

chapter 4
design foundation

4.1. INTRODUCTION

According to the philosophical discourse in Chapter 2 there is a need for contemporary cities to reach a stage of equilibrium so that harmonious relationships are formed between the socio-cultural, economic and ecological environments, therefore creating a unified entity rather than one in which the elements are continuously in opposition. This unified entity seldom occurs out of the blue, but is created gradually through interventions and methodologies instituted into the three currently individual environments. Eventually a decision-making process whereby an individual environment starts taking one or both other environments into consideration is developed, and with that baby steps are taken to uniting these separate entities. With each of these baby steps the city or town goes through a process of evolution, developing from a consuming entity into one that is sustaining, and in essence a 'Eutopia' or good place.

Urban open spaces can be seen as one of the battle grounds on which environment oppositions have been heard. It has been proven that open spaces do have valid and essential socio-cultural, economic and ecological values within the urban fabric, but so often the potential for these values to be experienced is not realized, therefore resulting in opinions that these spaces may be used for better, more financially rewarding purposes.

How can we make use of the potential that these open spaces have and how can we add socio-cultural, economic and ecological value to these areas?

Nine planning, design and management principles are to be applied to the project at the various phases. Each of these principles should be approached and utilised in such a way so that they have a positive effect on the socio-cultural, economic and ecological values of the landscape at hand, whether it is an entire precinct development or a single open space. The nine principles include permeability, variety, legibility, robustness, personalization, visual appropriateness, security, greening and sustainability. It is believed that with the effective application of these principles the open space will function successfully, with the values discussed previously being realized. It is important to note that these principles should not be applied in isolation but in unity, as they are interconnected, overlapping and responsive to each other.

4.2. PRINCIPLES

Here follows a brief discussion of each principle with examples of application.

PERMEABILITY



VARIETY



LEGIBILITY



ROBUSTNESS



PERSONALIZATION



VISUAL APPROPRIATENESS



SECURITY



GREENING



SUSTAINABILITY



KEY WORDS AND ASSOCIATED CONCEPTS

accessibility, interconnectedness, visual & physical, network, linkage

diversity, meaning, choice, variety within unity

clarity, understanding, association, reading the landscape, identity, sense of place

flexibility, adaptability, hardiness, healthiness, vigour, choice, complexity

temporary or permanent, community participation, local neighbourhood, open

meaning, aesthetics, context, interpretations, support responsiveness, experience

safety, vulnerability, visibility, choice, control, solitude without isolation

bio-diversity, greenways, networks, multiple purposes, habitat, recreation

best practice, balance, harmony, utopia, environmental design philosophy, health

4.2.1 PERMEABILITY



Permeability of public open space depends on the number of alternative routes to the space and the visibility of these routes. A lack of physical permeability or accessibility prevents people that do not know the area from making full use of the urban amenities. (Bentley et al 1985) Humans must be able to orient themselves, and therefore know where they are, so that they can identify with the environment in which they find themselves, as stated by Norberg-Schulz. (Motloch 2001)

Visual permeability is essential for safety, security and easy orientation and understanding of the urban fabric. Both physical and visual permeability depend on how the network of public spaces divides the environment into blocks (areas of land entirely surrounded by public routes). (Bentley et al 1985)

Permeability requires a design process whereby you:

- analyse the layout of existing routes,
- locate new routes,
- demarcate route use intensity,
- design junctions, and
- check the practical size of blocks

It is important to use existing routes and link open spaces to the surrounding environment. Permeability and accessibility should be achieved at two scales, namely (Bentley et al 1985)

1. links which connect the site to city as a whole, and
2. links which connect site to immediate local surroundings.

PERMEABILITY BASELINE REQUIREMENTS

SOCIO-CULTURAL

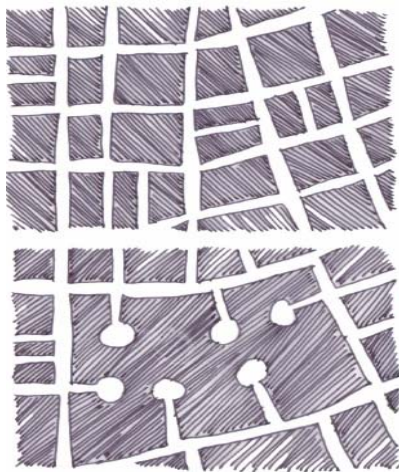
Refer to the existing visual and physical permeability of the urban environment with regards to socio-cultural regions and nodes, especially open spaces.

GENERAL REQUIREMENTS:

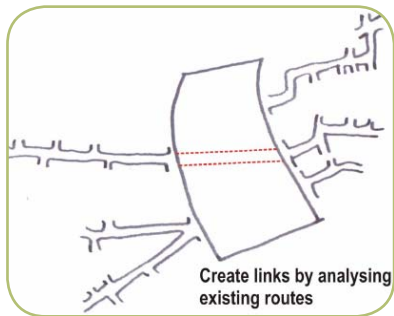
- Set up a framework whereby the socio-cultural regions and services (childcare, health, old age, education, library) have improved accessibility
- Public social and cultural amenities and other public spaces, especially those that incorporate open spaces, should be accessible to all community members from both living and working environments, therefore preventing territorialism and privatization of spaces
- Visual and physical permeability is an essential requirement for public spaces as this ensures that users, especially tourists, do not get lost or confused within the urban environment
- Access and support for learning should be provided, while the designer should exploit the potential for community education in public spaces as much as possible
- The community should be able to use the accessible public space comfortably and should be able to feel free to express themselves in appropriate ways, therefore revert from making use of permanent traditional "KEEP OFF THE GRASS" signs
- Users should have access to clean facilities, services and drinking water

SPECIFIC REQUIREMENTS:

- Public transport nodes, and required parking areas, are to be provided throughout the precinct in order to assist the need of transport
- Public transport to be accessible to disabled persons
- Circulation routes should be designed for the specific user with the possibility of separating user groups (vehicular, pedestrian, disabled persons, cyclists), achieving improved permeability and pedestrian safety
- Promote pedestrian traffic above vehicular traffic
- Link the precinct and district designs to existing transport nodes (taxi ranks, bus stops, train stations)
- Focus on the design of the precinct's various access routes to and from other precincts to ensure user clarity and legibility by using clear signage, variation in surface materials and patterns, as well as hard and soft landscaping elements
- Primary and secondary precinct and district routes are to be of a smooth and even surface and therefore easily navigable by wheelchair
- Make use of detail design to discourage vehicle speeding

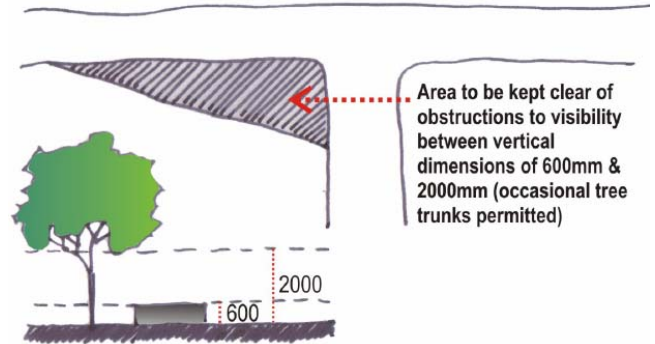


4.1.(Bentley et al 1985)

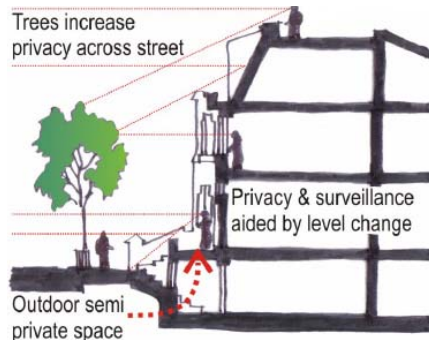


4.2.(Bentley et al 1985)

DECREASED PERMEABILITY



4.3. (Bentley et al 1985)



4.4. (Bentley et al 1985)



4.5. Street blocks in Barcelona have rounded corners which improve circulation and movement channels (Mower 1977)

ECONOMIC

Refer to the existing urban economic permeability. Are economic nodes and districts visually and physically accessible and is the economic market accessible to the local community?

GENERAL REQUIREMENTS:

- A redeveloped and upgraded public realm will attract people, and thus money to the precinct. This money will benefit the local economy.
- Commercial facilities, especially those that promote the use of associated open spaces, should be easily visible and accessible to the entire community
- Improve access to economic services and facilities, namely banks, stores, communication facilities, tourist centres and informal markets (stimulate local economics of region)
- Open spaces related to tourism should be well located with good visual permeability, therefore ensuring efficiency and clarity of use
- Efficiency improved by situating essential services within 400m (easily walkable distance for the average person) from any point in the precinct
- Tourist bus stops and an information centre to be located within the precinct near a transport node giving tourist access to the tourist attractions
- Encourage businesses to locate in the precinct by creating high quality facilities for them to rent/buy in appropriate locations

SPECIFIC REQUIREMENTS:

- Place commercial activities near to access routes and focal points
- The commercial region of the precinct should have good visual and physical permeability, therefore attracting tourists and buyers to the area, and resulting in increased financial support of the rest of the precinct districts
- The recreation routes should be situated close to working and living environments, therefore resulting in a reduction in travelling costs to suitable recreation zones

ECOLOGICAL

Refer to the existing visual and physical permeability of ecological nodes and districts in the urban environment.

GENERAL REQUIREMENTS:

- Improve accessibility and linkage to urban green spaces
- Derive planning and design inspiration from the countryside and its natural processes and systems, therefore allowing the natural landscape to permeate the urban landscape
- Natural processes and systems should continue beyond human-made boundaries, for example human impacts upstream and downstream of a riverine corridor should be taken into consideration and an ecological management plan should be applied to the urban open space system of the urban environment
- The potential for environmental education within the open space system should be revealed, and made accessible to educational institutions and the rest of the community, therefore increasing community awareness of environmental and ecological issues
- The urban open space system should be permeable according to the required wildlife movement (especially small wildlife species)
- Environmental impact is reduced by situating essential services within 400m (easily walkable distance for the average person) from any point in the precinct

SPECIFIC REQUIREMENTS:

- Hydrological permeability to be enhanced by improving soil quality and water absorption, therefore preventing excess sedimentation that may result in blockage and flooding, and by resurfacing water movement, and specifically designing ecological quantity and quality treatment methods
- Temporarily separate conservation worthy regions from human use, therefore ensuring habitat growth and protection
- Fenced areas should allow for accessibility of small mammals species, unless the species within the fenced areas are being protected
- The precinct and district is to be well served by public transport, therefore promoting lower-energy transportation
- Pedestrian and cyclist movement networks are promoted which result in improved urban sustainability

4.2.2 VARIETY



A perceptual mix exists with regards to open space due to the fact that different users interpret the spaces in different ways and associate different meanings with them. The designer should promote variety by increasing choice with varied form, use and meaning. An attempt should be made to attract a variety of people at different times for various reasons. Choice within the urban environment depends greatly on the mobility of the user, as greater variety can be achieved over large ranges, while low mobility user's choices depend on a close grain of variety.

Both developers and planners desire efficient environments (economic efficiency and management efficiency respectively). These efficiencies may seriously coarsen the grain of variety, as variety within districts is reduced and districts become more specialized zones of single use. Interaction between activities should exist and activities should give each other mutual support, as shop owners will pay higher rental if pedestrian traffic is high. Therefore compatible uses and times of use, high concentrations of pedestrian flow, and feasible uses (functional, political, economical) should be promoted. (Bentley et al 1985)

VARIETY BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to the urban community's social and cultural amenity needs according to the variety or lack of variety that is currently provided.

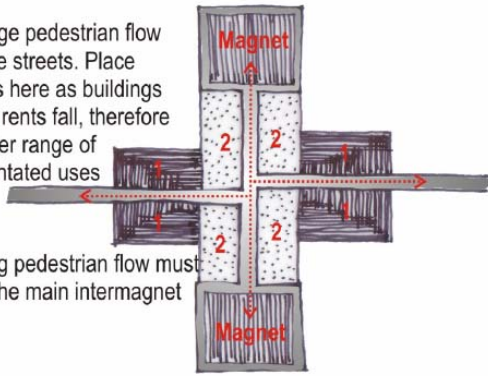
GENERAL REQUIREMENTS:

- Amenity and function diversity will ensure satisfaction of the diversity of urban users
- The precinct functions should be diverse and should cater for the community's socio-cultural diversity
- The amenities and functions provided in the precinct design should respond to the urban amenities of the surrounding area, to prevent duplicity and redundancy
- The precinct should provide a variety of activities, therefore satisfying the diversity of user groups
- Cater for all socio-cultural and age groups within a community with regards to available functions and the different times and methods of use

SPECIFIC REQUIREMENTS:

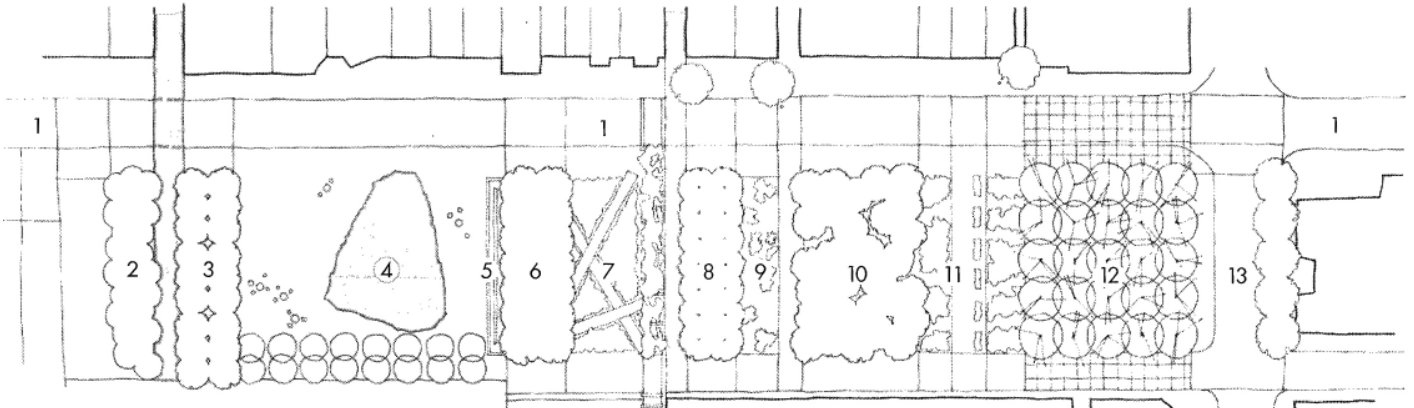
- District and detail design should be inspired by all community groups so that a variety of meanings are realized by the of diversity of users through varying uses, forms and aesthetic characteristics
- Attempt to achieve a diversity of character while maintaining design unity and connectivity to the precinct
- The design should respond to the variety of the existing urban context, using the historical, architectural, cultural, social and artistic context as inspiration
- Provide seating in a variety of positions therefore providing the user with choice (sunny and shady seating areas)
- Create a variety of spaces at different scales to cater for small and large groups
- Provide a variety of routes, with stair or ramp options at various positions within the design
- Contrasting open spaces to be created with greater or less activity
- Use the district functioning and design to promote skills development in a diversity ways

1: Above average pedestrian flow required on side streets. Place robust buildings here as buildings grow older and rents fall, therefore attracting a wider range of pedestrian orientated uses



2: Uses needing pedestrian flow must be located on the main intermagnet links

4.6. (Bentley et al 1985)



4.7. The Village of Yorkville Park in Toronto is designed as ten individual gardens each representing a different type of natural Canadian landscape. (1) Cumberland Street, (2) Amelanchier Grove, (3) Herbaceous Border Garden, (4) Rock in Canadian Shield Clearing, (5) Water Curtain, (6) White Alder Grove, (7) Ontario Marsh/BC Douglas Fir Boardwalks, (8) Crab Apple Orchard, (9) Fragrant Herb Rock Garden, (10) River Birch Grove, (11) Prairie Wildflower Garden, (12) Scots Pine Grove, (13) Bellair Street (Tate 2001)

ECONOMIC

Refer to the urban environment's commercial, business and tourist amenities and analyse what is required regarding economic variety.

GENERAL REQUIREMENTS:

- The city community has a variety of economic needs at varying times and it is important to refer to these and make recommendations
- A greater diversity of functions and uses results in increased urban economic efficiency and tourist satisfaction
- When a requirement is not met within the precinct, a clear linkage should be created to the environment in which it is found
- Explore the potential for a variety of training and skills development opportunities
- The potential and variety of outdoor retail possibilities should be considered as far as possible
- The precinct zone should provide a variety of services and products and should be well located so that they are used by a variety of people at different times and for different reasons
- Provide various tourist nodes with varying attracting features

SPECIFIC REQUIREMENTS:

- The district design should stimulate a variety of economical functions and amenities which respond directly to the surrounding context
- An attempt should be made to associate a variety of jobs to this district design and therefore promote the development of a diversity of skills

ECOLOGICAL

Refer to the ecological diversity of the urban environment and the ecological value of the varying open spaces

GENERAL REQUIREMENTS:

- Attempt to protect all of the ecological resources and not just those that have socio-cultural value
- Bio-diversity should be promoted by creating a variety of habitats in as many places as possible within the precinct
- The precinct should act as a bio-diversity node which permeates into the rest of the urban environment
- The variety of ecological processes that exist within the urban environment should be integrated as a complete system within the precinct design, therefore improving ecological efficiency

SPECIFIC REQUIREMENTS:

- Make use of a variety of endemic plants that attract a diversity of fauna species to the open spaces
- By establishing a variety of endemic vegetation species, better ecological health is created and the eradication of alien vegetation is improved
- Derive design inspiration from the diverse natural habitat of the surrounding natural area
- A diversity of ecological processes should be made visible and rehabilitated within the district design and the potential for their use in a variety of education methods should be explored
- Provide places in the precinct and district planning and design for fauna and flora habitats
- High diversity and density of wildlife in the urban realm adds to public amenity

4.2.3 LEGIBILITY



Legibility is the quality which makes a place graspable. Both physical form (aesthetic levels) and activity patterns (complementary patterns of use) should be legible. According to Lynch place identity depends on its imageability. The ability to image a place depends on its physical characteristics, the associations it induces and the strength of its boundaries. (Bentley et al 1985) Design of settings with strong boundaries and appropriate physical characteristics evokes meaningful associations and promotes place specific sense of community (PSSOC). (Motloch 2001)

Lynch has further coined five elements which are key to making a place legible, namely nodes (focal places, junctions), edges (linear, not containing obvious paths, riverways, railways, elevated motorways), paths (channels of movement), districts ("flesh" of the urban environment having minor paths and nodes) and landmarks (point references, most people experience from outside). It is essential to combine new and existing elements and relate them to each other, to reinforce paths (providing character and therefore a hierarchy of paths), to reinforce nodes and provide intermediate markers for interest. (Bentley et al 1985)

Rapoport suggests several ways to 'make place', namely altering the perceptual characteristics of settings to make them more noticeably different, using elements and cues that are culturally appropriate, relating elements and cues to known legends, concepts, ideas or identities of a group, controlling which groups occupy settings and when they do, and by promoting certain behaviours in a setting and over time associating these behaviours with the setting (Motloch 2001)

LEGIBILITY BASELINE REQUIREMENTS

SOCIO-CULTURAL

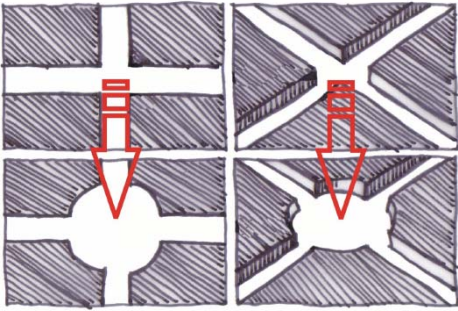
Refer to the the user's understanding of the urban environment and whether social and cultural amenities are easily located and whether the roles and functions of the various districts within the city / town legible to the user.

GENERAL REQUIREMENTS:

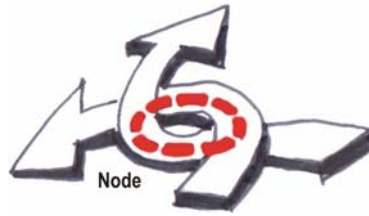
- Urban planning and design should respond to the surrounding context and existing socio-cultural environment
- Where possible reinforce existing socio-cultural nodes, paths and districts
- New socio-cultural nodes, paths and districts should be situated according to the surrounding environment and should respond to the context of the area
- The precinct design should be legible to all social groups of all the varying cultures and ages
- Urban open spaces within the precinct should have functions and forms that are easily understandable to all users

SPECIFIC REQUIREMENTS:

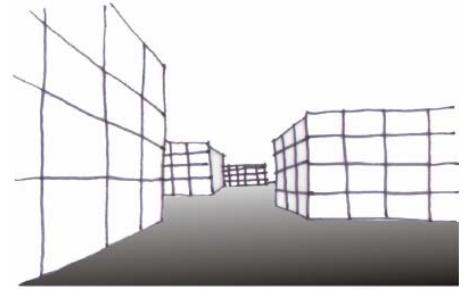
- Legibility can be achieved with clear and understandable signage which is strategically placed throughout the precinct
- Signage should not rely on one language for clarity, and should preferably be composed of symbols which are legible to all social groups
- The signage should form part of a site furniture language, therefore creating better district and precinct unity
- Signs which direct the users to the nearest medical facility are essential
- Precinct legibility for the disabled (blind especially) should also be taken into account
- Private, semi-public and public spaces should be legible to the user, while appropriate interfaces should be created between these spaces
- Site legibility is also created with soft and hard landscaping features and elements
- The strategic placement of information booths within the precinct design to assist tourists, as well as the local
- Edges, especially at level changes, are to be clearly distinguishable through the use of colour and texture
- Material selection and design should enhance legibility and sense of place



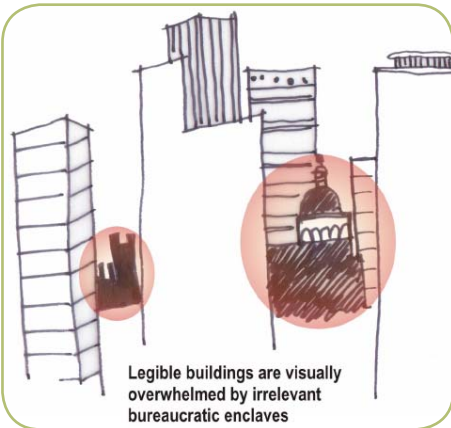
Increase legibility by reinforcing nodes
4.8. (Bentley et al 1985)



4.10. (Bentley et al 1985)



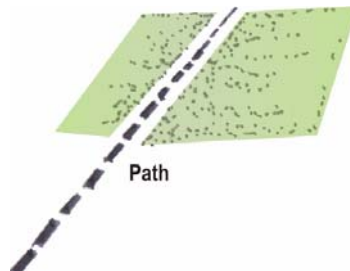
Lack of legibility: important public buildings and publicly-irrelevant private ones often look alike
4.15. (Bentley et al 1985)



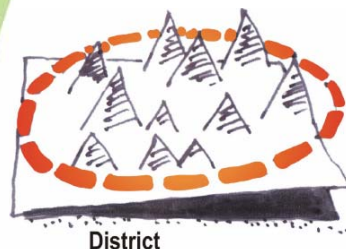
4.9. (Bentley et al 1985)



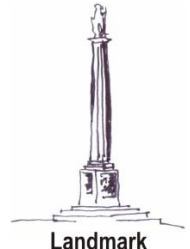
4.11. (Bentley et al 1985)



4.12. (Bentley et al 1985)



4.13. (Bentley et al 1985)



4.14. (Bentley et al 1985)

ECONOMIC

Refer to the urban environment's legibility to buyers and tourists, and to whether the required commercial facilities, amenities and districts are understood within their locations.

GENERAL REQUIREMENTS:

- Precinct planning and design should respond to the existing commercial and business character of the city / town
- Precinct legibility is increased by a well-defined pattern of movement and adequate signage ensures that the tourist and buyer stay satisfied and comfortable
- Users of the district should feel comfortable while using the precinct and district space, and user happiness results in the possibility of the user spending more time and money in the space

SPECIFIC REQUIREMENTS:

- The precinct is to be planned according to a hierarchy of spaces, with commercial facilities having a secondary, but vital position alongside primary ecological and socio-cultural spaces
- Information booths offer job opportunities for the local community
- The design of the precinct and district site furniture should include local community artists' work, products and materials; therefore these elements in the landscape acting as functional marketing tools for local craft and industry
- Legibility elements within the precinct and district designs to be constructed of local materials and products using local workforce

ECOLOGICAL

Refer to the legibility of the urban open spaces according to their value, use and usability within the city / town.

GENERAL REQUIREMENTS:

- The urban environment should become increasingly ecologically legible to promote ecological and environmental awareness amongst the urban community
- The precinct design should promote ecological and environmental awareness and therefore spaces with high ecological and educational value should be made very legible to the user
- The precincts conservation and fragile habitat areas should be legible to users, therefore preventing habitat destruction due to user ignorance

SPECIFIC REQUIREMENTS:

- Areas of danger, for example potential flood or unstable areas, and ecological rehabilitation areas should be well marked, with clear signage and understandable rules
- Attempt to create legibility with as much soft landscaping as possible

4.2.4 ROBUSTNESS



The term robustness may encompass terms like flexibility, adaptability, healthiness and vigour. Within the context of the urban environment robustness may be understood as a single place which is used for a variety of purpose, thus offering the user more choice. The way in which a place is designed should be structured by the way in which it will be used.

Functions should not be separated in public outdoor space as once a space is chopped up there is a loss of robustness. Characteristics like privacy are not generally required in public open spaces as people come to experience other people. A variety of functions and activities should be available in the open space system and the functions and activities should not inhibit each other or the users, but rather support each other. The design of public outdoor space should be complex, taking in mind that the edge of the space is where most of the activity takes place, and the designer should capitalize on the active elements located at ground floor level.

An appropriate and comfortable micro-climate should exist whereby choice between, for example, shade and sun should be available at any time or any place. (Bentley et al 1985) Over time a changing community structure causes a change in the open space environment. This environment should therefore evolve to fit the people who live and work in it and should reflect the community's new values and needs. (Hough 1990)

ROBUSTNESS BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to the existing robustness of the urban environment and whether it is adaptable to changing community structures and whether such a need exists.

GENERAL REQUIREMENTS:

- The proposed urban open spaces and precinct design and functions should be adaptable with regards to a changing urban culture and the resultant change in requirements
- The precinct framework should be flexible according to the variety of ages, cultures and social groups that may use it

SPECIFIC REQUIREMENTS:

- The district design should be adaptable to changing social functions and varying social and cultural groups that use the space, as the social structure of the community will always have an affect on urban open space
- The space should contain elements that are hardy and robust and offer various functions to the diverse urban community
- The planning and design should be practically robust therefore providing required urban services and required infrastructure



4.16. A hardy and robust landscape both physically and functionally (Amidon 2001)



4.17. A former rail track has been transformed into a cycleway in the Duisburg North Landscape Park (Tate 2001)

ECONOMIC

Refer to the adaptability of the town / city according to a changing economic environment, for example loss of jobs or an increase or decrease in tourist numbers.

GENERAL REQUIREMENTS:

- The precinct design should respond to areas that have become economically stagnant and have low vibrancy due to low economic use
- The precinct environment should include commercial functions which are robust with regards to changing economic structures so that functions do not become outdated and inactive

SPECIFIC REQUIREMENTS:

- Materials and elements used in the district design should be hardy and robust, therefore being vandal resistant and weather resistant so that maintenance costs are reduced
- Spaces should be used effectively and efficiently as robust layout and design accommodates maximum space use
- Public spaces should be as robust as possible in order to allow for varying use intensity while maintaining design character
- Hard and semi-hard open spaces should be open for changing functions like exhibitions, festivals and informal trading
- The precinct and district planning and design should be able to accommodate the individual person as well as large groups without losing its sense of place
- Different spaces are to be used for learning, playing, recreation, sitting, resign and walking, and these spaces should be robust to accommodate maximum space use

ECOLOGICAL

Refer to the robustness and legibility of the city / town's surrounding and inner ecological environments.

GENERAL REQUIREMENTS:

- Urban open space environments should be adaptable and flexible according to the variety of fauna and flora species which potentially inhabit the space, and to the possibility of change within the ecological structure of the open spaces
- Open spaces should be hardy and able to adapt to the harsh urban circumstances, such as climatic or human influence
- The overall planting and habitat design should be hardy with regards to alien vegetation encroachment
- As far as possible revert from developing and altering greenfield sites, therefore preferably use brownfield sites which can easily be adapted with regards to function and form

SPECIFIC REQUIREMENTS:

- Precinct and district planting should be hardy due to the climatic and urban influences, as well as the constant human impact
- Vegetation areas that are specifically meant to be protected should be buffered by hardy vegetation or hard landscape elements
- Bio-diversity is to be maximized by creating robust habitats that fulfil the needs of the selected habitat species
- Vegetation choice to be suited to the climatic conditions of Knysna

4.2.5 PERSONALIZATION



Personalization within a public open space is very difficult, but the designer should make it possible for users to personalize, either temporarily or permanently, the environment they use according to their own tastes and values. Personalization should not be random and the designer should have control.

A method of personalization includes the community participation process whereby stimulation and inspiration is derived from the context and community. (Bentley et al 1985) Community participation in a neighbourhood project increases a sense of community, bringing people together, building interaction skills, confidence and trust, while uniting the community in a competitive spirit and increasing inter-group interaction. (Motloch 2001)

According to Motloch, open-ended design is another method of managing sense of community and the designer should accommodate evolving internal and external conditions. Open-ended design processes and products will also facilitate establishment and evolution of individual and group-specific territory, jurisdictions and expressions. (Motloch 2001)

The designer may manage a sense of community and therefore increase personalization by placing emphasis on community placeness. The designer should have a clear understanding of the community values, hopes, dreams and aspirations, the community as a physical setting, the resources available for intervening in that setting and should propose interventions to enhance community sense, structure and function while maintaining dialogue with community and sub-groups. (Motloch 2001) Human comfort also forms an important part to how a community experiences and personalizes the space.

PERSONALIZATION BASELINE REQUIREMENTS

SOCIO-CULTURAL

Have an understanding of who the community is and what environmental values are important to them, as well as the requirements they have for urban open space.

GENERAL REQUIREMENTS:

- Planning, design and management of urban open spaces should actively involve the urban community at all phases
- Community involvement is achieved through public participation processes, through communicating with the community leaders, government and municipal officials, and specific socio-cultural groups and organizations (eg. educational institutions) that the project affects
- Ensure that the precinct's open spaces contain functions that require ongoing involvement throughout each phase of the project, stretching from planning phase through to operational phase
- The precinct design should promote community individuality, personalization and due pride, therefore creating an environment in which crime that is caused by frustration and disrespect (vandalism and robbery) is lessened
- Spaces are to be shared or made available to the entire local community

SPECIFIC REQUIREMENTS:

- Design features that provide the opportunity for community or individual expression and personalization (community art)
- The local community should be able to put their imprint on the landscape
- Set the basic plan or 'canvas' in place and then work with the community artists to achieve the final product
- Make provision for pin boards and art walls for community announcements and expression
- User comfort is essential for open space success, therefore ensuring better use. Make use of materials that minimise unnatural solar reflection, provide seating in sunny and shady areas, and arrange structures to direct air movement to create comfortable environments
- Noise is diminished by screening and appropriate layout
- Where necessary the traffic noise streets is to be minimised by using absorbing material, planting and other screens
- Create spaces in which the user can choose in terms of environmental control, eg. the option between shade or sun
- Provide public toilets within the precinct



4.18. A little girl personalising her space with a piece of chalk, making it her own (Imagebank 2005)



4.19. Hand imprints in paving to personalize a space (Fletcher 2002)



4.20. A cats' eyes mural on a Kentish Town Road was designed by pupils from Hawley Infant School with designer Harry Dobbs. It aims to engage passers by, and embed community involvement into the streetscape (Beaumont 2005)

ECONOMIC

Refer to the state of the local economy and determine what local services and products are in demand and whether a potential exists for the development of new local services and products

GENERAL REQUIREMENTS:

- Involve the community in decisions regarding the products and services that the precinct will offer
- Encourage and possibly subsidise small business development and empowerment schemes through the precinct project
- The precinct development should involve local businesses as far as possible
- Small businesses like street markets and vending is encouraged in order to improve the living standard of local underprivileged persons

SPECIFIC REQUIREMENTS:

- Allow the community to be able to personalize services and products, therefore attributing their own uniqueness and character to the precinct landscape
- Skills development must form an essential part of the precinct economic plan
- Make use of local products, materials and services within the design as far as possible
- Local labour should be used during construction, and local management and maintenance teams should be used during the operational phase

ECOLOGICAL

Refer to the state of the ecological environment surrounding and within the city / town and the relationship that humans have with these environments.

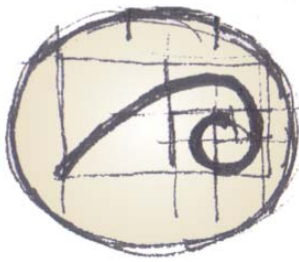
GENERAL REQUIREMENTS:

- Attempt to reunite humans with the surrounding environment's ecological personality
- Involve the human community in rehabilitation projects within the precinct zone so that a better and more respectful relationship is developed

SPECIFIC REQUIREMENTS:

- Allow the precinct design to be an introduction of indigenous nature's personality into the urban setting, therefore allowing ecology to place its own imprint on the urban environment
- Allow for obvious or subtle environmental education methods within the design, therefore promoting the presence and increased value of urban ecology

3.2.6 VISUAL APPROPRIATENESS



People interpret places as having meaning and Rapoport states that placeness occurs when a setting becomes functionally, culturally, aesthetically and associationally meaningful. (Motloch 2001) Places that support responsiveness and have quality are visually appropriate. Visual appropriateness is very important as urban environments are frequented by large numbers of people with a variety of backgrounds. Different social groups have different interpretations as their environmental experiences and objectives differ. (Bentley et al 1985)

Sense of community is also managed by taking community change and landscape meaning into consideration. Communities evolve over time due to changing resident values, aspirations and activities, resident migration, changing resources and perceptions of resources, and evolving contextual conditions. The urban landscape becomes the collective litter of these changing cultures and conditions. Therefore, the designer should optimize meaning, function and associations which the landscape communicates to various groups. (Motloch 2001)

The designer should also define the public realm as the interpretations people give to a place can reinforce its responsiveness at three different levels, namely, supporting legibility, variety and robustness. To support legibility one has to relate to the contextual cues, while robustness and variety are concerned with how the place is used. (Bentley et al 1985) Richness involves detailed design and design for all of the senses (motion, smell, hearing, touch and sight). It is a great challenge to design for the non-visual. Choice is involved in experience as one may change position, or focus on different sources. The basis of visual richness is visual contrast (orientation and likely position from which viewed), viewing distance, viewing time, techniques and materials used. (Bentley et al 1985)

VISUAL APPROPRIATENESS BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to the community's visual requirements for open spaces within the urban setting.

GENERAL REQUIREMENTS:

- The visual quality of the urban precinct should be applicable to all cultural groups of the community so that each user is able to derive meaning from it
- Visual characteristics and aesthetics are to be inspired by both the historic and contemporary characteristics of the various cultures
- Visual appropriateness includes user comfort
- Designed elements to be part of a design language
- Visual quality to be derived from the city context with community art being a main feature of the proposed development

SPECIFIC REQUIREMENTS:

- Visual elements to unify the precinct design
- Visual quality may be enhanced by making use of views in and out of the site
- Enhance good views, and vistas to important focal points
- Site furniture is designed to fit into the character of the district while the range itself plays a role in creating a sense of place. Includes street lights, pedestrian lights, benches, litter bins, bicycle stands, notice boards, water fountains and bus shelters
- Precinct and district lighting should not cause visual pollution and destroy the aesthetic quality of the environment and glare and discomfort from the light source should be minimized
- Design principles of scale, proportion, rhythm and balance, etc. to be used



4.21. Visual appropriateness and aesthetics created with focal accent trees (Tate 2001)



4.22. Space visually appropriate according to how it is used and whether the user feels at ease - Bloemenhof Park in Johannesburg (Amidon 2001)



4.23. Landscape elements have different meanings to each person that uses the space (Betsky 2002)

ECONOMIC

Understand and refer to the ethical battle between economic value and aesthetic quality within the urban environment and therefore attempt to enhance visual appropriateness to achieve a balance between economy and aesthetics.

GENERAL REQUIREMENTS:

- The precinct should be visually appropriate to the environment in which it is located, therefore stimulating and attracting 'desired' users
- Focal points in the precinct environment play a big part in visual appropriateness, and commercial facilities should be located close to these areas so that users (buyers, service users and tourists) are attracted to these areas
- A diversity of uses are to be created to allow for economic generation and multiple functions
- Aesthetic quality therefore plays an important role in attracting buyers and tourists to commercial facilities
- The individual and community as a whole should be able to derive meaning from the open space and be able to identify with the space due to richness of design, as such a space will result in more users and therefore a potential of higher direct and indirect economic gain
- Locate tourist attractions within the precinct, and use existing tourist attractions and potential tourist attractions

SPECIFIC REQUIREMENTS:

- Ensure that clear links exist between focal points, high aesthetic areas and commercial facilities
- High economic funds are not always required in creating visually effective landscapes, as recycled materials can be used to create impressive visual elements
- Use views in precinct design to attract tourists to lookout points and therefore also the surrounding facilities
- Involving the local community in aesthetics and artistry will promote the local economy

ECOLOGICAL

Refer to the way in which the community makes use of high ecological value environments and whether aesthetic value is an important drawing force for use

GENERAL REQUIREMENTS:

- Refer to the above-mentioned assessment within the precinct design with an attempt to prove to the community that high ecological value areas have a unique aesthetic quality
- Within the design refer to the ethical battle between ecology and aesthetic value
- It is not an essential requirement that ecological environments be visually appropriate as they are designed to reflect a natural state which is ecologically appropriate
- But visual inappropriateness may influence the 'human respect' factor, as the community's pride of the open space may be diminished, causing harm to the environment
- Enhance the human-nature connection through visually appropriate design
- Create a balance between hard and soft open spaces, with hard spaces being used for activities such as play, sport, recreation, cultural entertainment, parades and political ceremonies, meeting and socialising, visitor's destination for lingering and resting, backdrop for markets, vending and festivals, access to other facilities, transport nodes and routes. These spaces take the form of

SPECIFIC REQUIREMENTS:

- Use endemic and indigenous vegetation so that the aesthetic potential of these are demonstrated to the community cent plants as focal points in the site design
- Derive design inspiration from the beauty of the natural context
- Plants should be chosen to fit the aesthetic character of the site
- Natural views to be enhanced, specifically those that are Knysna's focal points (Estuary and The Heads)

4.2.7 SECURITY



The notion that physical environments can either increase or reduce opportunities for crime is not new as certain environments can impart a feeling of safety while others can induce fear. The designer should attempt to alter the environment, therefore making it more difficult to commit a crime.

Five principles which are crucial to establishing how the physical environment either reduces or increases the opportunities for crime have been identified, including (Kruger et al 2001)

1. surveillance and visibility,
2. territoriality,
3. access and escape routes,
4. image and aesthetics, and
5. target hardening.

The following safe community principles being key design concerns have been identified, namely (Luymes & Tamminga 1995)

1. visibility of others,
2. visibility by others,
3. choice and control,
4. environmental awareness and legibility, and
5. solitude without isolation.

SECURITY BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to the city / town's general crime rate, and safety and security issues, and earmark problematic areas.

GENERAL REQUIREMENTS:

- Designed spaces should incorporate specific safety and security approaches, for example those defined by the CSIR's Manual for Crime Prevention through Planning and Design, so that social crimes may be diminished through adequate built environment design
- Urban open space design should promote and enhance security so that the users feel free to use the space without feeling vulnerable
- A balance should be achieved between public, semi-public and private spaces, with no space being completely secluded or overly exposed
- Urban open space should be appropriately delineated and designed so that certain areas are not accessible by night, while those that are accessible at night are adequately designed
- Precinct structures to comply with safety requirements

SPECIFIC REQUIREMENTS:

- Measures taken include well lit routes, routes and spaces overlooked by occupied areas, and clear visual links between spaces
- Outdoor lighting to be included in all public spaces and living environments, as well as building entrances, walkways, sidewalks and streets, focal features and streams / canals
- Security elements (lighting and CCTV) to be vandal- and weather-resistant, so that they are always operational, therefore ensuring continued space security
- Design specifications to comply with that of safety regulations



4.24. CCTV is not always an effective remedy to safety and security problems as they cameras merely record events and do not prevent them (Wouldstra & Fieldhouse 2000)



4.25. This Wild Pear in the Company Gardens in Cape Town has great historical value and is being protected from human interference, therefore retaining the city's agricultural history (Howard 2005)

ECONOMIC

Understand how the buyer / tourist experiences the safety and security of the urban environment.

GENERAL REQUIREMENTS:

- The precinct framework aims to generate a safe environment that will be beneficial to tourism in the area
- It is essential that open spaces, particularly those that have high tourist visits, should have good security, therefore ensuring positive use and return visits
- A high degree of safety and security will increase the neighbourhood quality, and therefore applicable and specific design principles should be applied to the urban open space effectively so that it is suited to the surrounding environment
- Open spaces focused on recreation should be designed with security as one of the major factors; otherwise users will revert to using distant areas, indoor-exercise, or no exercise at all, therefore resulting in unhealthy, unbalanced lifestyles and increased traveling costs

SPECIFIC REQUIREMENTS:

- Security elements (lighting) to be locally produced to boost local economy
- Security elements to be vandal- and weather-resistant, therefore minimising maintenance costs

ECOLOGICAL

Refer to the safety and security of green / ecological open spaces within the urban environment.

GENERAL REQUIREMENTS:

- Ecological and natural processes and habitats should be protected, and fragile environments should be secured against harmful actions
- Guidelines for the protection of open spaces should be included within an environmental management plan (EMP)

SPECIFIC REQUIREMENTS:

- Minimize glare of outdoor lighting
- Water that open space users come in contact with is to be clean and risk free
- Explore the possibility of using thorny and bushy vegetation as an alternative to manufactured fencing

4.2.8 GREENING



Urban greening is defined as “an integrated, citywide approach to the planting, care and management of all vegetation in a city to secure multiple environmental, economic and social benefits for urban dwellers”, according to a Congress background document. This includes street trees, parks or urban open spaces, trees in private gardens, nurseries, green corridors, and community and residential food gardens. (Davie 2002)

Greening the city represents an adaptation and a practical response to the physical and psychological pressures of urbanization as it helps to mitigate the loss of ‘natural space’ owing to development and also provides a counterbalance to an expanding human dominated landscape. (Searns 1995)

The principles and attributes of the Greenways movement are studied as a basis for the ‘greening’ design principle. Greenways can be defined as networks of land containing linear elements that are planned, designed and managed for multiple purposes including ecological, recreational, cultural, aesthetic, or other purposes compatible with the concept of sustainable land use. (Ahern 1995)

It appears that the majority of greenways fall into one of three major categories, and that the three types are increasingly overlapping in comprehensive greenways systems or networks: (Fabos 1995)

- 1.Greenways of ecologically significant corridors and natural systems which occur mostly along rivers, coastal areas and ridgelines
- 2.Recreational greenways where networks of trails and water link land and water-based recreational sites and areas
- 3.Greenways with historic heritage and cultural values

GREENING BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to and understand how, why and when the local community and tourists use urban green open spaces.

GENERAL REQUIREMENTS:

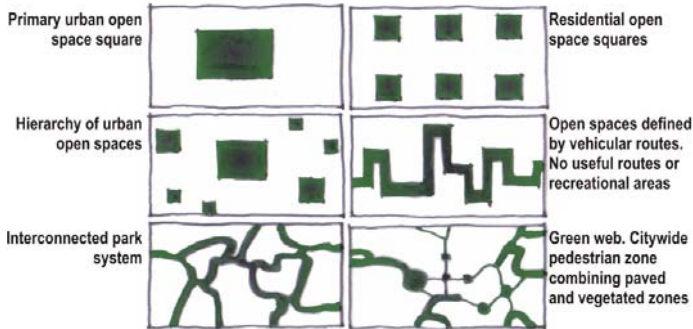
- The precinct’s open spaces should incorporate natural environments which promote easy exercise and enjoyable recreation
- Open space designs should incorporate green environments which offer appropriate uses and activities and which stimulate the user in as many ways as possible, both consciously and sub-consciously, for example sensory experience
- The social context should be taken into consideration when planning green aspects within the open space, and green spaces should respond to all of the previously mentioned principles
- Create a balance between hard and soft open spaces, with hard open spaces being used for activities such as play, sport, recreation, cultural entertainment, parades and political ceremonies, meeting and socialising, visitor’s destination for lingering and resting, backdrop for markets, vending and festivals, access to other facilities, transport nodes and routes. These hard open spaces take the form of mixed-mode streets, pedestrian orientated streets, squares/plazas, markets, parking areas and public transport stops and stations. Soft open space incorporate parkways, parks (regional and neighbourhood), sports fields, play spaces and river corridors

SPECIFIC REQUIREMENTS:

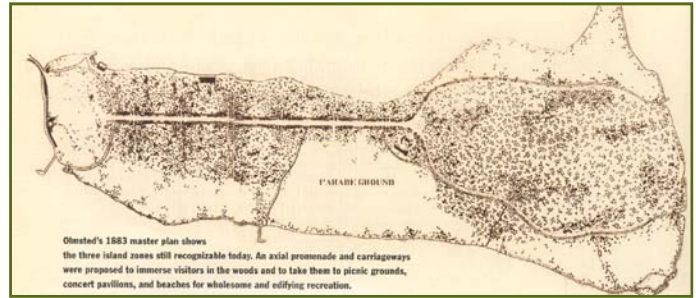
- The micro-climate of the site will be altered to fit the human comfort levels by means of sun/shade patterns, evaporative cooling techniques and directing natural air movement
- This environment is to act as an example of how natural habitats are successfully integrated in the urban realm

A simple definition of a greenway is 'a route which is good from an environmental point of view.' The route need not be for people and need not be flanked by vegetation, but it must be environmentally good. (Turner 1995)

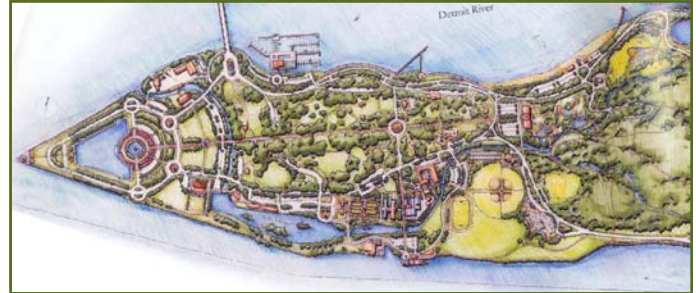
Urban greening falls under local government jurisdiction and should be a part of governmental Integrated Development Plans and Land Development Objectives. However, priorities lie elsewhere for the immediate future, namely housing, drinking water, sanitation and other basic services, and greening gets limited financial support. (Davie 2002)



4.26. Various open green spaces in the urban environment (Trancik 1986)



4.27. Detroit's Belle Isle Park still has remnants of the original Olmsted Plan of 1883 (Martin 2005)



4.28. A recreational greenway alongside a water edge (Crandell & Landecker 1998)



4.29. Experience nature - Detroit's Belle Isle Park (Martin 2005)

ECONOMIC

Refer to the economic inputs and outputs of green open spaces in the urban setting.

GENERAL REQUIREMENTS:

- Attempt to balance the economic inputs and outputs, and even increase outputs over inputs, of the urban green space by providing economic facilities in and around the space
- City 'Greening' should be placed effectively throughout the design, therefore decreasing the need for added infrastructure and services (eg. stormwater drainage)
- The choice of plants should be appropriate to the required function and to the context of the area

SPECIFIC REQUIREMENTS:

- Indigenous plants that are cultivated on site are more economically viable than plants that are out-sourced

ECOLOGICAL

Refer to the overall health, vitality and functioning of green open spaces, as well as the state of street trees and transitional landscaping, within the urban environment.

GENERAL REQUIREMENTS:

- Primarily endemic and secondarily indigenous vegetation to be implemented, unless exotic species are required for specific educational purposes
- Vegetation which is not endemic or at least indigenous should be established in a controlled manner and be managed, therefore preventing undesired spreading of plant species
- Systematic eradication of all alien invaders within the urban open spaces, and the surrounding environment
- Education about the positive impacts of endemic gardening through design and demonstration
- Make use of companion planting and permaculture principles as far as possible
- Plant selection to be motivated by the vegetation palette of the region

SPECIFIC REQUIREMENTS:

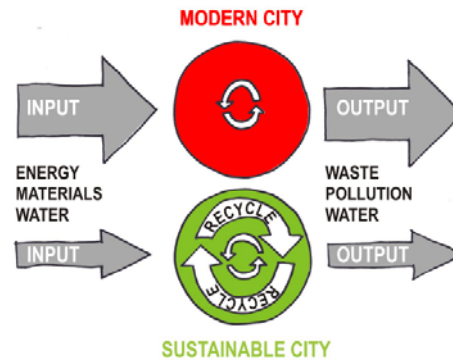
- Plan for large green spaces covered with trees enhance the micro-climate to fit the human comfort levels in a sustainable manner
- Habitat creation through greening includes a coordinated landscaping strategy that takes planting, water, soil, climate, etc, into account
- No invaders or aggressive plant material to be used
- Plant selection is to fit the local biome and plant community

4.2.9 SUSTAINABILITY



Hough states that there is a need for the development of an environmental ethic in which there is a fundamental acceptance of investment in the productivity and diversity of natural systems and a reconciling of economic development initiatives and environmental conservation. Furthermore, he states that although conflicting points exist between the priorities of development versus the preservation of natural wealth, the principle of investment in nature, where change and technological development are seen as positive forces to sustain and enhance the environment, must be the basis for an environmental design philosophy. (Hough 1990)

We need a new picture of urban culture that reconciles the advantages of urban life with sustainable development. (Mayer 1998) Motloch emphasizes the importance of community sustainability, as residents which sustain themselves without depleting environmental or human resources, or degrading environmental or human systems will feel a sense of being part of a viable and healthy community. The designer should now act as a facilitator for resident participation in the decisions that affect their future quality of life and their ecological, physiological and psychological health and productivity. (Motloch 2001)



SUSTAINABILITY BASELINE REQUIREMENTS

SOCIO-CULTURAL

Refer to the community's understanding and application of the sustainability issue with regards to theory and practice.

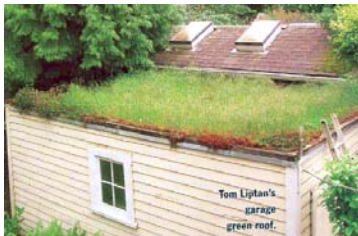
GENERAL REQUIREMENTS:

- Sustainability aspects of the project should be made understandable to users, therefore enhancing the educational characteristics of the space while promoting a 'best practice' approach primarily through demonstration methods

SPECIFIC REQUIREMENTS:

- Community involvement throughout the project is essential
- Human comfort levels are to be achieved

To 'sustain' means to keep going. Improving the relative sustainability of a city requires an evaluation of those features which affect its pattern of inputs and outputs. This is likely to include earth, water, and vegetation, building types, transport systems and spatial organisation. (Gardenvisit.com) A city with high inputs (of energy, food, water etc.) and high outputs (of thermal pollution, sewage, vegetable waste etc.) is relatively less sustainable than a city of the same size but with lower levels of input and output. The social, physical and biological systems in urban areas are as complex as natural systems. Sustainability planners need to study, model and make proposals for the urban landscape at all scales and levels, in time and space, and beyond the usual span of three generations. (Gardenvisit.com 2005)



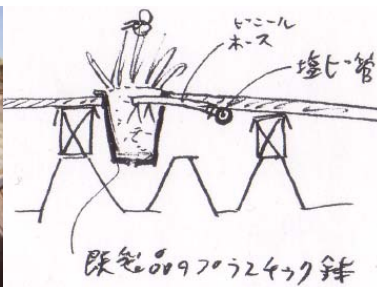
4.30. Roof garden in Portland (Viani 2005)



4.32. Use of solar power (Amidon 2001)



4.33. An eco-san toilet (Garduno 2005)



4.31. A variation on the roof garden (Fletcher 2002)

ECONOMIC

Understand the role of sustainability within the economic realm of the urban environment.

GENERAL REQUIREMENTS:

- The local community, especially those members that have been previously disadvantaged, should be employed as far as possible, therefore achieving economic empowerment
- The designer should take the environment into consideration by choosing materials and methods which are environmentally-friendly and economically efficient
- Design should minimise the ongoing costs associated with provision of water and energy as well as disposal of sewerage and solid waste through adequate and thoughtful design

SPECIFIC REQUIREMENTS:

- Involve the local community in creating and providing products and services
- As far as possible products should be made of locally-sourced materials

ECOLOGICAL

Promote simple and user-friendly methods of achieving ecologic sustainability, and refer to existing sustainable practices.

GENERAL REQUIREMENTS:

- Innovative recycling methods of solid waste and reuse should be put in place, and be made accessible for educational purposes
- A variety of pollution control methods should be attempted within the design and should be made accessible and understandable for educational purposes
- Alternative and renewable energy creation methods and uses should be included within the design and be made accessible for educational purposes
- The precinct and district's resources should be adequately managed to achieve optimum use and improved ecological functioning

SPECIFIC REQUIREMENTS:

- Indigenous vegetation suited to the climatic conditions of Knysna, therefore minimising water use
- Development to occur on sites that are already damaged and built upon in order not to disturb existing fauna and flora
- Rainwater to be harvested and used on site, allowing infiltration on site and thus feeding the ground water
- Detention and retention facilities incorporated in runoff systems
- Runoff reduced by using pervious or absorbent surfaces
- Hard landscaping mimicked, pervious surfaces specified for car parking and paths
- The use of water-efficient devices is encouraged (dry composting toilets, drip irrigation)
- Grey-water recycling will allow water for irrigation and some other purposes
- Passive heating, cooling and ventilation systems to be used that are environmentally responsive
- Choice of surface material to improve micro-climate conditions to the user
- Use electricity generated from renewable sources, ie. wind, sun, biomass
- 80% of the construction materials and components to be made from materials and components with low embodied energy. Low embodied energy materials include locally (within country) made and sourced timber, concrete, concrete blocks, timber windows, and doors, etc
- 90% of materials and resources to be from renewable resources
- 10% of building materials and components to be reused or supplied by recycled sources