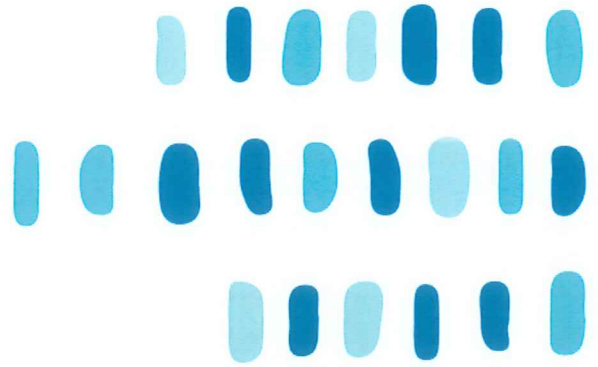




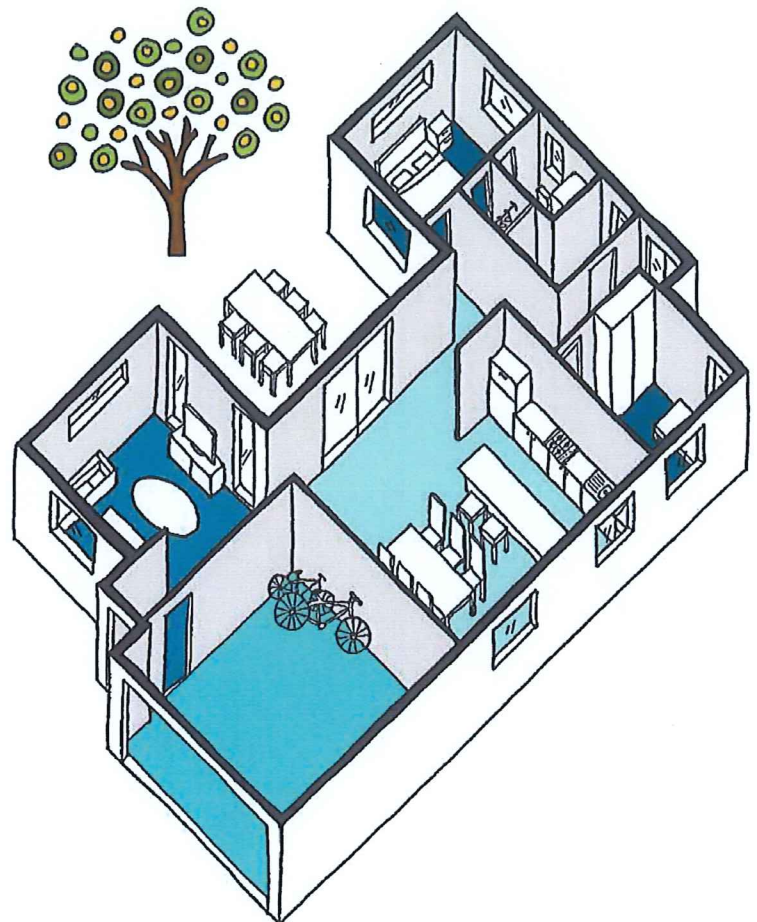
Government of **Western Australia**
Department of **Communities**



DESIGN BRIEF

NORTHWEST REGIONAL SOCIAL HOUSING

Community Construction and Development



Document Control

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Introduction

Northwest Region Characteristics

Due to the unique characteristics of the northwest region of Western Australia, housing design and construction is significantly varied to that located within metropolitan regions. The following characteristics were considered in the development of this Design Brief.

Climate - The Kimberley and Pilbara regions experience high temperatures, and at times can experience monsoonal rainfall and cyclonic conditions. Housing in these regions must therefore utilise natural breezes and accommodate larger outdoor living areas. A home with high amenity and comfort levels facilitating enhanced levels of occupant wellbeing and a healthy environment.

Family Structures - In the Kimberley and Pilbara regions it is not unusual for four generations to live together under one household. Aging in place refers to assisting a person to live in their residence safely and comfortably as they age, for as long as they are able. To facilitate this, particular attention is required in relation to building layout, access/egress, fittings and fixtures, amongst other factors.

Lifestyles - Housing density in the Kimberley and Pilbara regions is required to be lower than what is typically seen in metropolitan areas due to weather and lifestyle conditions. Internal and external spaces must be positioned to allow for natural breezes and incorporate larger outdoor living areas to suit the outdoor lifestyles of residents without negatively impacting on privacy and safety.

Overarching Principles

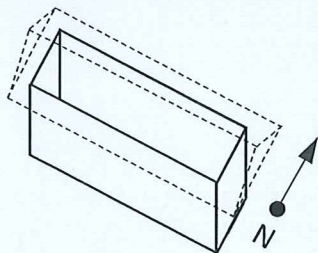
The following principles have been developed from the research discussed in the preceding introduction. These principles build upon the research conducted and inform the preceding design and construction requirements in this Design Brief document.

- 1 Housing with high liveability standards
- 2 Housing which is comfortable and provides a sense of safety and security
- 3 Housing with low living expenses and maintenance costs
- 4 Housing which allows occupants to stay in their own home for longer (e.g. aging in place)
- 5 Housing which is considerate of the immediate and surrounding environment

Design Requirements

1 | Site

Housing requirements in the Kimberley and Pilbara regions are unique and require designs and management plans to reflect this. Contextuality in regard to housing refers to the principle of designing in response to the surrounding environment. This takes into consideration site factors such as microclimate, local resources and cultural and traditional factors which can impact housing design.

1.1 CLIMATE	
1.1.1	Prevailing winds, sun paths, landscapes, topography, noise, access/egress, sightlines and outward views are investigated to inform design decisions
1.1.3	Where possible, dwelling is orientated east-west with longer walls facing north and shorter walls facing east and west 
1.1.4	Where possible, roof slopes are orientated towards prevailing breezes to facilitate air movement over the dwelling
1.1.5	Layout and design of dwellings encourages air circulation and visibility through the site
1.1.6	Setback widths between the dwelling and boundary fencing do not restrict air movement and are as large as possible without impacting on internal room sizes
1.1.7	Locate walls and plants where they can aid in speeding up breezes through the site. This can be achieved by reducing long, flat planes facing prevailing breezes and by incorporating planting which allow breezes to pass through

Hard surfaces across the site, such as paving used for car parking and paths, are shaded to minimise heat absorption

1.1.8



External walls and paved areas are shaded by landscaping and roofing

1.1.9 Roofing, external walls and paving across the site are light in colour

1.1.10 Residents can move freely without impacting on neighbouring dwellings

Natural ventilation and shading is maximised to improve temperature control through site

1.1.11



Permeable fencing can be incorporated to increase air circulation through sites

1.1.12 Setback widths between the dwelling and boundary fencing do not restrict air movement and are as large as possible without impacting on internal room sizes

1.1.13 Location of walls and plants where enhance breezes through the site. This can be achieved by reducing long, flat planes facing prevailing breezes and by incorporating planting which allow breezes to pass through

Dwelling placement maximises access to breezes to enhance airflow and ensure natural temperature change in dwellings and throughout allotments

1.2 DENSITY & PRIVACY

1.2.1 Site yield is no greater than 2 dwellings per 1000m²

1.2.2 Residents can move freely without impacting on neighbouring dwellings

1.2.3 Vehicle access to individual dwellings on an allocated lot is private, where possible, to prevent common access, whether by vehicle or foot to individual dwellings

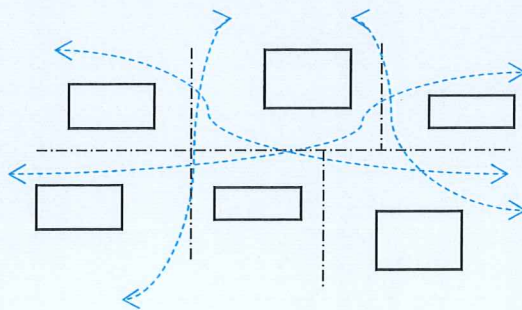
1.2.4 Density of housing and positioning considers the location of living areas, patios, verandas and 'free' yard space of each dwelling in reducing noise to and from each dwelling

1.2.5 Buffer zones are incorporated between fenced areas and alfresco or verandah living areas

1.3 FENCING

Subdivided sites incorporate permeable fencing between lots where possible to facilitate air flow between dwellings

1.3.1



Permeable and semi-permeable fencing is used where possible to promote air movement through the site (see examples below)

1.3.2



1.3.3

Sections of solid 1800mm high fencing visible to the public realm (including common driveways) are minimised

1.3.4

Fencing to the primary and secondary street fronts is a combination of permeable and solid elements correlating to privacy requirements of individual rooms/spaces and passive surveillance requirements to the public realm




1.3.5

Fencing along the primary street front (and within primary street front setbacks for corner lots) shall have a solid fencing portion no higher than 1200mm

1.3.6

Low perimeter fencing used along boundaries adjacent to public open spaces to increase permeability and surveillance

2 | Dwelling

2.1 FACADE	
2.1.1	Façade design takes into regard existing and future development context
2.1.2	Street elevations suit existing streetscape characteristics in relation to setbacks, materiality, design, landscaping, fencing and car parking arrangements
	Façade materiality and colours suit contemporary housing design and are light in colour to minimise negative impacts on the site's micro climate (see examples below)
2.1.3	
2.1.4	Passive surveillance is achieved through more than one major opening per dwelling addressing primary and secondary streets, rear lanes and internal streets/driveways
	Dwelling façade addresses the street with a clearly defined entry sequence
2.1.5	<p><i>Façade addressing street:</i></p>  <p><i>Façade with poor street presence:</i></p> 
2.1.6	The path from the street to the front door of the dwelling is direct without dominating the front yard with hardscaping. Where letterboxes are installed, direct physical access to the letterbox from the front door or driveway is provided
2.1.7	Private property is clearly distinguished from public spaces and verges

2.1.8 Building services including air-conditioning hatches and electrical distribution boxes are located away from street view

2.2 COMFORT & AMENITY

2.2.1 Rooms are zoned according to their use, with bedrooms in darker locations and living areas in locations which receive the greatest amount of natural daylight

2.2.2 Dwelling design considers activities of the occupants and incorporates natural daylight to ensure high amenity, functionality and healthy spaces for occupants

2.2.3 Dwelling layout prevents the requirement for long hallways which disrupt wind movement and increase resistance to air flow

2.2.4 Habitable rooms incorporate at least two windows on opposite walls to encourage cross ventilation (2x large windows will cool down spaces better than 1x large and 1x small window)

2.2.5 Recessed external walls with windows are incorporated where possible to direct air into internal spaces

2.2.6 Internal lighting consists of a combination of daylighting structures and energy efficient task lighting systems



2.2.6

Natural daylighting assists with kitchen tasks reducing reliance on artificial lighting

2.2.7 The main internal living area promotes flexibility of furniture arrangements through the location of openings, power outlets and room lighting

2.2.8 Bedrooms and living areas are provided with balanced practical options between windows and sliding door options for safe, secure and easy access to breezes

2.2.9 A minimum clearance of 1200mm x 1200mm is provided in front the shower

2.2.10 Bathrooms are well ventilated with openable windows to facilitate natural cross ventilation



2.2.11

Dwelling complies (at a minimum) with Livable Housing Design Guidelines - Silver Standards [Refer to: www.livablehousingaustralia.org.au]

3 | Landscaping

In the Kimberley and Pilbara regions landscaping is a town planning requirement, however unsuitable planting can result in poor outcomes for Communities and for tenants. Providing water-wise and easily manageable landscaping reduces water requirements and the possibility of high water bills, unhealthy gardens and poor visual outlook.

3.1 LANDSCAPING

3.1.1

Landscaping requires low maintenance, with plants, lawn and shade areas that are water wise and easily manageable by residents.

3.1.2

Seasonal and local resilient native plant species (such as xeriscapes and drought resilient planting etc.) are selected to minimise the use of reticulation and other water options

The ratio of plant, garden, paved and shaded components are balanced and easily manageable, with a preference towards soft over hard landscaping to avoid negatively impacting the site's microclimate

3.1.3



A combination of grassed areas, planting and permeable rockeries attribute to soft landscaping

3.1.4

Tree species provide shade in summer to outdoor spaces and are strategically placed to increase shading to dwelling windows

3.1.5

Existing native or dominant trees are maintained where they do not impact on the construction of the dwelling and safety of tenants

3.1.6

Permeable ground covering is utilised across the site

Paved areas and similar impermeable ground coverings are minimised where possible to minimise heat absorption across the site

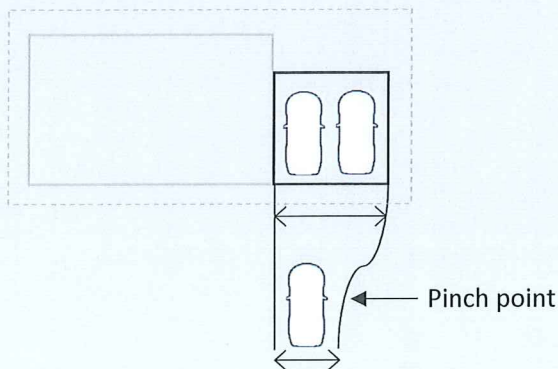
3.1.7



Driveway and pedestrian path are grouped together to facilitate larger areas for permeable ground covering

Where double (side by side) car parking is used, pinch points are incorporated into paving to reduce hardscaping

3.1.8



3.1.9

Materials incorporating high thermal mass properties are minimised across the site

3.1.10

Specific plant species which deter mosquitoes, flies and other insects are utilised throughout the site

3.1.11

Sites adjacent to bushland, parks and other public open spaces utilise similar plant species to allow site to blend into the landscape

4 | Specifications

Utilise these checklists early in the design stage to ensure that the design of the site and building demonstrates the required objectives and suitable fittings and fixtures are selected for the project.

4.1 INTERNAL ROOM REQUIREMENTS			Achieved
4.1.1	Bedrooms	Bedroom provided with air conditioning options for tenants through the provision of secure hutches	
4.1.2	Bedrooms	TV outlet socket provided in all bedrooms. Allows TV reception without makeshift antenna installation. (security screen damage)	
4.1.3	Living & Dining Areas	Living areas provided with air conditioning options for tenants through the provision of secure hutches	
4.1.4	Kitchen	Cupboards constructed with metal frameworks, metal shelving and metal kickboards to support high level use	
4.1.5	Kitchen	Kitchen sink with mixer style tap (also applicable for wall mounted taps)	
4.1.6	Kitchen	Commercial grade Vinyl Plank flooring	
4.1.9	Bathrooms	Cupboards constructed with metal frameworks, metal shelving and metal kickboards to support high level use	
4.1.10	Bathrooms	The shower within the main bathroom is hobless	
4.1.11	Bathrooms	The toilet within the main bathroom is located beside at least one solid wall to facilitate the potential installation of grab rails	
4.1.12	Bathrooms	Where possible, grab rails are installed in the main bathroom to also function as towel rails	
4.1.13	Bathrooms	Baths to be pressed steel enamel	
4.1.14	Bathrooms	Channel grate floor waste to enhance drainage	
4.1.15	Utilities	Cupboards constructed with metal frameworks, metal shelving and metal kickboards to support high level use	
4.1.16	Utilities	All internal wall mounted breaches to be stainless steel	

4.2 INTERNAL GENERAL REQUIREMENTS			Achieved
4.2.1	Fixtures & Fittings	Dwelling's fixtures and fittings to be designed for heavy and internal high tenant traffic wear and tear	
4.2.2	Fixtures & Fittings	Dwelling fixtures, fittings and flooring is easily replaceable.	
4.2.3	Electrical/ Mechanical	Dwelling Insulation installed with appropriate glazing systems to ensure a highly energy efficient building	
4.2.4	Electrical/ Mechanical	Dwelling is designed to balance low power consumption lighting and natural lighting to reduce energy demand	
4.2.5	Electrical/ Mechanical	Dwelling light fittings installed that allow easily replacement of low-cost energy efficient LED lamps, that can easily be sourced locally and fitted/replaced by tenants	
4.2.6	Wall Lining	Robust internal wall lining such as Versilux (9mm cement sheeting) or similar	
4.2.7	Doors	Solid core internal doors	
4.2.8	Roofing	Roof design, pitches and cladding suitable for monsoonal rainfall.	
4.2.9	Materiality	Materials and construction methods are selected based on their durability and robustness in response to extreme weather conditions and high tenant traffic wear and tear	
4.2.11	Landscaping	Weed netting installed under mulched areas	
4.2.12	Roof Vents	Ridge vents are used in lieu of whirly bird vents	

4.3 EXTERNAL REQUIREMENTS			Achieved
4.3.1	Walls	Colorbond wall cladding installed vertically and is light in colour where exposed to direct sunlight	
4.3.2	Roof	Roof material is light in colour to minimise solar heat absorption	
4.3.3	A/C	Secure air-conditioning hatches are incorporated into external walls of living areas and bedrooms to allow tenants to install air-conditioning units	
4.3.4	Drains	Install external air-conditioner drains below air-conditioning hatches	
4.3.5	Electrical	Install external waterproof GPOs located to outside living areas and carports to prevent damage caused to flyscreens from tenants extending extensions leads from inside the home for external activities	