

Report to the Future Melbourne (Planning) Committee

Agenda item 6.5a

Better Apartments Draft Design Standards Submission

20 September 2016

Presenter: Ian Hicks, Acting Director City Strategy and Place

Purpose and background

1. The purpose of this report is to seek ratification of management's submission (Attachment 2) in response to the *Better Apartments Draft Design Standards* (Attachment 3) released by the Victorian Government.
2. The draft design standards are a technical response to address specific apartment design and amenity issues raised through the consultation process to date, including on the *Better Apartments Discussion Paper* in May 2015. The City of Melbourne's submission on the original discussion paper was endorsed by the Future Melbourne Committee (FMC) on 7 July 2015.
3. A briefing paper was circulated to Councillors on 9 September 2016 making Councillors aware of management's intention to make a submission. Councillor Ken Ong, Chair Planning Portfolio, has requested that the management submission be brought to FMC for ratification.

Key issues

4. The City of Melbourne strongly supports the introduction of apartment design standards. This support is set out in Council's Housing Strategy *Homes for People* and in our submission on the discussion paper.
5. Key points made in the submission on the *Better Apartments Draft Design Standards* are that:
 - 5.1. We strongly support many of the draft standards, including building separation distances, 2.7m floor-to-ceiling height, room depth to ceiling ratios and requirements for natural ventilation, windows, storage, open space and deep soil planting.
 - 5.2. The focus on the design of individual apartments is extended to issues of the overall building, including building type, siting, orientation, depth, energy efficiency and communal spaces.
 - 5.3. While the draft standards propose minimum dimensions for bedrooms, bathrooms and storage, there is no minimum dimension for living areas or objective regarding the layout and functionality of these spaces. This should be addressed by including an objective regarding the space, layout and functionality of apartments. Standards to deliver the objective could include minimum dimensions for living areas or minimum sizes for the whole apartments. There should still be the ability for an alternative performance based design outcome to achieve the objective.
 - 5.4. The environmental standards are not consistent with previously stated ambitions and it is proposed that these are further addressed, with more focus on energy efficiency and adaptability.
 - 5.5. The planning provisions should be as clear and measurable as possible to provide sufficient certainty, be easily understood and applied consistently.
 - 5.6. The draft standards should be tested together with the Central City Built Form Review (C270) to ensure they align to support higher quality outcomes in the Central City's higher density context.
 - 5.7. The proposed implementation processes to support good design have been reduced or streamlined to a point that they may have limited effect on the quality of apartments. These processes should be enhanced.
6. Management has made submission (Attachment 2) to the Department of Environment, Land Water and Planning (DELWP) by the due date being 19 September 2016.

Recommendation from management

7. That the Future Melbourne Committee endorses the City of Melbourne submission in response to the *Better Apartments Draft Design Standards* attached to this report.

Attachments:

1. Supporting Attachment (page 2 of 59)
2. City of Melbourne Submission on the Better Apartments Draft Design Standards (page 3 of 59)
3. Better Apartments Draft Design Standards (page 14 of 59)

Supporting Attachment

Legal

1. There are no known legal implications arising from the recommendation from management.

Finance

2. There are no financial implications of this submission.

Conflict of interest

3. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

Stakeholder consultation

4. This submission has been prepared to generally reflect Council's positions in Homes for People which was developed with significant community consultation.

Relation to Council policy

5. This submission has been prepared to reflect Council's positions in its housing strategy Homes for People.

Environmental sustainability

6. The submission supports the delivery of sustainable neighbourhoods by improving the quality of apartment developments. The submission addresses the quality of apartment buildings and apartments which will improve environmental performance, in particular with the aim to reduce energy usage through better design and layouts.

City of Melbourne submission on the
Victorian Government's Better Apartments
Draft Design Standards

September 2016

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1. INTRODUCTION

This response is provided by the City of Melbourne Administration in response to time period of consultation by the Department of Land, Environment, Water and Planning (DELWP). We would welcome further consultation on the design standards (for example once the decision guidelines and planning provisions have been prepared) and for this further consultation to accommodate Council decision making processes to ensure sufficient time for a formal Council response to be prepared and endorsed.

The City of Melbourne strongly supports the introduction of apartment design standards to improve the quality of apartment design to meet the needs of all occupants. This support is set out in Council's housing strategy, *Homes for People* (2014-18), which helps achieve our aspiration for an inner and central city where housing is affordable, well-designed and meets the diverse needs of our residents. The strategy focuses on apartments because they are, and will continue to be, the predominant housing choice in the municipality. One of the three goals in the strategy to achieve this is to 'Improve the design quality and environmental performance of new apartments'. During the community engagement on the draft strategy, this goal was strongly supported by 85 per cent of those who submitted formal feedback.

The support was also reiterated in the City of Melbourne's submission on the *Better Apartments Discussion Paper* in July 2015. The submission highlighted that good quality apartments can help minimise resource and energy consumption over the life-time of an apartment; support climate change mitigation and adaptation; support the long term economic sustainability of the city; the integrity and return on investment for investors and home owners; and help ensure development opportunities are protected for adjoining sites.

Some of the issues with apartment quality are more prevalent in our municipality due to the intensity of development. Noise, daylight and sunlight, privacy and overlooking all become more acute as densities increase. Higher density leads to more intensive use of communal, shared areas such as entrances, corridors, and lifts with subsequent management and maintenance implications. For these reasons, higher density development requires strong guidance and more careful design to ensure that these homes are functional, comfortable and pleasant to live in, now and in the future. Section 2 below provides the key strategic issues that the City of Melbourne would like to see addressed, and Section 3 provides more detailed comments on each of the draft standards proposed.

2. KEY STRATEGIC ISSUES

Implementation, process and supporting the standards

We welcome the introduction of apartment design standards as a new provision in the Victoria Planning Provisions, consistent with our submission on the *Better Apartments Discussion Paper*. We support the proposed format of the new provision with Objectives, Standards and Decision Guidelines, which offers greater certainty and improved design quality if using the standards while still allowing for flexibility and innovative design by proposing alternative design solutions to meet objectives.

We do note, however, that the current draft standards are not written in this format and do not include the objectives or decision guidelines. Unfortunately, this does not enable a full, well-considered assessment of the standards or how they might be applied in specific circumstances. It could also result in an understanding that the standards are overly prescriptive or there are no alternative design solutions to the standards which could still achieve an objective. The decision guidelines will be an important part of the standards in order to understand the matters to consider when deciding if objectives have been met, and will be useful to highlight and explain potential situations where it is reasonable to vary from the standards due to different site contexts and typologies.

When the standards are written to align with the proposed format, it would be useful to include a preamble (similar to the operational requirements of Particular Provisions Clause 54 and 55), which defines the operation of the new standards and the requirements to be met and include an introduction to each standard explaining the importance, reasoning and justification for the requirements.

We note the intention to replace the Guidelines for Higher Density Residential Development with new design guidelines. It is not stated whether these would be a reference document in the VPPs. Rather than release the new guidelines prior to the new planning provisions, it may be preferable to introduce them concurrently so that they complement each other. The guidelines should provide the information needed to make the standards fully effective but which is not appropriate to include in the planning provision. This should include images and examples of plans etc. and could also include some of the information currently contained under 'Applying the Standard' in the proposed draft standards.

While the apartment design standards focus on the internal amenity of apartments, urban design policies in the Planning Scheme focus on where buildings meet the street and the Central City Built Form Review (C270) seeks to provide built form requirements at a site level, there is still a gap at the building scale in terms of issues including building type, siting, orientation and depth. The design standards should be expanded to include greater reference to different building typologies and issues such as building orientation, which can be further explained and understood in the supporting design guidelines.

The design guidelines should help explain and illustrate that apartment development occurs in a variety of arrangements, configurations and types depending on the context and size of a site. It is important for apartments to be delivered in a variety of typologies, from smaller scale infill apartments to courtyard and perimeter block apartment developments to podium and towers in the heart of the central city. This diversity of typologies, along with diversity in apartment size and type (including three bedroom apartments), is important to help meet the diverse needs of our residents. Such residents increasingly include older people and families.

In the City of Melbourne, more families with children live in Southbank and Docklands today that were envisaged and the provision of new infrastructure in the central city, such as schools, may increase further the demand for family-friendly apartments. Research into the impacts of high density housing based around the need for families by a local authority in London (Waltham Forest Council, London, 2009), identified the two key choice factors of sufficient internal space and the provision of private outdoor space if high density apartment

living is to be adopted by families. It is hoped that the final design standards, along with supporting mechanisms such as the design guidelines and design review panels will help to deliver a more diverse housing mix and choice and help create diverse neighbourhoods and great communities in which to live.

Draft standards

We strongly support many of the draft standards, including building separation distances, 2.7m floor-to-ceiling height, room depth to ceiling ratios, requirements for natural ventilation, windows, storage, private open space and deep soil planting. These standards will help to uphold basic standards of amenity for new apartment buildings and ensure a legacy of quality housing for a sustainable and liveable future. However, we are concerned that the draft standards as currently proposed fall short of the range of performance measures required to deliver sustainable, high quality housing and neighbourhoods. We consider some of the proposed standards should be strengthened and additional standards added. These are described in more detail below and in Section 3.

Informed by the work on our *Future Living* Discussion Paper and subsequent Housing Strategy *Homes for People*, along with an extensive review of recent residential development applications, we strongly recommend the following elements are included as the planning provisions are refined and finalised:

1. Consider the overall building and its built form and typology

The focus on the design of individual apartments should be extended to issues of the overall building and its built form and typology, including building siting and orientation, achieving energy efficiency, and ensuring communal space is well designed, managed and maintained, enables flexible use and supports social interaction and community building. The form and typology of a building significantly impacts the internal amenity of apartments. Buildings should be able to accommodate a mix of uses and potential changes of use or occupation over time.

2. Give greater consideration to the layout and space of apartments

The issue of space was a top issue from the community in response to the *Better Apartments Discussion Paper*. Furthermore, our housing strategy identifies that the size of an apartment is often fundamental to achieving good levels of amenity (p36). New homes must have enough space for basic daily activities, be able to accommodate standard sized furniture and be adaptable and flexible in their layout to allow for different lifestyles and users. The trend in the City of Melbourne is for increasingly small apartments, with 40 per cent having less than 50 square metres, the recognized minimum size of a one bedroom apartment in Sydney and London. Furthermore, some two bedroom apartments are currently being marketed or proposed in the municipality that are of a similar size to that of one bedroom apartments in other cities. As highlighted in our submission to the *Better Apartments Discussion Paper*, very small apartments which offer good levels of amenity can and do exist, but they rely on clever, integrated and often bespoke design and tend to be the exception in the current market. In our municipality, small, and often poorly designed, one and two bedroom apartments are the dominant product. These apartments tend to not suit a diverse range of occupants, including families or group households (p4).

Our submission also highlighted that the need to improve the design quality of new homes while also improving housing affordability has sometimes been framed as a choice between the two. The quality of new residential development, however, should not be reduced to the lowest common denominator in pursuit of affordability. A decision by the Victorian Civil and Administrative Tribunal (VCAT) for a 36 storey housing development at 58-66 La Trobe Street did not accept the applicant's contention that a trade-off for the availability of the attributes of the cultural city is an apartment with a poor level of amenity and specifically stated 'using affordability as an argument does not justify reducing amenity to a bare minimum'.

During the review of residential apartment design standards in NSW (SEPP65 and the Residential Flat Design Code), development feasibility and housing affordability were considered. Economic advice confirmed that the marginal cost impacts of the current Residential Flat Design Code vary significantly depending on a range of factors associated with an individual development including location, land cost, site constraints and design characteristics of the building. It was also found that the cost of providing car parking can have significant impacts on construction costs and feasibility. Similar standards, therefore, can provide greater certainty and consistency to the development industry, to make a more efficient development process, reduce risk and improve affordability.

While the draft standards do propose minimum dimensions for bedrooms, bathrooms and storage, there is no proposed minimum dimension for living areas or objective regarding the layout and functionality of these spaces. An unintended consequence of providing minimum dimensions for some areas but not living areas, and one that we are currently experiencing in applications, is that the minimum dimensions of other areas are met at the expense of the size of the living area.

This should be addressed by including an objective regarding the space, layout and functionality of apartments. Standards to deliver the objective could include minimum dimensions for living areas or minimum sizes for the whole apartments. There should still be the ability for an alternative performance based design outcome, other than that specified in the standards, to achieve the objective – that way smaller apartments which offer good levels of amenity by incorporating clever, integrated and often bespoke design are still permissible. The proposed decision guidelines can help support when this is appropriate and achievable. This is consistent with our previous submission on the *Better Apartments Discussion Paper*.

3. Improve environmental standards

The proposed environmental standards are inconsistent with previously stated ambitions and it is proposed that these are further addressed, with more focus on energy efficiency, thermal comfort, adaptability and active design. See Section 3 for more information and proposed changes to the draft standards.

4. The planning provisions should be as clear and measurable as possible

The objectives and standards should be as clear and measurable as possible. Qualitative aims using words such as 'adequate' are susceptible to debate around their meaning, whereas quantitative standards such as space or storage requirements are clear, can be applied consistently and be easily understood by all parties.

Careful consideration needs to be given to wording throughout the document, particularly using words such as 'should' rather than 'must' in the standards - by the very nature of the system that the standards are one clear way to meet the standards, using the word 'should' only adds uncertainty and the potential to be debated. In many instances, similar to the NSW Apartment Design Guide, many of the standards do not require either 'should' or 'must'. For example, with regard to windows, the standard could read '*All habitable rooms to have a window in an external wall of the building that is visible from any point in the room*'.

5. Test the standards together with the Central City Built Form Review (C270)

That the Draft Standards should be tested together with the Central City Built Form Review and other planning provisions, to ensure they align to support higher quality outcomes in the Central City's higher density context.

6. Give greater consideration to the implementation and use of the standards

The proposed processes to support good design have been reduced or streamlined to a point that they may have limited effect on the quality and amenity of apartments. We recommend another step of proactive local/regional design review be introduced during pre-application discussions to support high quality design through the process and ensure that the design standards are being applied correctly to get the best design outcome considering the context of a site and not used purely as a 'tick box' exercise. This would supplement the proposed verification by a registered architect at the building approval stage, which is supported in principle, but would require a rigorous framework to be established as well as careful monitoring for it to be successful.

3. THE STANDARDS

The following headings follow the sequence in the Draft Standards. Some of the topic areas and standards are interrelated, such as noise and natural Ventilation, or accessibility and active design; these are discussed below and we recommend that provisions be included to avoid these working against each other.

Building Setback

- The guidelines could highlight that building setbacks also helps to address equitable development rights on adjacent development sites.
- For the benefit of the wider community, it could be useful also explain the proposed building heights in storeys as well as metres.

Light wells

- The standards should state that the minimum area and dimensions apply to the full height of the light well.
- Allowance could be made for reverse pyramid light courts, which get larger toward the top of the building.

Room Depth

- To ensure adequate kitchen lighting and that the energy efficiency of the apartment is maximised, an 8m depth should only be acceptable when the kitchen is not on the wall furthest from the window (a kitchen 8m away from the window is unlikely to have sufficient natural light to use a knife on a chopping board without using artificial light).
- Greater ceiling heights can allow for proportional increased in room depth up to the permitted depths as per the height depth ratio.

Windows

- This standard succinctly does away with snorkel/saddleback bedrooms, which is strongly supported. However, an additional standard may be needed to ensure that external windows are not deeply recessed within niches or otherwise compromised in the amount of daylight they can receive.

Daylight (proposed)

- While the first four standards (building setback, light wells, room depth and windows) help to address daylight, there are no reference to a specific daylight factor criteria that such standards will achieve. Information on how the draft standards correlate with daylight factors is essential to include in the proposed guidelines.

- Further, we recommend that performance criteria be added, which would apply only if design solutions are proposed other than the proposed standards, to demonstrate that a good level of daylight has been achieved through alternative designs. The suggested criteria is:
 - at least 70% of bedrooms in the development achieve a minimum (not minimum average) daylight factor of 1.0% across 90% of the floor area; and
 - at least 70% of living rooms including kitchens achieve a minimum (not minimum average) daylight factor of 1.0% across 90% of the floor area.
- The provision of guidance for daylight modelling and reporting should be considered. This includes acceptable software, use of sky appropriate for the development location, inclusion of surrounding buildings, inclusion of overhangs, balcony balustrades and internal partitions. Manual calculation methods are available and may be more appropriate for smaller developments, with simple interior layouts, where they are not overshadowed and where glazing has a VLT>40% (refer to the Green Building Council of Australia website www.gbca.org.au).

Storage

- At least half the storage should be internal to ensure that adequate, well designed storage is provided in each apartment in addition to storage in kitchens, bathrooms and bedrooms and which is easily accessible and convenient to use.

Noise Impacts

- The standards, along with the objectives and decision guidelines, should provide greater reference to the arrangement of buildings and the location of public and private open space when considering the best design-led approach to minimise noise and maintaining other objectives such as daylight and natural ventilation, rather than relying on technological fix-ups later.
- Greater reference could also be provided to apartment treatments in addition to those specified in the draft standards, including façade texture and detailing along noise sources and different balcony treatments, such as the use of louvres and retractable glazed acoustic screens.

Energy Efficiency

- The energy efficiency standard is very limited compared to that included in the previous draft and misses a range of opportunities. In particular we suggest that the aim of the standard is expanded to include a requirement that new apartments have a high level of thermal comfort, and that apartments minimise their contribution to the urban heat island effect. The draft standards currently:
 - do not include an overall heating & cooling load measure (a previous recommendation). Suggest that this is reintroduced to require a combined heating and cooling load target of 10% above the NCC Section J minimum, as well as maximum cooling load of 30/MJ/m2.
 - do not include any requirements for lighting and services energy efficiency or occupant control (a previous recommendation). We suggest additional specific criteria are required for energy efficient lighting & building services in communal areas and dwellings including a 10% improvement on National Construction Code Section J minimum. Also suggest that a requirement for occupant control of lighting and building services as for example master control switches.
 - no longer includes any measure around cool roofs/urban heat island effect. We suggest that the previously included measure of roofs and areas of thermal mass exposed to summer sun with an albedo of >0.7, or a green roof, is reintroduced.
 - no longer includes any measure about occupant control of their thermal environment, as included in the previous draft. We suggest that this is reintroduced.
 - do not include any requirements around solar panels or other onsite generation or storage, which was a previous recommendation from the City of Melbourne. We suggest that guidance

is provided to require a minimum area of solar panels of 20% of roof area and that space for future battery storage is included.

- do not give any guidance around ensuring energy efficiency of existing dwellings on neighbouring lots is not 'unreasonably reduced', for example, how does this apply to overshadowing of existing solar panels, access to daylight and sunlight penetration etc? Does this apply to current developments on a lot and/or potential future developments?
- do not consider inclusion of a measure around provision of outdoor clothes drying facilities. We suggest this is appropriate.

We note that the NSW Apartment Design Guide is applied in addition to BASIX certification, which addresses overall energy consumption from efficient lighting and building services, plus low carbon energy sources, as well as heating and cooling demand. These aspects are not addressed in Victoria outside minimum National Construction Code (NCC) provisions. Inclusion of specific measures for lighting and building services both within apartments and common areas would add to the achievement of the objective for energy efficient dwellings and buildings.

These standards are a critical opportunity to ensure that the new apartment sector helps deliver endorsed and forthcoming cross-government policies including Resilient Melbourne, Climate Change Adaptation (in development) Victorian Renewable Energy targets, Victorian greenhouse gas emissions targets.

Natural ventilation

- All habitable rooms should be naturally ventilated. Apartments above 80m in height should still have the option to naturally ventilate every habitable room by having at least one openable window. In a 300m tower, for example, 70% of dwellings are above 80m in height which is a substantial number.
- In situations where excessively windy conditions are expected, use devices such as winter gardens to achieve natural ventilation without problematic drafts. Apartment buildings in noisy locations should incorporate measures such as balconies with absorbent soffits to mitigate noise without having to lose natural ventilation.
- Developments in noisy locations should be laid out and constructed to meet the noise standards while maintaining natural ventilation. If not included in the VPPs, this should be stated in the Design Guidelines.

Private open space

- There may be some circumstances where higher level balconies are traded off for more communal outdoor space. However, the onus should be on the applicant to prove the adequate provision of space that responds to daily needs.
- Balconies can serve multiple roles and be adaptable for different uses, such as sun shading for the level below, the ability to clean windows as well as being able to sit out and enjoy.
- The draft standards do not currently apply on buildings above 35m in height (about 10 storeys). Given the importance of open space for dwellings, the minimum dimensions and areas should apply to apartments above 35 metres in height. In the City of Melbourne, there are numerous examples of buildings above 35 metres that are able to provide private open space.

Communal open space

- It would be of further benefit to add to the standard or guidelines - communal spaces could include elements such as vegetable gardens which help build a sense of community.
- The reference that 'communal open spaces are not necessarily required to be located outdoors' in the Applying the Standard section is confusing, as open spaces are by definition outdoors. The

requirement for 2.5 square meters in the standard should be for outdoor communal open space which accords with how the draft standard is written.

- The provision of communal open spaces should be proportionately increased on a sliding scale beyond 2500 square metres to capture the value proportionately from the larger development sites (for example from 2500-5000 sq.m, and 5000-10,000 sq.m sites).
- The requirement for communal open space is important, especially in multi-residential buildings to assist in developing a sense of community and opportunity to meet. The proposed lesser standard of 100sqm for communal open space is inadequate for buildings with up to an infinite number of dwellings and should be removed. In the City of Melbourne it is conceivable that buildings housing hundreds of dwellings would only be required to provide 100sqm of communal open space. The other standard of 2.5sqm per dwelling seems more appropriate and should be kept in comparison. The standards do not specify that the communal space needs to be outside, or what the space needs to provide for the residential community. Given the small size required standards relating to quality of communal and private open space are especially important and should be provided.

Landscaping

- The private realm needs to make an important contribution to ecology and biodiversity in the City; tree canopies would be an important part of this. The draft has a reduced requirement for trees / tree growth conditions when compared to previous drafts; it has smaller site areas for deep soil (none for sites less than 750 sq m), does not consider above ground space for canopies and it introduces small, medium, large tree as undefined terms (whereas we believe envisaged large canopy trees as most beneficial).
- When the communal open space and deep soil requirements are considered as part of an integrated design approach to the site, it provides the opportunity to achieve different typologies and help deliver other requirements within the standards (such as natural ventilation). This should be referenced in this section.
- A provision should be added to encourage edible plantings.
- Nominated deep soil areas must be protected from compaction and contamination during the construction phase.
- Some existing soils may require amelioration to enable the healthy growth of canopy trees. Any amelioration works should be based on an assessment of the condition of deep soil areas by a suitably qualified and experienced soil scientist.
- Any existing trees that are suitable to be retained should be protected and managed according to AS 4970-2009 (Protection of Trees on Development Sites). AS 4419 would only apply to imported soils, such as for tree pits.

Accessibility

- Accessibility standards are narrowly defined and should include Lifetimes Homes Principles and the concept of universal housing design (rather than a focus on being DDA compliant). Universal design is an international design philosophy that enables people to continue living in the same home by ensuring that apartments are able to change with the needs of the occupants.
- The guidelines should make reference to existing legislation and standards on accessibility and clarify how the new standard relates. It would also be useful to clarify what needs this standard are based on. (For example: Are these spacings in bathrooms (1.2m in front of shower/toilet) sufficient for someone with a bulky wheelchair to exit and enter their chair? Does this space allow for an assistant, or only for someone doing this alone? Could an adult hoist be installed in one of these apartments?)

Dwelling Entry & Internal Circulation

- The draft standards should be expanded and include the journey from the street to the front door of an apartment.
- It should include standards around vehicular and servicing entries, safety and lighting.
- Ground floor apartments should have individual entrances and this should be reflected in the objective.
- An objective to promote the use of stairs should be added. Visual connection to stairs is more important than to lifts, as this promotes health through incidental exercise and reduces energy consumption
- A standard should be included for a maximum of eight apartments off a circulation/lift core, so that common circulation spaces achieve good amenity and properly service the number of apartments. Such spaces can also provide opportunities for social interaction and community building among residents.
- Consideration could be given to including standards for corridor widths to enable sufficient internal circulation by all users, while also allowing for more light and air.
- Way finding signage could be incorporated throughout the building depending on its scale. Consideration should be given to dementia enabling environments for older people who may be living in apartments. Movement should be simple to traverse and easily navigated by parents with prams or children/adults with a disability.

Waste

- We consider this section could include stronger requirements around waste beyond some local council requirements, such as ensuring waste storage facilities are designed to minimise impacts on the streetscape, building entry and the amenity of residents and that apartments have a sufficient area internally to hold and separate waste and recycling.

Water

- This section is under developed, and misses an opportunity to include minimum efficiency standards, and to be more specific about rainwater tanks and dual plumbing.
- We suggest that the objective is broadened to ensure that new development does not contribute to local flooding. Suggest that specific WELS rating criteria are included for efficient fixtures and fittings (based on Green Star Design & As-Built credit 19B.1 criteria), to be within 1 star of the following WELS ratings:
 - Taps- 6 Star
 - Toilets – 5 star
 - Showers - 3 Star (>4.5l but <=6.0l)
 - Clothes washing machines where provided - 5 star
 - Dishwashers = 6 star

Better Apartments

Draft Design Standards

The Victorian Government's response to improving the liveability of apartments



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Why we need better apartments

The Victorian Government is committed to delivering affordable housing options that meet the long-term needs of the Victorian community. We want to protect and enhance Victoria's reputation for liveability and good design, and ensure that as our cities grow sustainably, they leave positive legacies for future generations.

More and more Victorians are choosing an apartment as a preferred housing choice because it is affordable and offers lifestyle benefits. However, not all apartments being built are healthy places for people to live. Some have little or no access to natural light. Some are poorly ventilated and insulated, and are too noisy. Some have no room for storage. These are places that can affect peoples' wellbeing.

The design standards will provide greater certainty to the community, councils and the development industry by creating better outcomes for apartments in Victoria. This requires a fair, effective and transparent development assessment process.

Taking action will ensure:

- Apartments provide safe and healthy living environments
- Apartments are a desirable and effective housing choice
- Apartment developments enhance the liveability and sustainability of the surrounding neighbourhood
- Apartment developments create a legacy of quality housing stock for future generations.

Discussion paper feedback

In May 2015, the Minister for Planning released Better Apartments – A Discussion Paper for public input and stated that the ‘right mechanisms must be put in place to promote high quality apartment living opportunities’.

The discussion paper started a community-wide conversation about the key issues affecting internal apartment amenity and received 145 written submissions and more than 1700 responses to an online community survey. Workshops and interviews were also conducted.

A Public Engagement report was released in December 2015 that summarised feedback from the community, local government, industry and other stakeholders.

Together with the Office of the Victorian Government Architect (OVGA), the Department of Environment, Land, Water and Planning (DELWP) identified options for implementing a consistent approach to the design and amenity of apartments.

A peak body reference group and a local government working group were also established to test a range of potential design standards and approaches. This work has resulted in the development of a number of draft design standards.

PROJECT REFERENCE GROUP

In February 2016, the Minister for Planning established a Reference Group of peak local government, consumer and industry bodies to provide a sounding board for DELWP and OVGA to test the most effective implementation measures and mechanisms for delivering the Better Apartments project. Reference Group members include:

- Australian Institute of Architects
- Building Designers Association of Victoria
- Housing Industry Association
- Master Builders Association of Victoria
- Municipal Association of Victoria
- Planning Institute of Australia
- Property Council of Australia
- Real Estate Institute of Victoria
- Urban Development Institute of Australia
- Victorian Planning & Environmental Law Association

LOCAL GOVERNMENT WORKING GROUP

In March 2016, the Municipal Association of Victoria assisted DELWP and OVGA in establishing a local government working group to help test potential implementation measures for the Better Apartments project. The group includes council officers with expertise in planning, urban design, heritage and environmentally sustainable development. The following councils from central, inner, middle, outer and regional areas of Victoria participated:

- Ballarat
- Baw Baw
- Kingston
- Manningham
- Maribyrnong
- Maroondah
- Melbourne
- Melton
- Moonee Valley
- Moreland
- Port Phillip
- Stonnington
- Whitehorse
- Wyndham
- Yarra

The process to date

Stage 1: Understanding the issues
May – Oct 2015

Public engagement on Discussion Paper

Better Apartments Discussion Paper prepared

Stage 2: Identifying draft implementation options
Nov 2015 – March 2016

Technical assessment of apartment issues and potential solutions

Stage 3: Testing draft design measures
April – June 2016

Draft measures tested with Reference Group and Local Government Working Group

Identification and testing of draft design measures and implementation approaches

Evaluation of draft measures

Stage 4: Confirming public consultation package
July 2016

Seek public feedback on draft standards

Identification and testing of implementation options for the Minister for Planning's consideration

Public engagement

Technical work undertaken by DELWP and OVGA

The draft design standards

The draft design standards developed to address the specific apartment design and amenity issues raised through public consultation are:

- Building setback
- Light wells
- Room depth
- Windows
- Storage
- Noise impacts
- Energy efficiency
- Solar access to communal open space
- Natural ventilation
- Private open space
- Communal open space
- Landscaping
- Accessibility
- Dwelling entry and internal circulation
- Waste
- Water management

While many of these draft design standards are new, some have been developed from existing Rescode standards to specifically address apartment design issues. The draft design standards are outlined in greater detail at pages 15 to 43.

Implementing the better apartment provisions

Step 1 Better education and training

Training will be provided to local government planners and building design professionals on how to design, prepare applications and assess apartment applications to develop their capacity to implement the new provisions.

The government will fund and deliver training to all planning officers in Victoria and offer 1,000 free places to industry participants, and registered architects and registered building practitioners who wish to attend.

A more advanced training course will be offered to accredit individuals to assess the more technical aspects of the new provisions, and performance based design.

Step 2 New apartment design guidelines

New guidelines will be prepared to help facilitate well designed apartments across Victoria.

These guidelines will replace the existing Guidelines for Higher Density Residential Development currently referenced in the *Victoria Planning Provisions* and provide extensive best practice guidance on the application of the design standards.

The guidelines will be made available in conventional and an interactive web based format.

Step 3 New planning provisions

The design standards will be introduced through a new particular provision in the *Victoria Planning Provisions*. The provision will apply to all apartments and will adopt the same performance based approach currently used to assess residential development in the planning scheme.

The new provision will contain:

- Objectives
- Standards
- Decision guidelines

The objectives describe the desired outcomes to be achieved in the completed development. An apartment development must meet all of the objectives.

A standard contains the requirements to meet the objective. A standard should normally be met. However, if the responsible authority is satisfied that an application for an alternative design solution meets the objective, the alternative design solution may be considered.

The decision guidelines set out the matters that the responsible authority must consider before deciding if an application meets the objectives. In developing an alternative design solution that meets the relevant objective, the effect of the design solution on other objectives should be considered.

Step 4 Keeping designs on track at building approval (design verification)

To maintain design quality in apartment developments after the planning stage, it is proposed to introduce a checkpoint at the building permit stage where a registered architect or a registered building designer (who has completed the advanced training course) can verify that all relevant apartment design matters have been met.

Step 5 Developing consumer awareness

DELWP will develop a range of tools to inform consumers which apartments satisfy the design standards. Consumers will be able to make informed decisions about apartments they are considering purchasing or renting.

The better apartments planning provision

A new planning provision will be developed to apply the draft design standards to all apartments. Along with existing residential standards the new design standards will form the new planning provision.

Apartments of five or more storeys

Applications of five or more storeys will continue to be assessed against the broader urban context as required by *Clause 52.35 - Urban context report and design response for residential development of five or more storeys*.

A permit application for an apartment development must be accompanied by an urban context report, a site description and a design response. These documents form the basis for applying and assessing the design standards.

Overlays will continue to operate to respond to specific built form issues such as heritage, environment, and other local design objectives.

Where an overlay specifies a requirement that is different from a requirement set out in the new planning provision, the requirements of the overlay must be met.

Apartments below five storeys

Applications for apartment developments below five storeys will continue to be assessed against the existing neighbourhood context.

Developments below five storeys will be subject to existing siting standards relevant to this scale of development compared to development greater than five storeys.

Overlays will continue to operate to respond to specific built form issues such as heritage, environment, and other local design objectives.

Managing transition

Once the standards have been finalised a minimum of three months notice will be provided before they come into operation. Transitional provisions will be included to ensure that existing permit applications lodged before the new standards come into operation continue to be assessed under the existing provisions in the planning scheme applying at that time.

Applying the standards to all apartments

TWO OR MORE DWELLINGS (APARTMENTS UP TO 4 STOREYS)

B1	Neighbourhood character
B2	Residential policy
B3	Dwelling diversity
B4	Infrastructure
B5	Integration with street
B6	Street setback
B7	Building height
B8	Site coverage
B9	Permeability
	Energy efficiency
	Solar access to communal outdoor open space
B12	Safety
	Landscaping
B14	Access
B15	Parking location
	Room depth
	Light wells
	Windows
B17	Side and rear setbacks
B18	Walls on boundaries
B19	Daylight to existing windows
B20	North facing windows
B21	Overshadowing open space
B22	Overlooking
B23	Internal views
	Noise impacts
	Accessibility
	Dwelling entry and internal circulation
	Natural ventilation
	Private open space
B29	Solar access to open space
	Storage
B31	Design detail
B32	Front fence
B33	Common property
B34	Site services
	Communal open space
	Waste
	Water management

TWO OR MORE DWELLINGS (APARTMENTS 5+ STOREYS)

	Local context
B2	Residential policy
B3	Dwelling diversity
B4	Infrastructure
B5	Integration with street
	Building setback
	Energy efficiency
	Solar access to communal outdoor open space
B12	Safety
	Landscaping
B14	Access
B15	Parking location
	Room depth
	Light wells
	Windows
B18	Walls on boundaries
B23	Internal views
	Noise impacts
	Accessibility
	Dwelling entry and internal circulation
	Natural ventilation
	Private open space
B29	Solar access to open space
	Storage
B33	Common property
B34	Site services
	Communal open space
	Waste
	Water management

The draft design standards

Building setback

The standard seeks to ensure that new apartment buildings are setback an appropriate distance from side and rear boundaries to receive an adequate amount of daylight and privacy.

Standard

A habitable room window or a balcony should be setback from a side or rear boundary at least the distance specified in Table 1.

A habitable room window or a balcony should be setback from another building within the site at least the distance specified in Table 1.

The setback is measured from the external surface of the habitable room window or the open side of the balcony, whichever is the lesser.

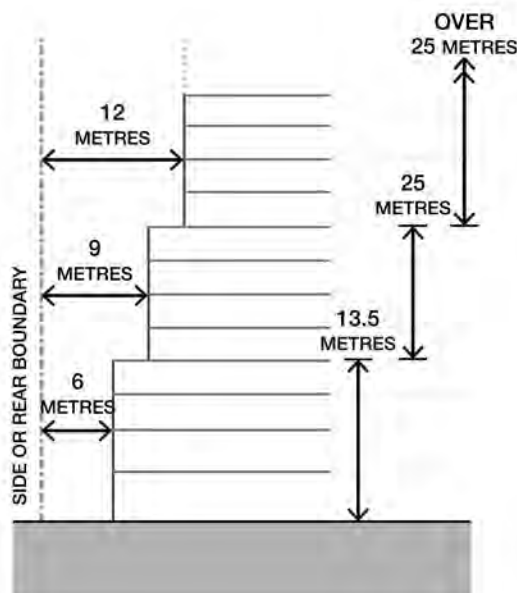
TABLE 1: BUILDING SETBACK

BUILDING HEIGHT	MINIMUM SETBACK FROM SIDE AND REAR BOUNDARIES	MINIMUM SETBACK FROM BUILDINGS WITHIN THE SITE
Up to 13.5 metres	6 metres	12 metres
13.5 to 25 metres	9 metres	18 metres
Over 25 metres	12 metres	24 metres

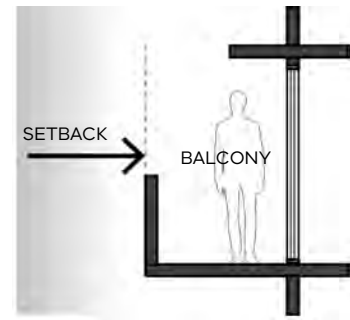
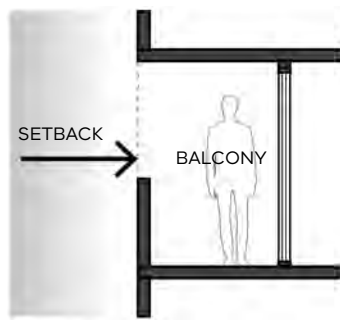
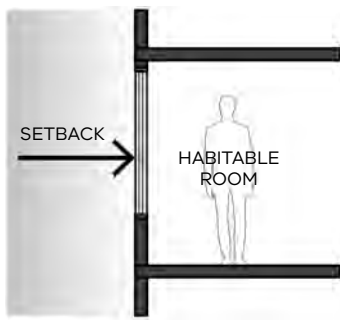
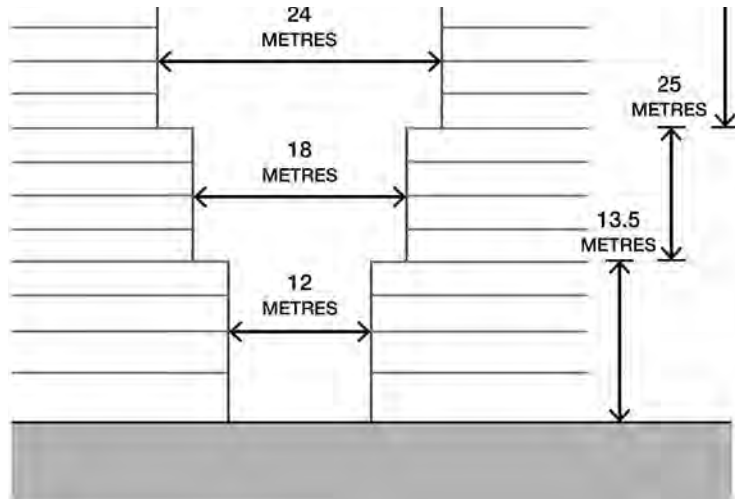
Note: The building setback requirements only apply to new apartment buildings of five or more storeys in height. Clause 55.04-1 Side and rear setbacks objective and Standard B17 will continue to apply to an application to construct two or more dwellings on a lot in a development up to four storeys (excluding a basement).

Applying the standard

Setbacks are measured from side and rear boundaries and become greater as the height of a building increases.



The standard also provides minimum setbacks that apply between two or more buildings on a site. Setbacks are measured between buildings.



The setback is measured from glazing line to glazing line or the open edge of a balcony.

The main building structure (including walls, balconies and other building appurtenances) should not encroach within the setback.

Light wells

The standard seeks to ensure that the size and design of light wells allow adequate daylight access to an apartment.

Standard

Living areas of a dwelling should not rely on a light well as the primary source of daylight.

Where a light well is provided, the light well should:

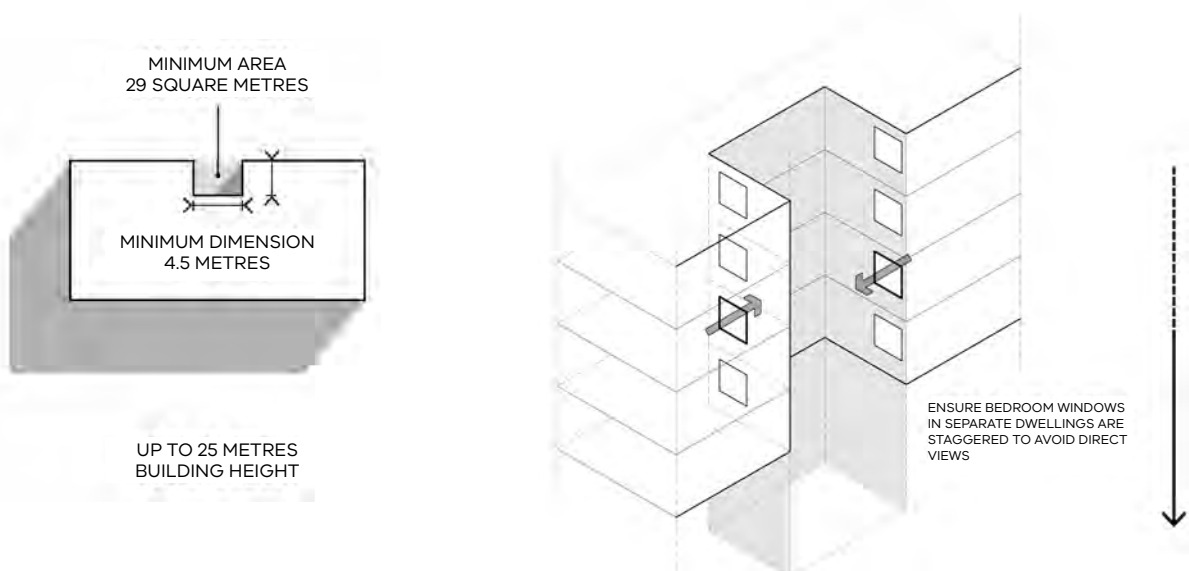
- Meet the minimum requirements specified in Table 1.
- Be clear to the sky and the minimum requirements should not include land on an abutting lot.
- Be painted in a light reflective colour.
- Ensure bedroom windows in separate dwellings are staggered to avoid direct views.

TABLE 1: LIGHT WELLS

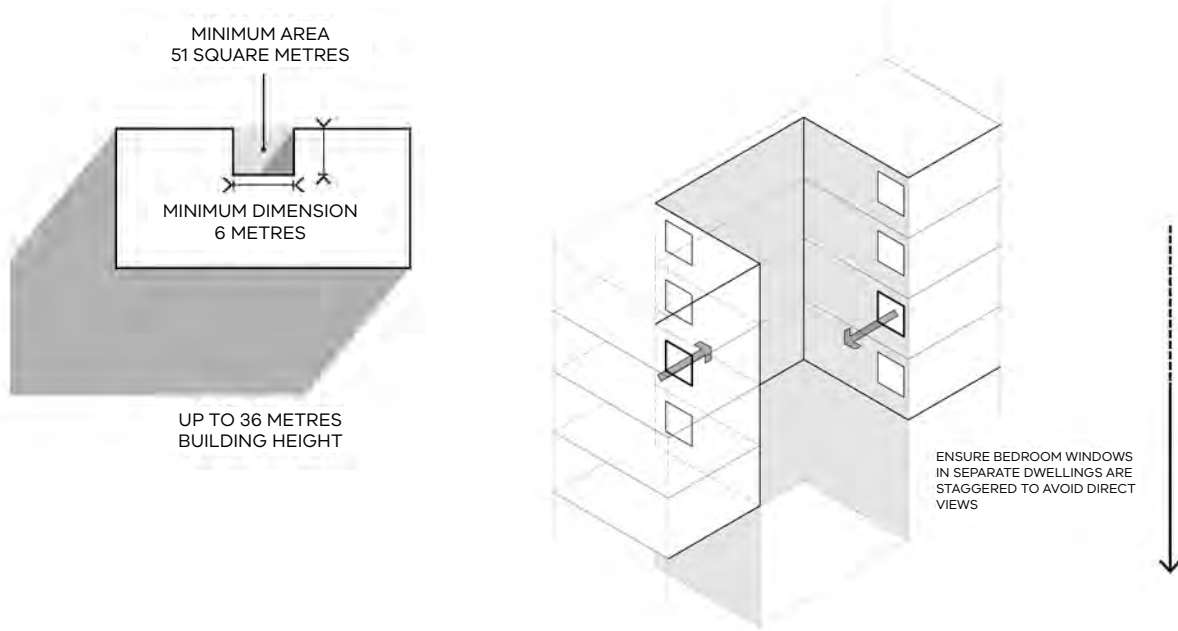
BUILDING HEIGHT	MINIMUM AREA	MINIMUM DIMENSION
Up to 13.5 metres	9 square metres	3 metres
Up to 25 metres	29 square metres	4.5 metres
25 metres to 36 metres	51 square metres	6 metres
36 metres and above	Should not include a light well	

Applying the standard

Land on an adjoining lot should not be included in calculating the minimum area and dimension of the light well.



The minimum area and dimension should be achieved for the entire depth of the light well.
Staggering of windows to limit direct views.



Room depth

This standard seeks to ensure that each apartment is able to receive an adequate amount of daylight, including south facing single aspect apartments.

Standard

A habitable room should not exceed:

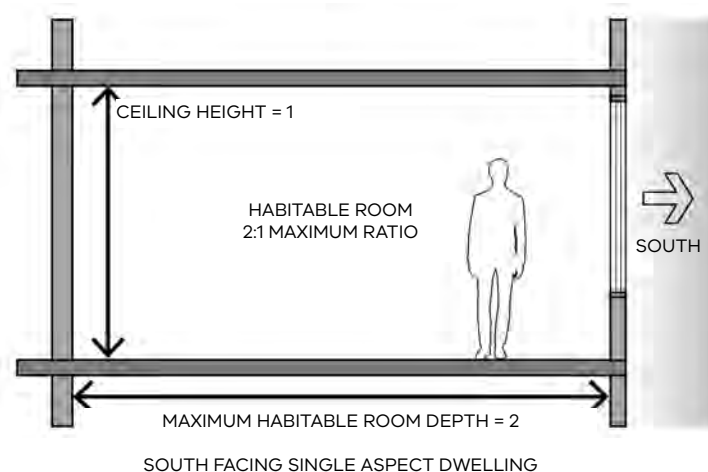
- A room depth to ceiling height ratio of 2:1 for a south facing, single aspect dwelling, or
- A room depth to ceiling height ratio of 2.5:1 for all other dwellings.

The depth of a habitable room with an open plan layout that includes the living, dining and kitchen areas may be increased to 8 metres where the following requirements are met:

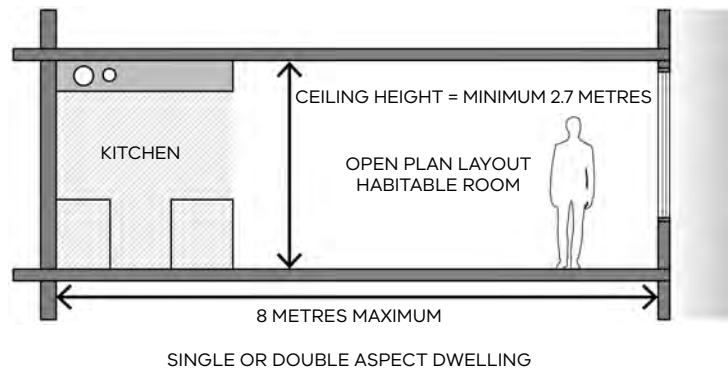
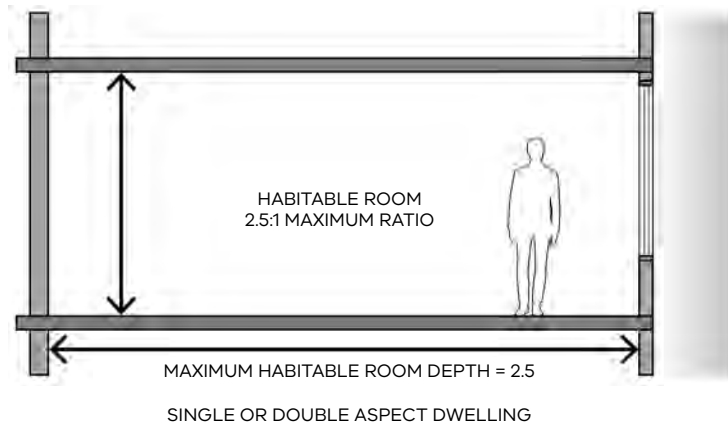
- The kitchen area is located furthest from the window.
- The ceiling height is at least 2.7 metres (measured from finished floor level to finished ceiling level).
- The dwelling is not a south facing, single aspect dwelling.
- The ceiling height of the kitchen can be reduced to accommodate services.

Applying the standard

The depth and ceiling height of an apartment are important factors in determining the amount and quality of daylight received by a habitable room. Dwelling orientation and whether the apartment is single or dual aspect also have a significant bearing on daylight access.



South facing, single aspect apartments have a higher ratio of 2:1 to offset the lower daylight they naturally receive. For all other apartments, a greater room depth of 2.5 times the ceiling height (a ratio of 2.5:1) is permissible.



Except for south facing, single aspect dwellings, where a habitable room is designed with an open plan layout and achieves the minimum standard ceiling height of 2.7 metres, the depth of a habitable room may be extended to no more than 8 metres. An open plan layout dwelling includes the living, dining and kitchen areas combined and not separated by a partition or wall.

The ceiling height of the kitchen area can be reduced to accommodate building services, such as exhausts, electrical and plumbing fittings.

Windows

The standard seeks to ensure that all habitable rooms have direct access to daylight by requiring a window to be directly visible from any point in the room.

Standard

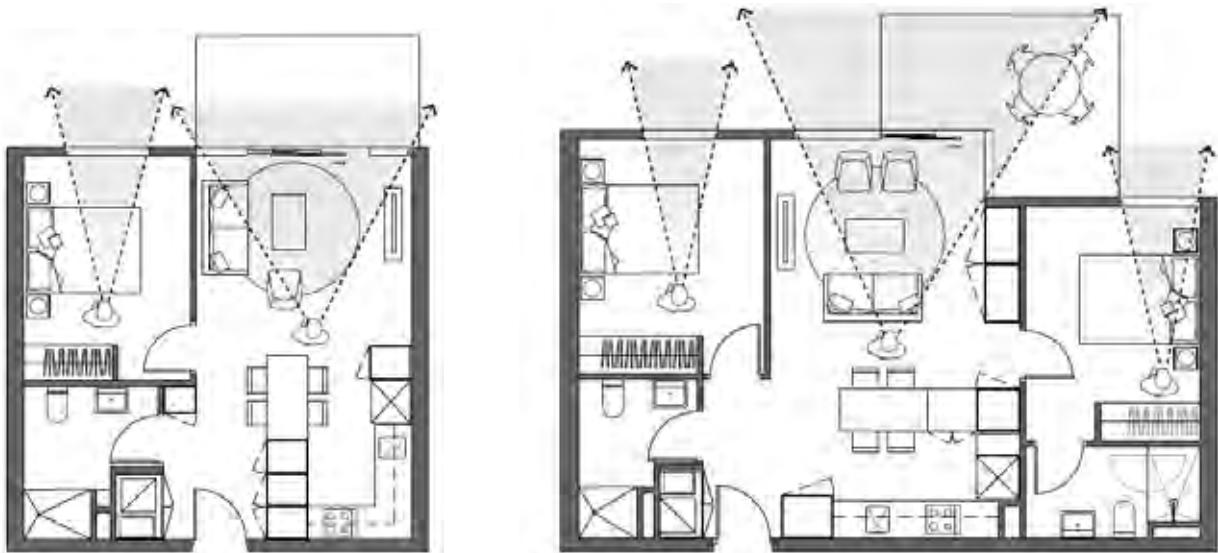
A habitable room should have a window in an external wall of the building that is visible from any point in the room.

Applying the standard

A habitable room is a bedroom, living room, dining room, kitchen area and study. It does not include a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, lobby, or any other space of a specialised nature.

Habitable rooms that rely on borrowed light arrangements or daylight from a 'snorkel' bedroom (access to light from an adjacent room) will not meet the standard.

Dwelling entrances and other non-habitable rooms are not expected to meet the standard.



Main living areas and bedrooms have an external window that provides direct daylight access.

Storage

The standard seeks to ensure that each apartment has a reasonable amount of storage space to allow people to live comfortably and provide for different space requirements of different households.

Standard

Each dwelling should have convenient access to usable and secure storage space (excluding kitchen, bathroom, bedroom and other utility storage).

The total minimum storage space should meet the requirements specified in Table 1.

TABLE 1: STORAGE SPACE

DWELLING TYPE	TOTAL MINIMUM STORAGE VOLUME
Studio and 1 bedroom dwelling	6 cubic metres
2 bedroom dwelling	8 cubic metres
3 or more bedroom dwelling	10 cubic metres

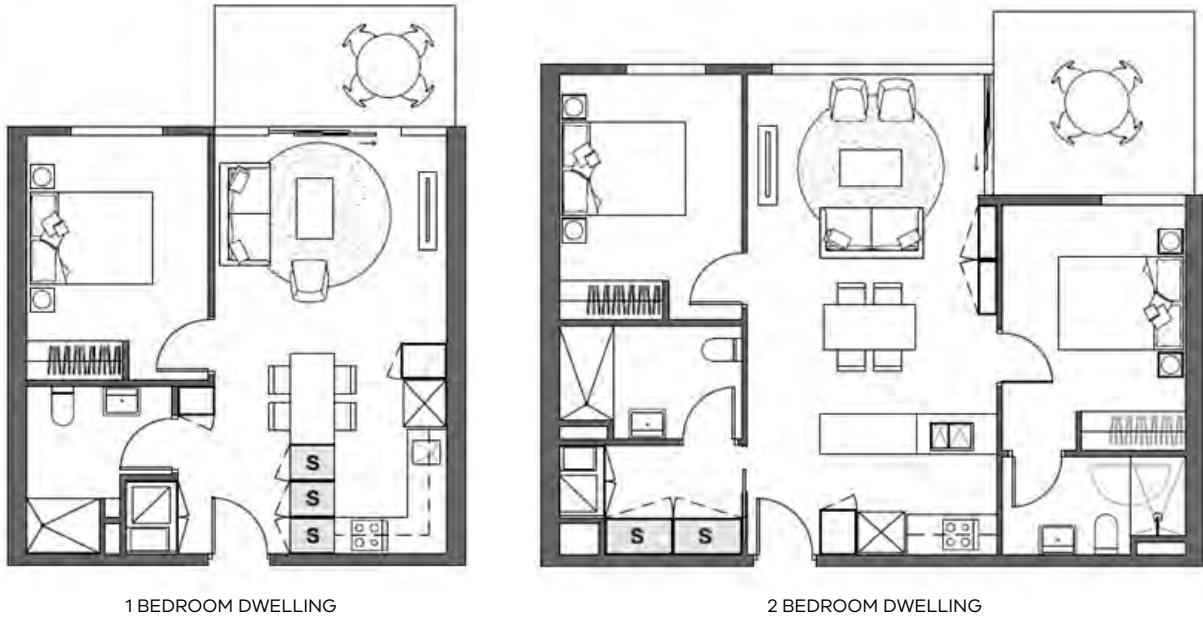
Applying the standard

The storage space must be provided in addition to storage space that would normally and reasonably be expected to be provided in a kitchen, bathroom, bedroom and other utility storage spaces such as a pantry, built-in robe, broom cupboard or linen press.

The storage space should be conveniently accessible and secure and may be provided internally or externally to an apartment, either wholly or in part.

Storage spaces provided externally to an apartment can be in a basement, lower level car parking area, or provided in a common area space near or next to the apartment.

External storage spaces in car parking areas can be prone to theft, and this can be prevented through appropriate design of the storage structure.

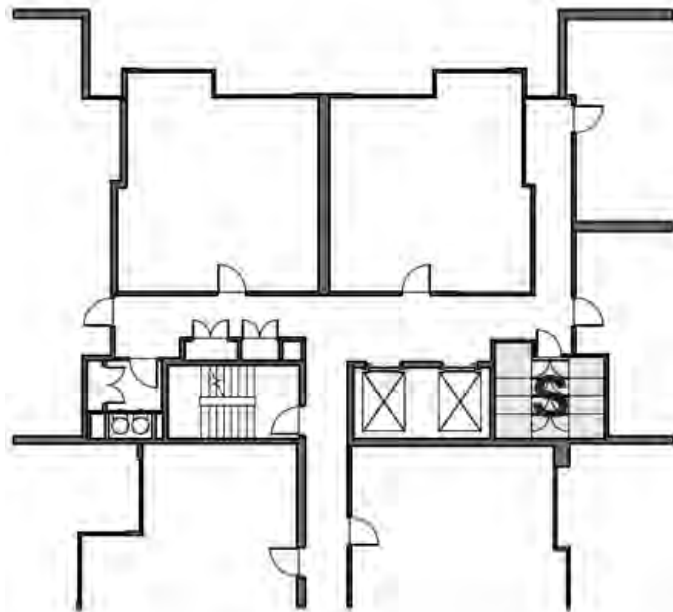


1 BEDROOM DWELLING

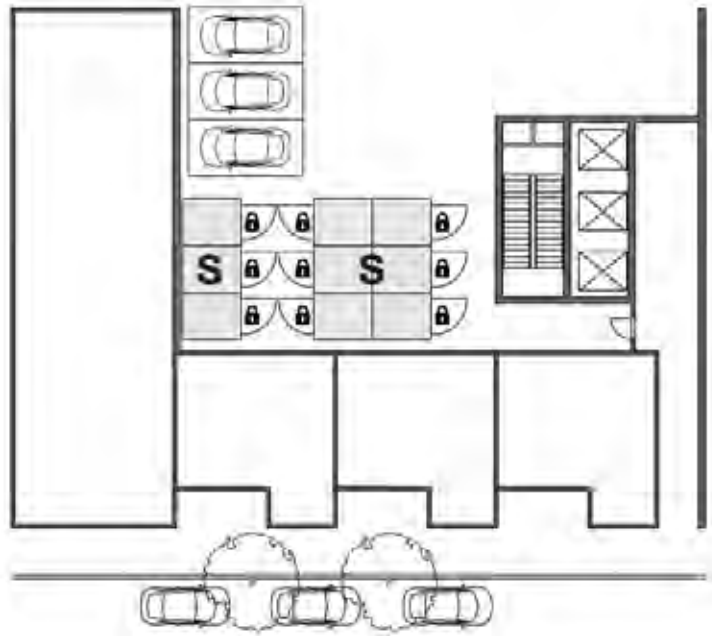
2 BEDROOM DWELLING

Storage is clearly distinct from typical forms of bedroom, bathroom, kitchen and other utility storage. The required volume is not completely provided internally and will need to be supplemented with additional storage space in a car parking area or other secure common area.

Storage spaces can be located in a common area adjacent to a services core. This makes efficient use of floor area located centrally that might otherwise be less usable or have poor access to daylight.



Separate secure storage areas within a car parking area.



Noise impacts

The standard seeks to ensure that new apartments achieve a reasonable standard of acoustic performance in relation to noise transmission.

Standard

Noise sources, such as mechanical plant, should not be located near bedrooms of immediately adjacent existing dwellings.

The layout of new dwellings and buildings should minimise noise transmission within the site. The location of noise sensitive rooms (such as living areas and bedrooms) should take account of:

- The layout of adjoining dwellings, and
- The location of mechanical plants, building services, non-residential uses, car parking, and communal areas.

New dwellings should be designed and constructed to include acoustic attenuation measures to reduce noise levels from any off-site noise sources to:

- Below 35dB(A) for bedrooms, assessed as an LAeq over 8 hours (from 10pm to 6am).
- Below 40dB(A) for living areas, assessed LAeq over 16 hours (from 6am to 10pm).

Noise levels should be measured in unfurnished and uncarpeted rooms with the windows closed.

Applying the standard

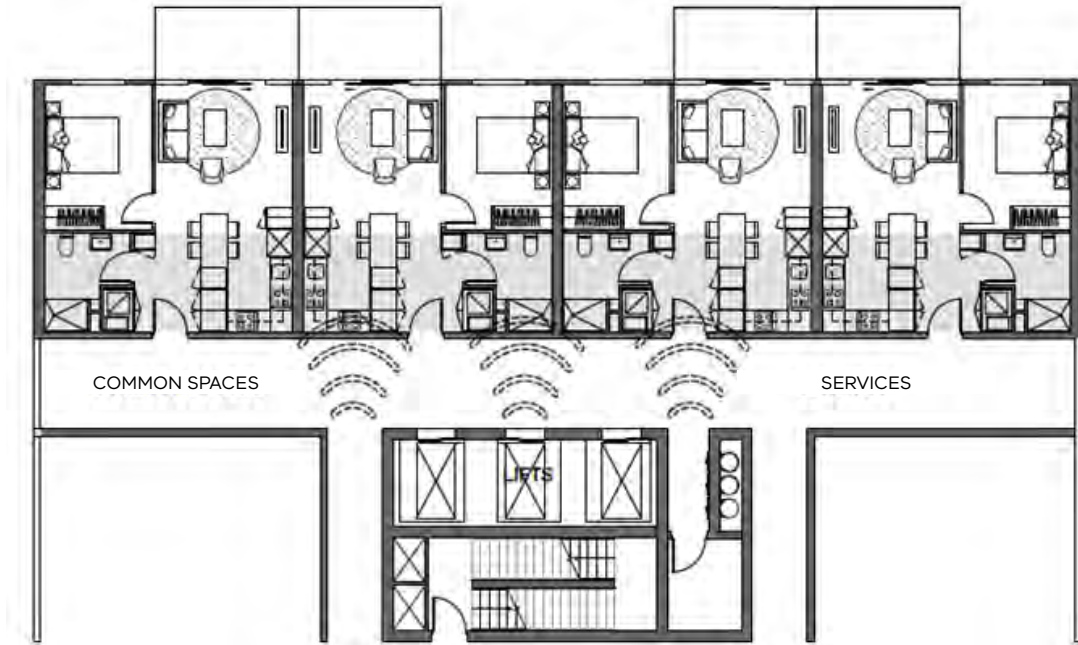
Careful consideration should be given to the land use and development context of the site.

Potential noise sources within a development should be addressed through design, location and siting techniques.

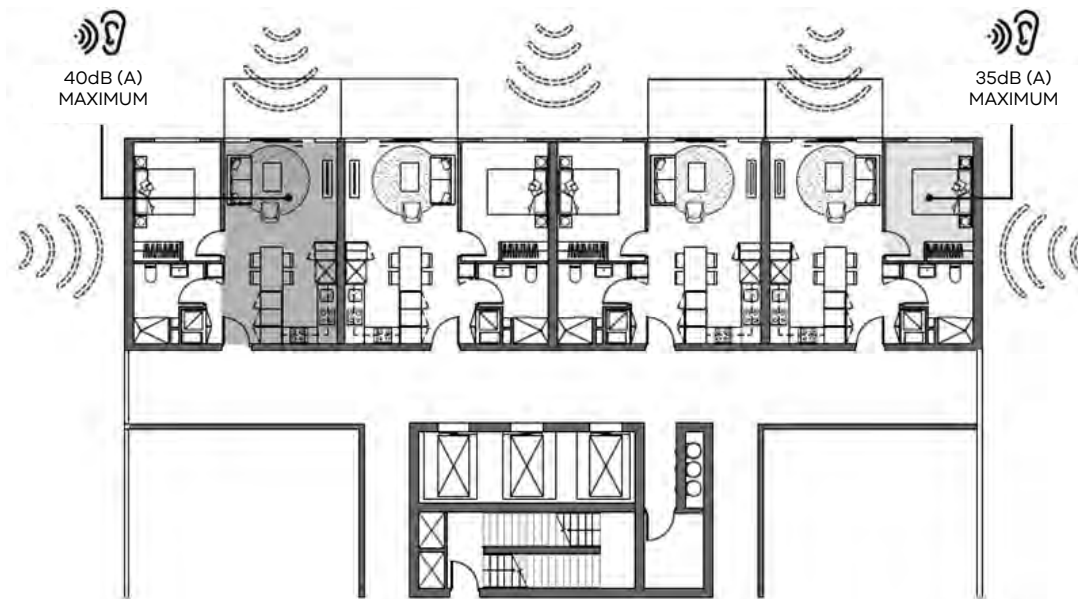
Using bathrooms, laundries and kitchen spaces as a buffer to noise-sensitive spaces (such as bedrooms or living rooms) from noise sources is encouraged.

Noise transfer between apartments (above, below, and adjoining) can be mitigated by configuring bedrooms and living rooms back-to-back respectively.

Off-site noise sources that may have the potential to impact on the amenity of a new apartment should also be considered. Development sites that are located in mixed use and / or commercial areas, activity centres, or close to transport infrastructure are likely to be exposed to higher levels of noise than established residential areas.



Bedrooms and living areas are arranged away from building services core and common area passageways. Bedrooms and living rooms are configured back-to-back.



External noise sources are required to be addressed by acoustic attenuation measures.

Energy efficiency

The standard seeks to ensure that new apartments are energy efficient.

Standard

Buildings should be:

- Oriented to make appropriate use of solar energy.
- Sited and designed to ensure that the energy efficiency of existing dwellings on adjoining lots is not unreasonably reduced.

Living areas and private open space should be located on the north side of the development, if practicable.

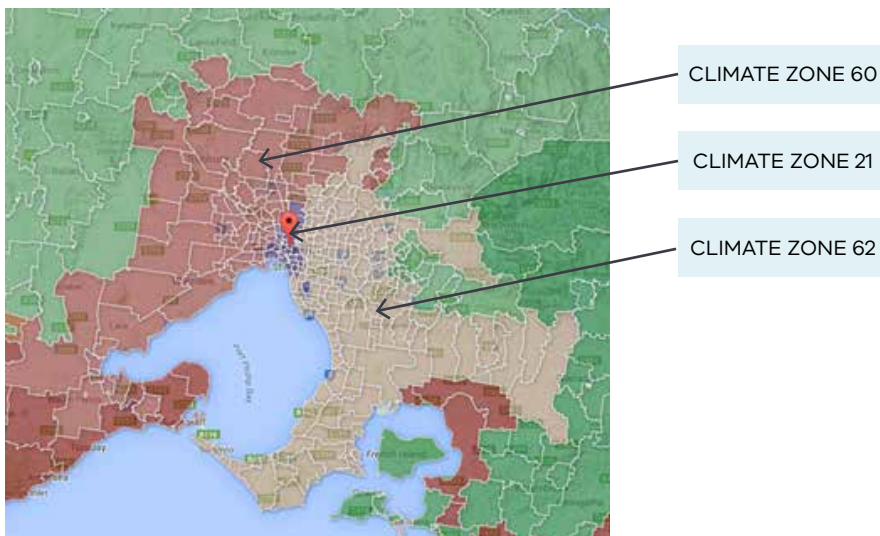
Developments should be designed so that solar access to north-facing windows is maximised.

Each dwelling should not exceed the maximum cooling load specified in Table 1.

TABLE 1: COOLING LOAD

NatHERS CLIMATE ZONE	MAXIMUM COOLING LOAD MJ/M ² PER ANNUM
Melbourne Central (Climate Zone 21 Melbourne)	30
Melbourne North and West (Climate Zone 60 – Tullamarine)	22
Melbourne South and East (Climate Zone 62 – Moorabbin)	21

Note: Maximum cooling load levels are currently being prepared for all Victorian climate zones.



Applying the standard

The standard specifies a maximum cooling load that is applied as part of a NatHERS assessment, to help ensure more consistent energy performance for an apartment, particularly over the warmer period of the year.

Solar access to communal outdoor open space

The standard seeks to ensure that any communal outdoor open space provided on-site for residents achieves a specific amount of direct sunlight through good orientation.

Standard

The communal outdoor open space should be located on the north side of a building, if appropriate.

At least 50 per cent of the communal outdoor open space area should receive direct sunlight for a minimum of two hours between 9am and 3pm on 21 June.

Applying the standard

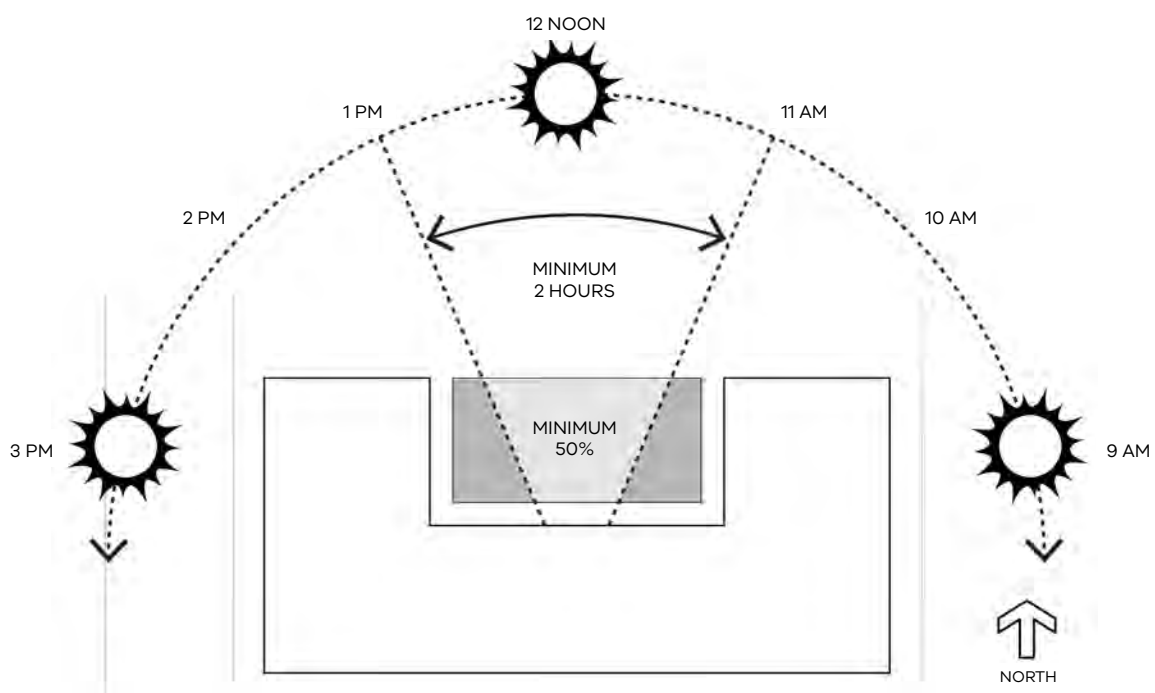
Siting of open space areas on the northern side of the building will optimise solar access.

Opportunities for the optimal siting and design of communal outdoor open space areas should be identified early in the design development process.

A minimum of two continuous hours of direct sunlight should be achieved between 9am and 3pm on 21 June. The shape and location of the outdoor open space area will also influence the amount of solar access achieved. A roof top or podium outdoor area will have different solar access opportunities than a ground level outdoor space.

Achieving the minimum amount of direct solar access will also be dependent on the existing built form context of adjoining sites.

While the minimum two hour window of direct sunlight is to be continuous, the two continuous hours could be achieved in the morning or the afternoon.



Natural ventilation

The standard seeks to ensure that a significant proportion of apartments in a new development have adequate natural ventilation.

Standard

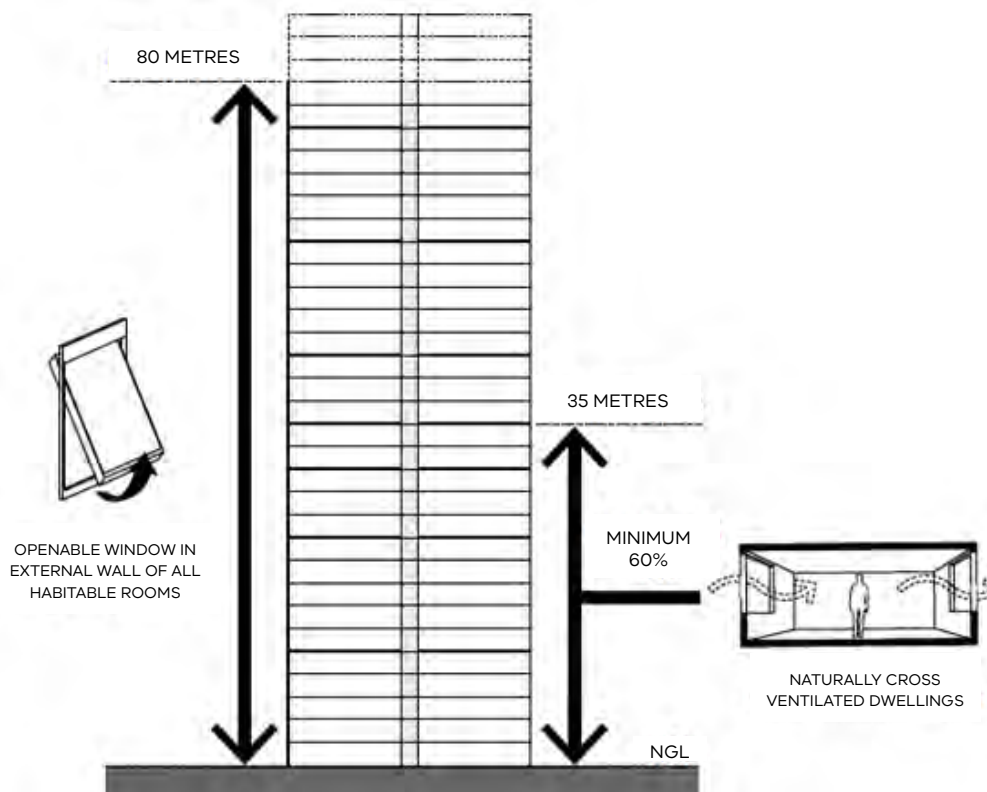
At least 60 per cent of dwellings with a finished floor level less than 35 metres height should be naturally cross ventilated. The length of the breeze path through the dwelling should be a maximum of 15 metres (as measured between openable windows and doors).

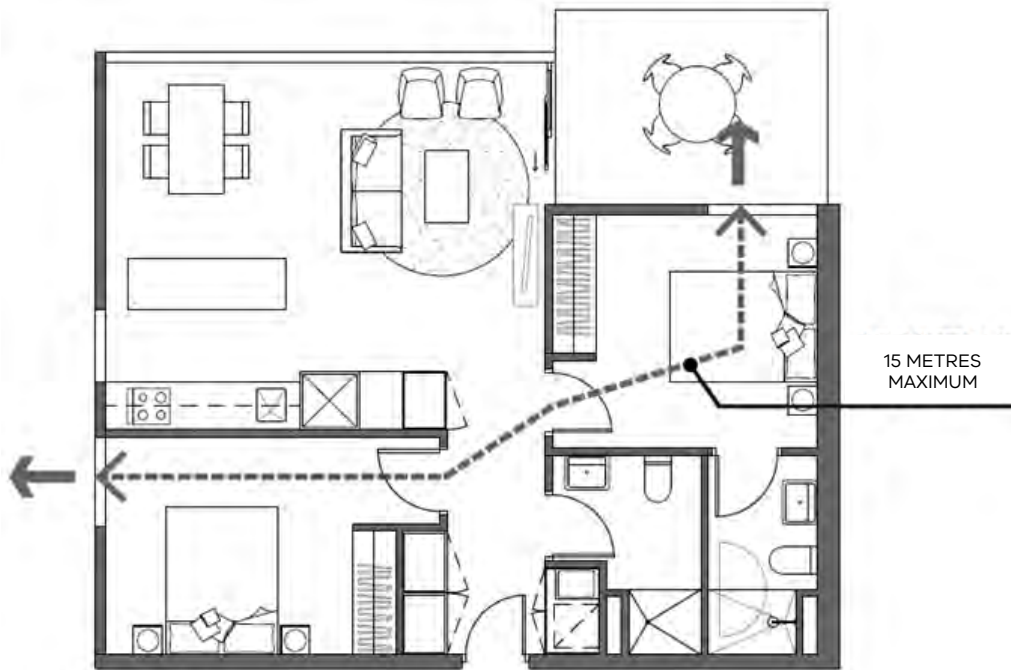
All habitable rooms less than 80 metres height should be provided with openable windows or doors in an external wall of the building.

Applying the standard

For dwellings up to 35 metres above natural ground level, 60% of apartments should be naturally cross ventilated.

The standard can be met by the provision of a dual aspect apartment provided the length of the breeze path does not exceed 15 metres.





Floor plan showing a breeze path through a two bedroom apartment. The breeze path carries through the two bedrooms and the living area, and also has potential to carry through the open plan kitchen and living area.

Private open space

The standard seeks to ensure that each apartment is provided with an area of private open space that will meet the reasonable recreation and service needs of residents.

Standard

A dwelling should have private open space consisting of:

- An area of 25 square metres, with a minimum dimension of 3 metres at natural ground floor level and convenient access from a living room, or
- An area of 15 square metres, with a minimum dimension of 3 metres at a podium or other similar base and convenient access from a living room, or
- A balcony with a minimum area and dimension specified in Table 1 and convenient access from a living room. This only applies to a dwelling with a finished floor level less than 35 metres height (measured from natural ground level), or
- A roof-top area of 10 square metres with a minimum dimension of 2 metres and convenient access from a living room.

If an air conditioning/heating unit is located within the private open space, the area occupied by the unit should not be included in the calculation of the required minimum area.

TABLE 1: PRIVATE OPEN SPACE

DWELLING TYPE	MINIMUM AREA	MINIMUM DIMENSION
Studio and 1 bedroom dwelling	8 square metres	2 metres
2 bedroom dwelling	10 square metres	2 metres
3 or more bedroom dwelling	12 square metres	2 metres

Applying the standard

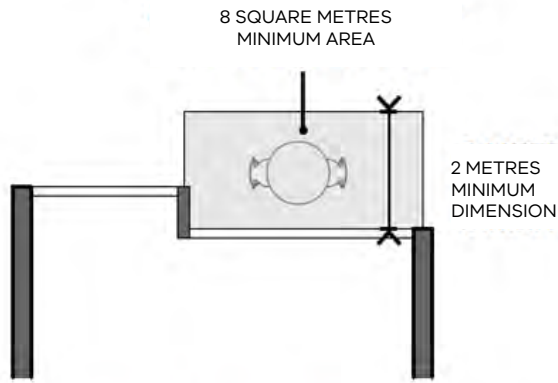
Private open space can be provided:

- At natural ground floor level, or
- On a podium or similar base. (A semi-basement level is considered a similar base structure for the purposes of providing open space to a podium.), or
- On a balcony, or
- On a roof top.

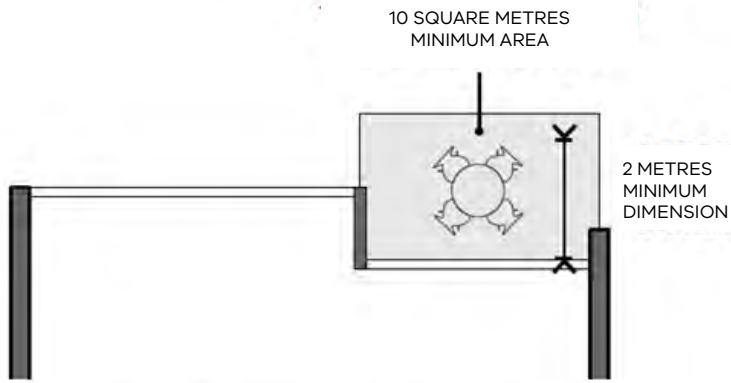
Both the minimum area and minimum dimension should be met.

When considering the application of the standard the development context should be considered. For example in a landscaped suburban setting, the side and rear setbacks can be used to provide private open space at the natural ground floor level.

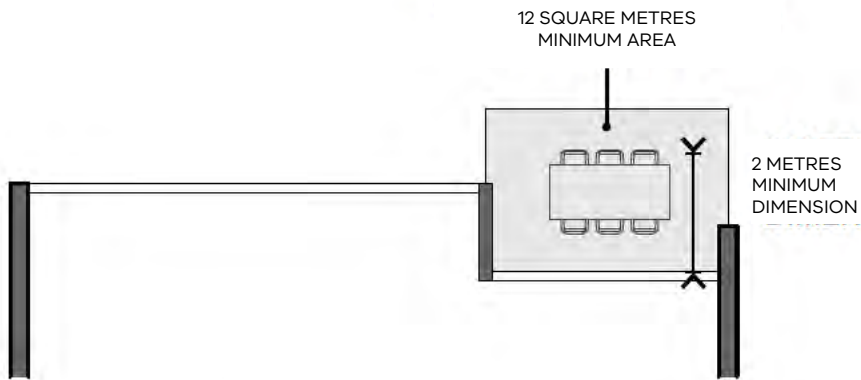
In more highly urbanised areas private open space may not be desirable at the natural ground floor level and should be provided at podium and upper levels depending on relevant built form outcomes.



1 BEDROOM DWELLING



2 BEDROOM DWELLING



3 BEDROOM DWELLING

Communal open space

The standard seeks to ensure that an area of communal open space is included in new apartment buildings for the benefit of residents.

Standard

Developments with 20 or more dwellings should provide a minimum area of communal open space of 2.5 square metres per dwelling or 100 square metres, whichever is lesser.

Communal open space should:

- Be substantially fronted by dwellings, where appropriate.
- Provide outlook for as many dwellings as practicable.
- Be designed to protect any natural features on the site.
- Be accessible and useable.

Applying the standard

Communal open space can be provided in different ways and be used for social and recreational purposes. There are opportunities to use spaces such as front, rear and side building setbacks for landscaped outdoor communal areas, and podiums and rooftops as social spaces.

The minimum area of communal open space is to be provided in addition to the private open space requirements for individual dwellings.

Communal open spaces are not necessarily required to be located outdoors. Where they are provided outdoors, they should also meet the *Solar access to communal outdoor open space standard*.

Landscaping

The standard seeks to ensure that new development is responsive to its landscape context, retains significant vegetation, maintains habitat and provides for canopy trees.

Standard

The landscape layout and design should:

- Protect any predominant landscape features of the neighbourhood.
- Take into account the soil type and drainage patterns of the site and integrate planting and water management to reduce urban heat island effect.
- Allow for intended vegetation growth and structural protection of buildings.
- In locations of habitat importance, maintain existing habitat and provide for new habitat for plants and animals.
- Provide a safe, attractive and functional environment for residents.
- Maximise opportunities for deep soil planting to allow for planting of canopy trees.
- Consider alternative landscaping opportunities such as green walls and roof top gardens to reduce heat absorption and improve stormwater management.

Development should provide for the retention or planting of trees, where these are part of the character of the neighbourhood.

Development should provide for the replacement of any significant trees that have been removed in the 12 months prior to the application being made.

The landscape design should specify landscape themes, vegetation (location and species), paving and lighting.

A development should achieve the minimum deep soil areas specified in Table 1.

If the development cannot meet the deep soil areas, alternative forms of landscape should be provided which can include canopy trees or climbers (over a pergola) with tree pits sized appropriately for the mature tree soil volume requirements for the selected species based on the Cornell Formula (Crown Projection x 0.6 = Soil Volume (m³). Crown Projection (CP) = πr^2 , $\pi = 3.142$), except where specific requirements are provided by the responsible authority.

The soil quality of the deep soil areas (or tree pits) should comply with Australian Standard AS4419- 2003, *Soils for Landscaping and Garden Use*.

TABLE 1: DEEP SOIL AREAS

SITE AREA (SQUARE METRES)	750-1000	1001-1500	1501-2500	>2500
Deep soil areas (% of site area)	5% minimum dimension of 4 metres any one side)	7.5% (minimum dimension of 5 metres any one side)	10% (minimum dimension of 6 metres any one side)	15% (minimum dimension of 6 metres any one side)
Tree provision (number and size of trees per area of deep soil)	1 small tree per 30 square metres deep soil	1 medium tree per 50 square metres deep soil	1 large tree per 90 square metres deep soil	1 large tree per 90 square metres deep soil
		Or 1 large tree per 90 square metres deep soil	Or 2 medium trees per 90 square metres deep soil	Or 2 medium trees per 90 square metres deep soil

Note: There is no requirement for deep soil areas for a site area less than 750 square metres.

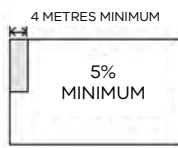
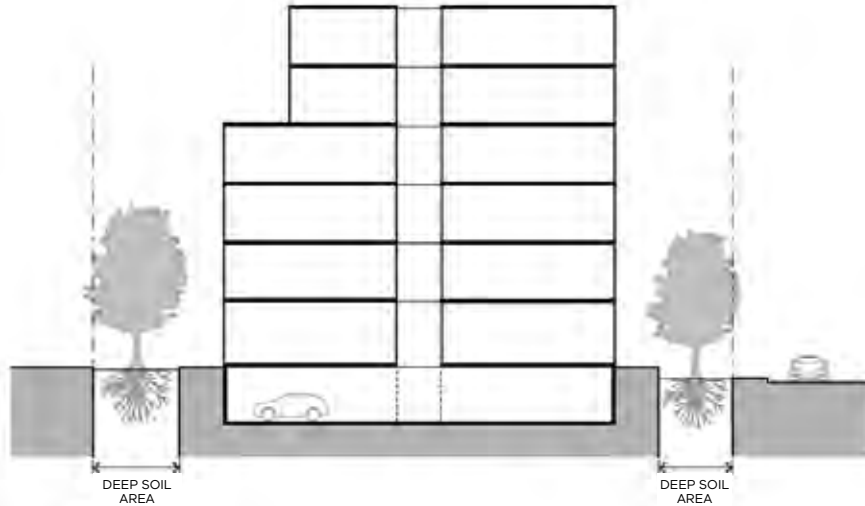
Applying the standard

Deep soil areas will more readily support canopy trees that add value to a landscape character and the public realm, or contribute to the amenity of residents, as well as reduce the urban heat island effect.

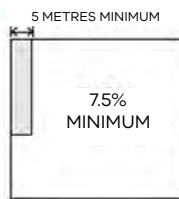
Where the number of trees to be provided is not a whole number, the fraction should still be provided through the use of small or medium size trees to meet the standard.

For example, a 2,400 square metre site would need to provide 240 square metres of deep soil area which can accommodate two large trees or four medium trees (ie: 180 square metres), with a residual deep soil area of 60 square metres. This residual area should be used to accommodate two small trees or one medium tree (ie: 60 or 50 square metres, respectively).

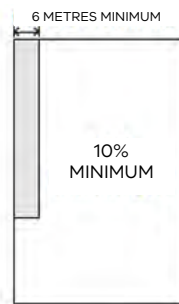
The standard provides some flexibility where the deep soil area requirements cannot be met, or in certain circumstances where the deep soil area might not be appropriate. In such cases alternate forms of greening including green roofs or walls should be provided.



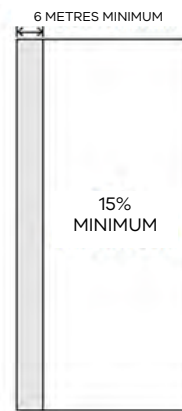
750-1000
SQUARE
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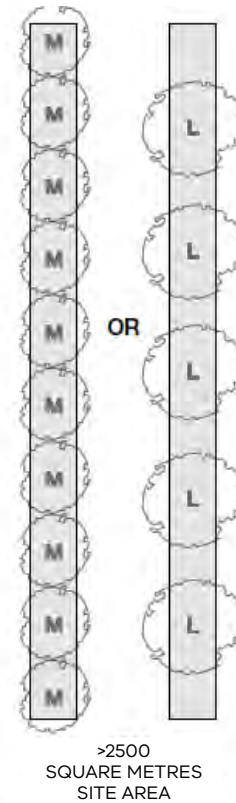
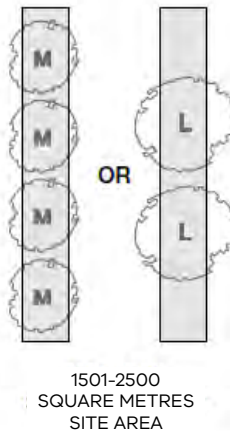
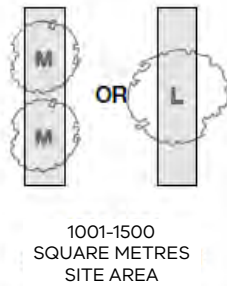
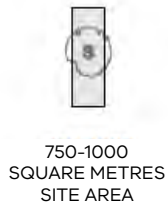
1001-1500
SQUARE
METRES
SITE AREA



1501-2500
SQUARE
METRES
SITE AREA



>2500
SQUARE
METRES
SITE AREA



Accessibility

The standard seeks to ensure that apartment developments cater to the needs of people with limited mobility by introducing minimum dimensions and design requirements for entrances, corridors, doorways, bedroom and bathroom spaces.

Standard

All dwellings (except for 25% of all two bedroom dwellings) should comply with the following requirements:

- The dwelling entrance should have a doorway with a clear opening width of at least 850mm.
- At least one adaptable bedroom and one adaptable bathroom. An adaptable bedroom and an adaptable bathroom should have a doorway with a clear opening width of at least 850mm.
- Any corridor connecting the dwelling entrance to the adaptable bedroom, the adaptable bathroom or the living area should have a minimum width of 1.2 metres.

Adaptable bedrooms should have minimum dimensions (excluding built-in robes) of 3 metres by 3.4 metres.

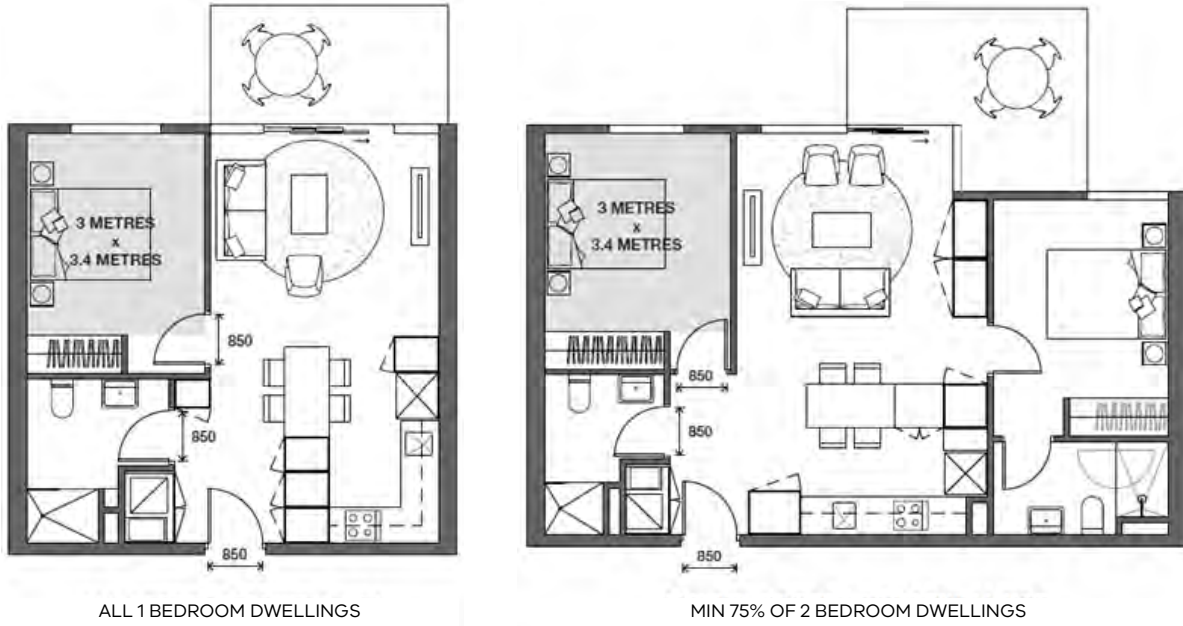
Adaptable bathrooms should have:

- A toilet in a corner of the room with a clear space in front measuring 1.2 metres by 1.2 metres, clear of the door swing. A removable shower screen may encroach into this space.
- A hobless (step-free) shower with a clear space in front of the shower measuring 1.2 metres by 1.2 metres, clear of the door swing. This space can overlap with the clear space in front of the toilet.

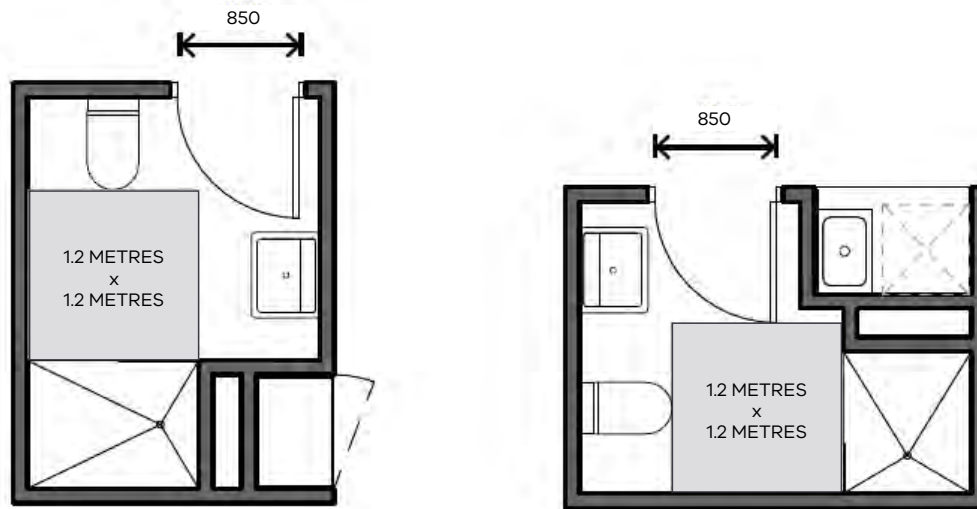
Applying the standard

Open plan living areas tend to be free of corridors and other permanent walls and obstructions, and should meet the standard when the minimum dimensions for entrances, doorways, and internal rooms are met.

With good design these features can be introduced with no increase in the apartment size.



Rooms and doorways that meet the standard.



Adaptable bathrooms that meet the standard.

Dwelling entry and internal circulation

The standard seeks to ensure that entries and internal common spaces are designed to provide high quality spaces that contribute to the overall amenity and functionality of the building.

Standard

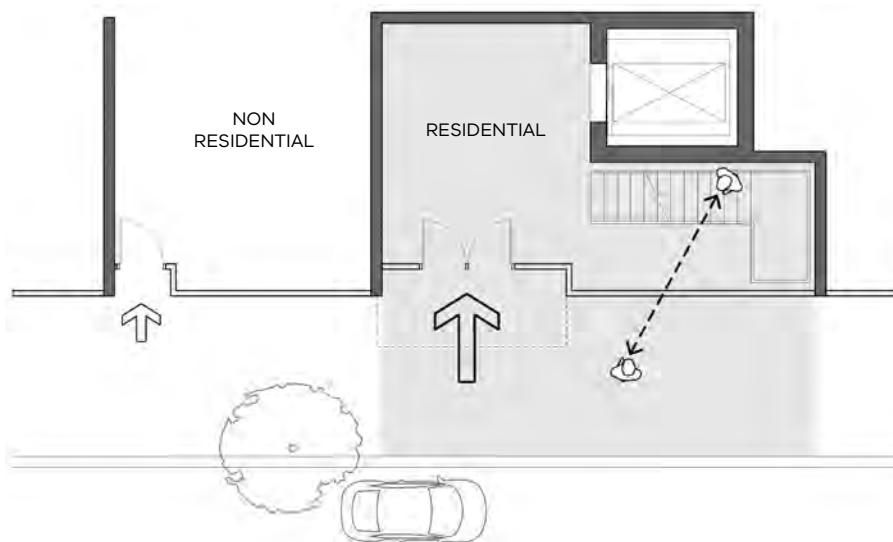
Entries to dwellings and buildings should:

- Be visible and easily identifiable.
- Provide shelter, a sense of personal address and a transitional space around the entry.

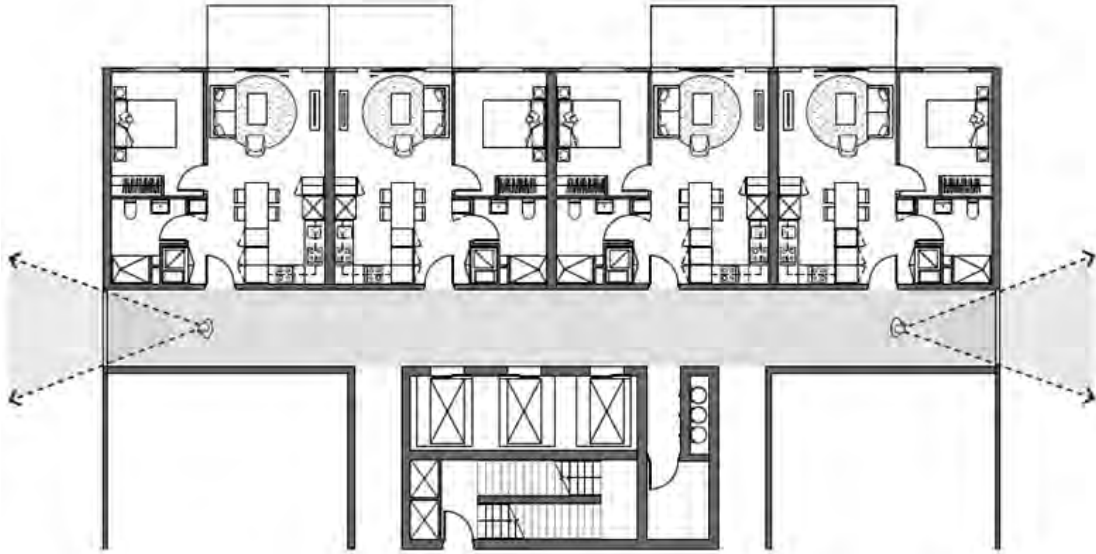
The layout and design of buildings should:

- Clearly distinguish entrances to residential and non-residential areas.
- Provide windows to building entrances, lift lobbies and stairwells.
- Provide common areas and corridors that:
 - Include at least one source of natural light and natural ventilation.
 - Avoid intrusion from building services.
 - Maintain clear sight lines.

Applying the standard



Distinguishing entrances to residential and non-residential areas.



Floorplan showing access to natural ventilation and daylight in common areas and corridors.

Waste

The standard seeks to ensure that waste management facilities are well designed, and enable residents to manage their own waste easily.

Standard

The development should include dedicated areas for:

- Bin and recycling enclosures that are adequate in size, durable, waterproof and blend in with the development.
- Bin and recycling enclosures that are located for convenient access by residents.
- Collection, separation and storage of general waste and recyclables, including where appropriate opportunities for on-site management of food waste through composting.
- Collection, storage and reuse of garden waste, including where appropriate opportunities for on-site treatment.
- Adequate circulation area for waste collection vehicles.
- Adequate internal storage space within each dwelling to enable the separation of recyclables, residual waste and where appropriate food waste.

Waste management systems and facilities should:

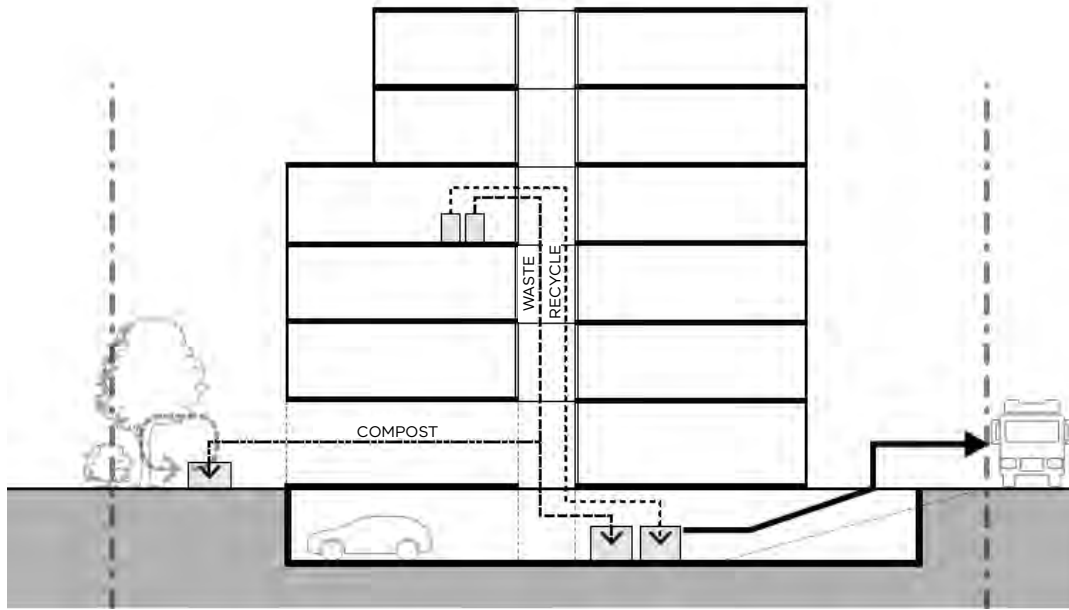
- Protect public health and amenity of occupants and adjoining premises from the impacts of odour, noise and waste collection vehicle movements.
- Be maintained in accordance with a Waste Management Plan approved by the responsible authority.

Applying the standard

Apartment buildings should provide dedicated areas for bin and recycling enclosures, and areas for collection, separation and storage of waste. This includes providing adequate spaces within an apartment for separated storage of waste, recyclables and food waste.

Providing spaces and facilities for composting of appropriate types of food and garden waste is also encouraged, although this will partly be influenced by whether the composted material can be used on-site.

Waste management issues will be resolved between the permit applicant and the responsible authority through the preparation of a waste management plan.



Providing areas for waste management.

Water management

The standard seeks to ensure that opportunities to collect and reuse rainwater and greywater are identified and implemented in new development.

Standard

Buildings should collect rainwater (with appropriate plumbed connections to suitable fittings) for non-drinking purposes such as flushing toilets, laundry and garden use.

Buildings should connect to a non-potable dual pipe reticulated water supply, where available from the water authority.

The stormwater management system should be:

- Designed to meet the current best practice performance objectives for stormwater quality as contained in the *Urban Stormwater – Best Practice Environmental Management Guidelines (Victorian Stormwater Committee 1999) as amended*.
- Designed to maximise infiltration of stormwater, water and drainage of residual flows into permeable surfaces and treatment areas.

Glossary of terms

Apartment	An apartment is a dwelling that is constructed with a dwelling above the ceiling level and/or a dwelling below the floor level accessed through a communal area within the building.
Borrowed light	When a room has no window directly to the outside and accesses daylight from adjacent rooms, it is known as 'borrowed light'.
Cross or cross flow ventilation	The natural movement of air through an internal space (or spaces) between one external opening and another that face more than one direction.
Daylight	Natural ambient light available during the day.
Deep soil	An area of natural ground unimpeded by a structure below (and above), providing opportunity for ground water infiltration and the healthy growth of canopy trees.
Habitable room	A room used for normal domestic activities, and: <ul style="list-style-type: none"> (a) includes a bedroom, living room, kitchen, dining room and study; but (b) excludes a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, lobby, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended periods.
Light well	An unroofed space, bounded on all sides, which provides daylight to more than one storey of a building and may provide ventilation.
Natural ventilation	The movement and change of air in internal spaces by natural means through the use of a window that can be opened rather than the use of mechanical systems.
Orientation	The general compass direction that an apartment, apartment building or habitable room 'faces' that is typically defined by the location of primary openings in external walls.
Outlook	A place from which a view is possible; a vantage point.
Private open space	An outdoor space of an apartment for the exclusive use of the occupants.
Snorkel bedroom	A bedroom in an apartment where the bedroom is connected to a window in the exterior wall of the building via an adjoining space that is used to access daylight.
Single aspect apartment	An apartment with external walls facing only in one direction.
Sunlight	Direct rays from the sun.
Thermal comfort	The perception of physical comfort in a space, influenced by air temperature and movement, humidity, radiant heat, glare and the sense of having some control of these factors.
Urban heat island effect	A city or metropolitan area that is significantly warmer than its surrounding rural areas due to replacing vegetated areas with buildings, roads and other impervious surfaces as a city expands.

