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Technology and Tradition in Contemporary Mosque Design in the Kingdom of Saudi Arabia

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Abstract: This paper and presentation will begin by discussing the complexities of the new expansions of the two Holy Mosques in terms of the high level of coordination and skill required to achieve the increased area necessary to accommodate more of the faithful, while still respecting the original fabric. The first part will go on to focus on the use of new technologies in each instance, specifically the convertible shade roof for the two large inner courts of the King Fahd Bin Abdul Aziz Project for the extension of the Prophet's Holy Mosque in Madinah, as well as the sliding domes of this same project. The purpose of this focus will be to demonstrate the technical efficiency, environmental sensitivity, historical appropriateness, and skillful urban interface evident in these innovative solutions in analytical detail.

The paper will then move on to compare these same issues as presented in other important contemporary mosque architecture in the Kingdom, particularly in the Qasr al Hokm complex in Riyadh and a recent proposal for a new mosque and market area for Kharj, both by Rasem Badran, the Corniche, Island and Al Ruwais mosques in Jeddah and Al Miqat mosque near Madinah by Abdel Wahed El Wakil and Al Kindi Plaza in Riyadh by Ali Shuaibi. Badran's projects raise especially important issues about finding a more vital role for the mosque in the urban fabric and the way in which that role can be defined. Badran's thorough methodology will be explained and the success of his approach will be analyzed.

Introduction

The Kingdom of Saudi Arabia is in the forefront of contemporary mosque design. In keeping with its sacred position as the birthplace of Islam and protector of the holiest sites of the faith, it has actively sponsored important research, culminating in the expansion of the two Holy Mosques. That research and development, which may be seen as having occurred in three distinct stages, has led to three distinct ways of approaching the representation of tradition in contemporary mosque design. The hypothesis presented here is that these are literal rediscovery and reinterpretation, as used by A. W. El-Wakil, transformation through technology by Bodo Rasch/SL and heuristic assimilation by Rasem Badran.

Jeddah Mosques Initiative

Jeddah initiative was formative in first phase. These explorations began to attract international attention, especially among the architectural community, at the beginning of the 1980s with the Corniche projects in Jeddah, initiated by past mayor Mohammed Said El-Farsi. The mayor, pursuing tangible means to heighten public awareness, approached Egyptian architect Abdel Wahed El-Wakil about a concept that would do so. This involved a series of three structures, later designated as the Island, Corniche and Ruwais mosques, to be built at visually prominent places along the Red Sea coast. El-Wakil, a former student of noted Egyptian architect Hassan Fathy, had just completed the Suliaman Villa, which he began in 1976, as well as plans for a mosque directly across from it, which was his first attempt at such a program. He then began more intensive research into the planning and

design criteria that would meet the special circumstances presented by the three small coastline projects, especially environmental controls, since the mayor offered an extremely limited budget that precluded air-conditioning. His research encompassed the historic development and urban role of mosque architecture and the Island Mosque, which was the first of the three commissions that he produced, reflects his search (Figs. 1&2). It should come as no surprise that the architect reverted to prototypes that were most familiar to him. Soon after the Island Mosque was published, several critics pointed out distinct similarities in plan and exterior style, with the El-Guyushi Mosque in the Mugattem hills overlooking Cairo and these similarities are significant.[1]

El-Wakil Approach

El-Wakil chose Egyptian historical prototypes in his approach. Such criticisms became more intense as each of the other two designs appeared, focusing on the issues of the appropriate function of historical reference, the correct interpretation of tradition, and Connection between a mosque and the urban fabric. He defended his choice of the El-Guyushi mosque as a prototype for the Island Mosque, and a free-standing Mamluk structure as the model for the Corniche Mosque that followed, on the basis that the Red Sea coast projects had intentionally been isolated, just as the prototypes he had selected to copy had been, as memorable and highly visible symbols of the faith and not strictly neighbourhood zawiya. He freely acknowledged his historical sources, but in the final project of the trio the Al Ruwais Mosque, he was more circumspect about selecting a precedent, the market building in New Bariz, Egypt by Hassan Fathy.[2] In what is arguably the most important contribution of the three, for the substantive questions it raises about the true meaning of technology and the lessons that traditional architecture has to teach, El-Wakil adapted stacked rows of wind catches oriented toward the sea breeze to cool the interior in the programmed absence of air-conditioning. As in the much larger Bariz prototype, which was the only part of the desert new town plan that Fathy completed, El-Wakil depended on the Venturi effect, in which air is accelerated by successively smaller funnels and then exhausted through higher vents to achieve comfort levels equivalent to an air-conditioned space, reducing humidity and dust with dampened filters.

Issues in Jeddah Mosques

In this context Jeddah mosques raised important issues. As the first stage in a rising international recognition of the Kingdom of Saudi Arabia's leadership in patronizing excellent contemporary mosque architecture, the Jeddah Red Sea projects are important because they provided a physical reference for a decade long debate about tradition, technology and the efficacy of the modernist paradigm. In the wake of an unprecedented provision of infrastructure that confirmed the status of the Kingdom as a developed nation during that same period, concern about the protection of historical heritage began to be expressed, which coincided with this debate and gave it additional urgency. Architect El-Wakil argued that concepts of originality and individual authorship are modernist constructs which can be traced back to the European Renaissance and have no place in the search for a truly indigenous tectonic language.[3] He proposed, as an alternative, the traditional pattern of learning

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[1] Conversation with Abdullah Schlieffer and Rami El-Daha, Cairo, June 1988.

[2] Interview with Abdel Wahid El-Wakil, Jeddah, Kingdom of Saudi Arabia, March 11, 1986 with the author.

[3] Interview with author, London, September 1990. See also Dimitri Porphyrio's Classical Architecture, Academy Editions, London, 1990, for his discussion on the meaning of the Greek word techne, means craft applied to a purpose.

from and building on precedent in the spirit of the Latin root word tradere: to carry forward, dispelling the negative connotations of derivation and re-introducing this as an appropriate attitude in design.

An Expanded Repertoire

El-Wakil expanded repertoire appeared in later mosque projects. Important commissions that immediately followed the Red Sea mosques allowed El-Wakil to further refine this argument. The El-Harithy Mosque, also in Jeddah, gave him the opportunity to investigate the complex muqarnas geometries of the past, which have traditionally been passed on from master to apprentice, verbally and by example and were not recorded. To unravel the secrets of the difficult construction techniques used in these stalactite forms, which he was the first to study since the craft became extinct at the turn of the century, El-Wakil dissected physical examples that had already been demolished and painstakingly measured them, transferring the results to the computer. These studies allowed him to recreate the intricate forms, involving the computer to produce three-dimensional working drawings that made the procedures clear to the stone cutter (Figs. 3& 4). These muqarnas installations were used in combination with a large span, fired brick dome, which was erected using traditional principles El-Wakil had learned from his mentor, Hassan Fathy, depending primarily on corbelling and using very little centering for initial support during construction. Alternatives to the western international style model were intended to be promoted in methods, as well as results, permeating and transforming the entire process involved and the attitudes behind it (Fig. 5).

This controversial position stands in stark contrast to that taken by consultants Hellmut, Obata Kasselbaum, sub-contracted by Bechtel, in the impressive and conceptually opposite approach taken in their mosque designed as the centerpiece for the King Khalid International Airport, contemporary with the Harithy Mosque in 1985. In this instance, of a similarly large span to accommodate up to 5,000 people, a space frame structure was rotated 360° and clearly expressed as a technological feat (Fig. 6).

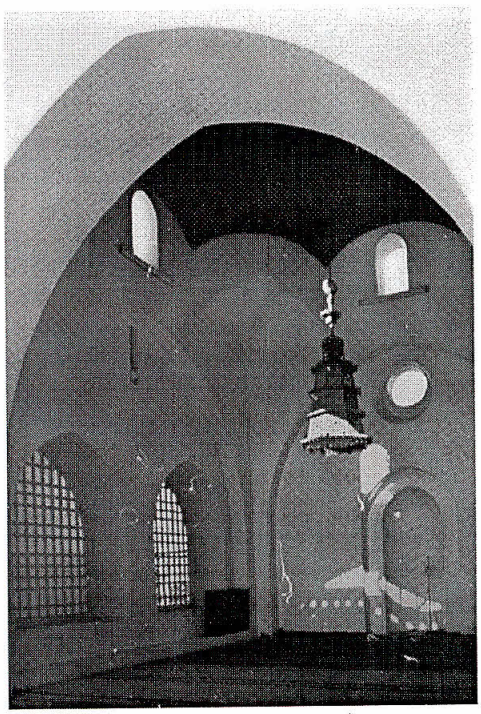


Fig. 1: Island Mosque, Jeddah, A. W. El-Wakil, Architect.



Fig. 2: Ruwais Mosque, Jeddah, A.W. El-Wakil, Architect.

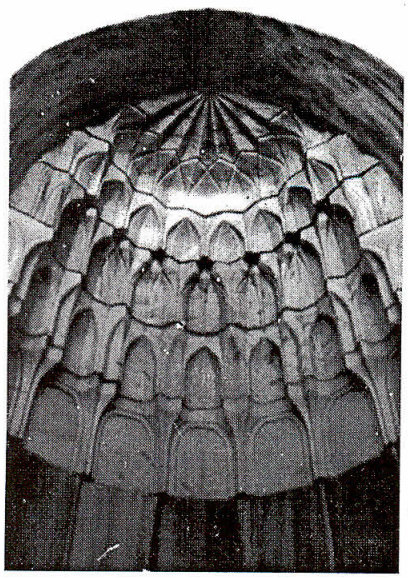


Fig. 3: Mihrab and Muquarnas, Harithy Mosque, Jeddah.

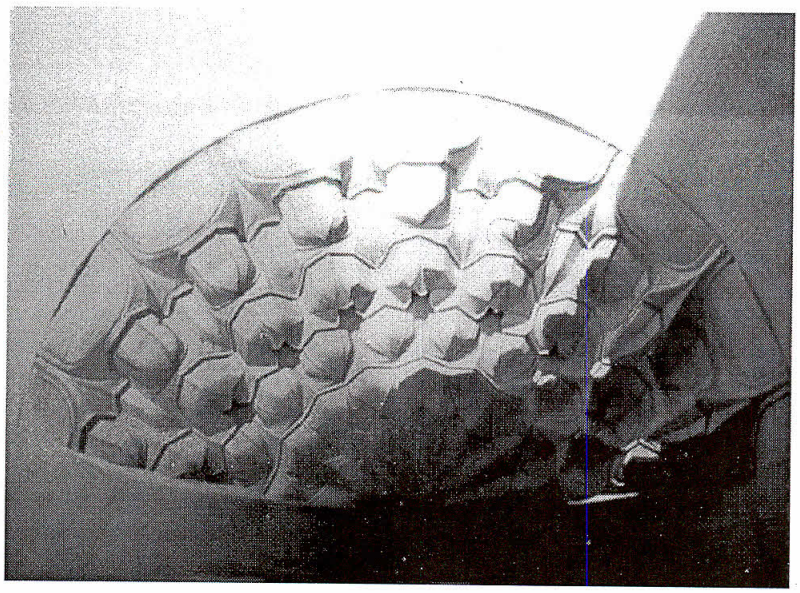


Fig. 4: Mihrab and Muquarnas, Harithy Mosque, Jeddah, A.W. El-Wakil, Architect.

El-Wakil and El-Muqarnas

El-Wakil expanded his research into the techniques used to achieve the geometrically complicated details of the past, most notably in the King Saud Mosque (1989) where the muquarnas defining the lintel above the main entrance is taken from photogrammatric projections of a similar lintel over the doorway of the Sultan Hassan Mosque in Cairo (Fig. 7). This particular mosque being such a literal transfer, rather than an interpretation of an original as the Island, Cornich and Ruwais mosques are, prompted specific controversy among the architectural community, but El-Wakil was forceful in its defense. His position, which is of critical importance in the debate about the relevance of tradition in contemporary design and the proper way for it to be expressed is that it is important to fully understand the state of the art of craft at the point at which it was interrupted by the most concerted western influence of all, the industrial revolution[4]. The only way to do this, he maintains, is to re-build the most paradigmatic historical details, to fully understand the complicated techniques used as completely as an apprentice witnessing the process would have. Echoing John Ruskin, he stresses that no work can truly approximate the spirit of the past unless each part of it is crafted by the human hand to regenerate the continuity of vernacular repetition at this remove requires such studies.

Interpretation, rather than literal translation, however, began to be re-emphasized in El-Wakil's Miqat Mosque, which is inspired by, but does not exactly copy, the Ibn Tulun Mosque in Cairo (Fig. 8, 9). His purpose, in this instance, was to demonstrate how an idea, such as the spiraling minaret of the Great Mosque of Samarra, could evolve in traditional translation, through time, to emerge in more refined form in Cairo and then, once again, in his design in the Hijaz, without being exactly the same. Miqat is a didactic lesson in the essence of vernacular typology, in which the model is immutable, but the form may change. Such interpretation continued in El-Wakil's final projects in the Kingdom of Saudi Arabia toward the end of the 1980s, the Al-Qiblatan and Quba Mosques, both in Madinah, all related to literal retranslating.

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[4] Interview with author, London, December 1990.

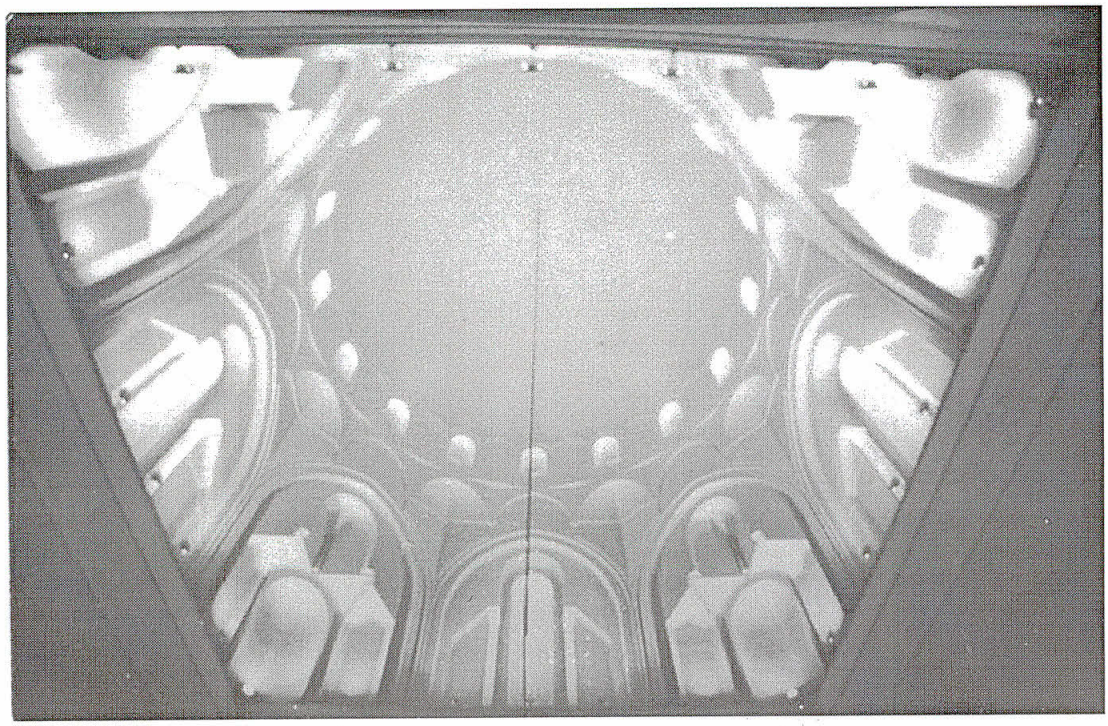


Fig. 5: Central Dome, Harithy Mosque, Jeddah, A. W. El-Wakil, Architect.

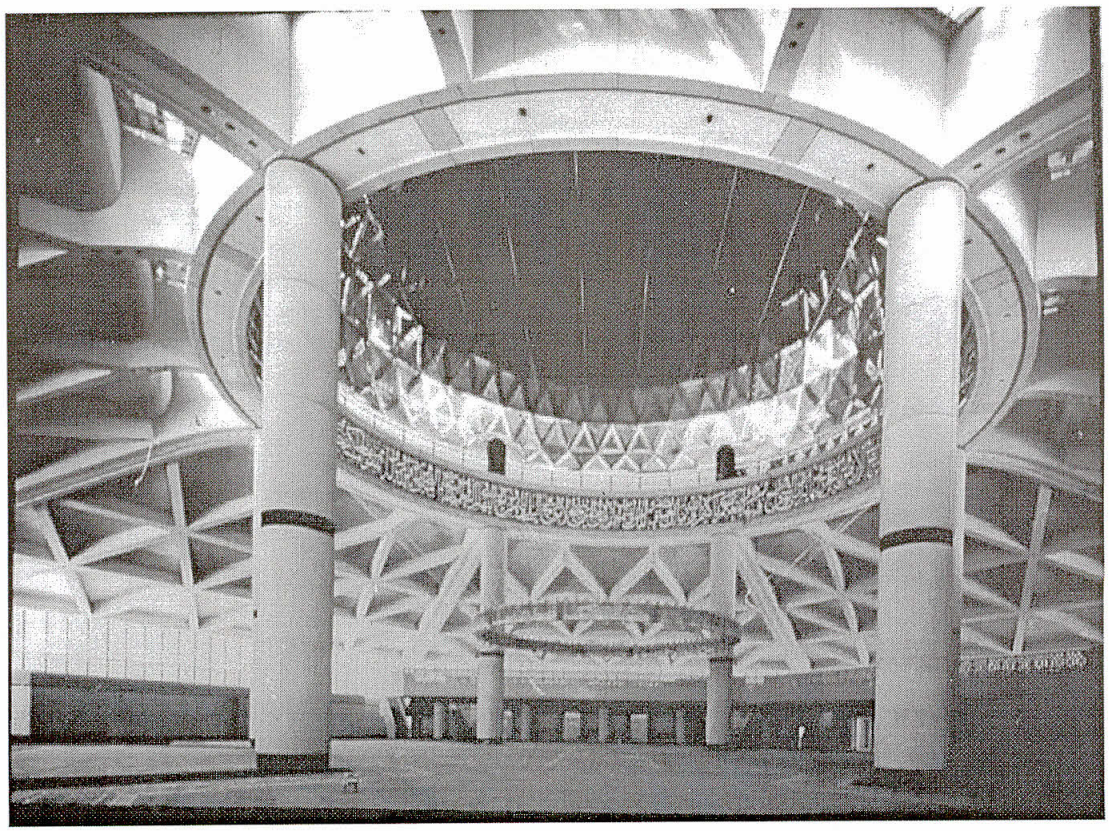


Fig. 6: King Khalid International Airport Mosque, Riyadh, Hellmuth, Obata, Kasselbaum, Architects.

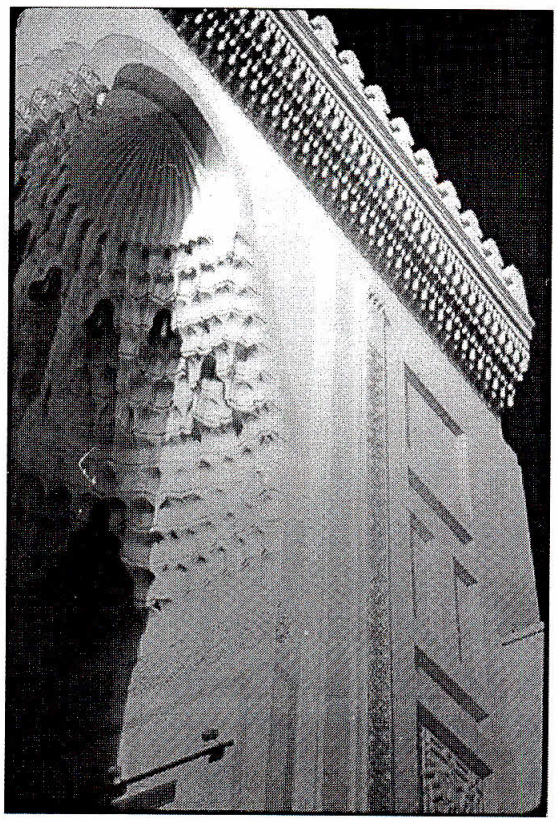


Fig. 7: Doorway lintel transferred from the Sultan Hassan Mosque, Cairo.

Tradition with High Tech

In the Quba Mosque, completed in 1987, El-Wakil collaborated with Sanderkonstruktismen und Leichtbau (SL) of Leinfelden-Oberachen, Germany, Bodo Rasch, General Manager, in the design of a movable shading device of the central courtyard. This approach can be interpreted as layering tradition with High Tech. This collaboration is significant because it introduces the second phase of international awareness and recognition of the pursuit and achievement of excellence in contemporary mosque design in the Kingdom at the much higher level of the King Fahd bin Abdul Aziz projects for the extension of the Prophet's Holy mosques in both Makkah and Madinah. The convertible roof for the Quba Mosque prefigures SL's involvement in the technologically advanced shading structures and sliding domes that were incorporated into the extension of the Prophet's Holy Mosque in Madinah between 1990 and 1992.

Ancient Cooling Device Converted by Leichtbau

In the Quba Mosque, El-Wakil and Leichtbau used the precedent of the toldos that have been used in Andalusia for thousands of years to protect the streets and plazas from the sun. They found that the cooling effect of the toldo was not just provided by shading, but by its ability to be opened at night to allow the cool air to settle in the area concerned and be held there when the toldo was closed at sunrise. They designed the Quba courtyard sunshade in halves, housed on each side which can be drawn together on the cables from which they are suspended. The supporting structure is a tubular truss that runs along each of the long sides of the courtyard, parallel to the Qibla direction. Hinged bearings in the trusses allow for deflection under the strong wind loads that can occur in the region and counter weights provide the necessary pretensioning. Two layers of PVC foam coated polyester net, held in line on aluminum tubes running the length of the courtyard are suspended from 13 special

three-phase 2.3 KW cable pulleys that allow the two halves to be closed by electric motors in 50 seconds. The fabric sunshade is 30 x 33 metres, covering approximately 1000 square metres. The sunshade lowers temperatures considerably in summer and the principle is reversed by opening it during the day and closing it at night to conserve heat, allowing the courtyard to serve as an overflow prayer area all year long. Additional loads required that a ring beam be built along the exterior walls of the mosque and that the trusses supporting the *toldo* had to be raised above the level of the small domes around the courtyard, making the entire assembly visible from the street[5].

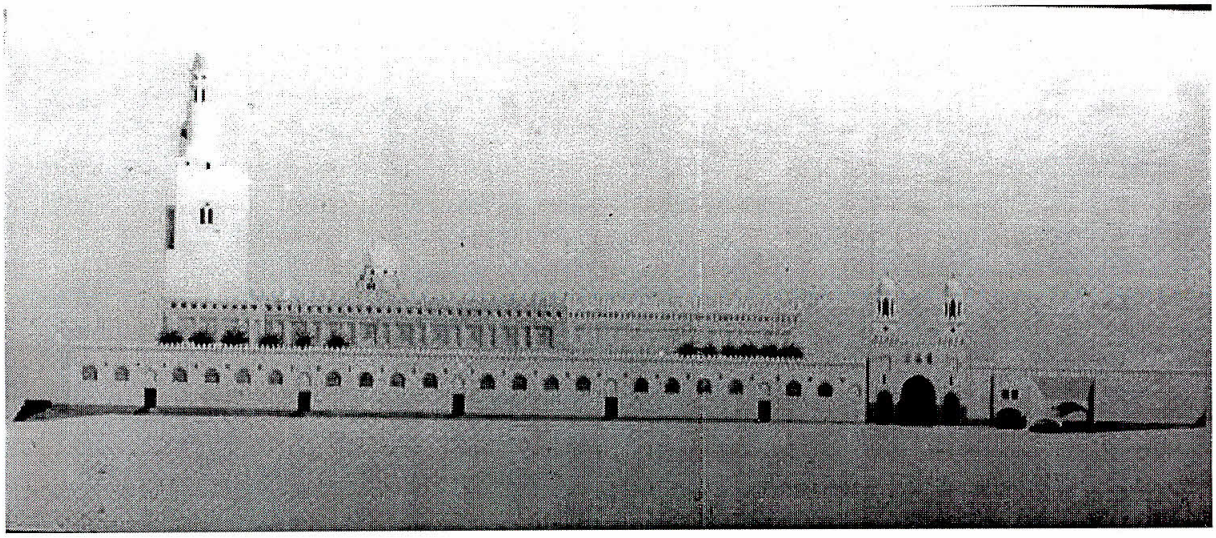


Fig. 8: Al Miqat Mosque near Madinah and the Ibn Tulun Mosque in Cairo, El-Wakil, Architect.

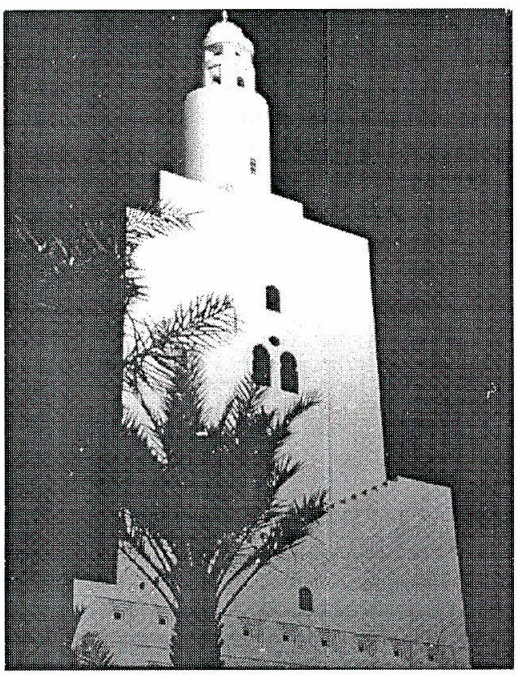


Fig. 9: Al Miqat Mosque and minaret near Madinah, El-Wakil, Architect.

[5] Sonderkanstruktionen und Leichtbau, office publication, 1993. No pagination.

The Prophet's Holy Mosque

This visible contrast between a committed re-interpretation of the past and a sophisticated technological improvement on it, effectively set the stage for a similar juxtaposition at a much larger scale for SL's contributions to the King Fahd bin Abdul Aziz project for the extension of the Prophet's Holy Mosque in Madinah. The first of these involved the challenge of covering the 296 square metre court of the mosque, which had to be expanded because of the dramatic increase in the number of users and the need to use this courtyard as a prayer space. SL, working with Dr. Kamel Ismail, Chief Architect, and the Saudi Binladen Group, contractor, devised the innovative solution of twelve 17x18 metre umbrella-like structures made of high yield steel, covered with Teflon coated fiberglass fabric. The Kingdom of Saudi Arabia has been singularly responsible for the initial development of this fabric, since it was first introduced at the Haj Terminal by Skidmore Owings and Merrill architects and Geiger-Berger engineers through research conducted by Dupont in the mid-1970s. Government support of the research made possible the development of a fabric that is extremely strong in tension with very little sag, highly flame retardent and reflective, deflecting more than 70% of solar radiation, while absorbing approximately 20%. The breakthrough achieved through its introduction at the Haj Terminal complex and its exemplary performances there, has prompted additional, large scale installations, such as the Riyadh Soccer Stadium. The Tenera fabric used by SL is a further improvement on their original material.

The Haj Terminal

The Haj terminal provided a new model for shading and ventilating large open areas. The geometrical profile of the umbrella arrived at by photographing soap film models that provided the contours of the most efficient surface area profile required was transferred to three dimensional CAD working drawings. A 1:12.3 scale model, indicating further refinements allowed a cutting data file to be produced, which was submitted to the manufacturer and a full scale prototype was constructed to check final performance. SL used a main generator, specifically developed for the design of membrane and cable, not structures, to generate the data necessary to determine the final form of the umbrella. This programme, based on a "modified force density" method, created a profile that has uniform surface tension. The final form was then fed into an adopted finite-element programme to test its performance under external forces. This allowed the designers to determine the appropriate location of the fabric strips added for both strength and ornamentation, recalling an important parallel in vernacular architecture, in which ornamentation always served a functional purpose (Figs. 10&11). Similarly, three-dimensional ornamentation, such as the funnel rosette on each umbrella, was generated as much by the structural forces transferred down the column shaft as by aesthetic choice, as was the case in the past. Each umbrella is operated by a central hydraulic cylinder to which the arms are attached. All of the umbrellas are controlled by a central hydraulic pump, which has electronic controls which "monitor, regulate and coordinate" them through ducts beneath the marble floor of the courtyard. The electric motors, pumps and control valves are carefully coordinated to ensure the continuous operation of the umbrellas and to indicate potential problems[6]. Periodically adjusted for seasonal differences, this monitoring system also responds to temperature changes, cloud cover and wind pressure. The precise opening and closing times are recalculated by computer and transferred electronically every day. The umbrellas are supplemented by air-conditioning, air outlets located at the capital and base of the lower column of each shaft, which also accommodates four lights and a drainage channel, in the rare event of rain. When wind speeds exceed 22.5 mph (36 kmh), controls prevent opening. The umbrellas were designed to withstand winds of 97 mph (155 kmh). The precision of the bearings and other moving parts of the umbrellas, as well as the remote location of the central controls, results in almost silent operation, which is remarkable considering the size and weight of each umbrella.

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[6] Sonderkanstruktionen und Leichtbau, office publication, 1993. No pagination.

Shading Umbrellas as Synthesis of Past and Present

The designers best describe the aesthetic effect that results from this synthesis of complex construction techniques when they say that the cumulative effect of the cone shaped membranes of the six umbrellas in each court is to "create the impression of a translucent vault spanning between the columns and arcades which surround the court and thus make for a clear expansive space. Their noble, dignified form, with carefully designed surfaces, blends in harmoniously with the traditional stone architecture; although different in character they are mutually complementary[7]."

The First Movable Domes

Similarly, complex technology was used in the design of twenty-seven 18x18x6.5 metre domes, which move on a frame driven by a 2.2 kilowatt direct drive, frequency controlled electric motor with an opening time of 72 seconds. These domes are made of a combination carbon, glass fibre epoxy laminate, with a ceramic tile outer cladding and wood epoxy laminate inner cladding. The integral bonding of the ceramic tiles to the outer surface was made possible by a mold system specifically developed by SL for this project with recessed pockets milled for each tile, with different colours and shapes used. The inner face of each dome was laminated with a maple veneer facing, with cedar ribs applied to it. Panels, hand carved by Moroccan craftsmen, are set into this frame. The juxtaposition of traditional techniques and sophisticated technology found in the fabric structures is evident here as well. The two kinds of structure also have deep symbolic roots in this culture as examples of the second phase of transformation of tradition through technology (Fig. 12).

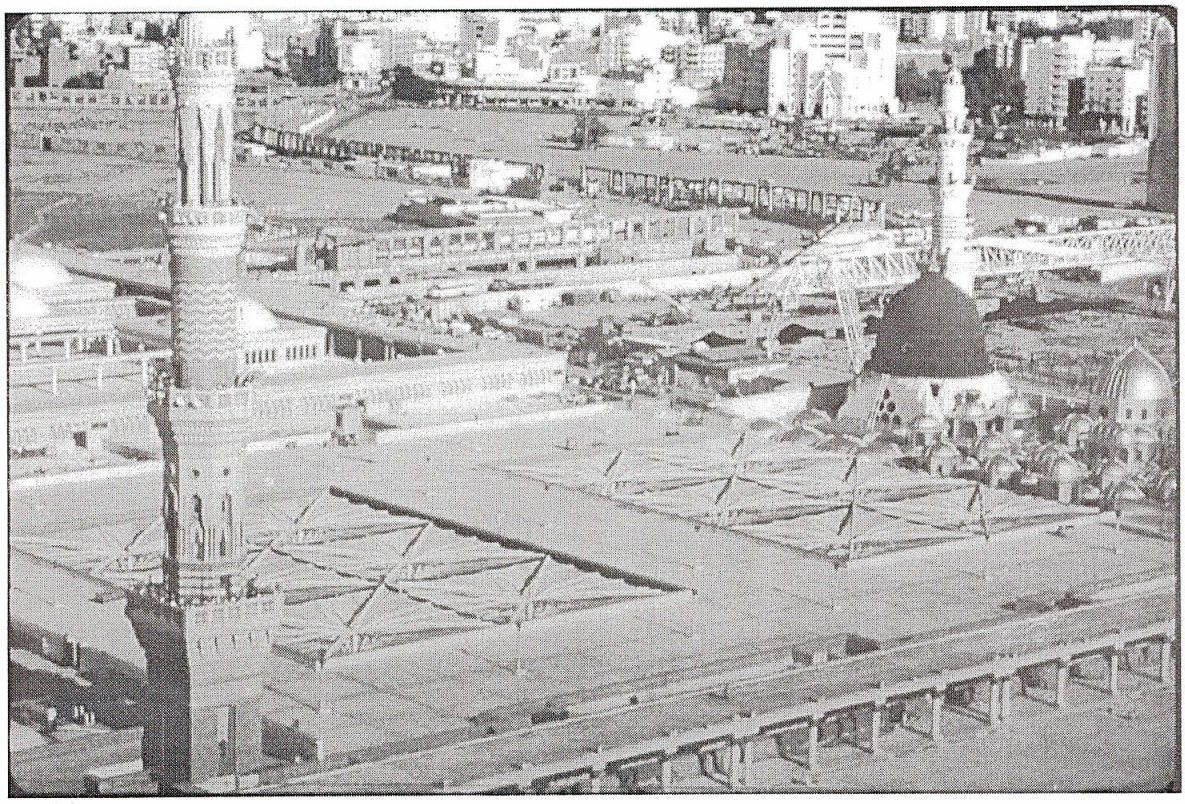


Fig. 10: Umbrellas by Rasch.

[7] Sonderkanstruktionen und Leichtbau, office publication, 1993. No pagination.

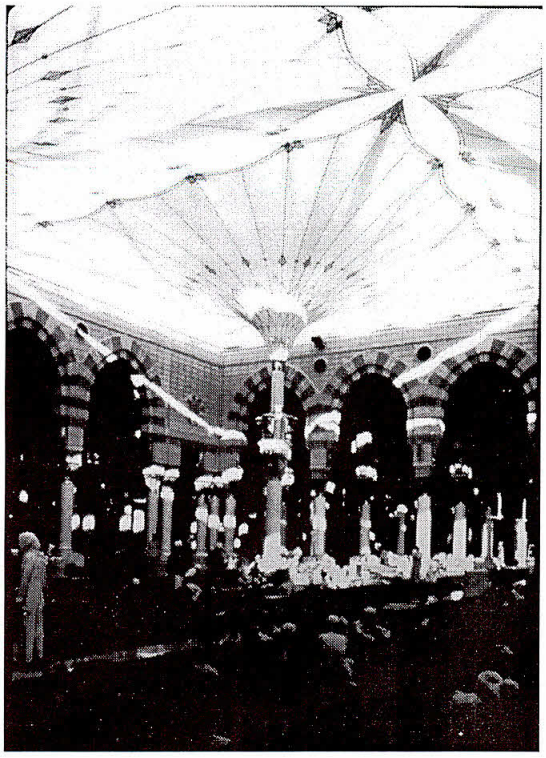


Fig. 11: Umbrellas by Rasch.

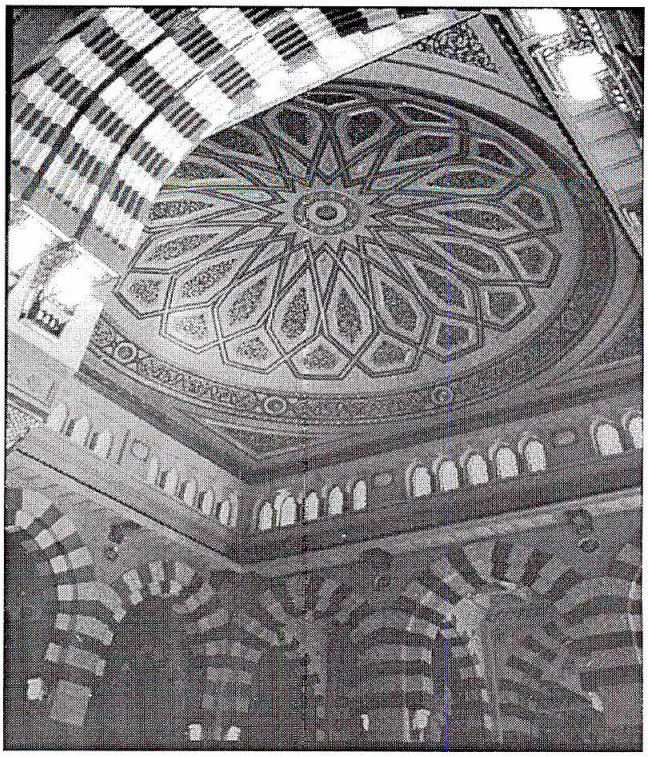


Fig. 12: Domes by Rasch.

Rasem Badran: The Third Phase

The work of Rasem Badran marks a third phase of international recognition, which partially overlaps the second. He has contributed another important statement about the appropriate relationship between a mosque and the urban context in which it is situated, as well as a somewhat different approach to the use of typologies than that taken by A. W. El-Wakil and the interaction between tradition and technology with S.L. His design for the Qasr al Hokm complex in Riyadh, begun in 1988 and completed in 1995, represents one of the most ambitious and carefully integrated urban interventions anywhere in the world in recent times, prefiguring the New Urbanism movement in the United States by half a decade in its reconsideration of civic zoning and character. Covering more than four square blocks of the downtown area, near the historic Musmak Fort, which played such a critical role in the formation of the new nation (Figs. 13&14). Badran, in his characteristically thorough approach did extensive background research into the history of the Najdi region before beginning design, photographing and sketching existing vernacular examples to discover essential principles, rather than stylistic forms [8] (Figs. 15-17).

Badran took a wide view of the problem, approaching it as a planning issue involving the administrative, cultural and educational activities in the central zone, which were threatened to be eclipsed by commercial usage, if decisive action was not taken. Badran also saw this as an opportunity to advance a new prototype, or rather re-introduce a successful historical strategy that had been altered by increasing use of the automobile, by re-establishing the severed link between religious, political and commercial uses evident in the past, such as the mixture seen in the Great Mosque in Damascus (Fig. 18).[1]

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[8] The role of the R.D.A. in K.S.A. was decisive in this direction, inquiries still underway at the time of publication.



Fig. 13: Aerial view of the Qasr al Hokm Complex, Riyadh, Rasem Badran, Architect.

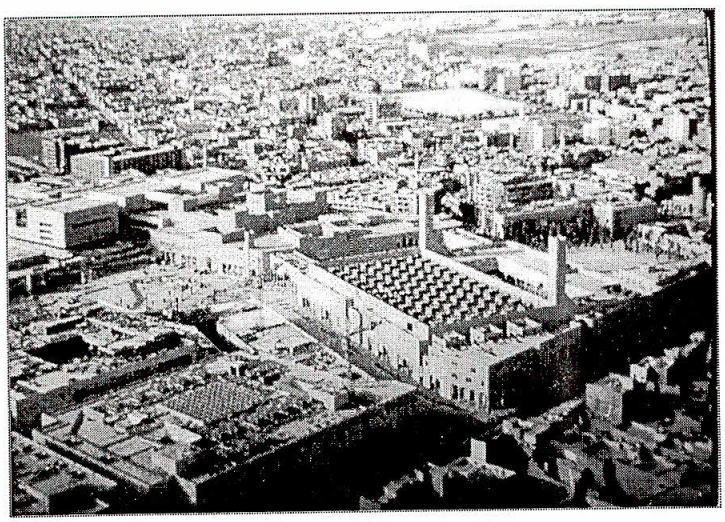


Fig. 14: Aerial view of the Qasr al Hokm Complex, Riyadh, Rasem Badran, Architect.

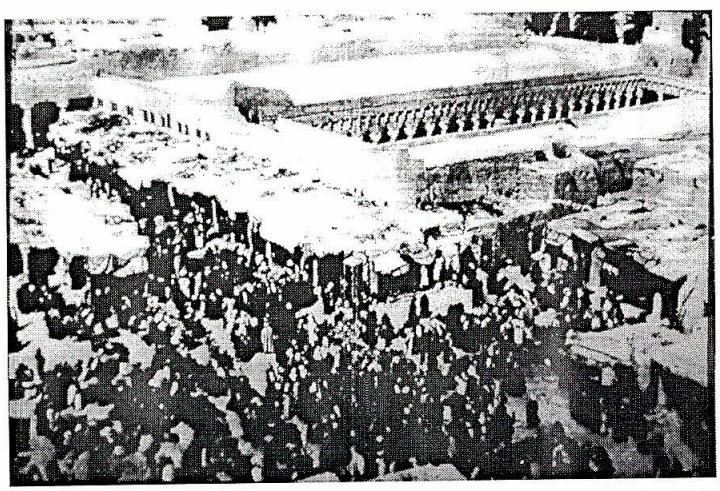


Fig. 15: Photograph of old Justice Palace Mosque taken in 1948.

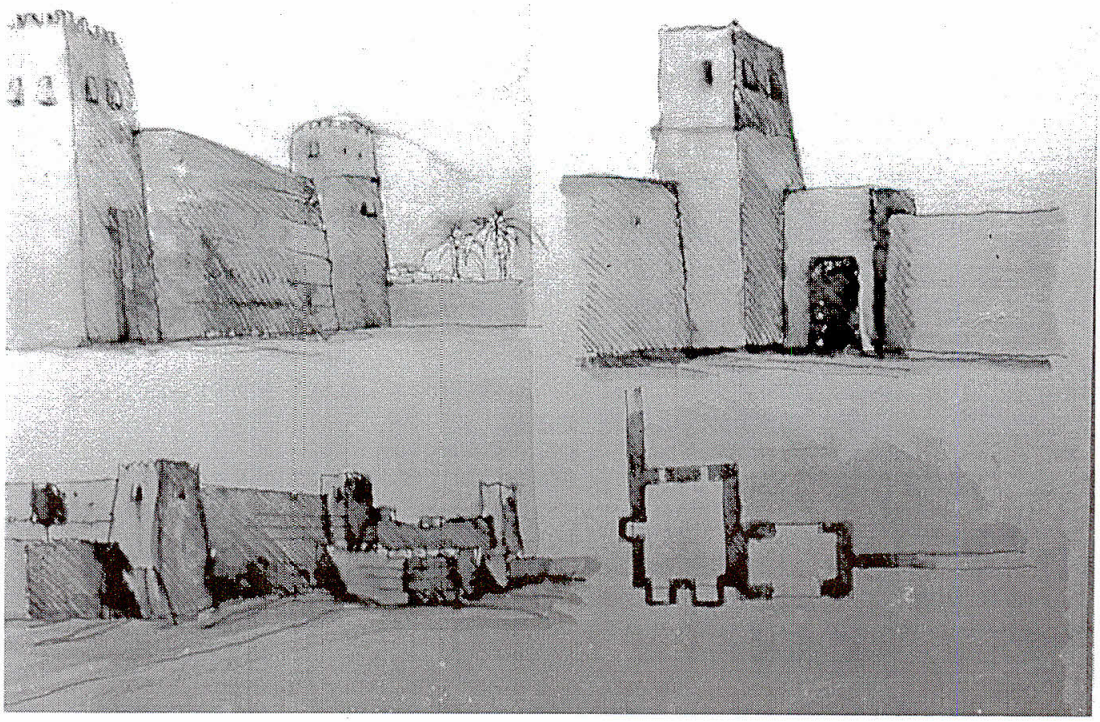


Fig. 16: Sketches by Badran of old section of Riyadh.

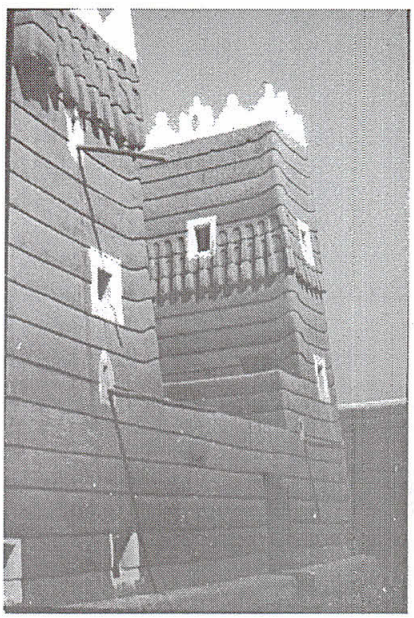


Fig. 17: Najdi House, James Steele.



Fig. 18: Aerial view Great Mosque in Damascus.

In carrying out his typological studies, Badran found scale to be one of the key criteria of the earlier architecture of the district. In direct contrast to the current trend toward singular monumental buildings often isolated in a carpark, he identified a consistent pattern of inter-linkage, which gave more comprehensibility to the fabric and contributed to social interaction and functional efficiency. Physical and symbolic connections between the disparate parts of this enormous project helped Badran to achieve such linkages (Fig. 19).

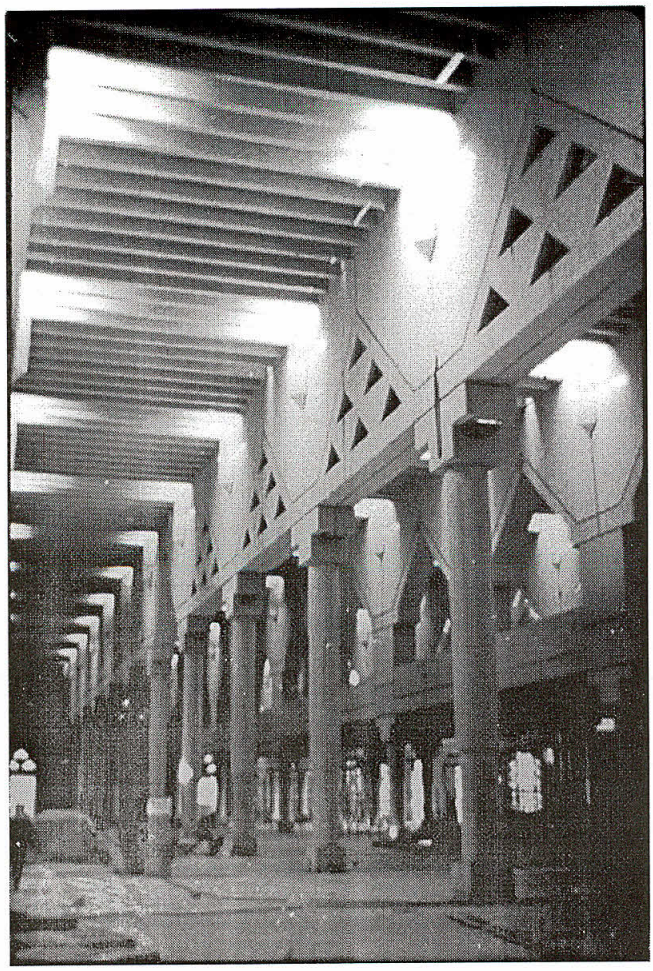


Fig. 19: Old and new column systems.

Continuity the Key at Qasr Al Hokm

A bridge between the mosque and the Administrative Palace area symbolizes an open relationship which carries over into the approach taken in the design of the Justice Palace. It fits seamlessly into the rest of the complex with established typologies of gates, walls and towers used to provide continuity, also provided by the boundary wall of the Palace which resembles that of old Riyadh. Clusters of administrative buildings, which are attached to it in some places and pulled away from it in others, continue the analogy of continuity and strength. The mosque, however, is the focus of attention. The architect's exhaustive preparatory sketches show that many alternatives were considered before a final design was decided upon. Badran's thorough testing of his empirical observations in a graphic, heuristic way is what separates his work from other architects seeking an appropriate expression of tradition today and it results in a powerful, elemental statement.

In deciding on a structural system for the mosque, for example, Badran returned to the hypostyle arrangement of the first mosque generated from the trunks of palm trees, which were used as columns (Fig. 20). The hypostyle configuration, finally employed, guides attention toward the Qibla, rather than obstructing it, naturally accommodating prayer rows. No detail is arbitrary, in considering whether or not to incorporate a minaret, given the increasing use and range of public address systems and the change in its original function, Badran concluded that the symbolic role of the traditional tower was more powerful than ever, rather than now being redundant. A study of local precedents suggested a double minaret.

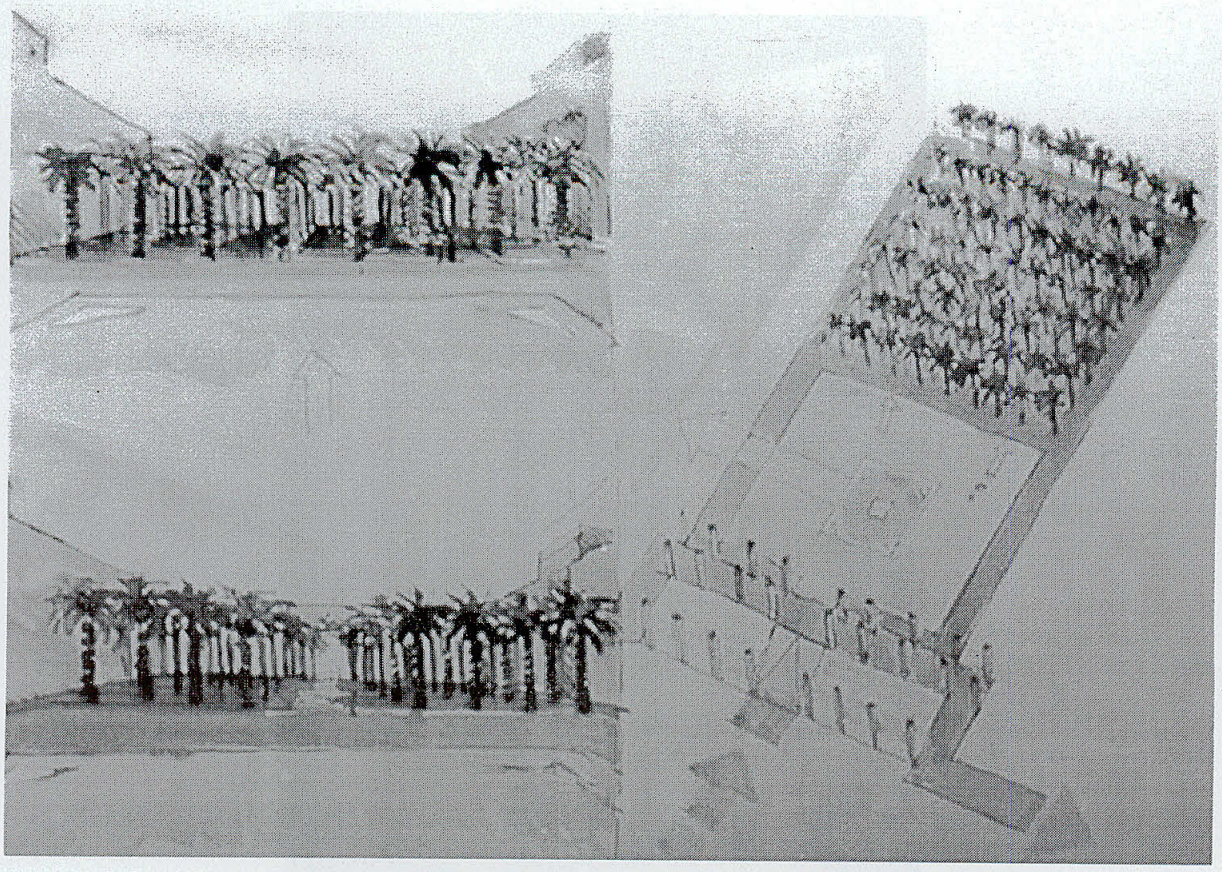


Fig. 20: Badran sketches of palm trees as columns.

Badran's concern for historical continuity extends to the use of natural environmental systems, augmented where necessary with the latest innovations in space conditioning for user comforts. In the Qasr al Hokm complex, natural lighting and ventilation are primarily supplied through a series of towers and the columns with which they correspond, eliminating the need for horizontal ductwork and unsightly suspended ceilings. The Qasr al Hokm Mosque and Justice Palace complex, substantially completed in 1993, provided Rasem Badran with an extensive opportunity to implement his ideas about the applicability of historical typologies to current practice, providing an important model for others to follow. A close study of the process he has used makes this project a critical example for the appropriate place of the mosque within the multi-layered fabric of the modern city. Badran has continued the study of the proper juxtaposition of the mosque with surrounding urban context in his most recent project in Kharj, Saudi Arabia.

In this instance, he has focused on an suq extending out from the building, or as an approach to it, rather than a commercial zone acting as a buffer between the mosque and the street, as in the Qasr al Hokm complex (Figs. 21&22). This variant substantially adds to the prototypical information established by the Justice Palace and Mosque studies, particularly in a smaller urban context.

Three Different Ways of Interpreting Tradition

The theoretical stances represented by each of the contributors discussed here, either cited as architects, contractors or agencies in the projects examined, run the gamut of possible positions in the current debate about the appropriate balance between tradition and technology in contemporary

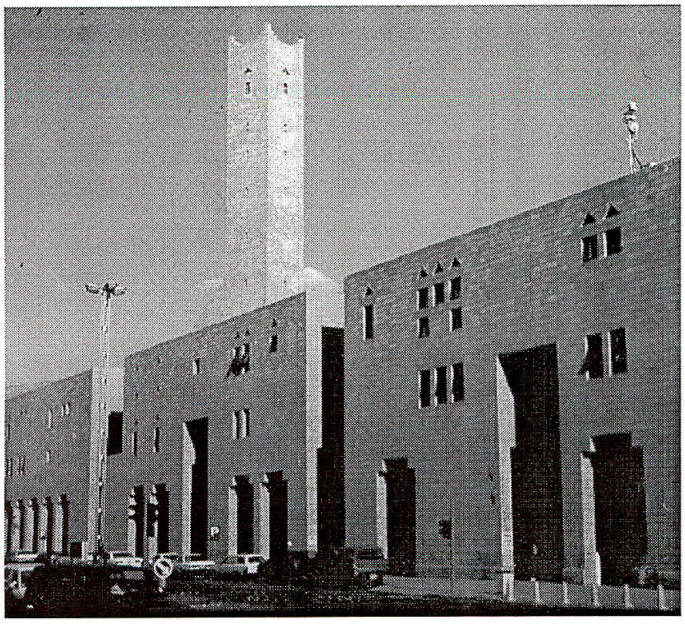


Fig. 21: Qasr Al Hokm Complex.

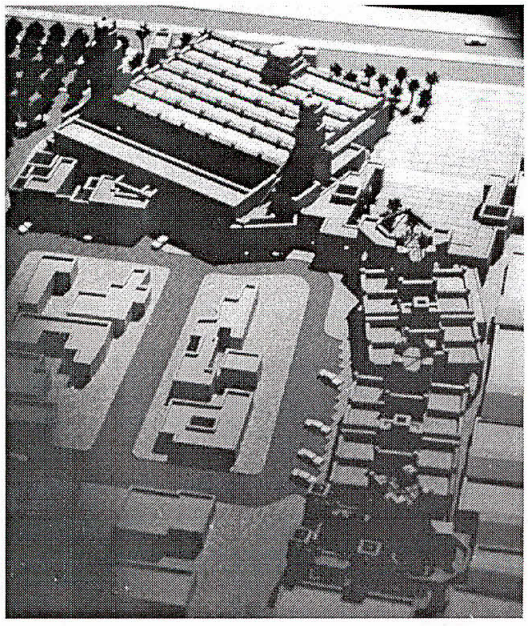


Fig. 22: Al Kharj Mosque, Rasem Badran.

architecture. The recent pressure of globalization, as well as the rapid replacement of cultural heritage in the rush to modernize, have combined to bring this issue to center stage. It is no longer a question of whether or not it is acceptable to express tradition, the only negotiation remaining is the best way to do so. Mosque design in the Kingdom of Saudi Arabia has proven to be a critical catalyst in this debate because the issues involve the most essential of all traditions, making the conclusions much more substantial and clearly defined. In summary, those positions, as related to the three practitioners discussed, may be characterized as literal rediscovery and reinterpretation in the case of Abdel Wahed El-Wakil, the transformation of tradition through technology by Bodo Rasch/SL and a heuristic assimilation of the essential principles of historic typologies by Rasem Badran. Each position has its advocates and each of these principles has now been codified in the slowly developing framework of sustainability theory, as it continually evolves and becomes formalized. [2]

Rather than being contradictory, as proponents of each of the positions frequently assert, it is more productive to objectively consider them as complementary aspects of a single agenda, which each have a place in formulating an architectural language which is more responsive to a growing popular desire for the expression of national heritage. Modernist constructs, such as the negative connotation attributed to derivation, or the more general disdain for history and its stylistic replication must be revised to accommodate all of these new approaches. Such a revision has been made more difficult by the spectacular failure of post modernism advances as an answer to popular inclusion, but finally just as exclusive as the modernist cabal it intended to displace. The indulgent superficiality into which this position finally degenerated, in the hands of far less talented designers than those who initiated it, made it even more difficult for those proposing more contextually specific and historically accurate alternative. The national framework provided for El-Wakil, Rasch and Badran, however, has made it possible for this alternative to be expressed. The mosque has been the ideal subject because, as El-Wakil has explained, the defining factor is "the importance of defining space in order for it to be sanctified as expressed and revealed in the Holy Quran."[3]

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التقنية والتقاليد في تصميم المساجد المعاصرة في المملكة العربية السعودية

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ملخص البحث : يبدأ هذا البحث بمناقشة الجوانب المختلفة للتوسعات الجديدة للحرمين الشريفين موضحا المستوي الرفيع للتنسيق والخبرة المطلوبة لاحتواء العدد المتزايد من المصلين وبنفس الوقت احترام النسيج العمراني الأصلي. يبدا الجزء الأول بالتركيز على شرح التقنيات الجديدة في كل حالة ، وبشكل خاص عن غطاء المظلة المفتوحة للساحتين الكبيرتين في توسعة خادم الحرمين الشريفين الملك فهد بن عبد العزيز للحرم النبوي الشريف بالإضافة إلى قبابه المتحركة. تهدف هذه الشروحات إلى توضيح عدة عوامل وهي: الكفاءة التقنية ، الحساسية البيئية، المناسبة للأمور التاريخية, والتداخل العمراني المشحون بالخبرة لتلك الحلول المتميزة والتحاليل التفصيلية.

ينتقل البحث إلى مقارنة نفس هذه المسائل المعروضة في عمارة مساجد معاصرة أخرى موجودة بالمملكة وعلى الأخص مسجد الإمام تركي في منطقة قصر الحكم بالرياض، ومسجد الملك عبد العزيز في الخرج وهما من تصميم المعماري راسم بدران، بالإضافة إلى مسجد الجزيرة، ومسجد الكورنيش, ومسجد الرويس في جدة ومسجد الميقات بالمدينة المنورة وجميعها من تصميم المعماري عبدالواحد الوكيل، ومسجد ساحة الكندي بحي السفارات بالرياض من تصميم المعماري علي الشعيبي. تثير تصاميم راسم بدران بعض النقاط المهمة فيم يخص تحديد الدور الرئيسي للمسجد في النسيج العمراني، والطريق الى كيفية تعريف هذا الدور. سيتم شرح طرق التصميم المتبعة من قبل بدران كما سيتم تحليل نجاح اتجاهاته المعمارية.