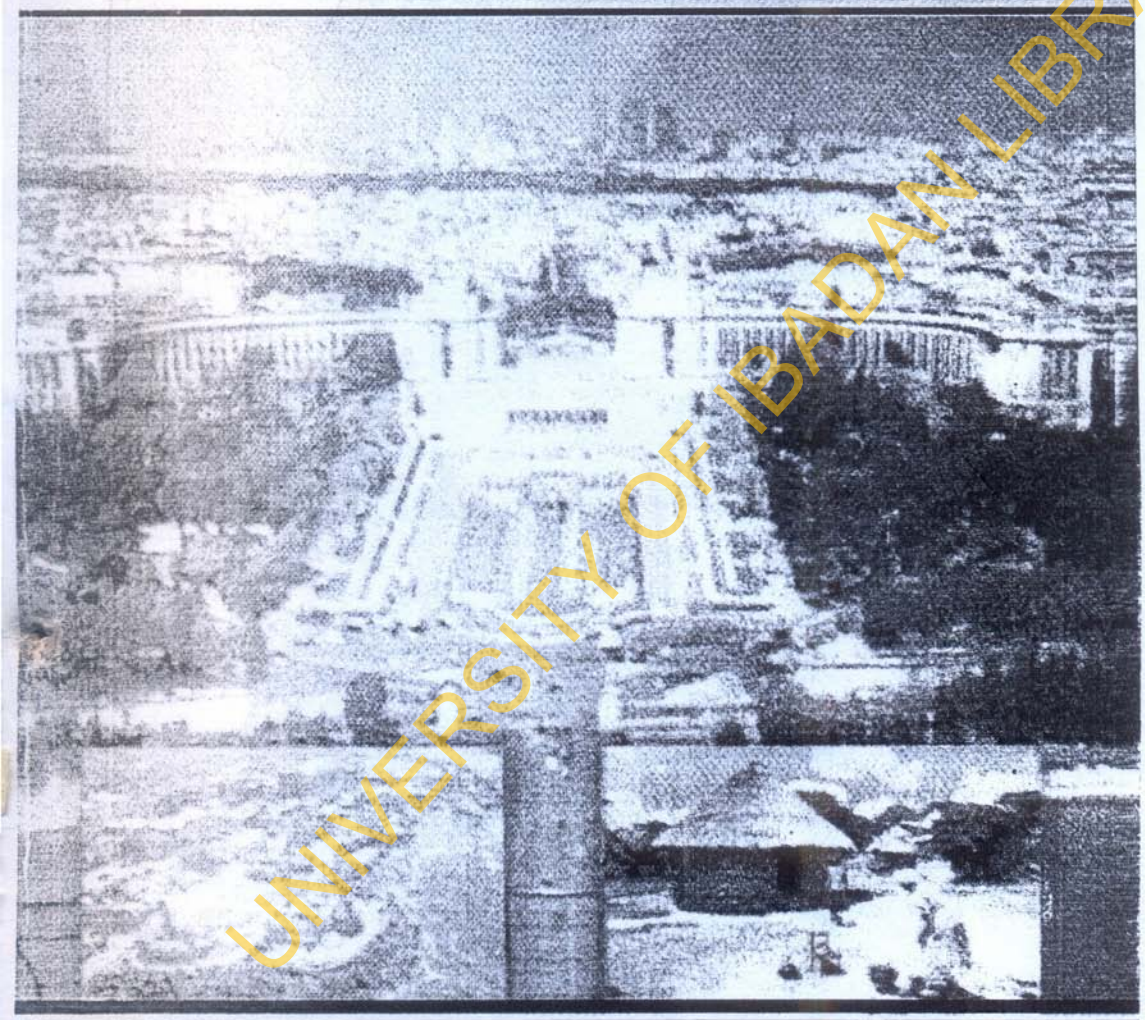
READINGS IN URBAN AND REGIONAL PLANNING



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Readings in Urban and Regional Planning

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Macmillan
Nigeria

First published 2004

Published by

Macmillan Nigeria Publishers Limited
Ilupeju Industrial Estate, P.O. Box 264, Yaba, Lagos
New Oluyole Industrial Estate, P.O. Box 1463, Ibadan

Companies and representatives throughout the world

ISBN 978-018-281-0

Printed by Foludex Press Limited, Ibadan

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Urban Design

Design is a vital tool for the modification of existing urban environment. Coherence, orderliness and aesthetics are some of the products of design and these can be injected into many of the presently disorganized and inhumane urban environment in order to raise their quality, character and image.

Modern urban life is completely different from the traditional one - very expensive, quite unsafe, dreadful and uninteresting. Presently, our cities, most of them heavily over-populated, have so much deteriorated that many stink to high heavens. Shapeless built-up areas are spreading out in all directions in an uncontrollable manner (for example, the two-sides of the Ibadan-Lagos Expressway, from Ibadan end, in Nigeria) with characterless and repetitive type of buildings leaving such areas of the city with no distinct identity and form.

The ugly trend described above is not limited to the developing countries where foreign style in house building is copied with impunity. The developed countries are equally battling with endless, dull, drab, monotonous and sometimes very expensive buildings being erected especially in residential areas.

A lover of cities will be much more disturbed to note that the cities whose physical environments are fast deteriorating do not have much good to offer. They are characterized by deafening noise and poisonous fumes, 'mountain' of solid wastes, modern slums of ill-conceived housing developments (lacking in basic infrastructural facilities), visual distress, dramatic increase in muggings, burglaries, the '419' game of deceit (being experienced in Nigeria at the time of writing), car snatching, kidnapping, assassinations and similar other crimes. All these have been compounded by large-scale unemployment

culminating in abject poverty with consequences on nutrition, health and education. Our environment as Nuttgens (1974) rightly observed, "has been scaled to the speed of the car rather than walkers, to the statistics mass rather than to human groups, ... to the storage of masses of people rather than to the provision of suitable space for families."

The above scenario calls for a drastic solution. The built environment must be transformed to make them more humane, a place in which people can live satisfying and creative lives. The principal debits of architecture and planning, that is scale and inhumanity, have rendered the two disciplines quite incapable of fully arresting the situation. Urban design has come into the scene as a series of responses to the contemporary urban worries. As Bentley (1978:35) puts it: "Urban design, emerged as part of a critique of the urban environmental product, a critique of the process of development by which it is brought about and a critique of the professional roles involved in controlling it."

The design of cities is so important that it is often treated as a separate discipline which is urban design. As Gibberd (1976:10) observes, "The urban environment is so complicated that the design for a town must in the first place be shown symbolically in the form of a two-dimensional plan." This plan which is to be prepared by a town planner constitutes the broad framework on which the design of all the other elements of the town will be based. Other people will come in to design other objects in units - architect designing buildings, civil engineer designing culverts, structural engineer preparing the structural details of all reinforcement, while the mechanical engineer works out the details of mechanical lift to be used in a high rise building. However, in order that we may have a wholesome, efficient and humane environment, the various elements separately designed will have to be brought together under a very orderly arrangement so that each element co-relate or is in perfect juxtaposition to the others. This seemingly simple exercise requires a lot of inputs and it is a continuous and flexible process which involves critical decisions on the anticipated growth, decline and change in the environment. This activity falls within the purview of urban design - a subject which includes landscape as well as buildings, both preservation and new construction and rural areas as well as cities.

This chapter is meant to introduce the subject of urban design to everyone who has a stake in the built environment. It is not supposed to be a complete work covering the whole spectrum of urban design, rather it is to serve as an instructional material providing quick information on basic aspects of the

subject including its definition, objectives, principles and process, and its relationship to both architecture and urban and regional planning. The note will also give coverage to the concepts of imageability, space and street design which are vital to the understanding and practice of urban design.

In preparing this paper, the author has deliberately resorted to the use of very simple terms and expressions in order to facilitate easy understanding and to avoid jargonising the subject. Illustrations are provided to enhance the understanding of the issues discussed in the same way that local and foreign examples are given within the limit of the author's knowledge and experience.

The Concept of Urban Design

Urban design, a term which means different things to different people has been defined severally by many scholars: Gosling and Maitland (1984); Goodey (1979), Barnett (1982), Rapoport (1977), Samuel (1986), Medhurst (1985), Bentley (1980), Galloway (1982, 1986), Lichfield (1984), Dovell (1982), McCluskey (1984), Reekie (1972), Marsh (1983), Gibberd (1976) and Spreiregen (1965). There is yet a straight-jacket definition of the subject. According to the Urban Design Group (1984:6):

> Urban Design is at the interface between architecture, town planning, landscape architecture, engineering and related social science and environmental management professions. It is the creative activity by which the form and character of the urban environment at the local scale may, over time, be devised, modified and controlled in circumstances of social, economic, technological and/or political change.
>
> Urban design is the physical and spatial design of the environment (Shirvani 1985:6).

Lichfield (1984:18) defines urban design as "The skill of understanding and manipulating the relationship between different aspects of the urban environment - physical, social, economic, political, etc."

In one of his works, Galloway (1982:2) observed that "Urban Design is essentially an 'action', or rather a 'method' of acting."[6] He went further to say that "Urban design is basically a role and a process" Urban design is seen as a role in the sense that it assists the local power in the control and promotion of development. This it does by means of the design brief. It is also a process - a continuous and flexible process which takes into account the dynamic development of towns and cities and several environmental changes which may take place as a town develops over time.

In his contribution to the issue of definition, Bentley (1978:36) defined the subject as "Design in and of the public realm, at neighbourhood scale and at the scale of the main structuring elements of the town". According to Barnett (1982:12), "Urban design is the generally accepted name for the process of giving physical design direction to urban growth, conservation and change."

From the above definitions of the subject, one could see the difficulty entailed in defining the term 'urban design'. It may be simply described as a creative art concerned with the articulation of buildings and spaces, the relationship between them, their flow, aesthetic character and the pattern they create in the environment. Urban Design may also be thought of as a temporal art concerned with the organisation of the general, spatial and temporal pattern of human activity in space and time with consideration for economic, visual, ecological, socio-cultural, political and psychological effects, especially the sensuous aspect, form, colour and texture.

A more embracing and comprehensive way of defining urban design is to see it as a discipline concerned with the creation of a pleasing and humane environment which is achieved through proper harmonization of sites and landscape features and the conscious and skillful manipulation of forms, shapes and lines, colours and texture with due regard to the interrelationship of building masses, open and enclosed spaces and other elements of the built environment. Shirvani (1982:428) describes urban design as a "Physical-spatial system... concerned with both functional and aesthetic relationships of urban spaces and people in the context of the socio-political and economic environment of the city".

Urban design is the conscious and detail arrangement of the parts of the built environment such that each element or constituent part functions properly either as a separate entity or in relation to one another (when combined together) to achieve a pleasant, visually and aesthetically satisfying urban scene. In whatever way it (urban design) is described, "Its practice is much more exemplified in cites and towns; the larger and more prosperous, the better it is able to draw upon a variety of elements" (Medhurst, 1985:4).

Objectives of Urban Design

The main aim of urban design is to seek solutions to the real issues of providing a better and humane environment for living, working and recreation. Some of its objectives include the need to:

(i) achieve efficient and imaginative use of resources;
(ii) create a pleasing, healthy and agreable environment in which people can live satisfying and creative lives;
(iii) create responsive environments - environments that are legible, permeable, rich, robust and visually appropriate and which offer opportunity for personalization, balance, harmony and variety;
(iv) create the desirable town and city which are designed not on the scale of machines and motor cars rather on a scale which takes cognisance of the perceptual capacities and limitations of man. In urban design, a city is ideal and desirable if it offers uninhibited access to different activities, resources, information and places for all sectors of the dense population which is made up of people of different ages, skills, and socio-economic status;
(v) create and maintain (a satisfactory) "quality of life and of the public realm in both new and cherished environments... and to help the users and not only the producers of the urban environment achieve their aspirations" (Samuel, 1986:2). User satisfaction is often 'criminally' ignored by private and, surprisingly, public clients in the planning, execution and management of their projects; and
(vi) create human environment which is comprehensible and stimulating to its inhabitants and users and which, in its perceived form, supports the distribution of activities and patterns of movement.

In a bid to achieve its set objectives, urban design "explore[s] the interrelationship of form, space and movement; and the perception, experience and creation of building and spatial groups" (Dovell, 1982:8).

Urban design, as highlighted in the foregoing paragraphs, deals with the totality of the built environment and it influences all human activities. It is so basic to the healthy growth and development of settlements, their functional efficiency and visual character that the lack of it (urban design) poses serious threat to the well-being of people, the quality of urban life and the extreme end of the scale, the survival of a nation. The absence or unnecessary neglect of urban design is bound to lead to:

(i) generally low quality of living;
(ii) dull, uninspiring, hostile and characterless urban environment;
(iii) unsightliness in the appearance of towns and cities;
(iv) greater menace of the violent and discordant element of our urban environment, i.e. motor traffic;
(v) discomfort (social, physical and even political); and
(vi) environmental degradation.

Scope and Development of Urban Design

Urban design, which is primarily concerned with the articulation of buildings and urban form, is a relatively new inter-professionalism (very humane in approach) which has almost unbounded scope for studies. It is a many-sided study which demands contributions from many specialisms-architecture, town planning, civil engineering, estate management, sociology, anthropology, history, pathology, political science and the law. The scope of influence of the profession ranges from large architectural statements to entirely process-oriented programmes which affect whole cities.

The subject covers a wide range of issues which Doxiadis (1968:12) grouped together as the elements of human settlement - nature, man, society, shells and networks. Urban design takes care of the minutest object in a city (size of seats in a public park for example) as well as big objects such as the Eiffel Tower in Paris, Spires City Boulevards, Edinburgh Castle, or the plan of Festac Town in Lagos showing the actual physical arrangements of its parts.

As Samuel (1986:3) observes "Urban design is not biased towards prestige sites but it is equally concerned with small-scale, modest revitalization projects ..." It deals with policies for small as well as big projects and for all categories of people. It does not only advocate the creation of a conducive, congenial and aesthetically satisfying environment but also strives to pull people out of their homes to enjoy the beauty of towns thereby making the towns lively and active both day and night. This it does by the wise use of Activity Timing and Activity Spacing techniques.

Urban design is therefore a discipline whose mode of operation covers the tangible three-dimensional built-form and its quality, aesthetic character, image and symbolic meaning in relation to human scale.

Urban Design as a distinct field of study is of recent origin. In most countries where it is taught as an academic discipline, architects have been much responsible for its establishment. In the United States of America, the first academic curriculum was in the University of Pennsylvania's Civic Design Programme which started in 1957, followed by Harvard's Urban Design Programme in 1960. The City College of New York started its Urban Design Programme in 1971, the same year that Heriot-watt University, Edinburgh, University of Aberdeen and University of Manchester started their own programme.

Oxford Polytechnic established its Joint Centre for Urban Design about the same period. Gloucestershire College of Arts and Technology began its Urban Design programme in January 1984, while post-graduate studies had

been on since 1046 at the University of Newcastle-Upon-Tyne. Other schools of Urban Design are Pratt Institute and University of Washington in the United States, Polytechnic of Central London and University of Sheffield in the United Kingdom.

Who is an Urban Designer?

From the various definitions and objectives of urban design given earlier in this chapter, an urban designer can be thought of simply as the creator, promoter, enabler and controller of urban developments which take place in wide variety of form, pace and intensity over time. As Samuels (1986:2-3) observes, "Unlike the architect but like the planner, the urban designer is involved in the processes of metamophosis over long periods of the urban environment."

Bentley (1978:39) viewed the urban designer as being "concerned with the design and development of briefs with which to control or promote environmental changes in the public realm at the scale either of the local neighbourhood and of what are perceived as the key elements of urban structure".

The task of the urban designer is to synthesise the contributions of all the professions in environmental development and to express this in a physical form suitable for human needs. The urban designer may be described further as the manager of environmental changes, well versed in development control matters either in the preparation of design brief for development control or in local area management and conservation.

In sum, urban designers are concerned with the totality of the build environment, its visual quality and how it affects people; with the development of public places that are active and used and all those things which make a city liveable. Some work for private practices but many work in government offices especially local (planning) authorities or teach in schools of planning and architecture as in Nigeria, America and Britain. They also work in planning commissions, housing and development administration, transport administration, etc. as in the United States of America.

How well an urban designer does his or her job will very much depend on his creative ability, talent and exposure; his or her knowledge of the dynamic nature of human environment, and ability to mix well and communicate with other professionals as well as members of the public.

Significance of Urban Design

Urban design, which is a crucial common ground between the established development professions, is being practised all over the world for the benefit of the world community at large.

Urban design is important because its prime concern is with the physical product of the planning process. The public judges planning by the physical quality of what it sees around it, whereas the concern of urban design goes very much beyond mere quality: it is more with the function, attractiveness, efficiency, cost-effectiveness and management of places in their totality rather than the individual buildings, plans, procedures and legislation, however well conceived each of these may be in its own right.

Urban design is much more relevant in this time of global economic recession as it is rarely about lavish expenditure, white-elephant or mere show-piece developments. It employs the principles of prudence, economic justification and judicious use of resources while not compromising quality, efficiency and functionality. Urban design accords greater priority to small-scale, modest, community-based and sensitive projects.

In the developing countries where there is rapid population growth, low technology, spontaneous development of organic urban and rural forms, backward economies resulting in abject poverty and invariably, slummy environments and dirth of professionally trained designers, urban design is very much needed and becomes a panacea for the creation of improved, economically viable and sustainable human environment based on available resources, local culture and human aspiration.

Presently however, urban design strategy is being applied in selected projects such as university campuses, large-scale commercial developments, some government housing projects (e.g. Festac Town project in Lagos), government secretariat complexes, and recreation spots (e.g. Trans Wonderland or Amusement Park in Ibadan). However, in the development of highways and other road networks, open spaces, water fronts, industrial estates and street furniture, to mention a few, urban design approach is not so adopted especially in many developing countries. The result is that parts of towns and cities in these developing countries (as in Ibadan and Lagos in Nigeria) develop independent of one another in confused, chaotic, haphazard and disorganised manner without regard to the interrelationship among various elements of the urban scene.

In developed countries, however, urban design has accomplished a lot, especially in areas of special design districts (the Lower Manhattan Land-

fill in New York); conservation of landmark buildings; inner city renewal (regeneration of Hull's inner city; The Clinton Park urban renewal plan in the USA, and upgrading of CIGDEMTEPE MAHALLESI - a squatter settlement in Ankara, Turkey); rebuilding of theatres, squares and shopping streets (improvement of Times Square, the centre of night life in New York, and the Merseyside Maritime Museum in Greater Liverpool); creation of functional pedestrian precints, planned unit development (Village Greens on Staten Island and Lighthouse Cove, Redwood Shores, California); and community involvement in plan design and implementation (Amherst, Massachusetts Community Accessibility programme for the disabled persons, Black Road community housing project, Macclesfield, near Manchester), and creation of major city open spaces (Colne Valley and Lee Valley Regional Parks in Greater London).

In the developing countries, urban design has to assume greater recognition and be applied to a wide range of issues especially to arrest the daily deteriorating condition of cities due to urbanization and to deal with the emerging new trends in development - new scales and dimensions.

Architecture, Town Planning and Urban Design: Basic Differences

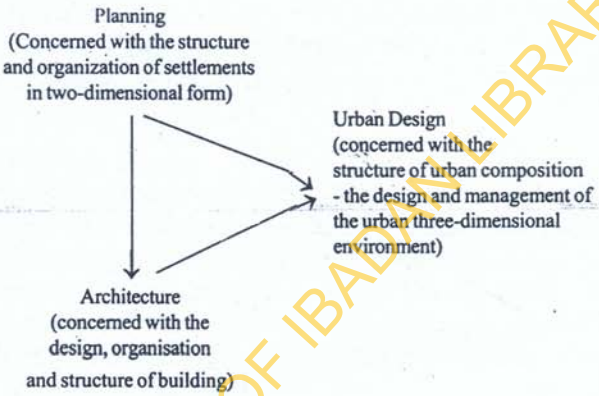
"Planning", "urban design" and "building design" are regarded by Reekie (1972:4-5) as the three basic division of the design of the built environment. Although he defines each part distinctly, Reekie claims that "these three parts of environmental design are not separate and distinct. Planning ... cannot be properly carried out without consideration of the subsequent stages of urban design and building design; urban design, which is conditioned by planning, is a preliminary to building design."

In his discussion of the relationship of the three subjects, Dovell (1982) observes that "Urban design is particularly related to architecture and planning but concerned with architecture and its detail only to ensure that it aggregates into environmental effectiveness; and with planning and its wider applications only to ensure that a sound operational framework exists for environmental action. If architecture may be considered to concern itself primarily with the design, organization and structure of building, and planning with the structure of settlement; urban design is concerned with the structure of Urban Composition".

Architecture, urban and regional planning, and urban design are by no means the same. They are related only in the area of scientific approach to problem solving. They belong to the environmental professions but each has

distinct functions, coverage and products. Urban design extends beyond the operational realms of architecture and town planning because it (Urban Design) is concerned with everything we see around us - the localised complexes of buildings and the external environment created by them.

Figure 1. Relationship of Urban Design to Town Planning and Architecture in the Built Environment



Source: Adapted from Reekie, F. (1972)

In the words of Barnett (1974:186), "A city planner was someone primarily concerned with the allocation of resources according to projection of future need ... Architects design buildings (and) prepare a set of documents so that the building ... can be constructed and they take legal responsibility for the process." Planners tend to regard land use as an allocation of resources problem, parcelling out land for zoning purposes without much knowledge of its three-dimensional characteristics, or the nature of the building that may be placed on it in the future. Whereas, urban design is the design and management of the urban three-dimensional environment larger than the individual building.

At all the stages in the planning process, all the specialists involved are, according to Gibberd (1970:10), "never required to exercise aesthetic sensibility. When this point is reached, where someone has to show how the [particular elements of the town] are to be actually arranged, has in fact to express his feelings about form, colour, texture, then town (or urban) design begins."

In one of his famous articles, Nuttgens (1974) highlighted some of the credits and debits of planning and architecture.

> Planning has credits in its response to change, its use of technology, its occasional fun, and its great gestures and new forms - bridges and motor ways, made up of concrete ... However, there are its monotony, its scale, the absence of meaningful social units, the expression of grey concrete everywhere and its inhumanity and aggressiveness. Architecture has some credits in its response to change, its use of new materials, its development of building science, its use of technology, its occasional emphasis on colour and contrasts ... [its debits are] its monotony and the pervading grey of concrete, its aggressiveness, its disrespect for individuals, its terrible inhumanity and its overwhelming scale whether for housing, schools, industry or offices.

From the above comments by Nuttgens, it would be seen that the debits in both architecture and planning centre on the built environment, i.e. the habitat of human beings - and its raw materials. It is these debits that urban design is out to address especially the dimensions of scale, time, humanity, movement and appearance. It (Urban design) is able to do this very well because it is more humane in approach and more scientific in practice. Urban design is able to give physical design direction to urban growth; to give desired meaning to the city and offer the inhabitants of the city a true sense of belonging and maximum opportunity in the town in which they wish to live a satisfying and creative lives.

There is one constant factor which architecture and planning seem to neglect as earlier pointed out. That factor, which urban design gives adequate attention is, according to Spreiregen (1965:69), "Man himself with his ability to comprehend his surroundings." As Houghton-Evans (1978:138) rightly observes, "Man is the measure of all things ... The design of the city - its proportion and scale - must be those of the pedestrian and the community, and of these the dimensions are relatively timeless." Urban design relates every element or object in the built environment to human scale and human groups rather than the scale of cars and machines and statistic mass.

Juchnowicz (1976) observes that "One of the most difficult problems of town planning is that concerned with time." New roads that are planned and built usually appear adequate for the present volume of traffic and land use activities for which they are being planned. With the passage of time however, they become hopelessly inadequate for the rapid increase in motor traffic

due to urbanization, town expansion and changing pattern of land use. A similar example of the problem of time is with regards to building which is daily increasing in volume and also changing in its use without complementary changes accompanying it. Most residential buildings in Victoria Island in Lagos, Nigeria have been converted into offices and other commercial uses in the recent time with negative effects on travel time, congestion, residential accommodation, rent and neighbourhood character.

Urban design considers the elements of the town in relation to time: what each element is in historical time; its effect on past time; its effect in the present time and what effect it will have in future time. *Time* is the fourth dimension of urban design, others being (human) scale, movement and appearance or shape.

Basic Principles of Urban Design

Urban design operates under certain principles which centre majorly on the concept of human scale and healthy environment. One of the basic principles is equal access to different activities, resources, information and places for all sectors of the population and from every part of the city. While this is being ensured, the modern city should not be allowed to create conditions which will make human dependent on car for all his or her needs, rather the city should be sufficiently dense, public, full of opportunities and visually attractive to be used by people of all age, ability and income.

A second principle is "the proper array of urban masses." Urban design has to adequately and aggressively address the problems of scale, space and time in the built environment, in order to ensure that all parts of the city are used for the sensuous enjoyment of human in a very useful and healthy manner. How pleasant, interesting, relaxing and visually satisfying or how frustrating, boring and tense an environment is, is a function of mass, space, colour, texture, light and site including the layout of the lots.

There is also the functional deployment and mixture of urban activities and land uses. Zoning, an important feature of town planning, creates homogeneous sectors in a given settlement. However, such settlements are not the best as human activities and land uses are segregated rather than being properly mixed or integrated or linked. The isolated and specialized single-use zones found in contemporary cities should be properly reconciled to allow for variety of activities and experiences.

Another principle is "the functional arrangement of patterns of movement." Circulation systems (made up of roads and footpaths) are vital linkages which relate activities and uses on the land. They constitute important structuring elements of a town-plan and have to be arranged in hierarchical order with due regard to the type and size of activities or uses they are to service.

Proper Deployment of Urban Spaces: A "good design," according to Stretton (1978), has to give a city good big spaces, good little spaces and good relations between them." The Eiffel Tower and the numerous fine boulevards in the city of Paris; the City Park and tree-lined boulevards in Central Milton Keynes; the Trafagar Square and Hyde Park in London; the famous Greek Agora or Wolverton Agora in Milton Keynes; the Tinubu Square or Apapa Amusement Park in Lagos, the Trans-Wonderland in Ibadan and other grand spaces across the world are very much needed for their services and inspiration. In the cities are also found small spaces, e.g. Independence Square in Old Bodija Estate or the Community Playground in New Bodija and the Lekan Salami open space in Adamasingba areas of Ibadan; the well-maintained, small open space along Ilupeju Industrial Road, Ilupeju, Lagos, or the small communal open spaces in the Brow Housing Project in Runcorn New Town (U.K.), which are human scaled, intricate, sheltered and of manageable size. These spaces are enjoyed by city dwellers who socialise, meditate and relax within such spaces. The creation of such diversity in urban elements is at the heart of urban design.

One important principle of any good design and urban design, is that whatever is designed "should be for the people who will use it in order that it may work well and feel good for them" (Stretton, 1978:204). Many government low-cost housing schemes in Nigeria which were built in the Second Republic are, as at the time of writing, never occupied by human beings simply because they were totally alien in design and totally out of tune with the residential mannerism, socio-cu .ural and economic status of the local people for whom they were meant.

Protection and Security Alongside Shelter and Comfort: In this principle, urban design attempts to create secure environments which inhibit crime and have opportunities for (natural) surveillance thereby enhancing the lives of the inhabitants while providing security for families, neighbours, friends and visitors. People do not have to live in iron cages or 'fortified prisons-of-a-home' as in most towns and cities in Nigeria.

One last principle is the opportunity for personalization of own (private) surroundings. Here, human beings are offered the greatest opportunity to personalise their private spaces or living realm for individual expression. A person can differentiate his/her flat from several others in a large apartment block through the use of colour, texture and the ordering of landscape. In this way, the uniqueness of parts of the city is recognised and the monotonization of its (city's) elements is avoided.

Urban Design Process

Urban design as earlier defined in this chapter is a process - a continuous and flexible process; somewhat cyclic, usually going back to the starting point. To undertake a successful urban design project, the designer is expected to be fully aware of what problem he/she is trying to solve, that is, comprehend the existing situation in the context of its physical, social, economic and political circumstances. This he/she does through indepth research and investigation. The designer should possess the skill to analyse data, forecast likely changes and the possible impacts of the changes on the built environment, and then come up with what is considered the best plan or design synthesis which is sufficiently adaptive to permit review, modification and revision.

Reekie (1972) gave a broad outline of a basic system which can be used in connection with design in the built environment. It is a five-stage design procedure which proceeds in a straight line through a simple sequence: "Brief-Analysis-Synthesis-Implementation-Communication." Reekie's procedure contains very relevant steps in the urban design process.

Urban design process may be simply described as consisting of eight stages, all continuous, concurrent and mutually linked. The eight stages are described (see Figure 2).

1. Problem Identification

The first step is for the urban designer to identify the purpose(s) which he/she seeks to achieve, that is, the problems he/she intends to solve and then order them in terms of their importance. In order words, the designer has to establish, for example, the need to create a unified environment which may involve fitting a new building into a delicate conservation area or the pedestrianization of a shopping area.

2. Goal Formulation and Identification of Objectives

Probably, one of the most important aspects of the process is the formulation of broad community goals. Goals are areas of concern; they are essentially general and highly abstract. In urban design, goals tend to fall into broad categories such as social, cultural, economic, physical and aesthetic/visual quality or sensibility and may even include aspects of the design process itself especially continuity and flexibility. A goal may be to achieve an efficient distribution of activities and/or patterns of movement within a city, or to ensure a liveable urban centre.

Objectives which constitute actual programmes by which goals may be achieved are then identified. If liveable urban centre is the goal, the resulting objectives might include: adequate pedestrian safety; provision of efficient mass transit, comfort stations, adequate convenience shops, open spaces and recreational facilities; efficient refuse disposal, and communication facilities.

3. Collection of Relevant Information and Data

At this stage, a detailed survey of the area, object, agencies, individual and relevant activities will be carried out with a view to collecting relevant information and data. Data would be collected on all the factors which may influence the designer in arriving at a particular set of proposals. Data are needed on site characteristics, activity patterns to be accommodated, environmental factors, human relationships (social, political and cultural), economic/demographic/technological and legal factors as well as open spaces (see Figure 3).

4. Analysis of Data

All the relevant information already gathered will be separated into appropriate or required parts to make for easy and better utilization at the design stage. Data may be grouped into physical and environmental, socio-economic and political, materials and construction, and aesthetic/visual. During the process of analysis, if a designer discovers the need for additional information on one of more aspect(s) or factor(s), he or she has to go back to stage 3 and collect the required information before proceeding to the next stage. Most urban designers adopt the "Ecoplanner Model" - a Multi-dimensional Activity Interaction Matrix (developed by Phillips and Fortlage, 1972) to analyse all required data. The model is of three components: Activities, Resources and Relationships.

5. Design Synthesis

The fifth stage is the synthesis stage where all requirements within the context of prevailing policies, regulations and constraints (financial, legal, social and political) will be met. It evolves out of the analytical phase. The design synthesis constitutes possible alternative means of achieving the goal and objectives formulated earlier (i.e. solutions to the identified problems) and it is usually in form of actual designs developed from abstract relational diagrams that are arranged and re-arranged over and over through warping,

shifting, stretching, etc. until the desired design concept(s) and the viability of the design is attained. Each alternative design which is produced with due regard to urban design principles and techniques and to the contents of the activity matrix, proceeds from general to detail, i.e. from freehand sketches to refined drawings or plans and then model. The cost and benefit of each course of action, i.e. alternative plans or proposals are to be stated, and tested and a preferred alternative indicated.

6. Design Evaluation

Evaluation of alternative potential solutions is an important stage in the urban design process. Here, the designer will compare and measure all the complete courses of action against the goals and objectives already stated and then make decisions. Objective and meaningful evaluation requires deep knowledge, skill, imagination, intuition, compliance with regulations and principles, as well as design technique which are all products of a slow process of creativity. Various techniques may be employed to eliminate weak strategies - goal achievement matrix, cost-benefit analysis, critical path analysis and rigorous appraisal. Available resources should be seriously considered here.

7. Implementation

The chosen design is to be prepared in its perfected form accompanied by other charts and write-ups which will make for easy comprehension and implementation. This is the stage when actions must be taken towards the physical realization of the preferred alternative. Adequate finance, personnel, efficient management and perhaps political support and encouragement more than anything else are required for a successful implementation.

In order to achieve the implementation of urban design works in a political atmosphere or process, Catanese (1984:11-12) recommends that:

(a) urban design must be delivered in a timely fashion when and as soon as needed, or it will not be needed;

(b) plans must not be too vague rather; urban design must be more specific, distinct and inclusive of operational and functional plans to be updated and revised more regularly; and

(c) private sector should be involved in plan formulation in order that plans and designs may be implemented by private developers.

A sub-level in the implementation is phasing or programming which provides for the time each activity is expected to commence and finish based on available resources (human and material) and other factors.

8. Monitoring and Review

This is the last stage of the urban design process where the designer has to monitor very closely the state of the system. After an interval, he/she reviews the performance of the policy regarding its effectiveness and efficiency. Where it has strayed or departed from the assumed course or where changing circumstances have overtaken it, adjustment may have to be made. This is very necessary because the built environment is a dynamic system, in which changes cannot be forseen with utmost certainty. Urban design itself is a continuous, cyclic and flexible process. Thus, the process may have to be recycled back and forth from stages 2 to 8.

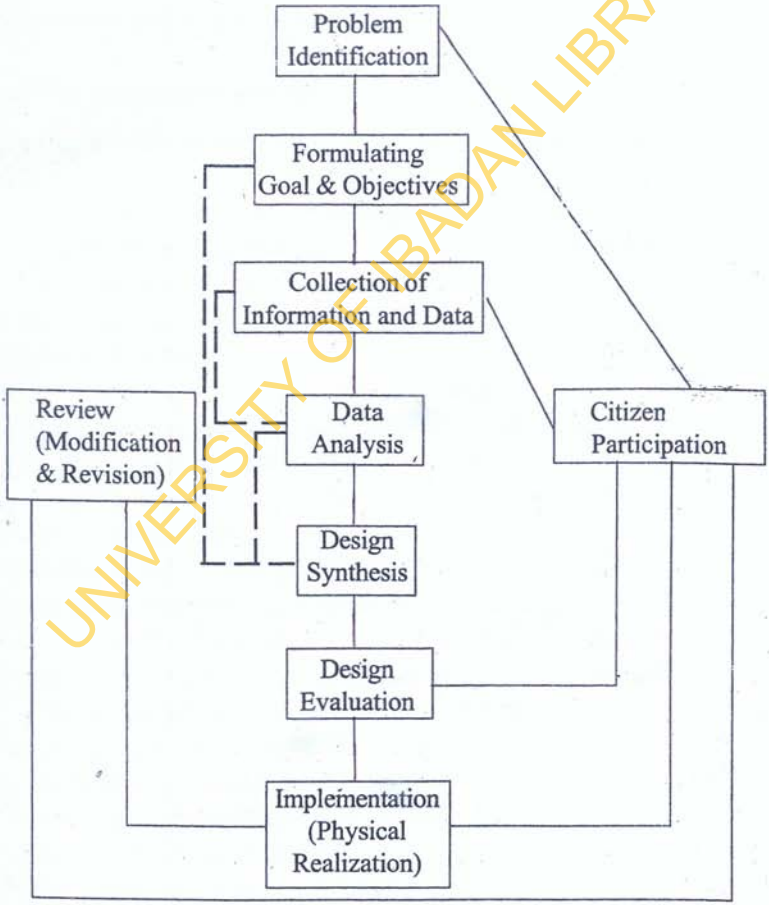


Figure 2. The Urban Design Process

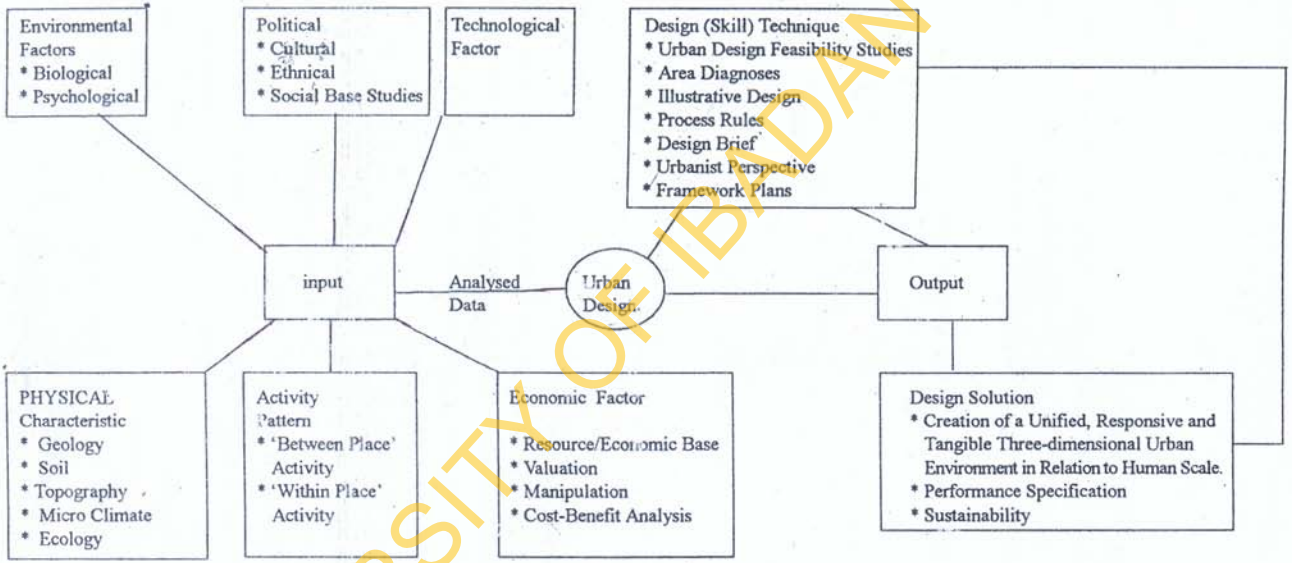


Figure 3. Urban Design as an Open System

The Design Team

As stated earlier in this chapter, urban design is a many-sided study which demands contributions from many specialisms. For many urban design projects, the design team will usually be made up of urban designer(s) as leader(s) of the team. Consultants and specialists whose corporate efforts are required are; town planners, land surveyors, estate managers and valuers, civil engineers, quantity surveyors, architects, landscape architects, urban economists, environmental psychologists, cultural anthropologists, sociologists and community development officers. They also work with prospective developers both public and private.

Visual Aspects of Planning and Design

One of the main pre-occupations of an urban designer is to create a humane environment which is visually and aesthetically satisfying and in which people can live creative lives. This can be achieved through the conscious and skillful manipulation of the nuances of scale and proportion, colour and texture, solids, shape and size, character, balance, symmetry, spaces, pattern and all the elements that make up the overall fabric of towns. The relationship between these elements will be examined later.

The importance of visual element in the physical implementation of planning and design proposals cannot be overemphasized. There is need for high visual quality in the design of any part of the built environment because the appearance of our surroundings touches our lives in every respect and also influences how people feel about their city and ultimately their ability to use the city in a healthy manner. People feel really proud to say that they live in Bodija (old and new), International Institute of Tropical Agriculture, and Agodi areas of Ibadan or Ikoyi and Victoria Island in Lagos, Nigeria or Duddingston, Colinton and Bruntsfield areas in Edinburgh, or in Russel Drive, Pinehurst Circle or Torrey Pines areas in Ames, U.S.A. all because of the clean nature and high visual character of these places. On the contrary, it is a shame to live in Ajegunle, Mushin, Amukoko, Oshodi areas of Lagos or Foko, Agbede-Adodo, Ode-Aje and Beere areas of Ibadan or the crowded areas such as the West End of Boston or Craigmillar in Edinburgh which are characterized by chaotic jumble of squalid buildings where houses are closely and badly built, inconvenient, and unsightly insanitary, and are also usually crammed with enormous numbers of human beings.

Concern for visual qualities is a basic principle of urban design which applies to every settlement - rural and urban. The urban designer thus strives to come up with good visual designs - designs which are not only able to rid the built environment of squalor, dreariness, dullness, drabness, ugliness and chaos but equally create a balanced, harmonious, orderly, perfect, coherent and visually unified environment.

In order to achieve a good visual organisation and coherent pattern of city elements, the principles of legibility, nearness (proximity), similarity (analogy), continuity, dominance and harmony should be given adequate consideration.

(i) The principle of proximity or nearness (of parts, e.g. cluster of buildings or trees, etc.) states that elements of a pattern which are nearer to each other tend to be organised into a form, especially when the elements are identical.

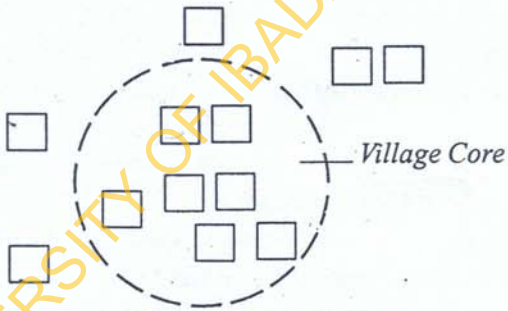
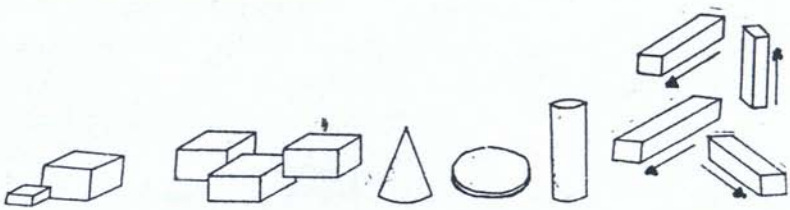


Figure 4·A Village and its Buildings

(ii) Elements which are similar in kind (e.g. building materials, repetitive pattern of, for example, windows, design symbols, shop arcades) tend to cohere in visual organisation and may take different forms based on different factors.



(a) Size/Mass *(b) Location* *(c) Shape/Form* *(d) Direction*

Figure 5

(iii) A continuous line tends to hold objects of different forms, shapes, sizes, heights and jointings together and helps to define pattern and increase textural effect. Examples are continuous belt of edge, long building line or setback (Fig. 6a - b)

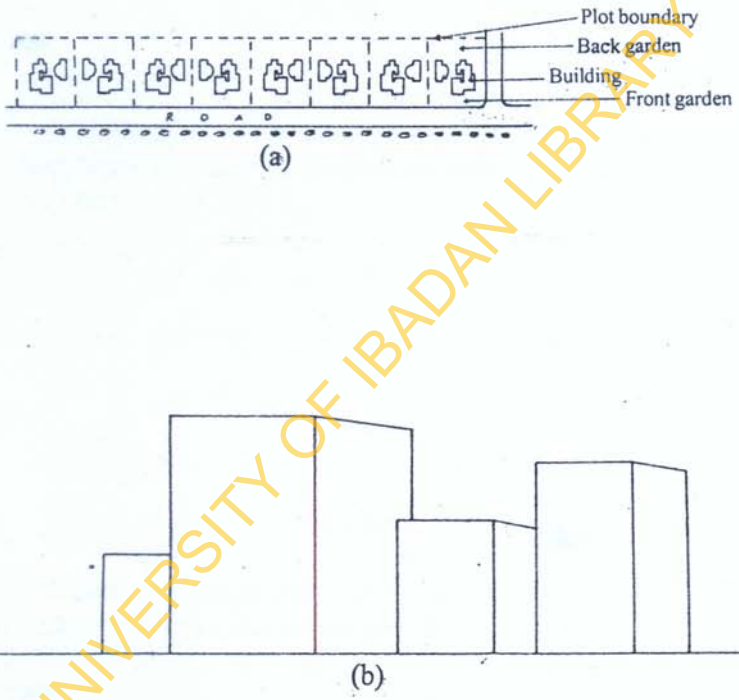


Figure 6

Form

Form generally refers to shape or visible appearance of a thing or even the way in which parts of an object are arranged. Buildings and other structuring elements of a town are perceived as forms and these forms are human creation. A town may assume various forms ranging from random, segregated, compact, dispersed, grid-like, linear and concentric.

Form is a three dimensional object consisting of lines and planes. Form may be explained in geometric terms. "Most buildings and civil engineering

works have the appearance of geometrical solids or combination of such solids, e.g. rectangular blocks, cubes, pyramids, cones, cylinders, spheres, hemispheres, etc." (Reekie, 1972: 37).

The forms of most of the structuring elements of the built environment, especially buildings, are determined by function (e.g. water towers, Alençon, France; water towers (uncompleted), The Polytechnic, Ibadan and construction method. Their forms are composed mostly of rectangular blocks arranged horizontally and vertically. Broken House, Cocoa House, Trans-International Bank in Ibadan; the 1,004 Flats and Oduduwa House in Lagos; Concorde Hotel in Owerri; Town Library, Stevenage; Illinois Institute of Technology Campus, and 860/880 Lake Shore Drive in Chicago are very fine examples of rectangular form. The horizontal and vertical directions are considered as the most desirable.

Buildings and structures could also be in circular forms emphasized also by vertical lines as well as graded shades. Examples are Nuclear Power Station at Oldbury-on-Severn; water reservoir, Agodi Gate, Ibadan; Sewage Treatment Plant, The Polytechnic, Ibadan and the Circular Chimney of the Coal-fired Power Station at Ironbridge.

Most Islamic buildings, especially the Mosques, are spherical or domed in form, especially the roof part. Examples are the Jumma Musjid at Queen Street, Durban; Central Mosque, Lagos; University of Ibadan Central Mosque; the Sacre-Coeur building in Paris, and the Geodesic Dome, Montreal. Some other structures can assume the form of a pyramid, for example, the La Grande Motte (holiday apartments by Marina) in France.

It needs to be mentioned that "The appearance of form is determined by the relationship of the size of the form to three coordinates of space and the character of the form surface (rectilinear, curvilinear, broken or discontinuous)" (Juchnowicz 1976:1). From this, three types of form emerge: voluminous, flat and linear forms.

'Voluminous form is characterized by the equality of the form measurements related to three co-ordinates of the space"(Juchnowicz 1976:2). The cube and the sphere are good examples.

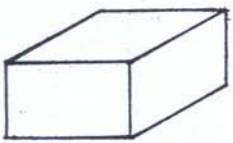


Figure 7. Voluminous Form

"Flat form is characterized by the equality of measurement of its extents along two coordinates of space and relatively short length along the third one"(Juchnowicz 1976:3).

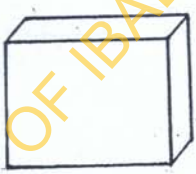


Figure 8. Flat Form

"Linear form is characterized by a dominant length along one coordinate of space as compared to the other two"(Juchnowicz 1976:3).

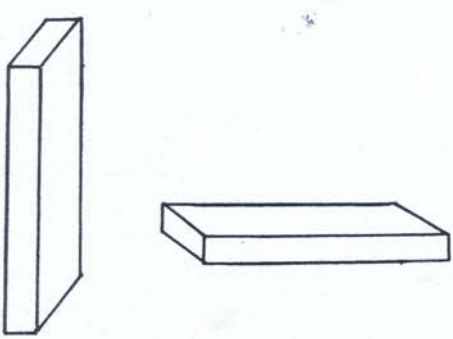


Figure 9. Linear Form

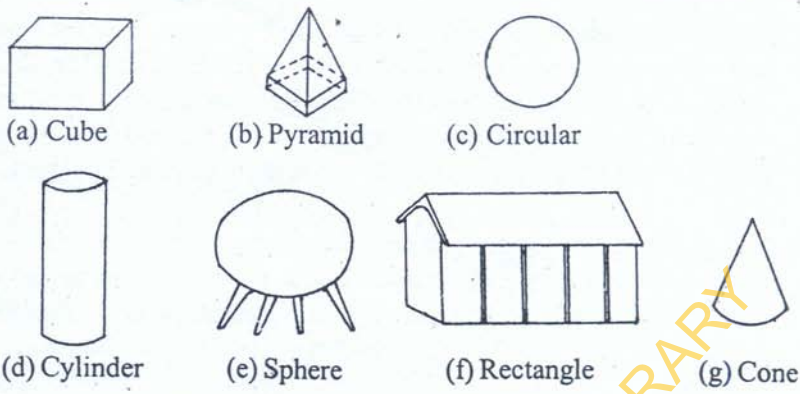


Figure 10. Examples of Geometric Form

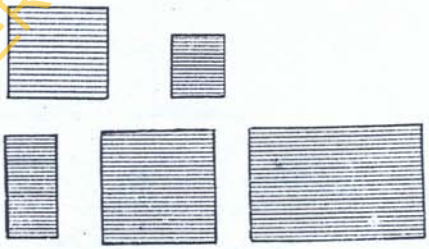
Mass

Mass may be explained as a quantity or matter without regular shape. Mass can be considered in five different ways:

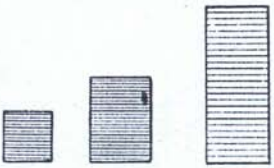
(i) It can be considered in relation to form. The size of mass is a function of the size of form; the bigger the form, the bigger the mass (fig. 11(a) - (b).

(ii) It can also be considered in relation to its distribution along the three coordinates of space. In other words, it is related to the degree of volumenousness and linearness. The closer mass is to voluminous form, the bigger it is and the closer mass is to linear form the smaller its quantity. (figure 11c).

Figure 11(a)

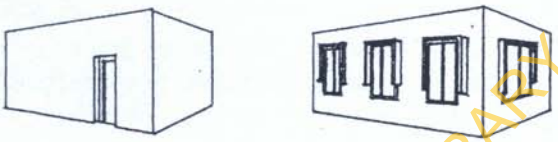


(b)



(c)

(iii) The perception of mass also varies in relation to the different degrees of compactness and number of openings within the bounds of its surface (figure 11d).



(d)

(iv) The perception of mass depends on the volume of the confronted space as well as other forms confronting it. (figure 11e-f).

(e)

(f)

(v) Mass relates to the distance between the observer and the object. The closer the observer is to a building, the bigger in quantity the building appears and vice-versa.

Shape

Shape, according to Hornby et. al. (1974:785) define "shape" as "outer form; the total effect produced by the outlines of something." The components of buildings are varied in shape so also are the various elements of the town. Roads may be very straight or curve gently or sharply, a portion may even be roundabout; open spaces may be small or big, rectangular or square or crescent-like. Building plots may be rectangular, square, triangular, or even assume the shape of a trapezium.

"Shapes are derived from efficient functional arrangement and economic construction" (Reekie 1972:43). Some shapes appear beautiful and inviting while some may appear very ugly and awkward. Designers are advised to show more skill when sub-dividing land so as to prevent impractical, unviable and useless lots resulting from their bad shapes especially the triangular 'cut-offs'.

Shapes have emotional and visual impacts on people. For example, regular and geometric shapes are very appropriate to urban layouts and buildings; long rectangles lead the eye along the direction of their length while "squares and circles attract and hold the eye and are often used as focal points" (Reekie 1972:43).

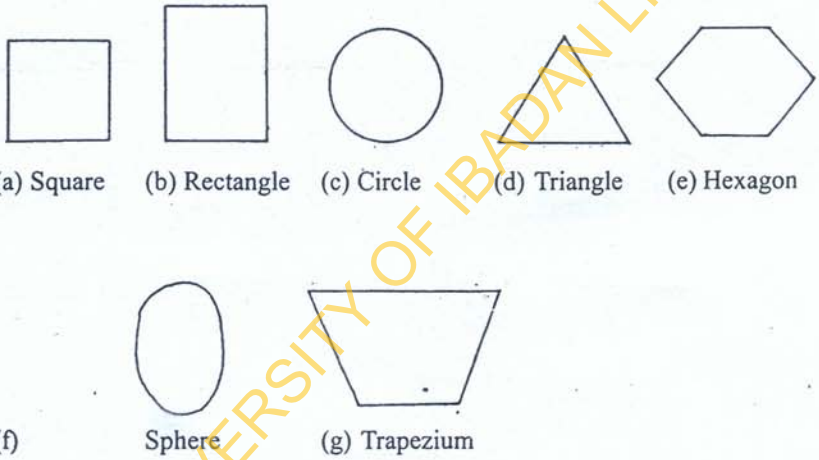


Figure 12: Basic Shapes

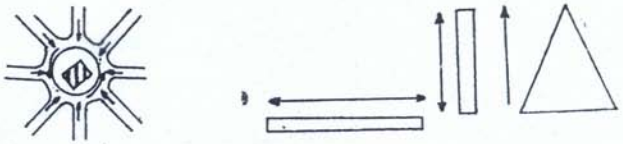
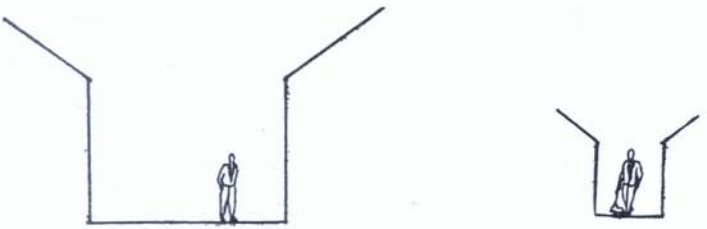


Figure 13: Use of Shapes

Scale

Scale is a difficult and much misused term. It denotes relative size and extent of things and is generally based on the size of the average observer. It is also the proportion between the size of something and a map or diagram which represents it. Scale as used here is in comparison with sizes (mass, area, etc.) in relation to other normally recognised and accepted sizes. A building or even a street in a layout may be said to be 'in scale' if it is proportional in height or size (building) or width (street) to the size of the observer. It may be 'large in scale' if it is far too big or too wide for its purpose or for those to use it (imagine a 6m x 12m classroom which is 5m high to be used by kids between the ages of 3 and 5 years). Most gothic churches and city central mosques are so tall and spacious that people are struck with a feeling of insignificance when inside them. The cell in most prisons and police stations in Nigeria are very 'small in scale' - narrow and poorly equipped for the number and size of their inmates.

It should be mentioned here, however, that most public buildings (town halls, Museums, school halls, churches, central mosques among others) are often larger in scale than normal for visual expression of their character. In urban design, the laying out of open spaces and buildings is done with due regard to human limitations, expectations and potentialities and in relation to other structures in the built environment so as to achieve good visual quality. The rule is that public spaces in urban areas must relate to the scale of the human being such that their sizes are neither too large nor too small relative to the size of a human being. The architecture of London Square is humanistic. The buildings are not excessively tall in relation to the open space they surround. The scale of traditional residential compounds in Yoruba towns is much more appropriate and comfortable.



(a) Out of scale (b) In scale

Figure 14

The compound houses are built around the family and are almost exactly scaled to the human figure and a human's basic needs.

Proportion

Proportion is an important factor in urban design. It is the ratio of height to width and length, that is, sizes of mass and area. Proportion can be studied in drawings or models - two dimensions or three. A regular plot of land may have sides in the proportion of 1:2; the length being two times the width (fig. 15b). A rectangular building may be in the proportions 3:2:1; that is, length to breadth to height (fig. 15c).

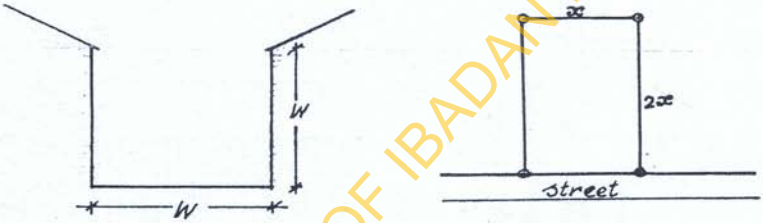
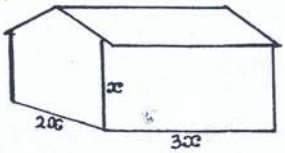


Figure 15 (a) 1:1 - Height to Width (b) 1:2 - Width to Length



(c) 3:2:1 - Length to Width to Height

(d) Buildings of Unrelated Proportion

Texture

Texture refers to surfaces and the way they are perceived. Texture has great significance in visual design. This term explains better the character of surface structure of the form. Texture modifies colour and may be perceived by touch or by sight. Texture occurs whenever the size and shape of an object or parts of it as they form a continuous surface cannot be easily ascertained. "All materials used on a project - designs or structures have texture which may either be rough (e.g. rough surfaced granite) or smooth (e.g. polished marble)." (Rubenstein 1968:71).

The texture of a surface is a function of the nature of the material (rock face, animal skin, bark of a tree), mode of manufacture (as in the cases of brick, concrete, wrought metals, woods, plastics), plastering and painting (Reekie, 1972: 23). See Figure 17.

Distance affects texture as the perception of texture depends on the distance of the observer from the surface. A mud wall which appears rough at a very close range, may look smooth and plain when seen from a far distance. In Figure 16, when the observer is at point B1 the field of vision is limited and he or she can read a few number of the elements of the mud wall as independent forms. The farther the observer moves, however, the greater the number of elements of the texture appearing in his or her field of vision but the smaller the size of the elements. The wall is becoming smooth in appearance.

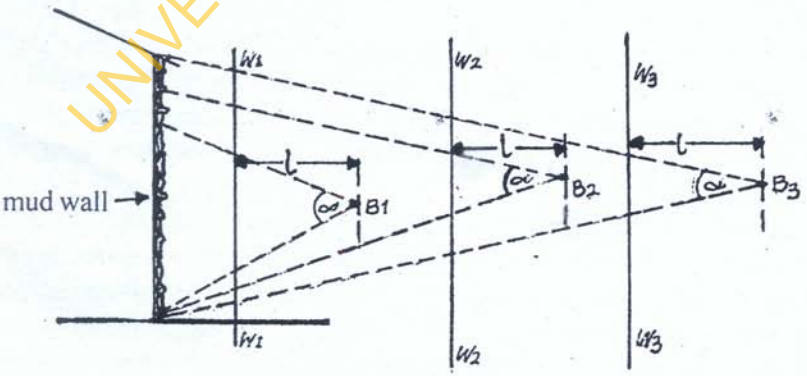


Figure 16

The pattern of place activity can be expressed in textural pattern and such differentiations play a role in guiding the activity. For example, roads can be distinguished from footpaths, dancing area, car stalls, boxing/wrestling area, lawn tennis court, open market area, etc. What this means is that texture can be considered in the scale of the city, though this texture will depend on the way of organization of activity patterns. The texture of an African city (rough, dusty) is pretty different from that of a European city (smooth, soft, polished).

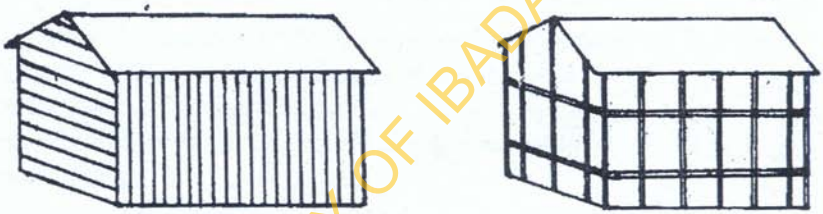


Figure 17

Symmetry

Symmetry is the "repetition of parts of a design about an axis" (Reekie, 1972:140). Symmetry generally indicates a system of order created or imposed by human. Hornby et. al. (1974:876) define symmetry as "Quality of harmony or balance - in size, design, shape, pattern or arrangement, etc. between parts." In symmetry, equal and like elements are balanced on either side of an axis (Rubenstein 1968:69). An axis may be a court, a mall, a path, a drive, a city street or any other connecting element.

"The elements of a symmetrical plan are the same and in equilibrium about a central point or on either side of an axis"(Simonds 1961:131-2).

Asymmetry

"Asymmetry is the balance of unequal and unlike elements on opposite sides of an axis". (Rubenstein 1968:69) Balance is very important in urban and building design and any design devoid of this balance can be ugly, dull and disturbing. "Balance may also consist in a disposition of objects not similar nor similarly placed, but still so chosen and arranged that the sum or the attractions on one side of the vertical axis is equalled by the sum of the attractions on the other side. This kind of balance is called unsymmetrical of occult balance" (Hubbard, 1917 quoted in Simonds 1961:139).

"In occult balance, an optical axis or centre of gravity is implied and opposing elements may be symmetrical or asymmetrical" (Rubenstein, 1968: 69). It is by occult or asymmetrical balance that human composes and comprehends the world about him or her. Asymmetry has been widely used in the design of large-scale civil centres, city parks and squares all over Europe and especially in Rome and even China (e.g. the ancient Yan Ming Yuan or "Garden of Perfect Brightness" to the West of Peking). The layouts of the palaces of most Yoruba Obas (Alaafin of Oyo and Ooni of Ife) and many residences of Cameroon chiefs and other family dwellings are asymmetrical. They developed organically.

Rhythm

Rhythm appears when the elements of the form are repeated or "if a sequence of repetitive elements is interrupted at regular intervals"(Eubestein 1968:69). Rhythm in urban design may be taken to mean the repetition of elements in the design of buildings and other elements in the built environment - shape and size of plots, and length, width and alignment of roads in a land subdivision; columns, pediments, windows, panel treatment of walls, balconies, etc. may be employed to achieve repetition in a building which may be interrupted to create rhythm. Repetition itself is a kind of sequence in which one element or object (colour, texture, shape, form etc.) is reiterated. Repetition leads to monotomy but rhythm gives variety to total repetition.

Sometimes however, rhythm may also turn into monotomy when, for example one type of opening is repeated endlessly on the outside of a building (especially offices, school buildings and barracks, e.g. custom and excise barracks in Ijokodo area of Ibadan) or when concrete squares are so repeated along a walkway as to overshadow the brick bands between them.

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