City of Perth
City Planning Scheme
No. 2

Planning Policy Manual – Part 1

Section 4.9
Residential Design Policy

Version #	Decision Reference	Synopsis
1	26 June 2006	Adopted
2	12 December 2006	Amended
3	11 April 2017	Amended

CONTENT

1.0 INTRODUCTION

Living in the City of Perth is different to living in any other area of Western Australia.

As the capital city and state centre of retail, office, entertainment, cultural and government activities, the city offers lifestyle opportunities unlike anywhere else. This difference, coupled with higher land prices, results in a different form of residential development. Housing in the city is generally at a greater density and within close proximity to a larger variety of activities. Residents are often more willing to trade private open space for higher quality public space and access to facilities, while noise may be more of an issue. There is a larger range and frequency of public transport options, with more diverse issues regarding car parking and access. In addition, the recycling of existing non-residential buildings to residential uses occurs more frequently in the inner city, with the associated challenges of adapting these buildings for housing.

2.0 POLICY AREA

This policy applies to all residential development within the Scheme Area of the city, with the exception of the areas covered by the Goderich Street, Mount Street and Terrace Road Design Policies and the residential area of Crawley, where, for the purposes of this policy, only Elements 3, 5, 7, 8 and appendices shall apply.

If a provision of this policy is inconsistent with a provision in one of the above mentioned design policies, the former is to prevail to the extent of that inconsistency.

NOTE: *1. Clause 61 of the Deemed Provisions exempts certain residential development from the need to acquire development approval.*

3.0 INTERPRETATION AND USE

This policy has been produced to manage residential development. Provisions for all developments in the city are provided in the City of Perth City Planning Scheme No. 2 (CPS2); this policy sets out the specific considerations for residential design and should be used in conjunction with other Scheme documents including the precinct plans and other relevant policies. This policy generally takes a performance approach and encourages designers to find innovative and site specific ways to meet planning principles. In some instances distinct standards are set in order to manage issues which particularly impact upon the quality of inner city living.

Each element of the policy is provided with an objective (text in bold); compliance with which will ensure compliance with the guiding principles of the policy. Guidelines for each element provide direction into how these objectives can be satisfied.

PRINCIPLES

In creating this policy, the objectives for each element were developed with reference to the following guiding principles:

- **Design for Excellence:** Designs that respond to the wider context of the site and find innovative design solutions.
- **Design for Identity:** Designs that give clear identity to individual dwellings, whole buildings and local areas.
- **Design for Flexibility:** Designs that make the most of the existing urban fabric, conserve and adapt existing buildings, and encourage versatility of layout.
- **Design for the Environment:** Designs that creatively respond to the local and global environment in siting, choice of materials and minimising use of energy and water.
- **Design for Diversity:** Designs that help provide for a wide range of people to live in the inner city.
- **Design for Utility:** Designs that provide appropriate spaces and facilities to meet the everyday needs of residents.
- **Design for Neighbourhood:** Designs that contribute to street activity and a secure and friendly neighbourhood.
- **Design for the City:** Designs that take into account existing activities in the surrounding city area.

ELEMENT 1 – STREETSCAPE INTERFACE AND DWELLING MIX

Residential development interacts positively with the existing streetscape and provides interest and variety by incorporating innovative and contemporary designs whilst providing a range of dwelling types to promote a diverse population.

- Refer to the City Development Design Guidelines for provisions relating to articulation, building design and relationship to the street.

1.1 Identity – Individual dwellings and individual and communal entry ways should be clearly defined and able to be identified from the street.

1.2 Size and Diversity of Dwellings – Developments should provide a range of dwelling sizes and types to increase the number of people that can afford to live in the city and to add diversity to the city centre population. Innovative design solutions are encouraged to provide a range of dwelling types that offer high quality, useable living spaces. In this regard, the following minimum floor areas are recommended:

Studio:	40sqm	2 bedrooms:	70sqm
1 bedroom:	50sqm	3+ bedrooms:	100sqm

NOTE: 1. *The calculation of floor area is the net floor area and is exclusive of balconies. Storage areas within dwellings are included as part of the calculation.*

ELEMENT 2 – PRIVACY AND SECURITY

Residential development is designed to maximise actual and perceived level of safety for residents and visitors, while also achieving an adequate level of visual privacy to all dwellings given the intensive nature of development in the city.

2.1 Privacy

While acknowledging that total protection from overlooking is unlikely in an inner city context, developments should be designed to optimise visual privacy to all dwellings and private spaces by considering:

- the layout of dwellings within the site;
- the placement of windows and balconies in adjoining developments;
- the placement of windows and balconies to dwellings within the development with consideration given to screening and sill heights; and
- the location of private open space, particularly within the site.

2.2 Surveillance

Developments should be designed with:

- at least one habitable room per dwelling overlooking public or communal open space; and
- front doors and lobby entrances facing the street or within clear view of adjacent dwellings.

2.3 Lighting

Appropriate lighting should be provided to:

- internal and external access ways;
- communal entry ways and lobbies, including security entries;
- dwelling entries;
- open spaces and setback areas; and
- parking areas.

ELEMENT 3 – NOISE

Residential developments deliver an appropriate level of amenity for residents by attenuating noise between dwellings, other building uses and activities, external noise sources, and from mechanical plant and equipment.

Developments should:

- be designed to respond to their location in relation to busy transportation systems (main roads, bus routes, rail lines, waterways and helipads), commercial and entertainment precinct/venues, or any other noise sources, by utilising design/construction methods to reduce any associated adverse impacts.
- These methods include:
    - designing the building to locate the windows of sleeping and other sensitive areas away from external noise sources where possible;
    - using appropriate building materials and design methods to minimise the impact of any excessive external noise sources;
- separate parking areas, vehicle access ways and service areas from the sleeping and other noise sensitive areas of dwellings;
- ensure the mechanical plant and equipment is selected, located and treated so as to minimise noise emission and nuisance in accordance with the relevant standards and regulations;
- use appropriate fresh air intake air conditioning systems where necessary to maintain adequate indoor noise levels;
- consider the layout of dwellings so that quiet areas are located away from the noise sources of adjoining dwellings and other external high noise sources; and
- ensure the construction and materials of walls and floors between dwellings and/or uses minimises noise transfer between dwellings or tenancies to the relevant standards and criteria.

In order to appropriately address the above criteria, an acoustic report will be required to be submitted with all development applications, to be approved by the local government. The report must be prepared by an accredited acoustic consultant and must verify that the development will achieve compliance with the standards specified in Appendix 2, and is in accordance with the acoustic report requirements of the local government. On completion of the building construction a test or inspection report shall be submitted verifying that the building complies with the requirements.

ELEMENT 4 – OPEN SPACE

Residential development incorporates open spaces which are functional, comfortable, and accessible.

4.1 Private Open Space

Private open space should be provided for each dwelling which:

- is of a useable size (10m^2) and dimensions (**Note:** 2 metres is considered a useable dimension);
- is directly accessible from an active habitable room;
- receives adequate levels of natural light and air;
- provides appropriate weather protection; and
- where possible, is screened from the view of adjacent properties.

4.2 Communal Open Space

Where communal open space is provided, consideration should be given to the security, comfort and usability of the space and the facilities provided within the space.

Note: 1 *Refer to City Development Design Guidelines for more detailed information on security.*

4.3 Landscaping: Developments should:

- provide 'in-ground' landscaping where possible;
- provide adequate on-site drainage of water;
- incorporate the retention of any significant vegetation;
- avoid large areas of hard paving;
- promote landscaping that is appropriate to the site;
- incorporate water efficient reticulation systems;
- avoid the use of vegetation that would create obstructions to surveillance;
- consider the environmental benefits of providing a roof garden; and
- ensure ongoing maintenance of landscaped areas.

ELEMENT 5 – EFFICIENT RESOURCE USE AND PROVISION OF DAYLIGHT

Residential development incorporates environmentally sensitive design principles and ensures adequate natural light and ventilation to all dwellings.

- Refer to the City Development Design Guidelines for provisions relating to energy efficient design.

5.1 Heating and Cooling – Developments should:

- be designed with a northern orientation and where possible provide living areas with north facing windows;
- limit the heat loading effect of the sun by minimising large areas of glass on the western face of the building; and
- ensure maximum solar access to solar water heating appliances and those of neighbouring properties.

5.2 Ventilation – Developments should:

- maximise the number of windows that can be opened; and
- where possible, incorporate cross ventilation within dwellings.

5.3 Stormwater

Stormwater discharge should be minimised by directing water to landscaping or permeable surfaces. Where appropriate, stormwater should be collected, stored and reused for irrigation.

5.4 Clothes Drying

Clotheslines should be located to maximise access to sunlight and breezes without being in the public view.

5.5 Borrowed Light

Direct natural lighting shall be provided to all living, dining and sleeping areas of each residence in excess of BCA standards. However, where reliance on borrowed light is demonstrated to be unavoidable, as may be the case with some building conversions, only non-habitable rooms, studies and kitchens may be designed with access to borrowed light, with such internal layouts utilising innovative design approaches and elements such as moveable and/or translucent internal walls and reflected light.

5.6 Light Wells

Indirect natural light should be provided to the building core through the use of light wells. Developments should:

- Provide light wells consistent with the minimum sizes specified in the following table:

Height of Light Well (a)	Minimum Horizontal Dimension of Light Well (b)
Up to 18 metres	6 metres
18m – 45m (15 storeys)	8 metres

Over 45 metres	Not appropriate – other means of access to daylight will need to be provided

- avoid locating building or dwelling services such as air conditioner condenser units in light wells;
- locate and design light wells to provide for natural ventilation; and
- consider the location and floor layout of dwellings around a light well in terms of noise transfer and visual privacy.

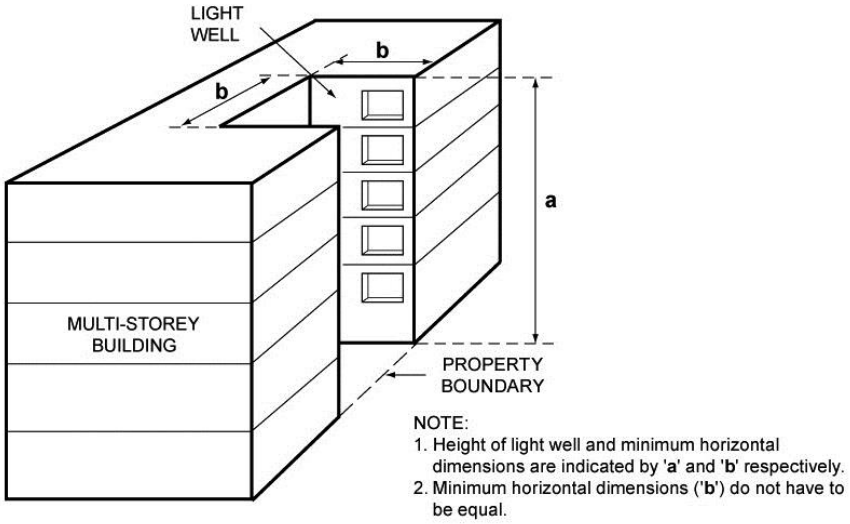

Figure 1: Light Well Illustration

5.7 Relationship to adjoining buildings

The proximity of buildings to each other affects the amenity of spaces inside the building, the quality of space between buildings, visual and acoustic privacy and solar access to private and shared open spaces. Appropriate separation between buildings to maximise light, air and outlook, while meeting precinct objectives is required. Buildings should be setback from side and rear lot boundaries in accordance with the Building Heights and Setback Policy.

5.8 Greywater Use

The recycling and reuse of greywater in developments is encouraged. Refer to the Department of Health's Code of Practice for the Reuse of Greywater in Western Australia for further information.

5.9 Sustainable Development

Residential development that is consistent with the efficient use of energy and resources, and the minimisation of greenhouse gas emissions is encouraged. Further information on incorporating energy efficient design principles can be found in the City Development Design Guidelines.

ELEMENT 6 – ACCESS AND PARKING

Residential developments are provided with secure, convenient and accessible vehicle and bicycle parking facilities.

- Refer to the City Development Design Guidelines for universal access requirements.
- Refer to the Parking Policy for parking requirements.
- Refer to the Bicycle and End of Journey Facilities Policy for bicycle parking requirements.

ELEMENT 7 – SERVICING

Residential developments are provided with secure, accessible and useable storage, waste and mail facilities.

7.1 Stores – Developments should provide a store for each dwelling which is:

- of size and dimensions at least capable of storing a bicycle (refer to Policy 5.4 Bicycle and end of journey facilities for bicycle parking requirements), unless separate secure bicycle parking facilities are provided;
- secure and accessible to users; and
- located preferably in a basement or underground parking area.

7.2 Mailboxes – Developments should:

- provide mailboxes within easy access to building entrances;
- provide adequate lighting of the area around the mailboxes;
- provide a single consolidated area for all mailboxes, particularly for multiple dwellings;
- ensure that mailboxes are lockable; and
- provide weather protection for mailboxes.

ELEMENT 8 – BUILDING CONVERSION

Residential conversions provide a similar level of amenity as new residential developments, with consideration given to the constraints that are placed on a development when it involves reusing a building of heritage or streetscape significance.

8.1 Essential Amenity Requirements

To determine whether a building is suitable for conversion, at a minimum, the requirements of elements 3, 5, and 6 of this Policy must be capable of being satisfied.

8.2 Building Code of Australia

Applications involving the conversion of an existing building should satisfy the requirements of the Building Code of Australia (BCA). The local government may support variations to the acceptable construction standards of the BCA in matters of health, amenity and safety for development involving conversion of a place of cultural heritage significance, subject to compliance with the relevant performance requirements.

8.3 Building Height – Conversions proposing additional building height should:

- respect the cultural heritage significance of the building, or the significance of the heritage area if it is located within one;
- be integrated with the existing building in a manner satisfactory to the local government; and
- have no negative impact on adjoining properties or the streetscape.

8.4 Conversions involving Heritage Places – Conversions should:

- respect the cultural heritage significance of the existing building and comply with the principles of the Australian ICOMOS Burra Charter;
- be accompanied by a detailed heritage assessment or a conservation plan prepared by a recognised heritage architect or consultant, to identify the heritage values and significant fabric of a building;
- include the retention of the significant heritage fabric of a building; and
- comply with the provisions of the Residential Design Policy, except where compliance will impact on significant heritage fabric.

APPENDIX 1: DEFINITIONS

In general, definitions are in accordance with Schedule 4 of the City Planning Scheme No. 2.

The following definitions specific to residential design also apply.

Australian Standards:

- **AS/NZS 1668.2:2002:** The use of ventilation and air conditioning in buildings – Ventilation design for indoor air contaminant control.
- **AS/NZS 1680.2:**1993-2006: Interior lighting.
- **AS/NZS 2107:2000:** Acoustics – Recommended design sound levels and reverberation times for building interiors.
- **AS/NZS 2890.1:** Parking facilities: Off-street car parking.
- **AS/NZS 2890.2:** Off-street parking: Commercial vehicles.
- **AS/NZS 2890.3:** Parking facilities: Bicycle Parking Facilities.

Austroads Part 11 – Guide to Traffic Engineering Practice Part 11: Parking.

Austroads Part 12 – Guide to Traffic Engineering Practice Part 12: Pedestrians.

Austroads Part 14 – Guide to Traffic Engineering Practice Part 14: Bicycles.

Communal Open Space –	Open space set aside for the recreational use of the occupants of a multiple dwelling, not including driveways or car parking areas.
Habitable room –	A room used for domestic activities that includes a bedroom, living room, lounge room, music room, sitting room, television room, kitchen, dining room, sewing room, study, playroom, sunroom, gymnasium, fully enclosed swimming pool or patio, but excludes a bathroom, laundry, water closet, food storage pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes drying room, veranda, unenclosed swimming pool, patio or other space of a specialised nature occupied neither frequently nor for extended periods.
Primary Street –	The sole or principal public road that provides access to a site.
Private Open Space –	Open space set aside for the exclusive use of the occupants of the dwelling to which it abuts, excluding car parking spaces and access ways.

APPENDIX 2 – NOISE REQUIREMENTS

Acoustic Report

A. Objective

An acoustic report shall demonstrate how the proposed development has been acoustically assessed and designed for the purpose of minimising the effects of noise intrusion and/or noise emissions.

B. Requirements

The acoustic report will address the below standards as set out in Sections A to C, and the report shall:

1. be prepared by an acoustical consultant with relevant qualifications and experience equivalent to those required for admission as a Member of the Australian Acoustical Society (to the satisfaction of the local government);
2. be lodged during the development application stage; and
3. to the satisfaction of the local government, address all matters that are required to demonstrate that the 'objective' has been achieved including:

   (i) for developments that may receive noise (noise intrusion):

   - the identification of all environmental noise sources;
   - the measurement of all identified noise sources including, adequate sampling to enable the establishment of reliable design noise levels. For example, for traffic noise, measurements at different times such as during peak traffic times and late at night on weekends;
   - the character of the noise source to be adequately described in terms of frequency analysis (minimum of octave bands);
   - the establishment of appropriate interior design sound levels for various areas of occupancy (in accordance with the noise criteria outlined below in Sections A to C;
   - a detailed description of the construction measures that are required to be included, or which have been included, in the proposed development to achieve the noise levels prescribed in the noise criteria outlined below in Sections A to C. Calculations shall be based on octave band noise source data and octave band sound reduction performance for construction elements; and

- the provision of the following:
  - date, time and results of measurements;
  - design noise levels used in assessment;
  - design sound levels used for internal spaces; and
  - recommendations for construction; and

(ii) for developments that may emit noise (noise emissions):

- the identification of all noise sources to be addressed, including alfresco areas for lifestyle uses such as cafes, restaurants and hotels;
- determination of noise source levels and character;
- acoustic data to be in octave bands where noise sources are internal;
- the establishment of Assigned Levels for noise sensitive premises in the vicinity in accordance with the Environmental Protection (Noise) Regulations 1997;
- a detailed description of the construction measures that are required to be included, or which have been included, in the proposed development to achieve the noise levels prescribed in the noise criteria outlined below in Sections A to C. Calculations shall be based on octave band noise source data and octave band sound reduction performance for construction elements;
- for commercial premises that have external noise sources, a description of the measures that are required to be included, or which have been included, in the proposed development to comply with the Environmental Protection (Noise) Regulations 1997; and
- the provision of the following:
  - date, time and results of measurements;
  - design noise levels used in assessment;
  - Assigned Levels determined for adjacent areas/noise sensitive premises in the vicinity; and
  - recommendations for construction and noise control.

C. **Noise Attenuation Measures** – Noise attenuation measures that may be addressed in the acoustic report and implemented into the construction of the development to achieve the noise criteria outlined below in Sections A to C include:

(a) Windows:

(i) heavier/thicker glass;

(ii) double glazing;

(iii) special acoustic requirements for window frames; and

(iv) specific acoustic performance requirements – Laboratory test data.

(b) Walls:

(i) stud frame walls may require acoustic upgrading;

(ii) acoustic attenuation for exhaust vents through wall; and

(iii) specific acoustic requirements for external doors.

(c) Roof – Ceiling:

(i) specific acoustic requirements for sealing roof;

(ii) upgrade acoustic performance for ceiling;

(iii) closing/sealing of eaves;

(iv) insulation of ceiling void; and

(v) acoustic attenuation for vents through roof.

(d) Mechanical Plant:

(i) importance of selecting an appropriate location; and

(ii) noise control measures required including barriers and enclosures.

Section A - Noise Isolation Between Dwellings

Designs that comply with the minimum standards of the Building Code of Australia and:

- a $R_w + C_{tr}$ of not less than 50dB for a wall separating dwellings or separating a dwelling from another part of the development;
- a discontinuous construction between wet and habitable areas and to all kitchens on walls separating dwellings or separating a dwelling from another part of the development;
- a $R_w + C_{tr}$ of not less than 50dB for a floor separating dwellings or separating a dwelling from another part of the development;
- a $L_{n,\ w}$ impact rating of not greater than 62dB for a floor separating dwellings or separating a dwelling from another part of the development;
- a $R_w + C_{tr}$ of not less than 40dB between habitable rooms and soil, waste and water supply pipes serving more than one dwelling; and
- a $R_w + C_{tr}$ of not less than 25dB between non-habitable rooms and soil, waste and water supply pipes serving more than one dwelling.

Section B - Environmental Noise Intrusion

Designs that comply with:

- the design sound levels in the "satisfactory" criteria of AS/NZS 2107:2000, measured with:
  - the windows closed; and
  - sleeping areas assessed between 10:00pm and 7:00am;

Note: *1. Where it is demonstrated that the "satisfactory" criteria of AS/NZS 2107:2000 is not appropriate to meet, suitable alternative noise standards shall be demonstrated and approved up to the maximum criteria set in AS/NZS 2107:2000.*

- a maximum noise level (L_{Amax}) due to individual noise events not exceeding the equivalent noise level (L_{Aeq}) by more than 15dB, measured in accordance with AS/NZS 2107:2000; and
- where the maximum noise level with windows open for an area up to 5% of the floor area exceeds the satisfactory criteria of AS/NZS 2107:2000 by more then 10dB, the ventilation requirements of AS/NZS 1668:2002 shall be provided.

Section C - Environmental Noise Emission

Designs that ensure noise emission from mechanical plant equipment and activities of occupants

(e.g. waste handling, communal gathering and movement) complies with the *Environmental Protection (Noise) Regulations 1997*.

Acoustic Terms and Symbols

dB(A) Decibel – The basic unit of sound pressure level. A change of 1dB in sound pressure is the smallest change that can be detected by the human ear. The Decibel scale is logarithmic to relate to the human hearing, A-weighting, so a 10 dB increase results in doubling of the perceived loudness. 0 dB is the threshold of hearing and 120 dB is the threshold of pain.

Hz Frequency in Hertz – The human ear responds to sound in the frequency range of 20 Hertz to 20,000 Hz. A combination of sound pressure and frequency determine perceived loudness. The centre frequency of an octave is double the frequency of the lower octave. Sound measurements are usually taken at 16 one-third octave bands between 50 and 5,000 Hz.

L Sound pressure level – The sound pressure, measured in decibels, for one-third octave bands, recorded in the receiving rooms of a laboratory sound insulation test.

R Sound reduction index – A measure of airborne sound insulation calculated from the ratio of the sound power incident on a partition to the sound power transmitted through the partition.

R_w Weighted sound reduction index –

A single figure rating, in decibels, for the airborne sound insulation of a building element calculated from the range of R values tested in a laboratory. A higher value provides better insulation.

C_1, C_{tr} Spectrum adaptation term –

A value, in decibels, to be added to a single number rating (e.g. Rw, L'ntw) to take account of the characteristic of particular sound spectra. Ctr allows for low frequency noise like DVD and HiFi/TV sound, and C1 for footfall on floors.

Impact sound insulation – Characteristic of a building element to reduce sound resulting from direct impact on the building element.

L'_{ntw} Weighted standardised impact sound pressure level –

Single number rating of impact sound insulation between dwellings tested on site. A lower value provides better insulation.

$L_{n,w}$ Weighted normalised impact sound pressure level –

Single number rating of impact sound insulation property of a floor tested in a laboratory. A lower value provides better insulation.