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PRACTICE NOTE PN01

PN: 01 – February 2014

Previous version dates – Nil

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ACAA COM 2013

Topic: Adaptable Housing & Parking
Reference Standard: AS4299-1995
Adaptable Housing
Clause Number: 3.7 Car Parking

Other Referenced Standards and Codes in this Practice Note:

- AS2890.1 (1993) - Off-Street Parking
- AS2890.1 (2004) - Off-Street Parking
- AS2890.6 (2009) - Off-street parking for people with disabilities
- Disability (Access to Premises – Buildings) Standards 2010
- National Construction Code

Purpose of this Practice Note:

Application of carparking sizes for Adaptable housing projects

Preparation of this Practice Note has included consultation with the Standards Australia committee personnel responsible for the above standards and people with disabilities who use accessible parking.

This Practice note has been prepared mainly for use in NSW, but can also be used in other states.

This Practice Note examines;

- Historical development of accessible parking Standards.
- The various vehicles and most common adaptations used by people with disabilities.
- Proportional estimates of most common types of vehicle adaptations.
- Most appropriate parking designs with adaptable housing contexts having regard to the above matters.

People with disabilities, mobility aids and car modifications.

In 2009 the Australian Bureau of Statistics Disability survey 44460 DO 004 Table 4.1 Persons with a Disability, Living arrangements by use of aids or equipment reported that;

517,000 people used walking sticks, canes, crutches and walking frames

- 128,600 people used a manual wheelchair
- 17,100 people used an electric wheelchair
- 32,900 people used a scooter
- 15,000 people used a specially modified car or car aids

People using manual mobility aids (645,000) compared to powered aids (50,000) equate to almost 13:1 or 92.8% to 7.2%.

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Background to Accessible Parking

Historically, parking spaces for people with disabilities have been designed to accommodate people who use a mobility aid such as a wheelchair, scooter, walking frame or crutches.

The use of the mobility aid beside a vehicle and the physical process of a person transferring between the car and mobility aid requires more width than a regular car space and hence the development of 3200mm width parking bays as specified in 1993.

In addition to their mobility aid, people with physical disabilities use a motor vehicle which best suits their needs and in some cases this may include modifications or attaching appliances to the motor vehicle.

Some early examples include;

- Roof mounted wheelchair hoist
- Roof mounted Flocon hoist
- Portable sliding board for direct transfer to a wheelchair

More advanced technology based examples include;

- Wheelchair lift mounted in the car boot
- Swivel car seats (e.g. Turny Seat)
- Ramp or platform hoist mounted at the rear of the vehicle
- Ramp or platform hoist mounted at the side of the vehicle

These changes in mobility transport adaptations have resulted in the development of new Australian Standards for parking in 2004 and 2009.

In addition to the AS 2890 suite of Parking standards the Australian Standard 4299 – Adaptable Housing was developed in 1995.

Largely based around detached and semi-detached dwellings AS4299 adopted the principles of AS2890.1 (1993) in determining that a single enclosed garage shall be 3800mm minimum width, which was based on 3200mm plus 300mm on each side where a wall exists.

The second parameter was a 6000mm minimum length to facilitate access to the rear of the vehicle for people using a wheelchair to access the boot for either unloading goods or possibly their wheelchair.

The third parameter was a minimum height clearance for entering a roofed parking area of 2200mm and 2500mm internally for unloading a roof mounted wheelchair hoist.

AS4299 also specifies a level parking area (up to 1:40) and by cross referencing to AS2890.1 and an accessible path of travel to a dwelling entrance.

The aim of AS4299 is to provide a parking space that can be used for various methods of transfer in and out of a vehicle by people who use a wheelchair, whether it be from either side, rear or side ramp/hoist system and possibly a roof mounted wheelchair hoist, which is described in clauses 3.7.1, 3.7.2 and 3.7.3 of AS4299.

A fundamental aspect of AS4299 is the objective to provide housing that requires minimal modification to suit the largest range of life cycle needs and people with varying abilities. Conversely the design is not required to be totally “accessible” but “adaptable”.

This Practice Note provides further commentary and illustrations to derive the most appropriate car parking for adaptable housing.

AS2890.1 (1993) – Off Street Parking

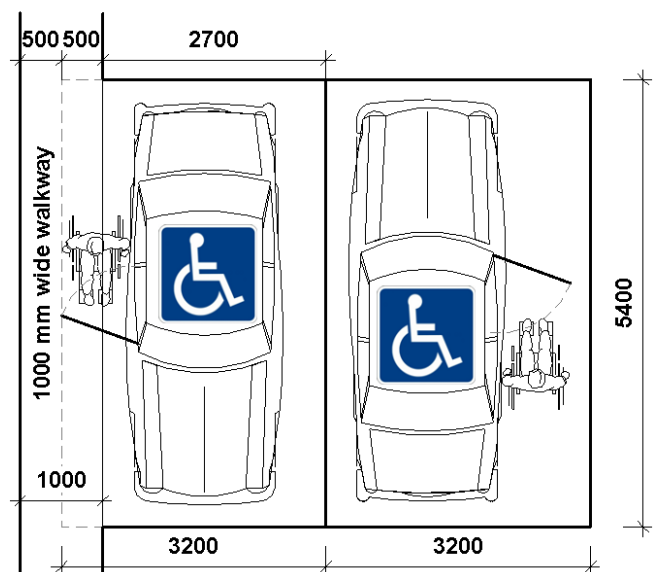
The following provides a description of the vehicle adaptations and spatial dimensions required by people with disabilities using these vehicles.

- Wymo or Flocon roof mounted hoists require the door to be opened to the widest stop to allow a person to transfer from the car seat to their wheelchair, or similarly a direct transfer using a slide board or possibly a swivel car seat.
- These methods have been the most common and favoured by people using manual wheelchairs, which led to the development of the 3200mm width parking space as specified in AS2890.1 (1993) Figure 2.6.
- The 3200mm width as specified by AS2890.1 (1993) was the minimum required for an accessible parking space with no walls or obstructions directly adjacent and assumes that there is a 300mm minimum overlap to an adjoining space. Where a wall or similar obstruction exists then clause 2.4.1(b) (ii) of AS2890.1 (1993) required an additional 300mm be provided. This is a general rule for all parking spaces including accessible spaces.
- Hence a single enclosed garage for a non-accessible space is 3000mm or 3800mm for an accessible single garage or car space bounded by two walls.
- AS2890.1 (1993) also included the concept of the shared area which permitted a 1000mm width pedestrian pathway between two 2700mm width accessible

parking spaces which equated to 6400mm overall width.

The same provision requiring an extra 300mm when adjoining a wall or obstruction is maintained in the 2004 version of AS2890.1 in clause 2.4.1(b) for off-street parking.

However, “off-street” accessible parking for people with disabilities is now specified by AS2890.6, which is referenced by Part D3.5 of the National Construction Code (NCC) and Disability (Access to Premises – Buildings) Standards 2010 (APS) as they relate to public buildings and public car parks. The NCC and APS specifically exclude private residential parking.



Permissible size of car parking spaces based on requirements of AS2890.1-1993

Adaptable Housing AS4299 (1995)

The development of the adaptable housing standard in 1995 adopted the principles of AS2890.1 (1993), which are expressed in clause 3.7 and summarised as follows;

- The car parking space to be at least 3.8M wide, to facilitate adequate space for a person in a wheelchair to get in and out of the car in an enclosed garage.
- It was thought that 3.8M would also facilitate the use of a side loading ramp or hoist.
- A vertical entry height clearance of 2.2M and 2.5M internally was deemed necessary to roof mount a wheelchair hoist and operate it within a garage or carport.
- The length of a garage to be at least 6.0M which could be reduced to 5.4M if a level hard surfaced area is provided at the same grade as the parking space.
- A level surface up to a 1:40 gradient.
- Provision of automatic garage doors or gates was considered desirable.

As the name of the Standard implies the design of “adaptable” dwellings is predicated on the capability to make alterations to a dwelling and associated parts to accommodate people with various types of disabilities, which is emphasised in Section 2 – Objectives and Performance Requirements.

With respect to parking, clause 3.7.2 of the Adaptable Housing standard permits the dimensional requirements may be reduced if an area outside the parking bay is “provided” or “can be provided in the future”.

Conversely, a resident who has a 3800mm x 6000mm space who does not require the overall area for disability related purposes may use part of that space for other purposes such as storage, workshop or other utility use.

AS2890.6 (2009) – Off Street Parking for People with Disabilities

In the development of AS2890.6 (2009) the Standard has incorporated changes which aim to accommodate newer technology in vehicle adaptations and the shift towards people with disabilities using powered wheelchairs and scooters, which is acknowledged in the Preface and clause A2.1.

AS2890.6 specifies the Shared Area for transfers to be 2400mm width beside the vehicle or 2400mm length at the rear of the vehicle which envisages up to 1200mm for the ramp or platform hoist and a similar 1200mm manoeuvring area for a wheelchair or scooter.

The shared area is also considered adequate for people who are ambulant with large mobility aids such as walking frames, crutches and some lower limb prosthetics.

Thus AS2890.6 provides for a combination of dedicated parking and shared areas for other purposes such as a walkway.

Examples of vehicle mounted ramps and hoists appear below, which illustrate a need for greater space to allow the ramp or platform hoist to deploy and then the transfer area for a person using a wheelchair to manoeuvre when boarding or alighting from the vehicle.

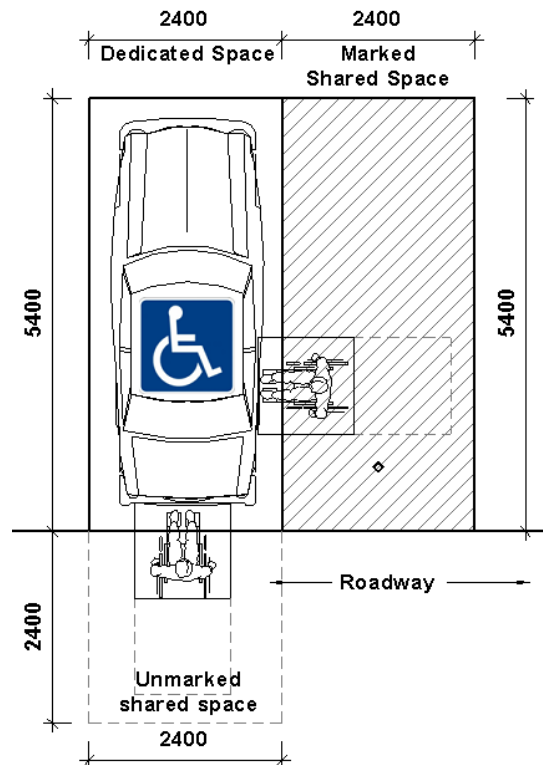
Figure 2.1 of AS2890.6 shows Shared Areas at the rear and side of the vehicle, which requires;

- 4800mm total width X 5400mm length for side loading vehicles, and
- 7800mm total length by 2400mm width for rear loading vehicles.

To maximise the use and benefit of the shared area Figure 2.2 of AS2890.6 illustrates two accessible parking spaces utilising the same "shared area", which could also be a walkway to a building entrance of similar.

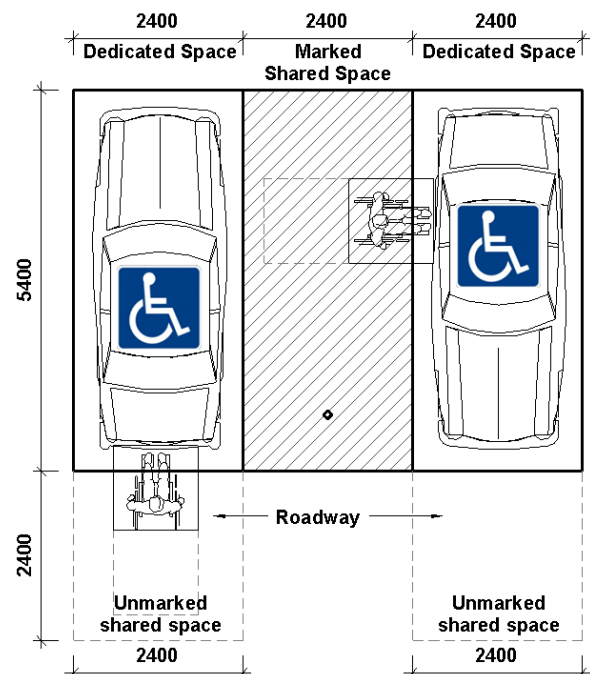
While AS2890.6 can accommodate all types of vehicle adaptations it is recognised that side loading ramps and platform hoists are more likely to be required by people using electric wheelchairs or scooters, which represents the smallest proportion of people with disabilities using mobility aids (7.2% by the ABS).

It is evident from the number of companies that specialise in vehicle modifications and products that vehicles modified with side loading ramps and hoists represents a much smaller proportion compared to the less expensive roof mounted hoists or rear loading devices, possibly less than 5% of all modified vehicles and car adaptations at this point in time.



Note:

- Marked shared space can be provided entirely on left or right hand of dedicated space.
- Unmarked shared space can be provided entirely at front or at rear of dedicated space.



Permissible size of car parking spaces based on requirements of AS2890.6-2009

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- Double carport parking (90 degree) with adjoining walls or fences
 - Double carport parking (90 degree) unencumbered by adjoining wall
 - Parallel parking unenclosed within a basement or outdoor car park
2. For this reason it is difficult to say that one Standard is better than another for an across the board design. For example a universal single space could arguably be determined as 4800mm width x 7800mm length x 2500mm height to accommodate all types of vehicles and modifications used by people with disabilities. However, this would be impractical in the vast majority of developments and be more likely to occur in a custom designed scenario.
 3. Therefore due consideration should be given to the type of development context in which the parking is provided and have regard to issues of:
 - Single detached housing on single allotments
 - Terrace and villa housing with attached garages, carports and private landscaping
 - Basement parking within residential flat buildings and common strata areas
 - Outdoor communal carparks within multi-unit development and common strata areas
 - Proportion of people using electric wheelchairs and scooters who may require the wider 4800mm width compared to manual wheelchair users and other devices of crutches, sticks and walking frames.
 4. While the length of a parking space and associated transfer space is often easily accommodated the issue of “best width” can be more difficult to determine.
 5. As previously stated the majority of people with physical disabilities use vehicle adaptations and transfer methods that require 3200mm width unenclosed and 3800mm enclosed car spaces as specified by AS2890.1 and AS4299.
 6. Conversely the numbers of people with physical disabilities using vehicles with side loading ramps and platform hoists that require an AS2890.6 design represent the smallest proportion of overall users.
 7. While the application of AS2890.6 may be useful for accessible visitor parking or occasional resident parking space whereby the “shared area” is a lift landing or common area walkway the widespread use of AS2890.6 in multi-unit housing contexts presents other issues such as, who owns the “shared area”.
 8. Ultimately the “shared areas” within multi-unit housing carparks such as a basement carpark or outdoor communal car parks must be allocated to “common strata area” and the flexible benefits of how a 3800mm width individual space is used by a resident are lost. Shared Areas owned by a body corporate are contrary to the principles of AS4299, which espouses flexibility and adaptability to suit the widest market appeal.
 9. If AS2890.6 designs are applied as a single design requirement for multiple spaces attached to adaptable apartments then arguably the multiple “shared areas” create a less effective and less sustainable use of the space.

10. If AS2890.6 designs are applied as a single design requirement for multiple spaces attached to adaptable apartments then arguably the multiple “shared areas” create a less effective and less sustainable use of the space.
11. Arguably the widespread use of AS2890.6 within the context of Adaptable Housing in multi-unit development is contrary to the objectives of AS4299 in terms of adapting a building to be accessible “when required by a resident”.
12. While AS2890.6 was developed for public car parking as referenced by the NCC and Access to Premises Standards, which specifically exclude private housing accommodation and having due regard to the above factors this Practice Note directs that the parking requirements of AS4299 should be the primary Standard applied to adaptable housing designs, especially within multi-unit development.

Conclusion and Recommendations

- (i) Accessible resident parking spaces required to be allocated to “Adaptable” dwellings as specified by AS4299-1995 should consist of at least 80% of all accessible parking.
- (ii) Accessible resident car parking as specified by AS2890.6, where applied, should not exceed 20% of all accessible spaces.
- (iii) Accessible visitor parking, where required, shall comply with AS2890.6 in all regards.
- (iv) To accommodate high roof passenger vans the minimum entry and aisle height should be 2400mm with 2350mm height warning bars.
- (v) Private accessible parking spaces are not required to display the international symbol for Access.

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