



PARKING AND LOADING DESIGN GUIDELINES

Authority - Director of Planning and City Engineer

Effective July 12, 1988

Amended February 28, 1995

As part of the Engineering Department's review of development applications, the Transportation Design Branch examines development application drawings to ensure that parking and loading bay designs meet City standards. Often omissions or errors on drawings occur because designers may not be aware of specific standards. As a supplement to the information contained in the Parking By-law, the following has been compiled to assist in the drafting of plans and to avoid confusion and delay. In conjunction with these guidelines, good engineering practices are to be followed in all circumstances to ensure public safety.

1 Ramp Design

A. Ramp Grades:

The maximum allowable ramp slope in the first 6 m (20') from the property line is 10%. Maximum slope after the first 6 m from the property line is 12.5%. On extreme hardship sites, slopes up to 15% may be acceptable if a 7.5% to 10% transition ramp is provided at the bottom for 4 m in length. Ramps with a 15% slope and exposed to the weather must be heated.

Please note that the percent of slope, the length of the ramp at the specified slope, and design elevations on both sides of the ramp at all break points must be shown on the submitted drawings.

B. Ramp Widths (Except in RS and RT Zoning):

To/From	No. of Parking Spaces	Minimum Width
A Residential Street or Lane	19 or fewer	3.6 m (12')
A Residential Street or Lane	20 or more	6 m (20')
An Arterial Street	9 or fewer	3.6 m (12')
An Arterial Street	10 or more	6 m (20')

Where views to pedestrians would otherwise be obstructed, diagonal corner cut-offs or view portals are required.

Corner cuts are required at the top and bottom of ramps to provide adequate radii for continuous two-way traffic flow where 200 or more vehicles are being served. A standard 6 m (20') ramp width would require a 2.7 m x 2.7 m (9' x 9') corner cut. Reduced corner cuts would be acceptable for wider ramps upon review.

C. Convex Mirrors on Ramps:

Convex mirrors are required at those locations, such as 90 degree jogs in access ramps, where opposing motorists cannot readily view each other. The condition normally applies to a ramp which is too narrow to permit vehicles to by-pass each other.

D. Security Door Controls:

If a key lock or similar security system is to be used on a driveway designed for two-way movement, the activation unit must be placed in the middle of the ramp and the ramp must be at least 6.7 m (22') wide. Where a driveway with two-way movement is of lesser width, the overhead security door shall be activated by a remote control unit in the vehicle. This should be noted on submitted drawings. Where the driveway is accessed from a street, as opposed to a lane, the security door (and activation unit, if applicable) shall be positioned such that a vehicle is off the City street when stopped to activate the door.

2 Parking Area

A. Parking Space Size

Standard vehicle space	- 2.5 m x 5.5 m (8'2" x 18')
Small car space	- 2.3 m x 4.6 m (7'6" x 15'1")
Disability space	- 3.7 m x 5.5 m (12'2" x 18').

Note 1: If a parking stall is adjacent to a wall or if a column is located more than 1.2 m (4') from either end of the stall, then the required stall width is 2.7 m (8'10") for a standard vehicle, and 2.6 m (8'6") for a small car.

Note 2: If column encroachments are proposed, the following minimum standards must be satisfied (see Appendix A):

- a) A minimum of 7.5 m (24'6") for a three-car module, with a maximum of 0.15 m (6") encroachment.

Note: This restricts columns to a maximum 0.3 m (1') width centred on the stall dividing line.

- b) Any column encroachment on a 2.5 m (8'2") parking stall must be set back from the manoeuvring aisle, yet respect the 1.2 m (4') limit from the rear end of the stall. For example, if the column is 0.6 m (2') long then it can be set back 0.6 m (2') from the manoeuvring aisle. However, if a proposed manoeuvring aisle is 7.2 m (23'8") wide or greater, then column encroachments do not have to be setback from the manoeuvring aisle.
- c) No column encroachments will be accepted for single stall modules having columns on both sides of the stall. Furthermore, although there are no column encroachments, submissions as per this example will still require the columns to be set back as per (b).

Note 3: If disability spaces are located beside one another or beside a walkway or open area, then they can be 2.5 m (8'2") wide with a wheelchair accessible 1.2 m (4') wide access corridor (see Appendix A).

B. Projections Over a Stall:

If a projection over the front of a stall occurs, the vertical clearance should not be less than 1.2 m (4') and projection into the stall from the front should not be more than 1.2 m (4'). The corner of such projection is to be chamfered at 45 degrees for a minimum of 10 cm (4 in.) and the vertical face of at least every other stall marked "CAUTION - LOW CLEARANCE" in minimum 10 cm (4 in.) high black letters on a yellow background.

C. Manoeuvring Aisle Width:

In the normal case, where the parking stall is aligned at a 90 degree angle to the wall, a 6.6 m (21'8") wide manoeuvring aisle is required. This width may be adjusted if the angle of parking is less than 90 degrees. In cases where parking provision is extremely difficult, a limited reduction of the manoeuvring aisle width for right-angle parking may be permitted, to an

absolute minimum of 6.1 m (20'), if the minimum width of the parking stalls accessed is greater than standard.

Note: Manoeuvring aisles are, in effect, a hammerhead access to and from parking spaces. Except for some entrances and the dead-end portion of a parking layout, the effective manoeuvring aisle width on either side of a parking space is not to be restricted by elevator cores, stairwells, or other obstructions.

**See Attached Guidelines for Additional Dimensions
Requirements for Parking Areas (Appendix A).**

D. Access, Circulation and Parking Layout:

Because of the complexity of factors entering into the determination of the location of points of access to a site, applicants should discuss this aspect of a development at an early date with Engineering staff. The following items should be considered for circulation:

- Right hand drive should be maintained onto, on, and from the site, except that where access is taken from the left side of a one-way street, a left hand drive entrance/exit ramp may be suitable.
- Design of on-site circulation should be logical and efficient.
- Circuitous routings to obscure parking or loading areas should be avoided.
- Parking must be laid out such that it does not require a vehicle to back up for more than 10 m (33').
- Parking layouts must be such that vehicles exit the parking area in a forward direction, except where the lane serves as the manoeuvring aisle or in RS and RT zoning.
- In those cases where a parking stall requires that a vehicle effect a 180 degree turn, adequate area must be provided so this may be accomplished without undue difficulty.

The following items should be considered in the parking layout:

- In structured parking, the location of transient parking should be convenient to the ground level.
- Each parking stall must be numbered on the drawings so that it may be uniquely identified by reviewing staff.
- All small car stalls must be clearly marked on submitted plans and the small car ratio noted. See the Parking By-law, Section 4.1.7 regarding the permitted proportions of small cars.
- The normally allowable maximum slope or cross-fall is 5% applicable to both the parking stalls and access aisles.

E. Ticket Spitters:

Ticket spitters and automatic gates normally must be located not less than 15 m (50') inside the property line measured along the driveway centre line. At entrances where an attendant controls entry and exit, the booth normally must be located not less than 30 m (100') from the property line measured along the driveway centre line. If the attendant controls only the exit then the 15 m distance will apply.

3 Loading Areas

A. Loading Space Standards

The standard bay is 3.0 x 8.5 m (10' x 28'). On narrow lots 7.6 m to 10 m (25' to 33') in width, a reduction in bay width to 2.7 m (9') may be acceptable depending on site constraints and the vehicles to be served.

For throat requirements and width of second or subsequent bays, see Appendix A, attached.

The normally allowable maximum slope or cross-fall in a loading bay or access aisle is 5%.

B. Hotel Passenger Loading Facility

Hotels having 75 rooms or more require on-site passenger loading provisions. Except for small hotels (i.e., less than 75 rooms), the taxi/valet requirement is one space per 50 rooms:

0 - 74 rooms	0 taxi/valet space
75 - 124 rooms	2 taxi/valet spaces
125 - 174 rooms	3 taxi/valet spaces, etc.

Tour bus requirements are one bus space per 200 rooms:

0 - 99 rooms	0 bus space
100 - 299 rooms	1 bus space
300 - 499 rooms	2 bus spaces, etc.

Tour buses are an important element of access for hotels, and careful design is needed to ensure adequate space is available. This is a major design element that should be addressed at an early stage in the site layout process.

4 Other Considerations

A. Motorcycles

A stall designated for the parking of a motorcycle shall be a minimum of 1.5 m (5') wide and 2.4 m (8') long and clearly marked "Motorcycle Parking".

Note: Motorcycle stalls do not count toward parking spaces required under the Parking By-law.

B. Bicycles

Bicycle parking requirements are set out in the Parking By-law.

C. Payment-in-Lieu Relief

A payment-in-lieu of the applicant's requirement to provide a certain number of off-street parking spaces may be applied for if the property is within the boundaries shown in the attached drawing (see Appendix B). Recommendation of approval would depend on a number of factors, including difficulty of on-site or off-site provision, traffic and pedestrian concerns, economics, streetscape preservation, etc. Payment-in-lieu is only available for commercial and industrial uses and not for residential uses, although this may change pending the outcome of an application to amend the **Vancouver Charter**.

If you have any questions on any of the above information, or require any other information concerning parking or loading bay design standards, please contact the Transportation Design Branch at 873-7217.

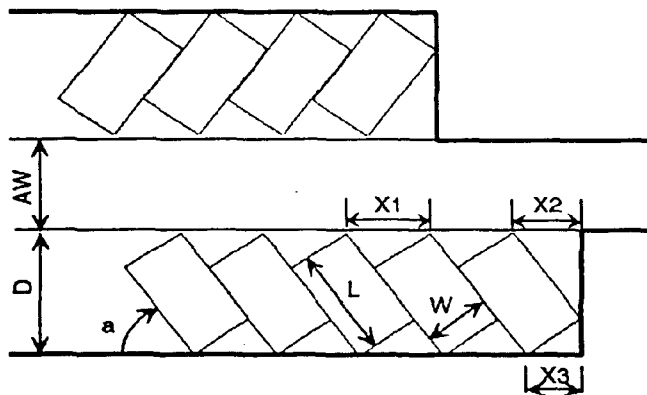
A) Parking Stall Guidelines (Minimum Stall Widths)

ANGLE PARKING TABLE (all dimensions in metres)

PARKING ANGLE (degrees)	DEPTH OF STALL		REQ'D AISLE WIDTH		
	SMALL CARS (W = ...)	NORMAL CARS (W = ...)	SMALL CARS (W = ...)	NORMAL CARS (W = ...)	
	2.30	2.60	2.50	2.70	
PARALLEL	—	—	**SEE NOTE**		3.6
20	3.7	4.0	4.23	4.42	3.6
25	4.0	4.3	4.59	4.77	3.6
30	4.2	4.5	4.92	5.09	3.6
35	4.5	4.7	5.20	5.37	3.6
40	4.7	4.9	5.45	5.60	3.6
45	4.8	5.0	5.66	5.80	3.6
50	5.0	5.2	5.82	5.95	3.9
55	5.0	5.2	5.94	6.05	4.2
60	5.1	5.2	6.01	6.11	4.5
65	5.1	5.2	6.04	6.13	4.8
70	5.1	5.2	6.02	6.09	5.1
75	5.0	5.1	5.96	6.01	5.4
80	4.9	4.9	5.85	5.89	5.8
85	4.7	4.8	5.70	5.71	6.2
90	4.6	4.6	5.50	5.50	6.6

ANGLE PARKING TABLE (all dimensions in feet)

PARKING ANGLE (degrees)	DEPTH OF STALL		REQ'D AISLE WIDTH		
	SMALL CARS (W = ...)	NORMAL CARS (W = ...)	SMALL CARS (W = ...)	NORMAL CARS (W = ...)	
	7.55	8.53	8.20	8.86	
PARALLEL	—	—	**SEE NOTE**		11.81
20	12.2	13.1	13.68	14.5	11.81
25	13.2	14.1	15.06	15.6	11.81
30	14.0	14.9	16.13	16.6	11.81
35	14.8	15.6	17.07	17.6	11.81
40	15.4	16.2	17.88	18.3	11.81
45	16.0	16.7	18.56	19.0	11.81
50	16.4	17.0	19.10	19.5	12.80
55	16.6	17.2	19.49	19.8	13.78
60	16.8	17.3	19.73	20.0	14.76
65	16.8	17.2	19.82	20.1	15.75
70	16.7	17.1	19.76	19.9	16.73
75	16.5	16.7	19.55	19.7	17.72
80	16.1	16.3	19.19	19.3	19.03
85	15.6	15.7	18.69	18.7	20.34
90	15.0	15.0	18.04	18.0	21.65



NOTE:

Parallel parking stalls shall be 2.5 m x 6.4 m with a 3.6 m aisle width.

PARKING STALL LAYOUT

- (1) SELECT:
 - W = parking stall width
 - L = parking stall length
 - a = parking angle (degrees)
- (2) LOOK UP IN TABLES:
 - D = depth of parking stalls
 - AW = required minimum aisle width
- (3) ADDITIONAL LAYOUT INFORMATION:
 - X1 = space between stalls = $W/\sin(a)$
 - X2 = $L \cos(a)$
 - X3 = $W \sin(a)$

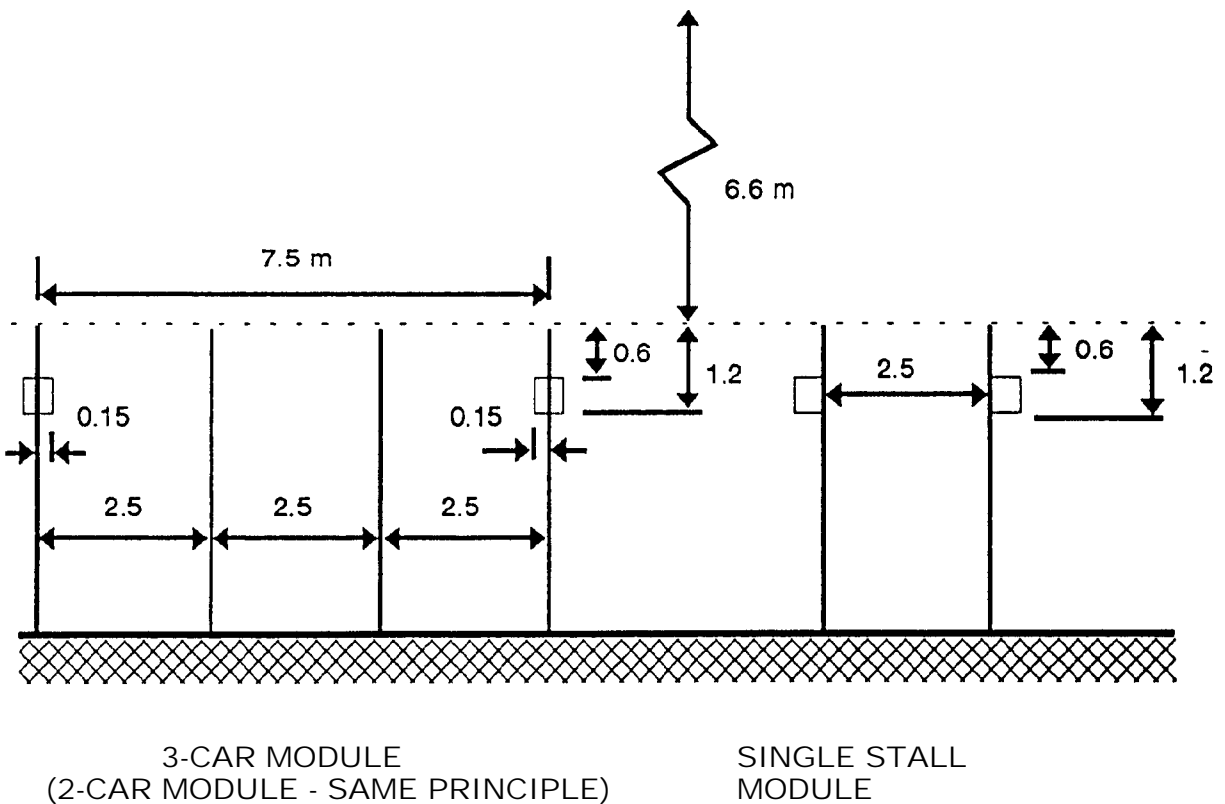
B) Parking Stall Guidelines (Wider than Minimum Stall Widths)

For Right Angle Parking

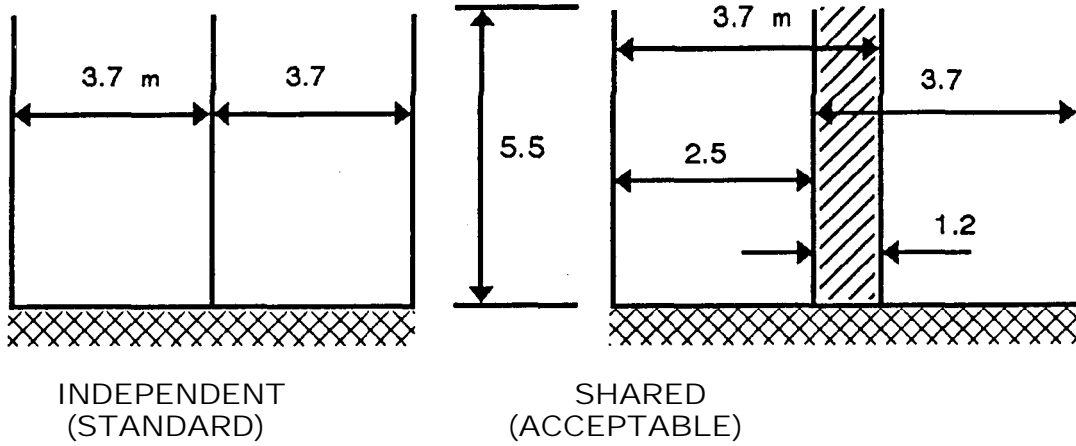
Less Than Right Angle Parking

Stall Width	Aisle Width	Stall Width	Factor	(e.g. 3.6 m Aisle)
2.50 - 2.54	6.6	2.5 - 2.54	1.00	3.60
2.55 - 2.59	6.5	2.55 - 2.59	.99	3.56
2.60 - 2.64	6.4	2.6 - 2.64	.98	3.53
2.65 - 2.69	6.3	2.65 - 2.69	.97	3.49
2.70 - 2.74	6.2	2.7 - 2.74	.96	3.46
2.75+	6.1	2.75+	.95	3.42

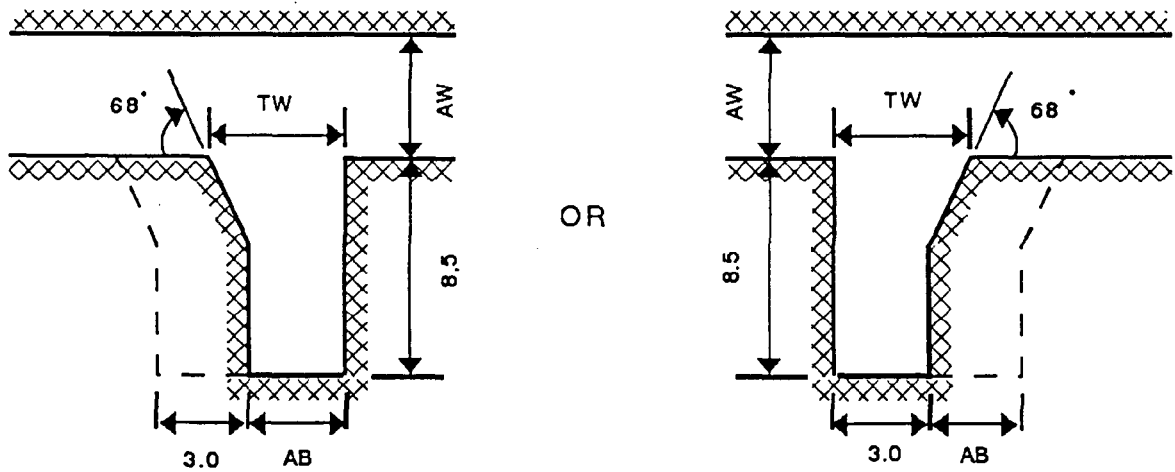
C) Column Encroachments



D. Disability Spaces



E. Loading Bay Guidelines



Loading Bay Table in (Metres)

Aisle Width	Throat Width	Additional Bay Width
6.1	4.6	3.8
6.4	4.4	3.7
6.7	4.1	3.6
7.0	4.0	3.4
7.3	3.8	3.2
7.6	3.7	3.0
7.9	3.5	3.0
8.2	3.3	3.0
8.5	3.0	3.0

Loading Bay Table in (Feet)

Aisle Width	Throat Width	Additional Bay Width
20	15.0	12.5
21	14.5	12.0
22	13.5	11.5
23	13.0	11.0
24	12.5	10.5
25	12.0	10.0
26	11.5	10.0
27	11.0	10.0
28	10.0	10.0

