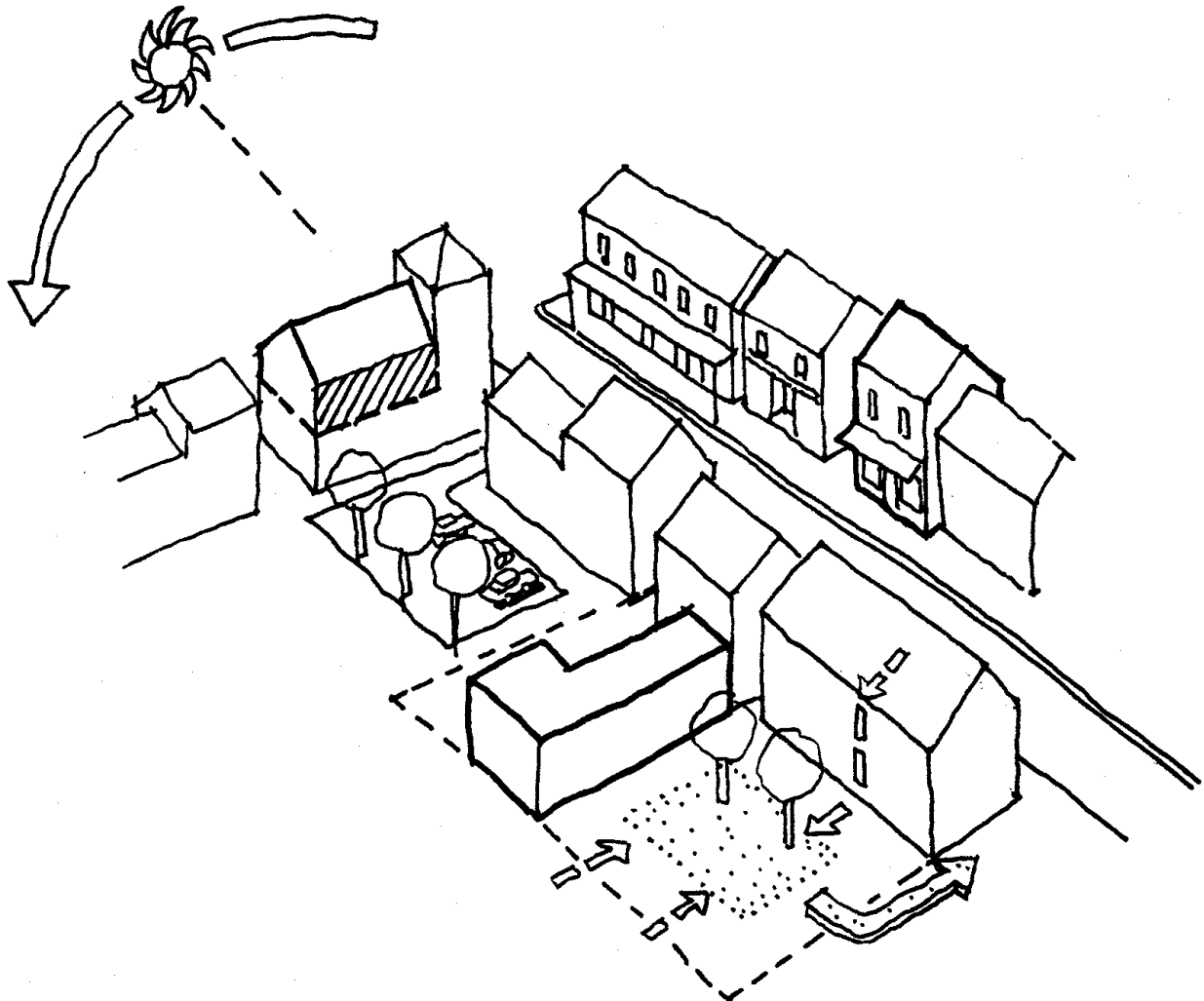




C1.0 NON - RESIDENTIAL DEVELOPMENT





How DCP Part C – Non-residential applies

DCP Part C - Non-residential applies to new business, industrial and other non-residential development irrespective of the zoning of the land.

Use DCP Part C- Non-residential along with DCP Part A - General Information. Particular reference should be given to Leichhardt Local Environmental Plan 2000 Part 2 – Vision, General Objectives And Planning Principles, Part 5 - Employment, Part 6 - Open Space, Recreation and Leisure and Part 7 - Community Uses.

DCP Part C is divided into 2 parts:

- *General guidance and controls, (Sections C1.0 to C 3.0)*
- *Controls for development types (Section 4.0) and*

Before commencing detailed design work, applicants for development should be familiar with these DCP controls and the structure of the DCP.

Structure of controls

Within the *General guidance and controls* section, planning and design issues are divided into 'Design Elements', and set out in the following format;

Principles

describe the primary purpose and intent of each element.

Rationale

provides an explanation and supporting information for the design element.

Guidelines

provide for best practice, and are encouraged by Council.

Controls

Provide mandatory controls on development.

Applicants should discuss proposals with Council staff prior to lodging a Development Application. This can save time and expense and enable Council to explain the contents of the plan, address potential conflicting controls and consider solutions to achieve the best outcome.

For Development Application submission requirements, Refer to Appendix 1.

If you have any queries regarding Leichhardt Town Plan, please phone the Environmental Management Division of Council on 9367 9222.



C1.1 Design Element 1 Site layout and building design

Principle

Design new development to integrate well with the locality and respect the streetscape, general built form and character of the area.

Rationale

Existing business development in Leichhardt is generally linear in character, aligned along street frontages and covering a large proportion of the allotment. It generally forms 2-3 storey buildings with parapet walls and provision for residential accommodation. Industries are generally located in clusters covering large irregularly shaped allotments although pockets of industry are interspersed with business and follow a regular subdivision pattern.

Other non-residential development is scattered throughout the LGA on varying sized and shaped allotments and located within different zones.

The site layout and design of development for non-residential purposes will depend on the size, shape, location of the site and the purpose for which it is to be developed. It is important that new development respects the prevailing streetscape and townscape in terms of alignment to the street edge, building envelope, orientation and impact on existing and future residential amenity.

Guidelines

Where appropriate, design landmark or gateway buildings on corner and junction sites.

On large sites where redevelopment for non-residential purposes is proposed, the development should respect the existing street pattern and provide buildings which front streets, integrating with the surrounding existing development rather than creating isolated enclaves.

New buildings should respect the height and building envelope of neighbouring existing buildings and should be graded and articulated in such a manner as to harmonise with the new and existing surroundings.





The Suburb Profile (in Part A) includes specific characteristics of an area and may identify opportunities for development including types of use, building form and bulk.

Where sites offer the opportunity for development for multiple commercial purposes, playgrounds and youth facilities should be provided.

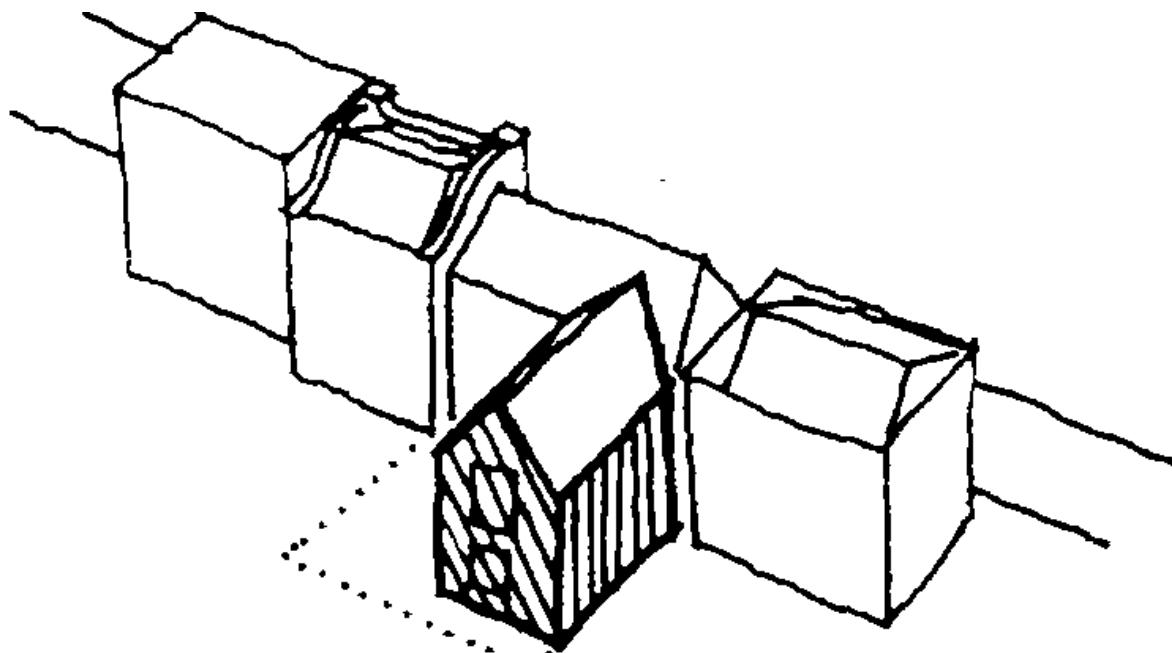
Use the Site Analysis to identify the location and size of existing mature trees and shrubs. Ensure protection of tree trunks and roots is provided during construction and in the completed layout.

Controls

- **Orientate new development to address the street.**
- **The building envelope is determined on a site by site basis, subject to the following principles;**
 - **The envelope control ensures new development fits with the height and scale of adjacent development, and provides for a balanced streetscape.**
 - **The building form and design responds to the nature of the streetscape.**
 - **The wall height is used as the key envelope control, and applied to the 'front' of the building only. A specific wall height may be**

identified in the Suburb Profile.

- **When determining the siting of buildings, enable the provision of access, servicing and parking facilities to the standards required in the Plan.**
- **Ensure that adequate arrangements are made for the provision of water, sewerage and draining services.**





C1.2 Design element 2 - Parking layout, servicing and manoeuvring

Principles

Where on-site car parking or service areas are required, ensure that the layout and design does not detract from the amenity of adjoining areas.

Ensure the design of parking and servicing areas is efficient, safe, convenient, discrete and suitably landscaped.

Minimise nuisance caused by traffic movement, generation and servicing

Rationale

The layout and design of access, parking and service areas should address the needs of the site occupants and visitors as well as respecting the amenity of the area. Account should be taken of potential noise disturbance, pollution and light spillage. Car parking areas can have a significant impact on the streetscape and should therefore be carefully designed having regard to landscaping, layout and location to ensure that parking and service areas are integrated sympathetically with the development and locality.

Provision should be made for various modes of transport for employees and visitors to the site. Where parking is provided it must be in a safe and efficient manner, allowing for easy access for occupants, visitors and service vehicles, whilst ensuring the safety of pedestrians and other road users.

Guidelines

Parking, accessing and servicing requirements of non-residential development can vary considerably depending on the type of use proposed. The requirements relating to each development will need to be assessed on a case by case basis. However, the following guidelines must always be considered:

- Ensure the visual impact of any parking, servicing and accessing is limited to respect the streetscape and amenity;

- Design to improve safety by ensuring adequate sight lines, safe and convenient pedestrian crossing points, well lit areas and avoidance of hidden areas;
- Locate access to and exit from a site for minimal interference with vehicular and pedestrian movement on public roads;
- Design to ensure that loading vehicles are capable of leaving in a forward direction, and where they relate to new buildings, that loading vehicles are capable of both entering and leaving the site in a forward direction;
- Design new non-residential developments to enable a standard truck to complete a 3-point or semi-circular turn on the site without interfering with parking areas, buildings, landscaping or outdoor storage and work areas;
- Avoid on-street loading and unloading where possible. Ensure service areas are dedicated, and not used for other purposes such as the storage of goods and equipment;
- Avoid conflict between service vehicles, cars and pedestrian movement.

Controls

- **Parking layout and design is to comply with numerical standards set out in DCP Part A8.0.**
- **Provide sufficient and convenient parking to satisfy the potential demand generated by the development, and avoid spill-over parking onto public streets.**
- **Integrate the design of car parking into the overall site and building design.**
- **Design access driveways for underground car parking to:**
 - **minimise the visual impact of the entrance to the street;**



- maximise pedestrian safety;
 - maintain pedestrian access and access for people with special needs.
- Design parking levels to be kept as low as possible with a maximum of 500mm above ground level.
- Parking within a building should be contained below ground level where it fronts a street or public place.
- Where non-residential development is within or adjoining a residential zone, locate and design parking areas, servicing areas and the means of access/egress to:
 - minimise conflict between non-residential, residential and pedestrian traffic;
 - provide off-street parking and servicing of premises;
 - respect the character of the existing residential areas and streetscape character by means of siting, design and landscaping.
- Surface parking should be visually articulated by the use of soft and hard landscaping and the use of different surface treatments.
- Parking areas and accessways should be designed, surfaced and graded to reduce run-off and allow stormwater to drain into the site.
- Ensure access and parking areas are well lit by using energy efficient solar technology.
- Ventilate enclosed parking areas using natural ventilation techniques.
- Mechanically assisted parking facilities should not be provided.
- Ensure public car parking and service areas are well signposted or otherwise identified from the entry point.



C1.3 Design element 3 Landscaping

Principles

- 1) *Ensure that new non-residential development provides landscaped areas that:*
 - a) *improve the quality of the development: and,*
 - b) *reduce the impact of the development on adjacent residential areas.*
- 2) *Provide open spaces and landscaped areas that accommodate the needs of the users and relate to the function of the development.*

Rationale

Landscaping performs many functions and the extent of landscaped areas and open spaces associated with a development will depend on the size of the site and nature of the development. For example redevelopment of a large site for a number of commercial premises should be provided with open spaces and landscaped areas to serve both functionally as recreation areas and visually as a context and setting for the development. However, where a small or infill development is proposed, landscaping could serve to enhance the appearance and assist in the ecological sustainability of the development and preserve and enhance the amenity of neighbouring residents.

Landscaping can comprise 'soft' landscaping in the form of plants and 'hard' landscaping in the form of paths, water features, outdoor furniture and the like. The provision of hard landscaping can often be in the form of public works of art and can significantly contribute to the "sense of place" and "community pride" surrounding a development.

Guidelines

Consider the natural ventilation of buildings when deciding on the type and location of hard and soft landscaping features.

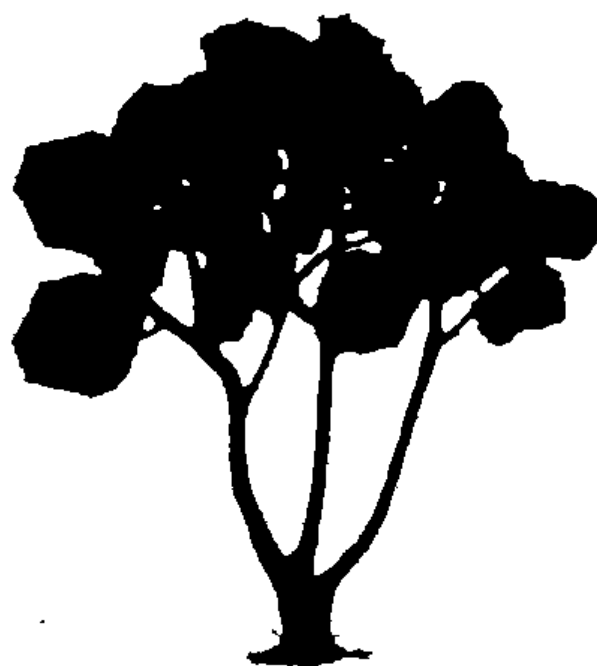
Landscaping can also assist in controlling solar radiation into non-residential buildings. Deciduous

trees located to the north of buildings, vined pergolas and so on assist in improving energy efficiency.

Integrate public works of art and other hard landscaping features with soft landscaping where new development would offer a contextual setting.

Controls

- **Provide a landscaping plan with each development application indicating the number, type and location of plants and hard landscaping features.**
- **Landscaping and open spaces shall be provided to all development to meet the principles of this Plan.**
- **Where an 'Interface' situation occurs, use landscape screening, (such as latticework) or plant a 'landscape buffer' of trees and shrubs, to reduce visual impact of the development, and maintain visual and acoustic privacy of residential areas.**





- Ensure that 85% of plantings in common open spaces in new non-residential developments are native species from the Sydney locale.
- Landscape surface car parking areas with trees that provide adequate shading for vehicles and screening.
- Introduce areas of soft landscaping to improve infiltration of rainwater.
- Where a building is set back from the street, provide a landscaped entrance.





C1.4 Design element 4 Elevation and materials

Principle

Design to respect the elevational character and appearance of the streetscape and locality.

Rationale

The business areas of Leichhardt are typically characterised by major civic and religious buildings, with the retail and commercial buildings following the main roads and ridges around these elements. The linear nature of Leichhardt's shopping streets makes the use of horizontal and vertical control lines an appropriate guide for infill development.

Leichhardt's industry is generally located in clustered pockets or interspersed singularly throughout business areas. Whilst the function of an individual building often dictates size and setting the elevational detailing of new development in these areas should complement the surrounding buildings.

New development should provide interesting, articulated and proportioned facades where elevations to the street and public places do not comprise 'dead frontage' but provide openings where activity behind can be perceived.

Larger commercial development sites offer an opportunity to create their own character. However the edges of these sites should respect the existing adjacent elevational details.

In order to achieve compatibility of elevational detail, proportions and scale of new or altered buildings, and maintain the existing characteristics of 19th and 20th century development it is necessary to respond to the vertical and horizontal rhythms established by existing buildings and streets. Rhythms are recurrent design lines that establish a design pattern and reinforce the character of a particular street or section of street. Elevational relief and modelling detail also contribute to fitting in with the streetscape.

Guidelines

Vertical control lines are set by such elements as blade/party walls, nib walls, exposed downpipes, attached piers, setbacks, changes in facade



planes, etc. Bays are established by vertical control lines.

Divide the facades on new buildings into vertical bays or units of dimensions appropriate to the scale of the building being proposed and that of adjoining development.

Horizontal control lines are set by such elements as ground level, string courses, cornices, balconies, balustrades, roofs, eaves lines, door/window heads, etc.



Use horizontal control lines to align elements of new buildings with similar elements on adjoining buildings.

Where alterations and additions are proposed to an existing building, remove inappropriate facades and additions, and achieve unified colour schemes to groups of terraces.

Design the vertical elements of facades of new buildings to relate to the scale of the building proposed and that of adjoining development.

Relate the horizontal elements of the facade of new buildings to the horizontal control lines of adjoining development.



Use vertical and horizontal control lines along with guidelines and controls on shopfronts and advertising signs.

The painting of brickwork should be avoided and the rendering of elevations should be in a neutral colour.

Controls

- **Design elevational features such as fenestration and doors to be in proportion with the scale and size of the new building and any adjoining buildings and the streetscape.**
- **Building materials and finishes should complement the finishes predominating in the area.**
- **When designing extensions on buildings next to Heritage Items ensure the modelling and relief is respected.**
- **Provide articulated elevations to new buildings where the streetscape dictates and where wide elevations front the street.**
- **Where buildings front the street or other public space the facade should contain windows which allow activity within to be perceived from outside and which offer visual surveillance of the streets or public space.**



C1.5 Design element 5 Site facilities

Principle

Design to integrate adequate and convenient site facilities such as storage, recycling and collection areas into the overall development.

Ensure site facilities are practical and easily maintained.

Rationale

Different types of development have different requirements in their proposed functioning and servicing. Site facilities provide the 'accessories' to ensure that these varying needs are met. All development will generate garbage of some degree and this needs to be accommodated, easily deposited and collected. Similarly other site facilities will need to be provided in a development. It is important that the needs of the users and the efficiency and ecological sustainability of the development is considered at the design stage. The facilities to accommodate these needs should be incorporated into the design in an efficient, practical and aesthetic manner.

Guidelines

Garbage bins, waste recycling areas and external storage facilities should be adequate in size, durable, waterproof, blend in with the development, avoid visual clutter and be accessible to the users of the building and service vehicles.

Bicycle storage, showers, changing rooms and lockers should be provided to all new developments. Consider the need for appropriately placed mailboxes.

Provide adequate internal storage and design internal layouts to allow the building to be re-used for other purposes in the future.

Avoid designing buildings where large areas do not receive direct natural daylight.

Provide drinking water fountains in multiple commercial and community developments and where 'transitional space' is proposed.

Controls

- **Where drinking water fountains are provided, ensure they are accessible and useable by children and physically disadvantaged people.**
- **Ensure garbage storage and waste recycling areas are not located adjacent to any residential habitable rooms.**
- **Refer to DCP No. 38 – Waste, Avoid, Reuse and Recycle for further controls relating to the design and provision of waste facilities.**

Key references:
Leichhardt DCP No. 35 –
Exempt and Complying
Development



C1.6 Design element 6 Shopfronts

Principle

Design shopfronts to respect streetscape, elevational proportions of the building and heritage/conservation value.

Provide functional shopfronts that contribute to the vitality of the area and are accessible to all.

Rationale

Shopfronts contribute significantly to the appearance of Leichhardt's business centres and there is constant pressure to update and modify existing frontages. Well designed shopfronts using good quality materials are essential if the visual quality and integrity of Leichhardt's shopping streets are to be maintained and enhanced. It is important that the proportion and scale of the shopfront relates to both the building of which it is part, and to adjoining buildings.

Traditional shopfronts provide a variety of materials and a richness of period details. The preservation of existing traditional shopfronts, is encouraged.

The business centres of Leichhardt contain a wide variety of shops with individual character and traditional styles. A large number of original shopfronts exist in Leichhardt. There are many significant examples dating from the 1850's. These are of timber construction, often incorporating splayed recessed entrances. From 1910 to 1940, metal framed shop windows were used, combined with tiling.

The 'frame' of the shopfront is the most important element and defines the overall design. Such a frame can consist of pilasters, often with decorative details including corbels, the cornice and the stallriser or stallboard. Within this frame the arrangement and detailing of fascias, doors, windows, mullions and sills can be articulated to give a shop individual character and identity.

Guidelines

With the preservation or reconstruction of a traditional shopfront, it is important that the frame for the shopfront remains intact. The retention or reinstatement of traditional fascia lines, can make a significant contribution to the appearance of a row of shops. In most cases, the use of natural materials is preferred to materials such as plastic or aluminium.

The re-instatement and replacement of shopfronts offers the opportunity to provide entrances that allow access to all.

New development which does not form infill development provides the opportunities for innovative design that characterises the locality and creates a commercial area that has vitality and interest.

Shopfronts and windows should remain visible at night with the use of internal lighting. Security can be achieved by incorporating any roller shutters behind the window display area, or alternatively, using open grill shuttering or see through screen, behind the line of glazing.

New shopfronts should provide glazing that presents an "active" area to the street. Painted, blank or screen shop windows should be avoided. Where shopfronts are provided to buildings that are not selling goods such as service providers, windows should allow clear vision of the activity within to maintain the vitality of the streetscene.

Design new shopfronts to allow for safe and convenient access for all members of the community, in particular people with limited mobility.

**Controls**

- **New shopfronts should:**
 - be of a high standard of design, using materials that complement the architectural character of the building;
 - relate to the building's architectural form and structure;
 - relate to the surrounding streetscape, scale and elevational proportions of adjacent buildings; and,
 - provide a 'frame' for the shopfront, generally formed by pilasters, fascia and stallboard.
- **Council will not allow the loss of traditional shopfronts on Heritage Items. Where alterations are necessary, use traditional materials for the period.**
- **Where buildings are located in Conservation Areas (but are not**

Heritage Items), alteration or replacement of original shopfronts is not encouraged. Where alterations are necessary, use traditional materials for the period.

- **Design new shopfronts to ensure that shop signs and projecting signs are located within the traditional fascia area, utilise appropriate methods of illumination and comply with this Plan.**
- **Design new shopfronts to allow for safe and convenient access for all members of the community, in particular, people with limited mobility.**
- **The use of roller shutters over shop fronts is discouraged. Shutters or other security devices should be located behind the window display.**



C1.7 Design element 7 Balconies, verandahs and awnings

Principles

Reinstate existing, and construct new posted street verandahs and cantilevered balconies.

Conserve or restore the facades of existing buildings and reinstate streetscapes.

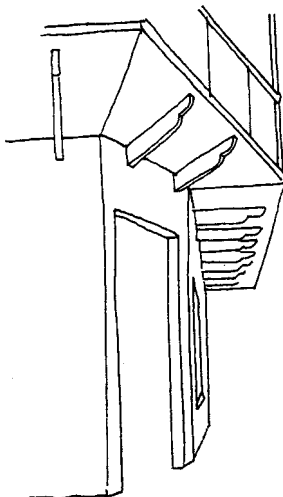
Enhance the social function and comfort of the street by providing sheltered outdoor space.

Rationale

Posted street verandahs, cantilevered awnings and balconies, characterise nineteenth and early twentieth century commercial and domestic buildings in the Leichhardt area. The architectural forms and ornamentation of these structures are characteristically Australian and are a response to climate.

Most of Leichhardt's street verandahs have been lost through decay, demolition, road widening and replacement with cantilevered awnings. In the past their retention has been discouraged by Council by-laws which considered them antiquated and dangerous to pedestrian and vehicular traffic.

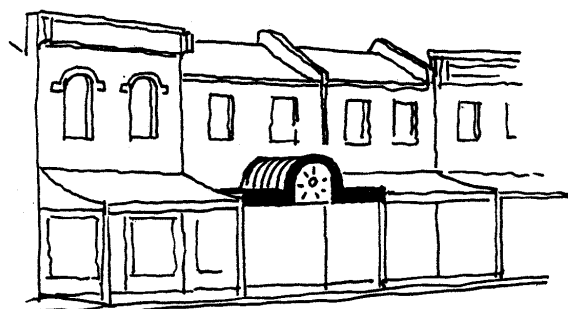
More recently, the heritage and functional value of street verandahs has been recognised and their reinstatement has become more common, especially in historic towns throughout the country. Many new buildings are also incorporating street verandahs as an appropriate response to the climate and to improve pedestrian amenity.



Guidelines

Where a verandah or balcony is to be conserved or reinstated, Council requires that the original form be retained or replicated based on both the physical and documentary evidence (especially photographs of the verandah where available). The advice of a heritage architect with expertise in conservation work is highly desirable. If there is insufficient evidence for a particular verandah or balcony, reference to details of other verandahs on similar buildings should be used as a guide.

Where a verandah or balcony is proposed to a new building, it should complement the streetscape rather than replicate traditional forms, materials and embellishments.



Where an adjacent verandah is closer than 600mm to the kerb alignment, Council may approve a new structure within this distance.

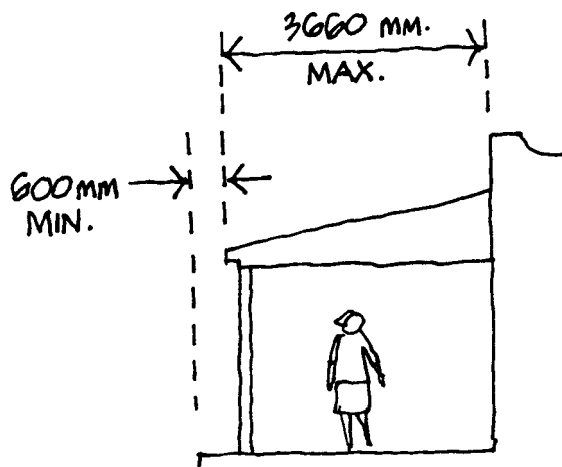
Street verandahs need to be designed to minimise public risk, particularly the risk of impact from motor vehicles and consequent possible collapse. Traditional verandahs are commonly timber framed with hardwood or cast iron posts. In conservation or reinstatement, traditional construction methods and materials should be used, but the design should ensure maximum stability in the event of removal of one or more of the supporting posts. This may involve some change to the structure.



Where new verandahs are designed to complement rather than replicate traditional forms, steel framing could be used to achieve structural stability. In high risk locations such as corners, the whole verandah may need to be designed to be self-supporting either by cantilever or suspension, using tension rods.

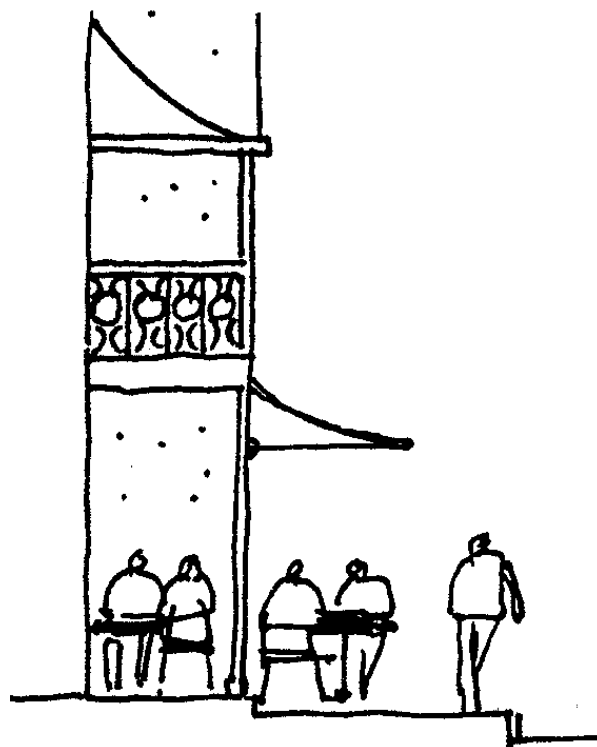
Controls

- Materials and details should be replicated in the reinstatement and conservation of verandahs and balconies to an existing building, ensuring structural integrity.
- Verandahs and balconies to new buildings should complement adjacent traditional verandah forms (where existing) and should not replicate them.
- A street verandah or balcony should not exceed 3660mm in total width from the boundary alignment of the property.



- No part of a street verandah or balcony should be closer than 600mm to the kerb alignment.
- A verandah with one street frontage must be designed so that it is self-supporting in the event of removal of any one post. The design is to be certified by a practising structural engineer.

- A corner verandah (two street frontages) must be designed so that it is self-supporting in the event of removal of the corner posts and any other single post and where exposed to heavy traffic may be required to be a fully cantilevered structure. The design is to be certified by a practising structural engineer.





C2.0 Ecologically Sustainable Non-residential Development

"...ESD is not clear-cut, and there are no easy or obvious choices. A series of compromise decisions will invariably be made due to the simple fact that each of the ESD principles are not mutually exclusive and that, when implemented, they can actually obstruct each other. This is not to say that architects should just discard ESD as too difficult and unresolvable. It is difficult, but it is also extraordinarily important. Quite simply, as a profession we can no longer avoid the responsibility. Our planet's survival depends on it."

Andrew Nimmo, Lahz and Nimmo;

November 1995, Architecture Bulletin



C2.1 Design element 8

Site drainage and stormwater control

Principle

Improve water conservation, reduce stormwater run-off and pressure on the existing stormwater system, and increase on-site storage of rainwater.

Rationale

Stormwater pollution is caused by litter, debris and dust which is washed off the streets and other surfaces during rainfall. Pollution is increased by chemicals and products that are poured or leak into drains and also by sewer overflows. Leichhardt's polluted stormwater flows into the harbour and contaminates soil as well as reducing water quality. This in turn, affects the habitats of fish, water birds and other marine life and reduces our recreation opportunities.

Traditionally, the management of urban stormwater has relied upon engineering hard pipe and channel systems. Whilst these systems have minimised the social and economic costs of flooding, and have mostly been effective at removing stormwater at speed, there have been considerable environmental costs. Furthermore, many parts of our stormwater systems need upgrading because of inadequate maintenance, changes in design standards or increased urban settlement in catchment areas. Upgrading is very costly.

The amount of stormwater runoff in an area relates directly to the intensity of development in that area. For example, due to high site coverage and the extensive surface area dedicated to roofing and carparking, industrial development is up to 90% impervious to water. The imperviousness of an urban area means that stormwater runoff flows more rapidly, and in larger quantities than it does from other land uses. Stormwater runoff flows faster over smooth, hard surfaces. and its speed is compounded by the volume of water. In summary, more buildings

and hard surfaces in an urban area means less natural drainage.

Guidelines

Use perforated pavement materials, such as paving with wide bands of gravel aggregate, to allow the water to be absorbed into the ground.

Ensure large non-residential development sites 'fit' as much as possible, within the hydrology of the natural system. Reduce the possibility of pollutants entering the stormwater system, increase stormwater detention and reduce erosion and sedimentation.

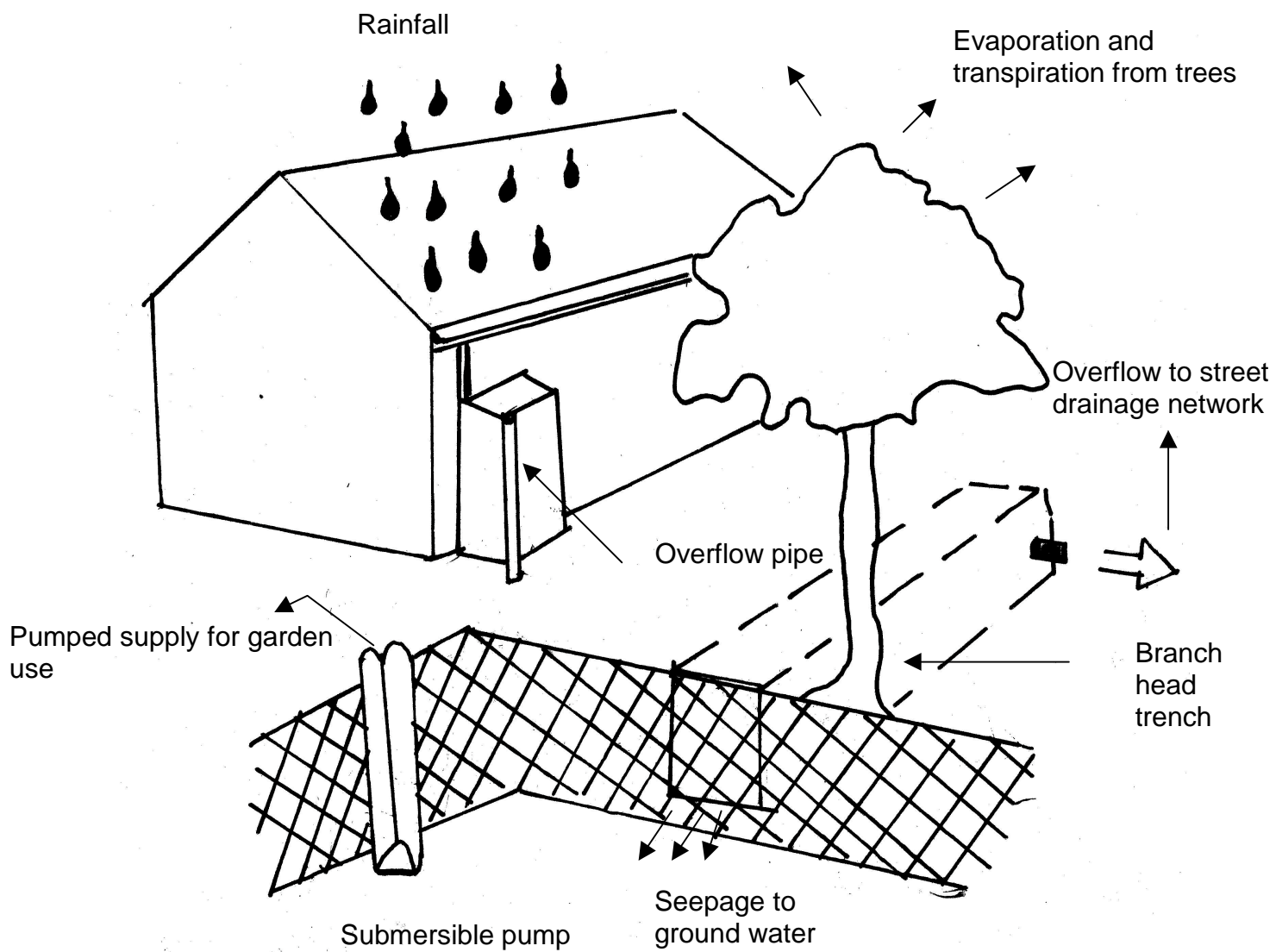
Stormwater infrastructure in large developments should provide maximum infiltration and retardation of peak stormwater flows.

Where open spaces are integrated as part of a large development, investigate their dual use for site drainage by means of infiltration and / or delayed release to the stormwater system.

On-site detention, especially when used on unpaved or grass surfaces, can trap and remove contaminants from stormwater and increase infiltration into the ground.

Controls

- **For non-residential developments, install rainwater tanks.**
- **Incorporate on site detention in accordance with Council's Stormwater Management Policy.**





C2.2 Design element 9 Energy efficient siting and layout

Principle

Achieve improved energy efficiency through the siting and design of buildings.

Rationale

Building shape and orientation have a high impact on the energy performance of a building. A well designed building has the potential to reduce energy costs by up to 50%. The improved performance does not have to add to the project cost or change the appearance of a building.

Correct design of the building envelope is the first line of defence to reduce the negative impacts of the external climate, yet retain the positive elements such as day lighting. Proper design of the envelope can have a significant effect by improving occupant comfort.

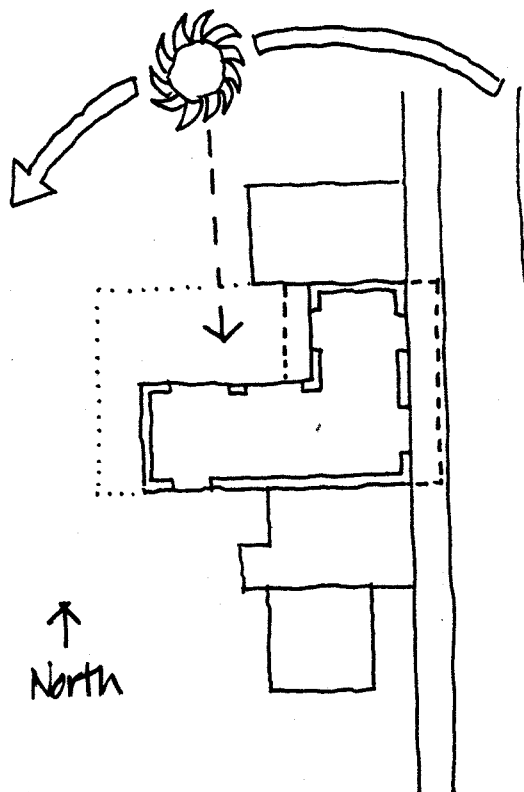
Building shape and orientation are major influences that affect energy consumption. The most critical element of a building's form is the size and orientation of its windows. The shape of a building influences the amount of floor area that can benefit from daylight through windows. Daylight is generally useful to a depth of 4-6 metres from a window.

The existing site constraints of Leichhardt's business centres and industrial areas, will constrain the degree of flexibility of building shape and orientation.

Guidelines

Buildings should be designed to ensure that much of the floor area is within a 4-6 metre distant of an external window. An elongated plan shape produces this characteristic, as will the use of atria and courtyards.

Maximise north and south facades, whilst minimising east and west facades.



Where site conditions allow:

- plan for an elongated shape of a building, orientated in an east-west direction; or
- incorporate atria and courtyards in the building design, to maximise solar access.

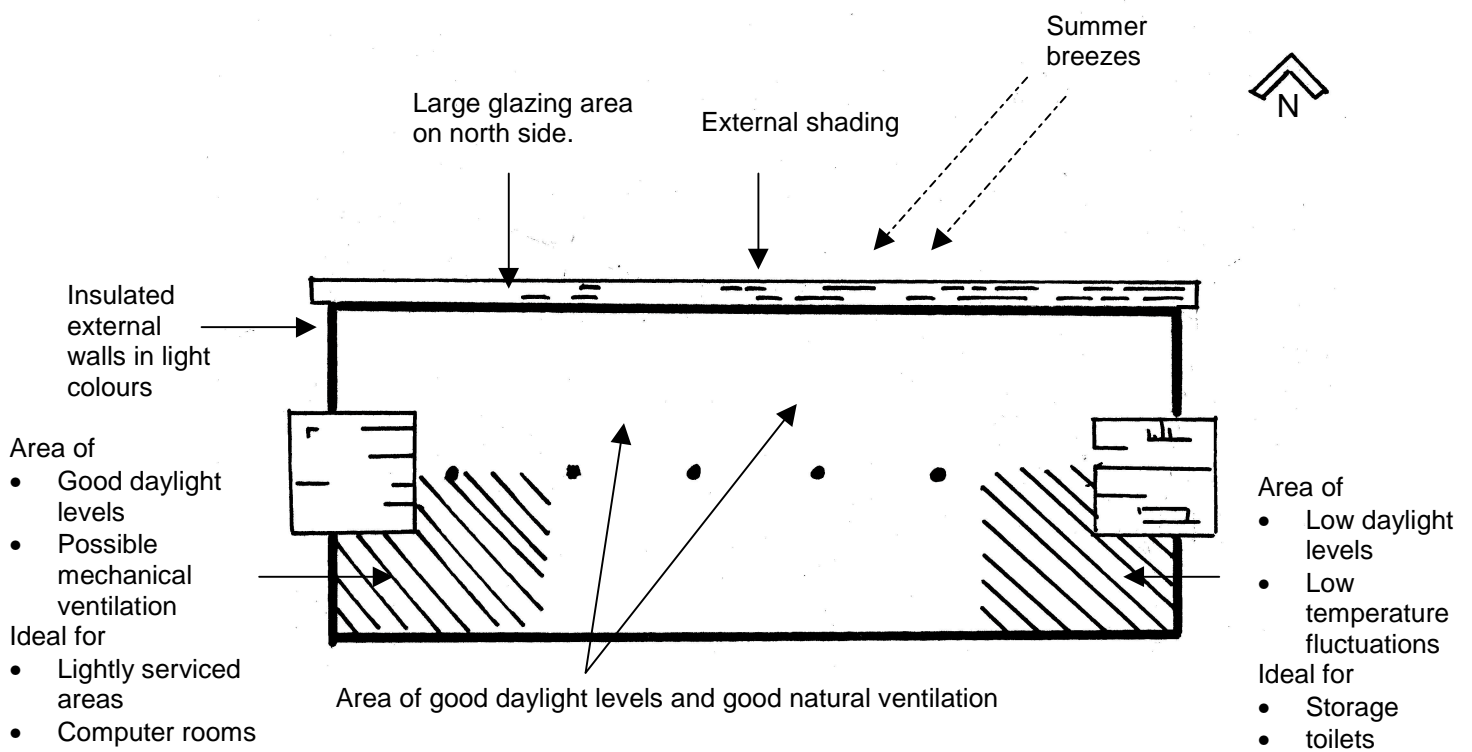
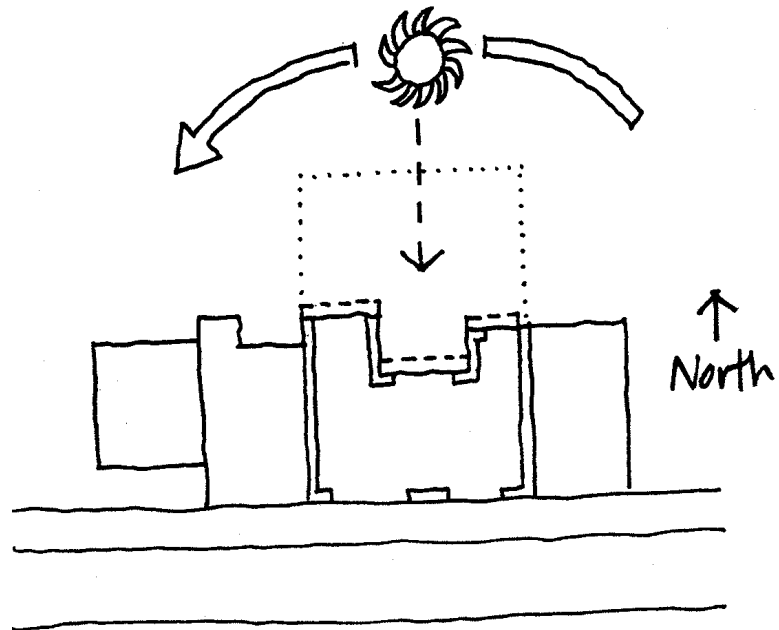
Design commercial buildings to ensure that much of the floor area is within 4-6 metres of an external window.

Where practical, reduce the areas of east and west facing glass to the smallest practical amount in order to still permit views, daylight and market appeal.

Provide vertical external shading to east and west windows.



Typical Low Energy Building –
Floor Plan





C2.3 Design element 10 Building construction Thermal mass and materials

Principles

Improve the energy efficiency and thermal comfort of buildings, by maximising thermal mass.

Choose construction materials that are of an Ecologically Sustainable nature.

Rationale

The principles and properties of *thermal mass, glazing and insulation* are important in achieving energy efficient buildings. *Thermal mass* is a measure of a material's ability to absorb and store heat. Generally, the heavier and more dense a material is, the more heat it will store, the longer it will take to release it and the higher its thermal mass value / rating. Materials commonly used, such as bricks, concrete and stone, have a high heat storage capacity.

Maximising *thermal mass* is important to both heat-gain, and heat-release during the seasons.

In winter, internal walls with a high thermal mass value can soak up heat from the sun through north-facing windows. During the night, this heat is released back into the rooms.

In summer, the thermal mass soaks up excess heat in the building. During the night this heat is slowly released into the rooms, or to any cooling breezes.

Guidelines

Leichhardt Council promotes greater energy efficiency and Ecologically Sustainable Development by requiring the careful choice of building materials.

Choose building materials that take account of the following environmental considerations:

- thermal mass of materials;
- energy efficient materials with low embodied energy;
- recyclable and reusable materials;

- renewable or abundant resources;
- durable materials with low maintenance;
- non-polluting materials;
- environmentally-acceptable production methods.

Maximise the size of north facing walls without reducing solar access to adjoining properties.

Use lighter, more reflective colours for external walls and roofs to reduce heat gain in summer. This is particularly effective if insulation levels in a building are low.

Controls

- **Use materials that have a high 'thermal mass' value, such as bricks, concrete and stone, where they can benefit thermal comfort and energy efficiency.**
- **To be most effective, locate materials with a higher thermal mass:**
 - **inside the building;**
 - **in north-facing rooms, where they can benefit from winter heat gain; and,**
 - **where they are shaded from direct summer sun.**
- **Specify plantation or regrowth timbers, timbers grown on Australian farms or state forest plantations or recycled timbers.**
- **Rainforest timbers or timbers cut from old growth forests are not to be used in Leichhardt.**

Key References;
Appendix 2 Goodwood Guide for lists of recommended plantation and regrowth timbers, and timbers not recommended in Leichhardt.
Appendix 3 Embodied Energy and Thermal Mass
Appendix 6 Typical 'R' Values



C2.4 Design element 11

Solar Control

External window shading and internal and external lighting

Principle

Integrate external window shading into the design of buildings to improve energy efficiency and comfort.

Maximise natural light to buildings and reduce the use of non-renewable energy resources.

Rationale

Windows account for much of the loss and gain of heat in a building, as well as the quantity of daylight, which is let in.

The orientation, size and shading of windows can control the access of sunlight into a building throughout the year. It is important to maximise the benefit of winter sun and minimise the effect of summer sun to achieve thermal comfort and a building, which is energy efficient.

In non-residential buildings the use of artificial lighting can consume considerable non-renewable energy resources. It is therefore recommended that buildings be designed to maximise natural daylight. It is also important to consider the types of appliances, lighting types and controls used within a building in order to maximise the energy efficiency of the building.

Guidelines

Ideally, shading devices should be external.

North facing windows can provide valuable heat gain and light in winter but should be shaded from direct sunlight in summer.

East and west facing windows are difficult to shade in summer and should be minimised. South facing windows require no shading but can cause substantial heat loss in winter.

Maximise north and south windows and minimise those facing east and west.

For north facing walls provide horizontal shading devices such as awnings, upper floor balconies, pergolas, verandahs, eaves and overhangs.

Where windows face east or west, vertical shading devices such as blinds, shutters, adjustable awnings and landscaping should be used.

Consider the location, shape, type and height of fully grown trees when using landscaping as a shading device.

Shading materials are to comply with C1.10 of the Building Code of Australia.

The choice of glass depends upon whether you want to maximise the sunlight or heat loss, or minimise heat gain into the building. Appendix 5 provides a guide to the properties of different glazing types.



The use of skylights, light wells, and atria can let additional daylight into a building although provision of shading in summer and possible heat loss in winter will need to be considered.

The need for artificial lighting can be reduced by the correct orientation and design of the building and the size and placement of windows and service areas which require high lighting levels, eg desks or workstations, by individual task lights.



Lighting costs can be reduced by selecting low energy lamps, ballasts and fittings which provide the desired level of illumination but consume 75% less energy. Lighting controls can be fitted to ensure that lights are not left on when not required. For instance, switches should be provided for separate zones within a large room and for task lights. Time switches or movement sensors should be employed for areas with sporadic use.

Lighting systems should be designed to supplement daylight in order to provide appropriate lighting levels for specific tasks (see Appendix 4).

Controls

- **Where high artificial lighting is necessary for specific tasks, specify task lighting.**
- **Ensure that maximum use is made of daylight to provide appropriate lighting levels.**
- **Provide for external shading to north, east and west facing windows.**
- **For north facing windows, use horizontal shading devices (adjustable or fixed) that maximise winter sun penetration and reduce summer sun penetration.**
- **For east and west facing windows, use vertical shading devices to block the low rays of the rising and setting summer sun.**
- **Use landscaping to reduce summer heat gain, by controlling sun penetration and shading the building and outdoor spaces, without reducing solar access in winter.**
- **Use compact fluorescent or tubular fluorescent lamps with electric, high frequency ballasts instead of tungsten light bulbs (i.e. standard bulbs). Use compact fluorescent or low voltage tungsten halogen lamps instead of tungsten spotlights.**
- **Use solar, metal halide or sodium discharge lamps for outside areas such as carparks.**
- **Ensure lighting controls are sufficient to enable lights to be used only in areas where and when needed. Consider zones which may require a different amount of artificial lighting and have these on a separate switch, eg. windows in cafes or offices. Use time switches and automatic presence detectors for rooms or areas which have sporadic use e.g. changing rooms in retail premises, or after offices are vacated.**



C2.5 Design element 12 Insulation

Principle

Improve the energy efficiency and thermal comfort of buildings through the use of insulating materials in walls, floors, ceilings and roofs.

Rationale

Insulation alters the rate at which a building loses or gains heat. Insulation is not a heat store, it just makes it harder for heat to pass through a wall, roof or floor.

Thermal insulation will help make your building easier to heat in winter, by reducing the rate at which heat is lost, and also help to retain any solar heat gain achieved. In summer, insulation will help reduce heat entering through the walls or the roof, thereby increasing the thermal comfort of the building.

Guidelines

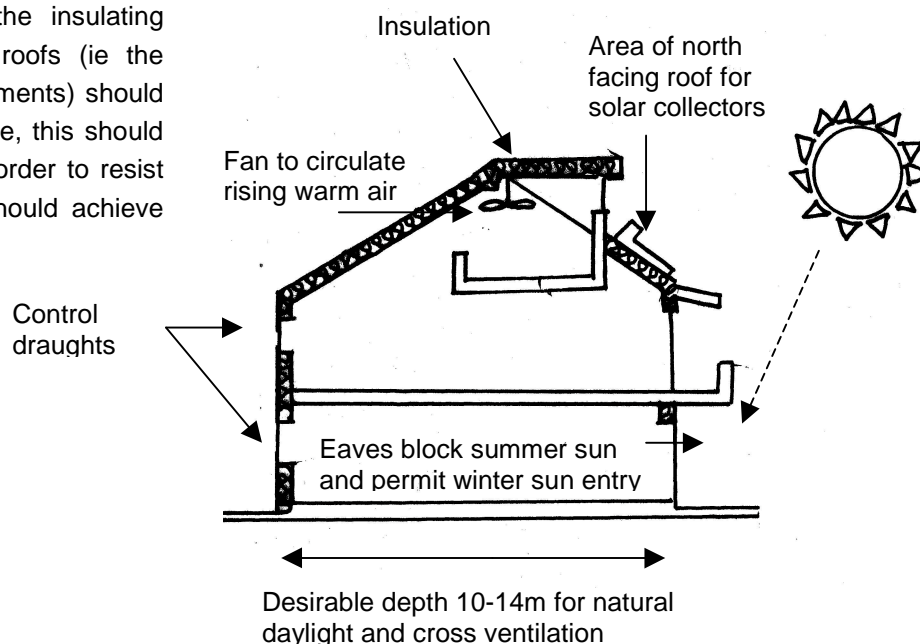
Insulation should be used in external walls and roofs to reduce heat escaping from the building in winter and to maintain lower internal temperatures in summer. The effectiveness of insulation can be measured by its resistance to heat flow, known as a material's 'R' value. The greater the 'R' value, the less heat will flow through the insulating material. The total 'R' value for roofs (ie the combined total of the individual elements) should be at least 2.5R and, where feasible, this should include the use of reflective foil in order to resist inward heat flow. External walls should achieve an 'R' value of at least 1.5R.

Insulation materials are available to suit every situation and can be retrofitted to existing buildings. Examples of the 'R' values achieved by different forms of construction are included in Appendix 6.

Controls

- **Insulate to achieve greater energy efficiency in buildings.**
- **Use bulk insulation and reflective insulation to walls, ceilings and roofs. Construct buildings to achieve a combined 'R' value for insulation to the following standards:**
 - **R2.5 for roofs and ceilings**
 - **R1.5 for walls**
- **Insulate pipes and storage tanks for hot water systems.**

Key references:
Leichhardt DCP No. 35 –
Exempt and Complying
Development





C2.6 Design element 13 Ventilation

Principle

Improve the energy efficiency and comfort of buildings by designing to make the best use of natural ventilation

Rationale

Most people prefer the flexibility of naturally ventilated buildings where windows or vents are easily opened to provide controlled ventilation when needed. However, ventilation is a factor often overlooked at the design stage. Too often, attention is focused upon achieving warmth during winter and not ventilation/ cooling during summer. Natural ventilation relies only on natural air movement and can save significant amounts of fossil fuel- based energy by reducing the need for mechanical ventilation and air-conditioning. It can also help in protecting the ozone layer by reducing the risk of leakages into the atmosphere or the Chlorofluorocarbon (CFC) gases that are still used in many air-conditioners.

Guidelines

Windows should be oriented to take advantage of the cooling summer breezes (predominantly from the NE in Sydney). The position of internal walls and partitions should allow the passage of air through the building although, in some cases, ceiling fans may be required.

In cases where mechanical ventilation is necessary, eg, kitchens, some computer rooms or areas where external noise levels are high, ensure that the system installed has appropriate controls which can cater for the particular use of the building whilst maximising the conservation of non-renewable energy.

Significant factors affecting natural air movement are:

- building form and the location of windows;
- site and landscaping features;
- internal planning and design.

Ventilation can be achieved in the following ways:

- **Cross ventilation**, where air enters a building from one side passing out on the other, replacing warm inside air with cooler outside air.
- **The stack effect**, where warm air rises through the height of the house, and is replaced by cool air at the base of the house.
- **Artificial ventilation**, where fans are used to extract warm air allowing it to be replaced by cool air.

Use the Site Analysis to ascertain wind conditions. Orientate and design buildings to benefit from cooling summer breezes.

For effective ventilation:

- locate openings on opposite sides of rooms;
- locate windows and openings in line with each other, and where possible, in line with prevailing breezes - a low level inlet and high level outlet is preferable;
- use water features such as fountains in strategic positions to cool breezes;
- consider strategic positioning of vegetation to modify wind direction; and
- use ceiling fans to provide a high level comfort on most hot days, at low running costs.

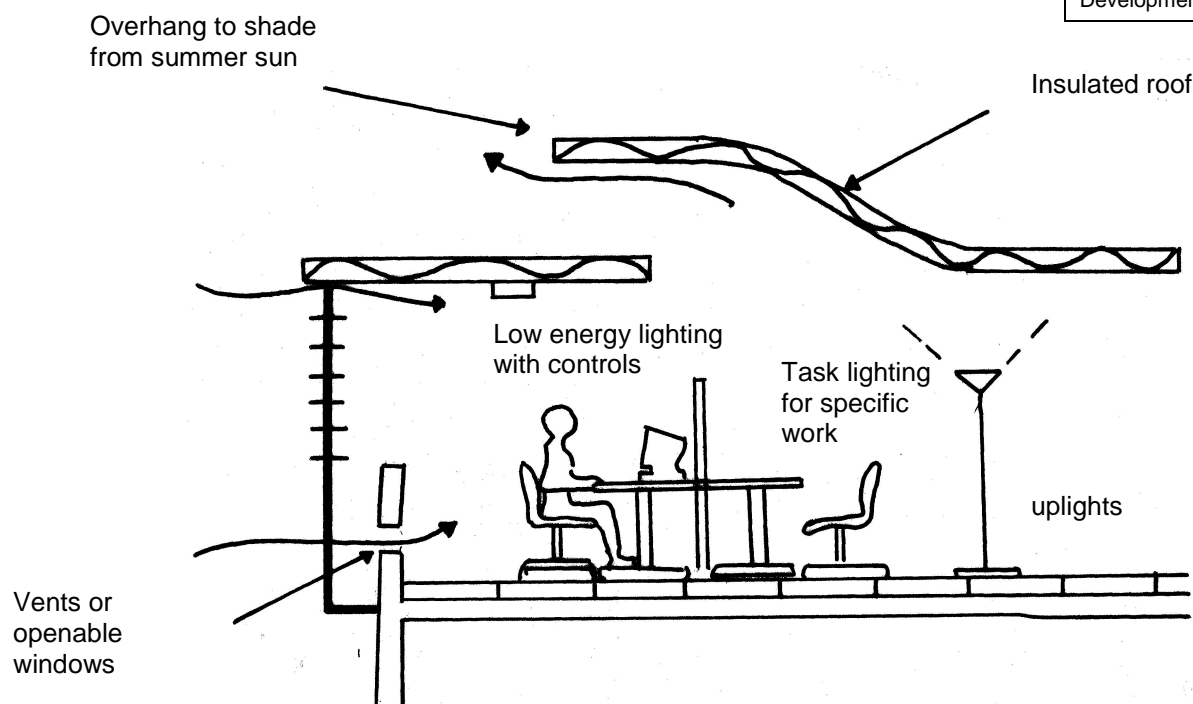
Use window types that provide security while allowing for good ventilation.



Controls

- Design buildings with a maximum internal dimension between openings of 14m to maximise natural ventilation without compromising other design elements.
- Ensure ventilation can be achieved by permanent openings, windows, doors or other devices, which have an aggregate opening or openable size of not less than 5% of the floor area of the room.
- In restaurants or buildings with kitchens where mechanical ventilation is needed, use those which operate directly above cookers, rather than designing high ventilation rates through the whole kitchen.
- Where mechanical ventilation is needed for specific office equipment, or specific plants in industrial unit or warehousing, locate these separately from other activities.

Key references:
Leichhardt DCP No. 35 –
Exempt and Complying
Development



TYPICAL LOW LEVEL ENERGY BUILDING SECTION



C2.7 Design element 14 Space heating and cooling

Principle

Where thermal comfort cannot be achieved through building design elements choose energy-efficient and environmentally-friendly space heating and cooling systems.

Rationale

People, lighting and appliances contribute to the heat generated inside a building. Buildings with good insulation, window shading, effective natural ventilation and high efficiency equipment will provide comfortable workplaces without the need for air conditioning.

Areas of north-facing glazing, good insulation levels and appropriate use of thermal mass, will help reduce the need for additional heating.

Guidelines

If air conditioning is necessary, install a unit with sufficient controls to ensure that it is used only when required. Consider partial air-conditioning directed to areas, rooms where it is needed, whilst the rest of the building remains naturally ventilated.

When choosing heating, consider which type is most suited to your particular needs, i.e usage patterns, location of staff etc. As with other equipment select heating devices that have appropriate controls to cater for the particular use of the building whilst maximising the conservation of non-renewable energy.

Use passive methods of minimising heat gain.

Design buildings with window shading, appropriate insulation, and sealed against hot air infiltration during the day, incorporating ventilation and natural cooling.

Controls

- Install energy-efficient and environmentally friendly space heating systems in all new buildings, conversions and major renovations where needed.
- In industrial units and warehousing, ensure that any goods doors are located away from areas which may require heating or cooling and ensure that they can be closed. Depending on the amount of traffic expected, rapidly closing doors, plastic strip curtains or pneumatic seals should be considered.





C2.8 Design element 15 – Using Solar Energy

Principles

Maximise the use of solar technology in the design of new buildings in order to reduce non-renewable energy consumption and increase the use of renewable energy.

Minimise the visual impact of solar water power collectors and heaters on streetscapes and neighbouring properties.

Rationale

Increasing advances in technology are enabling the provision of solar energy as an energy source. The use of solar energy significantly assists in the reduction of the use of non-renewable resources and the consumption of ecologically degrading energy sources.

The installation of solar water heaters will ultimately reduce cost and provide a constant supply of energy. Such a system enables businesses and organisations to be self sufficient in their energy consumption.

Guidelines

The use of solar technology should be paramount in the design of new buildings and encouraged in major renovations and conversions.

The need for solar water heaters needs to be balanced against the harm that may be caused to the visual appearance of a building and the streetscape by their installation.

Consider appropriate design measures to address their impact.

Solar water heaters may not be beneficial if solar access is insufficient due to orientation or overshadowing. Insufficient solar access is defined as more than 30% reduction in total solar radiation to the solar panels.

Council encourages the use of solar water heaters which also have the capacity to heat and cool spaces. This dual use of a water heating system further increases the energy efficiency of

the building and the positive environmental effects.

Photovoltaic cells (PV's) which convert sunlight into electricity can be incorporated into a building as a cladding or shading element. The electricity produced may be used to meet all or some of the energy needs of the building. The use of PV's is likely to become more commonplace around Australia in the next few years and their use in Leichhardt is encouraged.

Ensure water heaters have efficient thermostatic controls and hot water tanks and pipes are well insulated.

Controls

- **Install solar water heaters of a suitable size for the proposed use in new buildings and in major renovations and conversions that require a new hot water system.**
- **Integrate solar water heaters as part of the building design. Position the units to be as unobtrusive as possible, both to the street and neighbouring properties.**
- **On buildings with a north-facing street frontage, specify and locate solar water heaters to minimise the visual impact of the system on the street. Where possible, set back solar water heaters from the street frontage.**
- **Specify the colour of a solar water heater to be complementary to the roofing materials of the building.**
- **Ensure that mature trees will not shade solar water heaters, both on the proposed development, and on adjoining properties.**



C2.9 Design element 16 Appliances and Equipment

Principle

Minimise the use of non-renewable energy by installing energy efficient equipment and appliances.

Rationale

Light and power is usually the building service that contributes the most to the energy consumption used in buildings.

The energy consumption of non-residential development can be reduced by the application of design guidelines and the careful selection of energy efficient appliances and equipment and management and control of the building spaces.

In catering establishments or shops selling food, cooking and refrigeration can be a major cost. In a modern office, basic equipment such as vending machines, computers, printers, photocopiers and fax machines, can also add considerably to the overall energy costs.

Equipment and appliances consume energy and they give off heat when operating. This may cause the building to require additional cooling. Ways to minimise energy use by equipment and appliances must be considered during the process of building design.

Guidelines

Locate equipment with high heat outputs where they can be easily and discreetly ventilated, and ensure that equipment can be easily maintained.

Energy efficient equipment is available for most tasks. Select those that consume the least energy per unit output. Control mechanisms such as thermostats and regular maintenance of equipment and thermal seals, can often significantly reduce overall running costs. Select office equipment with options for automatic or manual switching to low energy mode.

Energy Management Systems (EMS) are devices used to monitor environmental conditions and control all or some of the building services, such as heating, cooling and lighting. While they vary in sophistication, Energy Management Systems enable desired comfort levels to be achieved within a building while minimising energy consumption. Their use in Leichhardt is encouraged.

Controls

- **Select low energy plant, office equipment and appliances (such as washing machines and dryers in laundrettes and fridges, freezers and dishwashers in restaurants) with automatic or manual switching to low energy mode.**
- **In catering establishments:**
 - **where chest and cabinet freezers are installed use insulated covers over doors/lids, especially at night;**
 - **ensure that refrigerators and freezers are located away from sources of heat and direct sunlight;**
 - **specify highly insulated coolwares for food storage;**
 - **use microwave or fan assisted ovens;**
 - **use an induction hob as an alternative to an electric hob;**
 - **use steamers and fryers with reliable and accurate temperature controls and a high degree of insulation.**





C3.0 Interface Amenity

Interface amenity controls are mandatory for the operational aspects of business, industrial and other non-residential development. They apply to new development, and impose a high standard of control in order to ensure that the amenity of residential areas are protected.

Use these controls and guidelines where non-residential development is located within or adjoins a residential use or area.

These principles are also appropriate for non-residential development in all locations. The application of these guidelines and controls will ensure an improved amenity for the occupants of the industrial and commercial areas as well.



C3.1 Operational Element 1 Noise and vibration generation

Principle

Minimise the impact of noise and vibration by proposed operations and on proposed developments of existing and projected future sources of noise and vibration.

Rationale

To ensure that the quality of life enjoyed by residents and people engaged in business and community pursuits is not hampered by excessively noisy activities.

The State Government has set down standards in relation to acceptable noise levels for all operations and land uses. These standards are set out in the Environmental Protection Authority's Environmental Noise Control Manual and apply in all cases.

Guidelines

The impact of noise generated by a proposal can be minimised to comply with the statutory requirements in different ways. The following guidelines address means of achieving the standards.

Incorporate sound proofing for machinery or activities considered likely to create a noise nuisance during design development.

Locate noisy operational equipment within a noise insulated building away from residential areas.

Design logistically efficient business practises to minimise the use of equipment, movements per site, and number of vehicles movements per site per day.

Where sites adjoin a residential area, limit the number of hours and times at which mechanical plant and equipment is used in conjunction with the measures described above.

Ameliorate the noise and vibration impact of transport operations by using appropriate paving or track mounting and installing acoustic barriers

as required to meet EPA standards on neighbouring uses.

Incorporate appropriate noise and vibration mitigation measures into the site layout, building materials, design, orientation and location of sleeping recreation/work areas of all developments proposed in areas adversely impacted upon by road or rail related noise and vibration must.

Controls

- **All development must comply with the guidelines set down in the NSW EPA Environmental Noise Control Manual, as amended from time to time.**
- **This Manual sets out the acceptable noise levels for all different kinds of uses in different areas. It also takes account of background noise and its measurement. A qualified acoustics consultant may be required to verify techniques and the methodology for assessing the proposal's possible noise generation and compliance with the Manual.**
- **Using the Site Analysis establish residential, business and community pursuits that would need to be protected against noise generated from the site.**
- **Using the Site Analysis, ensure that all proposed residential, business and community related developments in close proximity to sources of noise and vibration, including road and rail corridors, meet requirements of the Manual.**



C3.2 Operational Element 2 Air pollution

Principle

Minimise air pollution caused by new development

Rationale

The air quality in the inner city is the result of many polluting factors. A number of these are increasing -particularly motor vehicle emissions from the ever increasing number of cars on the roads.

Wherever possible Council must attempt to reduce air pollution by reducing the processes and machinery that contribute to it.

Guidelines

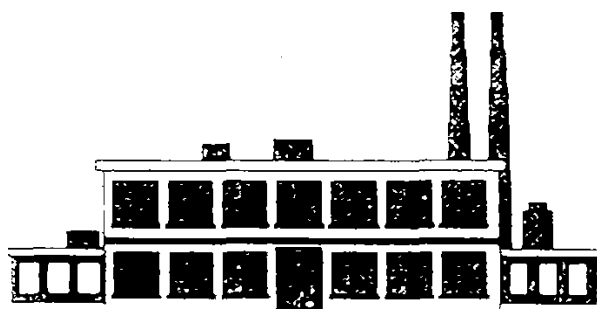
The operation of any new premises and any machinery or plant to be installed or any process to be used must not cause emissions contrary to the Clean Air Act and Regulations. Applicants will need to demonstrate that these Statewide standards are met. Approvals may also be required from the Environment Protection Authority (EPA) for some types of development.

Machinery and operations should be designed to minimise the emission of air impurities. This includes minimising vehicular movements to and from the site.

Restricting the hours of operation may reduce any emissions to an acceptable level.

Controls

- All development must comply with the provisions of the Clean Air Act and its Regulations, as amended from time to time.





C3.3 Operational Element 3 Water Pollution

Principle

Minimise water pollution caused by new development.

Rationale

As a community we must recognise the value of water. It is an essential resource. Council must ensure that all the activities undertaken attempt to improve water quality - not contribute to the pollution of it.

"Waters" include rivers, ponds, streams, wetlands and channels. The water arrives at these places over land, down roads & footpaths and through stormwater drains. This means that all surface water leaving a site and all on-site drain connections have the potential to pollute.

Guidelines

During construction the potential to pollute is high. To reduce this risk Council may require:

- on-site wheel and vehicle base cleaning facilities to reduce soil and contaminated material leaving the site;
- protection of as much existing vegetation as possible to reduce erosion;
- storage of building materials on site to minimise stormwater contamination.

To ensure all potential water pollutants are controlled and dealt with on site. Council may require devices such as:

- effective bunding;
- retention pits;
- grease traps;
- booms and trash racks;
- silt and litter arrester pits;
- siltation ponds.

These lists are not exhaustive and may vary as innovative products and methods are developed.

Controls

The pollution of any waters is prohibited. Discharges from premises of any matter, whether solid, liquid or gaseous into any waters is required to conform with the Clean Waters Act and its Regulations, or a *pollution control approval* issued by the EPA for Scheduled Premises.

Developments must also comply with the Sydney Coastal Councils Stormwater Pollution Control Code, Council's Stormwater Management Policy, and any other requirements of Sydney Water, the EPA and the Sydney Ports Authority. These requirements may change or be updated from time to time.

Key References; Clean Waters Act Sydney Coastal Councils Stormwater Pollution Control Code Leichhardt Stormwater Management Policy
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C3.4 Operational elements Working Hours

Principle

Ensure the operations of the proposed development will not cause nuisance to residents by way of working hours.

Rationale

Where residential and business uses are located close to each, there is potential for activities associated with the business uses to have a detrimental impact on the amenity of the neighbouring residents.

Guidelines

Council seeks to ensure that the hours of operation of businesses, commercial premises and places of work are compatible with the type of activities carried out on the premises and the relationship with neighbouring residential occupiers.

Where residential buildings are physically attached to non-residential buildings, hours of operation should not normally fall outside the hours of 7.30am and 6.00pm Monday to Friday and 7.30am and 1pm on Saturday having regard to the provisions of design elements C3.1 – C3.4.

Hours of operation will depend on the type of use proposed, its location in relation to residential properties and the impact of extended hours on the occupiers of those properties.

Where development sites are within a residential area, hours of work during site preparation and construction should not normally fall outside the hours of 7.30am and 6.00pm Monday to Friday and either 8.00am to 2.00pm on Saturday or 8.00am to 2.00pm on Sunday.



C4.0 Development Types

C4.1 Development Type 7 Home based employment

Principle

To guide the development of home based employment and occupation in a manner that is commensurate with residential areas.

Rationale

Council is committed to the principles of FSD. Providing opportunities to work from home fulfils the implementation of some of those principles and those of Council's Environment Strategy. There are many modes of employment which, with the use of new technology, do not interfere with the amenity enjoyed by residents. Additionally businesses which do not require personnel are also suitable to be based in the home. Cottage industry and craft production could be located within a residential site, which may require noise insulation but could be accommodated without harm to the amenity. Above all, home based employment should not harm amenity and should be capable of integration into a residential environment.

Guidelines

Use the Site Analysis to assess the general nature and character of the neighbourhood in relation to buildings as well as functions.

Hours of work should comply with Operational Element 5 - Working Hours.

Home based employment must not result in the generation of traffic movements over and above those normally associated with residential areas.

Controls

- Ensure that alterations, additions and new buildings respect the scale and character of the residential area.
- The primary use and appearance of the building must remain as residential.
- Home based employment should not result in the need for additional on-site parking or the loss of existing parking facilities.
- The amenity provisions in "DCP Part B -Residential" must be met.



C4.2 Development Type 2

Motor showrooms and service stations

Principles

Design motor showrooms and service stations to positively contribute to the streetscape.

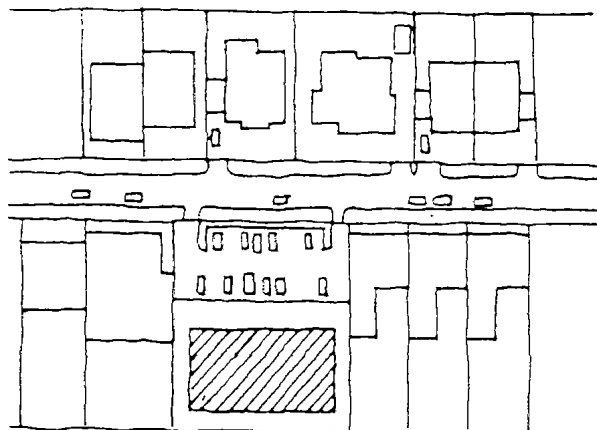
Design, specify and construct service stations to maximise safety and minimise risk to human health, life, property and the natural environment.

Rationale

Businesses and services that require large sites or have other specific requirements can have a significant impact on urban areas. The impact of large buildings can be suitably controlled through the urban form and design guidelines and controls. However, the design of motor vehicle, retail and service facilities may benefit from further guidelines.

Service stations require ease of access for both customer and service vehicles.

The protection of the environment is a key consideration in the development and



construction of service stations, and in particular underground storage tanks. Specific controls are set out below.

Motor vehicle sales establishments have traditionally been located on large sites with a high degree of exposure to a main street. This has often resulted in a forecourt lined with cars and an administration building located at the rear. This has created an anomalous and incongruous feature in the streetscape often exacerbated by bunting, flags and advertising.

Guidelines

Motor showrooms should be contained within a building which addresses the street. The scale and form of the building should be guided by the Site Analysis and sections C1-C3.

Car sales should be contained within a building to positively address the character of the street.

Vehicular movements through the site should be in one direction with a separate entrance and exit point to maximise pedestrian safety. Clear directional signs will assist in the coordinated flow of traffic through the site.

All stormwater should be trapped within the site to reduce the risk of stormwater pollution caused by spilled contaminants. Drainage and waste disposal should be to the levels specified by the EPA.

If car detailing equipment such as vacuums, and car washing facilities are provided, locate these away from residential properties or provide suitable sound attenuation (see Operational Element C3.1).

Improve the service station's contribution to the streetscape with the use of landscaping.



Controls

- Ensure ventilation flues are located away from site boundaries, in particular any adjacent residential properties.
 - Vehicle washing facilities must incorporate water-recycling technologies.
 - Construct new underground storage tanks in primary steel and fibreglass. (The primary steel inner tank provides structural strength, whilst an outer fibreglass shell protects the tank from erosion).
 - Ensure the interstitial space between the outer fibreglass shell and the inner steel tank is vacuum-sealed and monitored by a permanently fixed vacuum gauge. (This allows for periodic inspection of the tank seal throughout its operating life, and indicates any tank damage due to handling, transportation, construction and installation).
 - Locate the fill point for each tank within a spill containment box. Construct the containment box in steel to retain any minor product spills, and drain via a valve into the appropriate storage tank.
 - Ensure all new tank installations are surrounded only by sand or gravel as backfill material. (*The chemical properties of clay-like materials are known to promote the corrosion of steel, whereas sand and gravel are relatively inert*).
- Install all new tanks in strict accordance with The Dangerous Goods Code (1992) and AS1940-1993, "The Storage & Handling of Flammable and Combustible Liquids."





C4.3 Development Type 3 Non-residential Foreshore Development

Principle

Design new development and alterations and additions to respect the function of the site, heritage significance, and cohesive appearance of the foreshore as viewed from the water and land.

Ensure the development does not detract from the amenity of neighbouring residents.

Rationale

Not all land which fronts the foreshore is residential or open space. Industrial land has long been associated with the waterfront for practical reasons and certain business land also has waterfront locations. The redevelopment of this land for purposes permissible in the business and industrial zones can have impact on the appearance of the foreshore both in terms of increased building bulk or inappropriate form and siting and the erosion of the historical context of the foreshore. The foreshore is not only a shared amenity but also an important interface between leisure and employment. It is necessary to preserve the balance between these land uses and physical landscape attributes.

Guidelines

Design buildings to be compatible with the scale and form of surrounding development.

Design buildings which respect the function of the site.

Design landmark buildings that respect the character of Leichhardt in a coherent and sympathetic manner when viewed from the water.

Use articulation and 'light' materials to create a 'transition' between land and water.

Controls

- Ensure site layout provides access to the foreshore where redevelopment allows.
- Respond to foreshore topography. Design sensitively to preserve and enhance the existing natural features and vegetation.
- Design to achieve shared views maximising the number of surrounding residents who can benefit from a view.



C4.4 Development Type 4 Playgrounds

Principle

To encourage the integration of playgrounds into business areas. To ensure the playgrounds provided are safe, stimulating and educational.

Rationale

Playgrounds can take on many forms and can be provided in a variety of locations. They can be indoor, outdoor, attached to a service or commercial enterprise or stand alone, perhaps in parkland. They can range from the provision of a single climbing frame, for example, to small playgrounds or even large adventure playgrounds. The choice, extent and combination of stimulatory and educational equipment for children is vast. It is imperative that these facilities are safe and conveniently located.

The introduction of playgrounds into business areas complements the function and encourages greater use of the area's facilities leading to a more vital and efficient business area.

Guidelines

Where new development involves a series of linked commercial uses, provide playgrounds either internally or externally.

Use the Site Analysis to ensure the natural features of the site are incorporated into the design of outdoor playgrounds.

Ensure playgrounds are overlooked from public places or buildings to encourage the integration of playgrounds into non-residential developments.

Indoor playgrounds have more recently been integrated into private retail outlets and family restaurants. These facilities could be provided on a share basis at commercial centres or office developments. Ensure appropriate soft and hard surfaces are provided for access, impact absorption, interest and drainage.

Ensure landscaping serves the purposes required for the type and function of the playground. Consider scale, screening, shading, shapes,

security, permanent or mobile, indoor or outdoor, sand, mounding and so on.

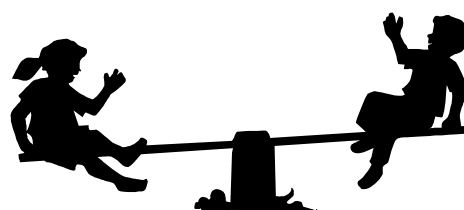
Provide adequate security systems i.e fencing, railings, buffer and safety areas etc, for the expected users.

Ensure playgrounds do not pose a safety threat at night.

Control

- **The design and construction of all equipment must comply with AS 1924.2-81 as amended from time to time.**
- **Comply with the NSW standards and licensing requirements. (Information available from Council's Community Services Department)**

Key References;
Walsh, Prue "Plan it! Guidelines for planning Early Childhood Outdoor Supervised Play Environments In NSW."





C4.5 Development Type 5 Public Domain

Principle

To ensure an integrated, safe, efficient and usable urban environment.

Rationale

The public domain forms that part of the urban fabric shared by the community. Much of the land is in public ownership and forms streets, roads, footpaths, squares and parks. The quality and appearance of these areas has a direct impact on the enjoyment of the places in which we live and work. Street furniture, lighting, public amenities, public works of art and landscaping form an intrinsic part of the public domain and attention to the detail of their design and siting is most important.

The public domain is a transitional area, partly comprising land owned and used by the public, land owned privately and used publicly and land privately owned and used but contributing visually to the public domain.

Guidelines

Public works of art should be provided wherever possible.

Controls

- On development sites in excess of 1000 sq. m 1% of the value of the development should be contributed to the provision of public art.
- Street furniture should be durable and respect the character of the street. It should be recessed where possible to avoid obstacles in the footpath.
- Lighting should sympathetically respect the street scene and use solar technology and it should be strategically placed to avoid light spillage to residential properties whilst providing a safe environment.

- Street trees and landscaping should be provided wherever new roads are proposed.
- Pedestrian crossings should be clearly marked in a highly visible position, at right angles to the kerb and with dropped kerbs. They should be located in a safe and convenient place.
- Avoid clutter in the street and on pavements created by street furniture, public amenities and public utilities.
- Development in open space which is ancillary to the proper functioning of the open space such as 'kiosks' and 'club-houses' should be of a scale, bulk and size appropriate to the setting. Elevational detail and materials should respect the landscaping and the natural setting and complement the appearance of the open space.
- Provide open space, parking and access to the standards of this plan.

Key References:
Parks Plans of Management
and Open Space Strategy
Advertisements



C4.6 Development Type 6 Smash Repairs

Principle

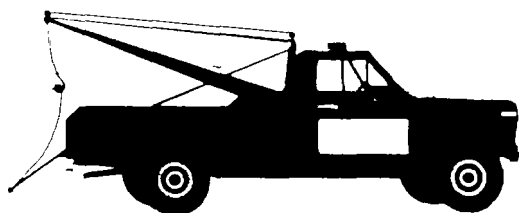
To minimise potential environmental harm caused by smash repair operations.

Rationale

Smash repairs are only permitted in the industrial zone, which should minimise any potential impact on amenity. However, by nature smash repair businesses are noisy and use toxic chemicals, paints etc. Special attention is needed for the design and operation of these facilities.

Guidelines

Specific reference should be made to WorkCover requirements and the trade waste removal guidelines from the EPA.



All stormwater should be trapped within the site to reduce the risk of stormwater pollution caused by spilled contaminants.

Controls

- All work spaces must be contained within a building, appropriately ventilated.
- All client vehicles must be kept on site at all times.
- New buildings are to address the street complying with urban form and design principles.



C4.7 Development Type 7 Transport Facilities

Principle

Allow for a safe, convenient and efficient public transport system and establish a hierarchy of facilities to use, store, garage and service public transport vehicles, which minimises the impact on amenity.

Rationale

Leichhardt is well served by public transport but improvements to the whole system are needed to ensure an efficient public transport network for the future. Leichhardt is currently served by buses, ferries and a light rail system. Freight rail also occupy land in Rozelle which may become available for use by the public transport network.

Other means of public transport may become available to the community in the future. It is important that these services are well integrated and convenient to users to ensure their efficiency. Safety, in terms of location and design of facilities is essential to their continued effectiveness and ultimate contribution to ecologically sustainable development.

Guidelines

In residential areas *Public Transport Stations* are allowable. These are essentially bus, rail, ferry or other public transport stops. They may comprise a simple shelter or a more elaborate structure; vehicle access and parking may also be included.

In business areas larger facilities are also allowed. These *Passenger Transport Terminals* provide for transport interchanges. They are areas of major activity with a high rate of passenger throughput. The terminal may offer facilities for staff and travellers, car parking and minor servicing for the public transport vehicles such as refuelling and lubricating (with appropriate should be well lit at night. Clear directional environmental safeguards). Storage of the vehicles may occur but the main function of the terminal is a passenger interchange.

Industrial areas can suitably provide for the major servicing and storage of public transport vehicles. It is more appropriate that this *Transport Dept* be located in the industrial zone rather than the more 'valuable' commercial land where retailing and employment generate passengers.

Pedestrian and passenger safety should be utmost in the consideration of the design. Walkways should be protected from vehicular movements and all areas signs for vehicles and pedestrians should provide easy access to, around and out of the site. Drop off and pick up points should also be provided.

Controls

- **Locate new facilities with direct access to major public transport routes.**
- **Ensure design and operation comply with amenity requirements incorporating the enclosure of noisy machinery and visual screening.**
- **Buildings are to address the street complying with the urban and design principles.**





C4.8 Development Type 9 Youth Facilities

Principle

To provide programs, supervised facilities and open space which caters to the current and emerging needs of young people as documented in the Council's Social Plan.

Rationale

The importance of neighbourhood level services and facilities is growing, particularly as young people attempt to find peer support and contract their identity in a world where everything else is in a state of flux, especially work and education. Given that many young people do not relate to school as a source of personal identity because of alienation, or to paid work because of high levels of youth unemployment, the notions of 'territory' and relationship to place has major implications for how these young people see themselves. The development of local pride through provisions of well maintained or unique amenities can bolster general confidence and self esteem for young people in these areas, particularly when amenities are tied to activities which the young people can directly engage in.

Any commercial venue which is publicly accessible and which involves significant 'public space' would be conceived of in terms of 'community space', and as having multiple uses beyond that of commercial activity per se.

Young people (20-25) make up approximately 20% of the community. Provisions for young people must acknowledge that young people have essential rights, including the right to meet together, to recreate and to be free from unnecessary interference by authority figures.

Currently there is a dearth of youth specific venues. Council should ensure that young people have adequate social, leisure and recreation services and facilities in suitable and accessible locations. The dispersal of venues and services is crucial to giving young people in specific areas a sense of local identity and belonging. Provisions should cater to the diversity of young people,

recognising their social, economic and cultural backgrounds.

Guidelines

Where new development involves the creation of 'public space', developers should consult with Community Services staff to ensure 'youth facilities are planned and accounted for in the development.

Young people should be actively encouraged and constructively involved in the design and management of youth facilities in conjunction with, and with respect of, appropriate authority figures, including youth and community workers.

Provision of services and facilities must take into account the specific needs of certain population groups, such as people from non-English speaking backgrounds, indigenous young people, young people with disabilities and young women.

Key References: Leichhardt Social Plan



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