

**Digital Twin  
Victoria**

Shaping  
our digital  
future



## **eComply Framework Digital Assessment Practice Note**

V1.1 – December 2023



Department  
of Transport  
and Planning

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# Background & Purpose

## 1.1 About eComply

Digital Twin Victoria in partnership with Australian start-up Archistar have delivered digital assessment technology designed to enable builders, building designers to test their 3D building designs against planning codes, making building compliance easier and faster for everyone in the process.

After industry trials and the release of the first commercial solution Digital Twin Victoria has developed an open framework aiming to encourage the adoption of digital building processes and the growth of digital assessment tools.

The framework presents data specifications and computational methodologies to assess building compliance for Victoria's Small Lot Housing Code. The framework can be used by those developing digital solutions, offering data services, or those trying to understand how eComply solutions function.

eComply is one piece of the [Digital Twin Victoria program](#), an investment by the Victorian Government in digital twin technology and spatial innovation to help revolutionise how we plan and manage our built and natural environments.

## 1.2 Document Purpose

The purpose the eComply Digital Assessment Practice Note is communicate computational building assessment practices to inform:

- Computational designers how to perform assessment methodologies.
- Regulators and building assessors how digital assessment operates.

Examples of these methodologies can be tested within the [demonstration site](#).

## 1.3 Applying the Practice Note

The methodologies within the Practice Note can be used to develop commercial tools. Any tools developed from these methodologies should be reviewed by building surveyors or statutory planners to provide feedback on the assessment accuracy.

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## 1.4 Companion Documents

The eComply Framework consist of the following documents:

ID	Document	Description
1	BIM Drafting Guidelines	Guidelines for building designers to model 3D building information supporting eComply building compliance assessment.
2	Site Context Guidelines	Guidelines for land surveyors to provider site context datasets – the 'digital twin' of the development site.
3	Assessment Practice Note (This Document)	Computational practices to analyse and assess building compliance against residential design standards

See External References for further reference documents and websites.

## 2. eComply Assessment

### 2.1 Planning Codes & Assessment

#### 2.1.1 Planning Code

This Practice Note is drafted for the residential designs standards of the Victorian Planning Authority's Small Lot Housing Code version 2019. The code is based on the 'siting' requirements within Victorian Building Regulations (Part 5).

The document complements the existing Practice Notes for Small Lot Housing Code 2019, the difference being the interpretation of the Small Lot Housing Code has been refined for computational assessment. Any interpretation extensions are clearly identified within the document.

**Note:** Small Lot Housing Code (SLHC) building permits are often submitted as entire rows of townhouses, as such the eComply solutions must accommodate individual building assessments and simultaneous building assessments which consider the entire row while performing assessment.

#### 2.1.2 Digital Assessment

eComply solutions will often be a website or desktop software application. The solutions contain a digital representation of a development site known as the 'site context' and allow the submission and assessment of 3D building designs.

During the assessment specific elements of the site context are referenced to facilitate the assessment computation, for example:

- The typology of the submission (SLHC Type A/B) to determine a setback parameter.
- The boundary side definition or interface to neighbouring land use i.e., rear laneway

Additionally, the assessments rely on the identification of specific architectural elements within the 3D BIM model. For example:

- To identify external 'walls' being affected by a setback – an eComply solution searches the BIM model features classified as 'ifcWalls'.

The Site Context guidelines and BIM drafting guidelines must be followed to leverage the assessment methodologies within this document.

#### 2.1.3 Assessment Methodology Drafting

Planning Codes are made up of design standards each usually having a number of requirements. Each requirement is broken down into an individual assessment. The practice note itemises each assessment step and documents it as follows:

- A number and name – relating to the Small Lot Housing Code structure.
- The original code requirements from the Small Lot Housing Code documentation
- The assessment methodology – with bold elements referring to the data used in the test.
- A diagram / figure to visualise the method.
- A table noting the data used in the text including the digital site context information, the BIM features used based on the IFC Classification, and the eComply IFC parameters. In some cases, the modelling features are also referenced, such as a modelled 3d envelope, or view cone.

Any assessments where the assessment has extended requirements from those documented in primary Small Lot Housing Code document are noted with a clear description.

#### 2.1.4 Current Limitations

The following outlines known limitations for eComply solutions.

ID	Limitation	Description
1	Complete-ness of site context	If the site context is missing information for the local neighbourhood (i.e., buildings) the tests such as overlooking, overshadowing will not be able to detect the amenity impacts.
2	Accuracy of site context	If the drafting of terrain and boundaries is not from authoritative sources (i.e., licensed surveyors) then the accuracy of assessments may be unreliable.
3	Materials	The IFC classification system does not include materials and as such cannot assess for materials. This impacts the ability to check for barbed wire in fences.
4	Sharpness	eComply measurements do not test for of sharpness (as noted in fences).
5	Terrain	If no terrain is provided the natural ground level can be assumed as being 0 AHD however the this impacts the reliability of assessments such as building height, overlooking, overshadowing for sites with significant slope
6	Permeability	Permeability tests are only conducted for spaces nominated as permeable. The permeability of the surfaces / materials within those spaces are not tested.
7	Completeness of the Building Design	If the building design submitted to the eComply solution is not representative of the complete model or does not include all the correct architectural classifications then the results may be unreliable.
	Building Regulations 2018	Small Lot Housing Code (SLHC) assessments adjacent to lots not subject to SLHC are subject to a selection of regulations from Part 5 - Building Regulations – Siting. The scope of this document only includes design standards from SLHC.

## 2.2 Key Terms

See Glossary

# 3. Assessment Methodology

## 3.1 Class 1a Buildings and Associated Class 10a Buildings

### 3.1.1 Standard 1 – Maximum Street setbacks

**Standard 1.1**

**Rule**

The front wall of a new Class 1a Building must be set back no more than 1.5 metres than the street setback specified in Table 1 (see 2.1).

**Digital Assessment**

Using minimum **setback** values from standard 2.1 create a new **envelope** from **front**, and **side** boundaries by the values determined within 2.1 plus 1.5m.

Detect if the **external walls** parallel the front and side boundaries fall within this set-back **envelope**.

Allow a tolerance of 40 degrees for selecting the parallel **walls**.

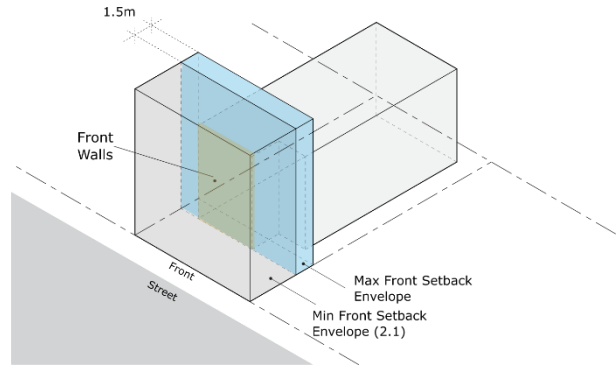


Figure 1.1 - Maximum street setback

**Context & Modelled Data**

**Front** = Interface | Front

**Side** = Interface | Side

**Chamfer** = Interface | Chamfer

**Envelope** = Modelled setback envelope

**BIM Element Identification**

**External Walls** = IfcWall

**Ground Level** = IfcSite

### 3.1.2 Standard 2 – Minimum Street setbacks

**Standard 2.1**

**Rule**

Walls of a building must be setback from front and side street alignments the distances specified in Table 1

*A front street setback may be to a reserve if the dwelling is rear-loaded. In this standard, street does not include lane, footway, alley or right of way.*

Designation of the allotment in the subdivision permit	Minimum setback from front street alignment	Minimum setback from side street alignment, where the lot is on a corner
Type A	4.0 metres for a building facing a declared road	15 metres
	1.5 metres for a building facing a street where there is a recreation reserve on the other side of the street and opposite the allotment	
	3.0 metres in any other case	
Type B	4.0 metres for a building facing a declared road	1 metre
	1.5 metres in any other case	

Table 1. Standard 1 - Street setbacks

**Digital Assessment**

Detect if **front, side, and chamfer boundaries** are **street, declared roads, adjacent a reserve,** or neighbouring a **reserve**. Additionally, detect whether the lot is for SLHC **Type A / B**. Using this information, lookup the appropriate set back quantity.

Model an **envelope** from the **front** boundary to the width of the front boundary, with to the maximum height allowance (Standard 3.1) from **ground level**, with a depth based on the earlier lookup.

If the **side boundary** is a on a **street**, then generate an **envelope** on the boundary using the equivalent dimensions and lookup set-back value. This also applies to **chamfer** corners.

Detect if the building **walls** fall within the **envelope(s)**. **Walls** may touch the face of the **envelope** but are otherwise non-compliant if within the **envelope**.

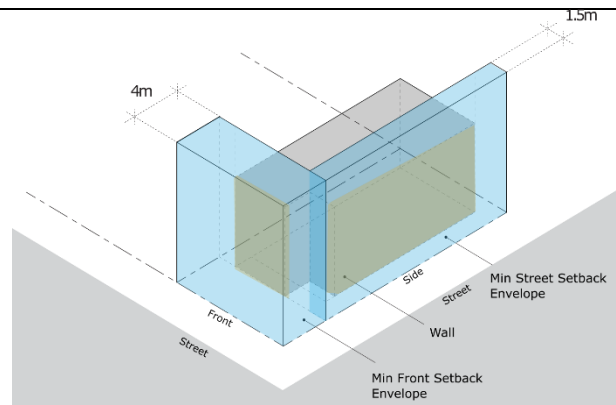


Figure 2.1 - Minimum Street setbacks

**Context & Modelled Data**

**Front** = Interface | Front

**Side** = Interface | Side

**Chamfer** = Interface | Chamfer

**Street** = Interface | Street

**Declared Road** = Interface | Declared Road

**Recreational Reserve** = Interface | Recreational Reserve

**Adjacent Reverse** = Interface | Facing Park

**Type A / B** – Restriction | SLHC

**Envelope** = Modelled setback envelope

**BIM Element Identification**

**Walls** = IfcWall

**Ground Level** = IfcSite

**Standard 2.2**

**Rule**

Walls of a building must be articulated in accordance with Table 2

*For the purposes of this standard, the area of the front façade means the area of the walls of the building facing the front street and measured from a two-dimensional elevation and excludes any roof area and the area of garage and carports doors / opening*

Minimum articulation at front Street Alignment	Minimum articulation at side Street Alignment
No less than 25 per cent of the area of the front façade of a building must be setback at least an additional 300mm	If a wall is more than 10.0 metres in length, 10 per cent of the area of the wall must be setback at least an additional 300mm

Table 2. Standard 2.2 Articulation and the front and side street

**Digital Assessment**

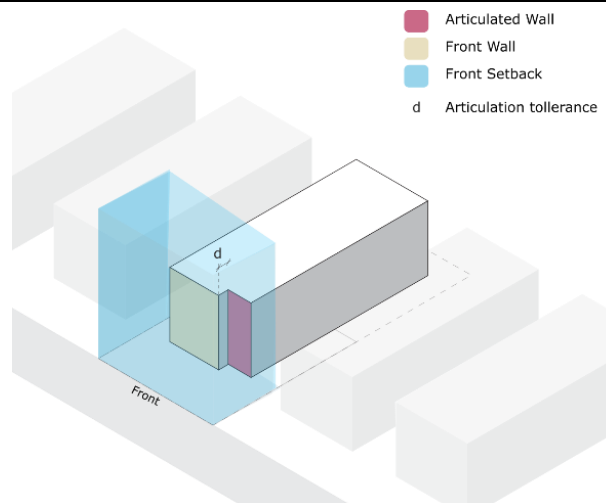
Detect **external walls** closest to **front street** boundary and **side street** boundaries with parallel orientation within 40 degrees tolerance.

Detect articulated **walls** set further back from the closest wall relative to each boundary within ½ the dimension of the **lot**.

Verify if the articulated **walls** meet the 300mm set back.

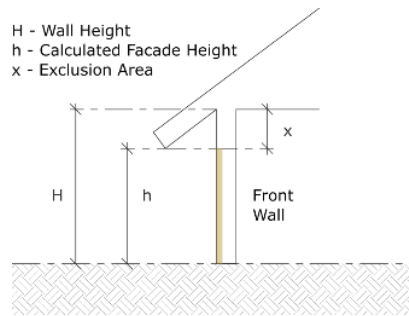
Calculate the aggregate façade area and dimensions of the primary **walls** and articulated **walls**, excluding the zone within **roof** space and openings.

Detect if the articulation and dimensions match the requirement table.



**Note** – the drafting methodology for walls may impact the area calculations. Doors and windows should be cut into a wall.

**Figure 2.2-1 - Articulation walls diagram**



**Figure 2.2-2 – Front Façade Exclusions**

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
<b>Front</b> = Interface   Front	<b>External Walls</b> = IfcWall
<b>Side</b> = Interface   Side	Exclude:
<b>Street</b> = Interface   Street	<b>Garage Wall</b> = IfcWall   IsGarage = Y
	<b>Roof</b> = IfcRoof

**Standard 2.3**

**Rule**

The entrance (to a door or opening) of any garage or carport, that is accessed from the front street alignment (not a lane), must be setback:

- a. no less than 5.0 metres from the front street alignment; or
- b. no less than 2.0 metres from the side street alignment

**Digital Assessment**

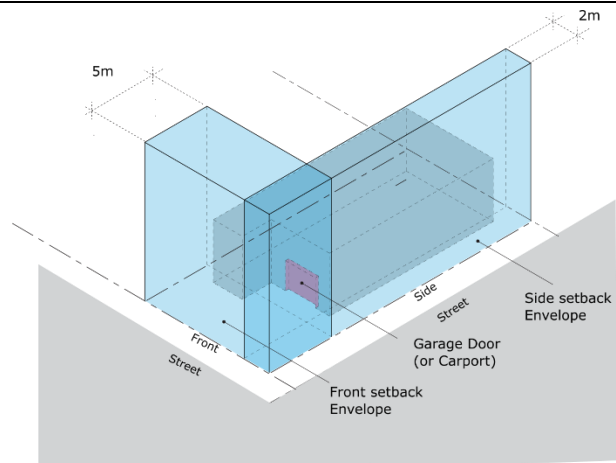
Detect a **garage door** or **carport** in the model and the features orientation with the **front** and **side street** boundary. Allow a 40-degree tolerance to match orientation.

Create an **envelope** from the **front street** boundary, the length of the boundary, max allowable height (Standard 3.1) from **ground level**, and 5m depth.

Create an **envelope** from the **side street** boundary, the length of the boundary, max allowable height (Standard 3.1) from from **ground level**, and 2m depth.

Detect if the **garage door**, or unwalled side of the **carport** fall within the **envelope**.

**Note:** If the entrance (to a door or opening) of any **garage** or **carport** is not accessed from the **front street alignment** (not a lane), this clause becomes Not Applicable.



**Figure 2.3 – Garage Access**

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
<b>Front</b> = Interface   Front	<b>Garage Door</b> = IfcDoor   IsGarage = Y
<b>Side</b> = Interface   Side	<b>Carport</b> = IfcSpace   IsCarport = Y
<b>Street</b> = Interface   Street	<b>Ground Level</b> = IfcSite
<b>Envelope</b> = Modelled Envelope (2.3)	



## Standard 2.4

### Rule

The following may encroach into the setback distance required by standard 2.1 by no more than 1.5 metres –

- a. eaves, fascia and gutters; and
- b. decks, steps or landings less than 800mm in height;

provided these encroachments do not project over a street alignment

### Digital Assessment

Using **minimum setback values** from standard 2.1 create a new encroachment **envelope** from **front**, and **side** boundaries by the values determined within 2.1 minus 1.5m.

Detect if **eaves, fascia, gutters**, are within the encroachment **envelope**.

**Decks, steps** and **landings** within 800mm of **ground level** are identified and checked for falling within the encroachment envelope.

If none of these elements are modelled, this clause becomes Not Applicable.

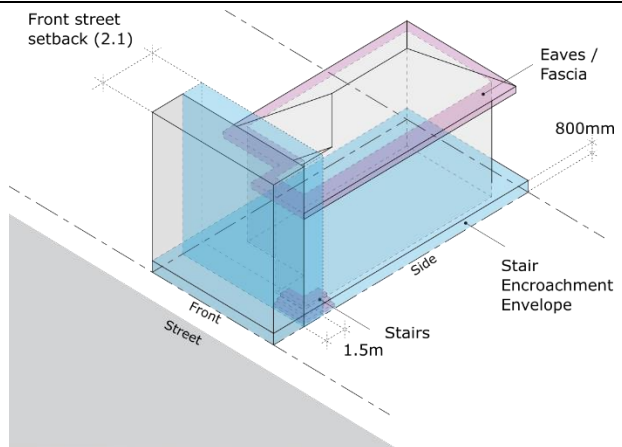


Figure 2.4 – Front setback encroachment

### Context & Modelled Data

**Front** = Interface | Front

**Side** = Interface | Side

**Chamfer** = Interface | Chamfer

**Envelope** = Modelled encroachment envelope & step height envelope

### BIM Element Identification

**Fascia** = IfcCovering (or IfcRoof, IfcSlab) | IsFascia = Y

**Eaves** = IfcCovering (or IfcRoof, IfcSlab) | IsEave = Y

**Gutters** = IfcFlowSegment | GUTTER

**Decks** = IfcSpace | IsDeck = Y

**Steps** = IfcStair

**Landings** = IfcSlab | Landing or IfcSpace | IsLanding = Y or IfcStair

**Ground Level** = IfcSite

**Site** = IfcSite

## Standard 2.5

### Rule

At least one of the following design features must be provided to the front of the building and may encroach into the setbacks required by standard 2.1 –

- a. a porch, verandah or pergola that –
  - i. is open on at least 2 sides; (*see note*)
  - ii. has a width that does not exceed 80 per cent of the frontage of the allotment or 4m, whichever is the greater; and
- iii. projects at least 800mm and no more than 1.5 metres forward of the front wall (inclusive of the eave); or
- b. a balcony on the second storey or above, that –
  - iv. for any part of the balcony that is forward of the front wall, has a width that does not

### Note: eComply extended interpretation

The eComply interpretation of 2.5(a) I and (c) is further clarified to define the concept of 'open' and extend the classification of fins:

(a.i) a porch, verandah or pergola that is open on at least 2 sides where:

- A side is considered to be open if the roof covering adjacent to that side is not less than 500mm from another building or allotment boundary.
- One side has a clear opening of no less than 1000mm and the other no less than 500mm.
- Where a porch opening is proposed to be obscured by a screen or architectural

exceed 80 per cent of the frontage of the allotment or 4.0 metres, whichever is the greater; and

v. projects at least 300mm and no more than 1.0 metre forward of the front wall, if the balcony is roofed; or

vi. projects at least 800mm and no more than 1.5 metres forward of the front wall, if the balcony is not roofed;

or

c. *fin/s* \* (see note) or sunhood/s having a minimum combined dimension of 3.1 metres which must project at least 300mm and not more than 1.0 metre forward of the front wall to which it is attached.

*treatment, it must have no more than 50% of its area obscured.*

(c) A nib wall is considered as a fin

## Digital Assessment

### 2.5 a

Detect spaces defined as **porches**, **pergolas**, or **verandahs** in within the encroachment envelope from standard 2.2. For each:

#### 2.5 a.i

Check each space for connecting **walls** and determine the number of sides having connecting walls. Detect for **roof** or **covering**.

Measure the relative wall to side dimensions. Check if the wall covers more than 50% of the side dimension, if so, it is considered closed.

Detect the open sides meet the minimum dimensions 1000mm for largest opening side, and 500mm for second side.

Check **walls** are **screens** and meet transparency of 50%.

#### 2.5 a.ii

Detect the space's sides which are parallel (within 40 degrees) to the **front segment** and then measure each side's length. Check the **front segment** length.

Determine whether the length is beyond the maximum allowed in comparison.

#### 2.5 a.iii

Detect the space's side aligning to the **front wall** and determine the dimension to the side closest to the **front boundary**.

Determine whether the distance is within the minimum and maximum amount allowed.

### 2.5b -

Detect spaces defined as **balconies** higher than ground floor level. For each:

#### 2.5b iv -

Follow 2.5 a.ii process for **balcony**

#### 2.5b v & vi

Follow 2.5 a.iii process for **balcony**

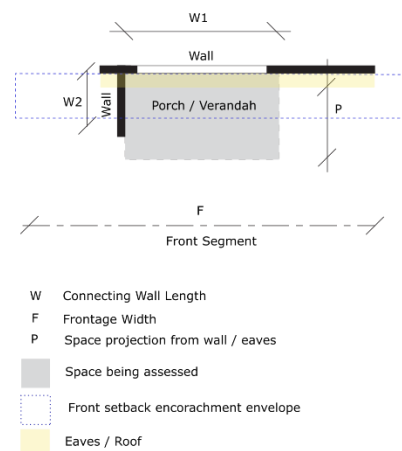


Figure 2.5a/b – Front Porch (or Balcony) Measurement

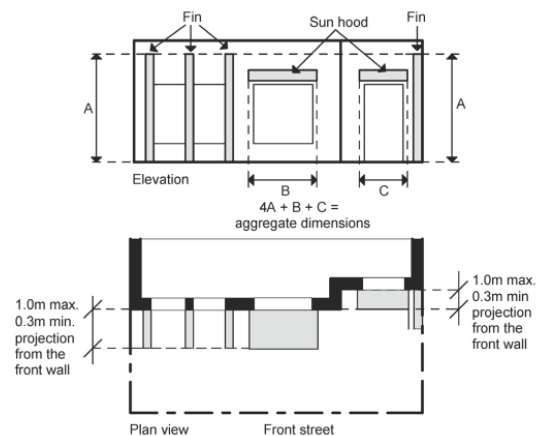


Figure 2.5c – Sunhood and Fin dimensions (image sourced from SLHC Practice Note)

### 2.5c

Detect each **fin/s**, **nib** or **sun hood/s** connected to **front wall**. Evaluate the primary length dimension for each (largest value out of length or width) and sum the values. Determine the summed dimension falls under the 3.1m value.

Determine sides of each feature perpendicular to the **wall** and measure the dimension toward the site frontage. Check falls within 300mm to 1m allowance.

#### Context & Modelled Data

**Front** = Interface | Front

**Envelope** = Modelled Envelope

#### BIM Element Identification

**Wall** = IfcWall

**Screen** = IfcWall (or IfcRailing) | IsTransparent > 25

**Balcony** = IfcSpace | IsBalcony = Y

**Pergola** = IfcSpace | IsPergola = Y

**Porch** = IfcSpace | IsPorch = Y

**Verandah** = IfcSpace | IsVerandah = Y

**Sunhood** = IfcShadingDevice (or IfcSlab) | IsSunhood = Y

**Fin / Nib** = IfcWall | IsFin = Y

**Floor level** = IfcBuildingStory

### 3.1.3 Standard 3 - Building Height

#### **Standard 3.1**

#### Rule

The height and/or storeys of a building must not exceed those specified in the zone, inclusive of any schedule. If no height specified:

- a. the building height must not exceed 11 metres; and
- b. the building must contain no more than 3 storeys at any point.

The reference to zone in this standard includes an applied zone.

#### Digital Assessment

##### 3.1 a

Model an **envelope** to the extent of the **site** from **natural ground level** to the **max height level**.

Check if the **building geometry** breaches the envelope.

##### 3.1 b

Detect stories by checking for **building stories** with a **floor structure**. See note below.

Count the stories and validate with allowable **number of stories**. Unique **building stories** reside within a distinct horizontal zone and exclude intermediary levels. Above ground levels are only considered.

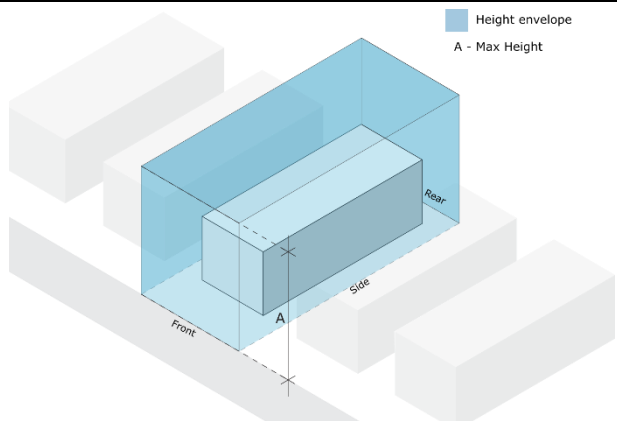


Figure 3.1a - Maximum allowable height

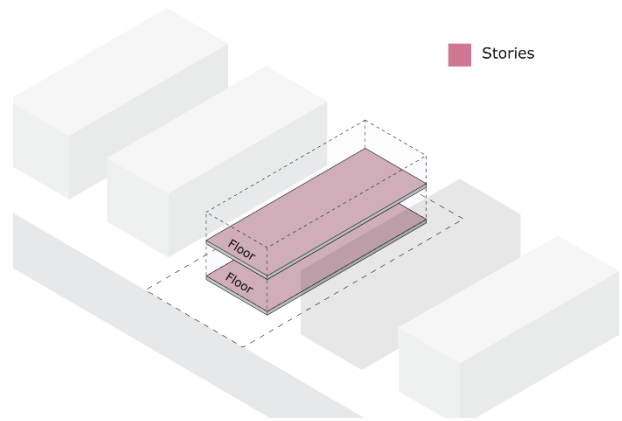


Figure 3.1b - Number of storeys

Context & Modelled Data	BIM Element Identification
<b>Site</b> = Submission Lot	<b>Building geometry</b> = IfcBuilding (and child elements)
<b>Envelope</b> = Modelled Envelope (3.1)	<b>Building Stories</b> = IfcBuildingStorey
<b>Max Height Level</b> = Planning Zone   Height or 11m	<b>Natural Ground Level</b> = IfcSite (Topography)
<b>Number of Stories</b> = Planning Zone   Levels or 3	<b>Floor</b> = IfcSlab   FLOOR

### 3.1.4 Standard 4 – Site coverage

#### Standard 4.1

##### Rule

The site area covered by buildings must not exceed the area specified in Table 3.

*When calculating site coverage under standard 4.1, eaves, fascia and gutters not exceeding 600mm in total width, unroofed swimming pools, unroofed terraces, unroofed patios, unroofed decks and pergolas may be disregarded*

Designation of the allotment in the subdivision permit	Site coverage
Type A	90 per cent The percentage may be calculated as the average of allotments that have simultaneously approved/ lodged attached dwellings
Type B	100 per cent

Table 3. Standard 4.1 Site Coverage

##### Digital Assessment

Check if the lot is **Type A / B** to determine the allowable site coverage.

Detect **eaves**, fascia and **gutters** that project 600mm beyond the external walls. Identify other features in the model to include by identifying **roof structures**.

Flatten the **model elements** to the **ground level** except for **excluded features**. Measure the area of the site coverage and compare to the **lot** area.

**Note:** If the house model is one of many in a simultaneous assessment, then the aggregate **lot** area and coverage is compared.

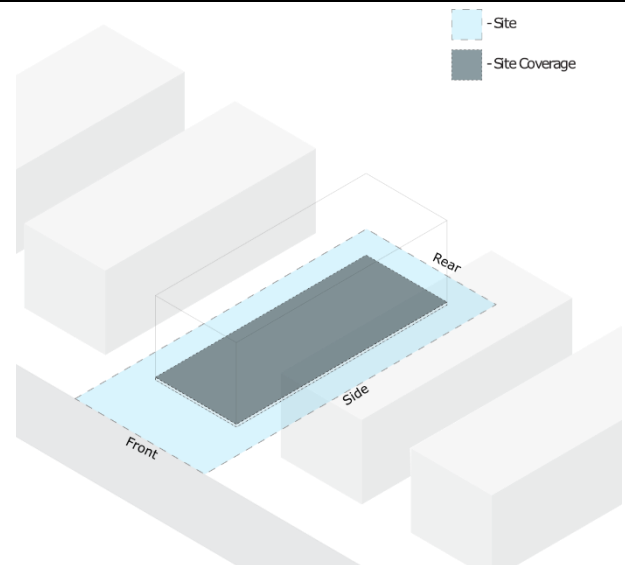


Figure 4.1 - Site coverage

### Context & Modelled Data

Type A / B = Restrictions | SLHC

Lot = Submission Lot

### BIM Element Identification

Model Elements = IfcBuilding (and child elements)

Ground Level = IfcSite

Eaves = IfcCovering (or IfcSlab, IfcRoof) | IsEaves = Y

Fascia = IfcCovering (or IfcSlab, IfcRoof) | IsFascia = Y

Gutters = IfcFlowSegment | GUTTER

Roof = IfcRoof

## 3.1.5 Standard 5 – Permeability

### Standard 5.1

#### Rule

The site area covered by permeable surfaces must be at least the area specified in Table 4

Designation of the allotment in the subdivision permit	Permeable surfaces
Type A	10 per cent The percentage may be calculated as the average of allotments that have simultaneously approved/lodged attached dwellings
Type B	No minimum permeable surface specified

Table 4. Standard 4.1 Permeability

### Digital Assessment

Check if the lot is **Type A / B** to determine the allowable site coverage.

Detect **permeable spaces** nominated and measure the aggregate area. Compare the permeable area with the site area of the **lot**.

**Note: Permeable spaces** are defined by the designer. eComply solutions do not test for permeability of surface types / materials.

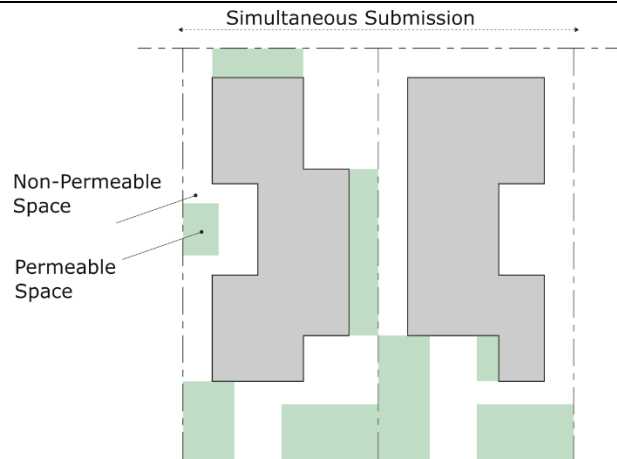


Figure 5.1 – Permeability

### Context & Modelled Data

Lot = Submission Lot

Type A / B = Restriction | SLHC

### BIM Element Identification

Permeable Space = IfcSpace | IsPermeable = Y

## 3.1.6 Standard 6 – Car parking

### Standard 6.1

#### Rule

Provision must be made for the number of car parking space(s) specified in Table 5

Designation of the allotment in the subdivision permit	Minimum number of car parking spaces
Type A	1 car parking space if the building has two or less bedrooms 2 car parking spaces if the building has 3 or more bedrooms
Type B	1 car parking space

Table 6. Standard 6.1 Carparking

## Digital Assessment

Check whether the submission is **Type A / B**.

Count the number of drafted **bedrooms** and **parking spaces** within the submission.

Evaluate if the quantity of spaces meets the required quantity within the requirements table.

**Note:** **Parking Spaces** are drafted by the designer as a 3d space either internal to carports, garages, or in driveways. Each drafted parking space contains a space for one car and can be measured for dimensions.

### Context & Modelled Data

Type A / B = Restriction | SLHC

### BIM Element Identification

Bedroom = IfcSpace | IsBedroom = Y

Parking Spaces = IfcSpace | IsParkingSpace = Y

## Standard 6.2

### Rule

The car parking space(s) required under standard 6.1 must be accessible from a public street or lane or right of way, however, if the allotment has a frontage width of less than 6.0m access to the car parking space(s) must only be from the rear of the allotment.

## Digital Assessment

Identify **street** or **laneway**, and **rear** boundaries.

Calculated **front** boundary dimension.

Identify **parking spaces** within the design and determine their **access** direction by detecting the shortest sides.

If the **parking space** is enclosed within a **garage** then check the **door** has a similar orientation to the **street access** boundary and no **walls** are blocking the access.

For non-garage **parking spaces** identify whether the access side has the similar orientation to the street access and no walls are blocking.

Ensure **access** is to the **rear** for frontages under required threshold.

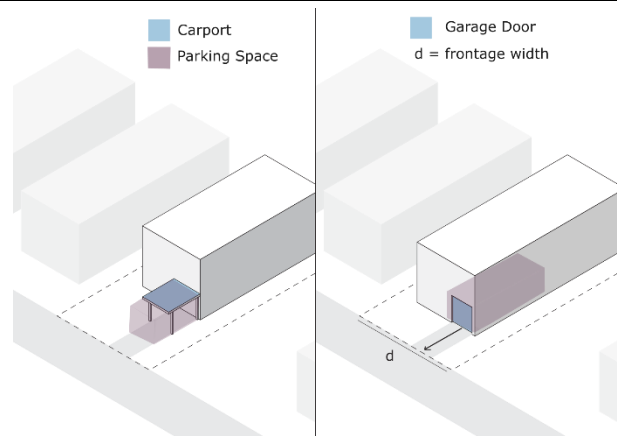


Figure 6.2 - Car parking

### Context & Modelled Data

Laneway = Interface | Laneway

Street = Interface | Street

Rear = Interface | Rear

Access = modelled route / path

### Model Elements Identification

Walls = IfcWall

Garage Door = IfcDoor | IsGarage = Y

Garage = IfcSpace | IsGarage = Y

Parking Spaces = IfcSpace | IsParkingSpace = Y

## Standard 6.3, 6.4, 6.5

### Rule

#### 6.3

If 1 car parking space is required under standard 6.1 it must be at least 6.0 metres long and 3.5 metres wide.

#### 6.4

If 2 car parking spaces are required under standard 6.1 – a. one space must be at least 6.0 metres long and 3-5 metres wide; and b. the second space must be at least 4-9 metres long and 2-6 metres wide

#### 6.5

The minimum ceiling height to a garage, carport or car parking space is 2.1 metres

---

### Digital Assessment

Identify **parking spaces** within the design and determine the dimensions meet the requirements.

See note in 6.1 about parking spaces design.

See figure in 6.7.

---

#### Context & Modelled Data

n/a

---

#### BIM Element Identification

**Parking Spaces** = IfcSpace | IsParkingSpace = Y

### **Standard 6.6**

#### Rule

Despite standard 6.4, if the 2 required car parking spaces adjoin each other in a garage or carport or in a space constrained by walls, the double space may be 5.5 metres in width

---

### Digital Assessment

Identify dual **parking spaces** and whether they are enclosed by a **garage** (closed) or a **carport** (open).

Measure the combined width of the **parking spaces**.

See note in 6.1 about parking spaces design. Dual parking spaces are drafted as two adjoining parking spaces

---

#### Context & Modelled Data

n/a

---

#### BIM Element Identification

**Parking space**= IfcSpace | IsParkingSpace = Y

**Garage** = IfcSpace | IsGarage = Y

**Carport** = IfcSpace | IsCarport = Y

### **Standard 6.7**

#### Rule

If the car parking space(s) required under standard 6.1 is in a garage or carport and the door(s) or opening(s) to the garage or carport faces the front street –

- a. the width of the door(s) or opening(s) must not exceed 50 per cent of the width of the of the frontage of the allotment; or
- b. the area of the door(s) or opening(s) must not exceed 30 per cent of the area of the front façade of the building.

For the purposes of this standard, the area of the front façade of the building means the area of the walls of the building facing the front street, measured from a two-dimensional elevation, and excluding any roof area.

**Digital Assessment**

Identify the boundaries with **street** access. Check the length of the access boundary and whether it is to the **front street** boundary.

Leverage the methodology in standard 6.2 to determine whether the access is to the street.

Calculate the width and area of the **carport** access side or **garage door**.

Use the methodology in standard 2.2 to calculate façade area.

**6.7 a**

Compare the width of the **carport** or **garage door** with the front façade area.

**6.7 b**

Compare the area of the **carport** access side or **garage door** with the façade.

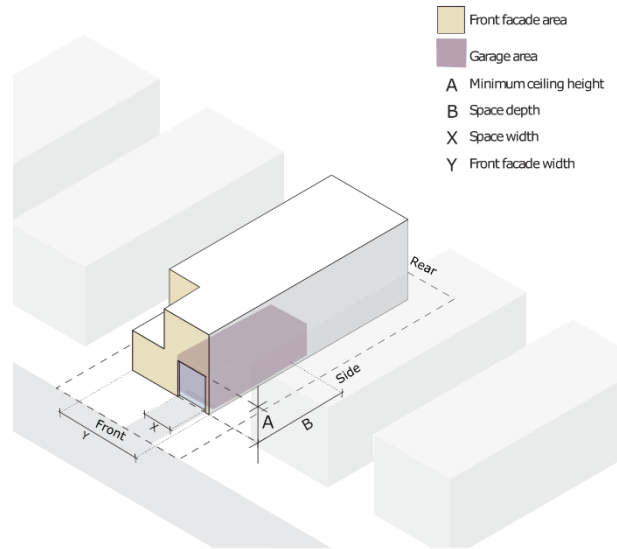


Figure 6.3 - 6.7 – Carparking dimensions

**Context & Modelled Data**

Front Segment = Boundary - Front

Street Segment = Interface - Street

**BIM Element Identification**

Front Façade = IfcWall

Garage Door = IfcDoor | IsGarage = Y

Garage = IfcSpace | IsGarage = Y

Carport = IfcSpace | IsCarport = Y

Parking space= IfcSpace | IsParkingSpace = Y

**3.1.7 Standard 7 – Side and rear setbacks**

**Standard 7.1**

**Rule**

Standard 7 does not apply to a wall of a building or a carport that complies with standard 8.

A building must be set back from a side or rear boundary not less than the distance specified in Table 6.

Building height at any point	Minimum setback from side or rear boundary	Minimum setback from a lane
3.6 metres or less	1.0 metre	0 metres
More than 3.6 metres but not more than 6.9 metres	1.0 metre plus 0.3 metres for every metre of height over 3.6 metres	0 metres
More than 6.9 metres	2.0 metres plus 1.0 metre for every metre of height over 6.9 metres	2.0 metres plus 1.0 metre for every metre of height over 6.9 metres

Table 6. Standard 7.1 Side and Rear Setbacks



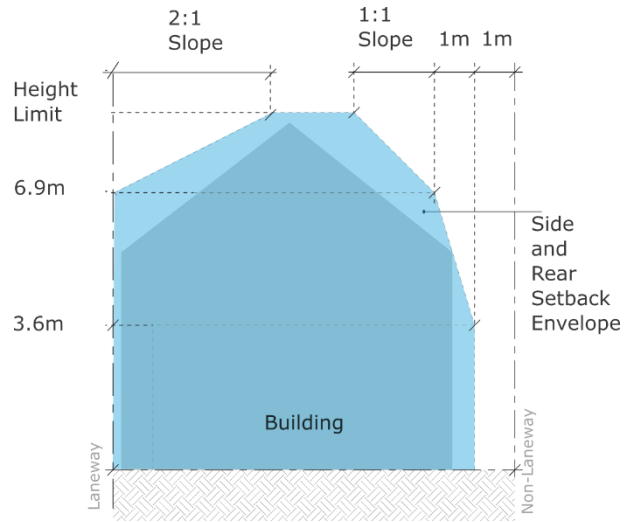
**Digital Assessment**

Detect whether the **side** and **rear** boundaries fall on a **laneway** to determine the **envelope** characteristics.

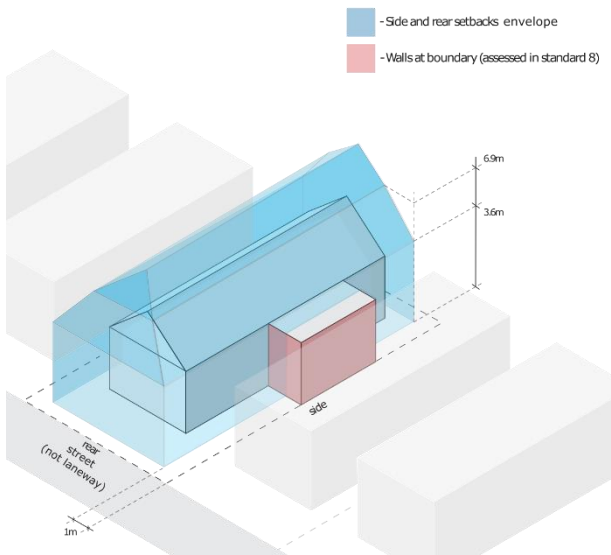
Model an articulated envelope from the **lot boundary** and **ground level** using the tabulated characteristics.

See figure 7.1-1 showing both laneway and regular envelope characteristics on side boundaries. 3D envelopes model set back articulation from both side and rear boundaries.

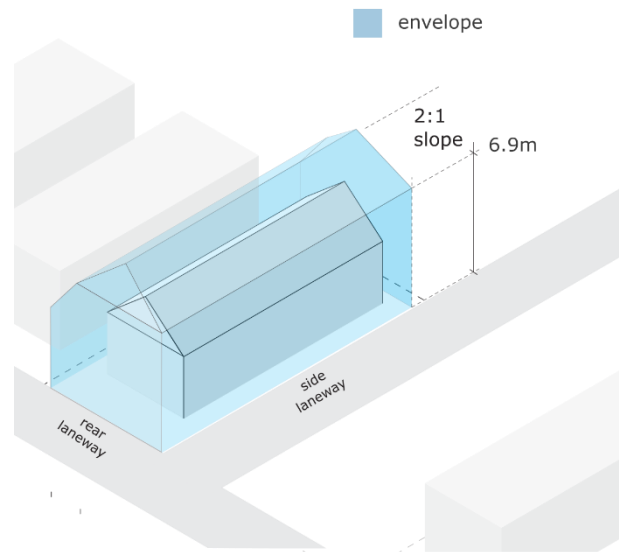
Detect if the **building** features fall within the **envelope** except for those identified for Standard 8 – see wall on boundary detection methodology in 8.0.



**Figure 7.1-1 Side and Rear Set-back Envelope**



**Figure 7.1-2 Side and Rear Set-back 3D Envelope**



**Figure 7.1-3 Side and Rear Set-back Laneway 3D Envelope**

**Context & Modelled Data**

**Lane** = Interface | Laneway

**Side** = Interface | Side

**Rear** = Interface | Rear

**Lot** = Submission Lot

**Envelope** = Modelled setback envelope

**Model Elements Identification**

**Wall** = IfcWall

**Building features** = IfcBuilding (and child elements – except elements noted as encroachments in 7.2-4 and fences)

**Ground Level** = IfcSite

## Standard 7.2

### Rule

The following may encroach into the setback distance required by Table 7 by not more than 500mm (this standard does not apply to setback from lane) –

- porches and verandahs;
- masonry chimneys;
- sunblinds and sunhoods;
- flues and pipes;
- domestic fuel tanks and water tanks; and
- heating and cooling equipment and other services.

### Digital Assessment

Extend the **envelope** from standard 7.1 by 500mm. The envelope does not extend beyond the vertical projection of the lot boundary.

Detect whether allowable encroachment features do not breach the outside of the **envelope**.

Allowable encroachment features checked include:

**porches** and **verandahs**, **masonry chimneys**, **sunblinds**, **sunhoods**, **tanks**, **heating**, and **cooling equipment**.

**Note:** it is not common for features such as utilities to be nominated within a LOD 200 model

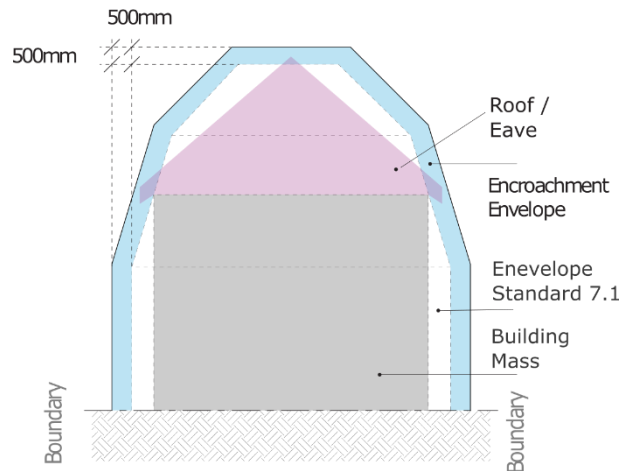


Figure 7.2 – Side and Rear Setback Encroachment Envelope

### Context & Modelled Data

#### Standard 7.1 | Envelope

**Envelope** = Modelled encroachment envelope

### Model Elements Identification

**Porch** = IfcSpace | IsPorch = Y

**Verandah** = IfcSpace | IsVerandah = Y

**Chimney** = IfcChimney

**Sunblind** = IfcShadingDevice (or IfcSlab, IfcRoof) | IsSunshade = Y

**Sunhood** = IfcShadingDevice (or IfcSlab, IfcRoof) | IsSunhood = Y

**Tank** = IfcTank

**Heater** = IfcSpaceHeater

**Cooler** = IfcChiller

## Standard 7.3

### Rule

Eaves, fascias and gutters may encroach into the setback distance required by Table 6 by not more than 600mm (this standard does not apply to setback from lane).

### Digital Assessment

An **envelope** is generated as per methodology in standard 7.3 but to 600m.

Allowable encroachment features checked include **eaves**, **fascia**, and **gutter**

### Context & Modelled Data

#### Standard 7.1 | Envelope

**Envelope** = Modelled encroachment envelope

### BIM Element Identification

**Eaves** = IfcCovering (or IfcSlab, IfcRoof) | IsEaves = Y

**Fascia** = IfcCovering (or IfcSlab, IfcRoof) | IsFascia= Y

**Gutters** = IfcFlowSegment | GUTTER

## Standard 7.4

### Rule

The following may encroach into the setback distance required by Table 6 (this standard does not apply to setback from lane) –

- a. landings with an area of not more than 2 square metres and less than 1.0 metre high;
- b. unroofed stairways and ramps;
- c. pergolas;
- d. shade sails; and
- e. decks less than 800mm above natural ground level

### Digital Assessment

The envelope from 7.1 is leveraged and checked for the allowable encroachment features (with measures).

Allowable encroachment features checked include:

**Landings** with an area of not more than 2 square metres and less than 1.0 metre high; **unroofed stairways and ramps; pergolas; shade sails; decks** less than 800mm above **natural ground level**.

**Note:** Features are checked to see if they have **roofs** modelled above them. Ramps are detected as slabs with vertical change.

#### Context & Modelled Data

Standard 7.1 | Envelope

#### BIM Element Identification

**Landing** = IfcSpace | IsLanding = Y

**Pergolas** = IfcSpace | IsPergola = Y

**Shade Sails** = IfcShadingDevice | AWNING

**Ramps** = IfcRamp (or IfcSlab)

**Decks** = IfcSpace | IsDeck = Y

**Stairways** = IfcStairs

## 3.1.8 Standard 8 – Walls on boundaries

### Standard 8.0

#### Rule

The maximum height of a wall on or within 0.2 metres of a side or rear boundary, or a carport on or within 1.0m of a side or rear boundary (not a lane), must not exceed 3.6 metres unless:

- a. it abuts an existing building on the adjoining allotments or will abut a simultaneously approved building on the boundary; and
- b. the height difference between the existing adjoining building or the simultaneously approved building or carport does not exceed 3.6 metres.
- c. notwithstanding standard 8.1(a) the length difference between the existing or simultaneously approved building must not exceed a total of 2.0 metres, and the additional length must not cast additional shadow on a light court in accordance with Standard 11.

#### Note: eComply Extended Interpretation

The eComply interpretation of 8.0 is extended to further clarify which walls are included in the check:

*The maximum height of a wall on or within 0.2 metres of a side and / or rear boundary and any wall behind this wall on boundary which is located perpendicular to and within 1.0m of a side or rear boundary or a carport on or within 1.0m of a side or rear, not boundary (not a lane), must not exceed 3.6 metres*

*This includes walls that join walls on boundaries that run perpendicular.*

*Further clarification points*

1. *Each 'section' of external wall (usually parallel to boundary) to be assessed against Standard 7 or 8.*
2. *Every part of the building behind the 'section' of external wall, must fall within the applicable building envelope set by the condition triggered by the boundary walls nominated condition.*

3. No ground level wall can be built within the 0.2m to 1m setback from the side boundary (Known as the exclusion zone), unless it's a perpendicular wall that sits behind the boundary wall

### Digital Assessment

Identify walls relevant for assessment by standard 8:

Generate an **envelope** projected 200mm from the **side** and **rear** boundaries to maximum height allowance from **ground level**. Detect **walls** (excluding **carport**) facing the boundary existing within the 200mm **envelope**. Detect **walls** (excluding **carport**) perpendicular (+/- 30) from boundaries and connected to those in the 200mm envelope.

Generate another **envelope** projected to 1m from the **side** and **rear** boundaries to maximum height allowance from **ground level**. Detect **carport walls** within the 1m envelope.

Any other wall should be assessed by standard 7 (for side / rear).

#### Detecting neighbouring conditions:

If there are **neighbouring lots** with existing buildings or part of a simultaneous assessment, then run the same **wall on boundary identification** noted above to **walls on neighbouring lots**.

Detect if **rear boundary** is a **laneway**.

#### Height allowances when there are no neighbouring walls:

For all identified **walls** detect measure their height from the ground level and flag any more than 3.6m high.

**Note** - As walls may be drafted individually for each storey, the height calculation must be the cumulative height of all walls features from ground within 200mm setback.

#### Height & length allowances when there are neighbouring walls:

##### **8.0.a/b**

Detect **walls** on the boundary for the neighbouring lot. Measure the height difference between the **walls** does not reach more than 3.6m

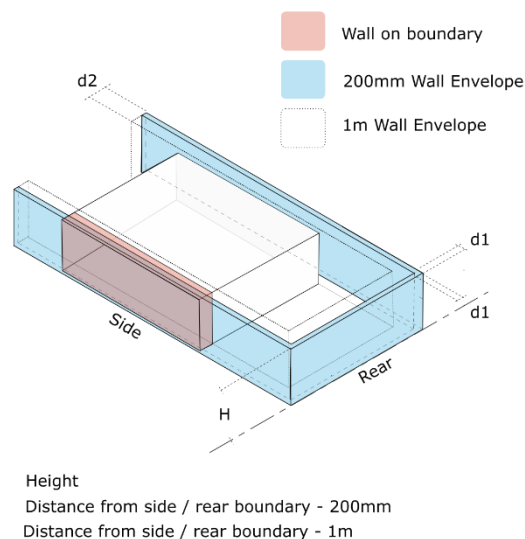
##### **8.0.c.i**

Measure the length difference of the **walls** on each boundary does not exceed the specified threshold of 2m along an entire **lot boundary**.

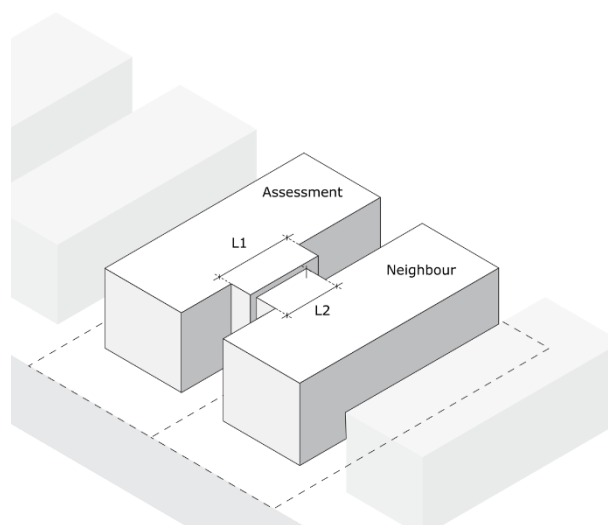
##### **8.0.c.ii**

Check the overshadowing of **walls** on or within **boundary** with respect to the **adjoining allotments light courts**.

See Standard 11 for methodology on overshadowing.



**Figure 8.0 – Wall on boundary identification**



**Figure 8.0c – Wall on boundary identification**

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
Side = Interface   Side	Carport = IfcSpace   IsCarport = Y
Rear = Interface   Rear	Wall = IfcWall
Lot = Lot   Submission	Ground Level = IfcSite
Neighbouring lot = Lot   Context	
Neighbouring building = Building   Context	
Envelope = Modelled Envelope	
Light Court = Modelled Light Court	

### Standard 8.1

#### Rule

There is no maximum wall on boundary length, provided the other Standards are satisfied

#### Digital Assessment

Methodology has not been developed for this standard

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
n/a	n/a

### 3.1.9 Standard 9 – Daylight to existing habitable room windows.

#### Standard 9.1

#### Rule

The application is exempt from the requirements of the Building Regulations 2018.

#### Digital Assessment

Methodology has not been developed for this standard due it being exempt within the SLHC code

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
n/a	n/a

### 3.1.10 Standard 10 – Solar access to existing north-facing habitable room windows

#### Standard 10.1

#### Rule

The application is exempt from the requirements of the Building Regulations 2018.

#### Digital Assessment

Methodology has not been developed for this standard due it being exempt within the SLHC code

<u>Context &amp; Modelled Data</u>	<u>BIM Element Identification</u>
n/a	n/a

### 3.1.11 Standard 11 – Overshadowing of secluded Private Open Space

#### Standard 11.1

##### Rule

A building must not reduce the sunlight to any secluded private open space of an existing building on an adjoining allotment to less than 6 square metres, with a minimum dimension of 2.0 metres.

For the purposes of calculating the area of direct sunlight at this standard, the length of shadow cast is calculated by multiplying the height of building and/or fence by 0.9 when the sun is true north.

##### Digital Assessment

Project the building **shadow** of the **building** and **fences** to the **ground** over the **lot** and **neighbouring lots**.

The **shadow** is calculated by multiplying the height of building and/or fence by 0.9 when the sun is true north on the 22<sup>nd</sup> of September.

Check whether the shadow area covers any neighbouring **lot** spaces nominated as **private open space (PoS)**. **PoS** on **balconies** are not included.

If the shadow impacts the **PoS** and check the unshaded combined **PoS** areas remain over 6m<sup>2</sup>.

Analyse the remaining unaffected **PoS** and determine whether a straight-line dimension of 2m can be found within any of the PoS sections.

**Note: Private Open Space** zones are nominated by the designer within the building. If no PoS can be found in neighbouring lots then the user should be warned.

Shadows may be cast up to 10m and should consider multiple adjoining lots.

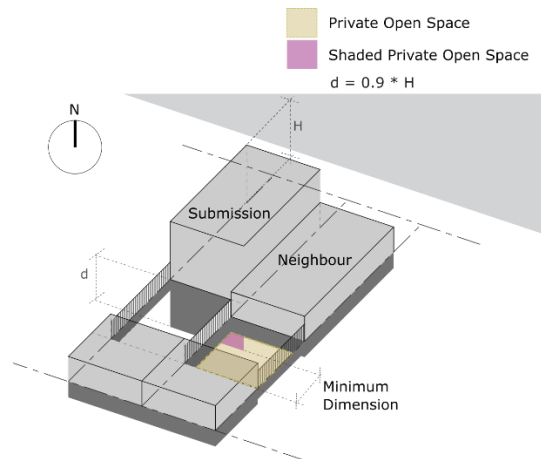


Figure 11.1 - Overshadowing of private open space

##### Context & Modelled Data

**Lot** = Lot | Submission

**Neighbouring Lot** = Lots | Context

**Shadow** = Modelled Shadow

##### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Entire Building** = IfcBuilding (and child elements)

**Private Open Space / PoS** = IfcSpace | IsPrivateOpenSpace = Y

**Balcony** = IfcSpace | IsBalcony = Y

**Ground** = IfcSite

### 3.1.12 Standard 12 – Overlooking

#### Standard 12.1

##### Rule

A window in a habitable room, where the floor level of the room is more than 2.5m above natural ground level and the window faces (at an angle less than 45°) secluded private open space or habitable room windows of an existing dwelling within a horizontal distance of 4.5 metres, the window must either –

- have a sill height at least 1.7 metres above floor level; or
- have fixed obscure glazing in any part of the window below 1.7 metres above floor level.

In this standard, a window facing a habitable room window means a window within 1.5 m from the edge of the other habitable room window.

## Digital Assessment

Detect **habitable windows** for **habitable rooms** with **floor height** of 2.5m from **ground level**.

Create a **view cone** envelope from detected windows with dimensions - 45 degree from window face to extent of 4.5m from window face.

Detect presence of **neighbouring buildings**

Check if the **view cone** envelope encompasses neighbouring **habitable windows** or secluded **private open spaces**.

### 12.1a

If **view cone** encompasses neighbouring **habitable window** or secluded **private open space**, then check sill height for subject window is 1.7m from associated room **floor level**.

### 12.1b

If **view cone** encompasses neighbouring **habitable window** or **secluded private open space** and does not meet 12.1a check window for **obscured glazing**

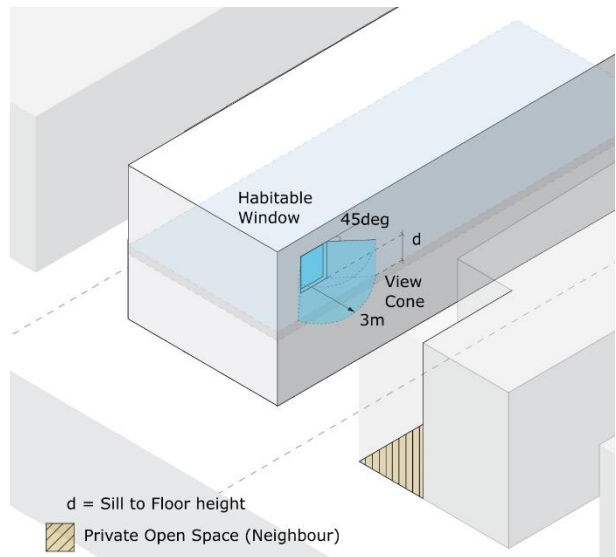


Figure 12.1 – Overlooking

### Context & Modelled Data

**Neighbouring Building** = Context | Building (or Simultaneous neighbouring submission)

**View Cone** = Modelled view envelope

### BIM Element Identification

**Habitable Window** = IfcWindow | IsHabitable = Y

**Habitable Room** = IfcSpace | IsHabitable = Y

**Private Open Space** = IfcSpace | IsPrivateOpenSpace = Y

**Floor** = IfcSpace | IsHabitable = Y

**Obscured Glazing** = IfcWindow | IsObscured = Y

**Ground Level** = IfcSite

## Standard 12.2

### Rule

A raised open space that faces secluded private open space or habitable room windows of an existing dwelling within a horizontal distance of 4.5 metres, must be screened to a height of at least 1.7m above the floor level and be no more than 25 per cent transparent.

### Digital Assessment

Detect raised **private open space** as **balconies, balconies, decks, patios, or landings** (area > 2m<sup>2</sup>) and floor level 800mm above **ground level**.

Crane **view envelope** projecting from the raised **PoS** width toward the **neighbouring lot** boundary to a dimension of 4.5m

Check if the view envelope connects to any neighbouring habitable room windows or PoS.

eComply checks that it both has a **view** of and is within 4.5m of the neighbouring **private open spaces**. If so, then check the raised **PoS** space is **screened** to 1.7m and **transparent** by 25%.

See Standard 15.2 for screening method.

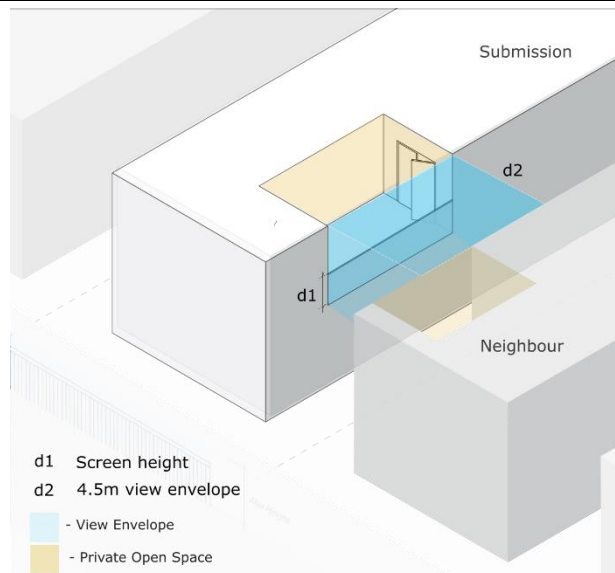


Figure 12.2 – Overlooking from Raised Spaces

#### Context & Modelled Data

Neighbouring Lot = Context | Lot

View envelope = Modelled view Envelope

#### BIM Element Identification

Private open space = IfcSpace | IsPrivateOpenSpace = Y

Balcony = IfcSpace | IsBalcony = Y

Terrace / Deck = IfcSpace | IsDeck = Y

Landing = IfcSpace | IsLanding = Y

Patio = IfcSpace | IsPorch = Y

Habitable Window = IfcWindow | IsHabitable = Y

Ground Level = IfcSite

Screen = IfcWall (or IfcRailing) | IsTransparent > 25

### 3.1.13 Standard 13 – Daylight to habitable room windows

#### Standard 13.1

##### Rule

Each required habitable room window of a building on an allotment must face –

- an outdoor space or light court with a minimum area of 3 square metres and a minimum dimension of 1.0 metre clear to the sky, not including land on an adjoining allotment; or
- a verandah provided it is open for at least one third of its perimeter; or
- a carport provided it has two or more open sides and is open for at least one third of its perimeter.

For the purposes of this standard, a side of a carport or verandah will be open if the roof covering of the carport or verandah is not less than 500mm from another building on the allotment or the adjoining allotment boundary.



**Digital Assessment**

A light court **envelope** is projected out from the window of **habitable windows** which expands until it either reaches the minimum dimension of 1m and the minimum area of 3m<sup>2</sup> or expands far enough that it reaches the boundary of the **lot**.

**13.1 a**

The **envelope** must project upward to 11m to detect clear sky obstructions. Detect any **roofs** penetrating the **envelope** and if so, detect their distance from any **building** elements on the existing or **neighbouring building**.

**13.1 b**

The **envelope** is checked for intersecting a **verandah**. If so, check whether the sides of the space have **walls**.

Open sides of the **verandah** are detected for their distance to building **walls** on the **lot** and **neighbouring lot**.

The quantity of walled sides is counted, and the walled perimeter measured.

**13.1 c**

The **envelope** is checked for intersecting a **carport**. If so, check whether the sides of the space have **walls**.

Open sides of the **carport** are detected for their distance to building **walls** on the **lot** and **neighbouring lot**.

The quantity of walled sides is counted, and the walled perimeter measured.

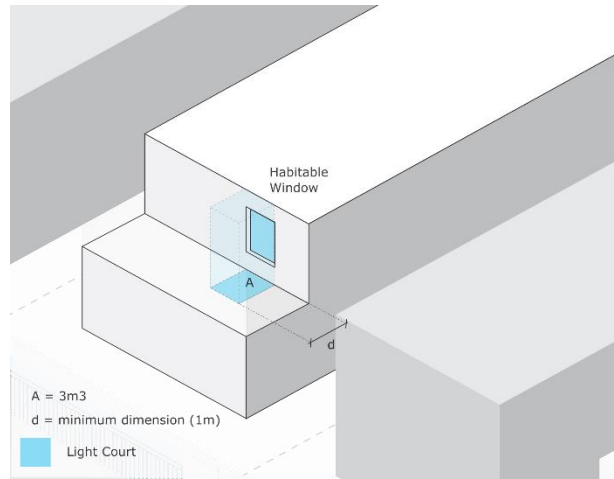


Figure 13.1-1 – Outdoor space/light court area

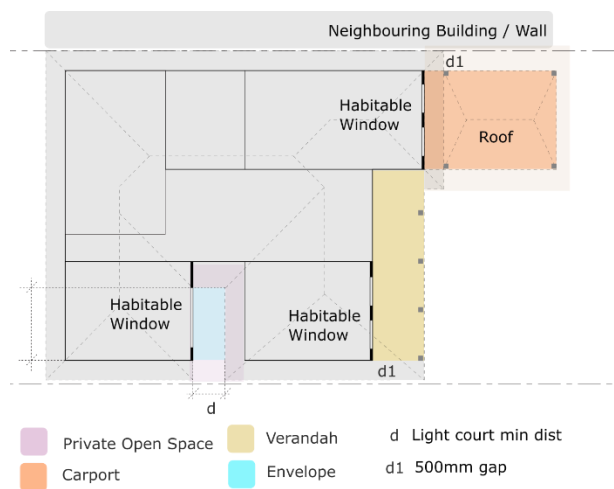


Figure 13.1-2 – Daylight within spaces

**Context & Modelled Data**

**Neighbouring Lot** = Lot | Context

**Neighbouring Building** = Context | IfcBuilding

**Envelope** = Modelled light court envelope

**BIM Element Identification**

**Habitable Windows** = IfcWindow | IsHabitable = Y

**Carport** = IfcSpace | IsCarport = Y

**Verandah** = IfcSpace | IsVerandah = Y

**Roof** = IfcRoof

**Wall** = IfcWall

### 3.1.14 Standard 14 – Private Open Space

#### Standard 14.1, 14.2

##### Rule

##### 14.1

If a dwelling on an allotment has three or more bedrooms it must have –

- a. at least 24 square metres of private open space at the side or rear of the building with a minimum dimension of 3.0 metres; or
- b. at least 24 square metres provided in 2 or more parcels, provided that –
  - i. each parcel is at least 12 square metres; and
  - ii. at least 1 parcel has a minimum dimension of 3.0 metres; or
- c. a balcony or roof-top area of at least 12 square metres of private open space with a minimum dimension of 3.0 metres.

##### 14.2

If a dwelling on an allotment has two or less bedrooms it must –

- a. have at least 12 square metres of private open space at the side or rear of the building with a minimum dimension of 3.0 metres; or
- b. a balcony or rooftop area that is at least:
  - i. 10 per cent of the total floor area of the building excluding garages and carports; or
  - ii. 6 square metres with a minimum dimension of 2 metres, whichever is the greater.

---

##### Digital Assessment

Detect the quantity of **bedrooms** within the house.

Detect all nominated **private open space** within the model and exclude those encompassed the maximum **front setback envelope** from standard 1.1 – this leaves only PoS to the side or rear or rooftop. Rooftop **PoS** are nominated by their elevation relative to the height the building's roof.

##### 14.1

For three-**bedroom** houses:

Determine the aggregate area of **PoS** and whether a straight-line dimension of 3m can be found within any of the **PoS** sections.

Verify whether the **PoS** spaces meet the aggregate area requirement and minimum dimension for a, b, and c clauses.

##### 14.2

For two (or less) **bedroom** houses:

Verify whether the **PoS** spaces meet the aggregate area requirement and minimum dimension for clause a

Measure the **building** area and compare to the rooftop or **balcony PoS** area

Ensure the OR logic of the tests is considered when evaluating compliance.

---

##### Context & Modelled Data

**Front setback Envelope** = Standard 1.1 | Modelled Envelope

##### BIM Element Identification

**Bedrooms** = IfcSpace | IsBedroom = Y

**Private Open Space** = IfcSpace | IsPrivateOpenSpace = Y

**Balcony** = IfcSpace | IsBalcony = Y

Excluding:

**Garage** = IfcSpace | IsGarage = Y

**Carport** = IfcSpace | IsCarport = Y

## Standard 14.3

### Rule

If the private open space is provided at the side or rear of the dwelling or as a roof top area, an area of at least 6 square metres, with a minimum dimension of 2.0 metres, must have access to direct sunlight.

For the purposes of calculating the area of direct sunlight at this standard, the length of shadow cast is calculated by multiplying the height of building and/or fence by 0.9 when the sun is true north

### Digital Assessment

Identify the side, rear, and rooftop **PoS** as per the methodology within standard 14.1

Use the **shadow** methodology from standard 11 and measure the unaffected **PoS** areas meet the area and minimum dimensions set in 14.3

#### Context & Modelled Data

**Shadow** = Modelled shadow

**Neighbouring Building** = Context | IfcBuilding

#### BIM Element Identification

**Private Open Space / PoS** = IfcSpace (IsPrivateOpenSpace = Y)

**Building** = IfcBuilding (and child elements)

## 3.2 Class 10b Buildings

### 3.2.1 Standard 15 – Front fence height

#### Standard 15.1

### Rule

A front fence on or within 3m of the street alignment must not exceed the maximum height specified in specified in Table 7.

Street type	Maximum fence height
A declared road	2.0 metres
Any other street	1.2 metres

Table 7. Standard 15.1 – Front fence height

### Digital Assessment

Detect whether **front** boundary is a **declared road, street, or laneway**.

Generate an **envelope** from the **front** boundary length, toward the rear for 3m deep, from **ground level** to the height value specified in the 15.1 table.

Determine whether the **fence** breaches the top of the **envelope**.

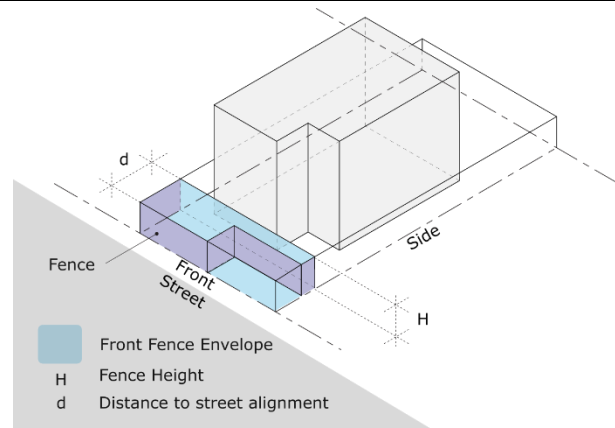


Figure 15.1 – Front Fence

#### Context & Modelled Data

**Declared road** = Interface | Declared Road

**Street** = Interface | Street

#### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Ground level** = IfcSite

**Laneway** = Interface | Laneway

**Front** = Interface | Front

**Envelope** = Modelled fence zone envelope

## Standard 15.2

### Rule

A front fence, other than a front fence to a declared road, must be at least 15 per cent transparent above 700mm height

### Digital Assessment

Using information gathered in 15.1 determine if the fence is associated to a street other than **declared road**.

Isolate elements of the **fence** above 700mm from ground level to the extent of the height allowance of the fence.

If the **fence** is modelled as a wall test the nominated **transparency** parameter. If the **fence** is modelled as railings the transparency can be calculated by projecting rays horizontally to a modelled **plane** behind the **fence** and comparing **shadowed** areas with unshadowed.

If fence is modelled as a wall and no transparency defined consider it to be opaque / solid.

(Note this methodology is repeated for many tests – consider the dimensions required when applying the methodology)

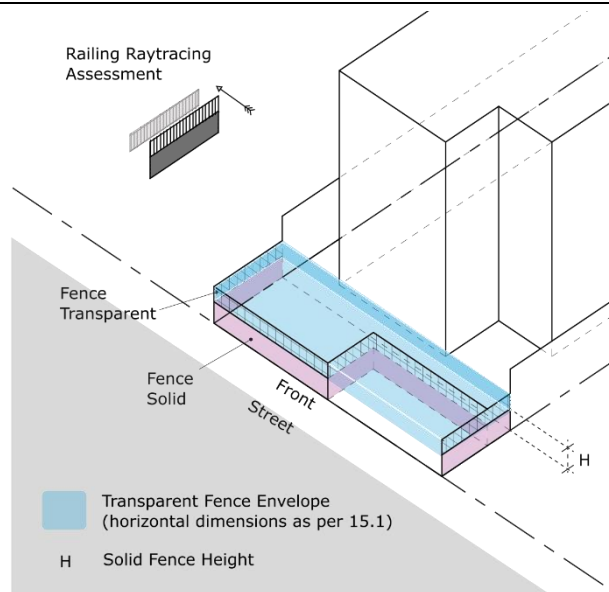


Figure 15.2 – Fence envelopes and transparency

### Context & Modelled Data

**Plane** = Modelled Geometry

**Shadow** = Modelled Shadow

**Envelope** = Modelled fence zone envelope

### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Ground level** = IfcSite

**Transparency** = IfcWall | Transparency > 15

## 3.2.2 Standard 16 – Fences setback more than 150mm from side and rear boundaries

### Standard 16.1

### Rule

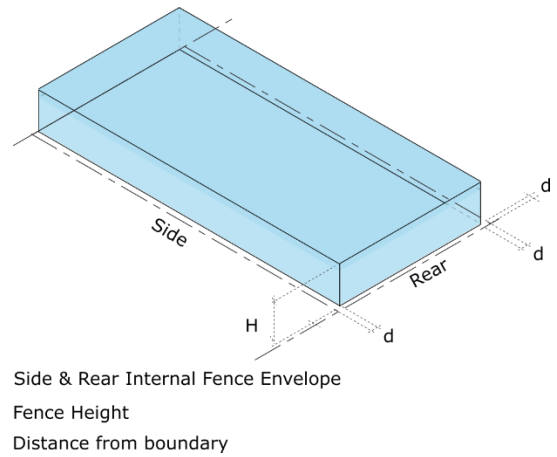
A fence that is setback more than 150mm from a side or rear boundary must not exceed 2.5 metres in height and the part of the fence between 2.0 metres and 2.5 metres in height must be at least 25 per cent transparent

**Digital Assessment**

Follow the 15.1 method to find **fences** using an **envelope**. Generate the **envelope** 150mm offset from the **rear** and **side** boundaries within the lot at a height of 2.5m to detect fences. Exclude the fences in 15.1.

Detect any **fence** penetration from the top of the allowable **envelope**.

Follow the methodologies set in 15.2 to test **transparency** of the fence above 2m from **ground level** allowing for 25% **transparency**.



**Figure 16.1 – Fences inside side and rear boundaries**

**Context & Modelled Data**

**Front** = Interface | Side

**Front** = Interface | Rear

**Plane** = Modelled Geometry

**Shadow** = Modelled Shadow

**Envelope** = Modelled fence zone envelope

**BIM Element Identification**

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Ground level** = IfcSite

**Transparency** = IfcWall | Transparency > 25

**3.2.3 Standard 17 – Fences on or within 150 mm of side and rear boundaries**

**Standard 17.1**

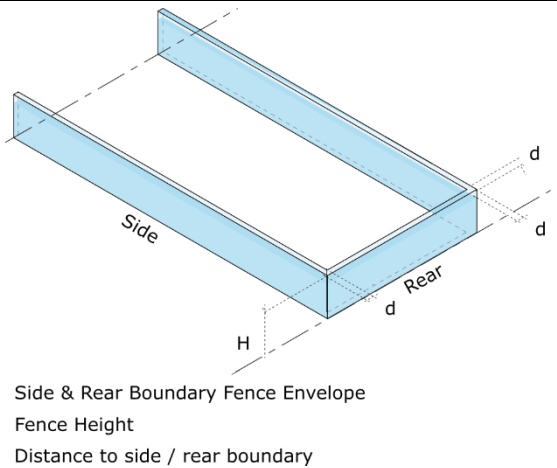
**Rule**

A fence that is on or within 150mm of a side or rear boundary must not exceed 2.5 metres in height and the part of the fence between 2.0 metres and 2.5 metres in height must be at least 25 per cent transparent

**Digital Assessment**

Follow the 15.1 method to find **fences** using an **envelope**. Generate an envelope from the rear and side boundaries 150mm at a height of 2.5m. Detect any **fence** penetration from the top of the allowable **envelope**.

Follow the methodologies set in 15.2 to test **transparency** of the fence above 2m from **ground level** allowing for 25% **transparency**.



**Figure 17.1 – Fences on side rear boundaries**

**Context & Modelled Data**

**Front** = Interface | Side

**Front** = Interface | Rear

**Plane** = Modelled geometry

**Shadow** = Modelled shadow

**Envelope** = Modelled fence zone envelope

**BIM Element Identification**

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Ground level** = IfcSite

**Transparency** = IfcWall | Transparency > 25

### 3.2.4 Standard 18 – Fences forward of front walls

**Standard 18.1**

**Rule**

Any part of a fence that is constructed forward of the front wall of a dwelling must comply with the height and transparency requirements of standards 15.1 and 15.2.

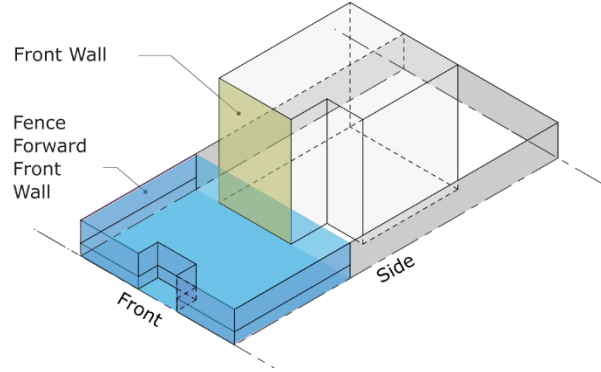
**Digital Assessment**

Detect whether **front** boundary aligns to a **declared road, street, or laneway**.

Model an **envelope** from the **front boundary** extent to the **front façade** (identified in standard 2.2) with a height defined in the table in 15.1.

Use the **envelope** to select **fences** within the frontage of the lot and detect whether they penetrate the top of the **envelope**.

Follow the methodologies set in 15.2 to test **transparency** of the fence above 2m from **ground level** allowing for 25% **transparency**.



■ Fence Forward of Wall Envelope

**Figure 18 – Fences forward of front walls**

**Context & Modelled Data**

- Declared road** = Interface | Declared Road
- Street** = Interface | Street
- Laneway** = Interface | Laneway
- Front** = Interface | Front
- Envelope** = Modelled fence zone envelope

**BIM Element Identification**

- Fence** = IfcWall (or IfcRailing) | IsFence = Y
- Ground level** = IfcSite
- Transparency** = IfcWall | Transparency > 15
- External Walls** = IfcWall

### 3.2.5 Standard 19 – Fences on street alignments

**Standard 19.1**

**Rule**

In this standard street does not include lane, footway, alley or right of way

Despite standards 15.1 and 15.2, a fence within 3.0 metres of a point of intersection of street alignments must not exceed a height of 1.0 metre above footpath level.

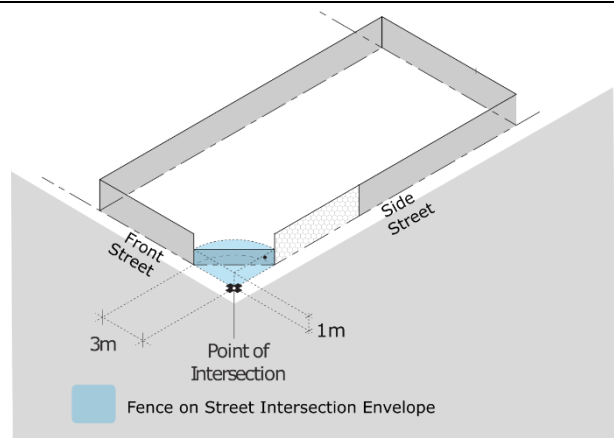
**Digital Assessment**

Check whether the **front** and **side** boundary align to a **street**. If so, then continue.

If a **chamfer** boundary exists on the corner of the **front** and **side**, then project the **front** and **side** boundaries until they intersect.

Model an **envelope** from the created or existing corner intersection with a radius of 3m and height of 1m from **footpath level**.

Check that **fences** within the **envelope** do not penetrate the top of the **envelope**.



**Figure 19.1 – Fences on Street Intersection**

## Standard 19.1

### Context & Modelled Data

**Street** = Interface | Street (or Declared Road)

**Front** = Interface | Front

**Side** = Interface | Side

**Envelope** = Modelled Envelope

### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Footpath level** = IfcSite

## Standard 19.2

### Rule

A fence within 1.0 metre of a side street alignment –

- must not exceed 2.0 metres in height; and
- may be solid for no more than 65 per cent of its length, the remaining length of the fence must be at least 15 per cent transparent

### Digital Assessment

Check whether the **side** boundary align to a **street**. If so, then continue.

#### 19.2 a

Follow the 15.1 method to find **fences** using an **envelope**. Generate an envelope from the side boundaries 1m at a height of 2m. Detect any **fence** penetration from the top of the allowable **envelope**.

#### 19.2 b

For **fences** on each **street** alignment:

Detect fences with **transparency** either as railings or set via parameter and calculate the aggregate area. Compare with the area of non-transparent fence.

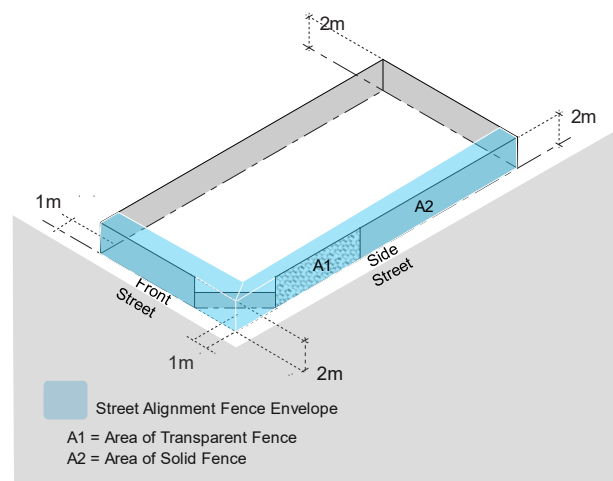


Figure 19.2 – Fences on Street Alignment

### Context & Modelled Data

**Street** = Interface | Street (or Declared Road)

**Side** = Interface | Side

**Envelope** = Modelled Envelope

### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

**Ground level** = IfcSite

**Transparency** = IfcWall | Transparency > 15%

## Standard 19.3

### Rule

A fence on a rear street alignment must not exceed 2.0 metres in height above natural ground level.

### Digital Assessment

Apply the 19.2 methodology for **rear street** boundaries

### Context & Modelled Data

**Rear** = Interface | Rear

### BIM Element Identification

**Fence** = IfcWall (or IfcRailing) | IsFence = Y

Street = Interface | Street (or Declared Road)

Ground level = IfcSite

Laneway = Interface | Laneway

Transparency = IfcWall | Transparency > 15%

Envelope = Modelled fence zone envelope

#### Standard 19.4

##### Rule

A fence adjacent to and within 1.0 metre of a street alignment or public open space must not contain barbed wire or other sharp protrusions

##### Digital Assessment

Methodology has not been developed for this standard since “sharpness” is not defined in a manner that can be measured. It may be possible for solutions to allow a manual checkbox to verify that no-sharp materials are in use.

##### Context & Modelled Data

n/a

##### BIM Element Identification

n/a

### 3.2.6 Standard 20 – Fences and daylight to windows in existing buildings

#### Standard 20.1

##### Rule

The application is exempt from the requirements of the Building Regulations 2018.

##### Digital Assessment

Methodology has not been developed for this standard due it being exempt within the SLHC code

##### Context & Modelled Data

n/a

##### BIM Element Identification

n/a

### 3.2.7 Standard 21 – Fences and solar access to existing north-facing habitable room windows

#### Standard 21.1

##### Rule

The application is exempt from the requirements of the Building Regulations 2018.

##### Digital Assessment

Methodology has not been developed for this standard due it being exempt within the SLHC code

##### Context & Modelled Data

n/a

##### BIM Element Identification

n/a

### 3.2.8 Standard 22 – Fences and overshadowing of secluded private open space

#### Standard 22.1

##### Rule

The application is exempt from the requirements of the Building Regulations 2018.

##### Digital Assessment

Methodology has not been developed for this standard due it being exempt within the SLHC code

##### Context & Modelled Data

n/a

##### BIM Element Identification

n/a



## 4. APPENDIX

### 4.1 Glossary

The definitions below consist of eComply and Small Lot Housing Code related terms.

Term	Description
Lot / allotment	means land that can be disposed of separately under section 8A of the Sale of Land Act 1962 without being subdivided; lot information is supplied within the eComply Site Context information – see eComply Site Context guideline
bedroom	includes any habitable room with a floor area greater than 6 square metres, that is enclosed on all sides and contains a window bedrooms are modelled and tagged within the BIM model
BIM	Building Information Modelling – a toolset to capture information about buildings with a 3D model representing the built form geometrically and as data relating to building features
carport	is an open style car parking structure which – a. has 2 or more of its side open, and b. is open for at least 1/3 of its perimeter; a side of a carport may be taken as open if the roof covering is not less than 500mm from another building on the allotment or the adjoining allotment boundary; carports are modelled and tagged within the BIM model
Class 1a	is a single dwelling being – a. a detached house; or b. one in a group of two or more attached dwellings, each being a building, separated by a fire resisting wall, including a row house, terrace house, town house, villa unit, or the like;
Class 10a	is a non-habitable building including private garages, carports, sheds, or the like;
Class 10b	is a structure being a fence, mast, antenna, retaining or free-standing wall, swimming pool, or the like
clear to the sky	means an unroofed area or an area roofed with a material that transmits at least 90 per cent of light
declared road	means a freeway or an arterial road, both within the meaning of the Road Management Act 2004 road boundaries are supplied within the eComply Site Context information – see eComply Site Context guideline
envelope	means modelled 3d geometry generated to either completely contain or exclude specific architectural features
existing building & existing wall	in relation to an adjoining allotment means any part of a building or wall – a. for which there is an 'occupancy permit', that has been given to the relevant council; or b. for which there is a 'certificate of final inspection', that has been given to the relevant council existing buildings / walls are supplied as part the Site Context information – see eComply Site Context guideline
fence	includes a screen or structure similar to a fence fences are modelled and tagged within the BIM model
front street alignment	means the street which the front of the dwelling faces defined within the eComply Site Context information
front wall	means the wall most forward of the building towards the front street alignment
habitable room	means a room used for normal domestic activities, and – a. includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but

Term	Description
	b. excludes a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods;
height	<p>in relation to –</p> <p>a. a building (other than a wall or fence) at any point, means the vertical distance between natural ground level and the top of the roof covering; and</p> <p>b. a wall at any point, means the vertical distance between the natural ground level at the base of the wall and the point at which the outer wall intersects the plane of the top of the roof covering, or the top of a parapet, whichever is higher; and</p> <p>c. a fence means the vertical distance between natural ground level at the base of the fence and the top of the fence at any point along the fence. Chimneys, flues, service pipes and solar panels are not included when measuring heights;</p>
interface	a boundary connecting two land allotment entities and describes the land use of the neighbouring land - defined within the eComply Site Context information
IFC	A non-proprietary BIM format and classification scheme – ‘Industry Foundation Classes’
natural ground level	means the level of the ground at the time the lot is created. eComply uses the surface defined by an elevation survey or the ground level within the BIM model. See eComply Site Context guideline.
pergola	means an open structure that is unroofed but may have a covering of open weave permeable material
plane	modelled geometry with a flat surface
private open space	<p>means –</p> <p>a. an unroofed area of land; or</p> <p>b. a deck, terrace, patio, balcony, pergola, verandah, gazebo, swimming pool or spa;</p> <p>In eComply private open space is nominated by a designer.</p>
raised open space	<p>means a landing with an area of more than 2 square metres, a balcony, a terrace, a deck or a patio that has a floor level more than 800mm above natural ground level.</p> <p>In eComply private open space is nominated by a designer.</p>
rear-loaded	means a dwelling which has vehicle access via a rear laneway and no vehicle access at a street frontage
required habitable room window	is a window required in accordance with National Building Code of Australia Volume Two that provides the minimum amount of light or ventilation to a habitable room
secluded private open space	<p>means any part of private open space on an allotment –</p> <p>a. which is – i. at the side or rear of an existing dwelling on the allotment; or ii. is a balcony area; or iii. is a rooftop area; and</p> <p>b. which is primarily intended for outdoor recreation activities.</p> <p>In eComply private open space is nominated by a designer.</p>
setback	<p>from a boundary or building means a horizontal distance measured from that boundary or building</p> <p>eComply tools calculate setbacks as modelled envelopes comprised of the area from front boundary based on specified dimensions</p>
side street alignment	<p>means, for an allotment with more than one street frontage, any other street (not lane) that is not the front street</p> <p>defined within the eComply Site Context information</p>
side	a boundary of a piece of land – defines the relative orientation of the development as front, side, rear - defined within the eComply Site Context information
shadow	an area where sunlight is blocked by an obstruction – the shadow area is calculated
simultaneously approved	means buildings that have obtained their building permits on the same day, or an application for building permits have been applied for at the same time

Term	Description
site coverage	in relation to an allotment means that part of the allotment which is covered by buildings, expressed as a percentage of the area of the allotment
small lot housing code	A planning code maintained by the Victorian Planning Authority in use in Precinct Structure Plan areas and Comprehensive Development Zones on lots less than 300m <sup>2</sup>
storey	means that part of a building between floor levels. If there is no floor above, it is the part between the floor level and ceiling. It may include an attic, basement, built over car parking area, and mezzanine
street	includes a road, highway, carriageway, lane, footway, square, court, alley and right of way (unless specified otherwise) see eComply Site Context Guideline
street alignment	means the line between a street and an allotment – see eComply Site Context Guideline
submission	the building design being assessed for compliance
view cone	A conical-like geometry modelled from a window plane defined by a radius from a window and an angle from the window / wall plane.
wall on boundary	means – a. buildings on or within 200mm of a side a side or rear boundary of an allotment; and b. carports constructed on or within 1.0 metre of a side or rear boundary of an allotment and which is open on the side facing the boundary or boundaries.

## 4.2 External References

Document	Link
Small Lot Housing Code 2019	<a href="#">Small-Lot-Housing-Code-November-2019.pdf</a>
Small Lot Housing Code 2019 Practice Note	<a href="#">Small-Lot-Housing-Code-Practice-Note-November-2019.pdf</a>
eComply Demonstration Site	<a href="https://archiland.archistar.ai/archiland/">https://archiland.archistar.ai/archiland/</a>

## 5. Document Control

### Contact for Enquiries

Please address any questions regarding this document to:

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### Document History

Version	Date	Author	Summary of changes
1.1	20 12 2023	Luke Bassett	Document Release