MIXED USE

TOWN CENTRES

good solutions guide for
mixed use development
in town centres

JUNE 2005

NORTH SHORE CITY

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Mixed Use in Urban Centres & Better Urban Living
UDAS
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Urban Design Compendium
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Mixed Use Developments
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Solar Industries Association website
http://www.solarindustries.org.nz/

We welcome your feedback

We hope this guide has been useful and we would like your feedback. Please let us know what you think by writing to us at:
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Other documents to consult

This Good Solutions guide is not a statutory document but provides useful guidelines. It should be read in conjunction with the relevant Council's District Plan which sets out the objectives, policies, rules and assessment criteria for commercial and residential developments. The District Plan is the main document we refer to when assessing land use consent applications. Mixed use developments can occur in selected parts of the city.

Contact (for North Shore City enquiries) Environmental Services on **09 486 8600** or consult the District Plan at libraries and Area offices if you require further information.

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CHAPTER 1

INTRO-DUCTION

1.1

general goals and intended audience of this guide

Contents

Good practice guidelines are provided for those considering undertaking a mixed use project. Case studies provide practical examples of several completed developments of this type in greater Auckland.

Benefits

When it is done well, combining two or more different types of building use within a single project can be beneficial to both occupants / users and to the wider community. This leads to an increase in the perceived value of the project, which, in turn, benefits the developer.

Trend towards mixed use

Recently in western countries there has been a move away from the division of cities into single use areas of residence, commerce and industry, and towards a more diverse, complex and dense arrangement of use. Moreover, regional authorities and councils in New Zealand, are encouraging "centres based" development. This consolidation is obvious in New Zealand's larger cities where residential development is moving back into city and town centres.

Location is a major factor for success

Mixed use developments have proven to be most successful when they are located in, or very close to, town or suburban centres. This is because other existing facilities and services such as shops, banks and public transport, which are essential to both commercial and residential occupants of mixed use developments, are already located about such centres. This is discussed in further detail in the *Location* section of this Guide.

In addition to correct location, compatibility of uses is an essential factor in determining the success of a mixed use development. A number of use combinations work well together, and methods exist for insulating one use from the effects of proximity to another. These are discussed in the *Compatibility and Arrangement* section.

Good design is the key

Design is the single most important factor in determining a development's acceptance by the community, the speed and value of its sale, and the ease of its future management. A well designed building which is solidly constructed with sound insulation, and which allows sufficient space for circulation, parking and waste management, will make the developer's job easier and the occupants' experience more enjoyable.

Although the case studies in this publication provide some guidelines with respect to mixed use design, they are site specific and therefore are not intended to serve as a blueprint for good design. Because each development is different, it is extremely important that developers work with the best design professionals available. Doing so may greatly influence the ease of carrying out a project, and its success upon completion.

Mixed use development with commercial spaces at ground level and apartments above.

Mixed use development helps create vibrant neighbourhoods.

Residential maisonettes on the upper levels above 3 floors of retail and commercial.

1.2

mixed use defined

- a mixed use development is defined as one which contains both residential and non-residential uses
- a mixed use development may be of any scale, from a single development / building to an entire precinct or area
- a mixed use development may be organised either vertically or horizontally, or as a combination of the two

What is mixed use development?

Mixed use development involves combining different uses in close, compatible relationships. Not all definitions of mixed use require the presence of a residential component. However, for the purposes of this Guide, a mixed use development is one that contains non-residential (commercial, community, recreational or institutional) spaces, as well as residential ones.

Scale

A mixed use development may be as large as an entire precinct, such as Auckland's Viaduct Harbour, or as small as a single unit that contains both living and work spaces.

Cafes and restaurants at Viaduct Harbour with apartments above.

The Viaduct Harbour precinct contains a number of developments that are residential, commercial or a mixture of both.

This Guide will focus on mixed use at the scale of the individual development.

The majority of recommendations, however, will apply to a range of project sizes and scales, from single two-storeyed buildings to entire precincts containing high rise towers.

Organisation

Mixed use development may be organised vertically, horizontally, or as some combination of the two. Shops or other commercial premises with apartments located above are an example of vertical mixed use.

Many high rise buildings in the Central Business Districts (CBDs) of New Zealand's larger cities are vertical mixed use developments. The incidence, as well as the scale, of such developments is likely to continue to grow as our cities develop.

A horizontally mixed development contains offices or other commercial or public spaces separated from residential spaces across a single site. ***(see diagram 1)***

Live / work

The live / work unit or loft is a mixed use typology that may be arranged either vertically or horizontally. This type of development is discussed in greater detail in the *Building Form* section.

On the other hand, the term 'home-based business' or 'home office' may refer to any residence which contains a work space, whether the building was originally intended for this purpose or not. This type of dwelling will not be covered in this Guide.

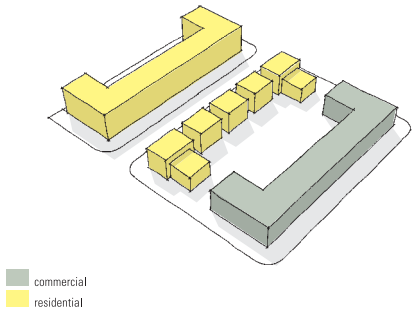


diagram 1
Horizontal mixed development; commercial uses to front of site with residential premises behind.

Vertically mixed development; shops below, residential accommodation above.

[image courtesy of Urban Splash, UK]

Live / work spaces are one form of mixed use development.

1.3

background

- mixed use development has many historical precedents
- mixed use development is seen as an advantageous form of development as town centres continue to consolidate, and as land use becomes more integrated with transport systems

History

Mixed use development in New Zealand dates back to the 19th century, when trams were an important mode of transport, and shops with dwellings above them grew naturally around the tram stops. Many of the older Auckland town centres such as Queen Street, Ponsonby, Newmarket, Devonport and Howick have contained mixed use buildings since their earliest times. These original mixed use areas have stood the test of time and continue to attract businesses and residents.

Newmarket in the early 1920s. In many early mixed use buildings shop owners lived above their shops.

Changing lifestyles

The recent resurgence of mixed use developments may be attributed to changes in the way people currently live and work, including:

- a desire to live nearer to one's workplace
- a rise in the number of people working from home
- a preference for easy access to entertainment, recreation, and services usually found in town centres
- an increasing awareness that commuting by car exacerbates road congestion and pollution
- a growing elderly population, many of whom no longer drive
- a desire for low maintenance living spaces

1.4

mixed use issues

- with the assistance of an experienced architect, designing and building a mixed use development need not be more difficult than undertaking a single use development

Complexity of mixed use

Developing a mixed use project is often seen to be more complex than developing a single use project.

This can lead to some developers, investors, marketers, and lending institutions being more reluctant to take on an unfamiliar type of development. Common concerns include perceived complexity and cost, uncertainty of demand, and the supposed difficulty of managing mixed use developments. Similarly, potential occupants may be uncertain about living or working in close proximity to commercial establishments.

Success of mixed use

Numerous examples, both in New Zealand and overseas, clearly illustrate that if a mixed use development is well sited, planned and designed, it may be extremely successful.

Mixed use development, Glen Eden.

1.5

the importance of mixed use development

- mixed use development can have numerous economic, social and environmental advantages over single use development

Economic / social advantages

Mixed use development may have a number of economic and social advantages over single use development, such as:

- meeting increased demand for accommodation close to town centre amenities and services
- creating an interesting, vibrant street life by bringing together a diverse range of people and activities
- increasing demand and support for local businesses
- reducing transport costs in terms of time, money, and energy consumption
- creating a safer environment by combining facilities used at different times of the day
- catering to people's changing live / work needs

Advantages to the developer

Mixed use development also has a number of advantages for the developer:

- higher rates of occupancy due to greater density
- rapid development of a site's potential by reducing the risk of oversupplying the market with a single building type
- synergy of uses can create a vibrant urban destination, resulting in greater immediate returns and increased long-term appreciation of property values

Benefits to the environment

In addition to the above mentioned advantages, a well designed mixed use development is beneficial to the environment in that it:

- intensifies town centres, thereby reducing sprawl and conserving the city's natural environment
- enables occupants to reduce the amount of time they spend travelling, thereby decreasing road congestion, traffic pollution, and wasted time
- provides greater opportunities for using public transport, walking and cycling
- enhances the quality of the local environment by creating lively, populated urban areas

A diverse range of activities creates a vibrant street life.

CHAPTER 2

DESIGNING FOR MIXED USE

2.1

context

2.1a
location

- wherever possible, locate mixed use developments in or around town centres
- carefully check zoning regulations regarding building envelopes of adjacent sites before commencing design work

Mixed use development provides living spaces close to amenities, making it highly desirable to potential tenants.

Vibrant town centres

Early in the design process it is important to check that a mixed use development is suitable in terms of its location and proposed uses. This will help ensure that the development is successful financially, and with regard to its impact on the surrounding area.

Although not all parts of town or suburban centres are suitable for mixed use developments, these areas are better suited to such developments than sites located outside town centres. This is because many of the services required by a development's occupants are likely to be located in or close to the town centre, often within walking distance of the development. *(see diagram 2)*

A more vibrant urban realm results from the intensification of use and increased activity that a mixed use development brings to a town centre. As well, development in central locations helps to concentrate and contain growth, thereby reducing urban sprawl.

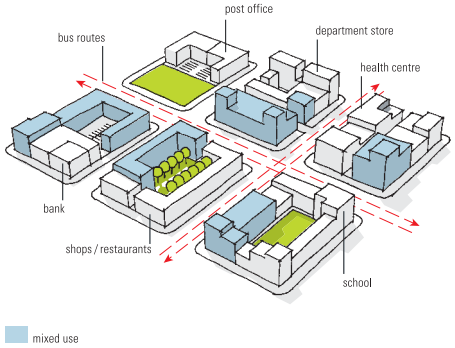


diagram 2
Locating mixed use developments in town centres helps contain sprawl and allows occupants to be close to existing services and facilities.

Site analysis

When planning a mixed use development, a careful site analysis will help to determine if the location is one that will be suitable. Such an analysis should consider whether the services and facilities required by potential commercial and residential occupants are available in the area. Such services include:

- shops, banks, grocery stores
- public transport
- schools and healthcare facilities
- open space / recreation areas
- off-street and on-street parking
- an existing residential population

Town centres will generally provide at least some of these facilities, as well as adequate foot traffic for shops and other businesses located on the ground floor level of the mixed use development.

Zoning regulations

In addition to analysing the site, examining local zoning regulations to determine the building envelopes of adjacent sites is extremely important. This is especially true since recent publicity has made the public more aware of potential conflicts of future development on neighbouring sites.

Finally, one should keep in mind when siting a mixed use development that industries or businesses producing noise, pollution or other noxious effects should be located in areas dedicated exclusively to such industries.

2.2

compatibility and arrangement

2.2a

proposed uses and compatibility

- compatibility of uses is an important factor in determining the success of a mixed use development
- the majority of uses are compatible with residential development
- use specific design techniques to mitigate potential negative effects of combining uses
- use specialised materials and construction methods to achieve compatibility and a high level of comfort for all occupants

Compatibility of use is essential to the success of a mixed use development. The majority of business and commercial activity today is compatible with residential development. Such uses include shops, offices, cafes, restaurants, educational and institutional facilities, and community services such as libraries, community centres and crèches.

A small percentage of activities do require greater physical separation from most other uses. These include heavy industry and other activities that generate high noise levels, vibration, odour, and other adverse effects. Such uses are **not** appropriate for inclusion in mixed use developments.

The importance of professional design input

Engaging an architect or other design professional is one of the best ways to achieve a successful outcome for both the developer and the occupants. Involving an architect experienced in this type of work in the design stage of a project will help avoid problems that could require costly remedial measures after the development has been built.

Design guidelines that minimise use compatibility problems are discussed below. These should be considered at the earliest stages of the design process, when building form and use are being determined.

Site layout

Wherever possible, disturbance-producing businesses should be located as far away as possible within the development from residential and public areas. ***(see diagram 3)***

In mixed use developments where such separation is not practical, for example, apartments located directly above restaurants, cafes or bars, the following techniques may help minimise adverse effects.

In this development, commercial uses are located at the front of the site with residential accommodation at the rear.

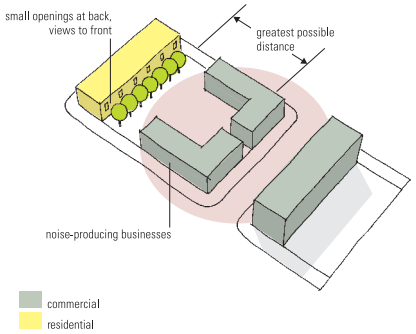


diagram 3
Physical distance may be used as a buffer between uses to protect residents from noise or disturbance.

Buffers

Buffers are devices that may be used to protect a building, or part of a building, from disturbance produced in another part of the development.

Buffers generally consist of a physical element that acts as a barrier, screening device or shield between quiet areas and noise producing areas of a single development. Buffers are essential in that they help maintain good levels of aural and visual privacy, thereby ensuring the privacy and comfort of all occupants.

This development utilises physical separation between commercial, ground floor uses (orange building) and residential accommodation (foreground).

Landscaping may be used as a buffer to minimise noise between different uses or between the street and residential spaces.

Examples of buffers include:

Physical distance

Where site size permits, distance can be used to separate two incompatible uses.

For example, a space or courtyard between a building containing commercial uses and another containing residential units may sufficiently protect residents from the noise produced.

Such a courtyard would also provide a usable outdoor space for occupants of both buildings. ***(see diagram 4)***

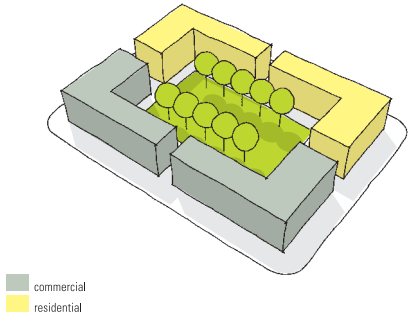


diagram 4
A courtyard can minimise transmission of noise to residential areas and provides a usable outdoor space.

Building element as a buffer

Part of a building, or an entire building, may also serve as a buffer. For example, a well insulated exterior wall may minimise transmission of noise from one building to another.

Similarly, a separating floor of offices between lower commercial floors and upper residential floors provides an effective buffer. ***(see diagram 5)***

Landscape features

Landscape features may also be used as buffers in mixed use developments, and can be effective at shielding residential areas from street noise. ***(see diagram 6)***

For example, an existing stand of trees may be used as a buffer, or special landscaping may be designed to achieve a particular end. Other possible landscaping buffers include:

- ground level changes / stepping across the development
- planting to create 'screens' or 'shields'

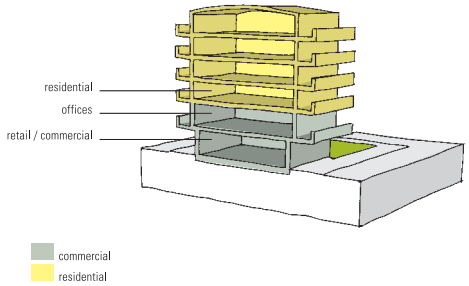


diagram 5
A floor of offices between residential and commercial uses can provide an effective buffer.

Specialised construction methods

Specialised building methods and materials may also be used to reduce or eliminate sources of disturbance such as dust, odour, ambient noise, vibration, or structurally transmitted noise. Knowledge of technical solutions is available from architects with previous experience in the use of these specialised methods, and from manufacturers and suppliers of such building products.

Other useful information about both materials and good construction practice can be found in the current "NZ Building Code Handbook and Acceptable Solutions" and the publications referenced therein as well as in several Building Research Association of New Zealand (BRANZ) publications.

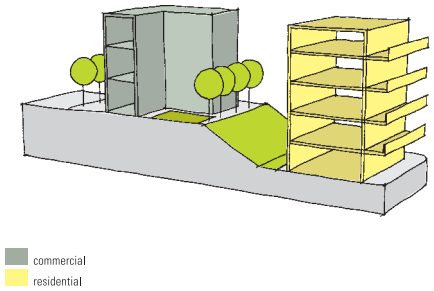


diagram 6
Landscaping elements such as planting or changes in level may be used as buffers within a development.

2.2b
arrangement of the development

- **arrange mixed use development horizontally, vertically, or as a combination of the two**

Horizontal mixed use

Where site size permits, a mixed use development may be arranged with exterior open spaces separating different uses. This is called horizontal mixed use development. Techniques for achieving compatibility of use in this type of development include:

- locating business uses closer to the street and residences closer to the rear of the development
- using distance or buffers between disparate uses to protect residents from unnecessary disturbance and to ensure privacy
- including courtyards to provide a quiet outdoor area within the development ***(see diagrams 7 & 8)***
- internal arrangement of buildings should ensure that neighbouring areas within the development are compatible

Vertical mixed use

A mixed use development may be organised vertically within a site. Techniques for ensuring compatibility of uses in such a development include:

- locating one or more floors of offices directly above the ground floor to act as a buffer for upper residential floors
- choosing structural solutions that eliminate noise transmission between tenancies, such as acoustically treating walls, floors and structure

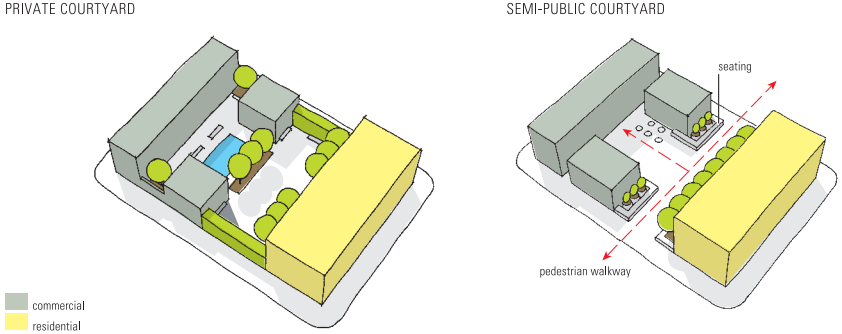
In vertical or horizontal mixed use developments where ground floor use includes disturbance-producing activities (such as restaurants and bars), special acoustic design may be required to control noise transmission. In this situation, one should seek the assistance of an acoustic consultant.

Older residential spaces to rear of site (foreground), contemporary commercial building at front of site (at left of photo). Note the effective way that different building materials can clearly define different uses.

Existing brick building fronts onto the street and now houses commercial uses. Contemporary residential development in foreground.

In vertically mixed developments commercial uses are located on the ground floor with residential uses above.

This internal courtyard provides outdoor seating for a restaurant on the ground floor with residential uses above.



diagrams 7 & 8

Courtyards can provide either quiet / private spaces or public / commercial spaces within a development.

2.2c
noise

- noise is one of the most common problems in mixed use developments
- effective noise control enhances the marketability, reputation and value of the development
- address noise control issues in the early design stages of the project
- design to standards higher than the minimum requirement for acoustic privacy to ensure occupants' amenity
- work with an acoustic consultant or an architect experienced in noise control issues to achieve optimal acoustic insulation
- where glazing is used as an acoustic buffer, provide air conditioning for ventilation

Getting professional assistance

Because noise is one of the most common adverse effects of mixing uses within development, noise control must be addressed in the early design stages of a project.

Good planning and building design is the easiest, most cost-effective way of controlling noise within a development before turning to technical solutions.

Building code

The New Zealand Building Code currently requires that both the Sound Transmission Class (STC) of walls and the Impact Insulation Class (IIC) for floors be no less than 55 dBA.

Other noise criteria, which may vary according to zoning, time of day, and building use, are outlined in the relevant District Plan.

These criteria, however, set a *minimum* standard that is frequently inadequate for ensuring acoustic privacy, particularly in multi-unit developments. Constructing buildings to a higher standard than the minimum requirements for acoustic privacy will ensure a reasonable environment is created for future occupants.

Also, as acoustic standards will vary according to development type, proposed use, and location, an acoustic specialist should be consulted to ensure optimal standards of acoustic insulation.

Other noise-reducing design guidelines

- In residential spaces, place living rooms of one apartment adjacent to the living rooms of another apartment, and similarly, bedrooms next to bedrooms
- provide private inner courtyards protected by other buildings or solid walls
- locate noise-tolerant areas such as kitchens, bathrooms, laundries and storage areas towards noise sources, and noise-sensitive areas such as living spaces and bedrooms toward quiet areas ***(see diagram 9)***
- locate vehicle / pedestrian entrances and exits, roller doors and lifts as far away as possible from bedrooms

Buffers and acoustic materials

The use of buffers and / or specialised technical solutions may solve noise problems that cannot be resolved by the layout of the development.

Technical solutions may include acoustic glazing, acoustic insulation, acoustic cladding panels, double-glazing and thicker window glass.

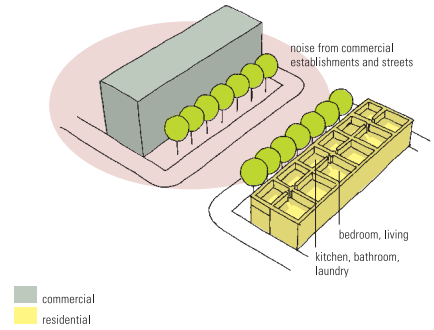


diagram 9
Bedrooms and living rooms should be placed farthest from noise-producing areas, while noise tolerant rooms such as kitchens, laundries, bathrooms, and storage may be placed closer to sources of disturbance.

When air conditioning should be provided

Where ensuring acoustic privacy necessitates the use of glazing, air conditioning should be provided as an alternative to opening doors and windows for ventilation. Air conditioning is particularly important in entertainment areas, developments located on busy streets, and anywhere else where noise prevents windows from being opened.

Other construction methods

In addition to specialised building materials, certain types of construction are very effective at controlling noise problems. For example, massive construction, which utilises masonry and concrete, staggered framing arrangements, multiple linings, and plant isolation can be highly effective at reducing noise transmission between different spaces within a building or development.

2.2d
relationship to the street

- locate mixed use development at the street edge to give the street a sense of definition and enclosure
- design ground floor spaces or rooms to directly address the street and to accommodate "active" (non-residential) uses
- orient the backs of new buildings towards the backs of existing buildings
- locate primary entrances along the main street elevation
- wherever possible, design windows to look directly onto the street

Locating a development at the street boundary helps to create a vibrant street environment.

Up to the street boundary

A mixed use development should, at the minimum, strive to maintain a direct relationship with the street by doing the following:

- In town centres, on main streets, and wherever the relevant District Plan allows, developments should be located at the street boundary. This provides the street with a necessary sense of definition and enclosure ***(see diagram 10)***
- In order to improve the pedestrian realm, ground floor spaces facing the street should have windows and doors which look directly onto the street, with glazing to comprise a major portion of the ground floor façade ***(see diagram 11)***
- Mixed use developments should provide a continuous street frontage, and one which is amenable to pedestrians

Improving the street environment

Mixed use developments contribute to creating lively street environments when they have active uses (shops, cafés, businesses or community facilities) at the ground level.

Street relationship and safety

Well designed mixed use developments are highly effective at providing safe environments for their occupants and visitors. For example, where residential uses are located above ground floor commercial uses, the movement of commercial patrons during the day contributes to street activity and creates passive surveillance of the residential units. Similarly, the coming and going of residents in the morning / evening creates surveillance for the businesses.

Ensuring that the development has a strong relationship with the street contributes to safety by ensuring that entrances are visible to passers by. Large windows at the ground floor also allow people inside the commercial spaces to view what is happening on the street.

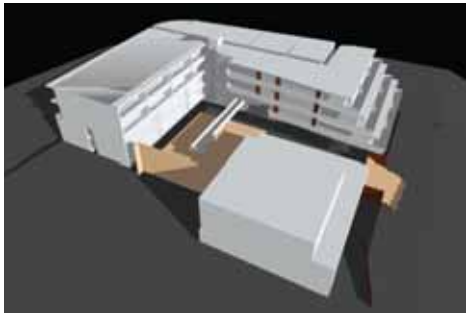
Perimeter development

A development that is located at the street boundary and is continuous along one or more streets is referred to as a perimeter development. ***(see diagram 12)***

Such a development may consist of a single project (by one developer), or of several consecutive projects (by successive developers) aligned along the street edge. ***(see diagram 13)***

Well-designed perimeter developments are desirable in that they have a strong presence which enhances street character, and they also provide a clear distinction between the public and private realms.

Transparent windows enable communication between inside and outside. Spill-out spaces add vitality to the public realm.



Successful perimeter developments provide a hard edge to the street and allow private space behind.

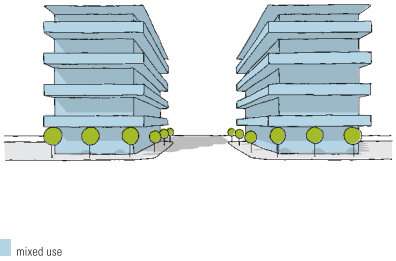


diagram 10
Building to the street boundary creates a sense of enclosure that helps define the public realm.

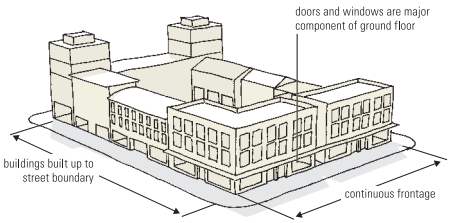


diagram 11
A building establishes a strong relationship with the street when it has a continuous frontage and when windows / doors are a major element of the ground floor.

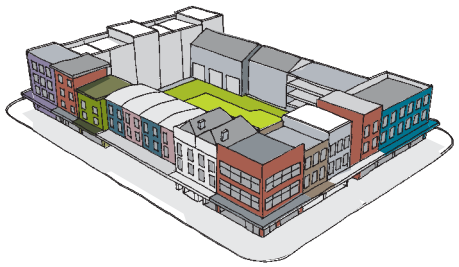


diagram 12
Perimeter development strongly defines the street edge. Verticality, rhythm and colour enliven streets in which the perimeter has been defined by successive stages of building.

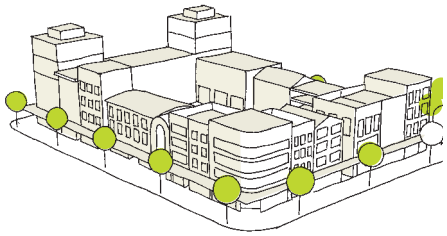


diagram 13
A single perimeter development needn't be monolithic, but may include a great deal of variety among many forms.

2.2e
integration / streetscape character

- build to boundary lines wherever possible to maintain the street façade
- ensure that the scale, height and massing of a new development does not overpower that of nearby existing buildings
- make certain that a new development's façade responds to the proportions, structural modules, and solid-void relationships of neighbouring buildings
- ensure that the materials used on a new development are responsive to materials used on neighbouring buildings

The development's scale should respond to that of neighbouring buildings.

Integrating a new development

The extent to which a mixed use development is physically and aesthetically integrated into its context will often greatly determine the public's attitude toward, and acceptance of, the project. Ideally, the new building's appearance should not only relate to the existing streetscape, but should enhance it.

Furthermore, mixed use developments should work with nearby buildings to create a consistent yet varied overall character. In existing town centres this may be achieved by taking cues from older nearby buildings and reinterpreting them in a contemporary manner.

New and developing areas

In developing areas, mixed use buildings should respond to the desired future character of the area.

Architecture should reflect use

Building design should, as much as possible, reflect the type of use(s) for which the building is intended. This assists with providing an understanding of the building, its intended use, and how it fits into its immediate environment. In older urban areas the clear distinction between public / commercial offices, apartment blocks, and retail premises increases legibility of the built environment.

Further design issues related to integration, such as the design and siting of vehicle and pedestrian entrances are discussed in detail in the *Building Form* section of this Guide.

This mixed use development has been designed to integrate with the adjacent historic hotel.

2.3

building form

2.3a
form and scale

- design a mixed use development to enhance public space, including the street or street corner on which it is located
- ensure that the building front faces out and across the street, and that the rear of the building faces the rear of other buildings
- pay careful attention to the design of the rear of the building and its relationship to any adjacent access ways or buildings
- make certain that the development's design bears a strong relationship to the human scale
- carefully consider how the ground and lower levels relate to public spaces and the street
- use articulation and architectural detail to keep areas of blank wall to a minimum and break up any excessive bulk of a building

Building form

Mixed use developments may assume a wide variety of scales, arrangements and forms. Although different building types such as courtyards, terraces or apartments may all be suitable for a particular mixed use development, each will require a different response to the street. The design principles set out at the beginning of this section generally apply to all building forms.

Larger developments

Mixed use buildings, particularly those near commercial centres, may be taller or have greater site coverage than existing, neighbouring developments. Where practical, the perceived scale of the new building or buildings should relate to those of adjacent developments. ***(see diagram 14)***

Similarly, where a new building is larger than its neighbours, its façades should be designed to ensure that it is compatible with existing façades. Large areas of blank wall should be kept to a minimum, especially in pedestrian zones.

Techniques for ensuring compatibility include continuing existing window lines through to the new building, continuing rhythms and façade complexity of existing buildings (window spacing, structural modules, etc.) in the new building, and using vertical massing similar to that of existing buildings. ***(see diagram 15)***

The façade of this development is broken up to reduce its perceived size and bulk. The use of a variety of materials provides interest and articulation whilst the 'floating' roof adds lightness.

Backs of buildings

The rear of new buildings should, where possible, face the rear of existing buildings. Careful attention should be paid to the quality of spaces created at the rear of buildings, especially when pedestrians will be passing through these spaces, or when occupants of adjacent buildings will be looking onto them.

General design principles that relate to building scale are discussed in the previous section *Integration / streetscape character.*

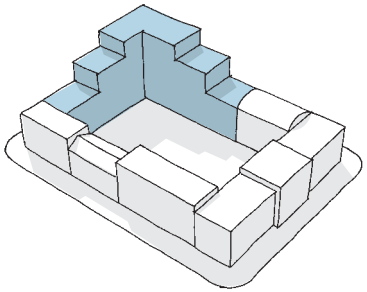


diagram 14
'Stepping down' larger scale buildings to meet their neighbours maintains the existing street scale.

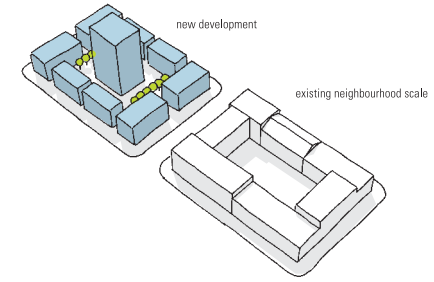


diagram 15
Wrapping a larger building with smaller ones may help maintain the existing street scale.

2.3b
access

- access may be defined as an entry point for vehicles or pedestrians into a development or building
- ensure that access to the development is clearly defined and identifiable to both vehicles and pedestrians as they approach the site
- where possible locate vehicle access points away from the main road frontage to minimise vehicle crossing and access ways
- design access points to be compatible with the visual appearance of the building(s)

Access and safety

Mixed use developments, by their nature, encourage a steady flow of foot and / or vehicular traffic to their premises. While this traffic constitutes a 'built-in' passive security system for the development, it also requires that occupants and visitors have clearly defined access to their respective destinations within the site. Access ways must safely accommodate pedestrians and all vehicles visiting the site.

Providing adequate access

When a development is set back within its block, access to the site should be clearly defined at the street edge.

Also:

- vehicle access points that cross existing / proposed pedestrian paths should be kept to a minimum by combining car and truck access to the site.
  This will increase pedestrian safety and maintain street frontage and continuity of footpaths
- pedestrian and vehicular access routes should be clearly differentiated
- access routes must accommodate emergency (fire and ambulance) vehicles, and other large service vehicles such as rubbish trucks

Access to different uses / areas

Wherever practical, access to public and private areas should be kept separate. This allows each area to function independently and provides greater security for all occupants.

This development provides clearly differentiated pedestrian and vehicular access to commercial tenants (at front of site) and residential units (at rear).

Separate access points for different uses should be visible and easily accessible from the street.

2.3c
entrances

- an entrance may be defined as a point of pedestrian access into a building
- design entrances so that they have a direct relationship with the street
- locate carparking areas and passenger drop-off points close to entrances
- provide each different use within a building with its own entrance, and make public and private entrances separate and distinguishable

Orientation

Entrances are one of the most important elements of a building or development. A well-designed entrance acts as an orientation point within the development and allows people to move easily to their destination. ***(see diagram 16)***

Integration

Although an entrance may be a feature element of a building, its design should still be integrated into the overall building design. Where there is one main entrance, it should clearly be designated as such. This may be done by distinguishing the scale, form and detailing of the main entrance from that of the secondary entrances.

Because entrance locations are often fixed for the life of the building, entrance design should be considered in a project's earliest stages.

Entrance design and safety

To ensure safety of residents and commercial occupants, entrances, wherever possible, should be clearly defined and visible from the street. Entryways should be well lit, and long, narrow corridors to or from entrances, lifts and stairs should be avoided.

Planting around entrances should be high-canopied or below-knee height to ensure maximum visibility.

Entrances to upper and lower floors are clearly distinguished.
Entrance to the retail units is directly from the street; the upper floor is accessed from a well-designed and centrally located entrance and foyer.

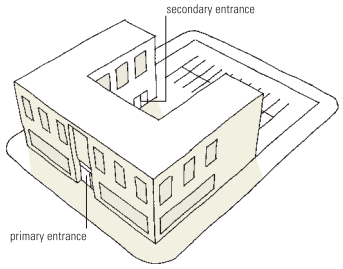


diagram 16
Primary entrances should have a direct relationship to the street. Secondary entrances should be provided if parking or drop off points are at the rear of the building.

2.3d
building depth

- design new buildings to a depth of 10 – 14 metres for optimal circulation and ventilation

Optimal building depth

Regardless of use, a building depth of 10–14 metres is considered optimal for a number of reasons:

- A building that has a shallow (less than 10 m wide) plan is often too narrow for the introduction of vertical or horizontal circulation. This limits options for room layout and circulation space
- A building that is deeper than 14 metres cannot be naturally ventilated. Natural ventilation is environmentally preferable and often economically advantageous to artificial ventilation because the cost of providing air conditioning may be quite high over the long run
- A building with a depth of greater than 14 metres will require artificial lighting in the centre of the building

The width of this apartment encourages natural lighting and ventilation.
[image courtesy of Urban Splash, UK.]

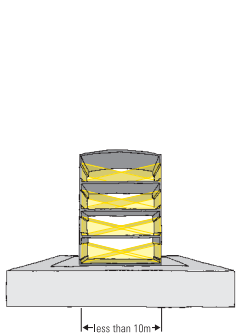


diagram 17a
Excellent natural lighting,
possible difficulty with circulation.

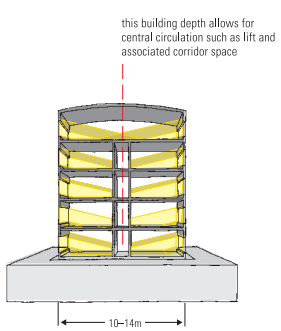


diagram 17b
Good natural light, optimal circulation.

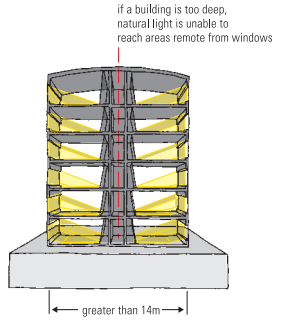


diagram 17c
Requires artificial light and ventilation.

2.3e
ceiling heights

- design the ground floor of a mixed use development to have a minimum floor-to-ceiling height of 3.5–4.0 metres to allow for a wide range of uses

- design all other floors to have minimum floor-to-ceiling heights of 2.7 metres to allow for both commercial and residential use

Designing for flexibility

Residential spaces are frequently planned with a floor-to-ceiling height of 2.4 metres or less. However, building ceiling heights to 2.7 metres can have significant advantages in flexibility of use.

Commercial buildings have increased service requirements and therefore will generally require minimum floor-to-underside-of-slab heights of 3.5 – 4.0 metres to achieve minimum ceiling heights of 2.7 metres. ***(see diagram 18)***

Designing for higher ceiling heights throughout a development allows for maximum flexibility with respect to future use. This adaptability broadens the project's market appeal, and therefore its economic viability.

Advantages of high ceiling heights

Other advantages of buildings with higher floor-to-ceiling height for all floors include:

- improved natural lighting due to higher window heads
- good natural ventilation for spaces furthest from the windows
- generous, appealing interior spaces

Furthermore, an increased ceiling space may provide improved sound insulation between floors.

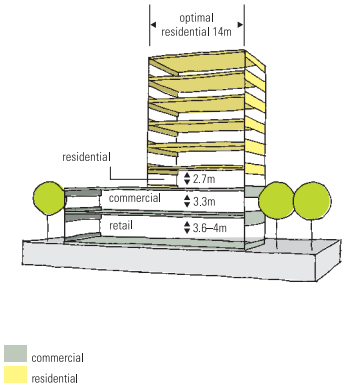


diagram 18
Generous ceiling heights in commercial and residential spaces allow for maximum flexibility of use.

Higher floor-to-ceiling heights provide generous and appealing interior spaces.

Greater ceiling heights in residential and commercial spaces allow for flexibility of use. [image courtesy of Urban Splash, UK.]

2.3f
designing for corners

- use a corner building's overall form and special articulation of its façade to announce its unique position on the street
- provide separate entrances to different uses on separate street frontages, where possible

The uniqueness of corner sites

Corner sites, because they have two street frontages and therefore a high profile, make ideal locations for mixed use development.

From an urban design standpoint, corner developments provide an opportunity to define the street corner and reinforce the adjacent public space / street. For example, designing the corner to have more vertical emphasis allows the building to 'mark' the street intersection. ***(see diagram 19)***

Expressing the corner

Additionally, a corner building's articulation or façade treatment may be used to express its unique position on the street. Building elements that emphasise the corner include:

- reduced or nil setbacks
- feature elements including corner pediments, parapets, and awnings or verandahs that wrap the corner

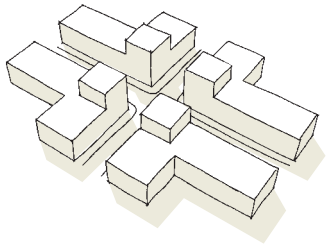


diagram 19
Corner sites have greater street frontage and provide a unique opportunity for marking the corner and defining public space.

'Wrapping' the corner with façade elements such as awnings or balconies emphasises the building and the corner itself.

Entrances in corner buildings

Corner developments also allow for the clear separation of entrances to different uses. An entrance to ground floor commercial / retail space may be placed in the most prominent position at the corner, while an entrance to upper residential spaces may be placed along the façade on either street.

Designing an appropriate corner element will create a landmark for the development and the surrounding public streets.

2.3g
servicing

- provide adequate service facilities as an integral component of any mixed use development
- design service areas to provide easy access for service contractors, rubbish and recycling trucks, and other large vehicles
- make certain that service areas do not detract from the development's visual appeal
- locate rubbish storage and recycling areas away from habitable spaces

Service facilities must be located in a place that is convenient to occupants and accessible to those who service the development.

Occupant's outlook should be considered when designing service facilities for a development.

Designing to accommodate services

Efficient, comprehensive servicing of a mixed use development ensures its effective functioning and the comfort of its occupants. Therefore, service issues should be considered in the early design stages of a project.

Services that should be provided on site for commercial and residential occupants include:

- rubbish and recycling storage and collection
- secure, easily accessible letterboxes
- loading bays or drop-off points for supplies and deliveries (including courier deliveries) to all uses within the development
- clotheslines should be provided in outdoor or service areas where practical

Location of service facilities

Letter boxes and waste collection points should be placed in areas with adequate space that are convenient to occupants and accessible to external contractors who service the development. Thoughtful design of the details in these areas is important to ensuring occupants' amenity. Rubbish collections should occur on a frequent basis, appropriate to the needs of the development.

Larger developments may require small, local areas for rubbish and recycling storage and collection as well as larger, communal areas. Where a basement space is used for rubbish storage and collection, the building manager and occupants should take special care to ensure that the area is kept clean and orderly.

Guidelines indicating the amount of space required for rubbish and recycling storage can be obtained from some councils.

Visual appearance of service areas

A development's visual appearance should be seriously considered when designing its service facilities. Rubbish collection points and other facilities that tend to detract from a building's visual appeal should be placed to the rear of the building.

Similarly, the occupant's outlook should also be considered when locating service facilities. Any service area that cannot be located out-of-sight should be sufficiently screened so as not to detract from resident views.

2.3h
flexible building design

- design for ceiling heights higher than the minimum required to allow for future change of use (refer to *Ceiling Heights* section)
- provide separate entrances to ground and upper floors
- design building depth to between 10 and 14 metres to allow for commercial and / or residential uses (refer to *Building Depth* section)
- provide regular internal room layouts to ensure ease of construction and adaptation
- ensure natural light and ventilation is provided to all habitable rooms

Important:

- ensure floor areas of no less than 40m^2 for one-bedroom apartments and 55m^2 for two-bedroom apartments

The benefits of flexibility

Designing a development to accommodate different uses over time enables it to respond to changes in demand for a particular type of space. This extends the potential lifespan of a new development without necessarily adversely affecting the construction cost.

Room size and layout

Medium-sized, modular rooms accommodate a varied range of activities. Such rooms may be subdivided by constructing new, non-load bearing dividing walls, and may be enlarged by combining two or more rooms. ***(see diagram 20)***

This former department store has been successfully converted to provide shops at the ground floor and a mix of offices and apartments on the upper levels.

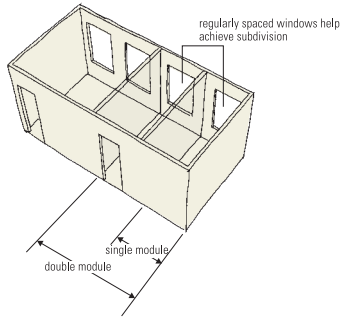


diagram 20

Creating standard size rooms of about 13–14 sq.m allows interior spaces to be easily enlarged or subdivided. This allows maximum flexibility with respect to future use.

2.3i
courtyard developments

- courtyard buildings may allow more intensive development than other building forms
- make the courtyard accessible only to pedestrians and, where necessary, to service / emergency vehicles
- locate carparking to the rear of, or beneath, a courtyard development

Types of courtyard developments

A courtyard development is usually arranged along the front, side, and sometimes the rear boundaries of a site, while maintaining an open area in the centre. ***(see diagrams 21, 22)***

This type of central courtyard layout is preferable to a 'U'-shaped development as it provides an edge to the street and a protected area at the rear. However, if a 'U'-shaped courtyard design must be used, screening elements such as trees, benches, or screens can help maintain the street frontage. ***(see diagram 23)***

Advantages of the courtyard form

A courtyard building is advantageous as a building form because it provides a:

- continuous street frontage
- more intensive form of development than individual units will allow
- private, open space for occupants

Furthermore, a courtyard layout is especially suitable to mixed use development because it incorporates a variety of spatial types, such as:

- spaces along the street that are suitable for commercial tenants seeking a high profile and hoping to attract foot traffic
- spaces located further back on the site that are suitable for businesses and workplaces that do not require a street frontage
- quiet areas at the rear of the development that are highly suitable to residential use ***(see diagram 24)***

Where site size permits, courtyard developments may be arranged to face on to a central open space, both at the ground level and at the upper floors. Adequate separation distances must be maintained across the courtyard to ensure a good level of visual and aural privacy.

Quality of the courtyard space

The open space of a courtyard development should, whenever possible, be accessible to pedestrians only. If necessary, access should be provided for service and emergency vehicles, but generally cars should not be permitted to drive through this area. Where possible, carparking should be located underneath or to the rear of the development.

Other factors to consider which affect the quality of the central courtyard include its size, the amount of privacy it offers, its security, and the suitability of its landscaping. Because courtyards offer a unique opportunity for creating peaceful or bustling gathering places within the city, special attention should be paid to their planting and landscaping.

The old fire station building's courtyard now serves as an excellent outdoor space for building occupants.

This courtyard separates the café at the front of the development from the offices at the back. It is accessible only to pedestrians and therefore serves as a 'spill out' space for the café and a popular gathering place.

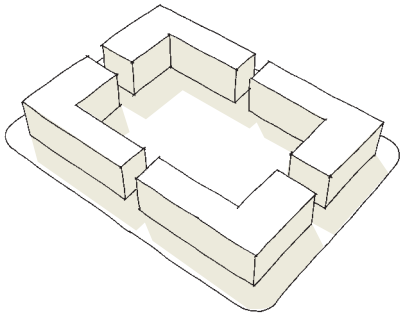


diagram 21
Basic courtyard development with access limited to pedestrians.

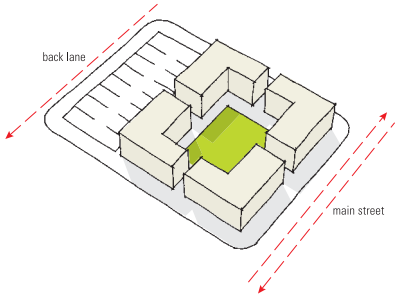


diagram 22
Smaller courtyard development with parking at rear.

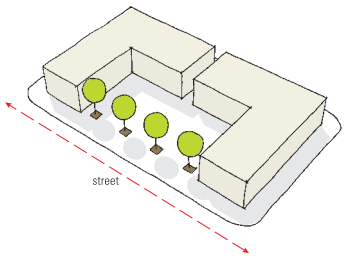


diagram 23
Maintain street frontage with screening elements.

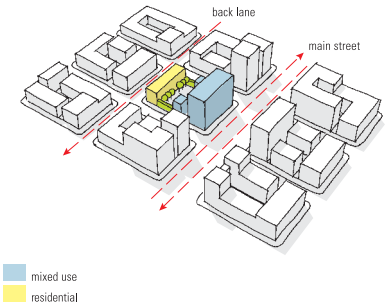


diagram 24
Residential areas should be placed to the rear of courtyard developments.

2.3j
adaptive reuse

- retaining and adapting older buildings in town centres may be more financially viable than undertaking a new development
- older buildings often convert very effectively to mixed use developments
- an existing building's sense of familiarity and character may be beneficial from a marketing standpoint
- retaining and reusing existing buildings contributes to sense of place and identity

Benefits of reuse

As sustainable building practices become more environmentally critical and widely accepted, adapting and reusing existing buildings has become an increasingly cost-effective and popular development option. Similarly, because the construction industry is developing greater expertise in undertaking this type of project, adaptive reuse projects have become easier to manage and implement.

Adaptive reuse projects provide an excellent opportunity for mixing retail, commercial, and residential spaces as many older buildings are built of high quality materials and have generous floor-to-ceiling heights. In addition, older buildings frequently have modular structural framing and floor layouts, both of which are easily adapted to commercial and residential use.

For example, a spacious room with high ceiling heights makes a dramatic living space that, in some instances, can be turned into a loft-style dwelling by adding a mezzanine floor.

Regeneration

Existing buildings are part of the unique character of the area in which they are located. As a result, the retention and reuse of such buildings preserves the area's built history and greatly enhances its sense of identity and place.

Well-designed conversions of existing buildings can help revive ailing town centres by encouraging businesses and residents to return to them.

Therefore, successful regeneration programmes for town centres in New Zealand and elsewhere focus on the retention and adaptation of high quality existing buildings. Choosing the new uses for such a building is critical to the project's success. The adapted building should respect the area's history and project its intended future character.

Adaptive reuse projects often prove to be very successful from a marketing point of view because people generally feel a sense of attachment to an existing building.

It is essential to choose new uses well when adapting an existing building to mixed use. These developments take advantage of the spaces and architectural features of their former uses; stables (left) and fire station (right).

2.3k
lofts

- loft developments can be built new or created within existing buildings
- loft developments can provide spaces for living and working in town centres
- ensure that lofts offer a high quality of natural light and space
- provide good acoustic privacy between loft units, as occupants frequently live and work in the same space

History

The live / work loft has long been popular in US and European cities, and is quickly becoming popular in Australasia.

Early loft apartments were developed in response to artists' and other creative professionals' demand for affordable live / work space in city centres. These people converted old, derelict industrial spaces (usually factories and warehouses) into live / work spaces. Because most of the converted buildings boasted high floor-to-ceiling heights, inhabitants usually built a living mezzanine out over the main work area, a practice which has continued to this day.

As the popularity of such live / work arrangements spread, forward-thinking developers and architects began designing loft-style buildings as new developments.

The appeal of lofts

Lofts have maintained their appeal for several reasons. They offer well-proportioned spatial volumes with generous ceiling heights, and therefore provide living spaces with good natural light and ventilation. Lofts also allow flexibility with respect to locating living and working areas.

Lofts are frequently situated in converted buildings and therefore may contain unique construction details that contribute greatly to their aesthetic quality. Developers and architects should bear these factors in mind when designing new loft developments.

Loft developments generally have high floor-to-ceiling heights which provide a fantastic amenity to occupants. [image courtesy of Urban Splash, UK.]

Lofts often incorporate a living mezzanine area. [image courtesy of Urban Splash, UK.]

CHAPTER 3

OTHER DESIGN CONSIDER-ATIONS

3.1

minimising impact on the surrounding area

3.1a
stormwater

- minimise the impact of a development on stormwater quality and generation from the design stage
- utilise devices or techniques (e.g. rain or roof gardens, filtration strips) that can add to the amenity values of a development and be incorporated into landscaping and open space areas, providing multiple benefits
- utilise technologies (such as rainwater tanks) that can be "hidden" or designed into roofs or basements
- plan for future management and maintenance of devices to ensure ongoing effectiveness

The importance of reducing stormwater runoff

Stormwater runoff from impervious surfaces such as roofs and paved areas can harm the environment and cause damage to private property. Major stormwater issues include flooding, erosion, water quality and asset management. Minimising stormwater runoff and contaminants at source is the best way to reduce adverse effects on our streams, harbour and coastal environments.

Techniques

There are a variety of approaches or devices that can be incorporated into mixed-use developments to minimise potential stormwater impacts.
For example:

- minimising contaminant generation through careful selection of building materials (e.g. avoiding zinc based products)
- minimising impervious surfaces to encourage stormwater infiltration and reduce runoff (low impact design)
- filtration and attenuation of car-park runoff – e.g. rain garden, sand filter, permeable paving
- roof gardens and green roofs – these encourage evaporation and transpiration, slow down stormwater runoff from roofs, remove contaminants, can look very attractive and improve building insulation
- rainwater tanks and roof / gutter detention – detain stormwater on site so that it can be re-used and / or discharged off site after peak flows have passed

Integration into overall design

Incorporation of features to minimise stormwater runoff should be undertaken from the design stage of a development, as retrospective application may be limited by the structure and layout of buildings and landscaping. For example, bioretention devices need space and should ideally be integrated into streetscape design or other landscaping. Green roofs and roof / gutter detention require good water-proofing and load bearing building design.
A development's underlying geology is another important consideration as infiltration may be naturally limited (e.g. by clay).

Maintenance

Future maintenance of installed devices must be planned for so that they are successfully implemented and continue to be effective in the long term.

North Shore City Council is, and will be, generating and updating best practice guidelines for stormwater. The intention of these guidelines is to assist in identifying the most effective solution and to speed up the consent process. Consideration is also being given to a 'user pays' rating system that would credit developments that incorporate stormwater mitigation techniques.

More information may be found on the Council website **http://www.northshorecity.govt.nz** or by calling Actionline **09 486 8600**.

It is important to minimise impervious surfaces to reduce stormwater runoff from new developments.

Stormwater devices can be incorporated into landscape areas within new developments.

3.1b
landscaping and open space

- consider landscape analysis and design from the earliest stages of a project's design phase, as they are of great importance to the success of any development
- ensure that landscaping works well with the intended built form
- incorporate existing landscape features into new landscaping schemes
- focus on quality, rather than quantity, of landscaping
- design landscaping with ease of future maintenance in mind

Add value with high quality landscaping

Landscaping, including the provision of open space, is one of the most important elements of a development's design.

Good landscaping creates a pleasant environment for occupants and greatly enhances the development's image, thereby increasing its marketability and value.

Mixed use development is often more intensive than single use development. Therefore, the landscaping and open spaces must be well planned and of a high quality. To ensure this, landscaping should be considered as an integral part of a project's design, rather than an afterthought. Employing a landscape architect at the beginning of the project is the easiest way to ensure that this happens.

Landscaping includes a wide range of elements such as:

- trees / plants of an appropriate type and scale
- public and private open space
- driveways and entrance areas
- hard landscaping including paths and walkways
- planting along streets

Capitalise on what's already there

One of the key principles of good landscaping is to work with landscape features present on the site. This includes considering and incorporating existing elements such as:

- contours
- plants and trees
- linkages and routes within and through the development

For example, large, older trees add character and a sense of establishment to a new development, just as existing contours will help the site retain its sense of place despite the changes that new buildings will bring.

Landscaping for carparking

On-site carparking frequently covers a substantial portion of a new development's site. As a result, well-planned, landscaped car parks will positively affect people's perception of the development as a whole. Because of this, careful consideration should be given to choice of materials, treatment of surfaces, and selection and arrangement of planting in car park areas.

High quality landscaping can improve a development's marketability and value.

Well-designed paths and walkways are an integral component of landscaping within a development.

The existing escarpment, with the addition of planting, has been successfully incorporated into this development.

On-grade carparking areas should be carefully landscaped to enhance the overall development. [design by www.urbanred.biz - visualisation by www.citrine.com, copyright Citrine UK Ltd 2005]

3.1c
carparking

- integrate carparking, driveways and circulation into overall site and building design
- locate carparking areas underground or to the rear of the development wherever possible
- design to minimise conflict between non-residential, residential and pedestrian traffic
- make sure that the siting, design and landscaping of carparking areas respects the existing streetscape character
- visually articulate carparking through the use of soft and hard landscaping

Integrated design

Carparking, above ground driveways and car circulation areas are part of the open space network of a development and should therefore be carefully designed to integrate with pedestrian movement, landscaping, and buildings.

Efficient parking

Mixed use developments located within town centres have excellent potential for efficient carparking for the following reasons:

- As mixed use developments are usually close to public transport, they may contribute to reduced private vehicle use and therefore require fewer carparks
- Mixed use development can provide some of the essential services required by occupants within easy walking distance
- In many mixed use developments, the potential exists for sharing parking spaces. For example, evening visitors to the residential part of the development may use the same spaces as daytime employees and customers of the commercial component

It should be noted, however, that shared parking arrangements must be well managed in order to work effectively

Locating mixed use developments within walking distance of public transportation can minimise the need for car parking spaces.

Basement carparking maximises the development potential of ground floor space and allows for a continuous built edge at the street level.

Location of parking

Parking areas should be located so as to address occupants' and visitors' needs while not detracting from the aesthetic quality of the surrounding area. Locating parking beneath, or at the rear of, a project is ideal because it allows the development to maintain a good relationship with the street and prevents carparking from dominating the streetscape.

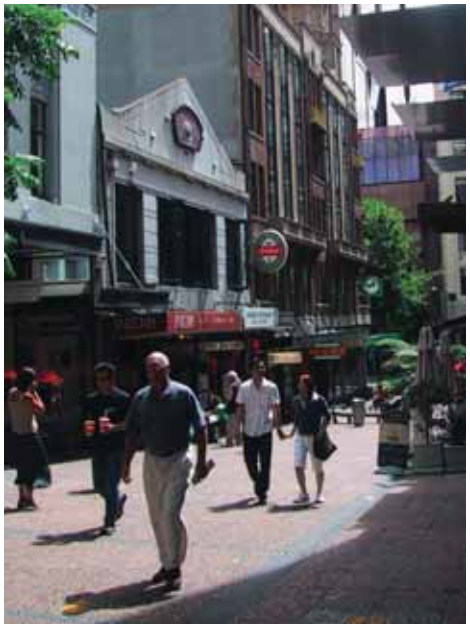
Parking should be planned with entrance points to the building in mind so as to allow people arriving by car to move safely and easily to their destination. Similarly, parking must be located so as to ensure the safety and convenience of pedestrians.

Reduced private vehicle use

By choosing to live / work in town centres, commercial tenants and residents often realise that there may be limited opportunity for them to use private vehicles. These occupants are generally more willing to ride buses or trains, cycle, walk, or drive scooters to move around the town centre.

For the above reasons, implementation of the principles discussed in this section will contribute to a more efficient use of parking space than that found in many suburban and town centre locations, where parking areas are overcrowded during the day and empty at night.

As populations in urban centres continue to grow, and local and regional policy continues to encourage growth in town centres, councils are recognising the need to change their parking policies in these areas.



The long-term effect of mixed use development in city centres is to make walking or cycling a more efficient form of transport and reduce private vehicle trips within the city.

3.2

designing for energy efficiency

3.2a

site selection and building layout

- where possible, choose a site with a northerly aspect to ensure maximum energy efficiency
- utilise existing site contours to minimise earthworks and soil wastage
- orient buildings and principal living spaces toward the north to allow for provision of good natural light
- ensure that a maximum amount of floor area is within 4–6 metres of an external window

Choosing the best site

A building's form and its location and orientation on its site greatly affect its energy efficiency.

If possible, choose a site with a northern aspect to allow designers to take advantage of solar energy. It is easier to create an optimum thermal flow for internal heating in a space with access to direct sunlight. Also, occupants are generally happier in a sunny, light-filled environment; so solar access is essential for amenity as well as for energy efficiency.

Making the most of existing site features

Consider incorporating existing natural site features such as contours, stands of trees and vegetation into the development's design where possible. This minimises development costs and creates a more established environment.

This development has been well designed to follow existing site contours thereby minimising earthworks and soil wastage.

Incorporating a large amount of floor area within 4-6m of an external window ensures maximum sunlight penetration into a development. [image courtesy of Urban Splash, UK.]

3.2b
passive solar design

- insulate a building beyond the minimum required standard to keep buildings warmer in winter, cooler in summer, and to reduce long-term maintenance costs
- to increase energy efficiency, use materials that have a high thermal mass such as bricks, concrete and stone
- orient buildings towards the north whenever possible
- use external shades and overhangs, and internal blinds, louvres and curtains to maximise or minimise solar access
- ensure that lighting controls enable occupants to minimise energy use

Benefits of passive solar design

Passive solar design does not require special technology but rather involves employing certain design strategies to optimise the heating effects of the sun. Passive solar construction need not cost any more than standard construction. In fact, passive solar construction may greatly reduce the long-term costs of maintaining a building by reducing capital and ongoing costs of heating and air conditioning equipment.

Passive solar techniques

Energy efficient design generally requires that a building be a maximum of 14 metres deep. This allows natural ventilation and admittance of natural daylight into all internal spaces.

Specific passive solar design methods include insulation, shading, lighting and ventilation. Similarly, maximising a building's thermal mass by using materials with a high ability to absorb and retain heat (e.g. brick, concrete, and stone), keeps a building warmer in winter and cooler in summer. Materials with a high thermal mass content should be used in north-facing rooms, where they allow maximum winter heat gain.

Shading

Shading devices are also extremely useful at blocking or letting in solar heat. Horizontal shading devices work best on north-facing windows where they reduce solar access in the summer and maximise it in the winter. Vertical shading is most effective on east / west-facing windows, where it blocks the low rays of the rising and setting summer sun.

Because passive solar design requires the implementation of many interdependent design techniques, a developer wishing to take advantage of the benefits of this type of design will require the assistance of an experienced professional.

North-facing developments can provide good natural light and sun which enhance living spaces. [image courtesy of Urban Splash, UK.]

3.2c
active solar design

- incorporate active solar technologies into new and existing developments where possible
- install solar water heaters with due regard to their orientation and inclination
- consider the visual impact of solar design on a development

Principles of active solar design

Active solar design involves using technology to harness the sun's energy. Solar technologies may be unobtrusive, may enhance the aesthetic and architectural appeal of a building, and are often considered a marketing asset because of the 'green' image they convey for a development.

Currently in New Zealand, technology allows using the sun to produce two types of energy: solar and photovoltaic. Solar energy may be transformed through thermal conversion into heat, and, through photovoltaic cells, into electricity.

Solar water heating systems are inexpensive to install and may greatly reduce the cost of supplying hot water to a development.

Solar thermal conversion

Solar thermal conversion or using the sun's energy to heat water, is the oldest and most economical method of harnessing solar power. Solar water heating systems are inexpensive to install and may greatly reduce the cost of supplying hot water. Although a substantial portion of a development's hot water requirements may be met by using the sun's energy alone, an electric or gas-boosting element in the storage tank may be necessary to meet hot water needs during periods of high demand and low sunshine.

Photovoltaic conversion

Photovoltaic technologies convert solar energy directly to electricity by way of photovoltaic cells. Although the most common use of such cells is to power pocket calculators and wristwatches, they may, on a larger scale, provide electricity for buildings.

While active solar technologies may be easily integrated into existing buildings, these technologies need to be considered in the early design stages of a new development to be cost effective.

Energy efficiency and sustainable building practises - further references

Several good publications by the Energy Efficiency and Conservation Authority (EECA) including:

- Passive Solar Design
- Solar Water Heating

See also the EECA website: **www.eeca.govt.nz**

Waitakere City Council website: **www.waitakere.govt.nz** for several useful publications including:

- The Sustainable Home Guidelines

Several chapters are equally relevant to commercial buildings

- The Better Building Code

These and other publications are also available in hard copy.

Solar industries association: **www.solarindustries.org.nz**

3.3

transport

3.3a

public & other modes of transport

- locate mixed use development in or near town centres to allow occupants / visitors to take advantage of public transportation
- locate pedestrian routes to serve nearby destinations and connect with existing pedestrian walkways
- provide cycle storage facilities within the development

Making public transport a viable option

Mixed use developments function most efficiently when they are located close to existing public transport services. This provides the occupants with greater choice as to how they move about the city.

In established town centres, mixed use development should be sited with the location of existing public transport hubs in mind. In new town centres, development should be planned in conjunction with the proposed public transport system. This will encourage the public to make use of this system once it is operational.

Encouraging alternate modes of transport

Means of transport other than the car should be considered and catered for when designing mixed use developments. Occupants will appreciate the flexibility that these considerations allow them.

For example, by creating pedestrian pathways that are safe and integrated into the network of existing walkways, developers allow occupants and visitors to choose to walk to their next destination. Similarly, providing cycle storage facilities enables residents to choose cycling as a travel option.

Encouraging alternate forms of transport allows developers to free up carpark space for other uses.

Long-term benefits

By co-ordinating a development's design with public transportation and ensuring that the development serves pedestrians and cyclists, mixed use development may help reduce the amount of traffic on the roads and the amount of air pollution in our urban areas.

Mixed use developments located in town centres can encourage alternative forms of transport.

Pedestrian routes through mixed use developments should facilitate access to adjacent footpaths and nearby destinations.

Provide bicycle storage facilities to encourage this mode of travel.

CHAPTER 4

PRE AND POST-DESIGN ISSUES

4.1

facilitating planning consent

- arrange pre-application meetings with council planners to facilitate the consent process and save time and money
- take advantage of the free, helpful services of the Urban Design Panel, available to anyone undertaking large-scale development in Auckland City

Pre-application meetings with council planners will save time and money for the developer.

4.1a
council processes

Pre-application meetings

Before undertaking any size or type of project, a developer should meet with a senior council planner. The senior planner will gather the appropriate council officers, such as engineers and an urban designer, and will explain the consent process and identify significant issues specific to the project. The developer may also ask general questions about the proposed project.

Some councils charge for this time, but because such a meeting may save a lot of time in the long run, the developer may consider it a worthy investment. Furthermore, by establishing a relationship with the planner who will see the project through the resource consent process, the developer will learn of any issues that may influence the development's design before the design work has progressed too far.

An additional meeting with the council planner may be necessary after the design has been resolved, but prior to lodging the consent for processing. Again, this meeting may save the developer time and money, as he / she will learn if there is any additional documentation that the planner requires to process the consent.

For a larger project, developers may wish to employ a planning consultant to gather necessary documentation, write the required planning report, and lodge the application with council.

Urban Design Panel

The Auckland City Council Urban Design Panel offers free pre-application urban design advice for large developments. Using this service may indicate early on whether a proposal is likely to be supported throughout the consent process from an urban design standpoint. The Panel also provides specialised advice regarding design changes, should they prove necessary. Further information about the Panel is available on the Auckland City Council website.

Charges

In addition to the charges for processing a development's consent application, the council may require other levies or contributions. Every council must have a contributions policy. The contributions required may be land, cash, or both. The specific requirements depend on the detail of the council's policy.

A senior council planner will be able to provide further information as to the nature and amount of any additional required contributions.

4.2

managing mixed use developments

- facilitating the management of a mixed use development requires good design, compatibility of uses, and a well run body corporate
- provide for separate metering of all occupants' water, power, and gas usage

4.2a
managing the mix

Complexity

Managing a mixed use development may be more complex than managing a single use development because:

- different uses have different lease times
- different uses require different types of services (carparking, rubbish collection, etc.)
- different uses may generate different effects (noise, traffic etc.)

However, such difficulties may be minimised at the outset of a project through good design and the choice of compatible uses.

The body corporate

Managing a development with many owners may be made easier by the establishment of a body corporate. A body corporate consists of all the owners of a unit-titled property.

A body corporate is formed when the developer deposits a unit plan for a development with the District Land Registrar at the local office of Land Information New Zealand. At this time the developer alone may form the body corporate, although new owners will become part of it on the settlement date of their respective units. The Unit Titles Act of 1972 governs each body corporate. The act sets out rules for the use and management of individual units and common property.

The developer and the owners are responsible for ensuring that the body corporate is reputable and is doing its job efficiently. Furthermore, all bodies corporate have a secretary who is, in most cases, a professional from an administrative firm. The secretary's duties include making certain that the development is fully insured and that all buildings within the development have received a warrant of fitness.

The Unit Titles Act will be revised in the near future, possibly to include specific rules and provisions for mixed use developments.

The body corporate will decide on the sharing of expenses; under the current act this is normally done on the basis of the unit entitlement. Whilst other ways of apportioning costs are currently outside the law, the new Act may allow for more flexibility in this area.

For further information about Body Corporates refer to "The Mysteries of Bodies Corporate", a useful booklet put out by Auckland Regional Council in 2003.

CHAPTER 5

CASE STUDIES

5
case study 1

HEMISPHERE APARTMENTS, PARNELL

Project situation

Augustus Terrace runs along a cliff top in Parnell with views over the harbour and commercial wharves. The north side of the street has acquired several new developments over the last few years once the potential of building on the cliff edge was discovered. Apart from the first of these, at number 8, which contains commercial offices, other recent developments in the area are almost solely residential.

The site for this project lies on the south side of the street and formerly contained a three-storey masonary building in the centre of the site housing the Auckland Leagues Club and surrounded by parking.

Design process

Early discussions between the developer and various designers had focussed on reusing and altering the existing building. A number of concept schemes were explored but ruled out as not financially viable.
The architect subsequently employed on the project, put forward the solution of demolishing the existing building in order to give more flexibility. This was also reckoned to be less expensive in the long run.

The development was initially expected to be four storeys of residential plus carparking. During concept design stage the architect proposed a scheme that included three upper levels of residential with a level of commercial office units at street level, parking behind this, and a full floor of parking below street level.

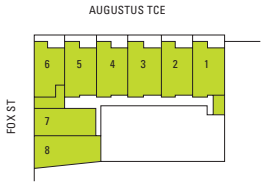
This arrangement had several urban design advantages (outlined below) while also being more economical to build because the commercial space did not require fitting out and did not attract reserve contributions. However, the developers were initially cautious, as they had no experience of selling commercial units.

The confidence of others in the viability of the commercial component was demonstrated when, with no encouragement, the architect and the developers' lawyer committed to buying one each and the developers' financiers committed to two. This faith has later proven to be well placed, as subsequent resale prices have been strong.
In retrospect the development team credit the inclusion of a commercial element in the development with leading to an expectation of greater building robustness and higher build quality. This in turn influenced the decision to do party walls in the entire development in concrete masonry and floors in dycore.

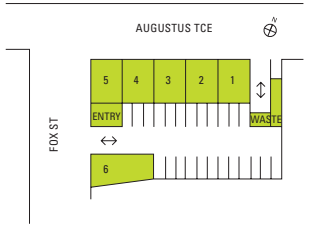
The developers employed a planning consultant early on in the project but the planning was generally uncontroversial with the uses being discretionary and permitted activities under the District Plan and a non-notified resource consent required for excavation and decks over boundaries.
No delays occurred during the consent process and reserve contributions were initially set in line with current council guidelines. These were disputed in court and revised downwards to a level that has later become the standard.
One third of the units were sold before construction began, with the remaining sold before completion of construction.

Hemisphere Apartments as viewed from across Augustus Terrace, Parnell.

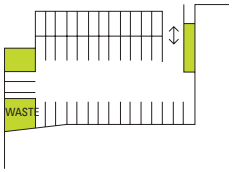
SECTION



RESIDENTIAL LEVEL



COMMERCIAL LEVEL



BASEMENT LEVEL

Mixed use benefits

A number of advantages resulted from the chosen mix of residential and commercial office space:

- developers had flexibility to hold and lease the commercial component
- the whole development is seen as having more substance and solidity because of the commercial element
- commercial units value the exposure of ground floor street-front space
- with a mix of office and residential use there is 24/7 occupation of the area that gives a sense of security to both types of occupants when they are away from their property
- a better outcome is achieved for the streetscape with the "active edge" of the commercial units rather than blank walls of car parking
- it is difficult to provide privacy to ground floor residential spaces located up to the street boundary; these are better located on upper levels

Managing the mix

- the early decision to incorporate commercial units influenced the designers and developers to consider the whole development as more "substantial". This in turn influenced the choice of concrete block lining both sides for party walls and concrete dycore floors. This was anticipated to be more expensive than double timber framed walls and timber floors but gave the builders a large degree of tolerance in achieving adequate sound insulation between units
- minimum acoustic ratings were in fact significantly exceeded with an STC in excess of 60 achieved during post construction testing
- this construction has also made the building quite thermally inert and therefore less expensive to heat and cool
- all commercial units have their own front and rear entrances and contain a mix of professional offices. Signage is restricted to the shopfront glazing
- this mix of uses means there is little possibility of noise pollution from one type to the other. The commercial uses produce little noise and are generally only occupied during business hours, while the residential component is largely occupied after hours
- there are individual wheelie bins for each unit and these are kept in a common basement area
- both uses are part of the same Body Corporate with fees set on pro rata basis according to use of services and public areas. A professional manager is employed for two days a week to put rubbish bins out and clean shared areas
- all utilities are metered separately for each unit except water which has only one meter for all residential units
- carparking is on one and a half levels across the whole site. There is an entry / exit off each of the two streets that border the site
- there are two carparks provided per unit for both commercial and residential units

Attractive landscaping enhances the streetscape appeal of the development.

Horizontal and vertical façade elements help create visual interest.

Commercial units on the ground floor create an 'active edge' which provides interest for passing pedestrians.

Wide balconies provide useable outdoor space for residents.

Project details

Credits

Location	Corner of Augustus Terrace & Fox Street, Parnell
Site form	Single title
Developer	Hemisphere Group: Bastion Struyck and Chris Cook
Architect	Abri Architecture: John Durkin
Project manager	Tom Crockett
Council	Auckland City Council

Dates

Design & documentation	1999
Construction	1999–2000

Mix & distribution of uses

Description of uses	Upper 3 levels of residential units @ 8 per floor
	6 commercial office units and carparking at street level
	1 basement level of carparking
Physical separation	200mm concrete Dycore floors
	200 series concrete masonry party walls, strapped and lined both sides
	Timber framed exterior walls with 6mm fibre cement cladding
Acoustic separation	STC60 through party walls tested
	Exceeds ITC50 through floors tested
Neighbouring uses	Offices, laboratories & apartments

Urban design

Relationship to streets	Corner site with both sides built up to the footpath
Landscaping	Small succulent gardens on building edge
Lighting	Entrance and public areas fully lit
Relationship to neighbours	Rear court not particularly over-looked
Entrances	Separate entrances for apartments and each office

Car parking

Basement	39 (12 stacked)
Ground	22

Waste management

Type	Wheelie Bins
Management	Manager puts these out to the street

Planning Aspects

Zoning	Business 4 (now proposed Mixed Use)
Activities	Residential – Discretionary (now Permitted)
	Offices – Permitted
Maximum Height	15m
FAR	2:1 (does not include breezeways and decks)

5
case study 2

THE LOFTS, 44 WILLIAM PICKERING DRIVE, ALBANY

Project situation

William Pickering Drive is located in the heart of a relatively new business and light industrial area in Albany on Auckland's North Shore. Some recent residential development has occurred to the north of the Drive.

The developers of the Lofts had previously completed a medium sized, two level mixed development on the prominent corner site adjacent to the Lofts site. A lot of energy had been invested in the selection of an appropriate tenant for the largest, ground level corner premises within this earlier development; eventually this was let to the upmarket New City Café.

Strategically this was a clever decision; the café quickly established itself as an informal meeting place in an area formerly devoid of such venues. Other commercial tenants followed, as did sales and occupancy of the upper level apartments, thereby reinforcing this new commercial hub.

As a result of the success of this earlier development which was completed in 2000, it was decided to develop the adjacent Lofts site.

Design process

Based on the success of the earlier adjacent development, the developers decided to undertake a second mixed use project on the current Lofts site.

The original intention was for a solely commercial development, with a series of restaurants proposed for the site. From the outset the developers made the conscious decision to create a high quality proposal in terms of the design, construction and also the calibre of the commercial tenants.

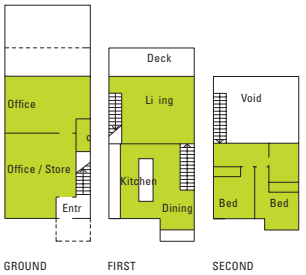
A large number of design schemes were undertaken, with a major emphasis being on finding the right anchor tenants for the commercial premises within the development.

Latterly in the process, the developer decided to include a residential component in the development. To this end, a scheme was developed consisting of a 2-level, fully commercial block at the front of the site with 17, 3-level terraced-style loft units to the rear overlooking an adjacent reserve. The design is contemporary in style, and utilises steel, glass and aluminium joinery for the exterior cladding materials.

The loft apartments are atypical in that the ground floor work space is closed off from the upper living spaces. The living area itself is located on the first floor and on a mezzanine second floor. Separate entrances are provided for the ground and upper floors which allow for the possibility of these areas being separately tenanted.

Commercial component of The Lofts development, William Pickering Drive, Albany.

SITE PLAN



FLOOR PLANS -
INDIVIDUAL LIVE / WORK UNITS

Mixed use benefits

- the two-level commercial premises located on William Pickering Drive provides high profile spaces for small and larger businesses
- the commercial block at the front of the site acts as a noise buffer and offers some privacy for the residential premises at the rear
- the open plan spaces with separate entrances located at the ground level of the loft accommodation provide excellent opportunities for people wishing to live and work in the same dwelling
- mixing commercial and residential uses offers services, including cafes and restaurants, for other residents in what is a predominantly light industrial and business zone

Managing the Mix

- a body corporate is used to manage this development. Each unit's share of costs (rubbish, maintenance, grounds etc) is calculated according to its value relative to that of the total development
- security gates are located at the rear of the commercial area which assist in separating the public areas at the front of the site from the private, residential areas behind
- a large open space allows for good separation between the commercial block at the front of the site and the smaller office / residential units at the rear

Urban design considerations

Street relationship

- the commercial block opens on to the street with a wide strip of street planting and grass providing pleasantly landscaped separation from the road
- a secondary footpath runs along the front of the commercial block offering effective pedestrian access to the businesses at ground level. This is sheltered by a projecting continuous balcony at first floor level

Other

- the lofts are oriented away from the central carparking area which enhances their visual and aural privacy. Their western aspect also offers good afternoon sun and views over the reserve
- a large area of on-grade carparking is located to the rear of the commercial block. Whilst costly, a superior outcome from an urban design standpoint would have been to locate some of the carparking under the development. More comprehensive landscaping of the carparking would also have improved this area
- a greater number of pedestrian routes through, and about the site could have further enhanced the development

The landscape strip provides a pleasant visual buffer from the road.

The residential lofts at the rear have articulated façades that provide visual interest.

The development utilises passive solar design techniques including external shade devices.

The development provides flexibility by allowing live / work on the ground floor of the loft accommodation.

Project details

Credits

Location	William Pickering Drive, Albany
Site form	2 sites amalgamated for development
Developer	Cornerstone
Architect	George Clarke Architects
Project manager	Rider Hunt Auckland Ltd
Council	North Shore City Council

Dates

Design & documentation	2001
Construction	2002

Mix & distribution of uses

Description of uses	Two storeys of commercial premises to front of site, 17, three storeyed terraced live / work lofts to rear
Physical separation	Commercial units – reinforced concrete floors
	Lofts – timber floors
	All inter-tenancy walls – precast concrete
Acoustic separation	STC & ITC ratings 55dBA (as per District Plan)
Neighbouring uses	Business / light industrial uses with large mixed development immediately to the north
Relationship to streets	Strong relationship to William Pickering Drive at front of site
Landscaping	Street frontage is landscaped
Lighting	Lighting provided to commercial frontage, external lighting for residential units. Low level security lighting to carpark

Carparking

On Site	(approx) 130
On Street	–

Waste management

Type	Wheelie & recycling bins for residential units, restaurant waste separately managed
Management	All waste management overseen by body corporate

Planning aspects

Zoning	Business 9
Activities	Residential development must be limited to a maximum of 25% of gross site area
Maximum height	9m within 30m of a residential or recreation zone

5
case study 3

381-397 PARNELL RD, PARNELL

Project situation

Parnell is typical of many older Auckland suburbs with the main commercial and retail activities spread along a single street. The west side of the upper end of Parnell Road, on which this development is situated, has historically had more dense and taller development.

The zoning of this side of the street is Business 2, while it backs on to and faces low-rise Residential 7 areas. The 12.5m overall height applied to the zone is also effectively lower in this area due to sight line view shafts of the nearby War Memorial Museum.

While residential uses are a Permitted Activity in the zone, Auckland City Council were particularly keen to preserve the retail streetscape at ground floor level.

Design process

The new building survived a planning process that was extremely rigorous due to the perceived public concern over the impending loss of an existing old shop within a converted house, which was to be demolished as part of the development.

A number of independent consultant reviews were instigated by the council before the development was ultimately approved.

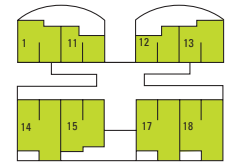
Some of the credit for the eventual successful design of the project may be due to this process. In order to receive necessary council officer support, particularly that of the urban designers in the planning section, the design team was especially cognisant of the wider site context while developing the design.

Design of the streetscape evolved to provide a modulation of the façade that relates in scale to the buildings on adjoining sites.

Privacy of residential apartments was addressed by deeply recessing the terraces and providing external wooden shutters. This has also made a functional external 'room'.

The rear apartments take on a completely different character and are arranged as two discrete blocks similar to the form of the surrounding houses / townhouses. This rear block consists of two upper and two lower two-storey maisonettes.

The residential component of 381-397 Parnell Road, Parnell.



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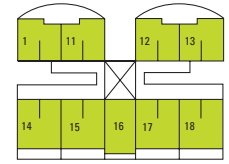

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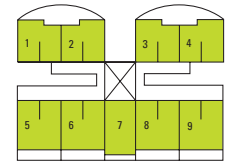
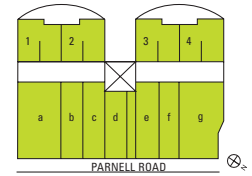
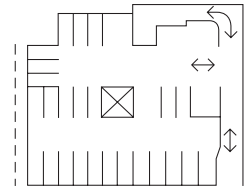


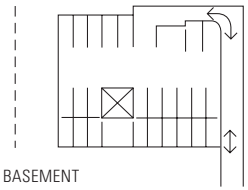
LEVEL 1



GROUND LEVEL



BASEMENT 1



BASEMENT

Mixed use benefits

A number of advantages resulted from the chosen mix of residential and retail:

- continuity of the existing retail developments along the west side of Parnell Road is maintained and reinforced
- there is more modulation of the street façade than may have been achieved if the upper floors had been given over to commercial uses
- the width module of the apartments aligns with the module required for retail tenancies below
- carparking is kept under the development below street level so that it doesn't disrupt the "active edge" of the streetscape
- the main entry to the apartments doesn't disrupt the continuity of the retail uses

Managing the mix

- the lower level tenancies on the street are all 9–5 retail shops with no consequent after-hours noise problems for the residential uses above
- there are individual wheelie bins for all units and these are kept in a common basement area
- carparking for both residential and retail uses are in the same carpark under the building
- there are two carparks per unit for both retail and residential components of the development

The development adds to, and reinforces, the Parnell Road streetscape.

Privacy for residents is maintained by deeply recessing the terraces and providing external shutters.

Visual interest has been provided by the mix of building materials as well as the strong vertical emphasis of the facade.

Project details

Credits

Location	381 – 387 Parnell Road, Parnell, Auckland
Site form	Single title
Developer	Redwood Group: Tony Gapes
Architect	Avery Team Architecture Kerry Avery / Adam Begg
Project manager	N/A
Council	Auckland City Council

Dates

Design & documentation:	1998
Construction:	1998–1999

Mix & distribution of uses

Description of uses	Upper 4 levels of residential 18 apartments 7 retail shops at street level 2 basement levels of carparking
Physical separation	145mm concrete Dycore for floors below first residential level Timber floors elsewhere Double timber framed walls with 19mm gib both sides Timber framed exterior walls with 9mm fibre cement cladding
Acoustic separation	STC55 through party walls tested ITC50 through floors estimated
Neighbouring uses	Retail to adjoining street front Residential behind

Urban design

Relationship to streets	Main retail street frontage
Landscaping	Limited to rear residential
Relationship to neighbours	Continues street frontage with lower buildings both sides
Entrances	Separate entrances for apartments and each retail space

Car parking

Basement	53 over two basement levels

Waste management

Type	Wheelie bins in combined basement room

Planning aspects

Zoning	Business 2
Activities	Residential – Permitted Retail – Permitted
Maximum height	12.5m Museum view protection Rear residential boundary 2m + 45°
FAR	2:1 bonus areas

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case study 4

2 QUEENS PARADE, DEVONPORT

Project situation

This development is located on a corner site close to the main street of the township of Devonport, on Auckland's North Shore. The site is approximately 2000 square metres in size.

The project site was part of a larger property that contained the landmark Esplanade Hotel as well as a number of unremarkable ancillary buildings. The Esplanade Hotel is one of the most significant heritage buildings in Devonport and is located on the southernmost corner of the main street, directly opposite the Devonport wharf.

Because the ancillary buildings were not thought to be worth retaining, the decision was made to subdivide the site with the hotel being retained on one site and later sold. The ancillary buildings were demolished to build the current development in 1995.

The 'general business' zoning of the site allowed for residential activity above ground floor level as a permitted activity.

Design process

The developer for the project was a group of investors who owned both the adjacent landmark heritage hotel and the adjoining group of buildings which formerly occupied the current project site.

Due to the existence of the earlier buildings the site retained some existing use rights.

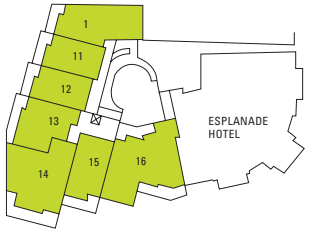
A number of proposals by various designers were considered before the current scheme was selected. The architect then worked closely with the client to develop the current mixed use development. The client required a certain number of apartments to be provided to ensure that the development would be financially viable.

The development has been designed with regard for its immediate context, in terms of perceived scale and design. In particular, whilst contemporary in style, the development is sympathetic to the historic hotel located immediately to the east. The choice of the 'courtyard' arrangement allows the apartments to be double-aspected; a distinct advantage on a south facing site. As well, the courtyard allows for communal and private open spaces within the interior.

This mixed use development consists of five retail units at ground level, nine apartments at first floor level, and seven apartments on the second floor. The retail units open on to the main street frontage only. Circulation, by way of a lift and stairwell, and a void space are located at the centre of the development.

Parking is located on the ground floor, with access off the secondary street frontage. Apartments address the two streets, with a courtyard / open space at the centre of the development.

Mixed use development at 2 Queens Parade, Devonport.



SECOND FLOOR: RESIDENTIAL

FIRST FLOOR: RESIDENTIAL

GROUND FLOOR: COMMERCIAL / PARKING

Mixed use benefits

- commercial units at ground floor provide an active street frontage in a commercially viable location
- undertaking a mixed use development on this site offers optimal opportunities for both the businesses and residents to benefit from the proximity to the wharf and to Devonport town centre
- providing apartments above ground floor provides a much-needed opportunity for more intensive housing in an area which does not generally favour such a typology
- the inclusion of commercial units contributes to the commercial viability of the town centre

Managing the mix

- the apartments are spaciously laid out, with an average area of approximately 100m^2. A mix of two and three bedroom apartments are provided with all apartments having at least one, and generally two, balconies
- all commercial units and apartments are separately titled and the development is run by a body corporate. There is no building manager for the development
- one main and one secondary entrance is provided as access to the apartments. The public have direct access to the commercial units from the street
- the development was designed to a 'hotel' acoustic standard. This helped to mitigate against potential noise problems which could result due to the development being located in a business zone where potentially noisy activities can locate

Other urban design matters

Street relationship

- the development has been designed to have a strong relationship to the street. The ground floor of the building has been built up to the site boundaries with shops along the main, south façade providing an active street frontage
- large, almost full-height glazing is used along the main frontage. A wide, glazed canopy serves both a functional and decorative purpose, and provides continuity around the street corner
- some semi-open screening to further break up the ground floor continuous street wall, on the secondary street frontage, could have been beneficial from an urban design standpoint

Context / Integration

Some techniques used to integrate this new development with its immediate context include:

- careful design, detailing and articulation ensure a contemporary yet sympathetic response to the development's immediate context. This includes the proportions of the bays and openings, staggering of the façade, and the incorporation of architectural features such as balconies and pergolas
- the front elevation is broken up into four angled bays, each of which has a gabled end. This reduces the perceived length of the development. A similar technique is used on the side / west elevation
- the front façade has a vertical emphasis by way of the bays. These incorporate vertically aligned openings and continuous, three storey columns / portals over the three floors
- horizontal continuity with the hotel is provided by horizontally aligning the upper floors and openings of the two buildings

A canopy at ground level and a verandah at first floor level provide design continuity around the street corner.

The angled bays provide a strong vertical modulation which reduces the perceived length of the development.

Project details

Credits

Location	2 Queens Parade, Devonport
Site form	Single title
Developer	Esplanade Developments
Architect	Geoff Richards
Project Manager	Macrennies
Council	North Shore City Council

Dates

Design & documentation	1994-95
Construction	1995-96

Mix & distribution of uses

Description of uses	Ground floor: five retail units & carparking
	First floor: nine apartments
	Second floor: Seven apartments
Physical separation	Floors – concrete
	Thickness = 150mm
	Party walls – masonry strapped & lined
	Top floor – timber framed
	Exterior walls – 200mm masonry with 20mm plaster finish
Acoustic separation	STC ratings = 55 dBA
	ITC through floors = 55 dBA
Neighbouring uses	Heritage hotel to east; Council owned building to north
Relationship to streets	Corner site with both sides built up to the boundary
Landscaping	N/A
Lighting	Entrance areas, deck lighting
Entrances	Main separate entrance for apartments; separate entrance to each retail unit

Car parking

On site	Ground floor = 30
On street	–

Waste management

Type	Wheelie bins
Management	Individual owners / occupants take rubbish out to street

Planning aspects

Zoning	Business 2
Activities	Residential – permitted above ground
	Retail – permitted
Maximum height	9m with up to +2m as limited discretionary activity