Theoretical Architecture in Structures of Dense Urban Reform
Abstract

This paper identifies a range of elements and principles useful for the development of an urban theoretical architecture. Acceptance of nature as a design element and in particular the use of nature to bound nodes of high density development are explored. The use of fractal geometry to distribute the urban footprint upon the landscape is introduced along with a tacit development of methodology making the application of fractal geometry useful. Building height restrictions are suggested as useful to create urban walls and maintain views for tall buildings. It is proposed that the basic unit of urban design and development is a high intensity urban cell. Elements crucial to the life of urban cells are identified. The importance of architectural character in developing the identity of urban space is reinforced and explored.
Blood dried brown masses of extending urban sprawl surround the bright once-bounded city of Washington, DC. This cancerous mass manifests traffic: the most visible consequence of suburban growth’s pathology. The reality of urban sprawl, its extent and form, is here revealed by condensed satellite imagery. Overlaid upon this reality is a diagram of the impossibility of a fractal form.

Contemporary urbanism degenerating into sub-urbanism profoundly expands environmental destruction. Urban and suburban dwellers become increasingly detached from the detrimental effects of their settlement within nature. Thus the devastation wrought by overbuilding and over-traveling the land remains largely hidden from its perpetrators.

A dense and intense city infused with nature at many different scales arranges the majority of its citizens into daily contact with nature. People develop a cognitive sense of ownership in things they experience every day. Manifold direct contact with nature enables and sustains direct and sub-consciousness of the inherent value of the environment. It also fosters and heightens awareness of actions or inactions detrimental to the health of the environment.

Urban Architecture, which incorporates all of urban design into the range of the principles of Architecture, potentiates the binding of man to nature with high-intensity symbiosis.
Regional Site

Every urban architectural design must incorporate its site as a primary element. Every site composes many sub-elements with each one constituting its own complex structure. The most significant of these are its topography - especially the configuration of creeks, streams and rivers, and distribution of negligible, gradual, and steep slopes or “lay of the land”; surface-water permeability and runoff; subsurface water; micro-geology; climate and micro-climate(s); geography with latitude the most significant factor in daily and annual tracking of the sun.

The site of the Fractal Garden City is located in the Virginia Piedmont at approximately the same latitude as the southern tip of Washington, DC. The west side of the site is enclosed by a range of the Appalachian Mountains. Regional perspective of these mountains presents on the small brown relief map of the United States. The site becomes less mountainous as one moves across it from west to east. The small green map of the US shows the national metastasis of urban-suburban sprawl via shades of brown to black. Virginia is located within the nation on the small white map of the US. Shown on a map of the State of Virginia, a solid yellow boundary line encloses the region defining the Fractal Garden City site. Directly to the east-northeast of this region a dark brown square delineates for comparison the same area of urban sprawl as shown on the first page of this book.
The Fractal City developed upon the background of and as an alternative to urban sprawl. The grey shaded area shows an extent of sprawl morphed out from Washington, DC. The diagrams attempt to grasp the proportionality of fractal geometry related to the scales, quantities and distribution of a metro center, cities, towns, villages, hamlets and settlements of an urban region.

Proportion as Element of Urban Design
A proportion or ratio is a “fixed relation in degree, number, etc. between two similar things.” The use of physically visible ratios imbues an urban design with the quality of rationality because [Ratio, rational, reason and art all come from the same Indo-European root “ar” which means “to fit together.” ] The manifold quantities of proportions that can be developed in the design of cities are staggering. They include:

• Walking distance / neighborhood size
• Distance from home to green space / incidents of awareness of nature
• Average distance to schools / Number of schools in the city
• Distance to school+ quant. of students in area covered by distance to school / Student capacity of schools
• Number of People / Unit Area of Land = Population Density
• Distance to bus stops / number of bus stops in a given area
• Distance from home to stores / convenience of shopping
• Distance from home to quant. of jobs / desirability of residence

When actually used, many of these proportional guides flash so quickly past the consciousness as to be barely noticed but as cognitive tools are instrumental in understanding and development of our urban regions.