



Parking facilities

Part 2: Off-street commercial vehicle facilities



AS 2890.2:2018

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- Australian Automobile Association
- Australian Motorcycle Council
- Department of Transport and Main Roads (Qld)
- Engineers Australia
- Institute of Public Works Engineering Australasia
- National Heavy Vehicle Regulator
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Preface

This Standard was prepared by Standards Australia Committee CE-001, Parking Facilities, to supersede AS 2890.2—2002.

The objective of this Standard is to set out minimum requirements and recommendations for the provision of off-street parking, loading and manoeuvre areas for seven representative commercial vehicles classified according to limiting dimension and minimum turning circle.

The major changes in this edition are as follows:

- (a) Inclusion of additional vehicle classes, B-double, A-double and A-triple.
- (b) AV class length extended to 20 m to allow for National Heavy Vehicle Regulator (NHVR) Performance based standards (PBS) level 1 vehicles.
- (c) Requirements for clearances for turntables.
- (d) Guidance on pedestrian safety and access adjacent to and within service areas.
- (e) Swept path turning templates deleted and replaced with a table providing vehicle swept path data for the accurate production of swept paths using computer-aided design.

A list of all parts in the AS(/NZS) 2890 series can be found in the Standards Australia online catalogue.

Statements expressed in mandatory terms in footnotes to tables are deemed to be requirements of this Standard.

The term “informative” has been used in this Standard to define the application of the appendix to which it applies. An “informative” appendix is only for information and guidance.

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Introduction

A series of design vehicles has been selected to represent the common classes of service vehicle for which provision may need to be made in commercial vehicle parking and loading facilities. Each design vehicle comprises a dimensional configuration which represents the characteristics of the greater number of vehicles in that class. For example, it could be expected that a turning path for each design vehicle would accommodate at least 99 % of the vehicles in that class.

All industrial and commercial activities have a need for access by service vehicles. Warehouse and heavy industry should be capable of accommodating both heavy rigid and articulated vehicles as should large retail outlets having at least a supermarket. Designers of commercial and industrial establishments should check local authority regulations and the proprietors' requirements for the number and mix of vehicle types to be provided.

Turning circles quoted by vehicle manufacturers can be given either to the centre of the wheel track of the front wheel on the outside of the turn or to the outer edge of the outside front wheel (kerb-to-kerb turning circles), and more rarely to the maximum projection of the vehicle which is usually the front overhang (wall-to-wall turning circles or swept paths). The swept paths given in this Standard are all in the wall-to-wall category, and the turning circles from which design turning radii have been derived, kerb-to-kerb.

Australian Standard®

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Part 2: Off-street commercial vehicle facilities

Section 1 Scope and general

1.1 Scope

This Standard specifies minimum requirements for the layout of off-street facilities for the loading and unloading of commercial vehicles, including design requirements for access driveways across the property boundary and for internal circulation roadways. It provides for a variety of standard design vehicle sizes and configurations.

NOTE State and local government regulations, by-laws or other statutes may impose requirements and constraints on the development of facilities which are additional to those specified in this Standard.

1.2 Objective

The objective of this Standard is to provide designers of commercial vehicle docking facilities and off-street manoeuvring areas with a set of uniform standards and recommended designs practices.

1.3 Normative references

The following document is referred to in the text in such a way that some or all of its content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS/NZS 2890.1, *Parking facilities, Part 1: Off-street car parking*

1.4 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

1.4.1

access driveway

driveway extending from the edge of a public roadway to the property boundary to connect with the service area or circulation roadway

1.4.2

apron

manoeuvring area in front of the loading dock excluding the service bay

1.4.3

circulation roadway

roadway which links the access driveway with the service area

1.4.4

clearance height

minimum height for which a structure should be designed to accommodate the design vehicle

Note 1 to entry: Maximum allowable vehicle heights are generally 0.2 m less than this height.

1.4.5**design vehicle**

for each nominated class of vehicle, the dimensional configuration which represents the characteristics which will encompass the greater number (nominally 99 %) of the vehicles in the national fleet in that class

1.4.6**entry angle**

angle through which a design vehicle turns during the forward manoeuvre before commencing the reverse manoeuvre into the service bay

1.4.7**loading dock**

specific area set aside for loading and unloading a commercial vehicle generally allowing the operation to be carried out from a raised platform to which the vehicle is backed

Note 1 to entry: Loading and unloading can, however, take place from the side or from ground level.

1.4.8**lock-to-lock time**

time it takes to steer from full lock in one direction to full lock in the opposite direction

1.4.9**major road**

road carrying predominantly through traffic, generally either a two-way roadway of generally more than 12 m between kerbs, or a divided road

1.4.10**major service area**

service area regularly serviced by heavy rigid or articulated vehicles or both and having more than one bay of which some may be designed for smaller service vehicles

1.4.11**manoeuvring area**

area between the access driveway or circulation roadway and service bays in which service vehicles manoeuvre into and out of the service bays

1.4.12**may**

indicates the existence of an option

1.4.13**minor road**

cul-de-sac or a road carrying predominantly local traffic

1.4.14**minor service area**

service area occasionally served by heavy rigid vehicles or with provision for not more than a total of ten medium rigid and smaller commercial vehicles

1.4.15**multi-unit combination vehicle**

B-double, A-double, A-triple or equivalent vehicle combination

1.4.16**occasional service**

service by a nominated design vehicle less than once per day

1.4.17**regular service**

service by nominated design vehicle at least once per day

1.4.18**service area**

area in a development set aside for the manoeuvring, parking and loading or unloading of commercial vehicles for the delivery or removal of goods, freight or waste

1.4.19**service bay**

designated space clear of the apron to accommodate a commercial vehicle parked at a loading dock

1.4.20**shall**

indicates that a statement is mandatory

1.4.21**should**

indicates a recommendation

1.4.22**swept circle**

diameter of the circle which is traced by the outermost extremity of the body work of a vehicle turning on full lock

1.4.23**swept path**

area which is traced by the extremities of the bodywork of a vehicle while turning

1.4.24**turning circle**

diameter of the circle traced by the outside edge of the outermost front wheel of a vehicle turning on full lock

1.4.25**turning radius (design turning radius)**

radius of the arc of a circle traced by the outside edge of the outermost front wheel of a vehicle turning on a nominated constant radius (a design vehicle turning on full lock)

Note 1 to entry: The design turning radius is equivalent to half the turning circle of the design vehicle.

Section 2 Design vehicles

2.1 General

Commercial vehicles are grouped into seven classes on the basis of vehicle size and configuration as specified below and with overall dimensions as specified in [Table 2.1](#). Unless a commercial vehicle facility is to be designed specifically for a nominated vehicle type which lies outside these descriptions and dimensions, the facility shall be designed to accommodate the standard vehicle type or types appropriate to the use required by the operator of the facility.

The classes of design vehicle shall be as follows:

- (a) Small rigid vehicle (SRV) [see [Clause 2.2\(a\)](#)].
- (b) Medium rigid vehicle (MRV) [see [Clause 2.2\(b\)](#)].
- (c) Heavy rigid vehicle (HRV) [see [Clause 2.2\(c\)](#)].
- (d) Articulated vehicle (AV) [see [Clause 2.2\(d\)](#)].
- (e) B-double (BD) [see [Clause 2.2\(e\)](#)].
- (f) A-double (Type 1 road train) [see [Clause 2.2\(f\)](#)].
- (g) A-triple (Type 2 road train) [see [Clause 2.2\(g\)](#)].

Provision for oversize vehicles not covered by the above classes is outside the scope of this Standard. Such provision should be subject to special design of facilities according to the type of vehicle to be accommodated and the manoeuvres it will be required to make within the facility.

Provision for reversing manoeuvres and service bays for multiple unit articulated vehicles as represented by classes (e), (f) and (g) above is outside the scope of this Standard. However, if a multiple unit articulated vehicle is uncoupled or partly uncoupled and one or more parts then meet a class other than (e), (f) or (g) specified above, design of the facility in accordance with this Standard for that class may be appropriate.

2.2 Description and dimensions

The basic limiting dimensions of design vehicles are set out in [Table 2.1](#).

Table 2.1 — Design vehicle dimensions

Dimensions in metres

Vehicle class	Overall length	Design width	Wheel base	Design turning radius	Swept circles	Clearance height
SRV	6.40	2.30	3.80	7.1	15.3	3.5
MRV ^a	8.80	2.50	5.00	10.0	21.6	4.5 ^c
HRV ^a	12.50	2.50	6.85	12.5	27.8	4.5 ^c
AV ^b	20.00	2.50	14.70	12.5	26.6	4.5 ^c
BD ^a	26.00	2.50	21.70	12.5	n/a	4.5 ^c
A-double ^b	36.50	2.50	32.30	15.0	n/a	4.5 ^c
A-triple ^b	53.50	2.50	49.00	15.0	n/a	4.5 ^c

^a Dimensions for these vehicles conform to AP-G34-13 (see Bibliography).

^b Dimensions adopted from AP-G34-13 adjusted for maximum length as prescribed in regulations and instruments under *Heavy Vehicle National Law*.

^c 4.8 m for animal transport vehicles, vehicle carriers and 4.6 m high vehicles.

The overall width of service vehicles ranges from 2.3 m for the SRV to the regulation limit of 2.5 m for larger trucks. Collapsible mirrors may protrude up to 0.23 m beyond the extreme width of the vehicle. The regulation limit of length is 12.5 m for rigid truck and 19.0 m for articulated vehicles or truck and trailer combinations. Projecting loads may not protrude beyond the regulation envelope of height, length and width.

Where the vehicle is smaller than the limits and the overhang does not exceed the envelope, projecting loads may not exceed the extreme dimensions of the vehicle by more than 0.15 m on either side or 1.20 m to the front or rear.

The classes of design vehicle shall be as follows:

- (a) *Small rigid vehicle (SRV)* — The SRV represents light trucks to a maximum load capacity of 4.0 t and typically having a single rear axle and either single or dual tyres. The SRV is the design vehicle which should be adopted where the service area is to be used by small commercial vehicles only. This class excludes van type commercial vehicles more similar to B99 vehicles as defined in AS/NZS 2890.1.

NOTE Dimensions adopted from *Design guidelines for on-site car parking and service vehicle facilities*, Brisbane City Council.

- (b) *Medium rigid vehicle (MRV)* — The MRV represents the common service truck having a load capacity of 8 t, and typically having a single rear axle and dual tyres. The MRV should be adopted as the design vehicle where there is significant movement of goods but provision for more than the occasional HRV or AV is not necessary.
- (c) *Heavy rigid vehicle (HRV)* — The HRV represents the maximum dimensions of a single unit truck, specialist vehicles excepted, and typically has a load capacity of 12 t. The class also includes 4-axle twin-steer vehicles with a typical load capacity of 16 t. The HRV is the design vehicle which should normally be provided for in major suburban delivery areas.
- (d) *Articulated vehicle (AV)* — The AV is the largest vehicle for which under normal circumstances, reversing manoeuvres would be undertaken and for which a service bay would need to be designed.
- (e) *B-double (BD)* — A combination consisting of a prime mover towing 2 semitrailers, with the first semitrailer being attached directly to the prime mover by a fifth wheel coupling and the second semitrailer being mounted on the rear of the first semi-trailer by a fifth wheel coupling on the first semitrailer.
- (f) *A-double (Type 1 road train)* — A combination, other than a B-double, consisting of a prime mover towing 2 trailers, excluding any converter dolly supporting a semitrailer.
- (g) *A-triple (Type 2 road train)* — A combination consisting of a prime mover towing 3 trailers, excluding any converter dolly supporting a semitrailer.

NOTE Items (b) to (g) dimensions adopted from AP-G34-13 (see Bibliography).

The configuration of each of the above design vehicles is shown in [Figure 2.1](#) and [Figure 2.2](#).

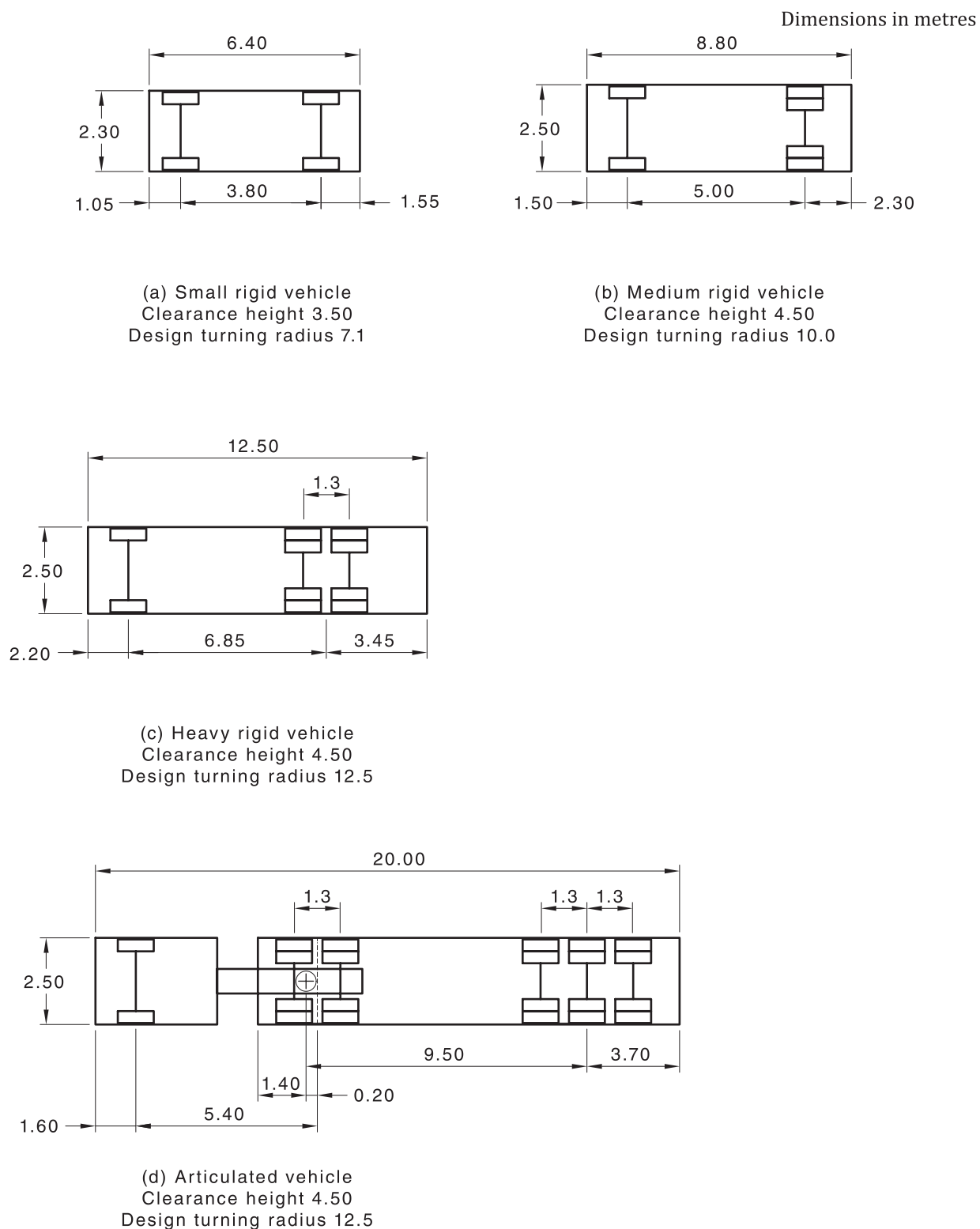


Figure 2.1 — Rigid and single articulated vehicles