guide to
MIXED USE DEVELOPMENT
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MIXED USE DEVELOPMENT
Adelaide City Council is committed to revitalising the City as the heart of the State - and successful mixed use development is critically important to achieving this.

Development that combines different uses brings vitality to the City, adds life and safety to our streets and opens up opportunities which can be readily accessed by more residents, workers, students and visitors.

Mixed use projects at a medium-rise urban scale can foster social cohesion, highlight cultural values and generate significant environmental benefits.

For investors and developers, mixed use projects can bring higher yields, spread risks, generate synergies between complementary tenants and attract potential purchasers from a wider variety of market sectors.

As with any development project, success must be “designed in” to mixed use projects from the inception stage, based on a set of principles that will generate robust and versatile mixed use environments.

The development of this guide has been driven by a recognition of the significant opportunities associated with implementing sustainable mixed use development and a perceived lack of practical information on how to achieve this.

This guide outlines the benefits of mixed use development and provides examples of successful designs which incorporate emerging trends and approaches that create an innovative balance between a range of uses.

It is an exciting time in the City of Adelaide. The current boom presents opportunities to look at new forms of development in the City.

I commend this guide to anyone interested in making our City a vibrant place.

MICHAEL HARBISON
Lord Mayor
INTRODUCTION

Who should use this guide?

This guide is intended to be primarily of interest to developers and investors while also being informative for architects and designers.

It demonstrates how mixed use can successfully be achieved in the City of Adelaide.

Practical solutions, ideas and key design principles are outlined to unlock the benefits of mixed use development and to detail its potential profitability.

This guide is not intended to replicate or replace any statutory requirements arising from the Adelaide (City) Development Plan, the Building Code of Australia and/or associated legislation. This guide should be read and considered in conjunction with these legislative and policy tools.
WHAT IS MIXED USE DEVELOPMENT?

Mixed use development is defined as:

Development which comprises a mixture of two or more land uses, either comprised within a single building (horizontally or vertically) or multiple buildings of different uses within a distinct development site.

The Benefits of Mixed Use Development

As a Capital City experiencing unprecedented business and population growth and a shift in lifestyle preferences of City users, Adelaide is a prime location to support mixed use development.

The value of this type of development for the City of Adelaide and the development industry is high.

Benefits to the Developer/ Investor:

- An adaptable building product which, subject to the necessary planning and building requirements, contains flexibility to change uses
- The opportunity to offer ‘green developments’ that use environmentally efficient materials and designs
- Quicker take up rates of both residential and commercial/ retail tenancies due to tenants residing and working within the same building creating efficiencies
- A diverse flow of investment from the different uses in the building
- Increased security to tenants due to the nature of mixed use developments and the complementary hours of operation. For example, activity created by ground level commercial use creates passive surveillance for apartments above during the day and into the evening in some cases

Benefits to the Public:

- Increased housing, employment, business and investment choice
- Bringing together and integrating different land uses and activities, making them readily accessible in one location
- The creation of interesting and vibrant streets through the diversification of activities
- More efficient use of public infrastructure

Benefits to the Environment:

- More efficient use of land and reduced car dependency
- Opportunity to incorporate new environmentally sensitive ‘green’ technologies
PRINCIPLES OF MIXED USE DEVELOPMENT

Mixed use development creates a sense of identity and place for residential use, and a more populated and safer City environment.

The key to successful mixed use development is adherence to a number of basic principles combined with an assessment of the economic and amenity synergies between prospective uses.

Key principles include:

• A sound understanding of market preferences and dynamics
• Appropriate location of uses
• Hours of operation for more lively activities
• Timing of service delivery
• Appropriate design and construction measures to achieve satisfactory development performance in terms of ‘green’ energy efficiency, noise attenuation, air quality and vibration

Mixed use development should also appropriately manage more sensitive uses with regard to potential disturbance generating aspects of other uses.

Of the mixed use developments that exist in Adelaide, a large proportion comprise retail, commercial and residential mixes. The economic and amenity synergies between these uses promote successful development.

Continuing technological advancements in building and environmentally efficient ‘green’ techniques provide options for more diverse and innovative mixing of uses creating interesting streetscapes, a more populated, vibrant City environment and greater opportunities to adapt under-utilised buildings.
UNDERTAKING MIXED USE DEVELOPMENT IN ADELAIDE

The Adelaide (City) Development Plan encourages a mix of uses within a development which can responsibly coexist and provide a good living amenity for residents, particularly regarding noise.

The Development Plan sets out that mixed use development in various forms, can occur in the City’s Central Business Area and Mixed Use Zones, as well as along Hutt, Melbourne and O’Connell Streets and in some locations in residential zones, such as near King William Street south.

NEW OPPORTUNITIES

Mixed use developments tend to succeed within ‘destination’ locations, for example, near Rundle Street, the Central Market and Melbourne Street. It is important to examine each site’s relationship and proximity to key attractors to make an accurate assessment.

Emerging locations such as the West End, Grote Street and Halifax Street have also successfully supported mixed use development.

**West End**

The north-west sector of Adelaide will benefit from the extension of the tramline. Given the presence of education institutions, the future hospital and proximity to the library and art gallery, the potential to increase student accommodation is significant. Access to public transport services is another attractor.

**Halifax Street**

Recent development activity in Halifax Street suggests that this area holds appeal to the market due to its accessibility to the facilities of King William Street South and public transport along Pulteney Street, which has direct access to both Rundle Mall and Unley Road.

While parts of Halifax Street are currently being planned as a ‘transition area’ between the Mixed Use Zone to the west and residential areas to the east of Hurtle Square, these transition areas still provide opportunities for mixed use developments.

**Grote Street**

The Central Market, neighbouring Gouger Street and Chinatown can be viewed as attractors for a Grote Street Mixed Use precinct encouraging a blend of activity and residential use.
Hindley Street: the north-west sector of Adelaide will benefit from the extension of the tramline

Halifax Street offers opportunities for mixed use developments

Adelaide Central Market
Sturt Street offers opportunities for more intense, mixed use development.

Adelaide Central Market

Former office building in King William Street has been converted to UV Apartments.
King William Street South

King William Street, south of Victoria Square, is a potentially successful mixed use development precinct for a number of factors including:

• Its role as one of the major transport routes into the Central Business Area

• The relatively low-scale of the built form on either side of the street

• The proximity to attractors such as the South Park Lands and Central Market

The small land holdings on the street provide opportunities for mixed use development such as shop-top housing/apartments. Given the width of King William Street, an increase in activity along this stretch is feasible. The Development Plan heights have also been increased.

Sturt Street/Whitmore Square

Sturt Street is the only street in the southern half of the City which has east/west public transport. The width of Sturt Street, the number of existing non-residential or under-utilised sites and the existing residential amenity provide ideal platforms for more intense, mixed use development.

The ambience created by the diverse community mix in the Whitmore Square area, connected to the bustle of the Grote and Gouger Street precincts, promotes sustainability for mixed use development in this area.

Further opportunities

A number of large retail and car showrooms and motor repair facilities operate within the City of Adelaide. These activities provide opportunities to maximise land uses above each facility. For example, the approved development for the Yorke Motors site on Angas Street demonstrates how the mixing of car industry related uses can be successfully achieved.

Within the Central Business Area, as further premium office space is developed, there are opportunities to convert under-utilised lower grade office buildings to different uses. These buildings are often centrally located in relation to retail, education, entertainment and other facilities and highly accessible to public transport.

The principles presented in this guide apply equally to the conversion of existing buildings to mixed use as well as construction of new buildings.
EXAMPLES OF MIXED USE DEVELOPMENT IN ADELAIDE

A review of a number of mixed use developments, both proposed and constructed, has been undertaken to gain an appreciation of what is underway in Adelaide, which have been most successful and why.

These examples provide useful lessons for future developments.

**Bent Street Apartments**

**Corner of Bent Street and York Street, Adelaide**

This mixed use development within the East End comprises ground floor office and retail with apartments above. Its location and well-designed provision of targeted services at the street level have assisted to make this development successful.

The eight level building accommodates basement car parking, three commercial tenancies of ground floor retail and 100 residential apartments, mostly two bedroom, specifically furnished for use as student accommodation.

**Tower Apartments**

**65 King William Street, Adelaide**

The Tower Apartment complex is a nineteen storey building consisting of ground floor retail outlets and offices. Seven, two bedroom apartments occupy each of the next 18 levels; a total of 126 fully-furnished, self-contained apartments.

The conversion of the former office building to residential use was completed in December 2005 with students taking up residence thereafter.

Successful elements of this project include:

- Excellent location adjacent to Rundle Street
- Provision of affordable housing and student accommodation
- Appropriate ground level uses to service occupants of the building and precinct
- Opportunities for different commercial uses to move into the East End and to increase pedestrian activity in Bent and York Streets
- Good level of noise attenuation between car park and residential apartments and from external sources
- Accessible, well-designed car park
Aqua Apartments

Aqua Apartments: ground floor office space with apartments above

Yorke Commercial Campus will combine a car dealership with office and retail facilities
Successful elements of this project include:

- Good re-use of an existing building
- Accessible to public transport
- Appropriate ground level uses to serve passers by
- Provision of student accommodation in a central location with easy access to all education institutions and facilities along North Terrace

**Aqua Apartments**

**268 Flinders Street, Adelaide**

Comprising ground floor office space with apartments above, this mixed use development is innovative in design with a well articulated façade.

Aqua Apartments is a six storey residential block comprising 14 apartments ranging from one to three bedrooms and a 300 square metres penthouse on level six. Commercial floor space is located on the ground level and basement and ground floor levels accommodate car parking.

Successful elements of this project include:

- Innovative design with well articulated façade
- Strong take up rates for both residential apartments and commercial tenancies indicating an acceptance by the market
- High levels of amenity for occupants of the building through the provision of state-of-the-art ‘smart technology’
- Contemporary finishes and an attractive entrance
- Energy efficient apartment design
- On-street car parking available along the frontage for visitors to the commercial premises

**Yorke Commercial Campus**

**271-279 Pulteney Street and 98-160 Angas Street**

Yorke Motors Mitsubishi is a car dealership with associated servicing and crash repair facilities.

The proposal granted planning consent by the Adelaide City Council includes a comprehensive redevelopment of a significant site featuring:

- Two levels of basement car parking
- Eight storey building above ground level
- Use of ground floor and lower basement level of building by Yorke Motors Mitsubishi for car servicing and sales
- Use of the upper levels as commercial office space

Yorke Commercial Campus, as it will be known, will utilise the latest version of...
the Green Star rating tool, developed by the Green Building Council of Australia, to achieve 5 Star (Australian Excellence) or even 6 Star (World Excellence) status for its building components.

Noteworthy elements of this project include:

- Retention of motor vehicle dealership at ground floor and mezzanine level, including showroom, offices, service workshop, body workshop and vehicle storage area
- Office accommodation at the upper levels
- Retail tenancies to the ground floor frontage to Angas Street
- Use of energy efficient design principles

Other mixed use developments reviewed displayed aspects to be avoided, namely:

- The design and use of the ground floor had not successfully activated the street
- The retail and commercial uses at ground floor level have struggled in terms of viability due to the site not being within a key destination location with relatively low levels of accessibility and therefore limited passing pedestrian movements
- The adaptive re-use of existing buildings has not created a form and appearance representative of the new use
The following is a brief summary of the market considerations for mixed use development in the principal market sectors of commercial, residential, retail and student accommodation.

This overview is intended as an introduction only and independent advice should be sought at all times.

**Commercial**
- The most practical and marketable mixed use developments are those which provide separate entrances, pedestrian and lift access and designated car parking for the commercial portion of the development.
- Trends show that there is limited resistance from residential occupants to commercial tenancies as they are less likely to generate noise and odours and less likely to operate at night.

**Residential**
- Research suggests that the most successful mixed use developments are those which physically separate the commercial or retail components from the residential component.
- There has generally been a greater level of success with students and local city workers occupying the residential component of a mixed use development.
- Owner/occupiers are more likely to be attracted to high amenity areas (i.e., adjacent public open space and lifestyle destinations).
- Owner/occupiers are more likely to be attracted to mixed use developments that incorporate non-residential uses with low potential for disturbance.
- Working from home is an emerging opportunity.
- According to the City of Adelaide’s Residential Segmentation Study, current residents considered that convenience and accessibility to shops, cafes and restaurants is one of the best things about living in the City.
- The study also found that most current residents feel that their expectations have been met or exceeded.
Retail

- Retail tenancies have the greatest ability to encourage active streetscapes and a vibrant atmosphere

- The hours of operation tend to be longer than those of commercial uses. Retail tenancies typically need to operate seven days a week and into the night, subject to the necessary planning and licensing approvals

- Retail tenancies, such as convenience stores, restaurants, cafes and licensed premises have a greater ability to impact upon the amenity of residential occupants than commercial uses. Impacts can include noise, odour, parking/traffic and patron behaviour

Student Accommodation

- Student accommodation needs differ to that of residential apartments

- Should be designed to include shared common areas and also to cater for students’ learning needs

- Self-contained, fully-furnished apartments offering kitchenette, bathroom facilities, technological (internet) fittings and communal facilities (common rooms and recreation space) are important considerations for student accommodation

- Accommodation should provide a high quality and adaptive living environment for students

- Smaller-sized units may be acceptable where there is access to adequately sized communal facilities

- Flexibility and adaptability to accommodate a range of possible alternative uses during the building’s life cycle is important
Retail tenancies encourage street activity and a vibrant atmosphere.
Example of 'Vertical' Mixed Use

Residential

Commercial

Retail

Car Parking

Example of 'Horizontal' Mixed Use
The following is a brief summary of the successful design characteristics for mixed use development. This overview is intended as an introduction only and independent advice should be sought at all times.

Successful mixed use developments feature:

• Close proximity to economic, high amenity areas and key attractors (retail, recreation, public transport services and Park Lands)
• Good access and visual prominence
• Incorporate critical design components, including designing for pedestrian interaction
• Separate commercial and residential entrances with each clearly defined
• Appropriate design solutions and management practices to address potential conflict and the impact of different uses
• Sustainable and energy efficient design
• Adaptability to cater for current and future market trends

Forms of Mixed Use Development

‘Vertical’ mixed use development is a single building which accommodates multiple uses, generally layered on a floor by floor basis with more active uses (eg retail/ commercial) established at ground level with residential, visitor, office or other uses above.

‘Horizontal’ mixed use development is a group of adjacent buildings on a single site where each building fulfils a specific purpose. ‘Horizontal’ mixing of uses encourages building tenants and the public to walk through communal space to other buildings, stimulating opportunities such as outdoor dining.
Land Use

The economic synergy between various uses is a central consideration for successful mixed use development.

The US Urban Land Institute (ULI) framework for estimating on-site support and economic synergy between uses has been adapted for Adelaide (figure 1).

This outlines a general framework showing each use’s potential positive effect on the others. Overall, the chart suggests that the use that can potentially derive the most support from on-site uses is retail space, followed in order by cultural/civic/recreation facilities, hotel/entertainment venues, residential and offices.

Synergy is also important with regards to relationships between key uses which are likely to generate disturbance. For example, traditional industry and large scale entertainment premises have a weak amenity synergy with residential uses. Residential uses on the other hand show a strong amenity synergy with office, retail and education facilities (figure 2).

Form and Scale Variations

The compatibility of certain uses will be heavily influenced by the specific form and/or scale of the mixed use development.

As an example, a small wine bar (with a maximum capacity of 100 persons) compared to a larger nightclub (with a maximum capacity of 300 persons) will generate different impacts.

The smaller scale entertainment venue potentially has a higher degree of compatibility with residential uses than a larger scale entertainment venue. Close attention to management, hours of operation and acoustic performance can provide the opportunity for such uses to co-exist with potentially sensitive activities.

Industrial development is generally incompatible with residential use however modern service industrial activities have improved environmental performance to the extent that small scale or ‘clean’ industrial activities may co-exist with residential development. Much will depend on the specific nature of the use and the application of appropriate design and environmental management techniques concerning noise and other emissions.

Options to establish mixed use development incorporating disturbance producing uses should be considered in locations where existing background noise levels are high, such as near major transport routes.

The mixing of land use should ideally be based on the performance of each proposal.

The Right ‘Mix’

Successfully implementing mixed use development requires an adherence to the following basic principles:

- A sound understanding of market preference/dynamics
- Review of the opportunities and constraints of the site and locality
- Satisfying the relevant provisions of the Adelaide (City) Development Plan and the Building Code of Australia
- Assessment of the economic and amenity synergies between prospective uses
- The creation of a sense of identity and place for residential use
Note: The above frameworks are intended only as a general guide as the actual on-site support and synergy will vary from project to project and place to place, including matters such as proximity, size and operating hours.

### Figure 1: Economic Synergy

<table>
<thead>
<tr>
<th>PRIMARY USE</th>
<th>Office</th>
<th>Residential</th>
<th>Hotel/Entertainment</th>
<th>Retail</th>
<th>Cultural/Civic/Recreation</th>
</tr>
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<tbody>
<tr>
<td>Office</td>
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<td>Residential</td>
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<td>Hotel/Entertainment</td>
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<td>Retail</td>
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<tr>
<td>Cultural/Civil/Recreation</td>
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</tbody>
</table>

* = very weak or no synergy  ** = weak synergy  *** = moderate synergy  **** = strong synergy  ***** = very strong synergy

This table should be read: primary use x synergistic use and not the other way. The primary use is the major or existing use of the site; the synergistic use is the secondary or less intensive use.

### Figure 2: Amenity Synergy

<table>
<thead>
<tr>
<th>PRIMARY USE</th>
<th>Office</th>
<th>Residential</th>
<th>Retail</th>
<th>Entertainment (hotel)</th>
<th>Entertainment (small wine bar)</th>
<th>Cultural/Civic/Recreation</th>
<th>Education</th>
<th>Commercial/ Industry</th>
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<tr>
<td>Office</td>
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Note: The above frameworks are intended only as a general guide as the actual on-site support and synergy will vary from project to project and place to place, including matters such as proximity, size and operating hours.
Building design expresses different uses
SPECIFIC SITE AND BUILDING DESIGN CONSIDERATIONS

It is recommended that independent design advice (in particular acoustic advice) be engaged early in the design process. From a site planning and development perspective (and in accordance with the Adelaide (City) Development Plan and Building Code of Australia), the following elements should be considered for mixed use development.

Site Configuration

Objective

To secure an allotment of appropriate location, size and shape to accommodate a functional and desirable mixed use development.

Key Design Principles

• Clearly define spaces for pedestrians, utilities, service, parking and storage areas
• Establish links with the public realm
• Site buildings close to and oriented towards the street
• Provide covered walkways, outdoor seating and landscaping where possible
• Create a walkable context that is stimulating, legible, comfortable and safe for pedestrians

Building Appearance

Objective

To design the building façade to express the different functions of the building and to enhance the character and diversity of the streetscape.

Key Design Principles

• The façade treatment reflects the activities carried out within the building, whilst respecting the size, appearance and proportions of existing adjoining buildings
• Provide ground floor façades that are rich in detail and interesting for pedestrians
• Integrate each use in a manner that achieves a seamless appearance
• Plant and machinery used by non-residential activities are integrated within the building or are suitably screened
• Vehicular entrance openings are integrated within the design of the building
• Suitable relationship established with nearby heritage buildings

Corner Sites

Objective

To define the corner location of a building as a focal point and landmark.

Key Design Principle

• Incorporate features such as corner entrances, decorative windows, built elements and tones to highlight and reinforce the corner
Building Entries

Objective
To provide distinctly identifiable entrances for each use within the mixed use development and to promote a sense of recognition and ownership.

Key Design Principles
- Clearly identify the primary entrance of a mixed use development and distinguish it from secondary entrances
- Design entrances to be clearly visible from the street frontage, readily identifiable from public areas, to be well-lit at night and with clear numbering
- Provide an appearance of several smaller buildings at ground level to generate an area which is welcoming and pedestrian-friendly
- Design windows at street level which are of a size that respects the human scale
- Incorporate shop front windows, display cases and other elements along side streets to provide visual interest to façades

Noise Attenuation

Objective
To minimise external noise, minimise noise impacts on other uses and allow ventilation inside buildings (in particular apartments).

Key Design Principles
Noise attenuation should be addressed primarily through the placement of uses and then the design of the built form

Street Level Building Design

Objective
To create mixed use development that invigorates street activity and contributes to a pedestrian-friendly environment.

Key Design Principles
- Locate active uses such as shops and cafes at the front of the building
- Maximise active use of the public realm, such as outdoor dining
- Consider the level of synergy between different uses as outlined under: ‘Land Use’. Seek to mix uses that have strong synergy
- Tailor noise attenuation to the types of uses, the intensity of each use and the proximity to sensitive uses
Active street frontages contribute to a pedestrian-friendly environment

Apartments entrance at the Mansions
The design of the built form can minimise noise impacts
Built form

- Design the roof, floors and walls to adequately contain sound and particularly for apartments, allow ventilation (refer to next section on Air Quality)

- Use buffers or specialised technical solutions such as acoustic glazing, acoustic insulation, acoustic cladding panels, double-glazing and noise attenuated ventilation systems to solve noise problems that cannot be resolved by the layout of the development

- Provide private inner courtyards protected by other buildings or solid walls

- Noise attenuation measures within a building must also consider air ventilation

Arrangement of internal uses

- Minimise the noise impact associated with goods delivery, garbage collection and possible late night noise from restaurant and other evening activities

- Locate vehicle and pedestrian entrances and exits, roller doors and lifts as far away as possible from noise sensitive areas

- 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

- Buffer residential uses from corridors and mechanical equipment. Common spaces such as lobbies, community rooms, meeting spaces and non-residential uses and mechanical equipment areas should be structured with specific wall types capable of handling low-frequency noise

- In residential spaces, place living rooms of one apartment next to the living rooms of another apartment, and similarly, bedrooms next to bedrooms

Further guidance is available from Adelaide City Council in the form of

- The Acoustic Advisory Service
- The Noise Management Incentive Scheme

It is recommended that an acoustic consultant be engaged for detailed advice (refer to Acoustical Consultants in the Yellow Pages or an acoustic consultant who is a member of the Association of Australian Acoustical Consultants. Visit: www.aaac.org.au)
**Air Quality**

**Objective**

To provide appropriate means of ventilation to enable adequate air quality for occupants and adjacent properties whilst attenuating noise.

**Key Design Principles**

- Consider building and façade design, materials and emerging technologies to attenuate unwanted noise whilst allowing fresh air.
- Use acoustically attenuated ventilation systems that allow both ventilation within a building and effective management of noise in all habitable rooms in apartments. Examples of systems include ‘Silenceair’, the Acoustica ‘Aeropac’ product and exhaust and intake vents located high in the building’s envelope.
- Allow windows that open, provided they are designed to keep out unwanted noise when closed.
- Design buildings to facilitate air movement, such as by creating an open building plan, atriums, internal stairwells, ventilation chimneys and solar-powered fans.
- Dispose of contaminated air in a manner which does not unduly create a nuisance or hazard to people in the building or other properties.
- Where mechanical ventilation is used, introduce outside air into the building or apartment and if there is no cross ventilation, then ceiling fans or evaporative cooling must be provided.

*Please note:* Where natural ventilation is not provided, the BCA requires a room to be ventilated with outside air by use of a fan or other mechanical system that complies with Australian Standard AS1668.2. Factors in the design of such systems include the flow rate (which is a function of the fan speed and exhaust vent size) and noise level.

**Vibration Transfer**

**Objective**

To minimise the potential for vibration transfer between uses.

**Key Design Principles**

- Provide insulation between basement car parks and the uses above, for example, a concrete slab between a basement car park and apartments together with insulation under the floor of the apartments to absorb any vibration.
- Design buildings to provide acoustic seals and appropriate wall and glass thickness in developments where there are licensed or entertainment premises with apartments above.
Domain Apartments signage

The Embassy, North Terrace: separate access for residents and cafe patrons
**Pedestrian Access, Safety and Comfort**

**Objective**
To provide occupants and visitors with clear, safe and convenient access to areas within a mixed use development.

**Key Design Principles**
- Provide separate access to public and private areas, allowing each area to function independently and providing greater security for all occupants
- Design buildings to provide casual surveillance of access ways, entries and driveways
- Provide adequate lighting of all pedestrian access ways, parking areas and building entries. Lighting should be on a timer or movement detector to reduce energy consumption
- Avoid the creation of obscure or dark alcoves, which might conceal intruders. Provide clear lines of sight and well-lit routes throughout the development, including stairwells, hallways and car parks
- Where a pedestrian pathway is provided from the street, allow for casual surveillance
- Vehicular movements are separated whenever possible, and all pedestrian movements are segregated

**Signage**

**Objective**
To use appropriate signage to identify each use in the mixed use development in a manner which respects the scale and design of the building.

**Key Design Principles**
- Integrate signage into the architecture of the building
- Apply signage at a scale appropriate to pedestrian level
- Clearly display street number and entrance/ egress and design to complement the architectural style and streetscape
- Place well-proportioned signage on window fronts perpendicular to the shop front below the canopy or at the level of the canopy
- Avoid visual clutter
Sustainable Design

Objective
To create buildings which are water and energy efficient, and which minimise waste.

Key Design Principles
- Maximise the use of natural light through northern orientation
- Ensure the design of windows and shade devices maximises winter sun and minimises summer sun
- Design the internal layout to maximise energy efficiency
- Select building materials that minimise embodied energy
- Incorporate insulation and draught proofing
- Consider future adaptability in building design
- Incorporate passive solar design and natural ventilation
- Incorporate green roofs and walls into building design
- Design roof forms that can support photovoltaics
- Incorporate the capture and re-use of water into the design
- Minimise waste produced during building construction
- Incorporate waste management and recycling facilities into the building design

On-site Facilities and Services

Objective
To provide facilities and efficient, comprehensive services to ensure the comfort of users with minimal impact on adjacent precincts.

Key Design Principles
- Design buildings so that residential service areas (e.g. letterboxes, laundry facilities, rubbish bin and clothes drying areas) are separate from non-residential service areas
- Manage services/plant/equipment/metering such that the responsibility and cost for maintenance is clearly defined
- Locate loading facilities at the rear of the development and parking for large sites in the basement
- Ensure that ground level parking enhances the streetscape and pedestrian environment
- Provide community schemes for each land use and level of the building
- Design parking areas to take into account multiple uses and the need to provide separate parking areas for each use in some circumstances
The design of windows can assist energy efficiency.
FURTHER INFORMATION

Creating a Place – Project for Public Spaces
www.pps.org/mixed_use/info/mixed_use_approach

High Density Development and Mixed Use Development
www.nahb.org

Mixed Use Real Estate Developments – How Mixed Use Real Estate Works
www.retailtrafficmag.com/development/construction/retail_mixing/index.html

Retail Developers Dive Deeper Into Mixed Use

Mixed Use Buildings 03 – Topics – Architecture Week Online Library
www.architectureweek.com/topics/mixed_use-03.html

Mixed use development, Practice & Potential - Communities & Local Government
www.communities.gov.uk

Mixed use buildings revive best practices of the past
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