



Building Design Recommendations

SA Ambulance Service

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Introduction

SA Ambulance Service provides emergency medical assistance, treatment and transport, non-urgent patient transport and high-quality patient care to the people of South Australia.

Often SAAS are called to provide assistance to people within large centres such as aged care facilities, nursing homes, multi-storey housing and GP plus Clinics.

SAAS ability to attend to these calls efficiently and without risk to both patient and staff is dependent on the layout and design of the facility.

There is a link between the layout and design of a workplace and the risk of musculoskeletal disorders.

Purpose

This guideline was developed by the SA Ambulance Service (SAAS) for industry and contains recommendations that will ensure safe access and egress to South Australians requiring the assistance of SAAS.

Renovations or the building of new facilities provides an ideal time to incorporate ergonomic and occupational health and safety considerations into the planning process. This guideline is designed to inform new builds and development or upgrades to facilities to improve access to a patient with the ambulance stretcher and vehicle, in the event of a medical emergency vehicle.

It identifies the minimum access requirements and recommended standards in relation to SAAS.

Who is this guideline useful for?

This document is a self-assessment guideline that provides assistance to property developers, design engineers, councils and planning authorities who are involved in preparing and evaluating applications pertaining to the development or redevelopment of facilities within SA.

The scope of this guideline includes:

- Close access for the ambulance vehicle
- Design of carport/ambulance bay
- Access and egress for the ambulance stretcher and personnel
- Space requirements for mobilising the patient onto a stretcher
- Elevator design

If an existing site is unable to comply with the minimum standards this should be communicated clearly with SAAS upon the call out to ensure the most optimum access can be arranged.

What should be considered when designing a new facility to facilitate ambulance service access?

The importance of reaching a medical emergency quickly is somewhat obvious with consideration of the risk to human life and property damage. Prompt and efficient access to a property is critical given the nature of medical emergencies.

In order for the SA Ambulance Service to provide a successful service to the community, the agency needs to:

- Gain access to properties in an efficient manner; and
- Have sufficient room to manoeuvre and operate appliances and emergency vehicles within proximity to the emergency; and
- Have sufficient room to manoeuvre and retrieve a patient from a building.

Refer to Appendix 1 for a checklist of considerations and quick reference to suggested minimum requirements.

Building design and space requirements are dictated by several standards and regulations, which do not always take into consideration the geometric characteristics and special requirements for emergency medical attention.

Environmental Considerations

Lighting

Adequate lighting should be installed at all access and egress points, both on foot and for vehicle access.

Wayfinding

For the time critical emergency situation it is of utmost importance that the Ambulance Service is able to locate the emergency scene as quickly as possible. Facilities should consider and adopt effective wayfinding systems outside the facility, to direct the Ambulance vehicle from the road to nearest access to the scene, and inside of the facility to direct personnel to the patient requiring emergency medical attention.

The AHFG-Part C (Australasian Health Facility Guidelines) describes effective wayfinding systems and tools in detail. At the very least, facilities should implement clear landmarks and signage that includes:

- directional information for driving;
- identity / location to tell people where they are and when they have arrived; and
- a directory - to inform people where they should go

Access/Egress

Entrances

Some sites, such as nursing homes, have secure areas that may need to be accessed by SA Ambulance service in an emergency. A small key box can be installed to allow access with a general ambulance officer Billock key (H key) barrel. These items are supplied by SA Ambulance Building Services who can liaise with builders for installation or arrange for installation.

Please contact SAAS Building Services if this applies to your facility.

Corridors

Recommended clear width: 1800mm

Corridor clear widths, as described in this Section, represent the recommended minimum suggested requirements to allow for the safe movement of a range of equipment, e.g. trolleys, beds, wheelchairs and other mobile equipment, and the passing of such equipment. The term 'clear width' relates to clearance between handrails, wall guards and any other obstructions or protrusions along the length of the corridor. Corridors also need to be suitably sized to facilitate emergency evacuation of a building including movement of people, beds and other associated equipment.

Design guidelines for hospitals and day procedure centres suggest a minimum of 1800mm clear width and up to 2400mm where frequent bed transportation will occur, in addition to an allowance of 100mm for handrails.

Corridor widths of less than 1200mm are deemed unacceptable in patient care areas. Corridors not designed for patient transportation may range from 1200- 1600mm.

Doorways

Recommended clear opening: 1180mm (Minimum) 1350mm (Preferred)

*Ambulance external access/egress doors need to be 1350mm wide

Access and egress for the Ambulance Service via external doors

- Automatic or
- With hold open devices
- No step/lip

Ramps

Ramps should be based on the size and weight of an occupied stretcher with a gradient ratio (slope) of 1/14 at most with rise of 750mm maximum between landings (AHFG) and minimum 1500mm landing length (see Appendix 2). If the ramp winds or changes direction there must be adequate turning room for a stretcher (a wheelchair turning space is not sufficient).

Emergency Exits

Emergency exits - externally require 1850mm square sealed surface, leading onto sealed pathways 900mm or wider

Lifts/Elevators

Recommended dimensions: Width 1500mm Length 2400mm Weight allowed in lift 1000kg minimum

The National Construction Code requires that lifts be able to accommodate a stretcher and to facilitate—

- a. the safe access for emergency services personnel; and
- b. the safe and easy evacuation of occupants who due to illness, injury or disability cannot use stairways in the event of an emergency.

The minimum required dimensions given by the NCC (1100mm wide x 1400mm deep & clear width of door opening >900mm) is not sufficient for ambulance personnel plus the necessary equipment required to attend a sick or injured person.

Carport/Ambulance Bay

Recommended dimensions:

Carport/Bay	Width /Clear Opening	3750mm (4300 required for rear door opening of Bariatric Vehicle)
	Height	3100mm
	Length	12000mm

The NCC requires that vehicles have access from the public road system and must have the width, height and loadbearing capacity to allow the passage in a forward direction around the entire building and parking of emergency vehicles.

The carport loading/unloading area needs to be flat and sealed and area shall have a constant slope no greater than 1 in 32.

There can be no changes in slope from the entire length of the ambulance and the patient loading/unloading area immediately behind- a distance of 12000mm.

In some facilities, it is recommended that there be a designated Ambulance bay, clearly mark and sign posted. This area would require rounded curbs or no curbs to ensure safe stretcher access/egress.

Carports or Ambulance Bays should:

- Be close to the main entrance or frequently attended locations
- Be 'drive in/drive out' to avoid reversing where possible
- Be covered
- Allow easy vehicle access and egress
- Consider patient privacy
- Not be a pedestrian thoroughfare if possible

Ambulance station garage floors and driveways are laid 150mm thick with F82 mesh to accommodate our vehicles. Consider the significant weight of SAAS Ambulance vehicles when planning Ambulance Bays or Carports.

References:

- AS 1428:1-2009 Design for Access and Mobility
- International Health Facility Guidelines Part B: Health Facility Briefing & Design including Functional Planning Units International Health Version 5 2017
- The Department of Human Services, Victoria Design guidelines for hospitals and day procedure centres 02-Nov-04 Issue 1
- AS 1735.12 Lifts, escalators and moving walks- Facilities for persons with disabilities.
- The National Construction Code Volume One Amendment 1 2016
- Australasian Health Facility Guidelines Part C - Design for Access, Mobility, OHS and Security v5
- Arjo Huntleigh Guidebook for Architects and Planners: Functional Design for Mobilisation and Ergonomics. 4th Edition May 2014.

Appendix 1. Checklist- what to consider:

1. Will the emergency ambulance be clearly directed to an area within your facility?
 - a. Are there obvious and visible landmarks?
 - b. Is there clearly visible directional and locational signage?
2. Can the emergency ambulance gain direct access to building entry/exits?
3. Is there adequate space for the ambulance vehicle to park in a position close to the entrance?
4. Is there adequate space to open the vehicle doors and retrieve the stretcher? *at least 3750mm clear opening & 7570mm (L)
5. Is there likely to be a requirement for access from the **Bariatric** Ambulance team? *consider extra space requirements for **Bariatric vehicle**
6. Can the Ambulance Officers easily locate the correct pathway to the patient?
7. Can the Ambulance Officers manoeuvre the stretcher safely out of the Ambulance and into the facility, and as close as possible to the patient? *consider extra space requirements for **Bariatric vehicle**
 - a. Is the surface for manoeuvring the stretcher flat and sealed?
 - b. Are the door openings wide enough? *at least 1350mm
 - c. Are the corridors wide enough? *at least 1800mm
 - d. Is there enough space within the lift for the stretcher and ambulance officers? *at least 1500mm (W) x 2400mm (L) & 1000kg min weight capacity
 - e. Is there enough space to transfer a patient on/off the stretcher? *at least 3500mm room width

} Consider that ambulance officers/paramedics need to stand alongside the stretcher and carry equipment.

Appendix 2. SAAS Equipment Dimensions

Equipment		Length (mm)		Width (mm)	Turning Radius	Equipment Weight	Safe Working Load
		Overall	Minimum				
Stryker Stretcher XPS		2060	1060	580	Within own footprint	64kg	318kg
Ferno Power X Bariatric Stretcher		1930	1495	570-900	Within own footprint	90kg	350-410kg

Appendix 3. SAAS Vehicle Dimensions

Vehicles							
		Height	Length	Width	Turning Circle	Vehicle Weight	
Standard		2840	7330	2800	15600	Up to 5 tonnes	
Bariatric		2870	7170 +2100 to end of loading platform when lowered. + 4700 to retrieve the stretcher (i.e. total of 7570)	2790 (incl. mirrors) +830mm to access the rear cabin left side (i.e. 3620) 4300 With rear doors open	15600	Up to 5 tonnes	