

SUPPLEMENT

UDIA-HIA BUILDING ENVELOPE TEMPLATES

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1 Purpose of document

The following building envelope templates have been developed by a Urban Development Institute of Australia (UDIA) and Housing Industry of Australia (HIA) joint working group. The group's intention is to assist industry to develop three-dimensional envelopes that integrate the planning of new lots and future housing in order to address issues such as overlooking and overshadowing.

These notes explain the use and design of the attached building envelope templates. The building envelope templates are based on a selection of profiles showing maximum building heights relative to setbacks from lot boundaries

The envelopes have been developed around the objectives of ResCode, and are intended to be used to guide the siting of adjoining houses in relation to each other in new subdivisions.

It is not mandatory to use building envelopes when designing new subdivisions. Where building envelopes have not been used, planning scheme provisions or Part 4 of the Building Regulations, whichever is applicable, will regulate the siting of single houses.

The templates have been prepared to: -

- demonstrate one approach to building envelope design
- assist subdivision designers to design building envelopes that satisfy the objectives of ResCode
- provide a range of building envelope profiles that will give developers and subdivision designers the opportunity to vary the urban character of the subdivision
- assist councils to determine if building envelopes meet the ResCode objectives of Clause 54 of planning schemes.

NOTE: THE TEMPLATES, NOTES AND SAMPLE PLAN OF SUBDIVISION ARE PROVIDED ONLY AS AN ILLUSTRATION OF THE CONCEPT OF 3-DIMENSIONAL BUILDING ENVELOPES ON PLAN. LEGAL ADVICE SHOULD BE SOUGHT ON THE APPLICATION OF ANY MATERIAL PROVIDED IN THIS SUPPLEMENT TO A PLANNING PERMIT APPLICATION, PLAN OF SUBDIVISION, RESTRICTION ON TITLE OR AGREEMENT.

2 Scope of the templates

The templates address:

- Street setbacks
- Side and rear setbacks
- Daylight access to new habitable room windows
- Sunlight access to north facing windows
- Overlooking
- Overshadowing
- Maximum building heights for a range of site slopes

In order to retain flexibility in siting houses, the profiles do not dictate the location of the secluded private open space. When applying for a building permit, the dwelling designer will need to show the location of private open space and that it satisfies the relevant requirements of the Building Regulations, or planning requirements if they apply.

When applying for a subdivision permit which will include building envelopes, applicants will need to demonstrate how the proposed envelopes meet the ResCode objectives set out in Clause 54 of all planning schemes. Therefore a sample document setting out the design basis for the envelopes used in these examples against each objective is attached.

Building envelopes need to be drawn in consideration of adjoining lots. Standard 21 of Clause 56 (the subdivision provisions) says that where a building envelope adjoins a lot that is not on the same plan of subdivision or is not part of the same agreement, the envelope must:

- meet Standards A10 and A11 of Clause 54 (Side and rear setbacks, and Walls on boundaries)
- not regulate siting matters covered by standards A12 to A15 (Daylight to existing windows, North-facing windows, Overshadowing open space, and Overlooking).

3 Using the templates

The building envelope templates comprise a series of height and setback profiles for buildings in relation to their lot boundaries. A three-dimensional building envelope can be constructed for a lot by specifying setbacks and maximum heights allowable at each setback.

The attached templates can be used to construct 3-dimensional building envelopes by combining various setback profiles. The setback profiles take into account slopes on site.

The templates provide a range of options to address matters such as overlooking, overshadowing, urban character and solar access. Different design solutions will be achieved through combining different profiles.

The templates have been designed for two lot types – a standard lot and a terrace lot.

The **standard lot** is a single lot that accommodates a freestanding house detached from adjoining houses and of an individual style. A standard lot can also include provision for single storey non-common boundary walls and which do not have to be in contact with an adjoining structure.

A **terrace lot** is one of a row of 3 or more lots where the houses are attached, generally 2 storeys in height and of a uniform style. The terrace houses are built to the side boundaries on the individual allotments and are joined together with two-storey common walls or abutting boundary walls.

Selecting Templates for Standard Lots

1. Determine the orientation of the site boundaries. A northern boundary is any boundary that has an orientation within the range of 20 degrees west of north to 30 degrees east of north.
2. Determine the direction of fall and slope of the site (see explanation below).
3. Select the A4 sheet of height to setback profiles and site fall range that encompasses the site fall on the lot. If the slope exceeds 15 degrees, the templates will not apply and particular profiles will need to be developed for those lots.
4. Determine whether increased side setbacks will be used from north boundaries in order to provide sunlight to north facing windows. If so, choose from profile types C or Z2. The other side profiles that can be used to protect solar access to north facing windows - the A, D or Z1 types - use the standard ResCode profile of an increased setback on the south side of houses to protect solar access to north facing windows on adjoining lots.
5. If C or Z2 profile types have been chosen then the southern profile is nominated on the drawing **OR** if A, D or Z1 profile types have been chosen then use the appropriate southern profile from B, D or Y profile types.
6. Nominate the selected profile for each side boundary on the building envelope plan.
7. Determine the front and rear setbacks for each site and annotate these on the plan. If the setback distances are consistent for all or most lots, the distances could be written into notes accompanying the envelopes rather than annotated on the plan. For example a setback from the rear boundary of not less than 3.0m for single storey and 5.5m for two storey sections has been used for all lots in the attached templates to address overlooking of rear yards for all buildings.
8. Nominate the maximum building height in a notation to the envelopes, or specify that the maximum height shown in the side profiles is the maximum building height. If this is so, the notes will need to specify how side profiles meet.
9. Check that you have satisfied the requirements of the Clause 56 of the planning scheme in relation to any adjoining lots that are not part of the same subdivision.
10. Ensure that any notes accompanying the envelopes clarify the diagrams, if needed, and match the diagrams.

Selecting Templates for Terrace Lots

1. Determine the direction of fall and slope of the site (see explanation below).
2. Select the terrace lot height to setback profile from the A4 sheet covering the site fall range that encompasses the site fall on the lot. If the slope exceeds 15 degrees, the templates will not apply and particular profiles will need to be developed for those lots.
3. Determine whether terrace lots adjoin standard lots and select the appropriate standard lot profile at the adjoining boundary. (Refer standard lots above).
4. Nominate the selected profile for each side boundary on the building envelope plan.
5. Determine the front and rear setbacks for each site and annotate these on the plan. If the setback distances are consistent for all or most lots, the distances could be written into notes accompanying the envelopes rather than annotated on the plan.
6. Nominate the maximum building height in a notation to the envelopes, or specify that the maximum height shown in the side profiles is the maximum building height.
7. Check that you have satisfied the requirements of the Clause 56 of the planning scheme in relation to any adjoining lots that are not part of the same subdivision.
8. Ensure that any notes accompanying the envelopes clarify the diagrams, if needed, and match the diagrams.

4 Explanation of Symbols and Terms

The following coding symbols have been used in the templates: -



- A** Building Envelope Profile Identification
- +** Ground slope rising from the nominated boundary
- Ground slope falling from the nominated boundary
- 2.5** A site slope ranging between 2.5 degrees to 5.0 degrees as defined above.



Ground Storey Building Envelope (wall height not exceeding 3.6m)



Overlooking Zone – Habitable room windows or raised open spaces are a source of overlooking.



Non Overlooking Zone – Habitable room windows or raised open spaces are not a source of overlooking



Building to Boundary Zone

Determination of site slope – (Refer to Explanatory Drawings on following pages)

The slope is the fall of the land from one side boundary to the other at a point halfway between the front and rear boundaries. The site slope can be determined by:

1. At the centre point of a line between the front and rear setbacks (for the single storey envelope) extend a perpendicular line to intersect the side boundaries.
2. The site slope is determined along the line that joins these points on the side boundaries.

5 Calculation of Profiles

Profiles A, C, Z1, Z2

- A vertical line set back 1.0 metres from the side boundary to 3.6 metres in height then angled 0.3 metres for every metre of height over 3.6 metres up to 6.9 metres, plus 1 metre for every metre of height over 6.9 metres to the maximum height shown on the profile.

- Profiles B, D, Z3 - A vertical line set back 1.0 metres from the side boundary to 3.6 metres in height then angled 0.6 metres for every metre of height over 3.6 metres up to 6.9 metres, plus 1.0 metre for every metre of height over 6.9 metres up to the maximum height shown on the profile.
- Profiles T - A vertical line 7.0 metres in height on the boundary then angled 1.0 metre for every 1.0 metre high up to the maximum height shown on the profile.
- Building to Boundary Zone - An area indicated on the plan or in the setback profiles as able to be built on within a specified height and length.
- Maximum Height* - Maximum height of 9.0 metres in the case of ground fall less than 2.5 degrees slope or 10.0 metres in the case of ground fall of 2.5 degrees or more slope.

*** Height is measured from the ground slope line at location of setback.**

DEFINITIONS and ENCROACHMENTS

Definitions are as in Building Act 1993 for the terms:

Building
Lot

and Part 4 of the Building Regulations 1994 for:

Street
Clear to the sky
Height
Private open space
Recreational private open space
Raised open space
Secluded private open space
Setback
Site coverage
Window
Single dwelling
North (true north)

And the Victoria Planning Provisions, 31 October 2002:

Frontage (Clause 72)
Habitable room (Clause 72)
Storey (Clause 72)
Dwelling (Clause 74)

Other definitions:

Ground storey – Construction with wall heights not exceeding 3.6 metres in height above natural ground level

Encroachments: As specified in side and rear setback provisions in Building Regulations 1994, Part 4

ATTACHMENT 1: SAMPLE Report to Council on design basis for envelopes against Clause 54 objectives

Standard	Clause 54 objective	Building envelope description
A1	Neighbourhood character	The key character elements of the envelopes – height, and setbacks – continue the pattern set by existing development in the area.
A2	Integration with the street	The notes to the envelopes specify that front entrances should be easily accessible from the street. This provides for surveillance of the street and house entries, and reflects the objective of integration with the street.
A3	Street setback	Objective is met. Most lots have a 5m front setback specified on plan. A 5m average street setback is consistent with the averages of surrounding areas, which vary from 4.5m to 6m. The 5m minimum setback allows for a car to be parked in front of the building without overhanging the footpath.
A4	Building height	<p>The objective is met by setting a maximum building height for each lot after consideration of its relationship with surrounding lots, and the slope of the land.</p> <p>Side profiles indicate the maximum height allowed on each lot. The standard is generally met, with a minor tolerance allowed for building on sloping sites.</p> <p>The building envelope profiles are determined on the basis that ensures all dwellings built on site slopes within the range of the nominated profile will protect the amenity of neighbours. No sites exceed a slope of 15 degrees.</p> <p>Height and slope calculations for sites have been based on estimated final ground levels for each site after construction of the subdivision. This will become the natural ground level.</p>
A5	Site coverage	Standard is met.
A6	Permeability	Not addressed by building envelope. Standard will be met through application of the Building Regulations.
A7	Energy efficiency protection	Standard is met. All envelopes are oriented to facilitate passive solar heating to living areas through min north setback of 3m, or have an increased setback facing an adjoining property's north boundary. Side profiles in the B, C, D and Z2 and Z3 series are the profiles for south boundaries which facilitate solar access to neighbouring north-facing facades.
A8	Significant trees	Site context plan indicates no significant trees.
A9	Car parking	Not addressed by the building envelope. Carparking will be addressed in the Building Regulations, and will therefore comply with Standard A9.
A10	Side and rear setbacks	Objective is met. Side setbacks meet the standards, and rear setbacks exceed the standards through the overlooking provisions of the envelopes.

		The minimum set back nominated on the setback profiles for a double storey house from side boundaries has been based on an overall external wall height to top of roof of 5950mm.
A11	Walls on boundaries	<p>Objective is met. Walls on boundary are provided to be up to 3.6m (within a limited portion of the walls on boundaries zone) to allow for the provision of garages within the overall roofing structure of the ground floor. This ensures the design integrity of facades in buildings with 2700mm ceiling heights on sloping sites, and facilitates efficient construction of the building.</p> <p>The amenity of adjoining lots next to 3.6m high boundary walls within the subdivision has been addressed by limiting the length of the 3.6m portion to 7 metres, and limiting the construction of such walls to within the side boundaries of lots.</p> <p>Party walls up to 7 metres high have been designated for some small lots within the subdivision, to maximise use of the land and energy efficiency, and to provide more diversity in the dwelling mix.</p> <p>The notes to the envelope specify that a wall on a boundary can be built within 200mm of the boundary, rather than the 150mm specified in Building Regulations and planning schemes. A 200mm allowance will accommodate a fascia and a gutter where a wall is built to a boundary.</p>
A12	Daylight to habitable room windows	Standard is met
A13	Solar access to existing north-facing habitable room windows	<p>Standard is met. All walls likely to contain north-facing windows have either a 5m setback to the street, a 5.5m setback to a rear boundary, a 3m setback to a side or rear fence, or have an increased setback facing an adjoining property's north boundary.</p> <p>The profile specifying a greater setback from the north facing windows of any adjoining lot that is part of the same subdivision has been used for any lot that has an orientation within the range of 20 degrees west of north to 30 degrees.</p> <p>Provision is made for the regulations to apply to lots not part of the subdivision.</p>
A14	Overshadowing of recreational private open space	Objective is met, Current regulations to apply to existing dwellings on lots not part of the subdivision. New dwellings each have a rear yard of 3m wide which is protected from overshadowing by a minimum 5.5m setback for upper storeys on adjacent lots.
A15	Overlooking –	Objective is met by using an overlooking zone in one of

		<p>a facing pair of upper storey side windows, through providing a minimum 5.5m setback of upper storeys from adjoining properties' rear POS.</p> <p>In conjunction with the 1.8m high fence which would normally be provided between adjoining property side and rear boundaries during development of the lots, this will provide approximately the same level of protection from overlooking as the overlooking standard. The current regulations to apply to existing dwellings not part of this subdivision.</p> <p>The minimum distance between facing upper storey windows in side boundaries is proposed to be 7 metres, and 11 metres between facing upper storey windows on rear boundaries. This is consistent with the overlooking objective of providing reasonable protection from overlooking.</p>
A16	Daylight to new windows	Standard is met.
A17	Private open space	Not addressed in the building envelopes. Standard will be met through application of the Building Regulations
A18	Solar access to open space	Standard is met. Southern boundary fence is at least 5.24m from the nearest northern wall (3.6m x 0.9 + 2m - as nearest northern wall is max 3.6m high – where the area is likely to be used as private open space, for example in a rear yard.
A19	Design detail	Standard is not relevant to the building envelopes.
A20	Front fences	Not addressed by building envelope. Standard will be met through application of the Building Regulations.
	Side and rear fences	Not addressed by building envelope. Standard will be met through application of the Building Regulations.

Attachment 2: Side setback profiles for a range of slopes

Attachment 3: Sample memorandum of common provisions and restriction on title to create building envelopes