LONDON FIRE BRIGADE

Fire Safety Guidance Note: Access for Fire Appliances

GN29

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The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London.

This Guidance Note covers the access arrangements needed for fire appliances to get close enough to a building to fight fire. It details such requirements as minimum road widths, turning circles, road humps and projections from buildings. It is primarily aimed at developers and architects for planning reference but may be useful to anyone who has concerns about fire brigade access to a building.

1 Introduction

1.1 This document has been prepared by the Fire Safety Regulation Department, London Fire Brigade (LFB).

1.2 The purpose of this Guidance Note is to provide information to specialists and the public regarding fire brigade access for fire appliances to and around buildings. This information should be used to plan for new premises, inform and review fire risk assessments (FRAs) and review existing access arrangements where necessary.

2 Other Authorities you may need to Consult

2.1 As the local authority administers the Building Regulations, where access and facilities for the fire service are concerned, the authority concerned should be consulted.

3 General

3.1 Access roads may be public highways, private roads, footpaths, or specially strengthened and defined routes through the land surrounding the buildings. The recommendations for London Fire Brigade pumping appliances, aerial appliances and special large appliances are detailed below:

	*Pump (P)	32m Turntable Ladder (TL)	64m Turntable Ladder (TL)	Fire Rescue Unit (FRU)	Special
Min width between kerbs (m)	3.7				
Min Width of gateway (m)	3.2				
Max. width considering equipment trays, any extending legs (m)	4.18	5.6 without spreader plates	6.4 with spreader plates	5.34	4.4
Min clearance height (m)	3.505	3.45	4.15	3.3	4.25
Appliance length(m)	8.13	10.3	12	9.2	9.9
Min sweep circle (turning circle between walls) (m)	17	19.5	23.5	18.6	24.5
Min turning circle between kerbs (m)	16	17.5	21.5	17	22
Gross Vehicle Weight (GVW) (KG)	16000	20500	32000	14500	26000
Capacity, Gross Laden Weight (GLW) (KG)	14838	17284	30173	12900	24600

* NB: Pump (P) appliance includes new Zero Emissions Pumping Appliance (ZEPA) requirements

Table 1- Typical vehicle access route specification

3.2 It should be noted that any or all of the appliances noted could be attending a fire or other incident at any location and therefore, the upper number for width and weight considerations should be utilised in any deliberations for access at any location. It should also be noted that the weight and width considerations should be through any gateway and into the surrounding area as firefighters will need to gain access to the appliance concerned.

4 Access

Access for all appliance types

4.1 Access roads for appliances should be provided with a minimum 10 metre working area(s) at appropriate locations where appliances are to be positioned and used around the building. This will enable all types of appliance to operate at their optimum height and reach. Roads, including any inspection covers and public utility service pits, should be capable of carrying the maximum weight set out in Table 1.

Aerial appliances

4.2 Due to the weight of high and special reach appliances being distributed over several axles, it is considered that their infrequent use of a carriageway or route designed to 16.0 tonnes should not cause damage. It would therefore be reasonable to design the road base to 16.0 tonnes, although structures such as bridges should have the full 32.0 tonnes capacity.

4.3 In addition, aerial appliances will need to extend jacks from the appliances if they are to be used in any work environment. Turntable ladders, and aerial platforms are fitted with four ground jacks as stabilisers. Under normal working conditions the weight on the jack should not exceed 14.6 tonnes.

4.4 Overhang of booms on headrest do not exceed 1.83m from foremost part of the vehicle.

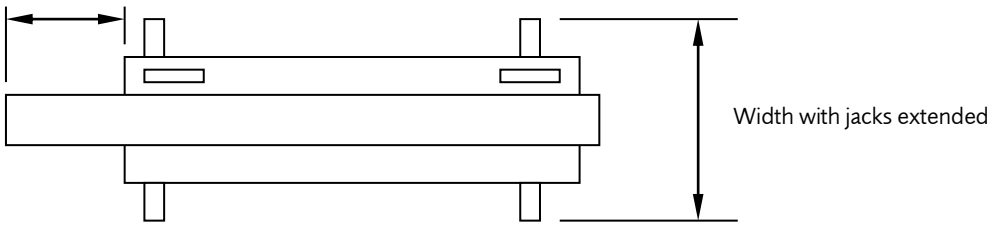

Figure 1 Aerial appliance overhang dimension and width with jacks extended. See Table 1 for Jack widths

4.5 With regard to Diagram 15.2 of ADB B5 Volume 2, the maximum and minimum distances and width of aerial appliances for the LFB are:

A = 4.9 metres

B = 7.0 metres

C = 12.0 metres

D = 2.2 metres

Access road gradients

4.6 Gradients on any access road to be used by fire appliances should be no greater than 1 in 4 (25%). The approach and departure angles to any gradient should not exceed 12°.

5 Turning and Sweep Circles of Appliances

5.1 When providing access for appliances, allowance should be made for an appliance's turning circle and sweep circles. Additional turning spaces should be provided where corners must be negotiated, and sweep circles should not be obstructed above kerb height.

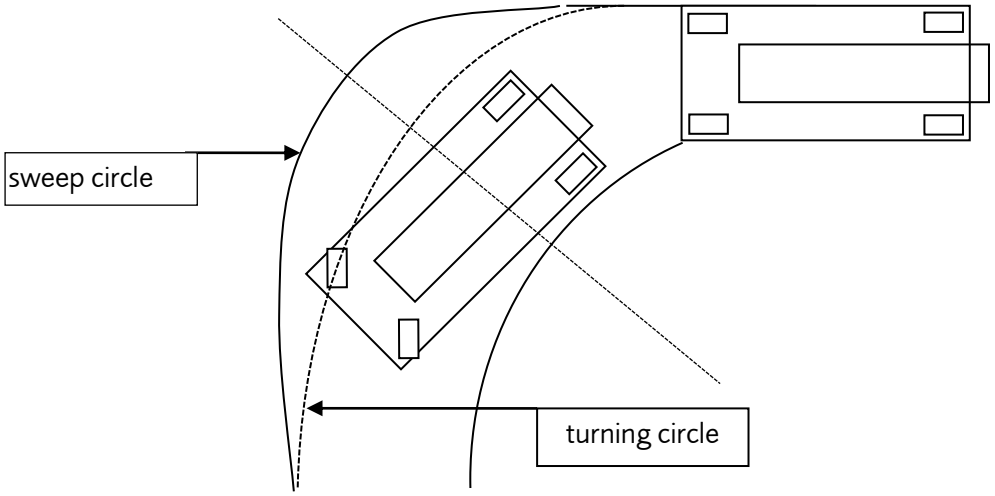

Figure 2 Appliance sweep and turning circles. See Table 1 for figures

6 Dead End Access

6.1 Turning facilities should be provided in any dead-end access route that is more than 20m long This can be a hammerhead or turning circle as described in Diagram 15.3 Turning facilities, of Volume 2 of ADB (Diagram 13.1 in ADB Volume 1).

7 Access for Buildings

7.1 Access to the exteriors of the building is needed to enable high reach appliances to be used and pumping appliances to supply water and equipment for fire fighting and rescue activities. These access requirements increase with the building size and height. Vehicle access requirements are commented on in the current versions, Volumes 1 and 2 of ADB, Requirement B5: Access and facilities for the fire service. Alternatively, the current version of BS 9999 Fire safety in the design, management and use of buildings Code of practice or BS 9991 Fire safety in the design, management and use of residential buildings Code of practice can be utilised

8 Obstruction to Access

8.1 All access roads for Fire Brigade appliances should be kept clear of any obstructions. It may, however, be considered necessary to restrict unauthorised entry and various arrangements are set out below.

8.2 Before any obstructions are installed the proposed arrangements should be advised to the local LFB fire safety team who can liaise with the local fire station as necessary,

9 Posts and Bollards

9.1 Siting of bollards must not obstruct the use of hydrants.

Fixed and removable posts or bollards

9.2 When considering the type of post or bollard to be used, either fixed or removable, it is particularly important to bear in mind the type of scheme being considered.

9.3 If the scheme is a simple environmental improvements scheme in a thoroughfare it may be acceptable for a row of fixed bollards to be spaced along the kerb line. If this is not acceptable to the traffic authority, there are a number of options:

(a) Intermediate bollards of a lower height i.e., below 230mm in height.

(b) A removable bollard - one only for any access route. Removable bollards may be of galvanised steel tube. They should be secured in position with a standard Fire Brigade (FB) padlock or GERDA key.

Collapsible posts or bollards

9.4 Collapsible posts and bollards are acceptable in certain cases provided they do not project more than 150mm above ground level when folded and are not of such a type that an appliance passing over one end of the collapsed bollard will raise the other end and foul the appliance. Collapsible posts may be of iron pivoted near the ground. They should be secured by a standard FB padlock or GERDA key.

Flexible posts or bollards

9.5 Any proposal to use flexible bollards of a new or improved design should be referred (with particulars of the design) to the local LFB fire safety office.

10 Width Restrictions

10.1 Closure of the roadway by a lockable gate or removable post(s) is not permitted where the restriction extends the attendance times. A raised paved area of any sort in the centre section of a width restriction is not acceptable except where it forms a control island with posts to prevent traffic mounting the pavement. It should have a kerb height not exceeding 100mm. It is essential to ensure that these posts are easily removable.

10.2 Any gate or removable post(s) must be secured only at one point and with a standard FB padlock or GERDA key.

10.3 If an appliance would have to mount the pavement to pass a restriction there should be no obstructions in the form of shop blinds, trees or street furniture which might impede its passage. The total width available for the passage of appliances, i.e., combined width of road and pavement, must not be less than 3.1m with a straight approach. Where the approach is at an angle, up to 5m may be necessary.

11 Gate Barriers

11.1 Barriers are not acceptable on through routes and only one barrier is acceptable on a route to an estate. Thus, if a barrier is provided on an estate, the route from the local fire station to that estate must not be additionally obstructed in any way.

11.2 Tests have shown that time is lost through the appliance and crew negotiating their way through a barrier through stopping, dismounting, removing an obstruction, remounting and proceeding. This time is impacted if the lock is not in good order and the obstruction cannot be easily removed.

11.3 Most types of gate barrier are acceptable if they meet the following criteria: -

(a) They must be quickly and easily openable by LFB personnel.

(b) They must be only secured at one point by a standard FB padlock or Gerda key.

11.4 Any proposal to install electrically operated barriers should be referred to the local LFB fire safety office. Measures should be taken to ensure that parking will not take place in the immediate vicinity of a barrier and where it is known that parking is likely to take place, the scheme should not be allowed.

12 Speed Control Humps

12.1 The Highways (Road Humps) Regulations 1999 stipulate precise and demanding criteria for the construction, siting and signing of road humps on public roads.

12.2 Regulation 3(b) of the Highways (Road Humps) Regulations 1999 confirms the London Fire Brigade should be consulted when a borough proposes introducing a road hump scheme.

12.3 Written notification of the final scheme details should be presented to the LFB at least one month prior to implementation. Such notification would enable the Officers to consider and introduce any contingency arrangements that may be possible.

12.4 Proposals to amend any part of an existing scheme should be subject to further notification and consultation in order that Officers may consider the full implications of the revised scheme and regarding any adjacent traffic management schemes.

12.5 Although the LFB is supportive of the aims of traffic management schemes it should be remembered that each road hump delays a fire appliance by approximately ten seconds. (Six humps represent a delay of one minute). Every consideration should be given to the introduction of other traffic calming measures in place of road humps, with road humps only being used to complement the total scheme.

12.6 A typical location for a road hump system would be a long and fairly straight secondary road situated in a residential area. The LFB's case will then need to be based on the distance from the nearest fire station and whether the road on which the humps are to be constructed is one which is essential for access, and for which no suitable alternative is available. Additional factors to be considered include: -

(a) **Type of road humps**: Round top humps are preferred to those with a flat top.

(b) **Size**: Humps of 50mm high are preferable to those of 75mm or 100mm high. The overall length of a specific type of hump should be as near to the recommended minimum as possible.

(c) **Distance between humps**: In general, the Brigade would prefer the maximum possible distance between humps. However, there may be specific sections of a road on which it is desired to achieve a more defined speed limitation, and which consequently will result in closer positioning of humps. Accordingly, such measures should not apply to the whole length of the road.

(d) **Number of humps**: The removal of previous restrictions on the number of humps in a series may lead to a tendency to identify road(s), which though worthy of the installation of road humps, could result in unnecessarily extensive series of road humps. This tendency should be avoided and humps only installed where their specific benefits have been identified.

(e) **Location of road humps**: Generally, the placement of road humps within close proximity of bus stops, round-a-bouts, road junctions and on dual carriageways are likely to lead to speed reductions, but correspondingly heavier traffic congestion which would, invariably, further delay appliances attending emergency incidents. Therefore, such proposals would be discouraged.

(f) **Speed Tables**: The Highways (Road Humps) Regulations 1999 indicate a minimum length for a road hump but not a maximum length. This allows a road to be raised for a considerable distance to provide a flat-topped table, these are known as Speed Tables.

12.7 Speed Cushions are normal road humps with gaps to allow the passage of large vehicles, e.g. fire appliances and buses. Conditions a) – f) above also apply to speed cushions although they are generally more acceptable to the LFB.

13 Pedestrianised Areas

13.1 A clearly defined fire path of sufficient width, and capable of supporting the weight of a pumping appliance is required through a pedestrianised area. (This may be indicated by the use of different coloured concrete or different paving patterns). Where tall buildings abut, the fire path will need to be of sufficient width for use by aerial appliances giving consideration for their working dimensions and increased weight loading requirements.

13.2 The siting of the fire path should consider building design features, e.g., canopies, extended shop fronts, etc. and any other road furniture. (these features may affect the positioning and operational use of aerial appliances and/or ladders).

13.3 No physical obstructions including seating, trees or flower beds should obstruct the fire path and no street furniture e.g., lamp posts, should be allowed which could prevent the use of ladders by firefighters.

13.4 If appliance access to a pedestrianised area crosses a kerb, it should be ramped with a steady incline for a minimum length of 500mm with the difference in levels not exceeding 100mm and both ends inset.

14 Standard Padlocks

14.1 Fire Brigade padlocks and keys are generally available from hardware suppliers. Please refer to the telephone directory for your nearest outlet. For GERDA locks consult their website http://www.gerdasecurity.co.uk/

15 Water Mains, Fire Hydrants and Alternative Supplies of Water for Fire Fighting

15.1 The provision of fire hydrants and other facilities for firefighting must be in accordance with the current version of both the Building Regulations and Approved Document B. Fire hydrant flow rates for firefighting should be in accordance with the National guidance document on the provision of water for firefighting, which is available via Water UK's website, https://www.water.org.uk

15.2 Building development sometimes necessitates the closure of thoroughfares and the disestablishment of existing water mains. It will be necessary to decide in such cases whether any hydrants affected may be abolished or whether they should be refixed in new positions. The cost of such work will be met by the developer.

15.3 Subject to the terms of the planning agreement and any conditions under the Community Infrastructure Levy, the cost of additional statutory fire hydrants will normally be met by the London Fire Brigade. However, it may not be practicable, owing to the absence of statutory mains within the development area, to provide adequate cover by the installation of statutory fire hydrants. In such cases it may be a requirement to install private fire hydrants sealed in preference to metered (this will be decided by the water authority) and attached to a water main suitable for firefighting.

The hydrants should be installed in suitable locations within an appropriate and accessible distance to the buildings they cover. Access to hydrants must be measured via a route suitable for laying hose, this means access should not be obscured by walls, roads, or any other means. The Brigade will advise on such installation's requirements on receipt of the site plan.

Please e-mail electronic copies of the plans detailing the size, nature and usage of the building (residential, commercial, industrial, mixed usage, etc) , the water mains layouts including mains sizes, and the location of any dry or wet risers to water@london-fire.gov.uk. If submitting paper plans, please provide two copies of the site plan to the address detailed in 15.8.

15.4 When new mains are to be laid by a water undertaker, an INSET/NAV company or by self-lay, consideration must be given to proposed size in relation to the flow of water required for firefighting Please refer to the National guidance document on the provision of water for firefighting which is available from the Water UK website, https://www.water.org.uk. Advice and guidance may also be obtained from the London Fire Brigade Water Team either via an e-mail to water@london-fire.gov.uk or via the switchboard on 020 8555 1200.

15.5 Statutory and private hydrants should be underground hydrants of wedge gate valve, screwdown, or thorough-bore design and conform to the current version of British Standard (BS) 750: Specification for underground fire hydrants and surface box frames and covers. They should be installed in footways immediately adjoining the access roads referred to and must be installed so that they are kept free of any obstructions (NB - hydrants must not be installed in parking bays, unmade areas, flowerbeds, or other areas where they could become damaged, obstructed and /or inaccessible).

15.6 The positions of the hydrants should be indicated by standard plates as detailed in the current version of BS 325: Indicator plates for fire hydrants and emergency water supplies.

15.7 Where either no piped water is available or the required flow rate for firefighting cannot be achieved via fire hydrants alone, developers must consider the use of alternative or complementary supplies as outlined in the current version(s) of Building Regulations Approved Document B. These measures may include automatic fire suppression systems, the use of storage tanks of water of appropriate capacity, the use of open water sources able to deliver a suitable supply of water all year around, or any other means of water supply for firefighting considered appropriate by the London Fire Brigade.

15.8 For other general enquiries relating to hydrant matters within the London boroughs, please contact the London Fire Brigade Water Team either via an e-mail to water@london-fire.gov.uk or via the switchboard on 020 8555 1200. The Water Team is normally staffed from 7am to 5pm Monday to Friday. Please note the Water Team is not staffed in the evenings, at weekends or on Public Holidays.

The postal address is:

London Fire Brigade
Water Team
169 Union Street
London
SE1 0LL

The Water Team's email address is water@london-fire.gov.uk

The Water Team may also be contacted using the Contact Us facility on the London Fire Brigade website: https://www.london-fire.gov.uk/contact-us/

16 Standards

16.1 The Standard or Code to be followed will normally be that current at the time the Brigade is consulted subject to any specific requirement contained in a statutory consent or approval relating to a development.

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