

# Urban Design: A Renewed Approach to Environmental Design Education

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## BACKGROUND

Over the past several decades, the design professions and city planning have grown apart. While various disciplines have been pre-occupied with staking out their individual jurisdictions, the public domain has been neglected, with architects too often focusing on individual buildings and rarely considering the spaces in between, with landscape architects dealing largely with site specific and market driven projects, and with planners assuming roles of land use administrators or policy makers. When comprehensive and well-informed decisions regarding the public realm have been required, the planning and design professions have not been well prepared. Several authors (Palermo 1990, J.M. Levy 1992, Biddulph 1993, Moudon 1995) have been adamant in their view that the planning profession (and planning education) must reaffirm its roots in design in order to be relevant, and indeed in order to survive. As well, architecture and landscape architecture should expand their boundaries beyond the limitations of the site and embrace once again the city as the subject of study and effort.

The evolution of North American 20th Century culture and design, and the physical forms produced as expressions of the values held at the time have been discussed in terms of three phases (Relph 1987) or paradigms of space (Vidler 1996). The first phase lasted up to approximately 1940. It was marked by incremental changes to older forms as new technologies and concepts were introduced. Architects and urbanists considered the problems of town planning and design in terms of historical precedent, context and propriety. The public realm was an important part of civic infrastructure, and many of the important public spaces and streets of contemporary cities were established during this period. Street form and pattern usually extended and grafted onto this existing framework.

The second phase corresponds to modernism, corporate development and the invention and institutionalization of methods for town planning, which were manifested particularly after World War 2. This phase reached its zenith in the 1960s and 1970s. The paradigm of history was replaced by one of space, where architecture and urbanism attempted to express functional and experiential space. Space at this time was seen to have

redemptive and social power, and was believed to be healthier than the dense urban pattern. The lifestyles that go along with the spatial forms that were produced – the suburbs, shopping centres and strip malls – are now taken for granted, while at the same time they contribute to several contemporary urban problems, including suburban sprawl, decline of the central business district and a neglect of the traditional public realm – the street and the public square. Over time, town form became discontinuous (there was little attempt to graft newer developments onto the existing), building typology became less place-specific (the International style and later a style-less generic form predominated), the public realm declined (it was generally not required that buildings shape outdoor space), and visual identity became ambiguous.

The third phase corresponds to post-modernism (Relph 1987), or to a paradigm of ambiguity (Vidler 1996). However unclear the origins, there has been “a revival of interest in the character and quality of the traditional streetscape and a distinctive, if fragmentary, postmodern townscape is being widely created” (Relph 1987:241). This is manifesting itself in diverse examples attempting to re-create idealised small town life, taken to the extreme in the Disney construction of the ‘town’ of Celebration. Time and space are now arbitrary – they are no longer the result of functional requirements or of cultural constraints, but are more often determined by the marketplace.

History during the last several decades has variously been considered as something old fashioned and irrelevant to be eradicated, as something of value to be preserved, or as something to be invented (many neighbourhoods and whole towns have adopted pseudo-historical or pseudo-cultural themes). In some cases a nostalgia for history has also become co-mingled with a type of spatial nostalgia. Walled and gated neighbourhoods were perhaps some of the first attempts to bring back some of the spatial qualities of distinct communities (such as clearly understood boundaries, a sense of entry and a common identity). Recent development approaches, which use the ‘traditional’ town as the model, such as those proposed by the New Urbanists and by the Krier brothers reflect this. Duany and Plater-Zyberk (in Ellin 1996:110) have observed “(American) suburbanites are happy with the private realm they have won for themselves,

but desperately anxious about the public realm around them.” Developments based on the prototypical small town, combined with streetscaping from the City Beautiful movement, are attempts to deliver this. While the principles and general aims of the New Urbanists embody many positive urban values, they are usually only applied to individual subdivisions, and are commercially motivated. Although these islands are improvements over the vast suburban sea, they result in enclaves, existing in isolation with little to do with the city around them or with the local environmental or cultural context. They are products, and not processes. (See Veregge 1997 for a thoughtful critique of this approach.)

### URBAN DESIGN - THE MISSING LINK?

Time by itself and space by itself as paradigms have not proved to be sustainable. The collapse of time and space may result in continued ambiguity, confusion and commodification. Conversely, a union between time and space might be reformed. This union can now be created only *by design*. As Hough observed, “the question of regional character has become a question of choice and, therefore, of design rather than of necessity” (1990:2).

Education of those concerned with design of the built environment was once a comprehensive education in Design, and involved a long period of apprenticeship, implying a transfer of ideas, techniques, and traditions. The discipline of architecture was crafts-based into the early 20th Century, after which it became more closely allied with the fine arts (Cuff, 1991:28), and perceived as a more elite endeavour. City planners were frequently architects, or had a background in architecture, surveying or engineering, and an interest and expertise in form making. Landscape architecture only emerged as a distinct profession in the late 1800s; before which the distinction between building, landscape and city was irrelevant. This all resulted in an integrated approach to city design – one in which city planning, architecture, and the craft of building were closely related.

During the early part of the 20th Century in Canada the various environmental design disciplines established professional organisations, and started the process of distinguishing themselves from each other. (The Royal Architectural Institute of Canada was founded in 1907. The Canadian Institute of Planners was founded in 1919, and The Canadian Society of Landscape Architects and Town Planners, now the Canadian Society of Landscape Architects, was founded in 1934.) The founding of the professional organizations, and the establishment of university programs in the various disciplines, ultimately resulted in segregation and further differentiation of the professions concerned with city building. In planning education, non-physical planning (social planning and policy planning) developed as a primary force, as more people entered the profession with backgrounds in the social sciences. Design suffered further, as “those with a commitment to social planning (were) likely to treat a preoccupation with physical design as a form of social and economic myopia” (Levy 1992:83). (This paper is concerned with the

situation in Canada – different conditions exist elsewhere regarding the relationships of the professions and the consideration of design.)

Benevelo (1967:xi) pointed out that modern “town planning technique invariably lags behind the events it is supposedly controlling, and it retains a strictly remedial character.” It uses the tools that it currently has at its disposal – tools that are now either obsolete, or that contributed to the problems it is considering. However, when ideologies change, practices must change to meet those new needs. Recommendations to re-introduce design into planning curricula are neither new nor uncommon:

Palermo (1990:49) in a critique of planning education, advocated a number of adjustments required in planning programs in order for changes to occur, two of which are: the need to instill design confidence in students, and the need to initiate city design studies whose primary emphasis would be the design of public places and the formulation of guidelines for private development.

Biddulph (1993:23) proposed how design can be “designed” into planning courses – through an urban design education for planners which would encourage the built environment to be regarded as “more than just a collection of disaggregated parts”.

Barber (1995), in a general critique of modernist planning, is even more explicit in his recommendations. He advocates complete abolition of modern planning and a return to design-based planning based on values for land and conservation of urban resources, accompanied by a political restructuring that would make it more possible for local governance to take place.

Similar criticisms of architecture and landscape architecture programs have not emerged, however the solution to problems at the urban scale and especially of the public realm needs to come from the intersection of the planning and design professions, therefore both planning and design education needs to address the issues.

Despite exhortations to return to a design base, planning programs are slow to change, and it may not be possible within the current program frameworks (most graduate programs are only two years in length) to effectively teach design as an approach to planning. Architecture programs are already hard pressed to satisfy the requirements of professional accreditation, and it is difficult to find ways to include urban design theory and studio courses. Rather than try to expand existing programs to include urban design, such an approach might be more effective if considered as a bridging or integrative discipline between the professions.

### AN APPROACH TO URBAN DESIGN

An approach to urban design was developed from theoretical (Sandalack 1998, Sandalack and Nicolai 1998) and professional work and is an attempt to develop a coherent and practical approach to urban design within the contemporary western city. This approach was introduced in three university programs. Examples of student work follow.

This approach draws from the theories and methods of landscape architecture, urban planning, urban morphology and urban design. It includes the following:

#### Environmental Analysis

Ecological analysis is essential to development of sustainable places, and can also provide design determinants. There is an inherent logic in the evolution of any city or town, and often this has something to do with landscape, topography and hydrography. Environmental analysis allows better understanding of natural form and process, and provides information that can contribute to development of cities and towns with more environmental responsiveness, authentic identity and sense of place. Environmental analysis is a traditional component of landscape architectural practice, and could be improved and expanded by more expert input and more rigorous and systematic analysis.

#### Morphology/typology

A key issue of authenticity and identity is the maintenance of continuity. The use of local history in developing an understanding of places, and particularly in informing design decisions, has been discussed by several authors (including Butina 1988, Vidler 1978). The most important source of information is the place itself. This concept of the city as the source of the "third typology" (Vidler 1978:1) arose out of a desire to stress the continuity of form and history against the modern fragmentation of the city. Since the town or city itself contains the source of information and offers a reference point for decisions, approaches must be used which facilitate gathering and analyzing that information.

Urban morphology is an approach to studying urban form which considers both the physical and spatial components of the urban structure: the physical components of plots, blocks, streets, buildings and open spaces (Moudon 1997), and their relationships to each other. There are several schools of thought in morphological studies (see Moudon 1997 for a discussion of the geneology of urban morphological research and practice), which although rooted in different cultural and linguistic traditions and disciplines, share common ground and common principles:

Urban form is defined by three fundamental physical elements: buildings and their related open spaces, plots/lots, and streets. These elements can be understood at different levels of resolution. Commonly, four are recognised, corresponding to the building/lot, the street/block, the city and the region. Urban form can only be understood historically since the elements of which it is comprised undergo continuous transformation and replacement (Moudon 1997:7).

In Canada to date, urban morphological theory has not been integrated into design and planning practice or education in a way that would allow it to inform urban design, and as Moudon (1992:201) points out, relative to the European situation, morphological study of the North American town or city is less related to issues of historicity than to issues of dysfunction. The concept of urban morphology even if recognised at all, is a term that few would consider to have little practical relevance to their work. However, historic plan

analysis is necessary in order to provide an understanding of historical process and form and of building and townscape typologies. The morphological approach is useful in understanding the cause and effect relationships between urban process and form, and between urban form and spatial structure. Precedents can be found for more appropriate design, and design solutions can be sanctioned according to whether they correspond to and reinforce the character and typological conditions that have evolved in that place, and the qualities that are believed to be desirable.

## SPATIAL STRUCTURE

The analysis of a town's or city's spatial structure considers land utilization and the pattern of activities that parts of a town or city generate. It describes the location and distribution of particular uses and the functional relationships between them (Butina 1986). A number of theories of spatial structure have been formulated, with various ways of conceptualizing space.

Lynch (1960) saw the city image as a system composed of five basic elements: paths, edges, districts, nodes and landmarks (or monuments) by which urban form can be analyzed and used as a basis for design. This organizing structure has significance to the inhabitants who form a mental map in which the urban elements provide physical and psychological orientation. Trancik (1986) expanded this framework, and discussed the importance of identifying the gaps in the fabric (such as spaces that make no positive contribution to their surroundings or to the experience of the users), and of considering the overall pattern of development. Leon Krier (1980) also utilized spatial structure studies in discussing urban form, focusing on the analysis of the public physical elements of the city, that is, the streets, squares and public buildings. Rossi (1982) recognised the importance of tradition and continuity in spatial structure, but also saw the need for change due to transformations in the political economy. In order to be useful as a design tool, spatial structure should be analysed over time to show how the functional elements of the town have migrated or been transformed, and to show how the spatial relationships have changed. Social processes should also be considered, since spatial structure analysis can only increase the understanding of how towns function when it considers the interrelationships of urban elements with human perceptions and social patterns. Detailed studies of the public realm elements – the streets, squares, public buildings and open spaces – and their evolution as an integrated system, constitute an important part of this analysis.

## URBAN QUALITIES

A number of authors have agreed on the importance of legibility, permeability, human scale, continuity, variety and environmental responsiveness as universally desirable qualities of urban form (see Lynch 1960, Punter 1990, Sandalack and Nicolai 1998). Qualities specific to individual places or regions should also be identified. The contribution that

environmental, morphological or spatial elements make to the neighbourhood and to the city or town as a whole should be evaluated in terms of those qualities. Design solutions can then be sanctioned according to the degree to which they correspond to and reinforce the character and typological conditions, and according to whether they support and enhance the desirable qualities of urban form and urban life.

### COURSE EXAMPLES

The analytical methods described above inform and provide an approach for the design process. This approach was recently applied in an urban design studio in the Faculty of Environmental Design, University of Calgary, a graduate faculty composed of programs in Architecture, Planning, Industrial Design, Environmental Design and Environmental Science. Students had completed an earlier project in which the public realm had been studied (the class had documented and analysed local public spaces), and in this second project they were asked to prepare concept plans for a neighbourhood on the western developing edge of the city of Calgary. The students were expected to integrate urban ecological principles with principles of urban design (urban ecology was being taught concurrently in another related course), and to emphasise development of the public realm while providing housing and other amenities.

While the landscape chosen for the project was well suited to the problems of addressing ecological issues, it did not lend itself well to the notion of designing continuous urban form rather than isolated suburbs, since major roads separated the site from the adjacent suburbs. In addition, spatial structure and typology studies, while interesting in what they revealed about the sub-urban nature of the nearby suburbs, did not provide much in the way of useful contextual clues – the vast sea of single family houses of homogenous typology and density and a hierarchy of curvilinear streets was evaluated as having few urban qualities worth emulating.

The class composition was a mix of students with design backgrounds (some with architecture undergraduate degrees), and without (many of the students were planning students with no previous design experience and little in their formal program of studies). The following drawings are examples of one of the more successful resolutions of this problem. All drawings are by Gian Carlo Carra and Jinwei Zhang, students in the Urban Design Studio at the University of Calgary.

#### Summary

This approach has had limited applications (most extensively in Sandalack and Nicolai 1998), and has been applied in a teaching situation only a few times to date, so conclusions are tentative and speculative. It will likely take some time to establish an integrated theory and studio sequence in which the theoretical framework for the approach can be established, and where the studio projects provide appropriate opportunities to apply and test the methodology. However, the experiences from these courses thus far support the argu-

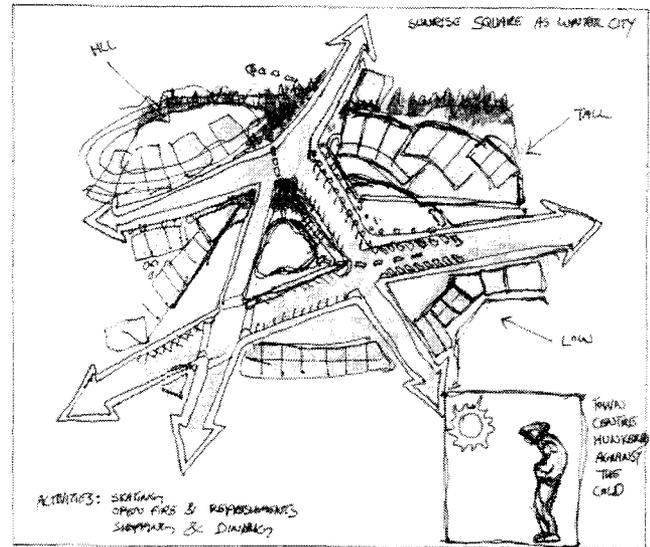


Figure 1. This diagram was developed as a way of synthesising some of the determinants of development form: wind and solar patterns, dramatic mountain and city views, winter conditions, and local ravines and vegetation patterns are important features.

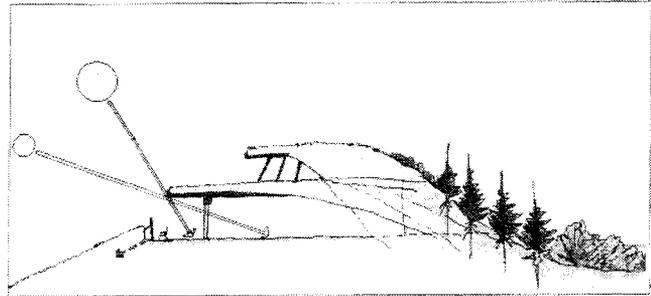


Figure 2. A diagram suggested how house form on sloped land should respond to seasonal solar patterns, provide shelter from the cold northern winds, and take advantage of the topography. Planting plans should recognise moisture and topographic gradients.

ment for a program or curriculum between the planning scale and the building scale, i.e. the urban design scale or the scale of the city.

Emphasis on quality of urban form and urban life, and the inter-relationship of scales of thinking, rather than on traditional disciplinary concerns of buildings or land use designations, help to centre discussions around the city as the subject of study and work and seem to promote more meaningful collaboration between students from different programs. Ideally, a series of studios and theory courses should support any approach to design, and a program of studies in urban design rather than one or two courses is necessary as an adequate and appropriate education, but one that could provide a bridge and a point of intersection between architecture and planning.

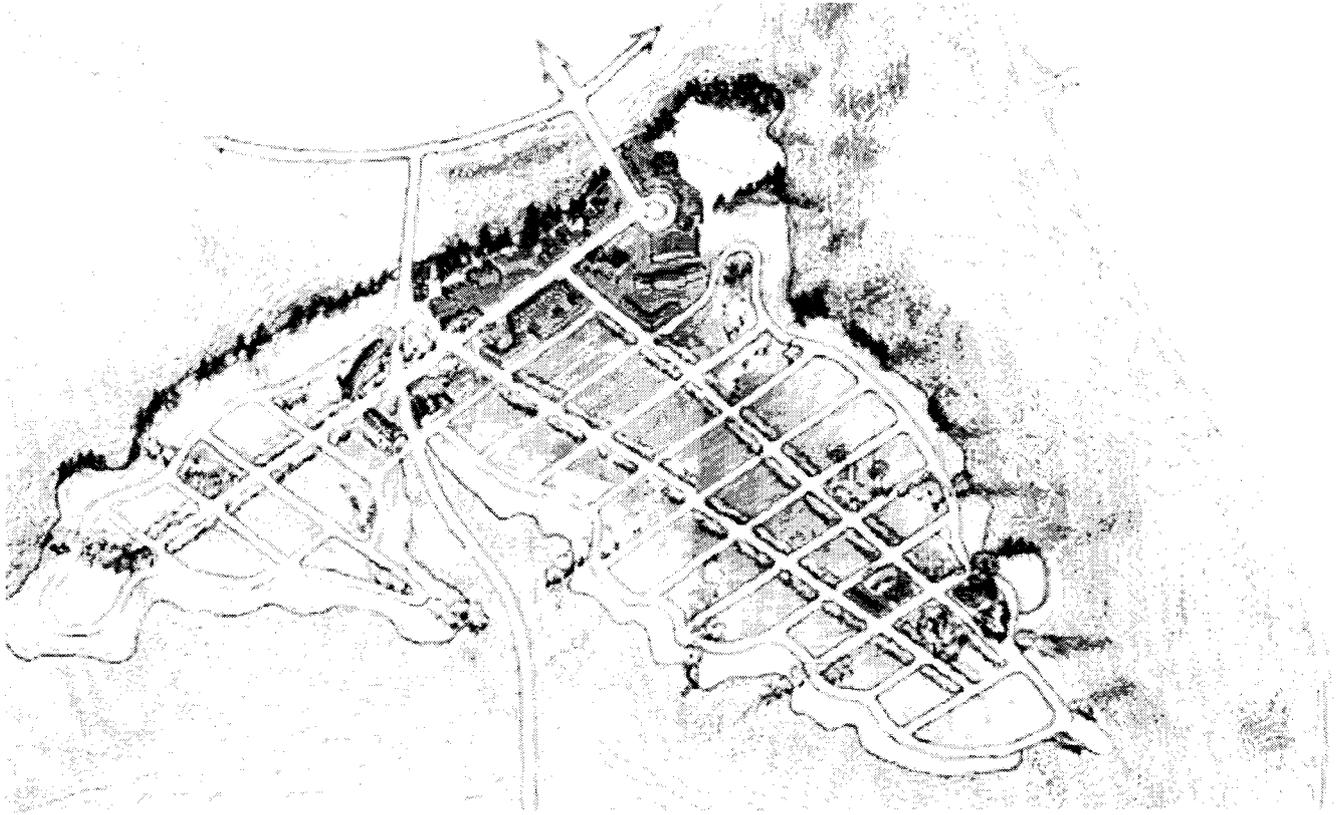


Figure 3. The concept plan was derived from the land form and other environmental conditions, and attempted to develop a permeable and human scale environment with a number of town centres composed of a mix of small scale commercial, local institutional and medium density residential development.

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