Revised: May 2017
Valid: September 2019
Authorised: Manager Built Environment Branch

GL-11: DFES SITE PLANNING AND FIRE APPLIANCE SPECIFICATIONS

PURPOSE:

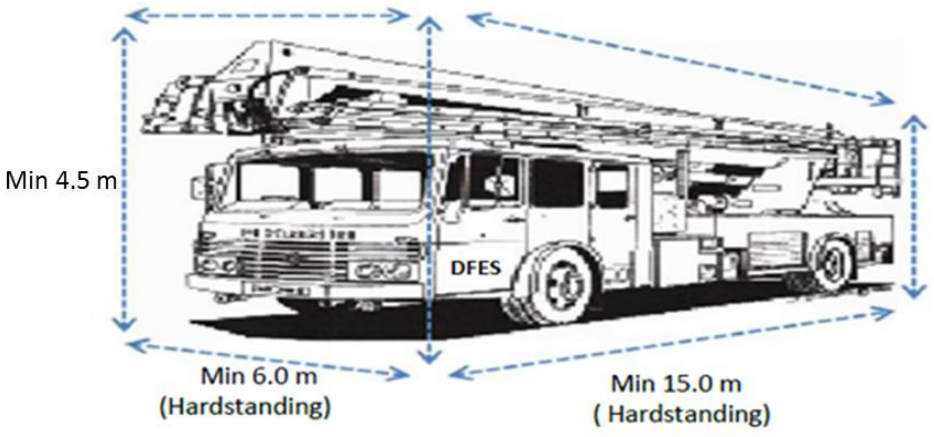
To provide guidance to building designers so that adequate access to and around developments is provided to meet Department of Fire and Emergency Services (DFES) operational requirements, requirements of the Building Code of Australia and applicable Australian Standards.

INTRODUCTION:

Fire appliance weights and turning radii mentioned are subject to change as a result of the introduction of new vehicles and/or to account for changes to existing vehicles.

Requirements	
Minimum Gross Operational weight	30 Tonne
Minimum Overhead Clearance	4.5 m
Minimum Width of Fire Appliance Accessway	3.5 m
Minimum Width of Perimeter Vehicular Access for Large Isolated Building	6.0 m
Minimum Lateral Clearance	2.0 m
Hardstanding	6.0 m wide x 15.0 m
Minimum Turning Circle Kerb / Kerb	24.0 m
Minimum Turning Circle Wall/ Wall	28.0 m
Maximum Dead-end	45.0 m
Maximum Gradient	1:15

Figure 1. Typical parked aerial fire appliance without front and rear jacks extended



COMMENT:

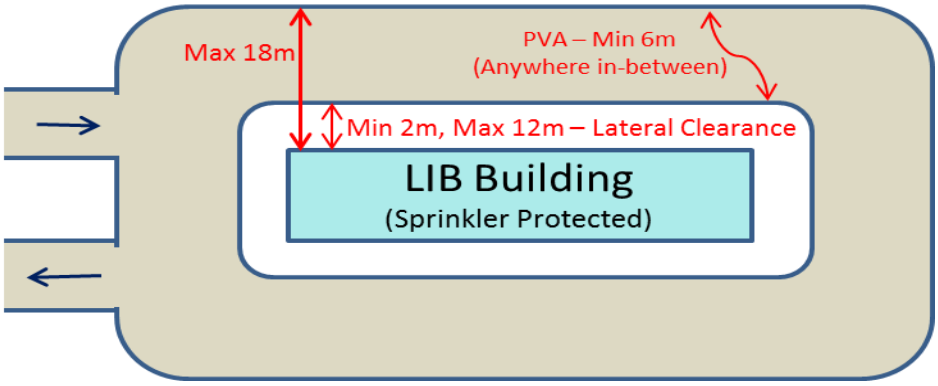
A. Hardstanding, Fire Appliance Accessway and Perimeter Vehicular Access (PVA) of a Large Isolated Building (LIB)

In general, the minimum width of the hardstanding space required shall be 6m and the minimum length shall be 15m (see Figure 1 and 2). Hardstanding and fire appliance accessway shall be provided in accordance with the BCA and shall be designed and constructed in accordance with AS2419.1.

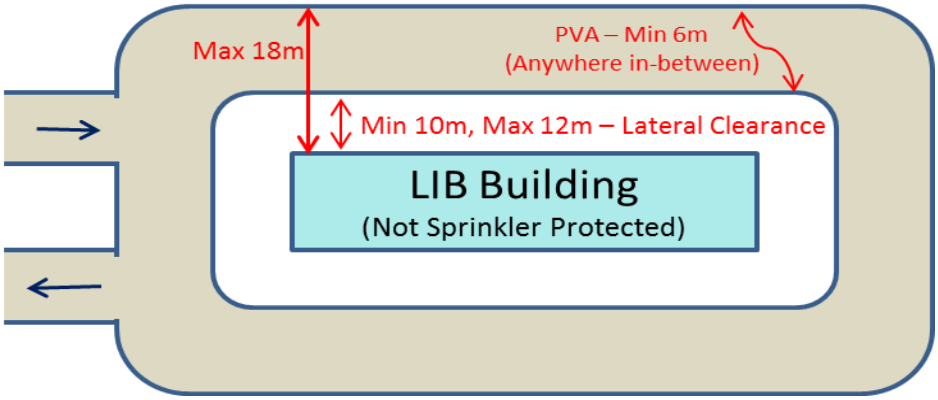
The fire appliance accessway shall have a minimum width of 3.5m. However, for a LIB, the entire PVA (capable of providing fire appliance access and passage from a public road), shall have a minimum width of 6m throughout (with no part of its furthest boundary more than 18m from the building). The 6m wide PVA is to be confirmed clear at all times and shall be constructed as hardstanding to allow fire brigade appliances to be positioned appropriately, depending on operational requirements.

The PVA shall be able to accommodate the entry and manoeuvring of a longer fire aerial appliance. Any PVA provided in very close proximity to a structure restricts appliance manoeuvrability, in particular negotiating corners. This problem is especially exacerbated where longer fire aerial appliances are deployed.

Where the LIB is sprinkler protected, the PVA shall be located at least 2m from, but not more than 12m away throughout, from the external wall or façade (including any overhead obstruction) of the building.



Where the LIB is not sprinkler protected, DFES believes that a minimum distance of 10 metres should exist between the subject structures (LIB) and the near side of the PVA. Detailed explanation is available on the DFES website in 'Technical Note 03/16 Perimeter Vehicular Access – Large Isolated Buildings'.



B. Loading

The perimeter vehicular access required to serve a building shall be constructed to withstand the load of a 30 tonne fire appliance.

DFES accepts only all-weather pavements such as asphalt/bituminous concrete and concrete paving. The use of crushed rock and compacted gravel (or the like) for the surface of the hardstanding is NOT considered appropriate and is not permitted. The accessway must be able to maintain its integrity at all times.

C. Obstruction

Hardstanding, which is specially designated for the operation of the fire appliance and located adjacent to a tank, hydrant or booster, should be marked with appropriate signage (lettering size shall not be less than 20cm) to prevent unauthorised parking of other vehicles. It should be highlighted with contrasting colours (preferably yellow) to the background for better visibility and easy identification by responding fire fighters. Reflective material may also be used to demarcate the hardstanding space. This will help fire fighters to readily locate it when responding to a fire incident at night (see Figure 2).

D. Mountable Kerb as part of Fire Appliance Accessway

All kerbs constructed as part of the lane for fire appliance accessway should be no higher than 100 mm or be of the mountable type.

Mountable kerbs at each lane entrance for fire appliance accessway (or where there is no kerbing the edge of the adjacent road surface), shall have "Emergency Access Lane – No Parking", painted with a red and white striped band indicating the full width of the entry point. Measures should be put in place to ensure that the entrance and exit to the lane shall not be obstructed nor used as designated public parking and shall be cleared of any obstruction at all times.

If it is outside of a normal road, clear prominent lane edge markings, entrance markings and exit markings should be provided. A sign displaying the wording "Fire Appliance Access – Keep Clear" of appropriate weather resistant material shall be suspended from mild steel chain between steel bollards at each entrance/exit to the lane or attached to other suitable adjacent fence or structure.

E. Fire Brigade Booster Assembly Cabinet

For fire brigade booster assembly, the cabinet shall be facing and located in a position such that a fire brigade pumping appliance can be positioned on a hardstand located at least 2m, but not more than 8m away (and not more than 4.5m for booster assembly provided with Storz coupling connection).

Placement of the Booster Cabinet must facilitate rapid recognition and connection by arriving fire appliance(s). It shall be at the front, within sight of the main entrance to the main building, open facing the roadway and not be concealed from view from the arriving fire appliance(s). Please ensure that the road (where used as a hardstand) is neither obstructed, nor used as designated vehicle parking area.

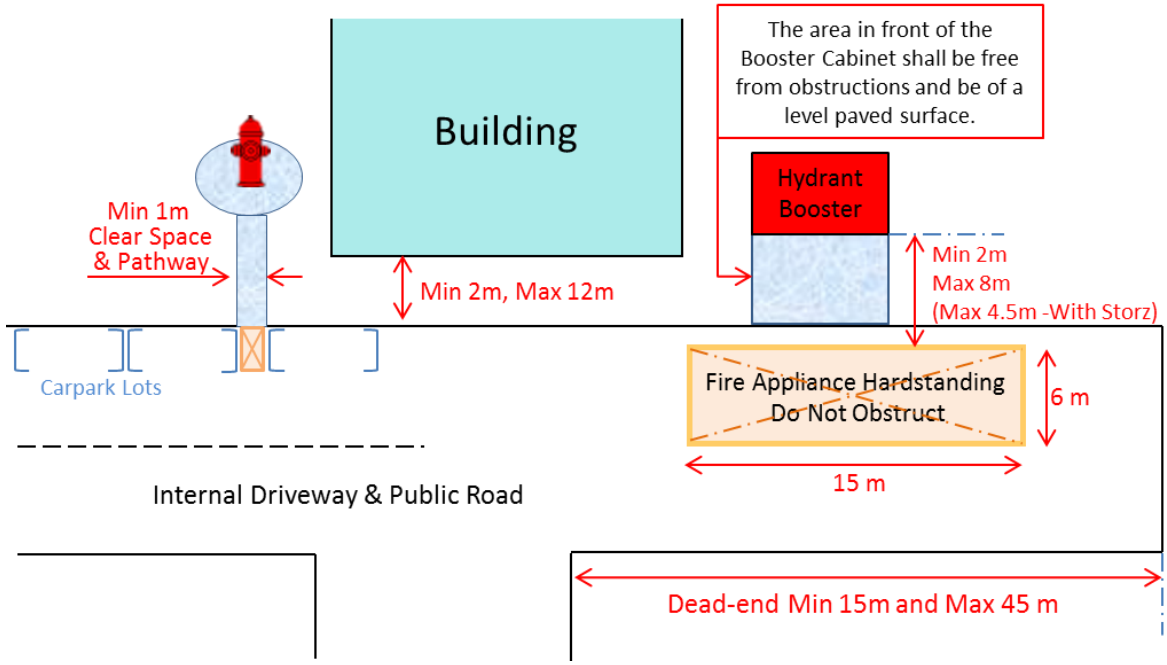
Booster, hydrant and hard suction cabinet/enclosure shall be of sufficient size to house all equipment and be of a design that facilitates access to and handling of the equipment with ease. Cabinets or enclosures shall contain only firefighting equipment, must be of weather proof, anti-vandal construction and be provided with a square taper (budget key) locking device.

F. External On-site Feed Hydrant

Hydrants shall be adequately supported and prominently located along the fire appliance accessway such that every part of the accessway is within an unobstructed distance of 20 m from any hydrant.

For any Hydrant that is hidden from view (for example due to parked vehicles), DFES requires that appropriate signage is provided and secured (at an appropriate height) to a fence, wall or pole, to inform attending crews of the hydrant location. A clear space of 1m must be provided around the hydrant and protected by bollards to prevent accidental damage (where necessary). DFES requires that 1m separation is provided in-between the car park lots and a suitable paved pathway, in between plants and bushes (walls or other features should not impede the pathway), leading to the hydrant.

Figure 2. Markings for Fire Brigade Hardstanding



All gateways within a fence that forms part of a fire appliance accessway shall have a sign post displaying the wording "Fire Appliance Access – Keep Clear". It shall be provided at all entrances to the accessway. The sign shall be displayed prominently and the size of lettering shall not be less than 75mm.

G. Overhead Clearance

The overhead clearance of fire appliance accessway shall be at least 4.5m high for the passage of fire appliances (see Figure 3). Please note that the overhead clearance refers to entrance gate, conveyor belts, bridges, connecting buildings, etc. Please note that there shall not be any undercover areas/canopies/roof overs/verandahs/awnings, etc. as part of the accessway.

H. Lateral Clearance

Perimeter vehicular access shall be positioned so that the nearer edge, external wall or façade of the building (including any overhead obstruction) shall be not less than 2m, but not more than 12m away, measured horizontally (see Figure 3a). A desired lateral clearance of 1m shall be required for fire appliance accessway between any object/encroachments (see Figure 3b).

Nb. If an aerial fire appliance is located within 2m from a building, it falls outside its safe working limit (i.e. the inclination of the ladder would be too steep) and if the aerial fire appliance is located more than 12m from the building, the effective reach of the aerial ladder is reduced.

Figure 3a. Overhead and lateral clearance for Perimeter Vehicular Access (PVA)

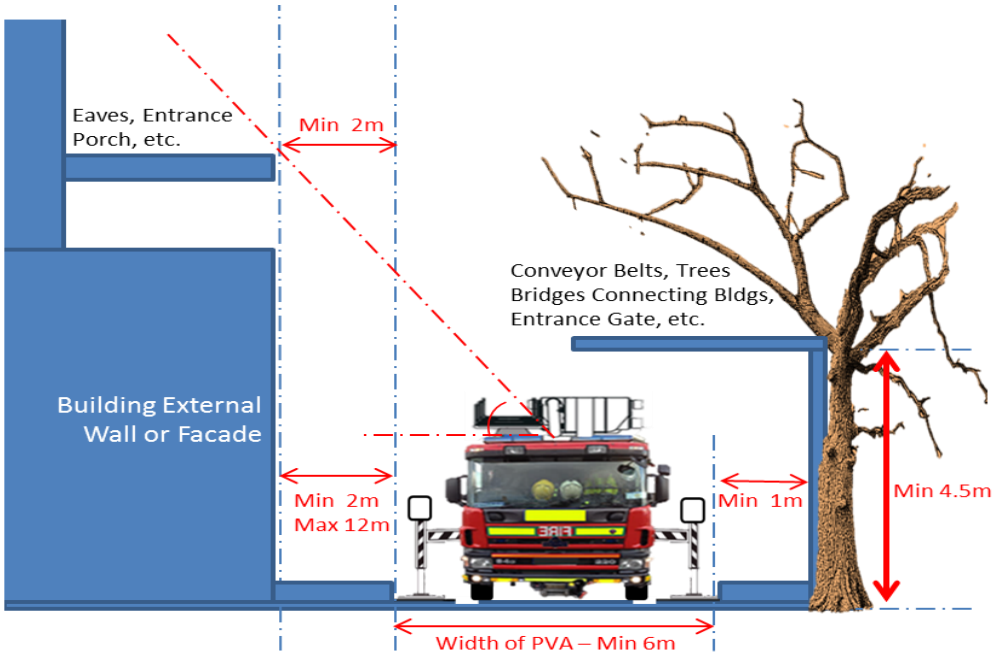
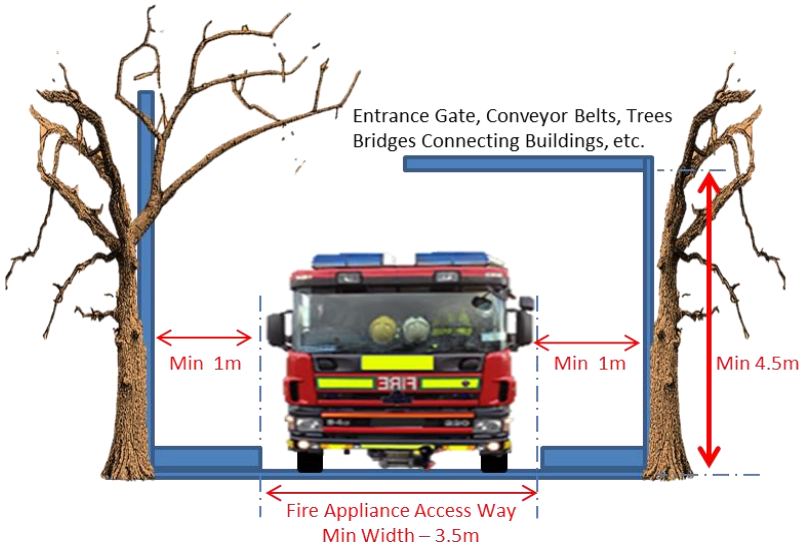
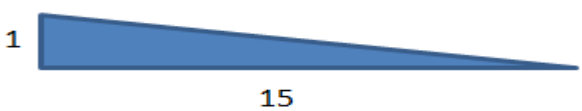


Figure 3b. Overhead and lateral clearance for Fire Appliance Accessway



I. Gradients of Accessway

Hardstanding and perimeter vehicular access shall be laid on level ground or if on an incline, the gradient shall not exceed 1:15.

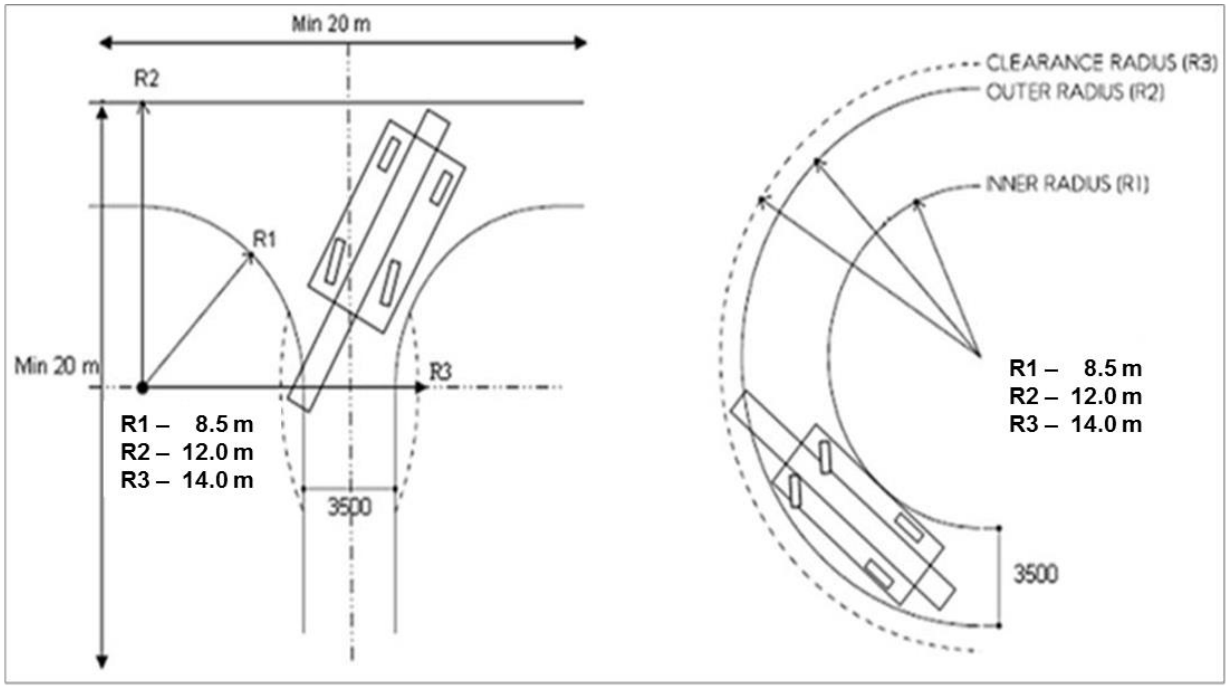


J. Turning Facilities

Fire appliance accessway dead-ends shall not exceed 45m nor be less than 15m in length. If exceeding 45m, then turning facilities at the dead-end (a turning circle or a hammerhead) must be provided as shown in Figure 4 below.

The outer radius for turning in an accessway and fire appliance access road shall comply with the requirements noted in Figure 4 below.

Figure 4. (a) Turning facility for fire appliance **(b) U-turn facility for fire appliance**



REFERENCES:

Building Code of Australia, ACT, Australia. ABCB
International Fire Engineering Guidelines, (2005 Edition), ABCB.

LEGISLATION:

Building Act 2011.
Building Regulations 2012 (as amended).

***Please note**: This is a controlled document. DFES guidelines are available on the DFES Website: www.dfes.wa.gov.au under Regulation and Compliance, Building Plan Assessment then click on Publications/Guidelines.*

Should the information provided in this guideline require further clarification, please contact DFES Built Environment Branch via email bebadmin@dfes.wa.gov.au.

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