

Subject P&G Reading

Date 17 September 2020

LPA Ref 200860

Parking layout design approach

The proposed layout responds to the constraints imposed by limited space and particular user operations. The layout satisfies the requirements for a long stay car park, with low turnover and low traffic speeds, which is used exclusively by employees who are very familiar with the parking arrangements. Parking spaces are 4.8m long x 2.4m wide in accordance with guidance documents with minimum 5.5m wide one-way aisles.

P&G is fully aware of the variations and the resulting limitations, such as restricted space between parked vehicles and more difficult manoeuvring. The proposed layout of the car parking areas is considered fit for purpose and has followed the intent of the appropriate guidance documents as below.

Reading Borough Local Development Framework

The Revised Parking Standards and Design SPD (Final - Adopted 31st October 2011) notes that *“Parking spaces are recommended to be designed at 5.0m long x 2.5m wide, however guidance set out within ‘Manual for Streets’ will be considered on merit”*.

Consideration has been given to the guidance in Manual for Streets as below.

Manual for Streets

The Manual for Streets (MfS) document published by the Department for Transport 2007 set out dimensions for car-parking spaces and manoeuvring areas.

8.3.49 For perpendicular parking, individual bays will need to be indicated or marked. Bays will need to enclose a rectangular area about 2.4 m wide and a minimum of 4.2 m long.

8.3.51 The width needed to access perpendicular spaces conveniently, depends on the width of the bay and the angle of approach. For a 2.4 m wide bay, these values are typically:

- at 90 degrees, W = 6.0 m;

8.3.52 These width requirements can be reduced if the spaces are made wider.

8.3.53 Where space is limited it may not be possible to provide for vehicles to get into the spaces in one movement. Some back and fore manoeuvring may be required. This is likely to be acceptable where traffic volumes and speeds are low.

Parking spaces in the proposed layout are 4.8m long x 2.4m wide in accordance with the Manual for Streets (MfS) document.

The parking aisles in the proposed layout are minimum 5.5m wide with travel in one direction only, thus some back and fore manoeuvring may be required. This is considered acceptable as the short aisle lengths realise low traffic speeds and traffic flows are low as the car parks are used exclusively by employees.

Design recommendations for multi-storey and underground car parks (Fourth edition) March 2011

This document published by the Institution of Structural Engineers (IStructE) provides globally recognised design advice on the geometric requirements for the layout of car parks.

4.3.1 Introduction

Parking arrangements should be designed to allow drivers to manoeuvre easily and safely and, where appropriate, to segregate vehicles from pedestrian areas and routes. The manoeuvring ease is a function of aisle and bay widths, which also influence the dynamic capacity of the car park. For longer stay car parks, this is not so critical; therefore the bay dimensions could be reduced where customers are more familiar with the parking arrangements, such as at office or station car parks.

4.3.2 Bay width and length

Recommended practice is to design for normal use by the standard car and for occasional use by the large car. Typical bay dimensions for standard cars are shown in Table 4.2.

Table 4.2 Car bay dimensions

Type of parking	Length ^b (m)	Width (m)	Comment
Mixed use	4.80	2.40	Mixed occupancy
Short-stay	4.80	2.50	Typically less than two hours
Long-stay	4.80	2.30	One movement per day, e.g. business car park
Disabled user	4.80	3.60 ^c	—
Parent/child	4.80	3.20 ^d	—

Notes

a All the dimensions are to be clear of any projections, but see Section 4.3.4.

b The preferred dimension is 4.80m for all bay lengths. However, with restricted space and appropriate signage, this can sometimes be reduced for small/city vehicles (see Section 4.4.1).

c The bay width for use by disabled persons allows for the door to be fully opened to improve movement in and out of the car and to provide greater room for assistance to be given to those less mobile. Additional details are given in Traffic Advisory Leaflet 5/95 *Parking for Disabled*^{4,3} and the Building Regulations^{4,4,4.5}.

d The bay width for use by parent and child allows for the door to be opened more fully for access to child seats.

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4.3.3 Aisle width and bin width

Guidance for aisle and bin widths for various parking angles with bays on each side is shown in Table 4.3. To suit constraints imposed by limited space or particular user operations, variations to these dimensions can be considered. Where this results in reduced dimensions, the client should be made aware of the variations and the resulting limitations, such as restricted space between parked vehicles and more difficult manoeuvring.

Table 4.3 Recommended aisle and bin widths

Parking angle	Preferred aisle width (m)	Bay width (m)	Preferred bin width for 4.80m bay length (m)
90°	Two-way aisle: 6.95	All	16.55
90°	One-way aisle: 6.00	All	15.60
60°	4.20	2.30 2.40 2.50	14.85 14.95 15.05
45°	3.60	2.30 2.40 2.50	13.65 13.80 13.95

Parking spaces in the proposed layout are 4.8m long x 2.4m wide in accordance with the IStructE document guidance for long stay car parks for offices. The parking aisles are minimum 5.5m wide with travel in one direction only, thus more difficult manoeuvring for some larger cars. The client is fully aware of the variations and the resulting limitations, such as restricted space between parked vehicles and more difficult manoeuvring.