing stock has been replenished through this program since its initatiation. Coupled with government land grants, available to every Saudi citizen 18 years of age or older, it has led to a several-fold expansion of most Saudi cities and towns.

Although most early modern architecture and planning in the kingdom was carried out by foreign-trained experts, from the 1980s onward, local architects, engineers, and planners began to assume an increasingly important role. For instance, Ali Shuaibi and Abdurrahman Al-Hussaini of Beeah Group Consultants have given special emphasis to sociocultural values, in particular to the desire to relate modern construction methods to the Islamic past. Their distinct planning work has included the al-Uqair Tourist Development Plan (1986), the Jubail Subregional Plan (1998), and the Strategic Comprehensive Plan (1998) for the Holy Environs and Mecca, which addressed the need to accommodate and transfer two million pilgrims between Mecca and the Holy Environs during the five-day pilgrimage. Beeah Group Consultants has also been known for such urban design work as its Central Spine, DQ (1980); the Qasr al-Hukm project (1983); and the King Abdulaziz Historical Center (1998), all in Riyadh. The continued value of seclusion and privacy in Saudi culture was evident in the design of al-Kindi Plaza (1986) in Riyadh, which won the Agha Khan Award for Architecture. Other important designs are the Saudi Embassy (1987) in Yemen, the King Saud Mosque (1992) in Riyadh, the SAPICO Headquarters (1992) in Islamabad, and the Municipality of Medina Complex (2000), all of which combine past and present, a necessity in the perpetuation of culture.

Equally impressive projects have been designed by the team known as Basim al-Shihabi of Omrania. Their projects include the General Organization for Social Insurance (GOSI) Headquarters (1978); the Twaiq Palace (1985), an Agha Khan Award winner; the Gulf Cooperation Council building (1987); and the King Abdulaziz Archival building (al-Darah) (1998), all in Riyadh. The current direction of ideas that al-Shihabi originally synthesized in the 1970s are evident in the NNCI Headquarters building (1999) and the Kingdom Complex, which includes a 330-meter-high tower to be completed in 2001.

A third noteworthy Saudi architecture firm, Mohammad Al-Naim and Farahat Tashkandi of Al-Nai, has emphasized the importance of continuity in cultural traditions in a changing world. This theme can be seen in their neighborhood layouts and land subdivision projects for MOMRA (1993) and in layouts for the Namar and Uraid neighborhoods (1994) in Riyadh. The team's design for municipal prototype houses attempted to revitalize the traditional Arab house, not through formalistic adaptation but by reconstituting essential values in new forms. Other work has included the School of Environmental Design building, KAU (1987), in Jeddah and the College of Architecture and Planning, KFU (2000), in Dammam. Mohammad Al-Naim and Farahat Tashkandi's work on the Al Abbas Mosque (1995) in Riyadh won them an award for transforming traditional aesthetic values to a more modern look.

Ziad Zaidan of Idea Center is another firm whose distinction lay in the team's Master Plan and Urban Design schemes for



Al-Faisaliah Center (2000), designed by Norman Foster, in Riyadh
© Saleh Al-Hathloul

Yanbu Industrial City, a contemporary settlement for 150,000 people aimed at combining state-of-the-art technology with the principles of Islamic town planning. Ziad Zaidan is also known for its Umm al-Qura University campus (1995) in Mecca, in association with Perkins and Will, a carefully considered campus plan creating a harmonious synthesis of old and new. Other projects have included the Asir Governorate Complex (1995) in Abha, adapting elements of Asir architectural tradition with modern materials and technology, and Aramco's Western Region Headquarters (1989) in Jeddah, for which the team won the American Institute of Architects' Award for Excellence in Architecture. Zaidan also served as architectural consultant for the Institute du Monde Arabe (1987) in Paris, designed by Jean Nouvel and the Architecture Studio.

Abdulla Bokhari of Archi-Plan is a strong believer in the influence and importance of theories in design. Bokhari sees tradition as having no authority except as a platform for further transformation or as an ongoing experiment. This approach is best seen in his designs for the SANCST Cultural and Leisure Facilities Center (1989) and the UNDP Headquarters (2000), both in Riyadh.

Several regional architects have also produced important work in Saudi Arabia, including the contributions of Sami Anqawi, director of the Pilgrimage Research Center for many years and a practicing architect in Amar. His strong commitment to tradition is best reflected in the renovation of the Amar Office Building in Old Jeddah and in his design of the al-Yamani residence (1980s) in Mecca. Saleh Qadah's work in Asir is also worth noting for his ability to use traditional architectural features as part of modern designs. This was well demonstrated in Almiftah Village (1989) and in the Chamber of Commerce Building (1989), both in Abha.

In addition to these individual designers and design teams, the government-backed Arriyadh Development Authority (ADA) has also been a major contributor to the shaping of urban patterns and architecture styles in the kingdom. Among the most notable projects carried out by the ADA in the Riyadh area have been the development of the Diplomatic Quarter, a new town within the city; the MFA Staff Housing (1983); the development of the Justice Palace District (1985–2000); and the development of the King Abdulaziz Historic Center (1998). The award-winning quality of the ADA's projects is often demonstrated through magnificent architecture that marries traditional and modern forms.

In the political arena, Mohammad Said Farsi, the well-known mayor of Jeddah from the early 1970s to the mid-1980s, was also influential in the development of new trends in architecture and planning in the kingdom. An architect and planner, his efforts to preserve the old city and develop Jeddah's architectural tastes had wide-ranging effects on the architectural profession in Saudi Arabia.

In terms of architectural education, Ahmad Farid Moustafa was also extremely influential on the course of architecture and planning in the kingdom. Moustafa served as the first head of the Department of Architecture at King Saud University in the late 1960s. Later he was a founder and dean for the School of Architecture and Planning at King Faisal University. In these positions, he had a tremendous effect on the first generation of architectural students in Saudi Arabia. Adel Ismail and Mohammad Said Mousalli were others who played major roles in the development of architecture education, both through their teaching at King Saud University and through their involvement as advisers for government agencies.

Formal architecture education began in Saudi Arabia with the establishment of the Department of Architecture at King Saud University of Riyadh in 1967. Other schools followed: the College of Architecture and Planning at King Faisal University, Dammam (1975); the School of Environmental Design, King Abdulaziz University, Jeddah (1976); the College of Environmental Design, University of Petroleum and Minerals, Dammam (1979); and the Department of Islamic Architecture, Umm al-Qura University, Mecca (1983). Some of the first graduates of these universities in turn began teaching careers of their own in the 1980s. These have included Saleh Al-Hathloul, Mohammad Al-Hussayn, Mohammad bin Saleh, Tarik Al-Sulaiman, and Jameel Akbar. Such educators have had a broad effect on the field through teaching, writing, and involvement as jurors, reviewers, and evaluators of major projects.

The role of national professional organizations has also increased in importance. In 1982, the Engineering Committee was formed through the Chamber of Commerce to oversee and organize design and consulting practice. The Saudi Association for Architects and Planners (AL-UMRAN) was formed in 1989, and its membership now exceeds 1000. *Albenna* magazine, covering architectural and development issues, produced its first issue in February–March 1979.

In addition to these local influences, the work of international architects in Saudi Arabia has continued, and in recent years this has also become more responsive to local conditions. Among the many excellent examples of work by international design teams in Saudi Arabia have been the Haj Terminal (1982) at King Abdulaziz Airport in Jeddah by Skidmore, Owings, and Merrill, a 20th-century adaptation of traditional tent structures; the National Commercial Bank (1984) in Jeddah, also by Skidmore, Owings, and Merrill, a modern corporate headquarters successfully integrated into a traditional setting; the Ministry of Foreign Affairs (1984) in Riyadh by Henning Larsen, whose monumental formalism presents an intelligent response to changing opinions; and King Fahad International Stadium (1987) in Riyadh by Ain Friezer and Partners, a masterpiece of tent architecture.

Other examples include the Central Government Complex (early 1980s) in Taif by Leslie Martin, a complex that responds well to climatic requirements and blends with local architecture; Imam Moh'd Bin Saud Islamic University (1988) by Techni Beria; King Saud University, Al-Gassim Campus (1995), by Kenzo Tange Associates, K. Baytarian and Associates, and Somait Engineering Services, a 10,000-student campus based on a hierarchy of open spaces; and the Nuzul Hotel (1995) in Skaka by John Lingly, which efficiently uses passive cooling systems and local design methods.

Many other projects from the last 25 years also deserve recognition: the Riyadh TV Tower (1981), designed by ADIT of France; the Council of Ministers Building (early 1980s) in Jeddah by Kenzo Tange; the King Khalid International Airport Terminal (1983) in Riyadh by Hellmuth, Obata, and Kassabaum (HOK); and the King Fahad International Airport Terminal (1993) in Dammam by M. Yamasaki, who was the designer for the Dhahran Airport Terminal (1961).

Also of note have been Al-Ta'meer Center I (1999), designed by Arrowstreet, Inc., in association with Dar Al-Mimar (Badran and Abdul Halim), a festival market in the heart of Riyadh incorporating sustainable-design elements; Al-Khaleej Village (1990) in Dammam, an earlier, influential model for a seaside resort city; Sultan bin Abdulaziz City for Humanitarian Services (2000) in Riyadh by the OEO/HLW design partnership, a hospital and training complex; and Al-Faisaliah Center (2000) in Riyadh by Norman Foster, a 300-meter-high skyscraper to complement al-Khairia Center (1982) by Kenzo Tange.

Since the late 1970s, urban renewal has also become an important trend in the kingdom. Such urban design schemes were first developed for downtown Riyadh by Albini (1978) and Beeah (1983) and were subsequently revised by the ADA's staff. The rebuilding of the al-Muraba area in Riyadh (1998), an urban design by Beeah and Badran, will also create a cultural and historic center to complement Riyadh's city center. Other major urban-renewal programs have concerned further recent expansions of the holy mosques in Mecca and Medina. In Mecca, an urban design scheme (1986) by Dar Al-Handasah takes the Ka'bah as its center and proposes the continuation of prayer space on the ground level up to the first Ring Road. In Medina, the whole area of the old city has been encompassed in the Prophet mosque extension (1994), and the surrounding area up to the first ring road has been transformed into a gridded plan.

Thus, it is evident that various climates, regional materials, local vernacular traditions, and economic and technological development have significantly directed architecture and its practice in 20th-century Saudi Arabia. The first half of the century reflected centuries of building habits and cultural needs, whereas the second half showed the immediate and large-scale effect of economic prosperity in an internationally important region that adapted new buildings types and modern urban planning to suit a variety of modern needs.

SALEH AL-HATHLOUL

*See also* **Jeddah, Saudi Arabia; Ministry of Foreign Affairs, Riyadh, Saudi Arabia; Riyadh, Saudi Arabia**

### Further Reading

Of the works cited below, King, Hariri-Rifai, and Talib provide a good overview of Saudi Arabia's traditional architecture. The works by Eben Saleh and Alkokani and by Nomachi document the historic development and the extensions of the two holy mosques in Mecca and Medina and their effect on the urban structure of the two cities. A record of most architecture projects in Saudi Arabia since the late 1970s appears in *Albenna Architecture Magazine*. The Aga Khan Award for Architecture books include good coverage of winning projects from Saudi Arabia.

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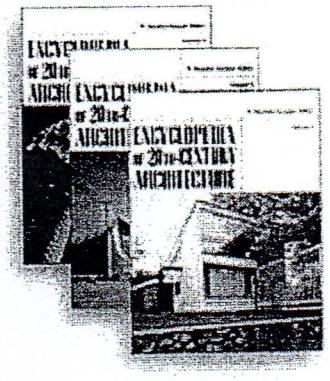
## SCARPA, CARLO 1906–78

Architect, Italy

For much of his career a figure isolated and detached from the mainstream, Carlo Scarpa was recognized only after his death as one of the great architects of the 20th century. His work does not fit easily into standard genealogical accounts of modernist architecture. It is characterized by a virtuosity of light, color, and texture; an extraordinary refinement of detail; and complex manipulations of materials and geometry.

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