Special Article

The Nature of the Courtyard House: A Conceptual Analysis

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There is a need for conceptual clarification of both theoretical and empirical terms in Environment-Behavior Studies. This article does this for the case of the “courtyard house” by developing a number of possible criteria to characterize it as a dwelling form. Many examples from a variety of locales and periods, both of individual units and the resulting urban fabric, are shown and discussed. The study suggests that many dwellings which do not resemble the prototypical courtyard house may be classified as such on the basis of some of the criteria developed. Some implications are briefly discussed.

This article is part of an ongoing project to develop theory in Environment-Behavior Studies (EBS). Such efforts require explicitness, clear definitions, and conceptual clarification of both theoretical and empirical terms. In this article I try to clarify the concept “courtyard house” both as a unit and as part of settlement fabric.¹

One important way to clarify concepts is by asking questions — including skeptical questions, some of which might not yield answers immediately, but which might stimulate further analysis and research leading to eventual answers. This article, therefore, poses a series of questions, starting with the most basic: What is really meant by “courtyard housing”? Even the nature of dwellings, more generally, is not self-evident, and needs to be clarified.² In this process, I inevitably use my previous work.³

Without a systematic search, and only from materials I own, I have collected more than two hundred examples of potential courtyard houses. These come from locations in more than forty countries, spanning the globe and also ten thousand years, from Çatal Hüyük (10,000 B.P.), through the Indus Valley civilization (5,000 B.P.), the ancient Middle East (Turkey, Mesopotamia, Ur, etc.), China, Ancient Greece and Rome, to the present. The selection is thus partly an “opportunity sample,” but choice was also based on several hypothetical criteria discussed in the next section.
It is significant that not all the examples chosen would automatically be classified as "courtyard houses," nor would they elicit the corresponding image. Dealing with this issue is a principal objective of this article.

WHAT IS A “COURTYARD HOUSE”?  

To begin to answer this question, a distinction between form and shape may prove useful. Form refers to the fundamental organization of space (as well as time, meaning and communication). In this regard, changes in shape and/or materials are less fundamental than relationships among domains. Examples based on this distinction, such as New Guinea villages and comparable examples from Amazonian Brazil, show the relative importance of the shape of houses and central spaces as opposed to their form (the more fundamental organization of space). It follows that a court can be square, rectangular, round or amorphous, and its boundaries can be defined in different ways.4 This has also been shown to be the case with the shapes of pueblos as opposed to Navaho hogans.5

Similarly, a settlement based on courtyard houses or compounds, a form that I call the "the inside-out city," is fundamentally different from one where houses (and other buildings) face outward, relating to the street.6 Two points can be made about these two basic settlement forms. First, as traditions, they go back at least nine thousand years, and seem to remain distinct and separate until recently, when outward-facing houses seem to replace courtyard models. (This will become important when I discuss the potential use of courtyard houses, however defined, as precedents). Consider the contrast between the contemporaneous settlements of Nea Nokomedia (northern Greece) and Çatal Hüyük (Anatolia). The former consisted of individual 25x25-foot houses spaced 6–15 feet apart; the latter was composed of a continuous urban fabric around communal courts (as in the case of traditional pueblos), with individual houses entered through the roofs.7 Note that in certain locations (including Greece and Turkey) the forms have coexisted, their use depending on region, tribe, culture, religion, degree of modernization, etc.

The second point also concerns the shape/form distinction, and involves an important attribute of courtyard houses — their distinct privacy mechanism. This mechanism mainly emphasizes privacy vis-à-vis the outside using physical elements (such as walls and doors). Often (although not always) there is less concern for inside privacy, where other mechanisms may be used, such as separation in time, rules, penetration gradients, etc.5 It is in terms of this privacy attribute that, as discussed below, one can regard sub-Saharan African compounds, walled suburban lots, modern Mexican houses, etc., as "courtyard houses."

In principle, of course, every dwelling is a private domain (and parts of it even more so), although the nature of privacy, between whom and whom, and the mechanisms used all vary. In all cases, this private domain is also linked in some way to the public domain of the settlement. The forms of these linkages (and hence intermediate domains) further tend to vary more than either the dwelling or settlement, and change more over time.6 These are often studied in terms of the sequence of outdoor spaces — e.g., cul-de-sacs, streets, avenues, neighborhoods, etc.5; or fence, gate, path, steps, porch, door and hallway.12

The courtyard house itself can be seen partly in these terms. Thus, the form of the relation between the private and public domains — via a "lock," rather than without such a lock and with a permeable boundary — is more fundamental than the shape of the domains (let alone the materials used) (fig. 1). One criterion for courtyard houses then must be the nature of the privacy mechanism used (walls rather than distance), leading to abrupt transitions, and providing one way of coping with overload. However, as I have argued elsewhere regarding vernacular design, tradition, spontaneous settlements, ambience and meaning, one needs to use polythetic definitions, or at least multiple criteria.13 This is also the case in conceptualizing the courtyard house, and in this article I begin to develop a set of multiple possible criteria or attributes.

A second attribute (after privacy) of the courtyard house is that the courtyard itself provides a critically important setting

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**Figure 1.** Form vs. Shape.  
Based on Rapoport, Human Aspects of Urban Form, Fig.1.3, p.10.
or subsystem of settings, within which specific activities occur as part of a larger system of activities, within a larger system of settings (which is the dwelling) (Fig. 2).14 As an important setting within the dwelling, the courtyard also fits into an even larger system of settings that encompasses the surrounding street(s), block, micro-neighborhood, neighborhood, etc.15

A third attribute of courtyard housing is that the courtyard, as a central space, provides access to other spaces (Fig. 3). This, of course, raises the question whether interior spaces used in this way may be equivalent to courts — as in such cases as Kwakiutl dwellings, houses in Ibadan, Nigeria, and living rooms in Korean and Puerto Rican apartments in Boston.16 It also again raises the question whether compounds — in Africa, Mexico, ancient Peru (Chan Chan), etc. — are equivalent, and how to think about spaces with low or no walls (Figs. 4, 5).17

Whether all the types shown so far (and the many not shown) are courtyard houses depends on the attributes used. Of the three developed so far, I hypothesize that privacy is dominant, followed by the courtyard as setting(s), and finally the courtyard as a means of access. It would, however, be interesting to analyze the hundreds of examples available from many locations and periods using the criteria developed.

So far only the dwelling has been discussed. There is a difference, however, between rural (free-standing, isolated) courtyard houses (in their broader sense) and those forming a part of settlements (Fig. 6). The latter sometimes reveals the ability of courtyard houses to be “packed,” creating a dense urban tissue. This provides a fourth attribute, which reveals what has also often been regarded as a major advantage of courtyard houses — their ability to allow a “more efficient” use of space, thus reducing the area of settlements.18 However, as will be seen later, this may also create problems when one wants either to use courtyard houses directly or as precedents for learning.

Another attribute (the fifth) of certain courtyard houses (partly attributable to their ability to form a dense settlement fabric) that has received much emphasis is their climatic efficiency. In hot, arid climates such houses and the resulting settlement tissue supposedly provide a greater measure of comfort.19 However, there are several problems with this view. First is the existence of what I have called anti-climatic solutions, such as the appearance of courtyards in hot, humid climates — for example, in parts of China generally, and Chinese shophouses elsewhere.20 Courtyards also appear in traditional houses in Ghana, Hanoi “tube houses,” bazaar houses of Bangladesh, and dwellings in Korea, India and elsewhere (Fig. 7).21 Another problem is the frequent rejection of courtyard houses in favor of free-standing ones, often with large windows, in many hot, arid zones.

Views about climate may also tend to romanticize the courtyard house, which actually may not work that well climatically even in hot, arid climates. For example, in Baghdad, modern houses, both individually and as part of the urban fabric, were considered climatically more comfortable than courtyard houses. In fact, noise was the only variable on which the courtyard house was judged to be better.22 Living patterns in courtyard houses in Algeria (for example, at Ghardaia) and in Morocco involve moving to different parts of the house at different times of the day and during different seasons.23 This is also the case in Iran.24 Different summer and winter settlements may even be used, as in Algeria.25 An emphasis on climatic comfort also ignores
Figure 4. (Above) (A) Nuba (South Africa), based on J. Walton, African Village (Pretoria: Van Schaik, 1956), Fig. 41, p. 109. (B) Zaria (Nigeria), based on Schwerdtfeger, Traditional Housing in African Cities, plan 4.5, p. 54. (C) Hausa (Daura, Botswana), based on J. C. Moughtin, "The Traditional Settlements of the Hausa People," Town Planning Review, Vol. 35 No. 1 (April 1964), Fig. 3, p. 25. (D) Tswana (Oodi, Botswana), based on A. Larsson and V. Larsson, A Documentation of Twelve Tswana Dwellings (Lund: Department of Functional Analysis, School of Architecture, University of Lund, Report R1, 1984), Fig. Oodi 1, p. 89. (E) Malinke (Senegal), based on Bourdier and Minh-Ha, Drawn from African Dwellings, F1g. 28, p. 56. * See Fig. 112, pp. 214–15. (F) Kusasi (Zebila, Ghana), based on J. Stanley, personal communication, 1975. (G) Venda (South Africa), based on Frescura, "Major Developments in the Rural Indigenous Architecture of Southern Africa of the Post Difagane Period," p. 343. (H) Bali (Tihingan village), based on A. P. Parimin, "Fundamental Study of Spatial Formation of Island Village: Environmental Hierarchy of Sacred-Profane Concept in Bali," Ph. D. diss. University of Osaka, 1986, Fig. (1-5), p. 42. (I) Wolof (Senegal), based on E. Johnson, "The Wolof of Senegal and Modernization Processes," term paper in Architecture 755, Department of Architecture, University of Wisconsin, Milwaukee, April 1992, p. 8. (J) South Amendebele (South Africa), based on Frescura, "Major Developments," p. 330.

Note that when walls are high the privacy attribute applies; when they are low it does not. The activities/settings and access attributes continue to apply. In all cases there are many different shapes and configurations, but the form remains the same.

Figure 5. (Right) Compounds forming settlement fabric (not to scale). A) Part of the Chimu capital of Chan Chan (ancient Peru). B) Diagrammatic plan of part of a Yoruba city (Nigeria), based on various written descriptions.
issues such as modernity of form, new materials, and technology.\textsuperscript{26} This can be clearly seen in a photograph of Yadz, showing air conditioners replacing the wind towers that traditionally served courtyard houses there.\textsuperscript{27}

Hence one can, at best, argue that given the constraints of resources, materials, technology, and the like, the courtyard house can, in certain circumstances, work well climatically; but so can other types — such as the Turkish houses in Alanya.\textsuperscript{28} Moreover, one cannot separate climatic comfort, resource use, and the like from social aspects. Indeed, these should be emphasized, since they possibly pose the most major obstacles to using and learning from courtyard houses.\textsuperscript{29}

I conclude this section with a question already raised briefly — concerning communal courts. These are found both in spontaneous settlements (e.g., India) and, as discussed, in traditional forms in Africa, China, and even Europe (\textbf{FIG. 8}). In China, for example, there is the Hakka dwelling, in which multistory, multifamily blocks surround a court which has the same form whether the shape is circular or square.\textsuperscript{30} In the southwestern United States communal courts include some pueblos (e.g., Pueblo Bonito), the shapes of which may vary. There are also pueblos (such as at Taos) where the court is not enclosed.\textsuperscript{31} This is also the case in some African examples and examples from rural Bangladesh, Sri Lanka, and elsewhere. Such courts often satisfy the social, access, and settings criteria — but not necessarily that for privacy. They thus leave unanswered a “subsidiary” question — whether courts need to be totally enclosed to be counted as such (\textbf{FIG. 9}).

Also well known is a type found in many parts of Europe (including Germany, Poland, France, Switzerland, etc.) of an apartment building around a court, which also resembles Oxbridge college courts. In effect, this poses the question whether courts need to be for a single dwelling or family (even if extended), which often seems to be implicitly assumed; or whether they can exist for groups or aggregates. This question really comprises several subquestions. Can courts be shared? If so, by whom? How large need these

\begin{figure}[h]
\centering
\includegraphics{figure7.png}
\caption{A) Courtyard house in South India; based on Sinha, "The Center as Void," Fig. 4, p.30. B) Traditional compound in Ghana, based on Tutu, "A Ventilation Study of a Typical Traditional House in Ghana," Fig.43, p.122. C) Skywell house in China, based on Knapp, China’s Vernacular Architecture, Fig.2.24, p.46. D) Courtyard house in China, based on ibid. (E) Ground floor of a bazaar house in Dhaka, Bangladesh; based on Mahmood, "Third World Design: Bangladesh as a Case Study." (F) Ground floor of a “tube” house in Hanoi, Vietnam, based on Hoang and Nishimura, The Historical Environment and Housing Conditions in the “36 Old Streets” Quarter of Hanoi (Bangkok: Asian Institute of Technology, Division of Human Settlements Technology, 1990).}
\end{figure}
FIGURE 8. Communal Courtyards (not to scale). A) One of a number of communal courtyards in a spontaneous settlement in New Delhi, India (this cluster contains seventeen units, but the number of units and the shape of the clusters may vary), based on G.K. Payne, Urban Housing in the Third World (Boston: Routledge and Kegan Paul, 1979). B) Communal court in the spontaneous settlement of Darepada in Calcutta, India (these again are variable in size and configuration, but this cluster has eight units), based on personal communication from M. Bose. C) Six-unit communal court in Jamshedpur India, based on personal observation. D) Communal court containing seven dwellings and other buildings in Chhatera Village, India, based on S.K. Chandhoke, Nature and Structure of Rural Habitations (New Delhi: Concept Publishing Co./School of Architecture and Planning, 1990), Fig.5.6, p.144. E) Communal courts in Pueblo Bonito, New Mexico (the shapes and sizes of the pueblos vary a great deal), based on Rapoport, “On the Cultural Origins of Settlement,” p.58. F) Communal court in a typical European apartment building. G) Communal courts in a Hakka dwelling in Hekeng Village, China (25–30 units, 150-plus people), based on Laude, “Hekeng Village, Fujian: Unique Habitats.”
be? In practice, the size of courtyards varies considerably — from Chinese skywells 1–2 meters wide; to the not much larger courts in Hanoi tubehouses and Dhakka bazaar houses (refer to fig. 7); to those discussed above; to those of the Masai, Zulu or Swazi. This obviously depends on social variables, including great homogeneity (and often kin ties). It thus represents a different culture-specific set of transitions in and use of the street system than, for example, in Isfahan, Cairo and elsewhere. Also involved is a rigidly maintained system of rules (whether of behavior, roles, space use, organization of time, privacy, etc.), which makes such systems work, but which may be increasingly difficult to maintain today.

Potential Problems with Courtyard Houses

The ability of courtyard houses to create very dense settlement fabric is often seen as one of their major advantages. If one considers the example of Yazd, however, one finds that the very narrow streets and cul-de-sacs of such settlements may not be the only means of circulation; doors among dwellings may also be used (fig. 10). This obviously depends on social variables, including great homogeneity (and often kin ties). It thus represents a different culture-specific set of transitions in and use of the street system than, for example, in Isfahan, Cairo and elsewhere. Also involved is a rigidly maintained system of rules (whether of behavior, roles, space use, organization of time, privacy, etc.), which makes such systems work, but which may be increasingly difficult to maintain today.

Codes of behavior also seem to be applicable to the underground courtyard houses of Matmata (Tunisia) and the Loess region of China. In both cases the court is very exposed to people looking down, apparently providing no privacy. I am not aware of any studies specifically on this topic, but it is likely that privacy is achieved as discussed above, by groups being homogeneous (possibly related) and observing strong rules about keeping away from edges and not looking down (fig. 11). At the same time, in terms of activity settings, access, and climate (and possibly “packing”), these are clearly courtyard houses. (Today, however, they have acquired a negative image because they are underground, and are currently being deserted — as are other prototypical...
courtyard houses, compounds, earth-sheltered dwellings, and other structures built of traditional materials elsewhere.\(^4\)

Courtyard houses might present problems currently for another reason — the increasing emphasis on individual identity as opposed to group identity, and privatization (whether of recreation or more generally).\(^4\) At one level these developments might help courtyard houses serve as a precedent. But at another they raise major problems related to an important characteristic of courtyard houses, especially those forming part of settlement fabric. This is that such houses are generally not as effective in communicating meanings externally as are free-standing houses (unless in a walled lot or compound, when they may be considered courtyard houses under the terms developed here) (fig. 12). This might then be seen as a sixth attribute of courtyard houses.

Increasingly, as identity, social relations, status, and the like have become more heterogeneous, varied, flexible and dynamic, the meanings projected by dwellings have become ever more important.\(^4\) Increasingly, as a student of mine (Dr. Paul Maas) put it: “You are where you live.”

I would suggest, as a hypothesis, that this is one important reason why people are giving up courtyard houses (in the broad sense) for house forms that can communicate identity, status, and other meanings. There are, of course, intermediate stages, such as free-standing houses behind walls (as in Saudi Arabia, Jordan, other Arab countries, Mexico, Africa, etc.): although, often being two-storied, some of these walls are only partially visible. In any case, the process of syncretism or synthesis occurs over time, not all at once.\(^4\) This also applies to the meaning of “modernity,” communicated by technology and materials as well as house forms.\(^4\)

One of the few diachronic studies of vernacular design shows that, contrary to what is generally believed, status was important in at least some traditional vernacular design, and was communicated through subtle cues.\(^4\) Currently, however, it appears that higher redundancy is required.\(^4\) Moreover, these meanings are now communicated by new cues which may not fit, or work in, courtyard houses (or their equivalents).

This problem is shown by two New York Times stories about China.\(^4\) The first deals with Beijing:

Just north of the Forbidden City, where China’s emperors once lived, a maze of dusty lanes and grubby back alleys are punctuated by simple red doorways befitting ramshackle homes. Behind some of these doorways, however, lie the elegant and spacious courtyard dwellings of China’s Communist Party leaders, a new kind of Forbidden City.\(^4\)

The issue is clearly the lack of communication of status through buildings to the exterior. Two additional points can be made in this regard. First, the communication of status and other meanings can be associational rather than perceptual (thus, in the Chinese example, one knows that the leaders live there, but this is not communicated by the dwellings). Second, in traditional China (as in other locales) the number of courts, the materials used, the elaboration of decoration, and the size of dwellings related very closely to rank and status, sometimes through sumptuary laws.\(^4\) But the rigidly defined measure of status and its relation to dwellings only works when the social system is extremely stable, making clear communication through the built environment less important.\(^4\) When this does not apply, dwellings do need to communicate social meanings.\(^4\) And it is here that courtyard houses may present problems, although other means might be used as associational cues, such as location within the city.\(^4\) Items from the “repertoire” of design patterns available for communicating meaning might also be used, such as street type, vegetation, wall materials, entry decorations, and the like.\(^4\)

However, a direct contrast is provided in the second New York Times story, about a Chinese city (Zhangjiugang) where traditional houses were being replaced by what could be Scandinavian apartments (except for vestigial “symbolic” roof details). The emphasis here was on what is a “rarity in China” — lawns and shrubbery, and cleanliness and tidiness of the public domain (“clean living”).\(^4\)

It thus seems that the free-standing house is becoming a new norm all over the world. This has been happening gradually, and there has not necessarily been an acceptance of the new model as a whole. (As mentioned, one intermediate form involves siting a free-standing house behind high walls, thus producing the equivalent of a courtyard house in...
terms of privacy, if not the other criteria.) Moreover, in some cases, even when the outward-facing house is accepted, it may fail to be supportive of privacy, lifestyle, religion, etc. In other words, it may be accepted, and even eagerly sought, even if inappropriate, because of its appropriate image.

The proper response involves synthesis or syncretism, combining essential traditional elements of the culture core with new elements. Here also the distinction between shape and form and the use of multiple attributes becomes relevant and useful.

The traditional Mexican urban courtyard house (possibly found elsewhere in Latin America) provides an interesting example of being able to communicate meanings while creating compact urban fabric and the “inside-out city.” Ornamental details around windows and entrances (which can also be used with blank walls, as in Tunis), pilasters, colors, and facade treatments marking the extent of individual properties (and hence size) all project the requisite meanings (Fig. 13). With its windows facing a grid of relatively wide streets, this type marks a partly outward-facing compromise with the continuous, windowless blank-walled courtyard houses found in other countries, which cannot communicate either their size, the number and elaboration of their interior courts, or other features typically linked to status.

Another important potential problem concerns greenery. An “inside-out city” can have almost as much greenery as U.S. residential urban fabric (where planted areas may comprise up to 60–70 percent of total area, and which been described as “the urban forest” and “Savannah”), but this greenery is not visible at eye level. On the other hand, greenery is also important for producing perceived qualities such as low density, high status, and current notions of high environmental quality (Fig. 14). This is clear from cases where “courtyard housing” (with communal courts) has been changed to layouts that emphasize openness and greenery.

The ability of prototypical courtyard houses to form dense urban fabric (one of its supposed advantages) thus not only depends on very specific social arrangements, but it may communicate the wrong image in terms of perceived density and lack of trees and other visible vegetation. Often, the narrow and irregular streets of courtyard housing areas may also create problems of car-parking and access. All these attributes communicate low environmental quality, in addition to making it difficult to communicate house meanings. Also, while the narrow, irregular streets found in cities made up of courtyard houses (especially in the Middle East, India, etc.) may be good climatically, and for pedestrians (although the blank walls lack the required visual complexity), they raise concerns about safety. These may derive both from their form (which provides many hiding places) and their blank walls which lack “eyes in the street.”

The example of the form equivalence in terms of the privacy criterion of a prototypical courtyard house and a free-standing house within a walled garden or compound mentioned earlier can be seen as a figure/ground reversal. It is found not only in certain traditional situations (in parts of Iran, Africa, etc.), but is also a new hybrid form found in Mexico, India, Africa and elsewhere, although there occasionally also seems to be a tendency for the wall to become lower, i.e., to become a fence. In addition, in Mexico City, for example, one finds houses which provide courtyard house-like privacy by being blank to the outside, provide parking, but either have no court or only a vestigial or symbolic one. At the same time they provide a larger palette of means to communicate meanings (Fig. 15).
dwellings in Boston, in which living rooms become equivalent to courts both in terms of access and the meanings communicated by semi-fixed elements. This reinforces my argument that the nature of courtyards is more complex than usually thought, and that the use of multiple criteria is useful.

RECENT ATTEMPTS AT CHANGE

I conclude with “recent” attempts to introduce courtyard houses in areas where the tradition of free-standing houses has prevailed. Proposals for courtyard houses have been made a number of times (some as early as 1917) in Los Angeles, and in Southern California generally. These have been based on “Mexican” prototypes, as in the house by William T. Johnson in Coronado, CA. However, although a court was present, the design was essentially for a large, outward-looking U.S. house. Moreover, the type never caught on, and few were built.

Some of the founders of the Modern Movement also proposed courtyard houses (fig. 17). For instance, Philip Johnson designed such a house in Cambridge, MA, in 1942. However, the “court” was really a walled front yard, and the

As a result of the difficulties described above, traditional courtyard houses are being given up in China, Korea and elsewhere. In Korea, for example, I found almost a “hatred” of them — apartments having higher status than even modern single houses (fig. 16). In terms of the accessibility criterion, the living room (rather than the outdoor balcony) re-creates the courtyard (a situation comparable to that documented in Kwakiutl and Ibadan houses). This is also the case with Puerto Rican

![Figure 15](image-url)  
**Figure 15.** New type of contemporary house (Mexico City), based on personal observation.

![Figure 16](image-url)  
**Figure 16.** Transitions to interior roofed spaces replacing courtyards (not to scale). A) Traditional rural dwelling in Dorae, Korea (almost every dwelling has a different configuration but the same form), based on P.-W. Han, “The Spatial Structures of Traditional Settlements: A Study of the Clan Villages in Korean Rural Areas,” Ph.D. diss., National University, Seoul, 1991. B) traditional urban dwelling of Seoul, Korea, based on personal observation. C) Modern apartment in Seoul, Korea (living room is equivalent to courtyard in terms of some attributes), based on personal observation. D) Traditional compound in Ibadan, Nigeria, based on Schwerdtfeger, Traditional Housing in African Cities, Plan 10.2, p.126. E) New multifamily dwelling in Ibadan, Nigeria (note central hall, replacing court and acting in terms of some attributes) (compare to Kwakiutl house), based on ibid., Plan 10.3, p.127. F) Kwakiutl house in U.S. (note that central space acts as a courtyard according to some attributes), based on Rapoport, House Form and Culture, Fig.2.18, p.39.
house/wall complex was free standing and surrounded by lawns, trees and shrubs. Were the wall to be lowered to fence height, the privacy attribute would disappear and the result would be a fenced suburban house — even more open than usual.

Mies Van der Rohe also designed a series of courtyard house complexes (i.e., urban fabric), with a single rectangle of walls containing both house and open space. The houses were L-, T- or I-shaped, and their walls (other than their exterior walls) were glass. Five adaptations of this model were designed for specific clients, but only one small L-shaped house on a narrow lot was ever built (although, according to the plans — which are very difficult to read — it does not seem to have really been a courtyard house).

Interest continued into the 1960s with books and articles. Also in the 1960s, a well-known Australian architect, Roy Grounds, built a courtyard house for himself. However, the court was visual, the room access and nature of the house belonging to the other tradition.

None of these attempts proved successful in locales where courtyard houses had not been used, unlike in areas where such houses are traditional, as in the case of the Mexican houses discussed earlier. However, even there, as culture change continues, houses have tended to become more open, coming increasingly to resemble U.S. suburban houses. In some places even the urban layouts have changed, with the free-standing houses facing curved streets with thick vegetation. These are patterns that in the past communicated negative meanings, such as “Indianess” and low status.

It should also be noted that the Modern Movement houses discussed above differ in many respects from courtyard houses as defined by the criteria developed in this article. Transitions among domains are permeable; most settings are located inside the houses; and access to rooms is more typical of the free-standing house. Rather, these houses have walled front yards or gardens and, occasionally, walled backyards. Moreover, the latter are usually fenced or walled in most houses. In fact, when high walls are used, they only preserve the privacy criterion.

A mental experiment may be useful. Start with a completely open front yard (U.S.), and then imagine a fenced front yard (U.K./Australia), and finally a high wall (fig. 18). This latter transformation has, in fact, taken place and been studied in Melbourne, Australia, and Washington, D.C. (fig. 19).

In this article I have tried to determine the nature and meaning of the term “courtyard house” by asking a series of questions and beginning to develop multiple criteria that define it. The form that immediately comes to mind is what is commonly understood by the term. It is the “exemplar” or clearest and most typical instance by which all others are judged. For these exemplars multiple criteria are hardly necessary. Yet, clearly, a variety of other forms can be regarded as equivalent depending on a number of specific, explicit criteria.

This brief analysis is only a start, and much more work needs to be done to understand the nature of the courtyard house in all its possible manifestations and its potential relevance now and in the future.
REFERENCE NOTES

1. An earlier version of this article was presented at the Aga Khan Conference on the Courtyard House, MIT Department of Architecture, Cambridge, MA, April 1997. The courtyard house is, of course, only one of well more than a thousand vernacular house types. See A. Rapoport, “Vernacular Design as a Model System,” in L. Asquith and M. Vellinga, eds., Vernacular Architecture in the Twenty-First Century: Theory, Education and Practice (London: Taylor and Francis, 2006), pp.179–80. That variety raises a puzzling but important question: Why are there so many different types of dwelling (and even settlements) when the human activities that occur in them are so much less varied? My answer is that this variety is due to the importance of latent aspects of activities. While this is relevant for understanding the courtyard house type (or any other), I do not explicitly deal with this topic here. See A. Rapoport, “Systems of Activities and Systems of Settings,” in S. Kent, ed., Domestic Architecture and the Use of Space (Cambridge: Cambridge University Press, 1990), pp.11–12; and The Meaning of the Built Environment (Tucson: University of Arizona Press, 1990).


4. For example, see G. Mekibes, “Drivkraft Till Förbättring,” Ph.D. diss. in Building Function Analysis, Royal Institute of Technology, Stockholm, 1988. This deals with Algerian spontaneous settlements (English abstract).


12. Rapoport, *Human Aspects of Urban Form*, Fig. 4.3, p. 200.


20. Rapoport, *House Form and Culture*.


25. Donnadieu et al., *Habiter le Desert*. In Anatolia (Turkey), where courtyard houses are not used, daily and seasonal movements also occur within the house and between summer and winter settlements.


34. Rapoport, “Settlements and Energy: Historical Precedents,” p. 229; and
41. Rapoport, The Meaning of the Built Environment; and “Sustainability, Meaning and Traditional Environments,” and references therein.
49. This was clearly shown at an exhibition on China at the Toronto Museum, where these laws were displayed together with specific courtyard house designs for specific social ranks. Note also that in India courts were related to the sacred (and hence to caste); see Sinha, “The Centre as Void.”
50. An interesting suggestion was made by one reviewer of this article. This is that there may be cases where, for a variety of reasons, it is not desired to communicate either status or identity; instead, anonymity may be desired. Although worth pursuing, this is beyond the scope of this article.
55. See the two special issues of Urban Ecology on the “urban forest”: Vol.8 No.1/2 (September 1984), and Vol.9 No.3/4 (June 1986).
56. See Faison, “A Chinese City Is a Model of Good Behavior.” Compare with Rapoport, Human Aspects of Urban Form; The Meaning of the Built Environment; and “Sustainability, Meaning and Traditional Environments,” which includes reference to the Australian Green Streets project, in which residential densification is made acceptable by the use of greenery.
57. K.A. Franck and M. Mostoller, “From Courts to Open Space to Streets: Changes in the Site-Design of U.S. Public Housing,”
58. For the importance of cars, even to the extent that living rooms in London are converted to garages, see A. Rapoport, “The Personal Element in Housing: An Argument for Open-Ended Design,” RIBA Journal, July 1968, pp.300–7. Since then, also in London, one can observe the widespread transformation of front lawns and gardens into paved parking areas.

59. A. Rapoport, *History and Precedent in Environmental Design* (New York: Plenum, 1990), Part III.

60. I suspect, however, that this may change in the future as traditional houses become rare, acquire new meanings, and become valued again, leading to a revival.


66. Johnson, *Mies Van der Rohe*, p.110. It has just been reported that two houses, using Mies Van der Rohe’s courtyard design, have been built in Miami, Florida; however, the report suggested that this type is still seen as very odd and novel. The discussion of the perceived pros and cons of the form there fit into the arguments of this paper. See S.P. Nobel, “Mies in Miami: The Master’s Fantasy Made Real at Last,” *New York Times*, December 7, 2006.

67. P. Peters, *Atriumhäuser* (Munich: Allway, 1961); *House and Home*, “L-Shaped Patio Houses”; Rapoport, *The Meaning of the Built Environment*, Fig.23, p.146; and *Culture, Architecture and Design*, Fig.20, p.55.


All drawings are by the author.