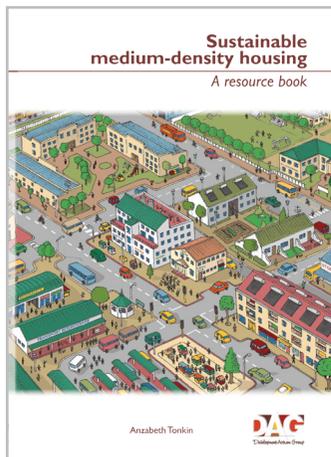


URBAN LAND MATTERS

A DEVELOPMENT ACTION GROUP PUBLICATION

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MEDIUM DENSITY



In 2008, the Development Action Group (DAG) published ***Sustainable medium-density housing: A resource book*** about sustainable and affordable medium-density housing.

This series, ***Urban Land Matters***, is adapted from the book to bring DAG's research to a wider audience. This series offers innovative and accessible planning ideas to government officials, practitioners and communities. If you would like more information on the concepts contained in these issues, please refer to the book. It's available on CD or on DAG's website: www.dag.org.za.

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1. How typology underlies safe and sustainable higher-density environments
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5. How a combination of typologies advance choice and diversity

OTHER TOPICAL ISSUES

Housing Form
four main categories

Typologies Defined
options for housing

Options for Hostels
revisiting apartheid

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WAIT! THERE'S MORE...



Learn about 'housing typologies' and how they can be combined.

DON'T MISS...page 2



Read about important considerations for choosing typologies.

CHECK OUT...page 4



Find out how different typologies compare: considerations, advantages and disadvantages.

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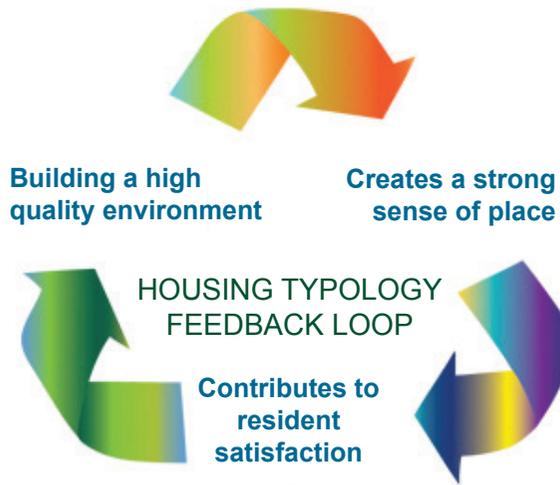
Development Action Group

AfriSam
Build with Confidence

What are housing typologies?

Contrary to popular belief, 'housing' does not only refer to physical structures, but encompasses all elements of human settlements. Housing typologies – meaning the physical structure of residential buildings – contribute to the social, psychological and cultural environment, creating a 'sense of place.' A high quality urban environment brings about a positive sense of place, which in turn contributes to high levels of resident satisfaction, which in turn contributes to a sense of ownership and identity. Building and site design, service provision, project cost, open space patterns and residents' perception of and satisfaction with their housing environment are all determined by housing typology. Richard Untermann and Robert Small emphasise the importance of planners' and designers' envisioning the housing typology as part of the overall development process. They organise this into four parts:

- Determinants of house quality and suitability:** Natural characteristics of the site (view, water, physiography, vegetation) and artificial factors (buildings, utilities, services and roads, as well as building materials and construction methods) directly influence the quality and suitability of the dwelling unit. In addition, an understanding of the sociocultural background of users is important for housing to satisfy these human needs:
 - **Territory:** To make the most of a given area, as many units as possible must have access to private or semi-private outdoor space. Intrusions onto visual, auditory and olfactory senses are often difficult to control, but should be minimised through creative design.
 - **Orientation:** Design attention should be paid to both sun insolation (absorption of the sun's thermal energy) and insulation (suppression of the sun's thermal energy), as well as optimum natural lighting. Sensitive responses are required to make the most of air movement or prevailing wind conditions.
 - **Privacy:** In medium-density housing, privacy is mainly created by floors and ceilings, sound-proof party walls, fences, shrubbery and so on. Internal privacy is attained by constructing rooms with doors and windows that cannot be looked into, while external privacy is more difficult to create.
 - **Identity:** The primary factor in housing and settlement form is sociocultural, where households seek identity through selection of house style. In this regard, a combination of housing typologies are important.
 - **Convenience:** The degree of physical ease in carrying out household activities needs consideration.
 - **Accessibility:** The degree of accessibility must be carefully adjusted to the needs of the intended user and certain areas should be inaccessible to children.
 - **Safety:** The way dwelling units are sited and the size, configuration and access of open space can determine levels of safety. The unit must be able to withstand natural forces and be reasonably fire-proof.
- Identification of household type:** Identification of household type (family size, income, culture) is necessary to understand family needs and space requirements.
- Identification of house type:** There are several basic types of medium-density housing. To respond appropriately to community, environmental, economic and institutional needs, designers and planners should be familiar with both the opportunities and constraints of each house type and use creative typology combinations.
- Correlation of household/house type:** Without knowledge of the individual household, a match with the house type cannot be made accurately. Scenarios of different user profiles/household types should be sketched to determine the response of the housing environment to the human needs mentioned above.



Did you know?

How families live is greatly informed by their housing typology. Many fundamental life processes are dependent on and informed by the use of space in the living environment, including:

- care of children;
- socialisation of the individual;
- sexual life and intimacy;
- orientation in time, space and society;
- expression of status, ways of life and ideals;
- creative activities and recreation.

H HOUSING FORM

FOUR MAIN CATEGORIES

Springfield Terrace (see photo), with a gross density of 257 du/ha, was built on only 8,083m² (less than a hectare) of land, providing good quality inner-city housing to 133 families. It is an outstanding example of infill housing on a relatively small pocket of land. However, those who favour segregation may oppose developments, like Springfield Terrace, citing the loss of open space, increased population density and high traffic volumes as objections. Economic incentives and political will must come together to defeat NIMBY-ism (Not In My Backyard) and strengthen the acceptability of higher-density infill housing.



DETACHED

A low-density typology, common throughout South Africa. Most middle-income suburbs as well as most RDP neighbourhoods fall in this category.

The picture below shows a typical example of a detached RDP house from Marconi Beam, in Cape Town.



ATTACHED

Units are joined side by side or one above the other, with separate outdoor entrances and private outdoor space.

The picture below shows well-known terraced row housing in Donkin Street, Nelson Mandela Bay.



APARTMENTS

Several dwelling units share a common entrance and also share the open space enclosed by a common structural envelope.

The picture below shows Newtown Urban Village, a cooperative housing project near the Johannesburg CBD.



HYBRID

Two or more types of housing are mixed to provide a range of options to families with different needs and requirements.

At present, very few neighbourhoods have mixed housing typologies, which is one of the primary factors preventing race and class integration.



Quality of life is affected by spatial arrangements such as unit type, unit plan, site layout and open space.

Did you know?

The success of higher-density housing depends more on how the spaces between buildings are treated than on the interior design of units. Many researchers have found a preference for territories that are marked, that have clear boundaries and that make visual contact with the surrounding area. The motives seem to be the need for protection, combined with a desire to know what is happening nearby. The way a territory is organised and maintained can acquire symbolic value and become a form of self-expression.

Important considerations

There is sufficient vacant land in most built-up urban and suburban areas in South Africa to provide for small groups of higher-density units. This would render unnecessary the relocation of significant numbers of informal settlement dwellers to peripheral, low-cost, low-density housing areas. Most of this land will not require major additional infrastructure and large savings on energy, transportation, agricultural land and service costs will be made. More importantly, social integration will result, as will affording poorer citizens improved access to urban opportunities. The following factors should be considered when building higher-density typologies on infill land.

Combining typologies: A combination of typologies used in the same development for different income groups and household configurations enable residential environments to offer choice and diversity. The promotion of mixed use neighbourhoods, which include social facilities and trading space, as is the case in Sakhasonke Village, can create vibrant housing environments and support residents' livelihood activities.

Choosing typologies: When making decisions about housing typologies, consideration must be given to the availability and cost of land, the socioeconomic profile of end-users and the surrounding urban context. Architectural solutions that are not based on adequate knowledge about the end-users' expectations, needs and values may have unintended consequences that are contrary to the intentions of planners and designers.

Accommodating children: Housing requirements are determined by family structure, age, gender and intimate relationships. The presence or absence of children impacts heavily on the preference for house type. Flats, for instance, may be appealing to households with no or few children, while freestanding houses may be essential for families with young children. One of the significant findings of the resource book is that meeting the needs of children contributes to the overall satisfaction of the housing environment, particularly for single mothers.

Keeping families together: Another important consideration in South Africa is extended families. It is common for residents of semi-detached units who have backyard renters (often family members) to complain that the only access to the backyard is through the main house. Housing policy should take extended families into consideration, instead of tacitly encouraging the fracturing of large families into smaller units.

Privacy is essential: In the spatial arrangements needed for privacy, two levels can be distinguished: isolation of the family from the outside world and mutual isolation of subgroups within the family from each other. Within the house, space is structured in areas ranging from public (living room) to private (bedrooms). Between these areas, social and physical barriers are created requiring that certain conditions be fulfilled before crossing a barrier, such as knocking on the door before entering. Some plans, e.g., where the entrance to the only bathroom is through the bedroom, run counter to the desire to maintain privacy.

Beyond the household: The ability to regulate communication with the outside world is critical to the functioning of the household. The relative isolation of the home is often a condition for participation in community life.

Literature on urban design

A large body of literature exists on urban design, including:

- Clare Cooper Marcus & Wendy Sarkissian: *Housing as if People Mattered* (1988)
- Charles Correa: *The New Landscape* (1989)
- Jane Jacobs: *The Death and Life of Great American Cities* (1993)
- David Lynch: *Good City Form* (1984), *Site Planning* (1984)
- Oscar Newman: *Defensible Space* (1972)
- Richard Untermann & Robert Small: *Site Planning for Cluster Housing* (1977)

OPTIONS FOR HOSTELS

REVISIONING APARTHEID DESIGN

Walk-up buildings were a popular typology for public rental housing in South Africa. These 'council owned housing estates,' established under apartheid to accommodate the urban labour force, afforded little or no attention to design, landscaping or operational concerns, rendering them unsafe and user-unfriendly. Issues such as shared washing lines and poor delineation of space generated conflict between neighbours, and the physical environment exacerbated socioeconomic problems, resulting in negative perceptions about walk-ups amongst the public.

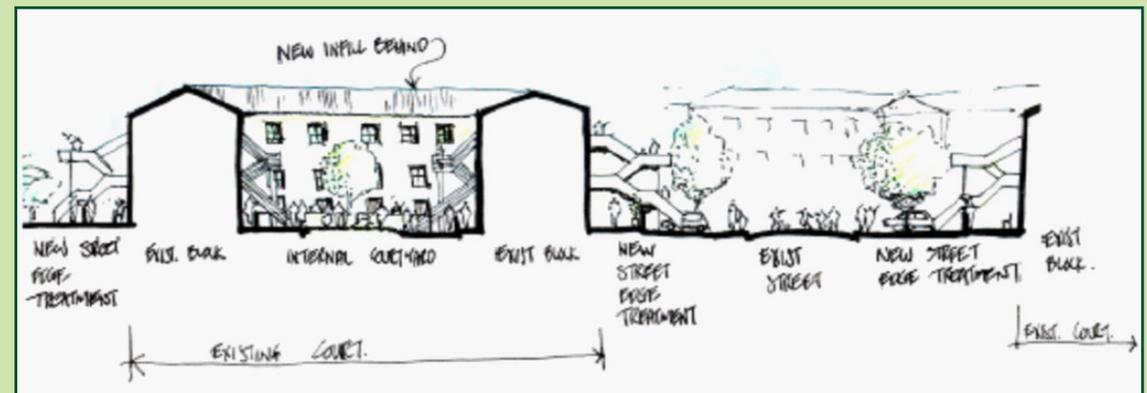
An award-winning design to address the problems that perpetuate poor socioeconomic conditions in rental estates was produced by **Inhabit Architecture and Design Consultants**, for Lavender Hill on the Cape Flats. The design addressed a range of issues endemic to public rental housing stock across the country.

- Courts are randomly placed with undefined, poor-quality open space, resulting in no cohesion and high crime.
- Courts allow pedestrian traffic, resulting in tenants having no threshold space between their private units and the public domain. Natural surveillance and a sense of security are thus compromised.
- Sense of place and identity fail due to repetition, uniformity and monotony of the built environment.
- Roads do not relate to buildings and are only intended for vehicles.
- Overcrowding in public rental units and the demand to rent backyard shacks from ground-floor tenants indicate a need for additional housing.
- Layout allows no opportunity for home-based enterprises, and the overall environment attracts little investment.
- There is a lack of accessible recreational, social and cultural facilities.

Inhabit identified opportunities for a spatial intervention that would address the inadequacies of the current environment and restore a sense of dignity to such communities. They suggest that:

- Infill housing will enclose the open space and create safe semi-public courtyards. Minor alterations to existing courts will allow some backyards to become front entrances, allowing a semi-private interface between the housing unit and the public street. The space created can be used as a play area or for parking.
- All streets become pedestrianised, while other public spaces are differentiated with levels using either hard or soft treatment. A ring road is used to accommodate faster traffic.
- Identity will be achieved where the open areas become quality public spaces with distinct character. New infill housing will break the monotonous character of existing courts.
- Housing units will better accommodate home enterprises. Local commercial corridors will attract outside investment.

See pages 139-141 in the Resource Book for more information.



TYPOLOGIES DEFINED

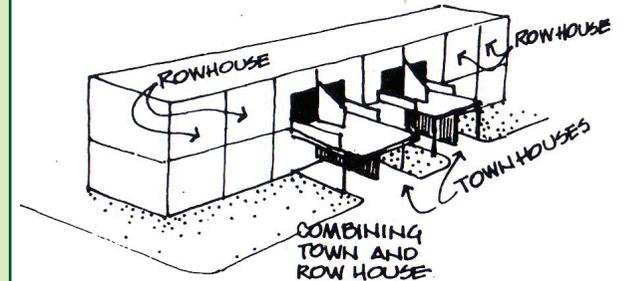
OPTIONS FOR MEDIUM-DENSITY HOUSING

ATTACHED HOUSING

Semi-detached houses are made up of two units (often mirror images) built next to each other with one shared wall. Open space consists of front and rear areas, as well as one side of each unit. **Row housing** is made up of a (often uniform) row of units, built next to each other with two shared walls. This is the most accepted medium-density attached housing form. It can be terraced up or down a hill to enhance the view or to provide good orientation, allowing for patios on the roof of the unit below.

CONSIDERATIONS

Richard Untermaun and Robert Small state that four units in a row is the minimum required for cost efficiency, while more than ten is the maximum. **During the 19th century high-density housing in most of South Africa's settlements was provided in the form of semi-detached, row and double-storey units, often with shop fronts on the street level, creating a vibrant and pedestrian-friendly urban environment.**

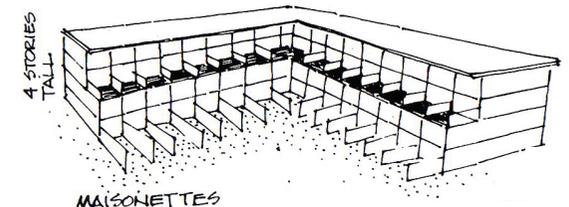


MAISONNETTES

Maisonettes are small blocks of flats with four, six or eight units each. They are a good higher-density, low-rise typology able to achieve a maximum number of units. Maisonettes above the ground floor are reached by a common outdoor gallery.

CONSIDERATIONS

This typology provides excellent opportunities for introducing small numbers of higher-density housing developments into existing low-density suburbs where small pockets of land are available. **Maisonettes could provide a new way of developing well-located housing for domestic workers and their families, using employer contributions to augment subsidy funding.**

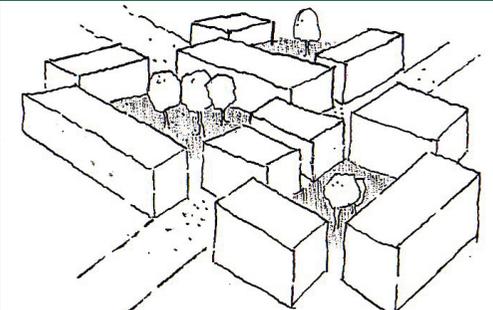


COURTYARD HOUSING

Courtyard housing is one of the oldest forms of communal dwelling, dating back at least 2,000 years. It consists of attached units arranged around open spaces or courtyards. These semi-public courtyards provide a sense of safety and privacy. Front doors typically open onto the courtyard and rear doors can open onto alleys.

CONSIDERATIONS

This form of housing, considered to have "a future as well as a past," is receiving renewed attention as a higher-density housing typology. **Morris Newman suggests that courtyard housing is "an attractive alternative to the standard developer formula" for higher-density multi-family housing, presenting opportunities to bring density to existing middle-income neighbourhoods.**

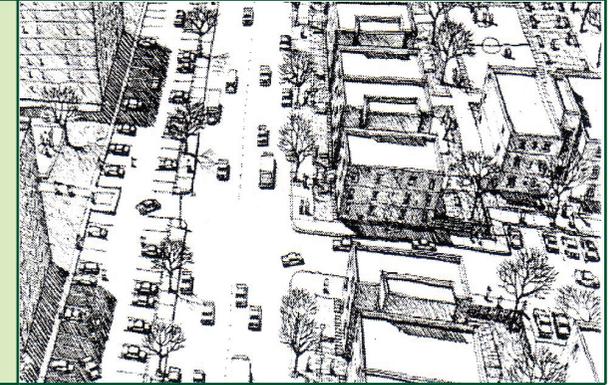


FLATS

Three- to four-storey walk-up buildings are often used for medium-density, low-rise urban housing. The four storey limit was established by a number of factors, of which stairs was the most decisive. Units are usually accessed via staircases with several units sharing a landing. Climbing three flights of stairs is considered the maximum for healthy adults and excessive for children and the elderly. Other factors contributing to the four-storey limit include cost efficiency, construction sophistication and fire safety.

CONSIDERATIONS

According to Kevin Lynch, this type of housing is “a good basic model for apartment living” and can economically use central city land, while providing many of the characteristics of scale and access acceptable to residents. It is important to remember, however, that three to four-storey walk-ups are effective due to their low profile. Behavioural studies have found that residents become disengaged from the land when buildings exceed four-storeys. This causes problems such as anonymity, indifference, fear, loneliness and lack of community interest.

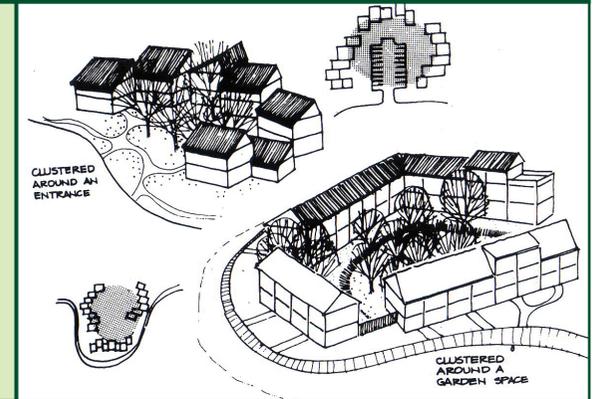


HYBRID HOUSING

Hybrid housing can also be called cluster housing and refers to a group of units, taking a variety of configurations, arranged around a communal space. According to Richard Untermaier, cluster housing is “the most fundamental and enduring form of human settlement.” Basic types of cluster housing are row and terrace houses, town houses, flats, maisonettes and courtyard houses.

CONSIDERATIONS

Row houses and walk-ups can easily be combined on the same site as they are of similar scale and appeal to different groups, thereby broadening the occupant mix. Cluster housing can also be achieved through densification in single-dwelling areas by adding granny flats, student apartments or formal backyard dwellings.



ROOMS

Various rooms are available for rental from government, private companies and private families.

CONSIDERATIONS

Rooms tend to come in a variety of forms, from dormitory-style hostels to formal boarding houses to backyard shacks. Additionally, some NGOs provide communal and transitional housing for women, children, the elderly or other vulnerable groups. **It is estimated that as much as a third of the population live in single-room accommodation, and as such, there is a high demand for this form of accommodation.**

“Cluster housing suggests a greater sense of community than suburban, single-family housing, as demonstrated when the two are contrasted: cluster vs. linear, compact vs. sprawl, public vs. private, pedestrian vs. auto, community vs. individual.” – Richard Untermaier, Professor of Urban Planning

	Row Housing	Maisonettes	Courtyard Housing	Four-storey Walk-ups	Flats	Cluster Housing	Rooms
Considerations	<p>Good for simplexes and duplexes</p> <p>Units built adjacent to each other or stacked (2-4 storeys)</p> <p>Suitable for smaller scale infill projects</p> <p>Design should create private space and yard space</p>	<p>Good for simplexes and duplexes</p> <p>Units built adjacent to each other or stacked (2-3 storeys)</p> <p>Suitable for new build social and public rental housing</p> <p>Design should offer communal space, play areas, parking</p>	<p>Good for simplexes and duplexes</p> <p>Units built adjacent to each other or stacked (1-4 storeys)</p> <p>Suitable for social, public rental, communal and transitional housing</p> <p>Design should offer privacy and outdoor space</p>	<p>Good for simplexes and duplexes</p> <p>Units stacked (3-4 storeys)</p> <p>Suitable for higher-density housing and infill projects</p> <p>Design should offer communal space, play areas, parking, laundry, gardens</p>	<p>Good for high-rise buildings (3 storeys or more)</p> <p>Suitable for social and public rental housing and inner-city densification</p> <p>Design should offer communal space, play areas, parking, laundry, gardens</p> <p>Must be well-located</p>	<p>Good for a range of house types</p> <p>Suitable for social and public rental housing and general densification</p> <p>Layout forms defensible enclosure</p> <p>Design should offer communal space, play areas, parking, laundry, gardens</p>	<p>Good for individual rooms with shared facilities</p> <p>Includes transitional housing, hostels, privately developed rooms, granny flats, and backyard flats</p> <p>Often provided privately in absence of government mechanism</p>
Advantages	<p>Uses land efficiently</p> <p>Saves on infrastructure and services</p> <p>Provides unit identity, parking, private space</p> <p>Shared walls reduce cost</p> <p>Densities support public transport</p> <p>Pedestrian-friendly</p>	<p>Uses land efficiently</p> <p>Ground floor units have direct access to street</p> <p>Sense of responsibility created by limited numbers of residents</p> <p>Public interior spaces (staircases, landings) shared by few households</p>	<p>Uses land efficiently</p> <p>Suitable for hostel conversion</p> <p>Potential to densify low-density areas</p> <p>Provides safe outdoor spaces</p> <p>Shared courtyard creates responsibility</p> <p>Relatively inexpensive</p>	<p>Uses land efficiently</p> <p>Ground floor units have direct access to street</p> <p>Public interior spaces shared by few households</p> <p>Suitable for hostel conversion</p> <p>Densities support public transport and LED</p>	<p>Uses land efficiently</p> <p>Ground floor units have direct access to street</p> <p>Could be used for urban renewal</p> <p>Sufficient density for shops, services, and public transport</p>	<p>Uses land efficiently</p> <p>Combination of typologies allows for mixed-use, mixed-income</p> <p>Suitable for hostel conversion</p> <p>Provides safe outdoor space</p> <p>Builds community through shared space</p>	<p>Provision of affordable housing in urban areas</p> <p>Accommodation of extended families and good social networks</p> <p>Possibility of incremental development</p> <p>Effective use of infrastructure</p> <p>Income for homeowner</p>
Disadvantages	<p>Limited use of plot for extension</p> <p>Diminished privacy through shared walls</p> <p>Potential loss of identity in housing complex</p>	<p>Loss of ground orientation for upper units</p> <p>Diminished privacy through shared walls</p>	<p>Generally restricted to 2 storeys for sunlight to reach courtyard</p> <p>Diminished privacy through shared walls and communal spaces</p>	<p>Loss of ground orientation for upper units</p> <p>Diminished privacy through shared walls and communal spaces</p> <p>Outdoor space consumed by parking</p> <p>Lack of ownership, management, maintenance</p>	<p>Loss of ground orientation for upper units</p> <p>Private rental flats on profit-driven basis</p> <p>Diminished privacy</p> <p>Outdoor space consumed by parking</p> <p>Lack of management, maintenance</p> <p>Complicated design</p>	<p>Quality of management dependent on body corporate</p> <p>Lack of ownership, management, maintenance</p> <p>Diminished privacy through shared walls and communal spaces</p>	<p>Negative image of overcrowding</p> <p>Not humanly scaled</p> <p>Diminished privacy</p> <p>Often rented illegally</p> <p>Infrastructure over-used & inadequate</p> <p>Poor quality materials</p> <p>Tenants risk exploitation</p>

COMING UP NEXT: Next month's issue will be about Good Design and Construction.