

# Vehicle exterior

- 2-1 External projections
- 2-2 Dimensions
- 2-3 Glazing
- 2-4 Heavy trailer equipment



## Summary of legislation

### Applicable legislation

- Land Transport Rule: External Projections 2001

### Permitted equipment

1. A motor vehicle may be fitted with a protruding ornamental or functional object or fitting.

### Condition and performance

2. A protruding ornamental object or fitting must not be likely to injure a person.
3. A protruding object or fitting that has a functional purpose must be installed so that the risk of the object or fitting causing injury to a person is minimised.
4. Components of a motor vehicle, including damaged or corroded body panels, must be such that the risk of their hooking a vehicle, or hooking or grazing a person, is minimised.
5. A protruding object or fitting must not adversely affect driver vision or driver control.

## Reasons for rejection

### Condition and performance (Note 1)

1. The risk of a component (**Note 4**) hooking a vehicle, or hooking or grazing a person, has not been minimised.
2. An ornamental object or fitting (**Note 2**) protrudes in such a way that it:
  - a) is likely to injure a person, or
  - b) affects the drivers vision or control.
3. A protruding object or fitting (**Note 3**) that has a functional purpose:
  - a) is of excessively heavy construction for the purpose it has been fitted, or
  - b) has sharp corners, or
  - c) exceeds the vehicle's width by more than 100 mm on either side.
4. A protruding object or fitting is not securely fitted.

**Note 1** The external projections requirements relate to the design and maintenance of objects and fittings that protrude from the exterior of the motor vehicle with regard to the safety of other motor vehicles, pedestrians and cyclists. The attachment of such objects and fittings to the vehicle is addressed in the Structure section of this manual.

**Note 2** Ornamental object or fitting means any object or fitting that does not have a practical purpose.

**Note 3** Functional object or fitting means an object or fitting that has a practical purpose, eg load restraints.

**Note 4** Components include damaged, corroded and exposed body panels.

**Note:** The vehicle inspector need only inspect dimensions in detail if there is doubt about the vehicle's compliance.

## Summary of legislation

### Applicable legislation

- Land Transport Rule: Vehicle Dimensions and Mass 2002.

### Mandatory equipment

1. A trailer with a GVM of 3500 kg or less must meet the dimensions in **Table 2-2-1**, unless it is a permitted over-dimension trailer (**Note 2**).

## Reasons for rejection

### Mandatory equipment

1. A trailer (**Note 1**) with a GVM of 3500 kg or less does not meet the dimensions set out in **Table 2-2-1**, unless it is a permitted over-dimension trailer (**Note 2**).

**Table 2-2-1. Dimension requirements**

Dimension	Maximum distance	Comments
Width	2.5 m	Measurement does not include: <ul style="list-style-type: none"> <li>• direction indicators</li> <li>• ropes, lashings, straps, chains, and related connectors and tensioning devices that extend no more than 25 mm from either side, and that are not permanently or rigidly fixed to the vehicle</li> <li>• the bulge towards the bottom of a tyre.</li> </ul>
Overall length	11.5 m (simple and full trailers) 18 m (towing vehicle and one semi-trailer combination)	<ul style="list-style-type: none"> <li>• For a full trailer, measurement is to the centre of the towing eye.</li> </ul>
Height	4.25 m	Measurement does not include: <ul style="list-style-type: none"> <li>• load restraining devices (ropes, lashings, straps, chains, covers and related connectors and tensioning devices) that extend no more than 25 mm above the trailer, and that are not permanently or rigidly fixed to the vehicle.</li> </ul>
Forward distance	8.5 m	Forward distance is measured from: <ul style="list-style-type: none"> <li>• simple trailer: from the rear axis (<b>Note 3</b>) to the centre of the point of attachment to towing vehicle</li> <li>• full trailer: from the rear axis to front of trailer body/chassis (excludes drawbar)</li> <li>• semi-trailer: from the rear axis to centre of king pin.</li> </ul>
Rear overhang	4 m	<ul style="list-style-type: none"> <li>• Rear overhang is measured from the rear axis to the rear of the vehicle.</li> </ul>
Front overhang	2.04 m radius arc ahead of: <ul style="list-style-type: none"> <li>– tow coupling centre (simple trailer)</li> <li>– turntable centre (full trailer)</li> <li>– kingpin centre (semi-trailer)</li> </ul>	Front overhang ( <b>Figure 2-2-2</b> ) is measured from: <ul style="list-style-type: none"> <li>• simple trailer: tow coupling centre</li> <li>• full trailer: turntable centre to front of trailer body (excludes drawbar)</li> <li>• semi-trailer: kingpin centre to front of trailer</li> </ul>

**Note:** all measurements must be taken with the vehicle combination in a straight line. See Note 1 for definitions of simple, full, and semi-trailer.

**Note 1** Definitions of trailer types:

- a) **simple trailer** means a trailer (other than a semi-trailer) that has only one axle set
- b) **full trailer** means a trailer with two axles sets, the foremost of which is steered by a drawbar, and includes a semi trailer with non-steering axles (**Note 4**) coupled to a converter dolly
- c) **semi-trailer** means a trailer with only one axle set where the point of attachment to the towing vehicle or leading trailer:
  - i. is no further rearward than the rearmost axle of the towing vehicle or rearmost axle of the leading trailer, or
  - ii. if the towing vehicle is a rigid vehicle (**Note 5**) and has more than one axle in its rear axle set, is no more than 300 mm rearward of the rear axis of the towing vehicle.

**Note 2** A permitted over-dimension trailer is one that is either:

- a) fitted with an over-dimension piece of equipment, or
  - b) designed to carry an over-dimension load that cannot be divided, eg, glider trailers and large boat trailers.
- Operational requirements for such trailers are given in LTSA factsheet 53.

**Note 3 Rear axis of a vehicle** means:

- a) trailers with one non-steering axle: centre of that axle
- b) trailers with a non-steering axle set consisting of two axles: midway between these two axles if each axle has an equal number of tyres on it, or two thirds of the distance from the lesser-tyred axle towards the greater-tyred axle, if one axle has twice as many tyres on it as the other axle.

**Note 4 Non-steering axle** means any axle of a vehicle, the wheels of which remain substantially parallel with the longitudinal centre-line of the vehicle while the vehicle is turning.

**Note 5 Rigid vehicle** means a vehicle with motive power, driver's position and steering system, that does not have any pivot points to allow any part of the vehicle chassis to move or rotate in relation to any other part of the vehicle chassis, but includes a pivot steer vehicle.

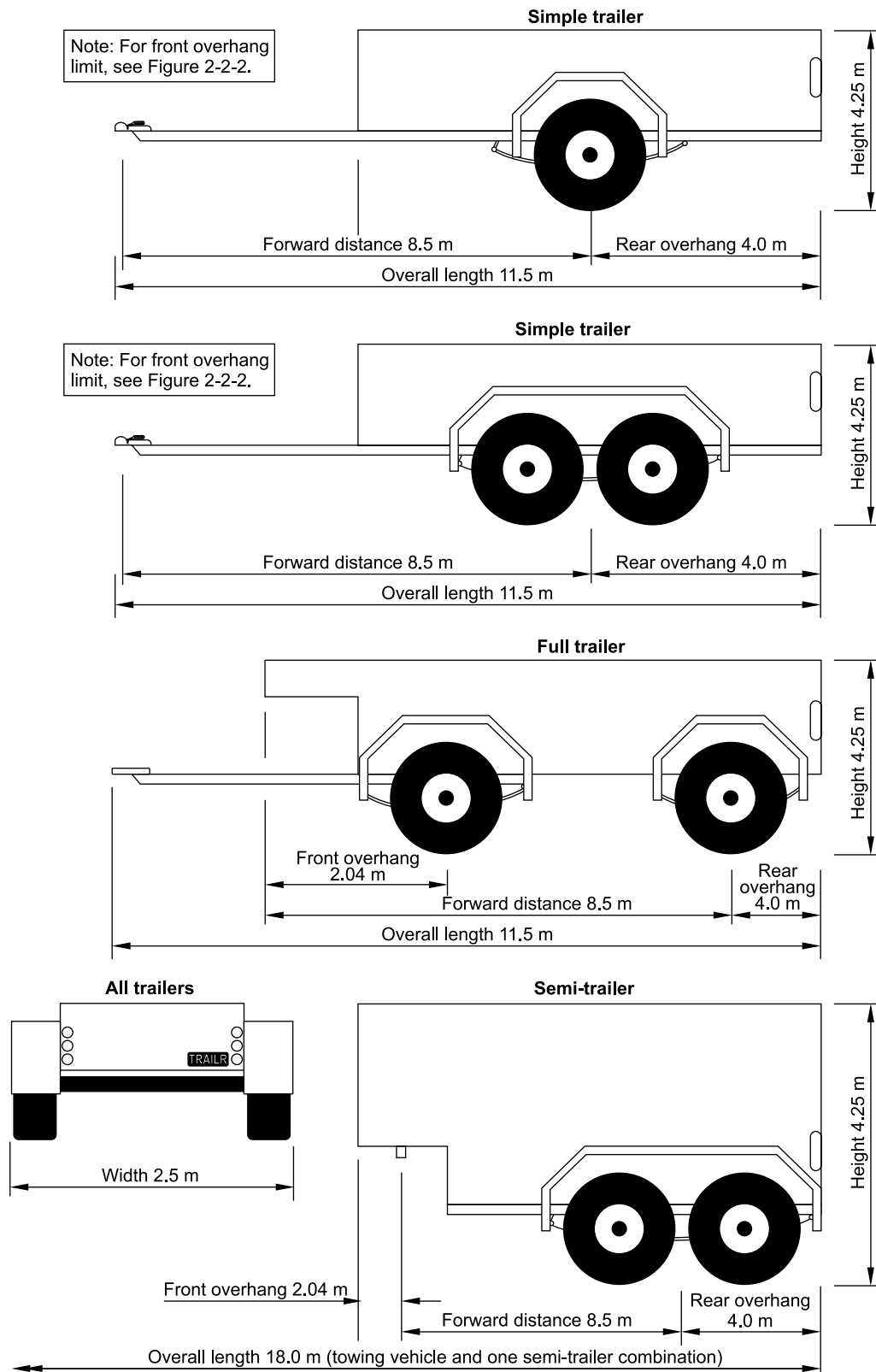
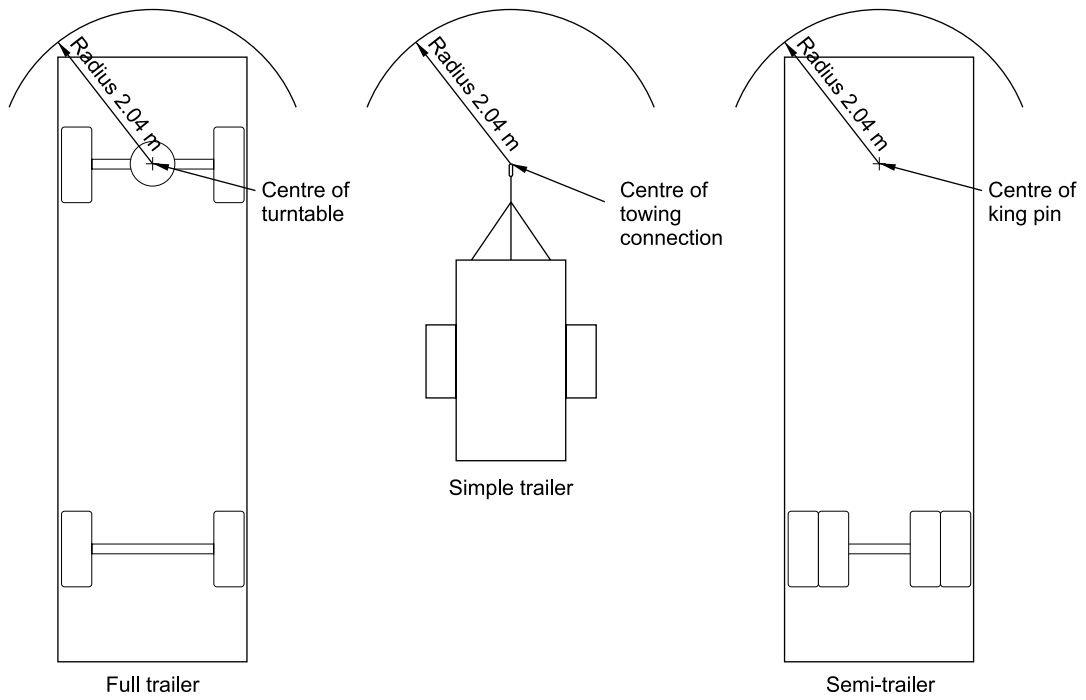


Figure 2-2-1. Trailer dimensions



**Figure 2-2-2. Measurement of front overhang**

**Note:** The vehicle inspector need only inspect dimensions in detail if there is doubt about the vehicle's compliance.

## Summary of legislation

### Applicable legislation

- Land Transport Rule: Vehicle Dimensions and Mass 2002

### Mandatory equipment

1. A trailer with a GVM of 3501 kg or more that exceeds the dimensions in **Table 2-2-2** must meet the requirements in **Table 2-2-3**.
2. A trailer with a GVM of 3501 kg or more may exceed the dimensions in **Table 2-2-2** only if it is:
  - a) a specialist overdimension trailer (**Note 1**), or
  - b) a trailer designed primarily to transport overdimension loads, or
  - c) a vehicle operating on a valid permit, exemption or approval.

### Modifications

3. A dimension requirement that is affected by a modification or repair:
  - a) must meet the requirements for equipment, condition and performance, and
  - b) does not require HVS certification.

## Reasons for rejection

### Mandatory equipment

1. A trailer with a GVM of 3501 kg or more exceeds the dimension requirements set out in **Table 2-2-2** and is not fitted with the appropriate hazard warning equipment set out in **Table 2-2-3**.
2. A trailer exceeds the dimensions set out in **Table 2-2-2** and is not:
  - a) a specialist overdimension trailer (**Note 1**), or
  - b) a trailer designed primarily to transport an overdimension load, or
  - c) a trailer operating on a valid permit, exemption or approval.

**Table 2-2-2. Dimension requirements for heavy trailers (see Figure 2-2-6)**

Dimension	Maximum distance	Comments
Width	2.5 m, or 1.25 m from each side of the longitudinal centreline of the vehicle	Measurement does not include: <ul style="list-style-type: none"> <li>• Direction indicator and side marker lamps</li> <li>• Ropes, lashings, straps, chains, and related connectors and tensioning devices that extend no more than 25 mm from either side, and that are not permanently or rigidly fixed to the vehicle</li> <li>• J-hook assemblies that extend not more than 25 mm from either side of the vehicle</li> <li>• The bulge towards the bottom of a tyre</li> <li>• Central tyre inflation system hoses that extend not more than 75 mm beyond the outside of the tyre on the drive axles</li> <li>• Hubodometer provided it is fitted to a non-lifting, non-steering axle that causes the least overwidth</li> </ul>
Overall length	11.5 m (full trailer, simple trailer, pole trailer) 18 m (towing vehicle and semi-trailer) 20 m (any other vehicle combination)	Measurement does not include collapsible mirrors.
Height	4.25 m	Measurement does not include: <ul style="list-style-type: none"> <li>• Load-restraining devices, such as ropes, lashings, straps, chains, covers and related connectors and tensioning devices, that extend not more than 25 mm above the body of the vehicle, and that are not permanently or rigidly fixed to the vehicle</li> </ul>

Dimension	Maximum distance	Comments
Forward distance	8.5 m	<p>Forward distance is measured from:</p> <ul style="list-style-type: none"> <li>• Full trailer: from the rear axis to the front of the trailer body/chassis (excludes drawbar and front axle set with its associated carriage)</li> <li>• Simple trailer: from the rear axis to the centre point of attachment to the towing vehicle</li> <li>• Semi-trailer: from the rear axis to the centre of the kingpin</li> <li>• Pole trailer with one axle set: from the rear axis to the point of attachment to the towing vehicle with the drawbar fully extended</li> <li>• Pole trailer with two axle sets: from the front axis to the centre of the point of attachment to the towing vehicle with the drawbar fully extended</li> </ul> <p>A vehicle with a retractable axle must meet the dimension requirements whether the axle is in contact with the road or in the retracted position.</p>
Rear overhang	<p>The lesser of 4 m or 50% of forward distance (semi-trailer (other than a class TC caravan trailer), simple trailer, pole trailer with one axle set)</p> <p>The lesser of 4 m or 50% of wheelbase (full trailer, pole trailer with two axle sets)</p> <p>The lesser of 4 m or 65% of forward distance (class TC caravan trailer that is a semi-trailer)</p>	<p>Rear overhang is measured from:</p> <ul style="list-style-type: none"> <li>• Pole trailer: from the rear axis or centre of bolster to the rear of the vehicle, whichever is the greater</li> <li>• Other trailers: from the rear axis to the rear of the vehicle.</li> </ul> <p>A vehicle with a retractable axle must meet the dimension requirements whether the axle is in contact with the road or in the retracted position.</p>
Ground clearance	The greater of 100 mm or 6% of the distance from the nearest axle to the point where the ground clearance is measured	<p>Measurement does not include:</p> <ul style="list-style-type: none"> <li>• Flexible mudflaps, wheels, tyres or devices designed to discharge static electricity</li> </ul>
Front overhang	<p>2.04 m radius arc ahead of:</p> <ul style="list-style-type: none"> <li>– kingpin centre (semi-trailer)</li> <li>– tow coupling centre (simple trailer)</li> <li>– turntable centre (full trailer)</li> <li>– turntable centre on towing vehicle (pole trailer)</li> </ul>	<p>Front overhang is measured to the foremost point of the trailer (except for full trailer), from the following positions:</p> <ul style="list-style-type: none"> <li>• Semi-trailer: centre of kingpin</li> <li>• Full trailer: centre of turntable to front of trailer body (excludes drawbar)</li> <li>• Simple trailer: centre of tow coupling</li> <li>• Pole trailer: centre of turntable on towing vehicle</li> </ul>
Rear trailing unit distance	14.5 m (A-train, B-train, towing vehicle and two trailers)	Rear trailing unit distance is measured from the centre of the fifth wheel or tow coupling on the towing vehicle to the rear of the combination.
Articulated vehicle point of attachment	No further rearward than the rearmost axle of the leading trailer	Applies to B-train leading trailer only.
Coupling point distance	30% of forward distance of semi-trailer	<ul style="list-style-type: none"> <li>• Applies to A-train only.</li> <li>• Measure from the rear axis of the semi-trailer to the tow coupling centre of the full trailer.</li> </ul>
Inter-vehicle spacing	4 m (between any two consecutive vehicles in a combination)	<ul style="list-style-type: none"> <li>• Inter-vehicle spacing is the distance between a towing vehicle (excluding the tow coupling shroud) and trailer (excluding the drawbar or tow rope or front dolly).</li> <li>• The inter-vehicle spacing between a towing vehicle and a full trailer must not be less than the greater of 1 m or half the width of the foremost point of the trailer (excluding the drawbar and front dolly assembly)</li> </ul>
Turning circle	25 m outside diameter	<ul style="list-style-type: none"> <li>• The vehicle combination must be able to complete a 360 degree turn in either direction.</li> <li>• No part of the trailer must encroach outside the outside diameter.</li> </ul>

**Table 2-2-3. Hazard warning equipment requirements for vehicles that exceed the dimensions in Table 2-2-2 (see Figure 2-2-5 for vehicle category limits)**

Vehicle category (See Figure 2-2-5)	Dimension	Limits (up to and including)	Required hazard warning equipment
Category 1	Width/forward distance  Length Front overhang Rear overhang	2.5 m/11.4 m, or 3.1 m/10.5 m, or 3.7 m/8.5 m, or 25 m, or 7 m, or 7 m	1. Flags <sup>1</sup> or panels <sup>2</sup> fitted on each side at the front and rear
Category 2 (not including category 1)	Width/forward distance  Length Front overhang Rear overhang	2.5 m/13.3 m, or 4.5 m/8.5 m, or 35 m, or 10 m, or 10 m	1. Panels <sup>2</sup> fitted on each side at the front and rear 2. OVERSIZE sign <sup>3</sup> fitted at the front and rear if more than 3.1 m wide
Category 3 (not including category 2)	Width/forward distance	2.5 m/20 m 5 m/20 m 5 m/8.5 m	1. Panels <sup>2</sup> fitted on each side at the front and rear 2. OVERSIZE sign <sup>3</sup> fitted at the front and rear
Category 4 (not including category 3)	Width/forward distance	11 m/20 m 11 m/8.5 m	1. Panels <sup>2</sup> fitted on each side at the front and rear 2. OVERSIZE sign <sup>3</sup> fitted at the front and rear

**Note:** Additional operational requirements may apply, eg if operated at night.

**<sup>1</sup> Flags**

- must be fluorescent yellow flags
- must be at least 400 mm long x 300 mm wide

**<sup>2</sup> Hazard warning panels**

- must be reflective yellow green with a reflective orange diagonal stripe
- must be at least of the minimum dimensions and of the colours specified in figure 2-2-3:

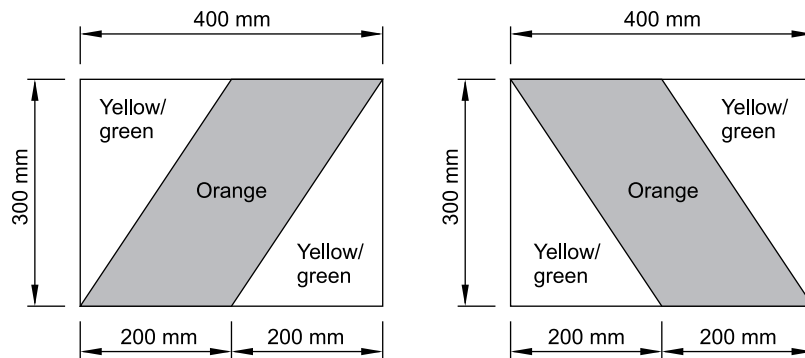
**<sup>3</sup> OVERSIZE sign**

- must be black lettering on yellow-green background
- must be at least 300 mm x 1100 mm in size
- may be in two parts: OVER and SIZE

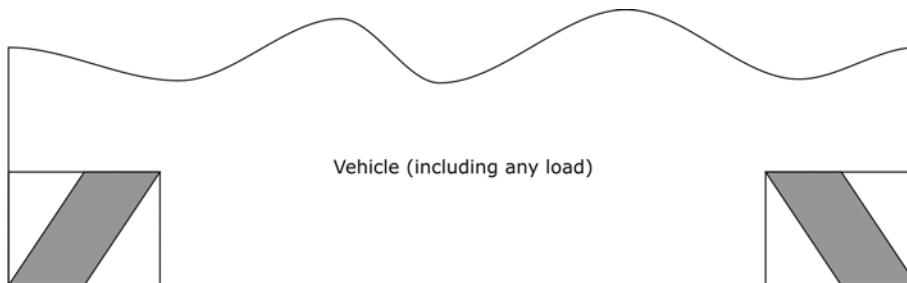
**Note 1** Definitions

**Specialist overdimension vehicle** means a vehicle where its primary purpose is to carry out a specialist function that requires overdimension equipment, and the dismantling of the equipment would make it unusable for its intended purpose, or it would take more than four hours to dismantle the equipment.

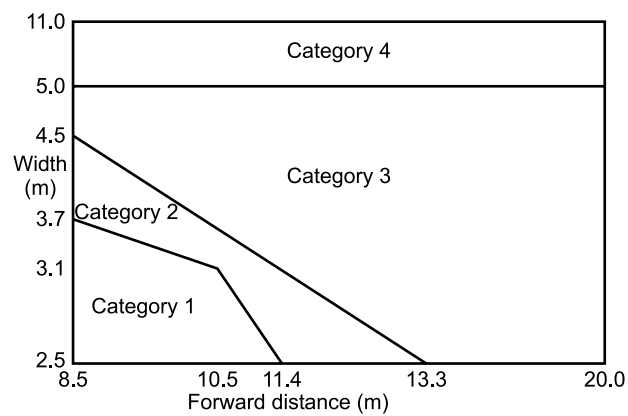
**Caravan trailer** means a trailer that is permanently equipped with features intended to make the vehicle suitable as a dwelling place, and must include at least one sleeping berth and one table, both of which may be of a design that allows them to be retracted or folded away.



**Figure 2-2-3. Hazard panel details**

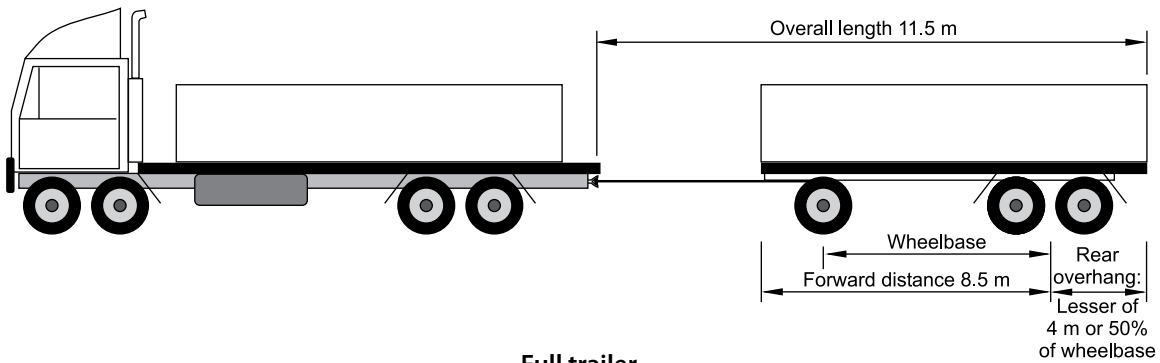


**Figure 2-2-4. Hazard panel location and orientation**

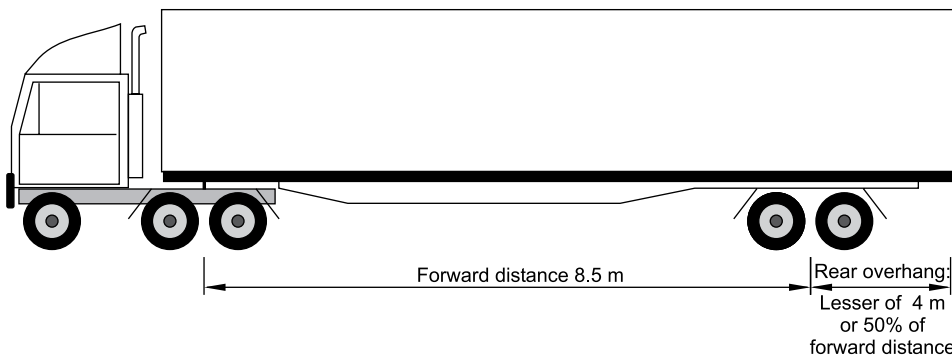


**Figure 2-2-5. Vehicle categories and width/forward distance thresholds.**

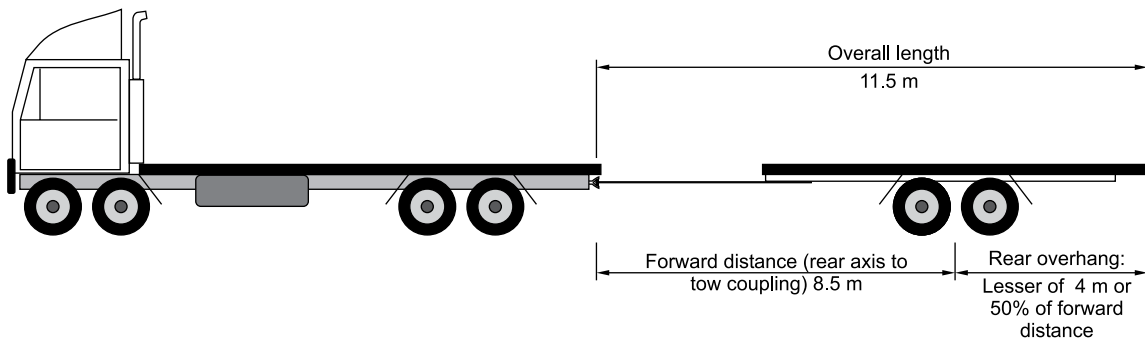
(Use this figure to determine the correct category referred to in Table 2-2-3.)



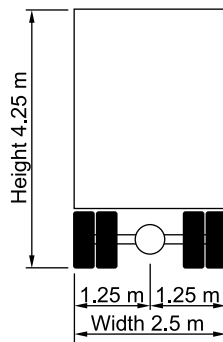
Full trailer



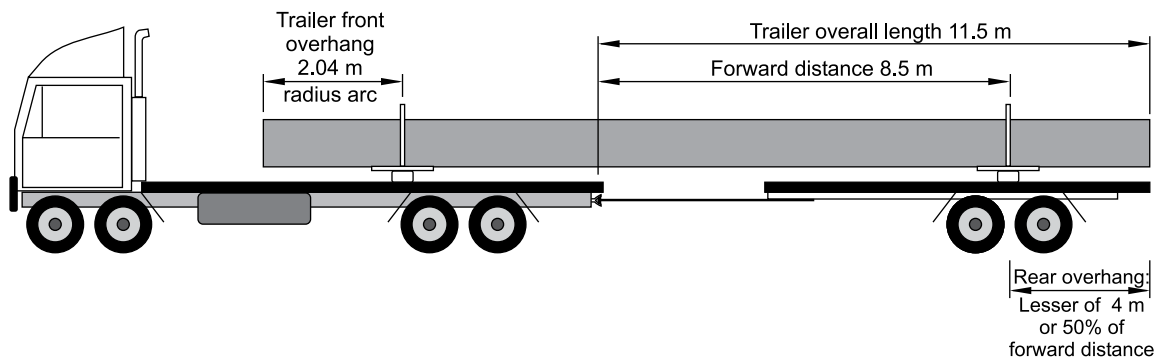
Semi-trailer



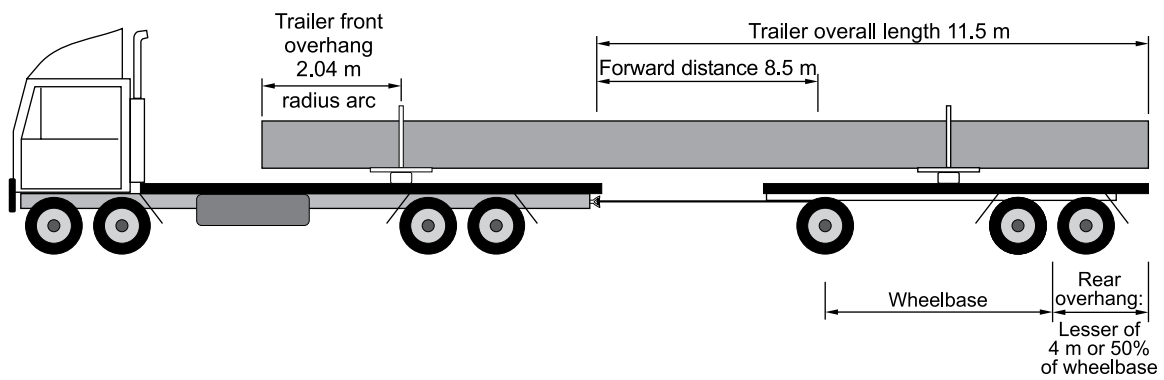
Simple trailer



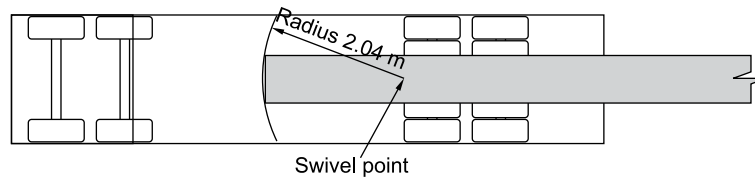
Trailer height and width



**Pole trailer: one axle set**



**Pole trailer: two axle sets**



**Pole trailer: front overhang**

**Figure 2-2-6. Heavy trailer dimensions**

## Summary of legislation

### Applicable legislation

- Land Transport Rule: Glazing, Windscreen Wipe and Wash, and Mirrors 1999

### Permitted glazing

1. Trailers may be fitted with any type of glazing, including plastic glazing.

### Glazing condition

2. Glazing must be mechanically sound, strong, and securely affixed to the vehicle.
3. Glazing must not have a mirrored effect sufficient to dazzle other road users.

## Reasons for rejection

### Glazing condition

1. Glazing is damaged (**Note 1**), deteriorated or modified (**Note 2**) so that its strength or mechanical performance is adversely affected.
2. Glazing is not securely affixed to the vehicle.
3. Glazing has a mirrored effect sufficient to dazzle other road users.

**Note 1** Damage includes any unrepaired damage and attempted visible repairs.

**Note 2 Modify** means to change a vehicle from its original state by altering, substituting, adding or removing any structure, component or equipment, but does not include repair.

**Repair** means to restore a damaged or worn vehicle, its structure, systems, components or equipment to within safe tolerance of its condition when manufactured, including replacement with equivalent undamaged new structures, systems, components or equipment.

## Summary of legislation

### Applicable legislation

- Land Transport Rule: Heavy Vehicles 2004

### Mandatory equipment

1. An outrigger fitted to a vehicle must have a locking device to prevent its inadvertent extension or separation.

### Condition

2. An outrigger locking device must be effective.

## Reasons for rejection

### Mandatory equipment

1. An outrigger fitted to a vehicle does not have a locking device to prevent its inadvertent extension or separation.

### Condition and Performance

2. An outrigger locking device is bent, worn or otherwise damaged or deteriorated so that it is not effective.
3. An outrigger locking device does not lock the outrigger in its locked position.

### Note 1 Definitions

**Outrigger** means in relation to a vehicle fitted with a crane or a hoist, a device fitted to the vehicle that extends and stabilises the vehicle while the crane or hoist is in use.

