

## LAW AND THE CITY

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This contribution on the law and the city is about the interaction of societal values—which in Islamic culture are directly rooted in religion—with decision-making, the production process, and the resulting built form. The context of the discussion is holistic, beyond the building scale, to produce a clear understanding of the relationship of the part to the whole, the building to its immediate surroundings and to the urban scale. An understanding of the reciprocal effects of the overall built environment and the various levels of the environment, down to single buildings and their design, is crucial to a comprehension of architecture and the city in the context of Islamic culture.

The levels of the environment to be stressed are: the city, neighbourhood, clusters of buildings, and the single building. That order is not always critical to the following discussions, but the relationship between levels should be kept in mind, particularly when trying to interrelate the impact of values underlying decision-making and the nature of the production and construction processes.

### *Pre-Islamic precedents*

The Near East has witnessed in its history developments in law since the most ancient civilizations. Well-known and relatively late examples from Mesopotamia are the laws of Hammurabi, King of Babylon, who reigned from 1792 to 1750 B.C.<sup>1</sup> There has also been a long and ancient tradition of respecting local customs. Pre-Islamic settlement patterns, building typologies, construction techniques, and related decision-making processes influenced the emergent pattern of built form in Islamic cultures. Some Muslim scholars interpret one of the verses in the Quran, the holy book of Islam, as an instruction to accept local

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<sup>1</sup> For a detailed study of Babylonian laws see G. R. Driver and J. C. Miles, eds., *Babylonian Laws*, vol. 1, *Legal Commentary* (London, 1952).

traditions and conventions, provided they do not contravene Islamic values, ethics, or law. The Quran is considered by Muslims to be the word of God as revealed to the Prophet Mohammed. The applicable verse (from Surah, or chapter, 7 titled Al-A'raf, verse number 199) uses the Arabic term *'urf* to refer to an established local tradition for how something is to be done.

Contemplation of the complex plan pattern raises the question of how the common wall problems were addressed and resolved (figure 1). Islamic law addressed this and other problems related to this pattern and type of construction. Pre-Islamic legal precedents existed, as evidenced by the work of some scholars.<sup>2</sup>

### *Formation of urban models*

The Prophet Mohammed proclaimed Islam soon after 610 A.D. in Mecca, 450 km. (280 miles) south of Medina, where the Prophet finally settled in 622 A.D. That date represents year 1 of the Islamic calendar. The next decade in Medina which came under the guidance and leadership of the Prophet is considered very important as a source of example and precedent for all aspects of Islamic community living, including building. A number of cases are recorded of the Prophet's attitude to specific problems related to building activity. This is also true of the caliphs who succeeded him, including Umar bin Al-Khattab, the second caliph, who ruled during the period of 634 to 644 A.D. This guidance concerning building proved to be particularly crucial for the Maliki School of Law which evolved under Malik bin Anas (712–795 A.D.) who lived all his life in Medina. Followers of his School of Law live to this day in the *maghrib* countries of Libya, Tunisia, Algeria, Morocco, Andalusia on the Iberian peninsula until the early 1500s, and in Sub-Sahara Africa.

During the first three centuries of Islam a number of schools of thought and approaches to law were formulated. Under the Sunni

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<sup>2</sup> Ibid. Also see my detailed study "Julian of Ascalon's Treatise of Construction and Design Rules from Sixth-Century Palestine," *Journal of the Society of Architectural Historians* 60, no. 1 (March 2001): 4–25. The contents of this treatise draw from Near Eastern customary laws and Roman law. For a comparison of a case that deals with a party-wall that has fallen down and how similar legal solutions addressed this problem from the Neo-Assyrian and Islamic periods, see p. 72 of my "Arab-Islamic Urban Structure," *The Arabian Journal of Science and Engineering* 7, no. 2 (April 1982): 69–79.

branch of Islam the survivors are grouped into four schools: Hanafi, Maliki, Shafi'i, and Hanbali. Followers of Sunni Islam constitute the majority in the Muslim world, although in Iran, parts of Iraq, and some communities in Syria and Lebanon, the people are followers of Shi'ism and have their own school of law. It is important to note that the legal differences about building are minor and result from different interpretations by the various schools of law. Thus, the discussion based on the Maliki School in North Africa would largely hold true for other regions of the Muslim world.

Eighty-three years after the Prophet's death in June 8, 632 A.D. Islam already encompassed a vast territory stretching from the shores of the Atlantic Ocean and the Pyrenees to the borders of China—an area greater than Rome's at its zenith. This was achieved under the leadership of Abd al-Malik (685–705 A.D.) from his seat in Damascus and his four sons who succeeded him. Across this vast geographic area, three factors influenced the nature of building and planning as it evolved within the framework of Islamic civilization. First, the urban models of pre-Islamic cultures and civilizations in territories converted to Islam influenced the evolution of the structure and form of subsequent Islamic cities. This was particularly true in the region known as the Fertile Crescent and in Iran. Second, the camel was the primary means of transportation, predominating in the Middle East between the fourth and sixth centuries A.D.<sup>3</sup> This important and often forgotten factor had a major impact on the street system and urban form of the Islamic city. Third, the location of most territories of the Islamic world between latitudes 10 and 40 and the resulting similarity in macroclimatic conditions contributed toward certain unifying influences in building practice.<sup>4</sup>

Some historians agree that three discernible urban models evolved within the framework of Islamic civilization. These are the renewed or remodelled pre-Islamic city, the planned and designed city, and the spontaneously created and incrementally grown city.<sup>5</sup>

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<sup>3</sup> See Richard W. Bulliet, *The Camel and the Wheel* (Cambridge, MA, 1975).

<sup>4</sup> For the climatic advantages of the courtyard house type, which was the most widespread in the Islamic world, see D. Dunham, "The courtyard house as a temperature regulator," *The New Scientist*, September 1960: 663–666. For innovation of cooling systems in arid regions see M. N. Bahadori, "Passive cooling systems in Iranian architecture," *Scientific American*, February 1978, 144–154.

<sup>5</sup> See Edmond Pauty, "Villes spontanées et villes créées en Islam," *Annales de l'Institut d'Études Orientales* 9 (1951): 52–75; and Jean Sauvaget, "Esquisse d'une Histoire de la

The renewed city is found most often in previously held Roman territories and is exemplified by Damascus and Aleppo. Earlier structures and configurations were altered to suit the social requirements of the Muslim community. The pre-Islamic Southwest Arabian model of isolated multi-storey structures, such as Sana'a, and particularly prevalent in Yemen, is also classified under this model. Research is required to determine why this type did not spread beyond the few localities in which it arose.

The second type of city was pre-planned and designed by Muslim rulers to be the capital of a dynasty or, more typically, as the seat of a palace complex and its related facilities. A prime example of a preconceived city palace complex constructed as a complete entity was the original round city of Baghdad, while Al-Abbasiyah, south of present Kairouan, was a palace complex; neither survives today. The model influencing the plan and design of this second type of city can generally be identified by the geographic location. In the case of the *mashriq* (eastern regions), pre-Islamic models had a distinct influence, whereas in the *maghrib* (western regions), the influences on the ruler and his experiences determined the model and approach followed. After the collapse of a dynasty, the tradition was to abandon this type of city or palace complex, with the result that today they remain as ruins or are completely obliterated and require restoration by archaeologists.

The third model of the Islamic city proved to be the most enduring and pervasive, and today most of the older areas of capitals and major towns in the Muslim world evolved out of this model. The best examples of the old quarters or *medina* survive in the *maghrib* countries; in some instances, they are severely threatened today by the automobile. Although the organizational principles of this model predate Islam by at least 2500 years and were particularly common in southern Mesopotamia, the strength, characteristics, and longevity of this city type reflect the manner in which building activity was pursued in Islamic society (figure 2).

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ville de Damas," *Revue des Etudes Islamiques* 8, no. 4 (1934): 421–480; and his two-volume study on *Alep: Essai sur le développement d'une grande ville Syrienne des origines au milieu du XIX siècle* (Paris, 1941).

*Understanding urbanism as process and product*

Viewing the city as a process and a product is an effective analytical evaluation and planning tool and is indispensable for the study of the Islamic city. The process encompasses decision-making in building activity as guided by Islamic values. It can best be appreciated by viewing the dynamics of building decision-making as affecting two levels of the city: citywide and neighbourhood. Decisions about the citywide level were usually made by the ruler or government; they concerned the birth, growth, and revitalization of a city, and would include the location of the primary mosque, the distribution of the land in the projected boundaries of the city to various ethnic, familial, or tribal affiliations, and the location and configuration of the city's gates and walls. All of these were the result of decisions taken in the first few years of a city's founding.

Other typical primary decisions occurring during a city's growth involved the building of major public buildings such as mosques and public baths, or the location of new cemeteries. Revitalization activity often took place under the leadership of ambitious rulers and governments during eras marked by security and prosperity. Site conditions and the location of determining factors, such as water and natural features useful for defensive purposes, had an impact on macro decision-making and, hence, the resulting urban form.

The dynamics of decisions made at the level of the neighbourhood tended to be of a different nature and the results were of immediate significance. The effect of numerous micro decisions by citizens of a neighbourhood on urban form was indirect and usually obvious only on an aggregate basis, whereas the results of the larger decisions by rulers—such as the location of major mosques, of the *suq* (market) and its configurations, and of important industries tended to be individually discernible. Building decisions at the neighbourhood level had an impact on both the initiator and on immediate neighbours. Building activity and decisions involved the relationships and interdependence of people, and more specifically neighbours; such activity was therefore the concern of Islamic law.

Examining the city as a product clarifies how a complex, heterogeneous, and sophisticated built form is achievable with a simple set of physical organizational components and a related mechanism of verbal communication used in building decisions. The essential urban elements found in most cities of the Islamic world are the courtyard building, the street system, and the elements above the street.

*The Courtyard Building.* This is the basic module used for housing and public buildings. The ratio of building area to plot is 1:1. In housing, the courtyard takes up approximately 24% of the ground coverage, and the building is one, two, or occasionally three stories in height. Public buildings differ in their ratio of courtyard size to ground coverage, and the height is one story, as in mosques, but frequently is two stories, as in a *funduk* or *khan* (hostels for merchants). It should be noted that the Prophet affirmed the use of this plan type by building his mosque/residence soon after his arrival in Medina in the form of a square courtyard structure.

*The Street System.* Street systems are primarily of two types: the through, open-ended street which was considered a public right of way and had to be at least wide enough for two packed camels to pass; and the cul-de-sac which, according to Islamic law, is considered to be the private property of the people having access from it to their front doors (figure 3).

*Elements Above the Street.* The elements usually found above the street were a *sabat*, a room bridging the street, and the buttressing arches spanning between walls on either side of the street to provide structural strength and support for both opposite walls (figure 4).

In addition to this basically simple set of organizational elements, the Islamic city evolved a sophisticated communication system in the form of a language or vocabulary of building design that operated at all levels of the built environment. At the level of the city, it identified urban elements such as building types, public squares, and other uses. At the building level, it identified spatial configurations and related uses, as well as details of construction, decoration, and symbolic motifs. An important attribute of this language was that it integrated a physical component's form and function into its name. This vocabulary was known and popular amongst most segments of society involved in building activity, and it was an effective communication device between users and builders. Regional variations in the design vocabulary existed, but the language was unified by the similarity of the built form and its constituents.<sup>6</sup>

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<sup>6</sup> For a detailed presentation of a design language at the urban level, see Chapter 2 "A design language: urban and architectural elements" of my book *Arabic-Islamic Cities: Building and Planning Principles*, 2nd ed. ([1979] 1986; London and New York, 1988), 55–101. [Available from Books on Demand, UMI, Ann Arbor, MI].

*The fiqh and formation of the rule system*

The development of rules for neighbourhood building activity became the concern of the science of *fiqh* from its very early development.

*Fiqh* is the Arabic term for jurisprudence or the science of religious law in Islam. It concerns itself with two spheres of activity: *‘ibadat*, dealing with matters concerning ritual observances; and *mu‘amalāt*, the legal questions that arise in social life (e.g., family law, law of inheritance, of property, of contracts, criminal law, etc.), and problems arising from building activity and related procedures. The latter were viewed by the *fiqh* in the same light as other problems resulting from human activities and interaction. In essence, therefore, *fiqh* is the science of laws based on religion and is concerned with all aspects of public and private life and business.

The bulk of the knowledge developed by the *fiqh* for most aspects of human relationships, including those of building activity, appeared in the first 300 years of Islam, although subsequent generations developed and refined it. The source for most rules stemmed from Quranic values and from the Hadith, which are the sayings and tradition of the Prophet, particularly during the decade of his leadership and rule in Medina.<sup>7</sup> Note that the recorded nature of most rules in the *fiqh* literature is implicit in the numerous cases also recorded that include the judgments of local *qadis* (judges) and the opinions of *muftis*.<sup>8</sup>

A set of rules documented in the literature of the Maliki School of law is identified and discussed elsewhere.<sup>9</sup> Some of those can be briefly itemized:

- Avoid harm to others and oneself.
- Accept the concept of interdependence.
- Respect the privacy of the private domain of others, particularly avoiding the creation of direct visual corridors.
- Respect the rights of original or earlier usage.
- Respect the rights of building higher within one’s air space.

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<sup>7</sup> The term Sunnah is more commonly used to mean the total traditions of the Prophet, including his deeds and life-style, as well as his sayings.

<sup>8</sup> A *mufti* is a specialist on the law who can give authoritative opinions on points of doctrine. His considered legal opinion is called *fatwa*.

<sup>9</sup> See Chapter 1 “Islamic law and neighbourhood building guidelines,” in my book *Arabic-Islamic Cities* (full citation in note 6 above), 15–54.

- Respect property of others.
- Neighbours have the right of pre-emption of an adjacent property.
- Seven cubits as the minimum width of public through-streets (to allow two fully loaded camels to pass).
- Avoid placing the sources of unpleasant smells and noisy activities adjacent to or near mosques.

In addition, other rules on the behaviour of the individual and community operate as a self-regulating mechanism. A prime example is the concept of *beauty without arrogance*, which strongly influenced the manner in which exterior facades and elevations of buildings were regarded and treated. This concept is attributed directly to the Prophet Mohammed in the form of the saying, “No person with an atom of arrogance in his heart will enter paradise.” According to Muslim, a renowned Hadith scholar, a man said: “A person likes to wear good clothes and shoes.” The Prophet answered: “God is beautiful and He loves beauty.” By tradition, and allowing for beauty without arrogance, an owner usually decorated only the front door of a building, to express his attitudes and identity. In contrast, the interiors of buildings were decorated, particularly the facades of the courtyard. The sophistication or level of such decoration depended on the financial ability and taste of the owner.

Quranic verses and sayings of the Prophet, which were used as the source for building guidelines, can be found elsewhere.<sup>10</sup> In most cases these verses and sayings were specifically pointed out by the author of a *fiqh* manuscript to back up or elaborate on the reasons and rationale behind a *qadi*'s decision or an opinion of a *mufti*.

#### *The role of local customs* (‘Urf)

Up to the early years of the twentieth century, we find that within the Islamic world two types of rule systems operated simultaneously. The centrally imposed system, and the localized, community-based customary rules. Both types of “rule system” have had their impact on the traditional built environment of Islamic societies. Ideas and stipulations

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<sup>10</sup> See Appendix 1 “Selected Quranic verses and sayings of the Prophet” of my *Arabic-Islamic Cities* (full citation in note 6 above), 142–157.

from the former tended to create a unity of concepts and attitudes to the built environment in the various regions of the Islamic world. The latter tended to influence the details and architectonics of the local built form. These two types of rules operating simultaneously contributed to the phenomenon of the diversity of settlements of sub-regions of the Islamic world, yet unified by the general concepts and attitudes which all regions shared. Essentially, resulting in uniqueness at the micro-level and certain commonalities at the macro-level.

The majority of pre-Islamic Arab societies in Arabia regulated their lives in response to deeply rooted meta-customs known to different tribes in the region and to localized customs followed by a specific tribe. The former usually emanated from religious beliefs and helped to regulate inter-tribal conflicts, such as the concept of *haram* and *hawtah*: essentially the demarcation of space into sacred and profane areas where in the sacred area certain types of activities and behaviour are prohibited.<sup>11</sup> An example of localized customs is the manner in which the *fitra* (an instinctive impulse or innate understanding) generated building solutions which had local specificity and character. A large number of those customs, both at the meta and local levels, continued during the Islamic era because they did not contravene Islamic values and ethics as stipulated in the texts.

Islamic law underwent gradual development and reached maturity during the latter half of the third Islamic century, that is, by around 900 A.D. The sources of law which all Sunni schools of law agree on are the Qur'an, Sunnah (the Prophet's sayings and deeds), *ijma'* (opinion based on consensus of majority of learned Muslims), and *qiyas* (judgment based on reasoning by analogy). In the case of the Hanafi, Maliki, and Hanbali schools, they added *istihsan* (deviation from a common ruling regarding a problem to a ruling based on special circumstances). The Hanbali, and especially the Maliki schools added the concept of *al-istislah* or *al-masaleh al-mursala* (addressing those problems which the primary sources have not addressed before and which require solutions tailored to the special circumstances of time and place). *Urf* (customs), as a source of legislation, was especially recognized by the Hanafi and Maliki schools and was for practical reasons accepted by all schools in

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<sup>11</sup> See R. B. Serjeant, "Haram and Hawtah, the Sacred Enclave in Arabia," in *Melanges Taha Husain*, ed. Abdurrahman Badawi (Cairo, 1962). Reprinted in R. B. Serjeant, *Studies in Arabian History and Civilization* (London, 1981).

one aspect or another. For the *ʿurf* to be followed, it has to be “correct” (that is, it must not contravene clearly specified Islamic laws and prohibitions). Traditional building activities and methods of construction were primarily shaped by local customs, affecting the specificity of design resulting from the art and construction practices of a locality.<sup>12</sup>

*Fiqh principles (Qawaʿid Fiqhiyya) encourage proscriptive rules*

There are over one hundred principles upon which Islamic jurisprudence is based.<sup>13</sup> The following are seven, chosen because they have had a direct effect on the traditional built environment. They are here woven together to portray their cumulative rationale:

1. The basis for action is the freedom to act,
2. stimulated and judged by the intentions for those actions,
3. which are constrained by the prevention of damages to others.
4. However, it is sometimes necessary to tolerate lesser damages so as to avoid greater ones.
5. Older established facts must be taken into account by adjusting to their presence and conditions.
6. People’s customs must be respected and followed,
7. however, time might change those customs and new solutions will be needed.

When applied to the context of the built environment these principles provided the freedom to act and build restrained by certain limits. They are thus proscriptive in nature, allowing the liberty to generate solutions to specific local problems in response to the site and the conditions around it. An equilibrium is established on the site where the “best” solution is achieved for a specific micro-condition at a specific period

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<sup>12</sup> For a thorough analysis of how the *ʿurf* contributed to the diversity of architecture and urban form of traditional cities in the Islamic world, see my study “The *Urf* and its role in diversifying the architecture of traditional Islamic cities,” *Journal of Architectural and Planning Research* 11, no. 2 (Summer 1994): 108–127.

<sup>13</sup> Mustafa Ahmed Al-Zarka, *Sharh al-Qawaʿid al-Fiqhiyya*, 2nd ed. (Damascus, 1989). The author is the son of Ahmed bin Muhammad al-Zarka (d. 1938) who wrote the first edition of this book. For a literature review and an extensive bibliography see the article by Wolfhart Heinrichs, “*Qawaʿid* as a genre of legal literature,” in *Studies in Islamic Legal Theory*, ed. Bernard G. Weiss (Leiden, 2002), 365–384.

in time. Diversity is, thus, achieved in the built environment so that every locality and street becomes unique in character and contributes substantially to its identity. This in turn contributes to the richness of the total built environment. People's customs are fully incorporated in the manner they build and can express their world-view in built form. The system also recognizes and adapts to changes in those customs across time.

There are numerous aspects of the built environment which can clarify the working of this system. Two concepts are introduced and briefly defined. One is the spatial concept of the *finā'* which is the space enveloping a building, usually in the range of 1 metre (3 feet) in width, and which surrounds all the exterior configurations of a structure. Within it the owner has certain rights and responsibilities. The other is a physical entity called the *sabat*, which is a structure bridging a public right-of-way and is constructed for additional space. There are specific rules which must be adhered to for construction, especially the manner in which the supports are resolved. The working of these and many more examples as governed by the above principles is available elsewhere.<sup>14</sup>

#### *A simulation of the building process*

To appreciate the interaction between the mechanisms of the building process, consider the following simulation which includes one example for each component of a five-part framework devised by this author to represent the physical factors that shaped the traditional Islamic city, particularly at its neighbourhood level. This framework encompasses all building activity issues touched on in the *fiqh* literature of the Maliki School of Law. The components are: (1) streets, including through streets and cul-de-sacs, and related elements; (2) locational restrictions of uses causing harm, such as smoke, offensive odour, and noise; (3) overlooking issues, including visual corridors generated by doors, window openings, and heights; (4) walls between neighbours and their rights of ownership and usage; and (5) drainage of rain and waste water.

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<sup>14</sup> See pages 27–30 of my *Arabic-Islamic Cities* (full citation in note 6 above). For how we can learn from traditional concepts, processes and techniques see my article "Learning from traditional Mediterranean codes," in *Council Report III/IV*, published by The Town Paper (Gaithersburg, MD, 2003), 42, 43, 63.

Imagine that a man wants to build on a vacant lot or to reuse a site on which a dilapidated house stands. If the intention is to rebuild a structure for the same use, then he can proceed with no objections; if the plan is to build a public bath or bakery, however, then he will more than likely be faced with objections from the neighbours. The reasons given are that such new public uses will create harm in three ways; (1) by generating additional traffic on the street(s) providing access to the facility, thus, causing the people living nearby to have to adjust to this new condition; (2) by the nuisance of the smoke generated; and (3) by diminishing the value of the adjacent houses because of the impending adjacent public uses and the nuisances that will result. Two frequently cited sources supporting these complaints are used by the *fuqaha'* (plural of *faqih*, a jurisprudence scholar), for preventing the change in use. The Quran says: "And diminish not the goods of the people, and do not mischief in the earth working corruption" (26:183). From the sayings of the Prophet comes: "Do not harm others or yourself, and others should not harm you or themselves" (cited by Ahmad and Ibn Majah).

After exploring other uses for the site, the owner decides to build a house. He asks a local builder to construct it; the two will communicate with each other about the design requirements by using the local design language. This is done by identifying each part according to its name in the design language. To illustrate, examples from the local language in the Tunis region are used: the owner requires one *skifa* (entrance lobby with entry doors placed so that no one can see directly into the courtyard from the outside), with two *dukkana* facing each other (built-in benches provided in the *skifa*, traditionally used by the male owner or occupant to receive casual visitors or salesmen). He specifies that the *wust al-dar* (open courtyard in the centre of the house) should have under it a *majin* (cistern for the collection of rainwater from the roofs), and one *burtal* (a colonnaded gallery off the courtyard giving importance and sometimes sun protection to the room behind) off the main room. Around the courtyard he asks the builder for three *bit trida* (simple rooms) and one *bit bel-kbu u mkasar* (a primary room common in middle- and upper-middle-class houses), which is usually located opposite the entrance to the court. This primary room is divided into (1) a central alcove called a *kbu*, usually containing built-in seating and elaborate wall and ceiling decorations, and used to receive close relatives and friends; (2) two small rooms symmetrically located on each side of the *kbu* called *maqsura* and used as bedrooms; and (3) two alcoves, constructed opposite each other, with built-in beds and/or storage. The built-in beds could be placed on one or both sides of the alcove and are

usually framed with a decorative wooden structure called *hanut hajiäm*. This listing could continue on to the smallest details of decoration and finishes (figure 5).

If the house is relatively complex, then the builder will more than likely sketch out the plan and any other details, but for his own use and not to communicate with the owner. When the design language is not adequate for both owner and builder to clarify a point, then either one, but more commonly the owner, takes the builder to see a house to indicate what he has in mind.

The builder is expected to know about the customs and traditions of building practice and the principles to be followed and respected. Surprisingly, the detailed implications of building rules were not common knowledge among the lower ranks of builders. Often, references are made in ancient manuscripts to implemented building decisions that were violations and were later ordered by the local judge *qadi* to be demolished or corrected in response to a neighbour's complaints. It seems, however, that the more established and older builders with many years of experience who were often hired by affluent clients had detailed insights of the rules.

Having determined the usage of the site and using the design language for planning purposes, the builder and owner examine the likely effects on their requirements and decisions of existing surrounding buildings. If a window exists on one of the neighbour's walls, for example, then its location had to be taken into consideration in the building of the new house because of the respect for the principle of the earlier rights of usage. The new owner of the house had the responsibility to avoid creating a direct visual corridor from the existing window into his private domain; in effect he had to pre-empt problems that could arise from having visual access to his house.

Rather than building another adjacent wall, a neighbour's wall could be used to insert beams for support. This practice was specifically encouraged by the Prophet: "A neighbour should not forbid his neighbour to insert wooden beams in his wall" (cited by Abu Hurairah). Nonetheless, there were elaborate guidelines to be respected for using a neighbour's wall and for the associated problems of subsequent maintenance rights. For example, the ratio of the wall to be used depended on its ownership. In the case of rebuilding a dilapidated house, correct identification of the ownership of adjacent walls was therefore crucial. Careful examination of the wall was guided by criteria that determined whether ownership was single or joint. The most common of these criteria was to discover the nature of the *akd* or wall bond at the corners

or junction of two walls, by examining the materials and mortar to resolve whether the two walls were built together. This practice which was sanctioned by the Prophet is traceable to the decade of 622–632 A.D. in Medina and is still followed today in the older parts of Islamic cities under the local customary law, or *urf*.

The problem of drainage of rain and wastewater also had to follow certain rules and guidelines. Drainage of rainwater was a particularly delicate problem because excess water was not to be barred from others. This principle is directly attributed to two sayings of the Prophet: “If you deny excess water, you will deny the benefits of pasture” (cited by Abu Hurairah), and “Muslims are partners in three things: water, pasture, and fire” (cited by Abu Dawood and Ibn Majah via Ibn Abbas).

As to the relationship of houses to streets, assume that one side of a house adjoins a through street and the owner wants more space. One option is to build a *sabat* (room bridging the street). To support the structure on the opposite side, the owner could acquire permission from the owner of the facing building, but the granting of such permission was not totally irrevocable and, thus, this alternative depended on the owner’s perception of his future relationship with his opposite neighbour. More than likely, the owner would choose to use columns for support, keeping himself and his heirs totally independent of his neighbour. Another option would be to use columns for supporting both sides, opening up the future possibility of being able to sell the *sabat* to the owner of the opposite building, and generally upgrading the marketability of the house.

The preceding illustrations provide only an overview of the issues involved in the typical building process of a house. Many other cases, some of them extremely involved, may be found elsewhere.<sup>15</sup> This discussion is adequate, however, to illuminate the fact that the built form was a direct outcome of the dynamics of decision-making, using specific mechanisms and governed by *fiqh* rules derived from Islamic values embodied in the Qur’an and the Hadith.

### *Conclusion*

I shall conclude this contribution with two discussions. The first assumes that the traditional system offers a great deal to learn from for our

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<sup>15</sup> See Chapter 1 of my *Arabic-Islamic Cities* (full citation in note 6 above).

contemporary period and for the future. The second suggests numerous areas for further research that are necessary to develop our knowledge and understanding of the workings of the traditional system and, by extension, enable us to develop a comprehensive theory of the traditional Islamic city.

*Learning from the past.* The traditional system of building and of urban activities in most cities of the Islamic world was an incremental and constantly rebalanced process of development involving the synthesis of religious and socio-cultural conventions. The system was self-regulating, so that any significant departure or contravention of the rules and conventions created a situation where corrective action had to be undertaken; in the absence of such action, the intervention of the *qadi* (local judge) provided the prescription for normalizing the conflict within the system, in line with the established norms and rules operational in the community.

Specifically, three experiences are valuable to the contemporary context. The first is the importance of the legal framework as the prime shaper of the urban environment, particularly environments at the level of the neighbourhood. Certainly this is also true today with zoning ordinances, subdivision regulations, and building codes. However, the nature of the legal framework is where the Islamic city can provide fresh insight. The *fiqh* building rules were derived from societal values based on religious beliefs and were supported by adequate elaboration of the intent of each rule. Specific numerical prescriptions were not indicated and only rarely cited as an example of how a specific problem ought to be resolved. In essence, the rules functioned as performance criteria, as opposed to contemporary building and planning laws which are based on standards. The former is qualitative, intent-oriented, and responsive to changes in requirements or site conditions, whereas the latter is quantitative, numerically oriented, and not responsive to changes in requirements or location. Not only is the performance criteria approach more sophisticated in terms of addressing each building problem within its own context, but the aggregate results it helps to create as built environment are diverse and complex. Laws based on standards address all problems uniformly, with results of repetitiveness and monotony in the built environment. The best examples are the thousands of suburbs that were developed in the West, particularly in the United States during the twentieth century, and especially since World War II.

The second lesson is the use of a building “design language” as a communication and design-decision-making aid. The components of the language integrate the three-dimensional form and function of the design element being communicated. This mechanism helps the user and builder to communicate with each other. It also preserves and perpetuates design-configurations and forms which have proved their durability through experience without hindering diversity in the individual design solution.

The third primary lesson is in the nature of the physical organization. As mentioned earlier, the system of courtyard buildings serviced by cul-de-sacs and through streets pre-dates Islam; however, Islamic civilization developed and refined this system and spread it across a vast geographic area, aided by the simultaneous development and acquisition of *fiqh* knowledge as it pertained to interventions in the built environment. Some highlights of the attributes of this organizational system follow. The courtyard plan form is able to accommodate diverse uses. The densities created in housing are efficient without sacrificing the privacy of the individual unit. Streets as an access network are maximally utilized, as in the example of the central portion of Tunis Medina. All streets take up 12.5% of the gross built up area and only 13.3% of those are cul-de-sacs serving 28.5% of all buildings, i.e. a relatively low proportion of cul-de-sacs serving a high proportion of buildings. *Sabats* (rooms over streets) are used to create extra space for private users, simultaneously providing cover to the public in the streets. In the central portion of Tunis Medina, 8% of all streets are covered by *sabats*, in addition to 7.5% covered by vaulting, providing coverage to a total of 15.5% of the city's streets.

There are numerous attributes in addition to those mentioned above, such as the use and details of decoration and ornament in the realm of art. Another important attribute which has received some attention before is the energy saving attributes of the built form within the context of an arid region, aided by energy saving practices and devices such as the wind tower, air vent, cisterns for storing water and keeping it cool, and the ice maker.<sup>16</sup> Other practices were the collection and storage of rainwater in cisterns under the courtyard of buildings, the

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<sup>16</sup> Refer to the references in note 4 above, and see the numerous examples from Iran in E. Beazley and M. Harverson, *Living with the Desert: Working Buildings of the Iranian Plateau* (Warminster, Wilts, England, 1982).

effective use of basements as living quarters during the hot season, and the recycling of building materials.

Although this discussion addresses Islamic environments, there are universal benefits; it is hoped that the value of this information will be of interest and use to peoples of other cultures today and in the future. Amos Rapoport clearly points out the relevance and importance of this information, when he says:

The broader our sample in space and time, the more likely we are to see regularities in apparent chaos, as well as to understand better those differences that are significant. Thus, the more likely we are to see patterns and relationships, and these are the most significant things for which to look. Being able to establish the presence of such patterns may help us deal with the problem of constancy and change.... It is very important to understand constancies as well as change, since our culture stresses change to an inordinate degree. Also, if apparent change and variability are an expression of invariant processes, this is extremely important because the reasons for doing apparently different things remain the same.<sup>17</sup>

*Areas for further research.* The following suggestions for study and research are not exhaustive, but should be considered as an essential preliminary list of topics which are necessary to be undertaken for generating the knowledge and the building blocks, so that a serious attempt can take place in constructing a theory of urban form in Islamic cultures. The list suggests topics dealing with the settlement level followed by those of relevance at the cluster/neighbourhood level, and then those of value at the single building level. Some of the suggestions are of significance to all three levels combined, and some to two levels. The list of topics follows:

1. Pre-Islamic conceptions of the urban settlement and the city in the Near East and especially in the western region of the Arabian Peninsula. How did the Arabs who were converted to Islam apply the concepts in establishing new settlements and in adapting existing towns and cities, such as the case of Damascus and Aleppo? To my knowledge, no substantive studies are available which address patterns in land tenure, ownership rights, and control of space, and how those patterns affected the configurations of buildings, streets, and the alignment of shops in commercial areas and markets.

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<sup>17</sup> A. Rapoport, "Cultural Origins of Architecture," in *Introduction to Architecture*, ed. J. C. Snyder and A. J. Catanese (New York, 1979), 18.

2. The process of land demarcation and sub-division in the early formation of Islamic cities. This is the initial process undertaken for allocating land to public and private uses. Did the allocation of private land precede considerations for the layout of public right-of-ways? What was the technique in undertaking this task? Or was the process in the reverse direction?<sup>18</sup>
3. A detailed study of the principles and workings of land allotment, *iqta'*, and revivification, *ihya'*, of land within and on the fringes of settlements. The Prophet applied the principle of *iqta'* in Medina soon after he settled there. There are abundant descriptions of that example in the Arabic literature and it should be possible to reconstruct what occurred at that time using a process of simulation based on the available information.<sup>19</sup>
4. The process of territorialization of land, *ikhṭīṭat*, in the initial and early formation of the quarter, *mahalla*, or neighbourhood level. After land was allotted to a group of people, they were responsible for its territorialization into clusters of plots and allocating adequate land for access which eventually became the streets and cul-de-sacs. Since this phenomenon occurred during the early formation of most Islamic cities, it is difficult to find adequate and reliable information describing this process. Yet it is very important to develop a number of alternative scenarios for purposes of constructing theory.
5. How did the institution of *waqf* function in terms of its impact on buildings and by extension on urban form? What was the impact on the processes of growth and change? There are a large number of studies on the institution of *waqf* which originates with the teaching of the Prophet. An important saying by him is "If you wish,

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<sup>18</sup> J. Akbar attempted to explain this in his "Khatta and the territorial structure of early Muslim towns," *Muqarnas* 6 (1989): 22–32. The effort addresses important issues and should be viewed as a good start. More extensive research is needed. Here the techniques and skills of archaeologists would be most valuable. A good example of an earlier study is by archaeologist J. Schmidt, "Strassen in Altorientalischen Wohngebieten: eine Studie zur Geschichte des Städtebaus in Mesopotamien und Syrien," *Deutsches Archäologisches Institut Abteilung Bagdad: Baghdader Mitteilungen* (Berlin) vol. 3 (1964): 125–147.

<sup>19</sup> See the book *Wafa al-Wafa*, by Nuraldin al-Samhudi (d. 1505), 4 parts in two volumes (Beirut, 1955). As for the principle and implementation of *Ihya'*, information based on the legal literature of the predominant Islamic schools of law *Madhahib* aided by on site archaeological investigations of cities which were influenced by a specific school of law would clarify the workings of this principle.

retain its origin (*habbasta aslaha*) and provide it as charity” cited by al-Bukhari. The Hanafi School of Law defines the *waqf* as: “the detention of the corpus from the ownership of any person and the gift of its income or usufruct, either presently or in the future, to some charitable purpose.”<sup>20</sup> Most of the studies available deal with specific buildings designated as *waqf* but, to my knowledge, there are no studies which attempt to explain the impact of a large number of buildings and real estate on the city as a whole, its processes of growth and change, and the consequence on urban form across time.

6. What were the various types of tenure and ownership of land and buildings? What was the effect of taxation on the various types of tenure? There is a great deal of information available regarding these questions in the classical Arabic sources and more recently in late nineteenth century Ottoman sources. A sketchy attempt to address these issues was published, but to my knowledge no extensive studies are available which tackle these questions.<sup>21</sup>
7. The institution of *hisba*: what was its jurisdiction and responsibilities, and its impact on urban management? What were the overlap and/or interaction with the judge’s (*qadi*’s) realm of jurisdiction? There are a number of well-known *hisba* manuals from the eastern *mashriq* and western *maghrib* regions of the Islamic world which should be carefully examined for answering these questions. Further clarifications will emerge from a process of detailed study and analysis of these manuals.
8. Local customs (*urf*) in design and building construction were a primary engine affecting decision-making and the choice of design solutions in a specific locality. The School of Law (*madhab*), having the jurisdiction in a locality, sanctioned those customs, provided the custom did not contravene principles of Islamic law (*Shari’a*). Research is required for a comparative analysis of “solutions” which

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<sup>20</sup> H. Cattani, “The law of Waqf,” in *Law in the Middle East*, ed. M. Khadduri and H. J. Liebesny (Washington, D.C., 1955).

<sup>21</sup> See M. Serageldin with W. Doebele and K. ElAraby, “Land tenure systems and development controls in the Arab countries of the Middle East,” in *Housing Process and Physical Form*, Proceedings of Seminar Three held in Jakarta, Indonesia, March 1979, sponsored by the Aga Khan Award for Architecture (1980), 75–88.

- were generated within the umbrella of the various schools of law and the manifestation of those solutions in physical terms, particularly noting the differences in solutions to similar problems. This research would rely on cases of rulings by customary law as recorded by local judges (*qadis*) and in the compilations of specialists on law (*muftis*), aided where feasible by onsite investigations.
9. Field research of numerous cities within major regions of the Islamic world which are designed to document the design language (linguistic '*urf*'), indicating the sources for the terms, their meaning, and the actual physical configuration and arrangements which the vocabulary of the local design language referred to, including their implication for the design of buildings and the shaping of urban form. Comparative study of the results of these surveys would greatly enhance our understanding of the built form qualities of those cities.<sup>22</sup>
  10. Symbolic manifestations occurs at different levels of the built environment, the design and details of decorations in various locations of a building, such as part of the main entrance, around windows, and on the walls surrounding the interior courtyards. In a locality embedded in religious associations, the location of a mosque, water wells for public use, and other elements in the settlement is influenced by historical and religious associations. Comparative research of such examples in various regions of the Islamic world is necessary.<sup>23</sup>
  11. Mathematics, geometry, surveying, and engineering techniques, which were used in building design and construction. Little serious research on these interrelated aspects has been undertaken. Recent scholarship is very encouraging, however this area of investigation is open to a great deal of research possibilities.<sup>24</sup>

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<sup>22</sup> For a detailed discussion of what is the "design language" see chapter 2 of my book *Arabic-Islamic Cities* (full citation in note 6 above). For what is the "linguistic '*urf*'" see my article "The '*Urf*' and its role..." (full citation in note 12 above).

<sup>23</sup> See chapter 4: Symbolism and Form, of my edited study *Sidi Bou Saïd, Tunisia: A Study in Structure and Form*, (Halifax, N.S., 1978) [Available from Books on Demand, UMI, Ann Arbor, MI]. That chapter analyzes symbolism in that village at three levels: (i) the village, (ii) entrances, windows, and steps, and (iii) surface embellishments such as plaster carvings, stonework, and tiles.

<sup>24</sup> See the articles by W. Chorbachi, "In the Tower of Babel: Beyond symmetry in Islamic design," *Computers and Mathematics with Applications* 17, no. 4–6 (1989): 751–789; and Alpay Ozdural, "Omar Khayyam, Mathematicians, and Conversazioni with Artisans," *Journal of Society of Architectural Historians* 54, no. 1 (March 1995): 54–71; and the

12. Building materials and construction techniques. What were their attributes and limitations? How and in what context were materials used separately or in combination with others? For what purposes and how was recycled material used? What were the structural limitations of materials, and how did builders innovate within those constraints?
13. Traditional energy-saving practices and techniques, for example, the utilization of water, cooling devices such as wind towers, and methods for disposing of human and animal excrement. Although research on these topics is mostly available for Iran, very little has been done for other regions. Comprehensive studies are needed to understand design solutions used for dealing with conditions in different climate zones and topographical features.
14. A study which focuses on the use of the courtyard in the design and planning of houses, with particular attention to its use as a customary inherited element, i.e. when used unconsciously as a customary practice without concern to its design potentials vs. its intentional use as a device embodied with design possibilities and opportunities for climate control.
15. An atlas of Islamic cities in various regions of the Islamic world which would document: (i) city maps drawn in the same format, using the same system of colours, and supplemented by the necessary aerial photographs; (ii) morphological patterns at the levels of the city, neighbourhood, and building clusters that would include, for example, the patterns of public through streets and private cul-de-sacs, and the analysis of the typology's strengths and weaknesses. Certain peculiarities would also be studied, such as the preference for the location of a small mosque (*masjid*) at the strategic junction of a fork in the street system;<sup>25</sup> and (iii) study of building types drawn to the same scale and presented in plans, elevations, and sections.

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published manuscript of Ca'fer Efendi, *Risale-i Mimariyye: An early 17th century Ottoman treatise on architecture*, trans. Howard Crane (Leiden, 1987).

<sup>25</sup> The utilization of this type of junction, which results from the convergence of two streets into one, within this morphological type can also be traced as far back as 2000 B.C. in Ur, southern Mesopotamia. See Exhibit 2 of my article "Arab-Islamic Urban Structure," *Arabian Journal for Science and Engineering* 7, no. 2 (April 1982): 69–79; Also the street analysis in Chapter 3: Spatial Structure and Built Form, in my *Sidi Bou Sa'ïd, Tunisia*, 19–56 (full citation in note 23 above).

I hope that the above list of topics will be valuable for those concerned with the lack of a theory of urban form in traditional Islamic cities. Topics addressing other detailed aspects can be developed and added. It is important to stress that we are at a point in the development of this field which necessitates co-operative efforts to address the above issues. Cooperation can be achieved in many ways, through: (i) effective and accessible communication tools, such as the World Wide Web pages of the Internet. Web sites can be created by individual scholars and institutions where the latest research is summarized and/or made available for downloading to personal computers; (ii) focused symposia and conferences; and (iii) testing in contemporary projects by recycling the principles underlying traditional ideas and procedures.<sup>26</sup> If all these are carried out, then an achievement of this magnitude will not only be of immense value to the Islamic world and its numerous sub-cultures, but it will also be a significant contribution to our understanding of urbanism and the urban phenomenon as a cultural expression within a global context.

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<sup>26</sup> I have constructed a framework for action which was published in the article "Urban design in traditional Islamic culture: Recycling its successes," *Cities* 8, no. 4 (November 1991): 274–277. On June 7, 1997 I delivered a keynote address at a Vision symposium in Riyadh, Saudi Arabia, which was organized by Arriyadh Development Authority (ADA), on the occasion of the completion of phase 1 of a three-phase planning process known as Metropolitan Development Strategy for Arriyadh (MEDSTAR). One of the proposals I made in that address was based on the principle of bottom-up decision-making at the neighbourhood level. This principle was operational in all traditional cities and settlements in the Islamic world and was replaced, in the case of Saudi Arabia, by a top-down decision-making structure during the mid years of the twentieth century as a result of Western influences and for reasons related to local political preferences. My proposal was to create neighbourhood organizations whose task would be to coordinate decisions affecting the well being of a neighbourhood including matters related to design and planning. This would create a situation where neighbourhoods would be encouraged to compete with each other for the best ideas and designs which would alleviate or solve pervasive and common problems, such as safety in neighbourhood streets, greening of streets by planting and maintaining trees and shrubs, and creating pleasant pedestrian paths which would ensure the safety and protection of women and children. My other proposal was to rewrite the city's planning codes in a manner, which will utilize the wisdom inherent in the traditional codes, in lieu of trying to fix codes which were formulated in the early 1980s and which have proved to be inferior, as it is evident in various parts of the city. I have also addressed similar issues for the context of historic towns in the Maghribi countries of North Africa in a lecture titled: "Reviving the Rule System: An approach for revitalizing traditional towns in Maghrib," at the conference titled "The Living Medina: The Walled Arab City in Architecture, Literature, and History" held in Tangier, Morocco, June 1996, sponsored by the American Institute of Maghribi Studies (AIMS). It was subsequently published by the same title in *Cities* 18, no. 2 (April 2001): 87–92.