

LESSONS FROM THE GOOD SOLUTIONS GUIDE FOR APARTMENTS

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ABSTRACT

The importance of coherent and sustainable urban growth has become clearer in recent years. Significant issues to be addressed are urban sprawl, creating sustainable communities, efficient use of infrastructure and efficient management of waste. Increasing urban density can contribute towards addressing these issues, and apartment developments can help achieve greater densities. Apartment living must become a viable option for long-term housing for a greater number of people (including more families) in our urban areas.

The New Zealand Urban Design Protocol points out that:

"Although there is strong evidence about some of the benefits inherent in high urban density, it is clear that density alone does not deliver benefits unless other important design issues are addressed too. Successful intensification and higher density in cities requires good design that also meets other needs – for instance, adequate open space and pedestrian friendly streets."

One tool for achieving better design is the *Design Guide*. These publications can target developers and their designers and architects, as well as council officers and councillors and even, sometimes, the general public.

This presentation will discuss the process involved in producing the Good Solutions Guide For Apartments, a document recently published by the North Shore City Council with the backing of all the Auckland councils, the Auckland Regional Council, Ministry for the Environment, New Zealand Institute of Architects and the Property Council of New Zealand. The paper will outline the goals of the project, the intended audience and methods used to communicate with specific sections of that audience. Examples from the Guide will be used to demonstrate issues around apartment design.

KEYWORDS:

Apartment Design Guide; non-statutory; Good Solutions Guide

INTRODUCTION

The Good Solutions Guide for Apartments (referred to as the Apartment Guide) is a non-statutory design guide. It is a 135 page softcover book and downloadable pdf with text, photos and illustrations that describe principles for the design of apartment developments. Six Auckland apartment developments are used as case studies.

The Apartment Guide is part of a suite of non-statutory 'Good Solutions Design Guides' developed by North Shore City Council. These include:

- Good Solutions Guide for Medium Density Housing (2003)
- Good Solutions Guide for Heritage Buildings (2003)
- Good Solutions Guide for Mixed Use Developments in Town Centres (2005)

The Apartment Guide is intended to be a design manual that can equally be read right through or used as a reference manual. Each section is broken into a descriptive Introduction on the subject, Objectives to aim for, Better Design Practice (practical examples to achieve the objectives) and Rules of Thumb (quantitative information).

The guide promotes good architectural design and good urban design as integrated components of a quality development. There is also a heavy emphasis on issues around a development's relationship with its context.

RATIONALE FOR DEVELOPING THE NON-STATUTORY DESIGN GUIDE

In the last five years Council planning and urban design staff have identified a number of issues common across the urban town centres of North Shore City:

- An increasing demand for residential accommodation close to town centres and developers attempting to satisfy this demand with building typologies that achieve higher density levels (mainly apartment and terraced developments).
- A relative lack of experience amongst some developers and their designers of these larger-scale development types and the particular issues involved in them.
- A number of poor examples of residential developments realised with little regard for their negative effects on the surrounding public domain.

The Good Solutions Guide for Apartments was written to address the above issues by:

- explaining the apartment development and its importance as residential densities of New Zealand's urban centres increase
- increasing awareness of this development form and the specific design issues that are faced (both within the development and the development's potential effects on the surrounding urban context)
- describing means for addressing these issues and illustrating examples
- raising awareness of the importance of good design generally
- stressing the importance of working with the best available design professionals when undertaking an apartment development.

The poor quality achieved in a couple of early large scale, medium density terraced developments in North Shore City was a primary motivator for Council to question what could be done to improve the standard of future developments of this type. Consultants used by Council suggested that a general educative approach was utilised in other countries to improve development quality. This non-statutory approach was used alongside other statutory, rules-based methods.

The Apartment Guide is aimed at developers (those involved in apartment developments and those who might be encouraged to consider them), architects and designers, territorial authority staff and decision makers such as councillors and commissioners.

The expected benefits of this approach is to have better educated designers and developers, making better decisions in their projects, as well as Council staff and decision makers who are more aware and demanding of design quality.

There is a heavy emphasis in the Apartment Guide on practical, objective design issues and solutions to them. Discussion of more subjective issues of aesthetics is avoided.

PROCESS OF DESIGN GUIDE DEVELOPMENT

Sarah Lindsay, Environmental Policy Adviser at North Shore City Council, managed the development of the publication. She had previously also written and managed the production of the Good Solutions Guide to Mixed Use Development in Town Centres. This and other previously published design guides from North Shore City Council were evaluated in terms of their effectiveness, legibility, size and graphic style. Sills van Bohemen were employed to develop the structure of the document, to produce the content – including text, diagrams and photos, and then to deal with the graphic designers as they put the document together.

Research and analysis of similar design guide publications from New Zealand and overseas was undertaken. A decision was made to use the New South Wales Residential Flat Design Code as a starting point for this publication. This enabled the team to quickly get their head around the general size, content and structure that would be needed and a mock-up was done that showed the overall structure with a couple of examples sections completed in greater detail. This mock-up was then sent out to other Territorial Authorities and interest groups (in-house and external) and their input sought.

Permission was sought from the New South Wales Planning Department to base the guide on their work, which they were happy for us to do. Subsequent development of the document meant that we created all of our own photographs and diagrams, some sections were added, New Zealand case studies were used and there was a general translation of text to the New Zealand context.

The Apartment Guide clearly outlines the issues and solutions specific to apartment developments, while also covering issues of context, sustainability, building envelope, building maintenance and pre- and post-design issues that may be pertinent to other development forms. Quality graphic design of the publication was considered vital in a publication advocating good design, both because it should lead by example and because the audience would value good design (and be turned off by anything less). It was decided when planning the document that it should be stylish and technical at the same time, while appearing simple, clear and non-threatening. The graphic designers (Alt Group) chosen to work on the project had previously completed well-regarded work for another designer audience as part of the Better By Design conferences and publications.

Six case study developments were visited, researched and analysed. These included one development from the 1960s chosen to show that many of the issues associated with this type of development do not change over time. The case studies contain plans and photos of the developments and a table setting out basic project information such as lot sizes, apartment typologies, access types, density and parking figures. Analysis attempted to systematically evaluate the developments in the same terms as the main part of the guide so that readers could compare design objectives with actual built results, and also see how their own buildings might be evaluated by others in an objective fashion.

Specialists at other territorial authorities and Ministry for the Environment reviewed a draft of the text. It proved difficult to persuade developers or architects to comment on the draft document. Even those who had projects included as case studies only wished to comment on their own projects, if at all.

There was widespread support from other local authorities (who also gave financial support) as the document was seen as a useful tool for regulatory planners to deal with applications for poor quality projects and a useful means of education of staff.

1200 copies of the document and 300 CD's were published in the first print run and distributed to other New Zealand Territorial Authorities and Ministry for the Environment. PDFs of the full document are available on the North Shore City Council website (http://www.nsc.govt.nz/your_neighbourhood/Urban-design/Design-guidelines/apartments.htm). North Shore City staff were made aware of the availability of the document through in-house communication and the mayor of North Shore City launched the book at an event attended by council, media and developers. Workshops run by Ministry for the Environment for territorial authorities have been using the guide as support material and this has been an aid in promotion.

EXAMPLES FROM THE GOOD SOLUTIONS GUIDE FOR APARTMENTS

A few examples have been selected in order to illustrate the type of content in the Apartment Guide and to give the audience a sense of the breadth of issues that relate to apartment development design.

CONTEXT ANALYSIS

Good design is informed by context: a well-designed development responds and contributes to its environment. The designer, therefore, must be aware of both the effects that their development will have on the surrounding area, as well as the effects of the context on their development.

In this Guide, context is considered to be all natural and built features in the surrounding area that impact on a site, as well as social, economic, transport and environmental factors.

Understanding context means understanding the interrelationships between all these factors, and between the site and surrounding area. While the urban environment usually changes relatively slowly, it does change and it is important to respond to the potential future context as well as to the existing situation.

Proposals for apartment developments need to illustrate design decisions and how they are based on careful analysis of the context. As such, a site plan, a plan of the surrounding area and a written statement that lists the opportunities and constraints of the site and explains how the design of the proposed development has responded to the context analysis should accompany any drawings

submitted for discussion or consent with the local council. The written statement helps clarify the key influences for the designer while, at the same time, explains them to others.

Context analyses can be undertaken at a variety of levels. The minimum is analysis of the surrounding area and analysis of the site.

Many designers and architects are still happy to design buildings without coming to terms with the urban context into which they are dropping them. Things have changed in the schools of architecture now but when finished my architecture degree in the early 1990s there was little teaching of urban design (i.e. the spaces between buildings).

Designers must be careful that Context Analyses actually match the reality. It is easy to draw a Ped-Shed circle to show a 5 or 10 minute walk from the site, but not take into account the real barriers to pedestrian movement like motorways or train tracks. A Ped-shed circle may be better represented as a Ped-shed 'blob' to correlate with the relative ease of movement for pedestrians along potential routes.

CONNECTIONS

Pedestrian, cycle and vehicle routes should be convenient, safe and pleasant, and allow for ease of movement within the development and the adjoining area. The success of a development depends not only upon its functional performance, but also on its contribution to the quality and character of the overall area. As a result, development design should consider circulation routes as a network of connected places rather than as a series of generic ribbon roads.

Car routes should not dominate pedestrian and cycle paths. The key to pedestrian safety is to tame rather than exclude the car. Cars should be slowed and, depending upon the volume of traffic, vehicle routes may be shared with pedestrians and cycles to provide further traffic calming. An integrated design approach will consider opportunities for linking into existing movement patterns and for creating new, more efficient patterns.

Designing for pedestrian access should focus on delivering safe and pleasant walking environments. Achieving this goal requires a viewpoint that is person-centred rather than just vehicle-centred. Pedestrian access should also be equitable access, providing a barrier-free environment where all people who live in and visit the development can access apartments, communal areas and open spaces. One of the most important tasks of context analysis is to be aware of flow of traffic and pedestrians in the surrounding area. Generally speaking, for larger sites it is positive to increase permeability for pedestrians by creating connections to existing networks. However this needs to be carefully considered in order that the designer is creating safe environments for both residents and the public. For example creating cross-site links that are not overlooked by inhabited spaces can lead to unsafe situations.

Finally it is important that children are allowed for - in larger developments there may be hard paved areas that double as areas for children's play and pedestrian/cycle routes.

BUILDING ORIENTATION VS. APARTMENT TYPE VS. ACCESS SYSTEMS

Characteristics that define an apartment building typology include such things as type of access used, building height and number of storeys, physical shape, position of building relative to the street and the sun. Another characteristic is the types of individual apartments it contains and these in turn can be described by attributes such as apartment aspect, size, number of storeys, entry type and number of bedrooms.

The characteristic of apartment aspect can be split into single aspect, dual aspect and corner aspect. Single aspect apartments have a single exterior wall that is opened up to light and air. These are often used in conjunction with a double loaded corridor or where there is an undesirable site condition to one side of the building.

The method of getting to one's apartment can be described as individual, horizontal and vertical access.

Individual access occurs when entry is directly into the apartment rather than from a communal route. This configuration is usually used on low-rise buildings or for the ground floor apartments where entry is directly from the ground.

In a horizontal access building apartments are accessed from a horizontal corridor that is either external or internal. Horizontal access may utilise single-loaded or double-loaded corridors, as well as a variation of these known as Skip-Stop.

Single-loaded Corridors

Benefits of a single-loaded corridor include:

- all apartments may address a preferred view or orientation
- all apartments may turn their back on undesirable acoustic or visual intrusions
- cross-ventilation of apartments is possible if access is on the exterior of the building
- because it is on the exterior face of the building, the corridor may be naturally lit and therefore more pleasant than the corridor in a double-loaded building.

Drawbacks of a single-loaded corridor may include:

- circulation area per apartment is usually greater than for double-loaded corridors
- pairing external single-loaded corridors with dual aspect apartments may lead to a conflict between apartment privacy and common access at the corridor end of the apartment.

Double-loaded Corridors

In a double-loaded corridor situation, apartments are accessed from both sides of an internal corridor. All apartments along the corridor are necessarily single aspect. This results in a deeper building block than that of a single-loaded corridor building.

Benefits of a double-loaded corridor include:

- more economical than a single-loaded corridor because there is typically less corridor space per apartment
- may lead to more apartment variety and therefore greater diversity of housing choice

Drawbacks of a double-loaded corridor include:

- corridor must run north-south in order to have no south-facing apartments
- cross ventilation of apartments is more difficult
- internal corridors require artificial lighting and ventilation.

In a vertical access building, apartments are accessed directly from the vertical core of the building that contains common stairs and lifts. A building with a single core is called a 'point-block' building, or a tower. A vertical access building with a number of vertical cores is called a 'long block' building. In this type of building, the cores are often expressed on the elevation as architectural elements or placed at internal corners or junctions where there is less external wall available for apartments.

A variation on the 'point-block' arrangement is to slightly extend the circulation space outside the lift and stair core (essentially a short corridor) so that additional single aspect apartments per floor may be accessed from the same core.

Benefits of vertical access include:

- cores may be internal or external to the building and, if external, may be enclosed or open
- the core is a space conducive to social interaction among residents as it serves relatively few apartments per floor
- vertical cores may become strong architectural elements that visually reduce the scale of a long building
- a mix of single, corner and dual aspect apartments can be accommodated on a single floor, allowing a diversity of plans.

A drawback of a vertical access arrangement can be that logical repetition of the same plan on each floor can produce little variety of apartments within a building.

Corner aspect apartments have two sides that are exterior walls with openings. This can be considered as a variation on the single aspect apartment and is often used in point blocks or at the end of slab buildings. A premium is often charged for the corner type over the single aspect and it is a common type for higher-end apartments.

Issues Around Dual Aspect Apartments and Horizontal Access

Horizontal access paired with narrow dual aspect apartments is less satisfactory due to a habitable room, usually a bedroom, looking out onto the access balcony. Extra care and effort is necessary at the design stage to ensure an adequate level of amenity for both the habitable room and the circulation running past.

With double loaded corridors, the combination is impossible as the habitable room facing onto the corridor becomes internal. Disconnection of the corridor from the dual aspect apartments to provide a clear void between them is not a desirable solution and should be avoided; adequate daylight access and a reasonable outlook cannot be achieved in the habitable room.

Block Orientation

Orientation of blocks will influence apartment aspect choices, and in turn the access system chosen. South facing single aspect apartments should be avoided because they will not receive direct sunlight. An example from one of the case studies is the Scene 1 development where the crossover apartments in the upper parts of the building were presumably too large to repeat throughout the whole building. The circulation system (central double-loaded corridor) was continued, which results in single aspect apartments facing south.

Apartment Mix

When a variety of apartment types and sizes are provided within a development, not only does it provide greater choice to potential purchasers, it can also adapt more easily to the changing social needs of the occupants.

DESIGN FOR CHILDREN

New Zealand apartment developments to date have almost without exception refused to provide facilities to suit children. Development teams should consider the potential number of children that could be living in a development – in both double- and single-parent families, and design communal facilities appropriately.

It is important to provide communal open spaces configured, sized, furnished and located so that they are suitable for children of different ages. Along with open space, storage for children's toys, bikes and sports equipment also needs to be considered.

Apartments on the ground level of developments, where units are more accessible and connected with open space will usually be more suitable for families with children, as well as for the disabled and the elderly.

GROUND FLOOR FLATS

It is important to be aware that ground floor apartments are a different design exercise than for apartments higher in the building.

Ground floor apartments offer the potential for direct access from the street and for on-grade private landscape areas. They also allow the apartment building and its landscaping to respond to the streetscape and the public domain at the pedestrian scale.

Ground floor apartments improve choice and flexibility by offering easily accessible housing to the elderly, disabled, and families with small children, and by allowing activities such as gardening, outdoor play and pet ownership.

Because it is often difficult to ensure privacy in ground floor apartments, it may be wise to select a non-residential use for ground floor spaces in buildings that front directly onto the street.

Design front gardens and terraces to contribute to the spatial and visual amenity of the street by creating individual entries for ground floor apartments. This articulates the street edge and animates the street with more pedestrian activity.

Maintain occupant privacy while allowing surveillance of the site or street. Pedestrians in the public domain should be able to see into a private garden or a terrace to a degree that is not intrusive. Views into apartment interiors should be kept to an absolute minimum.

BUILDING MAINTENANCE

Decisions made during the design phase as well as in the post-construction management of an apartment development will influence the amount of maintenance required and the cost of this maintenance.

Considered material selection and detail design can dramatically reduce the need for long-term maintenance. Designers should think about the likely longevity of building components that they choose and plan for their future maintenance.

Designers should also be aware of the consequences of using complex mechanical systems. These typically require more extensive, costly maintenance regimes performed by technically specialised service staff.

Designers must consider repair, cleaning and future upgrading of common interior areas, building exterior and landscaped areas.

Design phase decisions should balance up-front costs against ongoing life cycle costs. With speculative projects there will always be the tendency to reduce upfront costs unless the market is sufficiently sophisticated to price future life cycle costs into the sales values of apartments. It is worth pointing out however that there are also many cost-neutral design decisions that can have major effects on future maintenance requirements.

WASTE MANAGEMENT & RECYCLING

Minimisation and management of waste (which includes the way in which waste is stored and collected) contribute to the visual appearance of a development and limit potentially harmful impacts on the environment. Minimising waste should occur during all stages of the building's life cycle, from construction to demolition.

Since over a third of commercially produced waste comes from construction and demolition activities, apartment developments should aim to:

- avoid the generation of waste through design considerations, material selection and building practices.
- plan for the type, amount and disposal of waste generated during demolition, excavation and construction of the development.
- ensure well-designed storage facilities and collection services of occupant-produced waste and recycling
- encourage waste minimisation of occupants, including source separation, reuse and recycling.

During the design stage, support waste management by:

- specifying project needs modestly to reduce wastage
- utilising standard product/component sizes of materials
- designing for durability, adaptability and ease of future upgrades.

During construction, give consideration to:

- incorporation of existing built elements into the development. This can be in the form of the reuse of an existing building for a new use (as has occurred in the Beaumont Development) as well as by recycling and reusing demolished materials.
- specifying building materials that can be reused and recycled
- Prepare a waste management plan for green and putrescible waste, garbage, glass,

plastic and paper.

ACOUSTIC PRIVACY

A defining characteristic of apartments is that, because dwelling units are attached to one another, occupants live in close proximity to each other and share common walls, floors and ceilings. As a result, two key conflicting environmental issues present themselves: keeping noise out and allowing light and air in. Each of these influence the quality of life for the occupants and the overall level of amenity achieved within the apartment.

Acoustic privacy deals with sound insulation between apartments, between rooms within individual apartments and between external and internal spaces. Designing for acoustic privacy must therefore take into account the development's local context, the location and separation of buildings within a development, the arrangement of apartments within buildings and the arrangement of internal spaces within apartments.

Acoustic privacy relies upon specification of construction systems and correct execution of these systems in order to achieve anticipated levels of noise reduction.

Designers should aim to utilise the site and building layout to maximise acoustic privacy by providing adequate building separation within the development and from existing neighbouring buildings.

Within building blocks apartments should be arranged to minimise noise transmission between apartments by:

- locating busy, noisy areas next to each other and quieter areas next to each other. For example, living rooms should be adjacent to living rooms, bedrooms adjacent to bedrooms, service rooms adjacent to service rooms - both horizontally and vertically
- using storage or circulation zones within an apartment to buffer noise from adjacent apartments, mechanical services or corridors and lobby areas
- minimising the amount of intertenancy (shared) walls between apartments.

PRIVATE OPEN SPACE

Private open (exterior) space enhances the amenity of an apartment, especially in temperate climates. As such, it should be considered an essential part of each residential unit, should extend and connect the unit to the outside environment and should provide useable outdoor living space. Private open space may take the form of a recessed balcony, a cantilevered or semi-cantilevered balcony, a terrace, or a ground level deck, patio or garden. When well designed, balconies and terraces become important architectural elements and contribute to the form and articulation of a building.

Recessed balconies should be opted for where possible because they provide better privacy, better weather protection and better architectural articulation and facade depth than cantilevered balconies.

ENVIRONMENTAL TARGETS

The final aspect of apartment developments touched on here is environmental sustainability targets. I want to mention a development that provided examples for the Apartment Guide (but which was not used as a case study because we were sticking with local examples). This is a project that it is worth doing more in-depth study of to see how sustainability aspects can be fully integrated within a successful project.

Hammarby Sjöstad is a dense residential development on former industrial brownfield land to the south of the Stockholm city centre. It historically formed the natural border to the inner city area of Stockholm.

When it is complete the project will cover an area of 200 hectares with 9,000 apartments housing a population of 20,000 people. There will also be 200,000 sq m of commercial floor space and 10,000 people to work in the area. It is currently a little more than 50% complete.

The project began as part of Stockholm's bid for the 2004 Olympic Games when it was envisaged as the Olympic Village. As part of that bid there was a strong emphasis on ecology and environmental sustainability as a unique selling point. Unfortunately the bid was unsuccessful but the development was already underway and the momentum for change had been established.

A politically-driven and now internationally-renowned environmental sustainability programme lies at the heart of the project.

A primary part of that programme is the target that was set to be twice as environmentally effective as normal new build projects in the inner city. For example, new apartments in Hammarby Sjöstad should use half the amount of water compared to new apartments in the inner city. Targets are monitored on information boards in the district as well as on the Hammarby Sjöstad website.

Environmental initiatives include:

- Sewage water is cleaned and purified at a large sewage plant just outside the area and the waste recycled into natural gas, which is used as an energy source for the neighbourhood.
- Heat produced through the purification process is recycled for use at a district-heating unit.
- Hammarby Sjöstad also has its own pilot sewage treatment centre, which opened in 2003. The unit recycles nutrients from sewage for use on agricultural land.
- Surface water is cleaned locally.
- Any combustible waste produced is recycled into heat energy for use in the apartments.
- Each apartment block has recycling facilities.
- Biodegradable waste is composted nearby.

A challenge for the environmental programme has been establishing contact with residents in order to encourage them to assist the Council in achieving environmental goals. In order to educate and

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encourage residents to make full use of all of the environmental features of the area, an environmental education centre – the Glass House – has been built in the centre of the district.

The centre provides an opportunity for Stockholm Water, the City’s street cleaning department and the energy company, Fortum, to showcase the range of technical solutions used across Hammarby Sjöstad. The Glass House also provides advice to local residents on environmental issues and organises presentations for study visits and regular exhibitions.

CONCLUSION

We believe that increasing urban density is a valid response for achieving sustainable communities and more efficient use of infrastructure in New Zealand cities. Apartment developments can help us to achieve these greater urban densities but density on its own is not enough – good design is crucial for apartment living to be a viable long-term housing option for New Zealanders.

Statutory rules alone are unlikely to guarantee good design. It is the thesis of the supporters of this project that good design needs to be addressed on a number of fronts. One of those fronts is education and consciousness raising through Good Solutions Design Guide publications such as the Apartment Guide.

REFERENCES

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