

Approach To Myanmar National Building Code 2020

Urban Design & Environment



Presented

By

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Venue: Date:

Agenda

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2.11.2 Environmental Issues

- a) Be considered as non-disturbing and non-polluting to the environment, for that reason the first and foremost consideration of all architects is the “Environmental Issue”.
 - b) Whenever any building is planned, the architect should first make the environmental assessments, these include:-
 - 1) The role and position of the planned building in the environment, whether or not the building to be constructed is disturbing to environment visually or physically.
 - 2) The building to be constructed shall consider the laws concerning the conservation of heritage in Myanmar.
 - c) The concepts on sources of infrastructure and waste disposal of the building, during the construction process and after the completion of building.
 - d) The expected traffic generated (during and after the building completion).
 - e) The concept of facilities (for entering, parking and departing the building).
 - f) The concept for public facilities such as green areas, schools, shopping, social amenities, etc.
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2.11.3 Urban Densities

- a) (In registered urban heritage places and zones and the CBD areas of cities and towns, or in the areas defined as high density zones,) **the densities should be in line with by-laws and zoning plans of respective towns where available.**
- b) Outside registered urban heritage places and zones and CBD areas or outside quasi such areas,
- 1) In multi-storeyed residential estates, the building coverage ratios **(BCR) shall be 0.4 to 0.6** according to concerned Zoning Plan and Municipal Authority; site locations and road building ratio of the respective areas. **[open area including traffic area should not be less than 0.35]**, and pervious and green area not less than 0.15
- c) Outside registered urban heritage places and zones and CBD areas or outside quasi CBD areas, the open space for buildings abutting a street shall be:-
- 1) In respect of other buildings used for **non-residential purposes**, **not less than one-tenth of the built-up area** of the building lot;
 - 2) In respect of a building **with mixed residential and commercial buildings**, **not less than one-third of the built-up** area of the building lot;
- d) The plot sizes in the urban settlements are defined in Part 1 of this code, and these are to be followed accordingly.
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2.11.4 Open Spaces

- a) Not less than 10 square feet per child of play area (for educational buildings meant for children younger than 6 years.)
- b) Not less than 15 square feet per child of play area (for educational buildings meant for children between 7 to 16 years.)
- c) Not less than 20 square feet per child of play area (for educational buildings meant for students of age above 16 years.)
- d) Residential areas with multi-storeyed units, there shall be minimum of 200 square feet per family as play and recreation areas, additional to parking and road areas.

2.11.4.1 For the Purpose of Counting the Open Space

- a) Half the width of the backline abutting a building can be counted as open space;
- b) Balconies, passage-ways and sun-shades may project over any open space provided these do not project more than 5 feet and have 10 feet clear height from the ground level, such projection can be counted as open space and not as built-up area;
- d) The structures such as septic tanks, drains covers, and other elements meant for building services, can be counted as open spaces, provided that people can step on these for purpose using these areas
- e) In the residential areas, the parking spaces and road areas can be counted as open spaces but not as play and recreation areas.
- f) Where open space not abutting a backline is provided for, such open space shall have a minimum clear width of not less than 8 feet.

2.11.4.2 Alteration of Open Spaces

Whenever any open space has been provided in connection with any building, no person shall, without the approval in writing of the local authority:-

- a) Make any alteration in such open spaces; or
- b) Construct a roof over any portion thereof so as to diminish the area of such open space, provided that the local authority in its discretion may issue such a permit if the authority is satisfied that the free movement of air is not impeded or hindered and environmental quality of the area under consideration is not reduced by such alteration.
- c) The local authority may, by notice in writing, the owner or any person acting in contravention of this part, instruct to remove any such alteration or roof or otherwise to do such works as will restore such open spaces.



2.11.5 Building Spacing

Building setback shall be specified by city or town authority based on land use zoning plans, conservation guidelines and its' planning control.

2.11.5.1 Spaces between buildings and setback distances

- a) For detached buildings in the areas defined as first class areas or quasi equivalent to such areas, which are not more than 36 feet height, there shall be **minimum of 6 feet clear space measured between external walls of the building and the boundary of the plot**; and 3 feet clear space between the extreme projections of the buildings such as roof edges, gutters, etc. In cases where the buildings exceed 36 feet height, the space mentioned here shall increase with the rate of 1 foot or one tenth of floor to floor height for every increase of a story (or floor to floor height, whichever is greater).
- b) For areas outside registered urban heritage places and zones and Central Business District which are not defined as first class areas there shall be minimum of **3 feet clear** space between external walls of the building or any elements of the building and **one side of the plot shall have the minimum space of 6 feet clear space**, and the boundary of the plot, for the buildings up to 8 storeys. There shall be 9 feet clear space between external walls of the building or any elements of the building and the boundary of the plot for the buildings up to 12 stories. There shall be 12 feet clear space between external walls of the building or any elements of the building and the boundary of the plot for the buildings up to 18 stories. If the buildings exceed 18 storeys, there shall be 15 feet clear space between external walls of the building or any elements of the building and the boundary of the plot.
- c) For duplex houses and terrace houses, clear space of 3 feet must be maintained between the extreme projections of the buildings (roof edges, balconies, etc.) and the boundary of the plot.

d) **The specific bye-laws of some cities:-**

1) For multi-storeyed row blocks with several units parallel and in front to front position, the wall to wall distance shall **be not less than the height of the higher building**, in the cases where the building heights are different, and **minimum 50 feet** must be maintained for driveway, parking, aprons and platforms

2) For multi-storeyed row blocks with several units parallel to each other and having **back to back position**, the **wall to wall distance shall be not less than half the height of the higher building**, in the cases where the building heights are different **and minimum of 30 feet must be maintained as service back lane** meant for septic tanks, other infrastructural requirements and as free spaces.

3) For buildings where the gable side abuts the longitudinal side of the building, **the space between the buildings shall be not less than half the height of the higher building**; in the cases the building heights are different and minimum of 30 feet shall be provided for free flow of air and for other infrastructural requirements.

4) For multi-storeyed point blocks with several units facing each other, the spacing **shall be not less than half the height of the higher building**, and that distance shall **be minimum 40 feet** for residential road and for other infrastructural requirements.

e) For buildings in the CBD areas or quasi equivalent to such areas, the building spacing rules are to follow **the local codes wherever available**.

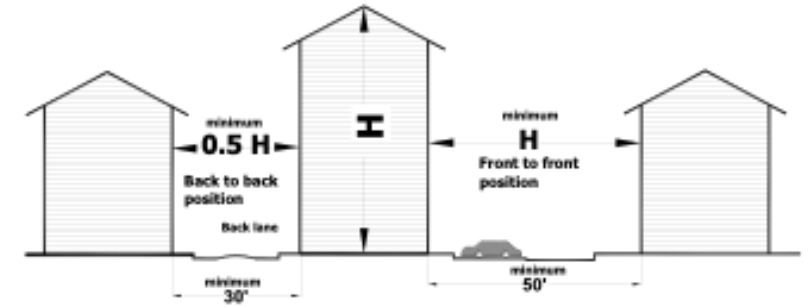


Fig. 2.11.1 Schematic figure showing spacing of row blocks, front to front and back to back positions and distances

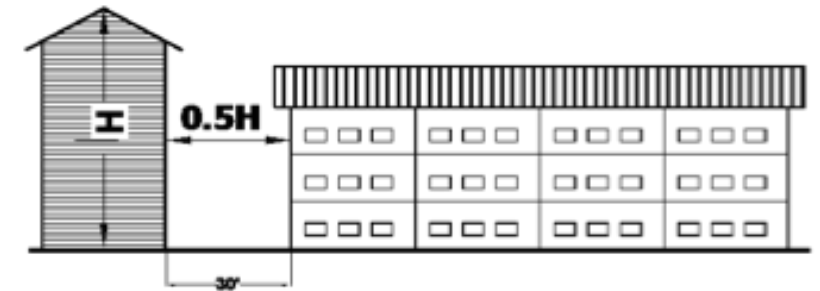


Fig. 2.11.2 Schematic figure showing spacing of row blocks, gable to longitudinal side and distance

2.11.5.2 Fences or walls

Fences or walls to the boundaries of detached properties other than the boundary which abuts the street or backline shall be constructed to a maximum height of 6 feet in the case of solid fences or walls and to a maximum height of 9 feet in the case of fences which are so constructed as to permit the passage of light and air.

2.11.5.3 Spaces on the street network

- a) Where a building is erected at the junction of two streets and in cases where the degree of splay or rounding off is not shown on the layout plan or any statutory maps, modification or replacement thereof maintained by the competent planning authority, the corner of such building shall be splayed or rounded off to a height of not less than 15 feet above the street level at the point of intersection of the street lines so that no part of the building below this height shall project beyond the straight line drawn across the corner of the building plot joining each street line at a point 10 feet from the point of intersection of the street lines.
- b) Where buildings abut on a street, there shall not be permanent structures like verandahs, balconies, sun-shades, canopies, etc. built beyond the property line of respective buildings.



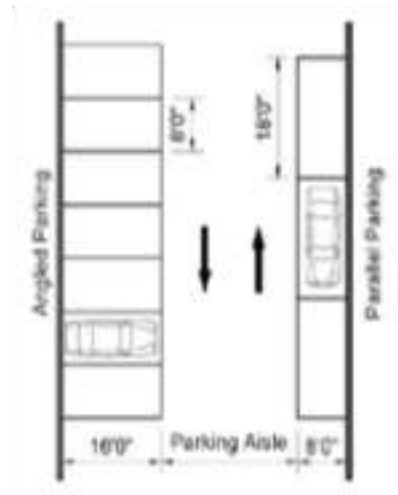
2.11.5.4 Walkways and covered walkways

- a) The width of any covered or uncovered walkway shall not be less than 7 feet if the walkway is in a confined walls and not less than 4 feet in the open space.
- b) Where there is a change in levels along the walkway there shall be steps with risers not exceeding 7 inches and treads not less than 16 inches or a pedestrian ramp of gradient not exceeding 10 % or rise: run ratio of 1:10. Where a service road is designed in the residential areas, the walkway is required to be provided along the street
- c) Where a service road is designed in the residential areas, the walkway is required to be provided along the street

2.11.6 Roads and Parking Spaces

- a) The width of one lane of the road for motor vehicles is minimum 12 feet, in the residential areas; the paved area of the road meant for both ways must be at least be 16 feet with 2 feet shoulder at both sides.
- b) The internal turning radius of roads in the residential areas shall be 12 feet minimum and the internal turning radius of parking access way shall be 10 feet minimum.
- c) Parking
 - 1) Minimum dimensions of parking stalls are 8 feet width and 16 feet in length when stalls are perpendicular to or with angle to the aisles.
 - 2) Minimum dimensions of parking stalls are 8 feet width and 18 feet in length when stalls are parallel to the aisles.

Fig. 2.11.3 Position of parking stalls and required dimensions
(Above figure)



3) Parking stalls with adjacent obstructions

Where the obstructions (any large element above 7 inch) located within the middle 9 feet of the parking length, the parking stall shall be widened. If the obstruction is on one side, the minimum stall width shall be 9 feet. If the obstruction is on both sides, then the minimum stall width shall be 10 feet. For parallel parking, the minimum stall length shall be 24 feet where there are obstructions at the stall ends.

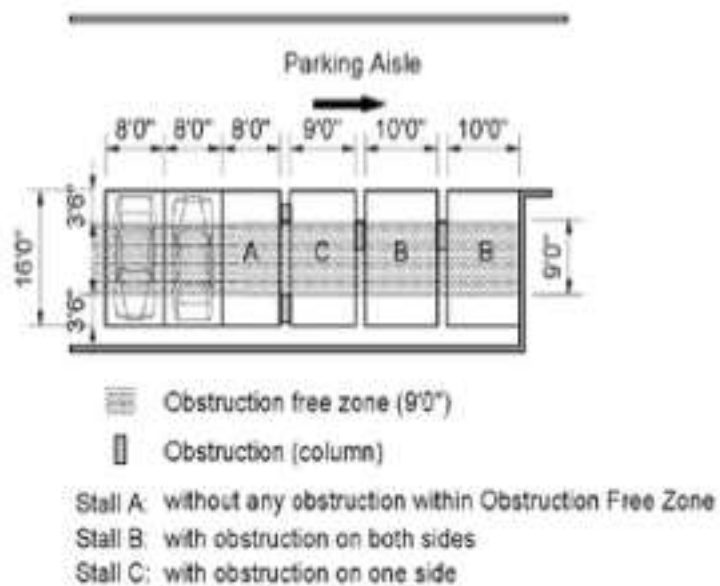


Fig. 2.11.4 Places to maintain obstruction free zones and parking stalls with adjacent obstructions (For parallel parking, where a car cannot be parked by reversing, the length of stall shall be 24'.)

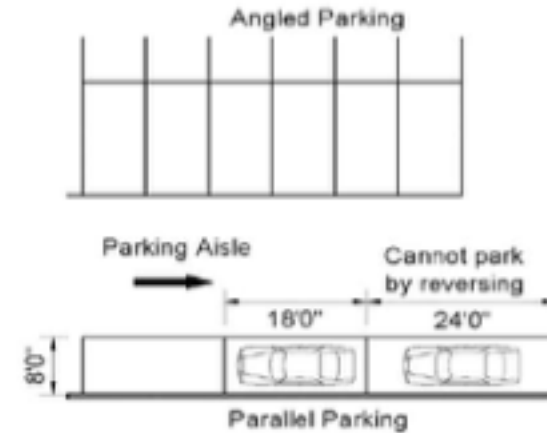


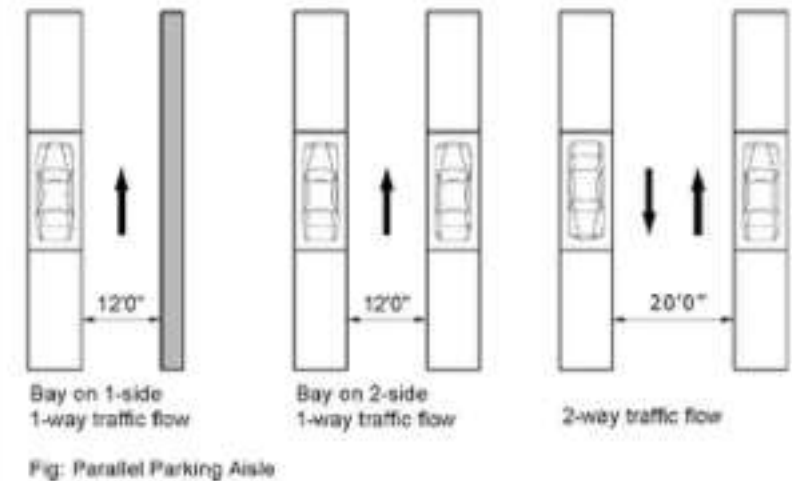
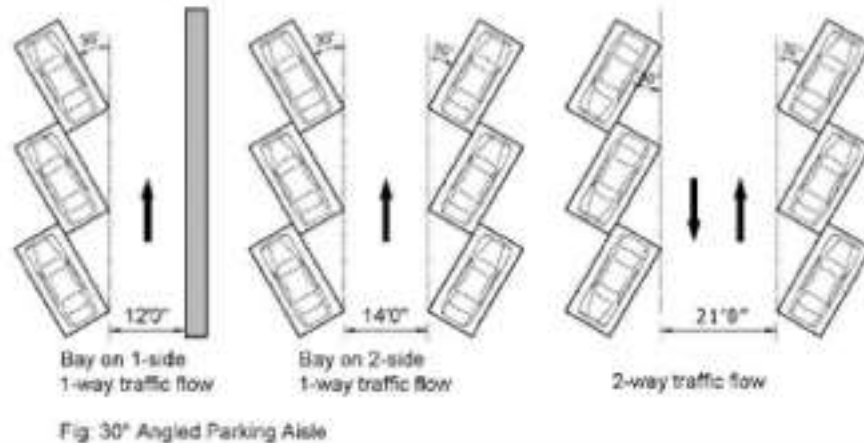
Fig. 2.11.5 Parking stalls which cannot park by reversing

2.11.6.1 The minimum width of parking aisle

The minimum width of parking aisle shall be as follows:

Table 2.11.1 Minimum widths of parking aisles

Parking Angle	One-way traffic flow		Two-way traffic flow
	Stalls on 1 side	Stalls on 2 sides	Stalls on 1 or 2 sides
Parallel	12'	12'	20'
30	12'	14'	21'
45	14'	16'	21'
60	16'	16'	22'
90	20'	20'	20'



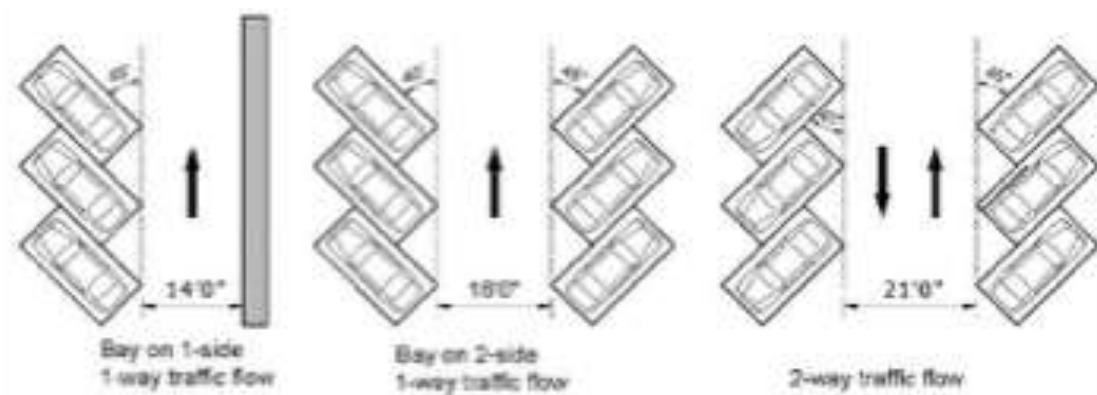


Fig: 45° Angled Parking Aisle

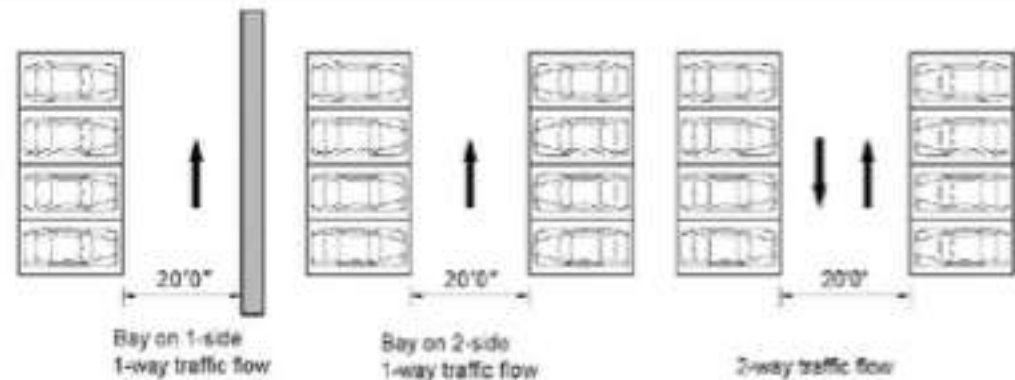


Fig: 90° Angled Parking Aisle

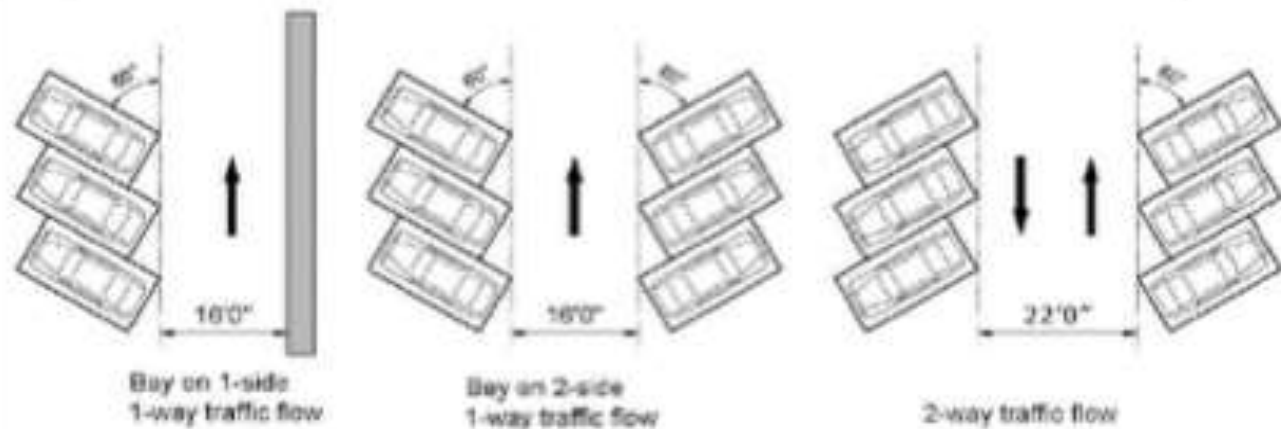


Fig: 60° Angled Parking Aisle

2.11.6.2 Clearway Ramps and Access-Ways

Design and dimensions of Clearway Ramps and Access-Ways are to conform to table.

- a) The slope of curved ramp shall be that of the centre line of its path.

Table 2.11.2 Dimensions of Clearway ramps and Accessways

	Single-lane	Multi-lane
Width of straight clearway ramp and access-way	12'0"	10'0"
Width of inside lane of curved clearway ramp and accessway	14'0"	12'0"
Width of Outside lane of curved clearway ramp and accessway	14'0"	11'0"

	Single-lane	Multi-lane
Inside radius of curved clearway ramp and accessway	15'0"	
Gradient of clearway ramp and accessway for straight ramp	1:6.25 (16%) for light vehicles less than 2 tons where accessway level difference is not more than 5'0" which serve not more single level car parking (Max. 10 nos. car lots) 1:7.2 (14%) for medium vehicles less than 5 tons	
Gradient of clearway ramp and accessway for curved ramp	1:10 (10%) preferred 1:8.3 (12%) maximum	

Continuous spiral ramps shall be limited to 4 stories.

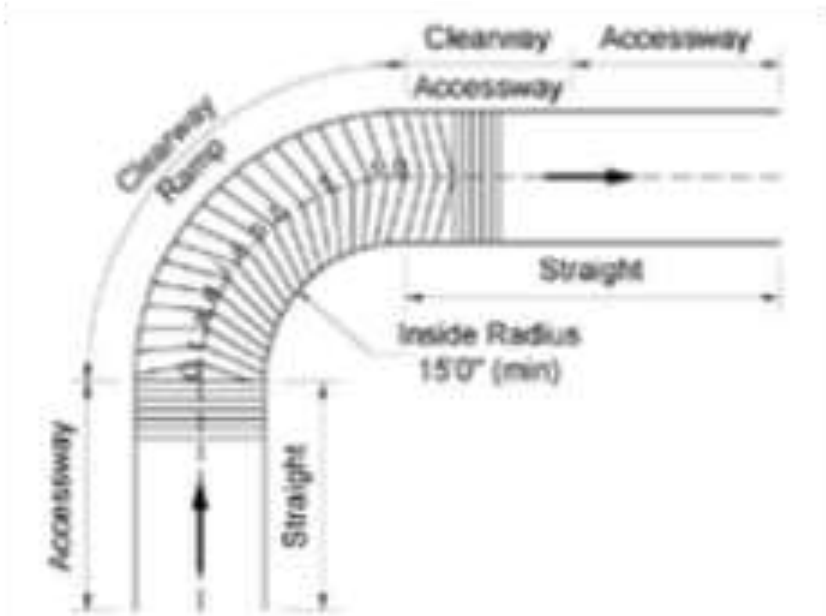
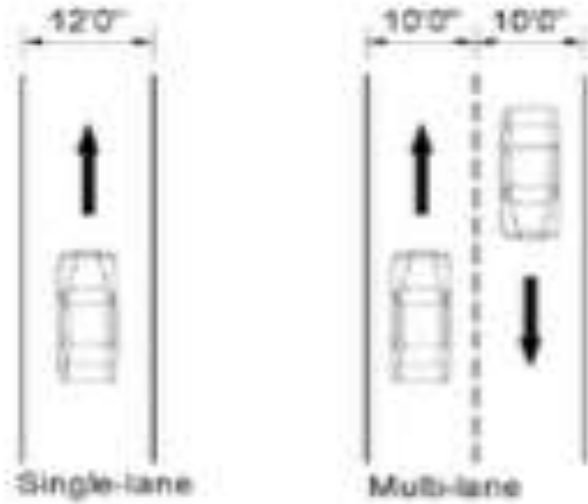


Fig. Example of Clearway ramp and Accessway



- 1) More than one lane is considered Multi-lane.
- 2) Number of Lane does not depend on the direction of traffic flow and has no physical divider.

Fig: Example of straight, single and Multi-lane

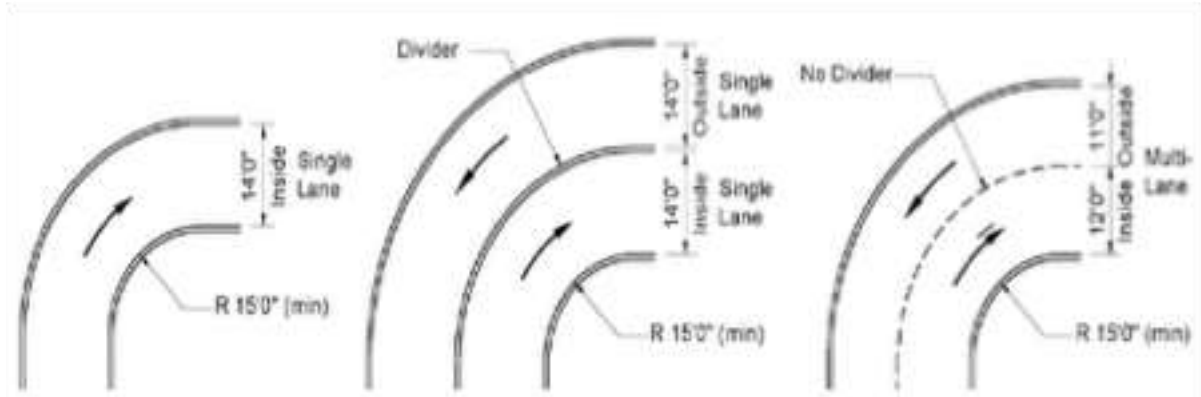


Fig: Example of Curved, single-lane separated by physical divider and Multi-lane

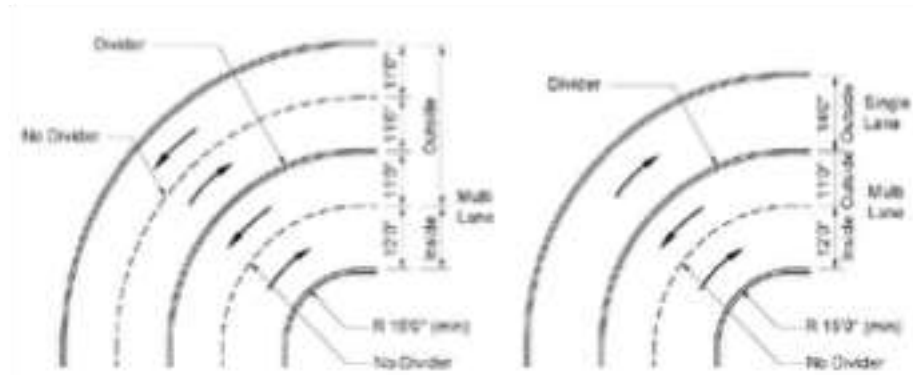
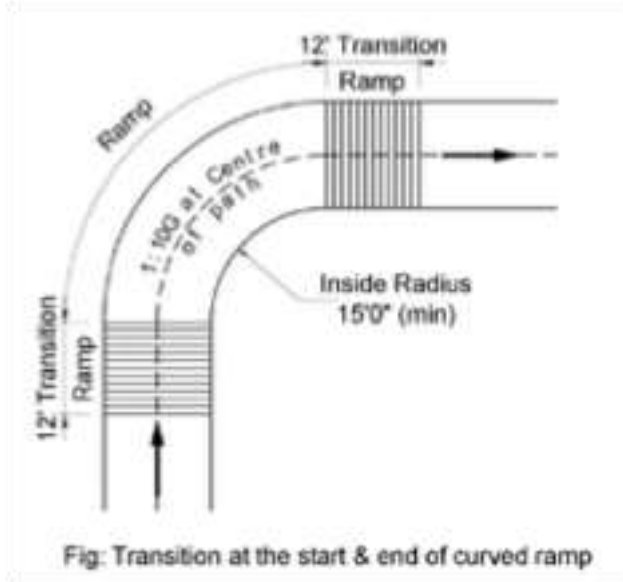


Fig: Example of Curved, Multi-lanes separated by Divider



- b) Adequate blending of ramp grades at floor levels shall be provided where a straight / curved ramp meets a straight ramp/ driveway, this can be achieved by the provision of straight slope 9 ft. to 12 ft. long at half the grade of the ramps.
- c) If the clear ramps and access-ways have physical divider (with raised brickwork, concrete blocks, etc.) for two directions at one level, physical divider, minimum height of 9 inches above the driveway level, shall be provided as shown in above figures.
- d) There shall be a straight landing of minimum 30 feet in length every after 160 feet of ramps with gradients given in the table 2.11.2.

2.11.6.3 Minimum headroom

The clear headroom or height clearance for car parking shall not be less than 7'-3"

The clear headroom measured from floor level to the underside of any projections including beams, directional signs, sprinkler heads, electrical fittings, etc.

The clear headroom of ramps at the entering points to the buildings shall not be less than 7ft 6in.

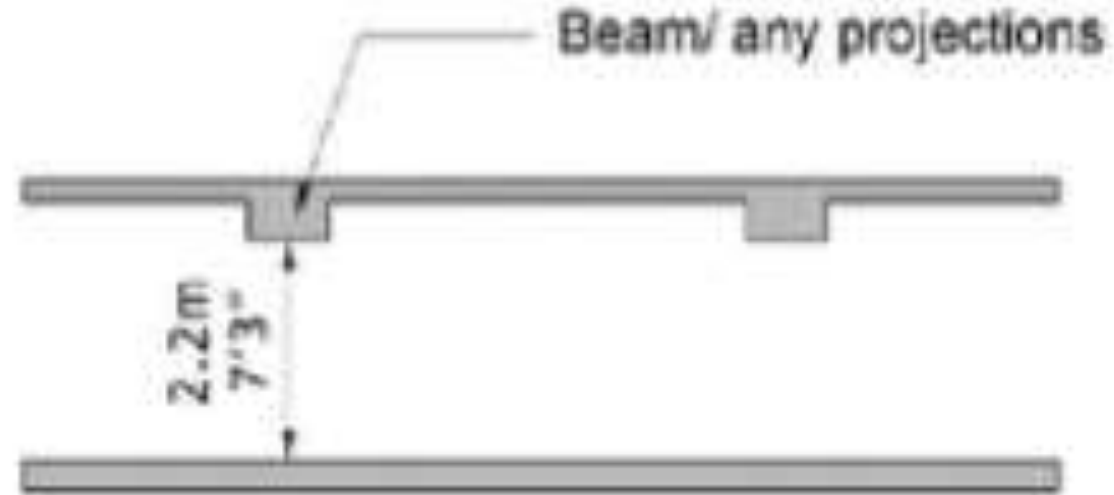


Fig: Minimum headroom clearance

Table 2.11.3 Minimum dimensions required for heavy vehicles parking

2.11.6.4 Heavy vehicle parking spaces

Heavy vehicles include Lorries, trailers, containers, coaches and other similar commercial vehicles. These are categorized into three groups.

- Rigid-framed vehicles of length <25'-0"
- Rigid-framed vehicles of length ≥25'-0"
- Articulated vehicles such as prime movers, 20', 40' and 45'

Items	Rigid-framed vehicles of length <25'		Rigid-framed vehicles of length ≥ 25'		Articulated vehicles, eg. Prime movers, 20' 40' and 45' trailers	
Dimensions of parking stall:						
-Parallel parking	30'-0" x 10'-0"		46'-0" x 11'-0"		63'-0" x 11'-0"	
-Angled parking	25'-0" x 10'-0"		40'-0" x 11'-0"		46'-0" x 11'-0"	
Width of parking aisle:	1-Way flow	2-Way flow	1-Way flow	2-Way flow	1-Way flow	2-Way flow
-Parallel parking	12'-0"	24'-0"	15'-0"	24'-0"	15'-0"	24'-0"
-30 parking	12'-0"	24'-0"	15'-0"	24'-0"	22'-0"	24'-0"
-45 parking	16'-0"	24'-0"	18'-0"	24'-0"	32'-0"	32'-0"
-60 parking	21'-0"	24'-0"	22'-0"	24'-0"	36'-0"	36'-0"
-90 parking	30'-0"	30'-0"	36'-0"	36'-0"	40'-0"	40'-0"
Width of clear Access way: per lane	1-Way flow	2-Way flow	1-Way flow	2-Way flow	1-Way flow	2-Way flow
-On straight	15'-0"	24'-0"	15'-0"	24'-0"	15'-0"	24'-0"
-On Curve	15'-0"	25'-0"	15'-0"	25'-0"	15'-0"	30'-0" 6.0m for 20' "
Inside turning radius of curve	20'-0"		20'-0"		20'-0"	
Maximum gradient of ramp:						
-Straight ramp	1:12 or 8.3%		1:12 or 8.3%		1:15 or 6.7%	
-Curved ramp	1:15 or 6.7%		1:15 or 6.7%		1:20 or 5%	
Headroom Clearance	14'-0"		14'-0" exclude double-decker		15'-0", 16'-0" at ramp	

Motor cycle parking stall can be provided **in any available space within parking**, the stalls should not obstruct movement of other vehicles and pedestrians.

Minimum dimensions of motor-cycle parking stall 3 ft. x 8 ft. If provided next to car parking lots, it is recommended that a gap of 1'6" to 3'0" be provided between the car and motor-cycle lots.

2.11.6.5 Motor cycle parking

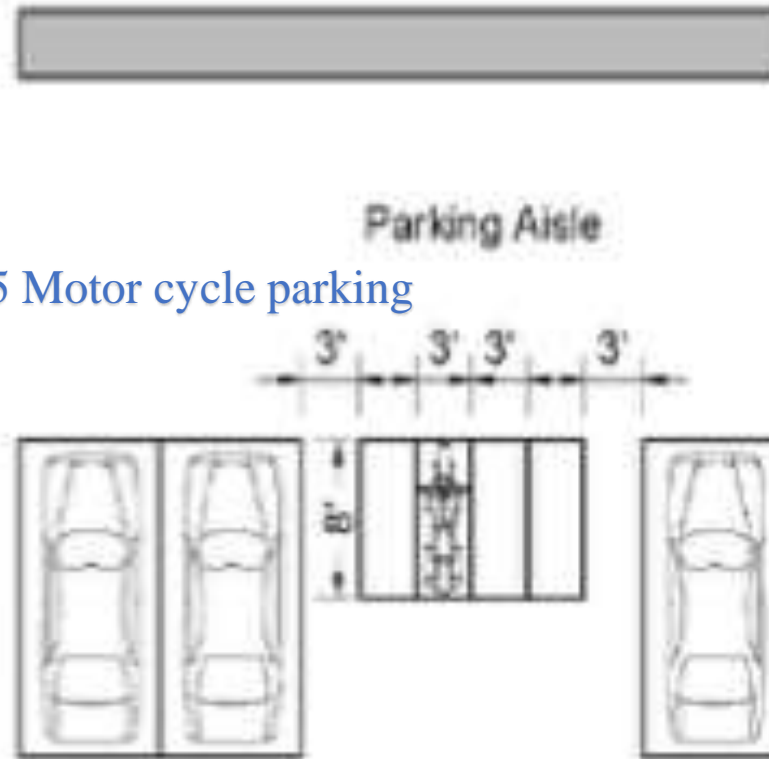
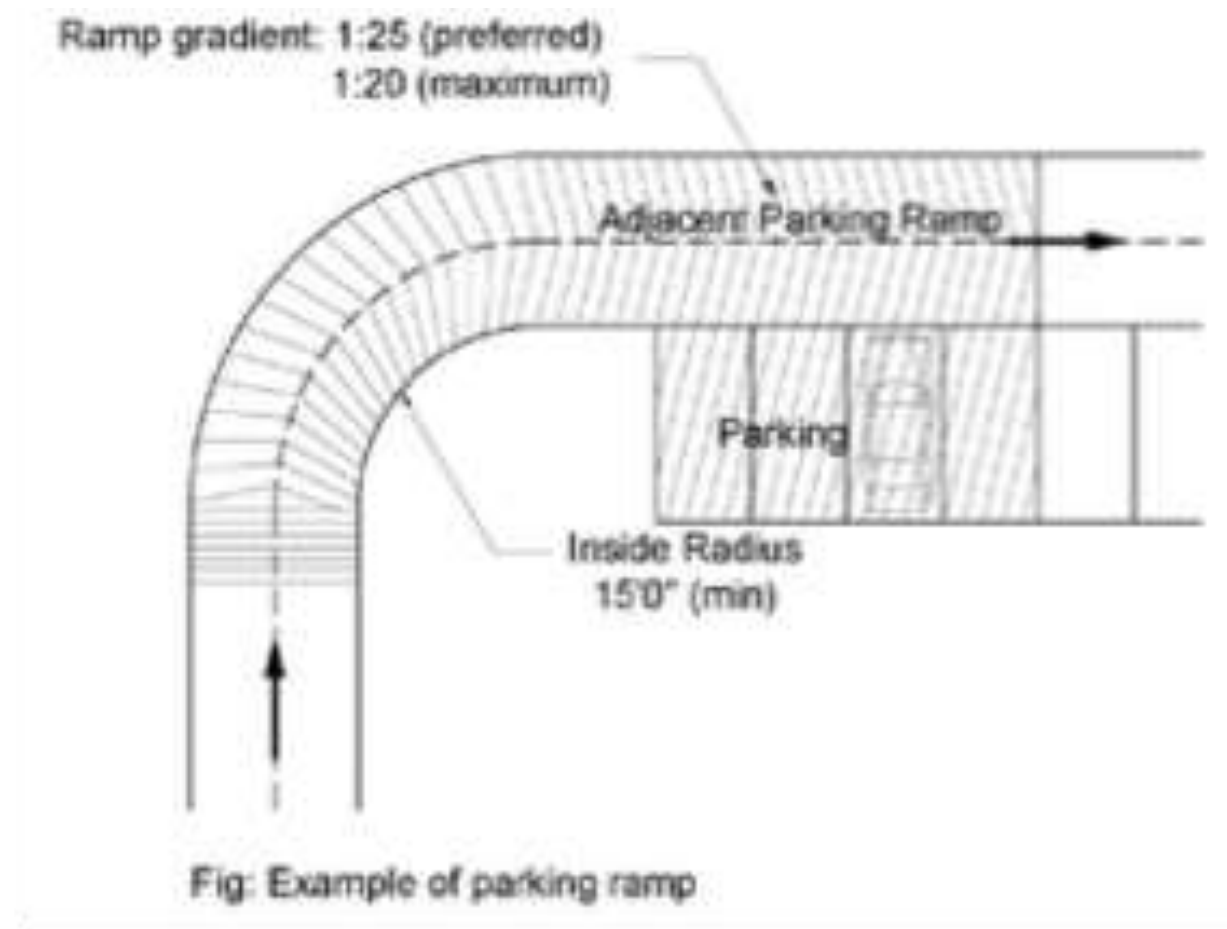


Fig. Example of motor-cycle stalls

2.11.6.6. Parking Ramp

- The gradient of parking ramps shall be 1:25 (4%) (preferred) and 1:20 (5%) (maximum).



2.11.6.7. Good Practice

Provision of Adequate sight distance

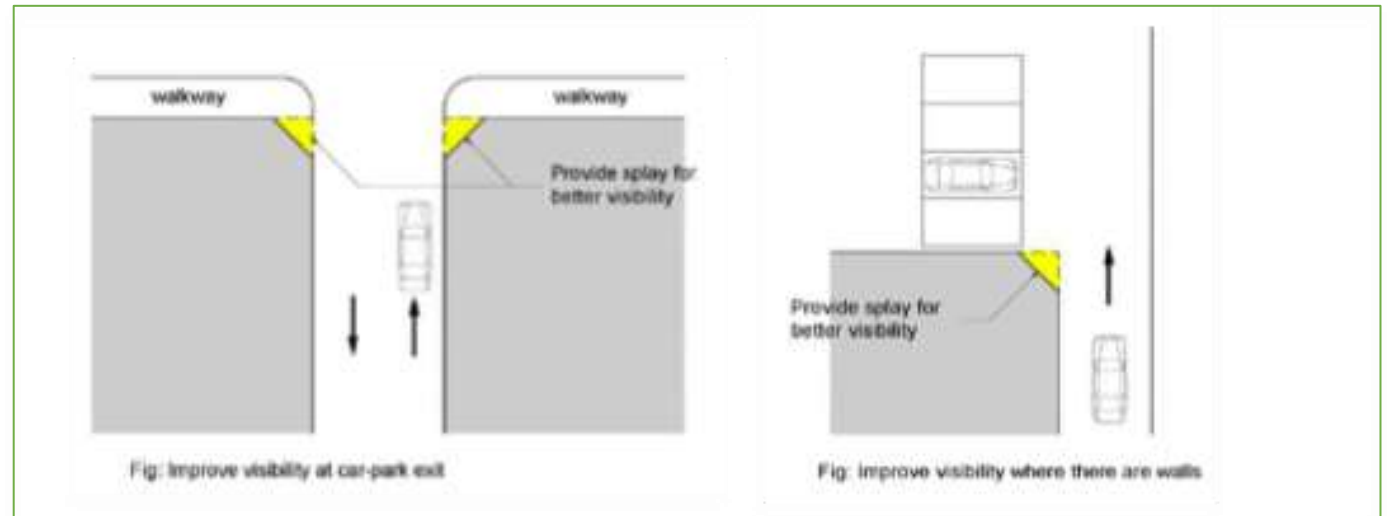
- Adequate sight distance or splay corners for exiting driveways should be provided in order to allow sufficient line of sight for motorists to see approaching pedestrians crossing or another traffic lane.
- No sign, wall or other obstruction shall be erected within this clear sight distance triangles. Convex mirrors should be located appropriately at sharp building edges and blind spot areas.

1) Reduce Visual Intrusion / Effect

- To reduce visual intrusion at the carpark building entrance, circular access ramps and along circular ramps, care consideration of contrast color painting or material.

2) Mechanized Parking Provision

3) Minimum Parking Provision Standards



2.11.6.8 Type of Building

Parking provision shall be specified by city or town authority.

Parking provision may vary depends on town's public transportation system and its' own planning control.

Note: Following parking provision is recommended for 2012 Yangon situation.

- a) In the urban residential areas for multi-storeyed units (R), there should **be minimum one parking space for one residential unit**, and for service apartments units (R6), there should be minimum one parking space for two residential units, planned separately as parking lots or in the garages or as specified by Regional Governments, and concerned authorities of respected towns and regions. The road and parking areas cannot be counted as play and green areas as required in part 2, paragraph 6 of these codes.
- b) For shopping centres, there shall be **minimum one parking space for 1000 square feet sales floor area**, planned separately as parking lots or as parking spaces; or as specified by Regional Governments, and concerned authorities of respected towns and regions.
- c) For offices in the urban areas, there should be **minimum one parking space for 10 employees**, planned separately as parking lots or as parking space; or as specified by Regional Governments, and concerned authorities of respected towns and regions.
- d) For other commercial establishments like banks, restaurants, clubs, hotels, etc. the additional calculation for parking requirements must be submitted together with planning and **building permit**.

2.11.7 Recreation Areas

This sub-section will be added in next edition.

Thank You