

PROPERTY BUYERS' *CHECKLIST*



particularly for off-the-plan purchases

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INDEX



3	The Basics		
4	Site Layout, Design & Liveability		
5	Orientation		
	Site Analysis		
	Home Layout and Design		
6	Storage		
	Windows		
7	Ventilation		
	Building materials, finishes, potential waste and quality of indoor environment		
	Carports & Garages		
	Outdoor Areas		
9	Location, Connectivity, Streets & Public Areas	19	Ecology, Biodiversity & Heritage
10	Connectivity	20	Canopy Cover
	Walkable Neighbourhoods		Biodiversity Conservation
	Active Transport		Enhance Biodiversity Value
11	Public Transport	21	Cultural Heritage
	Focused on People	22	Integrated Water Management (IWM)
12	Safety/Surveillance	23	Water Efficiency
	Footpaths		Fit-for-purpose Water
13	Adaptability	24	Optimised Stormwater Management
	Open Space	25	Urban Heat Mitigation
14	Active recreation	26	Urban Heat Mitigation
	Landscaping		Access to Shelter
15	Energy		Health and Wellbeing
16	Efficiency and Reduction of Fossil Fuels (Subdivision Design)	27	Home Design
	Fuel Switching	28	Circular Economy (Materials & Waste)
	Energy Efficiency	29	Material Selection
	Renewable Energy		Reuse
	Energy and Home Layout/Design		Resource Recovery
17	Summer and Winter Sun	30	Further Enquiries
18	Airtight Homes and Air Quality		Other Resources
	Insulation		



THE BASICS

Buying a home off the plan means buying a property that has not yet been built. You choose your design from a small range of options provided by a developer, agent or builder. Buying off the plan can be a cheaper way to buy your own home. However, your design options may be limited.

There are various changes you can make to the basic design to improve your home's thermal performance and comfort and reduce its environmental impact. Some can be made easily at no or low cost, and some may cost more and require negotiation.

Easy changes include reversing or rotating the plan, changing window sizes or adding adjustable shading. More significant changes include adding thermal mass to moderate inside temperatures, or a solar photovoltaic (PV) system.

Inclusions

The volume housing process usually requires that you nominate all your needs before signing a contract. You will not be able to make decisions throughout the construction process as you do in a custom design and build. Things generally move very quickly with a plan home build and there is so much to think about

– it is easy to miss critical details. Building timeframes vary, but from signing a contract to moving in can take as little as 6 months.

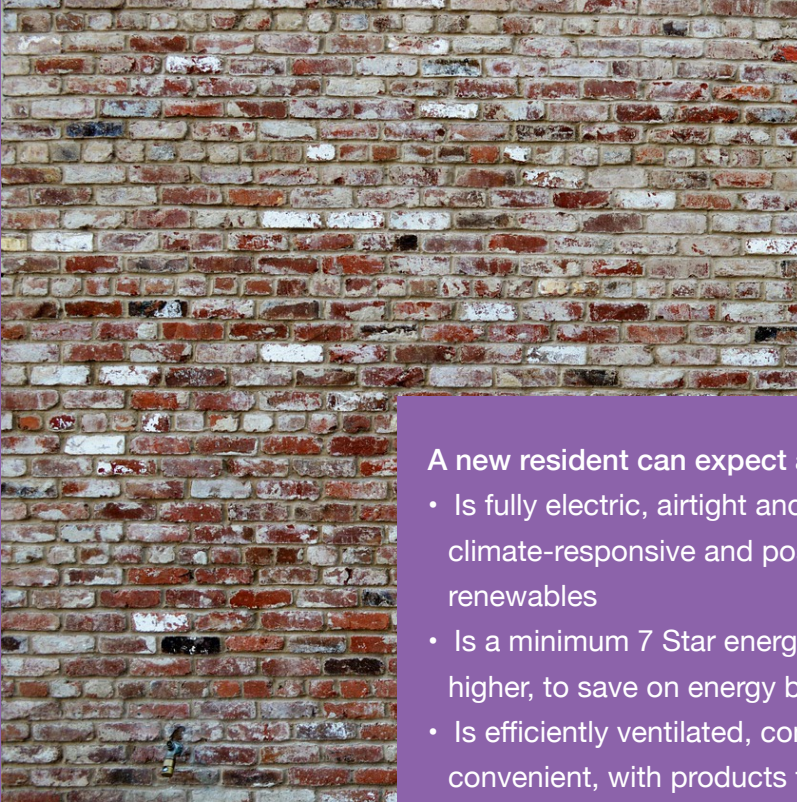
Make sure that you have done your research well in advance, and know what you want before signing. Keep in mind your 'must haves', wish list and your 'must avoids' (see PMAT's **Property Buyers' Guide: What to Watch Out For**). Use this Checklist to evaluate your purchase and ask your developer about what you want. Developers need to satisfy their market (property buyers) to ensure sales and their profit. Prioritise features that reduce your costs over your home's lifecycle, add to your quality of life, and reduce environmental impact. Make sure you do your homework, know what you are looking for, and get legal advice and any adjustments in writing before you sign a contract.

Look for a reputable builder with a good track record. See PMAT's separate **Property Buyers' Guide: What To Watch Out For** and also **Further Enquiries** at the end of this document for more information and handy websites.





Site Layout, Design & Liveability



things like cost and materials for construction, utilities, property charges, maintenance, upgrades and major replacements, and resale value.

3 Social sustainability, which considers things like aesthetics, safety, security, accessibility, functionality, future modifications and liveability for future generations.

A new resident can expect a home that:

- Is fully electric, airtight and efficient, climate-responsive and possibly powered by renewables
- Is a minimum 7 Star energy rating, ideally higher, to save on energy bills
- Is efficiently ventilated, comfortable and convenient, with products that are better for you
- Is water-efficient and climate change ready

Over the lifetime of a building, your home's construction costs are unlikely to be more than 3 per cent of total costs, but the operating costs will often constitute 85 per cent of the total. Good design can reduce economic costs such as maintenance, and energy consumption.

Sustainable housing considers the design, construction and operation of your house over its lifetime, in three ways:

- 1 Environmental sustainability, which considers things like water, energy, emissions, waste, vegetation, pollutants and contamination.
- 2 Economic sustainability, which considers



PROPERTY BUYERS' CHECKLIST QUESTIONS

COMMENTS/ISSUES

- | | | |
|-----|--|---|
| ■ 1 | How many energy efficiency stars is your house design rated for? | All new properties must conform to the Building Code of Australia's (Volume Two 2010) minimum 6 Star (now under review to become 7) energy efficiency rating. Aim for at least 8 stars for better sustainability, if you can. |
|-----|--|---|

Orientation

Building a house that is energy efficient (passive design) will benefit your bottom line and the planet. Paying attention to the orientation of the block of land you buy pays off. Having a northern orientation will ensure the house gets enough natural light and warmth during winter, while also protecting it from excessive heat in the hotter months of the year. As a rule, having a house built with optimal orientation will result in considerable savings on ongoing energy bills and lock in better thermal performance for the lifetime of your home (see <https://www.yourhome.gov.au/passive-design/orientation>).

Site Analysis

Analysis of your specific site needs to identify orientation, prevailing wind direction, topography and any other external factors such as existing vegetation, which may influence your home's performance.

- | | | |
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| ■ 2 | Does the alignment of your home's long axis face a northerly direction (within 20° to W or 30° to E)? | Vertically staggering the building form may provide opportunity to allow penetration of sunlight deeper into the building. |
| ■ 3 | Are your living rooms aligned with the northerly aspect and do service and circulation spaces have southern orientations (eg laundry, bathroom, hallway)? | |
| ■ 4 | Does your home design significantly reduce privacy or daylight to adjacent dwellings, or vice versa? | |
| ■ 5 | Is it a sloping site? Or is it at the bottom of a hill and may be subject to flooding? (Check the cost of flood insurance for your home too.) | If you are buying a free-standing home, level or minimum slope sites generally allow better outcomes at lower cost because they are suited to slab-on-ground construction with minimal excavation. |

Home Layout and Design

Living environments which work well for occupants and their evolving lifestyles will increase in value. Long-term functionality in buildings and spaces protects and enhances the initial investment in creating these spaces and minimises the need for change or replacement.

- | | | |
|-----|---|--|
| ■ 6 | Check that your furniture will fit by asking for an accurately scaled furnished floor plan and measuring your furniture against it. | Furnished floor plans help you to visualise how you might live in the available space. |
| ■ 7 | Can all exterior walls, windows etc be easily accessed for maintenance purposes? | |
| ■ 8 | Is there a continuous, flat pathway from the street or | Slope maximum 1:20 for walkways, and 1:14 |

- car parking area to an entrance of your home?
- 9 Is there at least one covered level entry area into your home? eg garage or covered doorway?
 - 10 Is there are least one level (stepless) entry into your home?
 - 11 Is your bathroom designed with a stepless shower, non-slip finishes and hand/grabrails?
 - 12 Will the wall framing in the bathroom be reinforced to allow future installation of grab rails in the shower and adjacent to the toilet?
 - 13 Will all internal doorways on the entrance level have a minimum clear opening of 820mm and minimum corridors of 1.0 metre or wider, clear of fixtures?
 - 14 Does your kitchen area provide sufficient space for movement by restricted mobility occupants around fixed benches and the kitchen area? (i.e. minimum 1.2 metres between fixed benches)
 - 15 Does the kitchen include a bench area adjoining the oven and cook top to allow easy placement of hot pots and pans; and include a powerpoint within 300mm of the front of the kitchen bench?
 - 16 Are all light switches located near the doorway at a height between 900mm and 1100mm?

for ramps.

This provides benefits such as safe accessibility for people of different ages and abilities. This allows for ageing-in-place.

Storage

Clever storage can make a compact home feel and function like a much larger one.

- 17 Will your belongings fit in the cupboards shown on the plan? Ask the builder to estimate the cost of providing additional cupboards if needed and suggest where these might be located.

Windows

- 18 Assess the placement, style, and efficiency of your windows. See <https://www.yourhome.gov.au/passive-design/glazing> See whether the design can be adjusted to improve day lighting and thermal performance.
- 19 Are your windows shaded or specially glazed to prevent unwanted heat/cold gain and reduction of glare? The thermal performance of windows in external walls can be moderated appropriate to the orientation of the walls through sizing or alternatively usage of low emissivity glazing or insulated glazing, which includes glass panels separated by an air cavity.
- 20 Can you have windows with a low U-value which reduce heat when blinds are open? Include north-facing windows which have a high Solar Heat Gain Coefficient (SHGC) which will maximise passive solar gain in winter.
- 21 Are there clear double-glazed window systems for larger windows?

Ventilation

- 22 Is there maximum potential for natural ventilation to minimize the need for artificial cooling?
For example, cross-ventilation between operable windows/doors on opposite sides of rooms that can capture prevailing breezes.
- 23 Will the growth of mould and bacteria be inhibited by good ventilation in your bathrooms/toilets?
- 24 Does your house have an Advanced Ventilation System?
This can reduce mould as well as carcinogenic pollutants by up to 75% and pollen pollutants by 99%.

Building materials, finishes, potential waste and quality of your indoor environment

- 25 Will you achieve an optimum-sized dwelling, not too big for you, to minimize material usage and waste?
This will also save on your time and maintenance costs.
- 26 Will safe insulation material be used in your home?
- 27 Is the risk of rapidly spreading fire, and toxic gas release during a fire, minimized?
Finishing products and composite timber products can contribute to good indoor air quality and your health.
- 28 Can plumbing fittings can be used easily by people of all ages and abilities?
- 29 Is the risk of hot water scalding minimized?

Carports & Garages

- 30 Does your dwelling have a garage or attached carport?
The carport should be located next to or near the main dwelling, in accordance with AS 4299-1995 where achievable.
- 31 Do your garages, carports and parking spaces have a minimum internal size 6.0 m x 3.8 m and adequately lit with sensor lighting?
Each dwelling should have a carport or a garage with a minimum internal clearance height of 2.5 m, including the clearance height at the entry point to the garage or carport.
- 32 Are your garages fitted with an electric roller door?
- 33 Does your home have a driveway with a minimum width of 3.8 m and made of concrete or hot mix, capable of carrying vehicles up to 4.5GVM?
- 34 Are footpaths clearly separated from driveways with no steps to entrances or to driveways?

Outdoor Areas

Landscaping contributes to the passive design of the home, reducing energy use/costs, improving comfort and creating pleasant views from inside your home.

- 35 Does your house have a sunny courtyard, or other appropriate private space accessible from the dwelling, that provides protection from bad weather

conditions, privacy from the public and allows supervision from within the house?

- 36 Are your garden bed areas of low maintenance design and use plantings that require limited watering?
- 37 Is sun protection provided for outdoor areas?
- 38 Does your house have a clothesline with minimum of 25m of line and which receives at least 3 hours solar access between 9am and 3pm?
Fold-a-lines that can be adjusted to height on their mounting posts/fixing point are generally preferable.
- 39 Is there a concrete footpath with a minimum width of 1200 mm connecting the clothesline to the house?
- 40 Are all areas, other than those required by Council to have special treatment, grassed?
Instant turf should be laid and maintained by the developer/builder until the Date of Completion.
This minimises flooding risk.
- 41 Do your grassed areas have a minimum fall of 2 per cent away from buildings?
- 42 Are your retaining walls made of a concrete block dry stack material, or if walls are higher than dry stack specification, then concrete block cement filled to the appropriate design requirements and constructed to engineers requirements including drainage and waterproofing to the rear of walls and backfilled?
- 43 Are any retaining walls over 1000 mm fenced to the required building standard to ensure safety?
- 44 Is there minimal soil degradation (and need for fertilisers), sediment runoff and stormwater runoff?
- 45 Are full landscaping plans, including fences, retaining walls, garden planting, lawn areas, rock garden beds, pathways, clotheslines, garden sheds and the R.L. levels of all floor heights, driveways, storm water drains, landings and pathways, supplied to you?
Section site plans with contours and driveway levels should be included.

See below topics in this document for further aspects of home layout/design eg Energy, Water, etc. Also see webpage The Design Policy for Social Housing (Tasmania) for criteria that people with disabilities (and older people) require:

https://www.communities.tas.gov.au/__data/assets/pdf_file/0023/105971/Design-Policy-for-Social-Housing.pdf

Location, Connectivity, Streets & Public Areas



When designing streets and public areas that are people-focused, there are significant opportunities to also enhance biodiversity and mitigate urban heat. However, it ultimately also supports reducing transport-related emissions by creating streets that are accessible to people of all abilities.

A new resident should expect:

- Good, convenient connection to local amenities and services.
- Ability to age-in-place with access to various housing types to accommodate your changing requirements.
- Efficient connections within the subdivision and to other destinations.
- Better health and wellbeing resulting from pedestrian-focused streets and active transport possibilities for you.
- Safer, more comfortable public areas.
- Improved environmental outcomes in streets and open spaces.
- Improved connection to place, having access to improved streets and public areas which create a positive sense of community.

Subdivision design can improve your functional site layout and liveability with a key focus on connecting residents to local amenities. Subdivision design can respond to a variety of sustainability outcomes to create a people-focused local street network and public areas (eg open spaces). This encourages walking, bicycling etc while increasing biodiversity, reducing greenhouse emissions and mitigating the urban heat island effect.



PROPERTY BUYERS' CHECKLIST QUESTIONS

COMMENTS/ISSUES

Connectivity

When seeking to improve the functional site layout and liveability of subdivision design, it is important for you to consider how residents will be connected within and beyond the boundaries of subdivision, while considering how the subdivision design responds to the existing site conditions.

Connectivity considers how future residents will move within the boundaries of the subdivisions as well as their connection to transport networks and surrounding local amenity. Food stores, post offices, newsagents, chemists, cafes, schools, childcare centres, kindergartens, medical services, parks and gardens, neighbourhood centres and senior citizens' centres provide local focal points for you to walk or cycle to in your neighbourhood:

- 46 Are subdivision routes continuous through local streets, linking footpaths with shared paths and providing safe access through road closures and cul-de-sacs for pedestrians and cyclists?
- 47 Is wayfinding logical and does it meet the needs of all?
- 48 Are dwellings individually identifiable?
- 49 Can Emergency services easily find your dwelling when required?

Walkable Neighbourhoods

- 50 Is your neighbourhood compact and oriented around easy walking distances to activity centres including shops, cafes and restaurants, schools and community facilities, public open space (parks) and public transport?

The concept of 'easy walking distance' will vary according to people's fitness levels and topography, but usually ranges between 400 and 800 metres. Local destinations support mixed-use, walkable neighbourhoods and reduce dependence on your car for short journeys.

Active Transport

Reducing transport-related emissions is not only a result of providing access to alternatives, there is also a strong link to connectivity. Where neighbourhoods are compact, residents like yourself are less likely to rely on cars and more likely to use alternative transport options.

- 51 Do walking and cycling routes link major work and retail centres, community services and residential areas to encourage commuting by active forms of transport?
- 52 Does your development have attractive community spaces like parks, gardens, cycleways, walking paths and playing fields?

Having convenient access to local amenity can have impact on your health and wellbeing, while delivering community infrastructure early provides an opportunity to improve your future residential experience.

A playground can increase the amenity and value of your community.

- 53 Is there a recreational bicycle network in your subdivision?
Children in particular need access to off-road cycle paths.
- 54 Is a transition to new transport modes (electric vehicles, electric scooters etc) provided for?
Functional site layout and liveability can drive reductions in transport related emissions/air pollution by providing you with easy access to alternatives to using your car, ultimately reducing car dependence.
- 55 Are active transport routes aligned to local waterways and open space corridors?
Helps you to enjoy active transport such as cycling and walking.

Public Transport

- 56 Are new residential areas located within 400 metres walking distance of existing public transport stops? Or will public transport services be extended to within 400 metres walking distance?
Accessible and efficient public transport services will encourage more people to use services on a regular basis.
- 57 Are public transport stops located in active locations, clearly visible to you from surrounding dwellings and businesses?
This is important for your safety and security.
- 58 Are public transport stops well-lit for night use?
- 59 Are there safe and secure cycle and car parking facilities provided for you, close to existing public transport nodes and routes?

Focused on People

Designing people-focused streets and public areas has a high degree of influence in the overall liveability of your neighbourhood by creating high-amenity streets that encourage walking, cycling and community interaction.

- 60 Are there neighbourhood clusters through the use of corner stores and cafes?
This encourages people to socialise and contributes to the local economy and community life. To make these facilities viable for business owners and convenient for local residents, co-locate with community centres, medical facilities, schools, parks and public transport.
- 61 Are you able to walk to local destinations?
- 62 Are there 'pockets of nature' with seats for resting and shade from trees to improve the streetscape, your comfort, amenity and increase biodiversity?
Streets under 18m wide need to allow room for trees, services and footpaths.
- 63 Is cultural heritage included in public areas of your subdivision?
This contributes to a unique and valued sense of place.
- 64 Are public areas high amenity, diverse and visually interesting?
By designing a diversity in streets, limiting the length of street blocks (eg 200m for a priority pedestrian street) and including visual interest and rest nodes in the landscape, residents are encouraged to utilise the spaces.

- 65 Are your services underground (eg power, internet etc)?

By reconsidering the way the underground services are designed, there are opportunities to increase the number and size of trees, and create space for water sensitive urban design in the streetscape to improve your shelter, shade and overall amenity.
- 66 Are there broad-canopy trees to provide shade and a pleasant environment for you on the street?

An overhead clearance of 2.4 metres above ground level should be maintained (eg Australian Standard 1428.1).
- 67 Is there a well planned and designed network of walking and cycling routes that allows you to travel safely and with ease, whether on foot, bike or other off-road wheeled transport?

‘Walking and cycling routes’ includes a well-connected network of footpaths along streets, shared paths for pedestrians and cyclists, and paths for commuting, recreation and leisure.
- 68 Are there amenities along key walking and cycling routes—such as seating, toilets, drinking fountains, bicycle parking, dog waste disposal bins?
- 69 Does the street design work for all users, including pedestrians, cyclists, public transport and cars?
- 70 Are there separate bicycle lanes along streets with traffic speeds of over 50 km/hr for the safety, comfort and mobility of cyclists, and are cycle lanes unobstructed?

Safety/Surveillance

- 71 Can you clearly observe people walking, cycling and gathering at points of interest?

Streets that encourage walking naturally put more ‘eyes on the street’, contributing to safe environments.
- 72 Are low walls or transparent fences used along street frontages to contribute interest to the streetscape and allow surveillance from adjacent buildings?
- 73 Are buildings and residential dwellings next to and overlooking public open space designed to contribute to surveillance?
- 74 Have ‘fortress’ or gated residential developments, where residents are not encouraged to connect with public areas, been avoided?
- 75 Is there good lighting along routes where night use is encouraged, consistent with Crime Prevention Through Environmental Design principles?

Footpaths

- 76 Are footpaths, shared path and cycle path networks in your subdivision safe, comfortable, well-constructed and accessible for people with disabilities?

As a guide, paths should be wide enough to allow comfortable passage for people walking side by side, people in wheelchairs, people with prams, and learner cyclists.
- 77 Are there footpaths on both sides of all streets?

- | | | |
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| ■ 78 | Is there a buffer (e.g. nature strip) of at least 0.5 metres between vehicles and pedestrians? | Opt for footpaths that: |
| ■ 79 | Are there barrier kerbs rather than rollover kerbs to restrict car access, helping to protect you when walking? | <ul style="list-style-type: none"> – are a minimum of 1.5 metres wide along collector or lower-order streets (50km/hr or less) – are a minimum of 2.5 metres wide along arterial roads and approach routes to predictable destinations such as schools, parks and shopping precincts. (Three metre paths or wider are preferred to allow for greater contingency). |

Adaptability

Subdivision design should take into consideration the local context including the topography of the site and existing natural features as well as providing opportunities to respond to the changing requirements of future residents.

- | | | |
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| ■ 80 | Does your subdivision add or detract from the character of the area/suburb? | |
| ■ 81 | Is topography considered in your site design including lot layout, orientation and size, length of street blocks, any existing natural and man-made features? | If the subdivision has filled natural contours or waterways, it may be subject to flooding. |
| ■ 82 | Are natural features retained (eg significant trees) in public open space and streetscapes? | Integrating and retaining natural features creates the additional benefits of maintaining biodiversity and also ensures that established vegetation is a key feature in your neighbourhood. |
| ■ 83 | Is there a choice of dwellings, buildings and facilities that reflect community needs? For example, a choice of houses, duplexes, townhouses, apartments, ancillary dwellings, shop-top housing, terrace houses, houses on small or micro-lots. | A lack of alternate, smaller, accessible, and low maintenance housing options may mean older people are unable to transition to more suitable, independent housing in locations of their choice. Diversity of lot sizes also supports opportunities for a range of income groups, while improving housing choice and enabling ageing in place (community diversity). |

Open Space

Public open spaces such as parks provide a range of recreational and throughway opportunities for residents and visitors, in addition to contributing to the liveability and appeal of your subdivision.

- | | | |
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| ■ 84 | Is there a minimum of 5% public, high quality open space contribution (and preferably more) in your subdivision? | This ensures opportunities for physical activity in the best possible location. |
| ■ 85 | Are local public open spaces within a 400-metre maximum walking distance from your dwelling? | This will ensure equitable distribution of open space in an area and allow easy access for most people. |

■ 86	Are there small local parks within 150 to 300 metres walking distance from your dwelling if in densely developed areas?	The elderly (and small children) may take longer than other members of the population to walk the same distance. In areas with a high elderly resident population, the distance to public open space should be reduced.
■ 87	Are public open spaces accessible to people of all ages, genders and cultures, including those with disabilities and limited mobility?	
■ 88	Are routes through open spaces that are intended for night use well-lit and consistent with surrounding street lighting?	
■ 89	Do parks have street frontages to facilitate natural surveillance from nearby housing, businesses or passers-by?	Residential dwellings should overlook public open space. This also avoids back fencing facing onto parks.
■ 90	Are solid fencing or walls along park perimeters avoided?	
■ 91	Will fences around parks and recreation areas have sufficient pedestrian and cyclist entry and exit points?	
■ 92	Are suitable shade shelters provided for you at public destinations, such as open space reserves and public squares, and over play equipment, barbecues and picnic seats?	Should provide seating, bicycle lock-up points, dog waste disposal bins and drinking fountains, and assess the need for the provision of public toilets at local destinations.
■ 93	Are there opportunities for establishing community gardens, particularly in higher density housing precincts?	These may be incorporated into broader open space planning strategies.
Active recreation		
■ 94	Is there a range of facilities nearby to encourage active recreation for children and youth—for example children’s play equipment, engaging natural environments, grassed areas for informal ball games, skate parks, basketball rings and playground markings to encourage activities like hopscotch?	A maintenance program should be in place where appropriate, so the facilities are well maintained and appealing.
■ 95	Is there a variety of paths that allow for recreational walking and cycling within parks and places of natural beauty as well as direct passage through them?	
■ 96	Are there local areas for you to be active with your pets, such as dog exercise areas?	
Landscaping		
■ 97	Are there clear-stemmed trees with high canopies?	Use planting to improve biodiversity, microclimate and increase the legibility and attractiveness of routes and spaces.
■ 98	Are indigenous, low-maintenance, drought-resistant species used?	
■ 99	Are low-growing (below 70 cm) shrub species used to maintain clear sightlines and surveillance?	



Energy



Subdivisions can improve energy efficiency and increase renewable sources of energy by maximising opportunities for solar power access and supporting all-electric suburbs. This increases the subdivision resilience in the face of climate change.

A new resident can expect:

- Lower energy bills due to less reliance on active heating and cooling systems
- Maximised living comfort
- Future proofing of building and community assets
- Reduced climate-changing emissions by fuel-switching to electricity from gas, particularly with solar PV systems installed
- Improved natural light in your home



Efficiency and Reduction of Fossil Fuels (Subdivision Design)

Fuel Switching

Subdivision design with improved energy productivity starts with seizing opportunities to switch energy sources away from fossil fuels in both public and private areas, such as avoiding the extension of new gas networks and supporting electric-only suburbs.

Avoiding gas in residential subdivisions will make a significant contribution to reducing emissions from energy activities such as heating and cooking, with the residential sector being the largest contributor to direct combustion emissions from burning fuels. Not only will avoiding extension of the gas network save you money up front, switching to all electric subdivisions will also influence energy efficiency and renewable energy decisions in both public and private areas without the need for design guidelines.

- 100 Will your dwelling be all-electric, avoiding the use of gas for cooking and heating?

Energy Efficiency

- 101 Does your home have roof areas and dimensions that enable solar PV access?
- 102 Is your site orientated to encourage rooflines capable of supporting solar PV (eg north-facing)?
- 103 Are streetlights and other public infrastructure requiring energy supply (pumps etc) of the highest efficiency standard available and do they integrate smart technology where appropriate?
- 104 Are there subdivision design guidelines for energy efficiency in your home?
- 105 Will your house exceed current state building regulations for energy efficiency (6 stars)? 8+ stars is a better choice for your future.

Renewable Energy

There may be opportunities to include precinct-scale renewable energy supply and battery storage to support the overall energy usage within the subdivision. Alternatively, developers can seek to influence renewable energy generation and storage on each dwelling through design guidelines.

- 106 Is the provision of renewable energy to your subdivision maximised?
- 107 Is battery storage adopted at the subdivision or dwelling scale?

Energy and Home Layout/Design

- 108 Does your design include room zoning ie use of doors or walls to create separate areas to heat or cool?

- 109 Will you be able to maintain light fittings safely?
- 110 Does the electrical layout maximize the safety of using electrical appliances and reduce the likelihood of them coming into contact with water?
- 111 Is natural daylight maximized in your home, to minimise the need for artificial lighting?
- 112 Will your home, both outside and inside, include the use of compact fluorescent light bulbs, fluorescent tubes, LED or similar energy efficient lighting to at least 80% of the light fixtures?
High quality LED lights provide 'flicker free' consistent lighting, reducing eye strain and the risk of headaches.
- 113 Are there double-glazed windows in your home?
These are 50% more effective at reducing heat transfer, keeping your home warmer in winter and cooler in summer.
- 114 Are your stoves, ovens and other appliances energy-efficient (high in efficiency stars)?
Appliances that are higher in efficiency save energy costs over their lifetime.
- 115 Is the hot water system energy efficient (high in stars)?
- 116 Are there other cost-effective sustainable features such as solar hot water heaters and solar heat pump systems incorporated within your home?
- 117 Will the hot water system installed in your home have a minimum 4 star energy rating?
- 118 Which of the below options will be included?
 - Electric heat pump
 - Gas storage – 4 star
 - Gas instantaneous – 4 star
 - Gas storage – 5 star
 - Gas instantaneous – 5 star
 - Solar with electric boost – 5 star
 - Solar with gas boost – 5 star
- 119 Will electricity be produced on-site sustainably (eg solar system/battery installed)?
- 120 Will a hot water reticulation system such as hot water pipe recirculation or low voltage heat trace systems be installed in the shower plumbing?
Website that may assist with information <http://www.waterrating.gov.au/products/index.html>

Summer and Winter Sun

Variation in the sun's transit and elevation must be considered in planning layout and eave design, incorporating sun-shading devices as required.

- 121 Is winter sun able to heat thermal mass, allowing storage of heat and transference of air into rooms?
- 122 Is summer solar radiation restricted from entering your home, eg by eaves or shading?
Reduces the need to artificially cool the building.
- 123 Does the roof design and colour (ie light/white) control heat flow into your home?
Reduces the need for artificial cooling in summer and reduces energy costs.

Airtight Homes and Air Quality

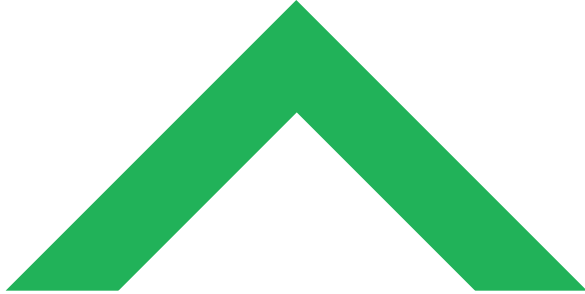
- 124 Will your windows and doors be sealed with flexible strips and draft excluding devices?
- 125 Are all construction joints and gaps between junctions of materials and around service pipes to be sealed?
- 126 Are there self-closing draft exclusion devices around all exhaust fans?
- 127 Do climate control systems contribute to good air quality in your home?

Insulation (required minimum R-values noted)

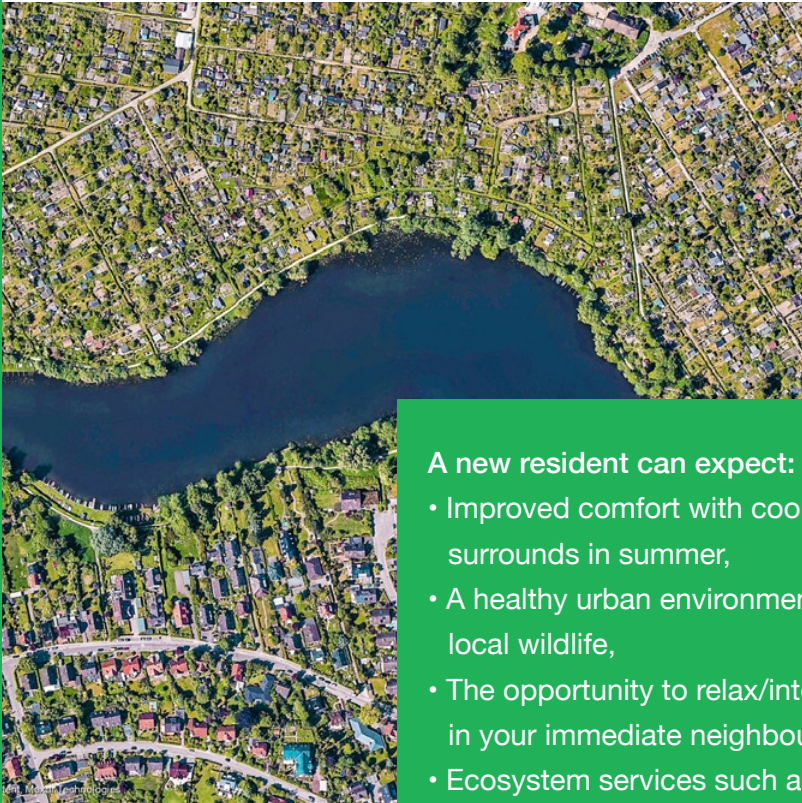
Increased insulation reduces heat loss in winter by up to 25% and your heating and cooling costs by up to 30%.

- 128 Will ceiling insulation be installed with a Total R-value of 4.0, which may include roof sarking (foil roof and wall insulation)?
- 129 Is wall insulation to be installed with a Total R-value of 2.5 including wall frame sarking?
- 130 Will the underside of suspended unenclosed sub-floor spaces be insulated with a Total R-value of 1.5?
- 131 Is the perimeter of concrete slab insulated on grade?
- 132 Where timber floors are used, will these be enclosed or insulated according to climatic conditions?
- 133 Are your internal walls to be insulated with a Total R-value of 2.0 between conditioned and unconditioned spaces?

Typically, this may be dividing walls between living spaces and a garage.



Ecology, Biodiversity & Heritage



Conservation Development article in Other Resources at end of document). Retaining natural and cultural heritage reinforces the distinctive character of the subdivision while adding value, as researchers have found. Considering how the siting and design of subdivisions can minimise the

impact on the natural environment from the start will enable the subdivision design to retain and enhance ecology and biodiversity while also setting the conditions for this to be maintained and enhanced through the life of the subdivision.

A new resident can expect:

- Improved comfort with cooler, shadier surrounds in summer,
- A healthy urban environment that supports local wildlife,
- The opportunity to relax/interact with nature in your immediate neighbourhood,
- Ecosystem services such as noise control, carbon storage, stormwater infiltration and air purification,
- A distinct character of the subdivision, adding value to every dwelling.

Subdivisions can retain and enhance ecology by responding to, protecting and improving the biodiversity within a development plan or subdivision site - for example including 5% to 50% of green open space. Conservation Developments work to stave off habitat loss by keeping the most important parcels for wildlife intact, often putting them into conservation easements, rather than turning them into roads or lawns (see



Canopy Cover

Large canopy trees are a key contributor to urban cooling, however they also benefit the overall biodiversity value of the site.

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| ■ 134 | Are sites provided with areas and dimensions that enable the retention and establishment of trees? | With targets for projected canopy cover at 15 years set at 25-30% for public areas, ensuring that trees can establish within the subdivision is key. This includes ensuring integrated water management provides trees with adequate access to water, particularly as they are establishing. |
| ■ 135 | Will there be early delivery of medium and large trees to your subdivision? | |

The first step to enabling large canopy trees is to design around existing mature trees and implementing tree protection measures during construction. Accelerating the process of planting medium and large trees will ensure that even the first residents will have improved amenity and access to greening.

Biodiversity Conservation

Biodiversity conservation focuses on ensuring that existing flora, fauna and habitat within and in close proximity to the subdivision is protected. It also considers how biodiversity will be maintained through the life of the subdivision.

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| ■ 136 | Will native vegetation and habitat in public areas be protected, retained and enhanced over the long term? Particularly fully grown trees that will provide you with immediate shade and shelter, and over the years while new-planted trees grow. | A recent piece of research from the University of Adelaide concluded that children exposed to wild environments are at a smaller risk of non-communicable diseases in later life, and experience less stress and anxiety. |
| ■ 137 | Will a best practice and risk management approach be used for the management of biodiversity areas, which aims to avoid or minimise environmental degradation and hazards? | |
| ■ 138 | Will there be consistency with any native vegetation precinct plan? | Effective biodiversity conservation requires an effective implementation pathway including maintenance plans, biodiversity management plan and adequate tree protection zones through the construction. |
| ■ 139 | Will programs to increase resident involvement in biodiversity maintenance be developed and implemented, that will also support biodiversity conservation? | |

Enhance Biodiversity Value

Subdivision design and construction needs to do more than protect existing biodiversity. It should also outline key strategies to increasing or enhancing biodiversity value.

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| ■ 140 | Will habitat (vegetation) corridors be created and | |
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movement of flora and fauna promoted?

- 141 Will the planting and spread of environmental weeds be avoided?
- 142 Will the delivery of any vegetation clearing offsets be done locally to your subdivision?

Negative biodiversity impacts by clearing of vegetation for a subdivision can be offset by protecting other areas as open space.

Strategies to enhance biodiversity include using native species in landscaping, layering of plantings to create diversity of habitat and novel habitat creation such as hollow creation for birds and mammals. These strategies combine to create high species diversity, connections between key ecological assets and ensure that streets, parkland and environmental buffers to waterways are optimised to deliver the full range of ecosystem services including recreation, food production and place value - the key to liveability.

- 143 Are native species used in landscaping (public and private areas)?
- 144 Are plantings layered (in terms of height), improving habitat diversity?
- 145 Are there artificial 'tree hollows' or nest boxes for birds and mammals?
- 146 Is 'Conservation Development' an integral part of the subdivision design?

Generally, native plants provide food and shelter for native wildlife.

Layers can range from groundcovers up to tree canopies.

These are needed for wildlife to survive where no/few mature trees exist.

See <https://ensia.com/features/suburban-sprawl-doesnt-have-to-be-ecologically-devastating>

Designing people-focused streets and public areas will have significant co-benefits and will impact on the ability of the subdivision to achieve positive environmental outcomes.

- 147 Will green infrastructure be provided in your subdivision or around your home, for a range of ecosystem services (including CO2 reduction and habitat for biodiversity)? This will reduce the heat island effect, and to provide shade for active transport pathways.

For example, a subdivision-wide network of rain gardens and permeable pavements that allow water to soak into soil, rainwater harvesting systems, trees and vegetation, natural areas and open space.

Cultural Heritage

Older buildings and other cultural heritage can be incorporated into subdivision design, adding local character and value to the area.

- 148 Has existing cultural heritage been retained in your subdivision design?
- 149 Is the heritage of the place evident through the use of local building materials, colour schemes and vegetation choices?
- 150 Have design choices been influenced by the cultural identity of the area, based on the social, economic, environmental and indigenous history?
- 151 Have heritage and cultural features in your subdivision been acknowledged, integrated or protected?

Integrated Water Management (IWM)

All aspects of the water cycle, including reduced water consumption, beneficial use of recycled and stormwater and water sensitive design can be integrated and collaboratively managed in subdivisions. These integrated water solutions result in reduced water demand, increased use of recycled water and water-sensitive urban design outcomes.

A new resident can expect:

- Lower water bills due to access to recycled water, efficient fittings and other options
- Improved resilience to drought
- A greener urban environment
- Better flood protection
- Future proofing of building and community assets



Water Efficiency

In the subdivision design process there are opportunities to influence potable (drinkable) water demand in both public and private areas, so that your consumption of mains water supply (and ongoing water bills) is reduced.

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| <p>■ 152 Is water consumption reduced by environmentally sustainable subdivision and home design?</p> | |
| <p>■ 153 Is the demand for potable water reduced by incorporating passive irrigation opportunities?</p> | <p>This could include celebrating water in the landscape (eg raingardens) in preference to grey infrastructure (ie pipes).</p> |
| <p>■ 154 Are there design guidelines that require specific water efficiency measures in private areas?</p> | <p>This includes target setting for reduced potable water consumption per lot / person.</p> |
| <p>■ 155 Has a 'schedule of allowances' for taps and plumbing fixtures been provided to you?</p> | <p>Make sure you choose the highest Water Efficient Labelling Standards (WELS) star rating available - especially for showers and toilets for reducing water use (https://www.yourhome.gov.au/water/reducing-water-use).</p> |
| <p>■ 156 For example, will all toilets have a 4 star WELS rating?</p> | |
| <p>■ 157 Will all showers be fitted with a 3 star WELS-rated showerhead?</p> | |
| <p>■ 158 Will all handbasins and sinks be fitted with 3 star WELS rated tapware or flow regulators?</p> | |
| <p>■ 159 Where gardens exist, have they been designed to minimise water use and/or to retain rainwater in your garden area?</p> | <p>Hard surfaces (including roof area) should cover no more than 30% of the block - eg use gravel driveways with pavers, for better water absorption.</p> |
| <p>■ 160 If so which options will be incorporated?</p> <ul style="list-style-type: none"> ■ mulches ■ sub-surface or drip irrigation systems | |
| <p>■ 161 Does landscaping involve a predominant selection of indigenous and or drought-tolerant plant species?</p> | <p>These species generally require less water than other plants.</p> |

Fit-for-purpose Water

The subdivision design process provides significant opportunities to incorporate alternative water as there are less constraints around incorporating the required infrastructure early in the process. There are also opportunities to reduce demand for potable water by introducing a non-mains source such as third pipe or stormwater harvesting.

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| <p>■ 162 Is your site provided with areas and dimensions that enable the appropriate siting and construction of a home that can be serviced with water, wastewater and other essential services?</p> | |
| <p>■ 163 Are there alternative water sources for public and private use (such as public or private rainwater tanks for toilets, laundry and gardening, stormwater reuse and localised recycled water systems)?</p> | |

- 164 Is your waste water system adequate for the maintenance of public health and the management of effluent in an environmentally-friendly manner?

Optimised Stormwater Management

Stormwater management helps reduce the harm water can cause to our rivers and creeks when it contains chemicals and pollutants. It also provides opportunities to optimise water flows to create passive irrigation opportunities.


- 165 Are water sensitive urban design techniques incorporated into the development including enhancing riparian vegetation (waterway health), drainage reserves adjacent to wetlands and protection of biodiversity and landscape features for improved amenity?
- 166 Does the location and scale of open space correspond to existing drainage channels?
- 167 Has the Best Practice Environmental Management Guidelines for Urban Stormwater been met?
- 168 Is localised flooding controlled and increasingly intense rainfall events planned for, as projected by climate change models?
- 169 Is water used as a tool for reducing urban heat?

Check your flood insurance premiums as an indication of flooding potential.

For example, watering to cool roofs, driveways. This water wastage can be minimised by using other heat reduction approaches (see below).



Urban Heat Mitigation



Subdivision design can reduce urban heat, manage the effects of urban heat within the subdivision area and maintain human health and wellbeing through periods of extreme heat.

Increasing numbers of people are moving into urban areas, where

temperatures are higher than the surrounding rural areas as a result of reduced natural, vegetated landscapes and increased dark, paved surfaces that store heat, an effect known as the urban heat island (UHI).

A new resident can expect:

- Lower energy bills due to less reliance on active heating and cooling systems
- Improved living comfort (internal and external) and wellbeing, especially in heatwaves
- Sheltered outdoor areas and 'cool routes' through the subdivision
- Future proofing of building and community assets
- Less disruption, harm or damage during extreme heat events

Australian planners are recommending that a minimum of 30% canopy cover is retained across the suburb or subdivision, to reduce the UHI effects.



Urban Heat Mitigation

There are several strategies that can be undertaken through the subdivision design process to mitigate the impact of urban heat into the future:

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| ■ 170 | Are the roads and carparks shaded to reduce urban heat? | Strategies to mitigate urban heat include introducing irrigated and vegetated landscapes into the subdivision - these create evapo-transpiration which helps to naturally cool the outdoor environment. |
| ■ 171 | Are streets and open spaces irrigated to cool the landscape? | |

However, there are also opportunities to use materials that have a higher solar reflective index (SRI) to lower the heat absorption. The SRI is an indicator of how hot a material is likely to become when exposed to solar radiation (the lower the SRI the hotter it is likely to become).

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| ■ 172 | Does your subdivision use lighter-coloured (or white) roofs? | Choosing lighter materials is a low cost, effective method of mitigating urban heat. |
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Access to Shelter

With more days of extreme heat already being experienced, and this number expected to grow, ensuring adequate access to shelter throughout the subdivision will mean that future residents can continue to move freely. By ensuring adequate shelter for pedestrian movements and places of respite from harsh conditions within the urban environment, public areas can remain functional for active transport (such as cycling) under a greater range of conditions.

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| ■ 173 | Is pedestrian and cyclist movement sheltered? | Future residents should be able to move around the subdivision using 'cool routes'. 'Cool routes' are active transport routes between destinations that provide protection from direct heat such as through a physical shade structure or relatively uninterrupted tree canopy cover. |
| ■ 174 | Are there 'cool routes' through the subdivision? | |
| ■ 175 | Does the choice of materials used for physical shade structures also support urban heat mitigation by ensuring they have a higher SRI (eg lighter colours)? | |

Health and Wellbeing

Urban heat mitigation strategies must ultimately enable future residents to move safely and comfortably around the subdivision without compromising their health and wellbeing:

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| ■ 176 | Can human health and wellbeing be maintained through periods of extreme heat? | The use of vegetated and irrigated landscapes can reduce urban heat while promoting your health and wellbeing. |
| ■ 177 | Are there places with cooler microclimates which provide relief from hot conditions? | The development of microclimates within the subdivision is strongly linked to the ecology and integrated water management categories. |

Home Design

Subdivision design guidelines can also be used to ensure that private landscaping supports urban heat mitigation, ultimately improving the health and wellbeing of residents within their homes as well as supporting public area outcomes.

- 178

What will be your home's thermal performance - eg 6, 7 or 8 star?

Aiming for the highest NatHERS thermal comfort star rating you can afford (8 or better) to improve both thermal comfort and resale value (see <https://www.nathers.gov.au/>). Mandatory minimum star ratings are currently under review.
- 179

What is needed in your climate to achieve good thermal comfort in your home with minimal use of additional heating and cooling (ie passive design)?

Compare the climate design list with what is on offer to you (<https://www.yourhome.gov.au/passive-design/design-climate>). Tasmania is Climate Zone 7.
- 180

Will your home have advanced glass or double-glazing?
- 181

Will your home have heat pumps/reverse cycle-air conditioning, for efficient heating and cooling systems?

Circular Economy (Materials & Waste)

Subdivisions can reduce resource use and improve retention of value through the materials life cycle by encouraging re-use of onsite materials, using recycled materials and providing the appropriate resource recovery infrastructure.

A new resident can expect:

- Future proofing of community and building assets against changes in government regulations
- Improved access to sustainable resource recovery options

The aim is to eliminate the need to dispose of materials (i.e. through landfill or energy recovery), ensuring that materials remain available for future, retaining potentially valuable resources.



Material Selection

As virgin materials become scarcer (and so more expensive) markets for materials using recycled content will increase. Through the subdivision process alternative options to virgin materials are becoming more widely available.

- 182 Have materials with low embodied carbon been selected in the construction of your subdivision?
- 183 Are materials and products certified through strong third party verification?
- 184 Have your future maintenance and upgrade requirements been minimized through durable and easily-recycled materials choices?
- 185 Is the local economy supported by buying local materials?

Material choices play a fundamental role in designing for a circular economy. Choosing non-virgin materials that can easily be repurposed, can result in safer products for both future residents and the environment. It will also ensure that materials have lower embodied carbon, while potentially reducing your maintenance and upgrade costs through improved durability.

Reuse

Greenfield subdivisions provide significant opportunities to reuse materials, both directly from the site as well as considering the use of materials with recycled content.

- 186 Has the re-use of onsite buildings and materials been involved in the construction of your subdivision?
- 187 Have products with high recycled content and end-of-life recyclability been used in the construction of your subdivision?

Reuse can go beyond choosing materials with recycled content, by ensuring that products can be easily repurposed at the end of life. The subdivision process provides various opportunities to use recycled content including in bitumen, concrete and road base as well as street furniture such as bollards and seats.

Resource Recovery

The key to an effective circular economy is recovering resources so they can easily be reused, recycled or repurposed.

- 188 Is your street network capable of supporting organics and recycling collection?
- 189 Has community infrastructure been provided to support sustainable resource recovery?

Resource recovery includes repurposing materials during the construction process as well creating the infrastructure to support future residents to repurpose. For example, infrastructure for communal organics collection where a council program doesn't exist, or community investments like repair cafes.



Further Enquiries

This Checklist is based on information from:

The Design Policy for Social Housing (Tasmania) includes criteria that people with disabilities require.
https://www.communities.tas.gov.au/__data/assets/pdf_file/0023/105971/Design-Policy-for-Social-Housing.pdf

Sustainable Subdivisions Framework CASBE Vic.
<https://www.casbe.org.au/what-we-do/sustainable-subdivisions/>

The Sustainable Subdivisions Framework (SSF) identifies seven categories that can assist in creating sustainable subdivisions:

Site Layout and Liveability, Streets and Public Realm, Energy, Ecology, Integrated Water Management (IWM), Urban Heat, Circular Economy

See <https://www.casbe.org.au/resources/sustainable-subdivisions-resources/> for Fact Sheets 1.0 to 7.0 plus Case Studies (built examples).

Heart Foundation Guide at https://irp-cdn.multiscreensite.com/541aa469/files/uploaded/Healthy_Active_by_Design_Guide.pdf and their checklist at https://irp-cdn.multiscreensite.com/541aa469/files/uploaded/Healthy_Active_by_Design_master_checklist.pdf

A **Green Star Home** is designed to the standard set by the Green Building Council of Australia
<https://new.gbca.org.au/green-star/rating-system/homes/for-buyers/>

HIA Greensmart
<https://hia.com.au/resources-and-advice/sustainable-homes>

Other Resources

<https://www.communities.tas.gov.au/housing>

https://theconversation.com/better-building-standards-are-good-for-the-climate-your-health-and-your-wallet-heres-what-the-national-construction-code-could-do-better-166669?utm_medium=email&utm_campaign=Latest%20from%20The%20Conversation%20for%20October%204%202021%20-%202077220500&utm_content=Latest%20from%20The%20Conversation%20for%20October%204%202021%20-%202077220500+CID_b6c9f70d7e6bda5905149e8c39317e0f&utm_source=campaign_monitor&utm_term=Better%20building%20standards%20are%20good%20for%20the%20climate%20your%20health%20and%20your%20wallet%20Heres%20what%20the%20National%20Construction%20Code%20could%20do%20better

National Construction Code (minimum 7 stars proposed for 2022 changes to the Code)
<https://ncc.abcb.gov.au/news/2021/ncc-2022-public-comment-draft-stage-2-consultation-now-open>

Better Placed

<https://www.governmentarchitect.nsw.gov.au/resources/ga/media/files/ga/strategy-documents/better-placed-a-strategic-design-policy-for-the-built-environment-of-new-south-wales-2017.pdf>

Conservation Development:

Ensia website, 2015, 'Suburban sprawl doesn't have to be ecologically devastating'
<https://ensia.com/features/suburban-sprawl-doesnt-have-to-be-ecologically-devastating>

