

HOUSING DESIGN, URBAN DESIGN AND MULTI-LAYERED ENVIRONMENTS

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A wealth of knowledge on housing has not influenced actual implementation and housing environments remain untransformed. Housing landscapes in South Africa evolved into sterile, regimented and inefficient settlement patterns; the massive machine of the state continues to dominate housing delivery, in the process limiting interventions by other potential role-players. Designers have understandably distanced themselves from such ugliness (Osman & Lemmer, 2002). Emerging from the experience of the 33rd World Congress on Housing held at the University of Pretoria this September¹, we try to bring together various concepts that surfaced, reconcile them with previous knowledge on housing and illustrate those concepts with some examples of housing projects.

CURRENT ASPECTS AND THE OBSTACLES TO IMPLEMENTATION

ALL-INCLUSIVE PROCESS

Housing is a process or activity that long precedes the planning and construction phase and extends beyond the owners taking up residence; it is not a commodity or product (Lowe, 1997:139). It is not only concerned with the design of a specific number of units, but rather, the design of a whole environment that provides accommodation, jobs, education, health services, etc. all to be achieved within an accessible, safe, beautiful and sustainable context (Erskine, 1998:22).

FOCUS ON SPEED OF DELIVERY – YET UNABLE TO DELIVER

In order to facilitate this all-inclusive process, the politically motivated need for speed of delivery has to be challenged. Programmes that only deliver house units are doomed to failure. Housing delivery needs to be combined with mechanisms for community upliftment, job creation, capacity building, empowerment and public utilities.

The state is anyway unable to deliver what it promises (Peeters & Osman 2005). It is interesting to note that demand for houses increases proportionately to the government's subsidized provision of housing (Hamdi, 1991: 11). The Minister of Housing has indicated that the number of houses the government can build per year is equivalent to the number of people who move to urban centres in the same period². Dewar explains how the organisation of the struggle during apartheid has not adapted well to becoming a mechanism for development³. In the optimism after 1994, legislative obstacles were removed but operative barriers to the delivery of sustainable housing still remain (1998:370). Recent, new policy approaches (Breaking New Ground, 2004) could prove to be 'ground-breaking' only if new partnerships are set in place for effective implementation.

PRO-POOR POLICIES

Current debates in development in general, and housing specifically, favour pro-poor policies which means that efforts regarding practice need to be geared towards a large percentage of the population that is at present being marginalised. It is believed that a new paradigm would challenge the current role of the state (Osman & Karam, 2005). It is also strongly believed that housing delivery mechanisms will ultimately influence the spatial and physical characteristics of the resultant environment (Osman & Lemmer, 2005).

THE ROLE OF PROFESSIONALS

It is in this volatile context that professionals are trying to identify a role for themselves. Current housing delivery sets a very poor standard for low-cost housing and unattainable and unaffordable standards otherwise. Figure 1 identifies the neglected zone where it is believed professional involvement is needed.

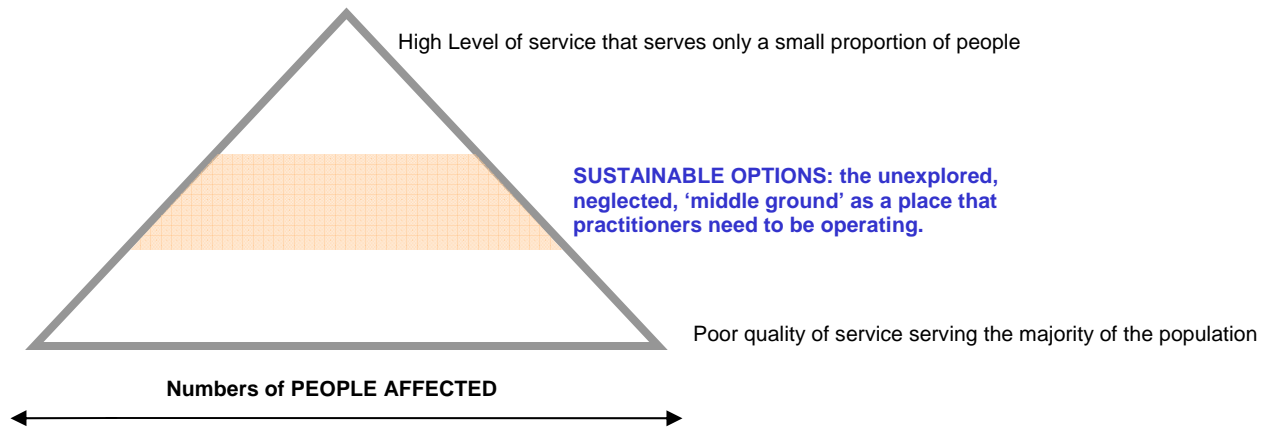


Figure 1 Population served compared to quality of service.

David Gardener also refers to 'missing rungs on the housing ladder' and calls for a finer grained response to patterns of accommodation demand (Gardener, 2005)⁴. This call suggests possible target areas for intervention. A sound education and ability to enter into partnerships are necessary for architects to effectively contribute to filling in the "missing rungs".

PRINCIPLES AND APPROACHES FOR REALISATION

FACILITATING EMERGENCE AND LEARNING FROM THE VERNACULAR

Patterns of emergent systems⁵ in cities are indicators of real need and the imposition of pre-determined plans should be avoided as professionals become more sensitive to context. Hamdi explains how 'small' interventions grow and guide development and how the role of the professional becomes one of creating conditions for emergence – in this respect searching for catalysts (Hamdi, 2004: 73). These catalysts would then generate a process of 'negotiated reactions' whereby continuous transformation is achieved within a stable environment (Dewar and Uytendogaardt, 1991: 35). Harber⁶ explains how a squatter settlement develops in a process that is the exact opposite of a formal settlement: the land is occupied, buildings put up and services finally installed. He believes this usually generates an environment that is more layered, develops gradually and is less disruptive to the existing site. This gradual development is perceived as a common characteristic of successful urban places and is a quality found in vernacular settings.

Vernacular architecture can provide lessons for architects in housing design, more than institutionalised architecture can: Architectural history traditionally deals with individual buildings, while vernacular architecture is always about town planning – if there is a statement made by the vernacular built environment it is a collective statement and not an individual one (Lekson, 1990). Learning from traditional and emergent settings is more than imitating forms or spatial layouts; it is learning the process of 'negotiated reactions'.

'IN-SITU' SLUM UPGRADES – THE SAO PAULO EXPERIENCE

While African countries still call for slum eradication, Brazil seems to have acknowledged people's right to the city and have adopted policy to support informality as a legitimate force (Osman & Karam, 2005). An approach towards slum removals neglects the fact that every shack is in reality a home. The fact that squatter settlements are not undifferentiated areas of squalor but dynamic environments with unique characteristics needs to be properly researched before any intervention is made⁷. Slum upgrades are complex processes requiring the combined efforts of a number of disciplines.

Perhaps South Africa can learn from the approach of the Guarapiranga urban rehabilitation programme in Sao Paulo⁸ which aims to assimilate slums into the city by using infrastructure and community space as catalysts in social and civil integration – existing slums are thus turned into neighbourhoods and slum-residents into citizens. The intention is that integration is spurred on by the development of well-maintained, high quality and innovative community spaces that in turn promote private investment in homes, businesses and leisure activities. Decadence is gradually replaced by the perception of progress.

Due to the nature of the undulating topography and the associated hydrological challenges of the Guarapiranga Basin (the basin forming part of the catchment of the Guarapiranga Dam), the programme's initial urban design actions focused on infrastructure, services and vehicle and pedestrian accessibility. The infrastructure specifically addressing the water quality, pollution prevention, sewerage and solid waste control. These projects were undertaken whilst the affected residents were temporarily relocated. Once the infrastructural projects were completed, the surrounding open areas, directly adjacent to the interventions, were designed as community areas. Adding on to the infrastructural and services provision was then the development of squares, skating rinks, bicycle tracks and table games which began to create small centralities.

One of the admirable aspects of this programme is the insistence on quality design and planning achieved by selecting proposals on how adequately they would solve the problems and not on lowest cost. This attracted the involvement of architects, urban planners and engineers. Professionals working on the programme are expected to have a diverse profile with good technical training in order to combine technical, social and landscape issues.

A specific lesson learnt from the programme of interest to the South African scenario is the realisation that current urban problems need policies that bring together contributions from all sectors involved.



Figure ? The adverse conditions prior to development

Figure ? A community space improving neighbourhood character

Figure ? Community space improving drainage control, access and slope stability

URBAN DESIGN FOR INCREASED DENSITIES WITH SPATIAL CLARITY

The scope of housing extends beyond the boundaries of a particular site. Gwendolyn Wright refers to the 'site of each commission [being treated] as if it were a world unto itself' or 'bracketing'⁹. David Dewar (1998) expresses it as 'the sea of space' between buildings, which has the potential to be the 'glue' that binds a development together. The building as an 'edge' and as a 'connector'; the building providing 'definition' and 'boundaries' to space is of utmost importance.

Dewar believes that a positive environment can be achieved regardless of the quality of the individual buildings and emphasise environmental, social and economic benefits of high densities. He explains how, in positive urban environments, the urban fabric at the smallest scale is fine and complex. It is at this scale that most impact is made on the daily lives of people. Dewar also makes the distinction between a road and a street.¹⁰ (See Figures 2-4). In this set-up, transport nodes are perceived as 'catalytic nodes' and the tensions created between these nodes is seen to

generate a process where small informal businesses will be able to flourish initially as an area gradually develops (Osman & Lemmer, 2005).



Figure 2 Thesis project in central Pretoria: the creation of quality environments at street level in a mixed-use development (Jenny Bath, 1999-2000, UP).

Figures 3 & 4 House units become modules in the generation of a comprehensive urban design layout in Soshanguve, Tshwane (Mpho Selepe, Honours student, Housing Elective 2005, UP).

INTERFACE – DESIGNING THE EDGES

The above principles were applied in an unbuilt proposal for a hostel upgrade¹¹. The Sethokha Hostel, the largest in Gauteng, is located in the Kempton Park-Tembisa Metropolitan area and in 2000 it was estimated that it housed over 7500 residents in its 27 blocks. The design team, led by the Centre for Housing and Land Development, UP proposed an urban design that reacted to existing forces in the area and re-designing the buildings to complement that (Figure 5). The design characteristics aimed for were listed as follows: Higher densities, well-defined routes, hierarchy of streets related to spatial hierarchy, streets with identity, legibility through strategically placed visual or functional nodes, mixed-use, high-density strip developments, buffer zones as threshold into private domains and differentiation between public, private and semi-private or communal spaces. The relation of the building to the street frontage was seen to be key to the success of the design – the mixed-use strips are buildings which create a ‘habitable wall’ with different functions accommodated on the different levels, each interacting differently with the street (Figures 6-7).

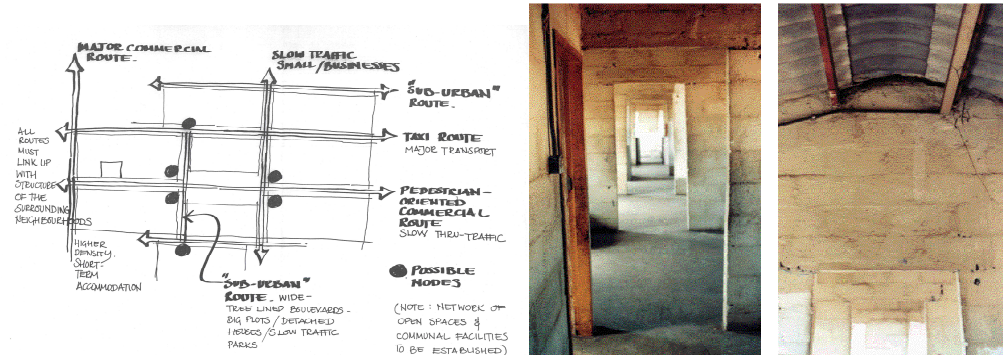


Figure 5 Sethokha Hostel Proposal: Sketch identifying characteristics of streets and major nodes. This later influenced the way that individual buildings are re-designed.¹²

Figure 6 Sethokha Hostel Proposal: Photos of a typical hostel building.

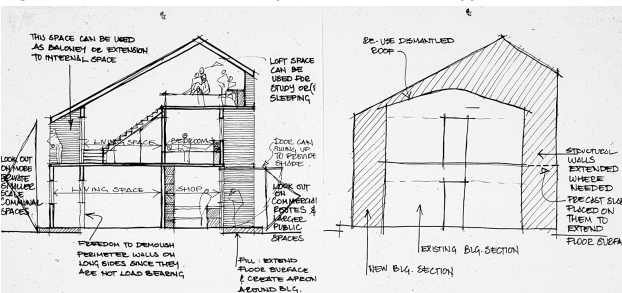


Figure 7 Transforming the section of the buildings: designing the edges to complement the urban design framework.

GATED COMMUNITIES AND SOCIAL EXCLUSION – ACROSS THE ECONOMIC SPECTRUM

In the above proposal, the question of integrating the hostel with the surrounding residential area was discussed. This proved to be a contentious issue – hostel life has evolved differently and merging the two areas could create much tension between the residents. The historical reasons for this are acknowledged yet fencing off an area has many problems. There is a trend to close off residential areas, this is not only a characteristic of expensive homes on golf estates, but also of the more recent social housing projects in inner-city areas – this results in social exclusion and gated areas have already transformed cities and how they function in major ways. It is not only unsustainable environmentally but makes no sense economically. Re-focussing policy directions to combat this trend would in essence require a major shift in the way we think about the morphology of human settlements as well as the processes by which they are created.¹³

INFILL OPPORTUNITIES IDENTIFIED – ACHIEVING QUALITY IN HIGH-DENSITY CONTEXTS

There is a trend towards the identification of gaps in the urban fabric to target for infill housing projects. One relatively recent example is that of the additions toChurch , on Burgers Park Lane in central Pretoria (Client: Wesley Trust)¹⁴. Here the existing caretaker's flat was converted to communal accommodation, another level was added to the flat to include a manse and self-contained guest room, and 3 communal flats were added, one on each of the minor halls to house 7-8 people sharing facilities. The finer scale of the residential buildings next to the large dominating volume of the church and the halls had to be reconciled in the design. The chapel mediates between the two parts of the complex. The quality of internal and external spaces was the driver of the design process: the intention was to have pleasant, well-ventilated, naturally lit residential spaces and not to compromise the quality of space in the existing buildings.

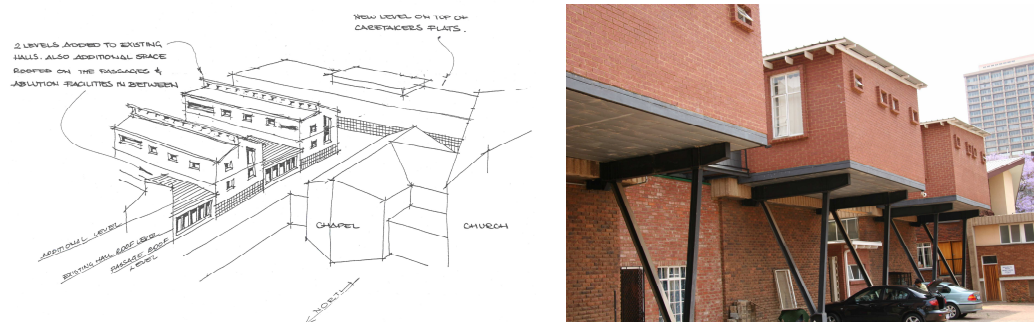


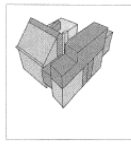
Figure 8 Wesley Trust: Sketch design for communal living units on top of the church halls.

Figure 9 Wesley Trust: Residential units over the 3 church halls as built.

A Belgian firm in Flanders is implementing a research and design project named 'Matrix'. It explores housing in high-density contexts. The project aims to:

- To take into account changing family structures and living patterns
- To propose ecologically defensible housing strategies in terms of designs that need less space, infrastructure, energy and materials
- To investigate new design types for high-quality, high-density living
- To re-establish a symbolic relation with nature for the nebulous city dweller
- To challenge the loss of (sub) urban living quality in high-density situations

Left over spaces, accidental gaps in the urban fabric are targeted for projects that have at their heart the principle of symbiosis. This method of symbiosis (Kisho Kurokawa) is used as a tool for analysis and synthesis in the design phase.



Overview



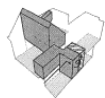
Apartment 1



Apartment 2



Apartment 3



Apartment 4



Apartment 5





Figures 17 & 18 Yeast: the development as it is today showing the courtyard.¹⁶

CHANGE AS POSITIVE GENERATOR: ENCOURAGING ADD-ONS

The built environment is not static: it is interesting to study the relationship between stability and transformation in the built environment [10]. The quality of changeability is inherent in houses throughout the world (Habraken, 1998:7). This understanding of a house is not limited to low-cost housing but applies to all types of houses across the economic spectrum: a house is many times a changing organism, it changes many times throughout its lifetime to suit changing social status, economic status and lifestyles.

Therefore, housing should be adaptable within a stable and robust urban support structure. The aim is to allow for flexibility without subtracting from an effectual urban identity. Careful adaptation of this concept of 'Open Building' to the South African context may be the means to introduce this potential for change. In rental housing for example, rather than having a standard quality of infill for all the tenants, a consumer-oriented rent policy is implemented to offer a flexible response to clients' needs in terms of infill quality (Dekker, 1998: 311).

Accommodating for participation and change

Accommodating for participation and change: Elemental project in Chile..... (Alejandro Arevena)¹⁷
 The Quinta Monroy project in Iquique of the Chilean Design group Elemental offers good lessons in innovative thinking for housing design. A 30-year old illegal settlement of 100 families on expensive land in the core of the city needed to be upgraded. The government subsidy of \$7 500 per household was too little to purchase the site and construct complete housing units. Current planning scenarios such as dividing the plot into separate lots or a high-rise development would result in problems such as overcrowding or inability to expand.

In order to accommodate the higher density of 100 families the approach was to combine the subsidies and construct a "single" building, being less expensive than a series of individual units. The high cost of the land made it difficult to provide a complete unit to each family. The design team opted for a solution which provides only a 60% portion of the house at standards closer to a middle class home. The units were then specifically designed to act as a supporting framework to accommodate easy and inexpensive occupant expansion. The two floors expanding horizontally or vertically. In order to maintain the overall urban design quality the building was designed so as to encourage expansion in specific directions only. This ensures that the desired spatial quality of the public domain is not destroyed.

The Iquique example shows how it is possible with innovative design to successfully accommodate poor people within the city on land traditionally thought of as being too expensive for social housing.



Figure ? Quinta Monroy just after completion
 Figure ? Occupant additions beginning
 Figure ? Some additions completed

CONCLUSION: CONTEXT AND RESPONSE, GENERATING AN ARCHITECTURE OF PLACE, INTERFACE: DESIGNING THE EDGES

ENDNOTES

- ¹ xxxiii World Congress on Housing held during the period 27-30 September 2005, hosted by the Department of Architecture, University of Pretoria on behalf of the International Association for Housing Science. The theme of the congress was: ‘Transforming Housing Environments Through Design.’
- ² Radio interview with Minister Sisulu, 26th August 2005 on Radio 702. Another indication of this is that despite the large government programme for housing delivery (approximately 190 000 houses per year), the housing backlog remains stable – Mark Napier is acknowledged for this insight.
- ³ Keynote speech, xxxiii World Congress on Housing at the University of Pretoria in September 2005.
- ⁴ David Gardener is acknowledged for his presentation at the International Housing Research Seminar organized by the Department of Housing in Cape Town in July 2005.
- ⁵ The difference between emergence and designed systems was explained by Nabeel Hamdi at his Keynote Presentation at the xxxiii World Congress on Housing at the University of Pretoria in September 2005. He writes that “...intelligent practice builds on the collective wisdom of people and organizations on the ground – those who think locally and act locally – which is then rationalized in ways that make a difference globally... In this respect, good development practice facilitates emergence; it builds on what we’ve got and with it goes to scale.” (Hamdi, 2004: xviii)
- ⁶ Rodney Harber, personal communication.
- ⁷ Anthea Houston of the Development Action Group, Cape Town is acknowledged for her presentation at the International Housing Research Seminar organized by the Department of Housing in Cape Town in July 2005.
- ⁸ All information on the Guarapiranga urban rehabilitation programme is obtained from
- ⁹ Gwendolyn Wright
- ¹⁰ Keynote speech, xxxiii World Congress on Housing at the University of Pretoria in September 2005.
- ¹¹ Why unbuilt, current status of project
- ¹² All sketches by Amira Osman
- ¹³ A statement on ‘Common Housing: Gated Communities’ was presented by Amira Osman at the First Holcim Forum on Sustainable Construction in Zurich in September 2004.
- ¹⁴ A project of the Centre for Housing and Land Development, UP (now dissolved) where Amira Osman and Paul Munting were project architects. The project was finished in (date) by Paul Munting Architects.
- ¹⁵ Also a project of the Centre for Housing and Land Development, UP (now dissolved) where Amira Osman and Paul Munting were project architects. The project was finished in (date) by Paul Munting Architects.
- ¹⁶ A project of the Centre for Housing and Land Development, UP (now dissolved) where Amira Osman and Paul Munting were project architects. The project was finished in (date) by Paul Munting Architects.
- ¹⁷ Alejandro Aravena is acknowledged for his Keynote Presentation at the xxxiii World Congress on Housing at the University of Pretoria in September 2005 and for the DVD.....

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