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Car Lift Compliance

Navigating the Differences Between
AS 1418.8 Special Purpose Appliances
and AS 1735 Lifts, Escalators and Moving Walks

“ In simple terms, platform hoists designed to carry loads and personnel complying with AS1418.8 only allow for an authorised operator to ride on the machine – an operator, by definition, is not a passenger.”





INTRODUCTION

As available space for inner city developments continues to shrink, providing adequate car parking presents a challenge for property owners and developers. The use of car lifts and elevators has increased in popularity in recent decades as space-saving solutions that eliminate the need for ramps and traditional car parking in multi-storey designs. By using fewer levels of the building, they can reduce construction and development costs, and provide functionality and convenience to occupants of the building.

Technological innovations have ensured that there is a car lift solution for almost every project and building type. However, with each new solution there are regulatory guidelines and standards that must be met. Selecting a non-compliant product or a product that is unsuitable for the specified application can pose a health and safety issue for users and prove costly to the client.

This focus on compliance is why recent regulatory changes in New South Wales have caused a stir within the industry. Recently issued Regulated Design Guidance under the Design and Building Practitioners Regulation 2021 has created confusion regarding the correct application of 'special purpose appliances and passenger lifts, and raises an important question: Is it possible for a compliant solution under AS 1418.8:2008 "Cranes, hoists and winches Part 8: Special purpose appliances" to carry passengers?

In this whitepaper, we aim to answer this question by looking at the relevant Regulated Design Guidance and providing clarity around the application of two key standards: AS 1418.8:2008 and AS 1735 "Lifts, Escalators, and Moving Walks".

REGULATED DESIGN OF CAR LIFTS AND HOISTS

In accordance with the Design and Building Practitioners Act 2020 (NSW), design practitioners are required to provide design compliance declarations when they provide a person with a regulated design prepared by the practitioner, and the design is in a form suitable for use by that person or another person in connection with building work. Regulated designs are designs prepared for a building element or a performance solution for building work.

Under reg 9(1)(c) of the Design and Building Practitioners Regulation 2021 (NSW), a design compliance declaration must cover whether or not the design accords with the relevant Regulated Design Guidance Material for regulated designs that have been approved by the Secretary.

Regulated Design Guidance Material consists of a table identifying a number of classes of designs. The table then identifies in relation to each category the minimum scale of design for that category, design aspects and detail for that category, and minimum requirements for that category. The Regulated Design Guidance Material discussed in this whitepaper is available at the Fair Trading NSW Government website¹, and the relevant section reproduced below:

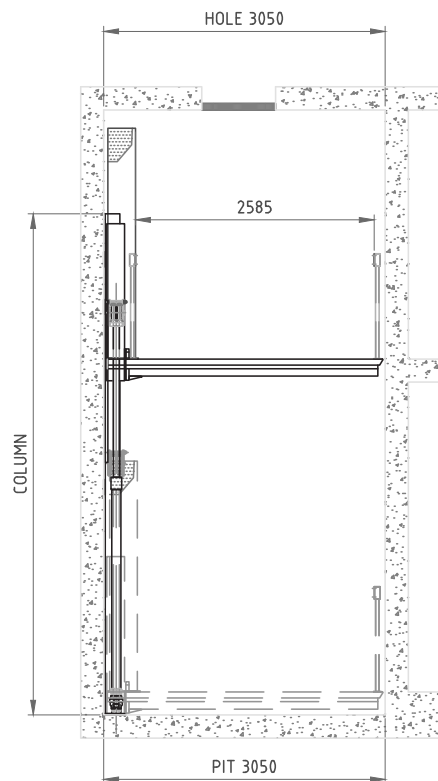
In relation to service hoists and car storage systems (stackers), the minimum requirements include the following statement: "Vehicle lift capable of carrying passengers must include safety systems in accordance with AS 1735". This inclusion may be interpreted by some to suggest that all car hoists need a registered design practitioner to sign off to carry passengers.

In fact, the reference in the Regulated Design Guidance Material to hoists and stackers indicates the intention to capture designs for these systems as regulated designs. As such, irrespective of whether the design complies with AS 1418 or AS 1735, a registered Design Practitioner is required to prepare and declare the design.

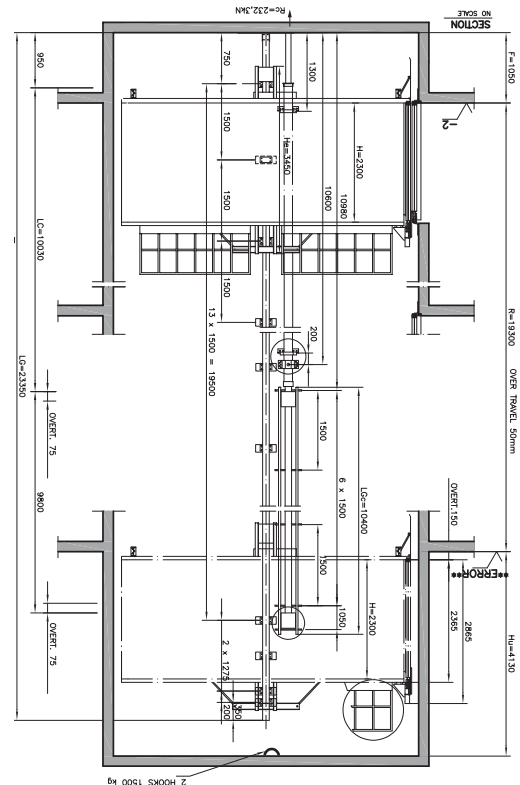
Although AS 1418 is not specifically referenced in that part of the Guidance Material, it still needs to be complied with if relevant to a design. In addition to that, it doesn't mean that it is not a regulated design if the design is one that needs to comply with AS 1418. The Guidance Material does not attempt to identify every relevant Australian Standard. Competent professional designers should be aware of the relevant standard within their field of expertise.

Table 1. Excerpt from Regulated Design Guidance Material ¹

Min scale	Design category	Design aspects and details	Minimum requirements for design category
1:50	Service hoists, Car Storage Systems (Stackers).	- Design specification to identifying the end user's requirements, and the scope and details of the vehicle movement demand, number of cars to be stored. - Method of entry and exit of the system to be documented setting out emergency retrieval of vehicles. - Details of car numbers, types, and car sizes (to align with 1:200 and 1:500 architectural plans), shaft, pits, overruns, levels served, machinery access and travel distance. - Design of automated parking systems to be treated as registrable Plant. - Entrance doors to be integrated in to the storage system safety monitoring system and be of a robust design. - Integration to other services and operation for Security, BAS and emergency power (if provided) Details for Commissioning and project completion documentation	Minimum requirements for design category: Design details must include reference to earthquake forces, and address building specific fire safety engineering requirements, Vehicle lift capable of carrying passengers must include safety systems in accordance with AS1735



Hoist AS1418.8



Lift AS1735

AS 1418.8 AND AS 1735: TWO DIFFERENT REGIMES FOR TWO DIFFERENT SOLUTIONS

Depending on the project, AS 1418.8 and AS 1735 could be relevant in the design of service hoists and car storage systems. It is important to understand that these standards impact the design and performance of two different solutions.

Car platform lifts or hoists come in a variety of shapes and sizes – from portable vehicle car platform lifts that can be wheeled around workshops, to fully-installed, multi-storey lifts that exist as a permanent structural fitting within a building. Some types of hoists lift a car so that another car can be parked underneath, whereas others consist of a lifting platform designed to safely transport vehicles vertically between parking levels.

AS 1418.8 specifically applies to appliances used for the hoisting of materials or materials and personnel involved in lifting the materials that are not covered

by other parts of AS 1418. This Standard covers the general design, components, testing and instructions of relevant machinery along with the load ratings, load combinations, construction, inspection and maintenance of common lift types.

Car elevators are distinct machinery from hoists and platform lifts. They provide a bespoke option that can be fabricated to fit the varied specifics of any given project, featuring fully-enclosed cabins, and operating at much greater heights. A hydraulic elevator can function up to heights of approximately 25m, whereas an electric elevator can function across a virtually unlimited height range. Depending on the lift mechanism chosen, AS 1735.2-2001 “Passenger and goods lifts - Electric” and AS 1735.3-2002 “Passenger and goods lifts - Electrohydraulic” may be relevant to the design of a car elevator.

WHAT DO THE STANDARDS ALLOW?

AS 1418.8 does not include provisions to allow passengers on platform lifts and hoists that are covered by the Standard. Take note of Clause 3.6.3(c), which is reproduced below:

Excerpt from Clause 3.6.3 of AS1418.8

3.6.3 Controls

The controls of a platform hoist shall comply with the following requirements:

- a. Operating buttons or levers shall be of constant pressure and return to the neutral position except for automatic or semi-automatic operation where the requirements of Clause 3.6.8 shall apply, or for hoisting personnel where the requirements of Clause 3.6.9 or 3.6.10 shall apply.
- b. The controls shall be clearly designated and placed so that unintentional operation is prevented.
NOTE: Where control stations are to be installed at more than one level, they should have a master control that is to be actuated before a control becomes operable and which renders control from the other station inoperable or suitable safety interlocking in accordance with AS 4024.
- c. Where an operator may ride on the hoist, a control station shall be located in a safe and accessible position on the platform providing the operator with full control of the hoist including emergency functions, if required. To minimize electrical hazards, all controls on the hoist shall be maximum 32 V d.c.
- d. All controls and interlocks shall operate in a fail-to-safe manner.

Such provisions indicate that platform lifts and hoists coming under AS 1418.8 should only be operated by authorised personnel only (not uninitiated visitors), thus excluding passengers from riding the platform or hoist. A note under the definition of 'platform hoist' states they are intended to primarily lift loads and may accommodate personnel for the purposes of attending the loads. All operators must be appropriately trained to use the machine and any unauthorised use is prevented by using some form of access code, card or key. A disabled person would need to stay in the vehicle, the same as any user.

A car hoist has a platform, not walls. This is allowed under AS 1418.8 presumably due to the fact that the control button is under constant pressure, and the user is sitting in the vehicle. An AS 1418 solution can include cabin walls and roof, allowing one-touch control, but this is not allowed under the more stringent European Machinery Directive.

In comparison, AS 1735 describes a completely different solution than what is provided by AS 1418.8. The ability to carry passengers is a key difference, among many. Passenger lifts and car elevators require more space and have greater installation requirements than car platform lifts or hoists. Many of these design specifications are to ensure the safety of passengers riding in the cabin. They also require a much greater pit depth of 1200mm underneath the elevator car itself, or motor rooms and other spaces to house the necessary machinery.

SO, CAN MY CAR HOIST TAKE PASSENGERS?

In simple terms, platform hoists designed to carry loads and personnel complying with AS1418.8 only allow for an authorised operator to ride on the machine – an operator, by definition, is not a passenger.

Where an application requires passengers to ride in the lift, an AS 1735 solution is required. The greater space and installation requirements in AS 1735 must therefore be followed, which can sometimes preclude the use of an AS 1735 solution for certain projects with size and

space limitations. In some circumstances, developers may want people to use the lift for specific purposes, such as to carry bins to street level, in which case the AS 1418 hoist requires a performance solution.

In developments that already include a passenger lift, carrying passengers on the platform lift or hoist is not needed. If the site does not allow the inclusion of a passenger lift, accessible stairs may be required to enable occupants to travel to different levels.

MAKING COMPLIANCE EASY

A proper reading of the standards makes it clear that passenger lifts, hoists, car lifts, and so on are all different machines. Each machine is used for different purposes and thus subject to different design specifications and performance requirements. So why is AS 1735 referenced in the new Guidance Material in relation to service hoists and car storage systems?

Some developments cannot include an AS 1735 lift due to size and space restrictions. In some instances, AS 1418.8 has been used too loosely to provide passenger travel between levels. The new Guidance Material is potentially an attempt to bring attention to this issue.

In Australia, the Australian standards usually follow the BS/ANSI or EN standards. The European Machinery Directive and or the Lift Directive are more stringent and include more detail than their Australian counterparts. In practice, if a hoist or lift is compliant with the European Machinery Directive or the Lift Directive, it is compliant with AS 1418.8 or AS 1735, respectively.

Solutions with European certification provide an efficient path to compliance as they will typically exceed the relevant Australian standard, be it AS 1418.8 or AS 1735. Products imported from Asia or manufactured in Australia or elsewhere cannot have the relevant European certification. While such products may be available at a cheaper price, there is a risk that they are non-conforming and will not be certified at building sign-off.

Disclaimer

This whitepaper is not a legal or binding document and should be taken as providing advice general in nature and for providing clarity for the application of Standards to different types of cars lift. This does not replace the due diligence required to be performed by competent professional designers.



HLS Equipment

Smart solutions for vehicle parking and car storage

HLS Equipment is Australia's market leader in specialist parking solutions for almost any environment. An innovative designer, manufacturer and distributor, HLS Equipment offers a wide range of products including independent and dependent car stackers, vehicle lifts and turntables. Their extensive catalogue includes both AS 1418.8 and AS 1735 compliant solutions from leading European manufacturers.

Totalmove car parking lift
Person in vehicle

Where a travel distance of greater than 4200mm is needed, Totalmove delivers performance and functionality as a car parking lift. This heavy-duty car lift solution, which also incorporates many of the benefits found across the HLS Equipment range, is capable of carrying 3 tonnes of weight up to 16000mm high. A compliant solution under AS 1418.8, Totalmove's unique safety features and columns mounted on one side allow Totalmove to carry the user boarded on the vehicle securely and safely.

Custom-designed car elevators
Passenger elevator

Designers and specifiers can consult directly with HLS Equipment to create bespoke solutions for even the most challenging of parking briefs. Whether you need to transport passengers, accommodate unusually large or heavy vehicles, work within particularly restrictive spaces, or comply with strict regulations and standards, HLS Equipment can create a custom vehicle elevator to meet almost any need. Some of the custom lift options include varying platform sizes, specific range of travel, electric or hydraulic mechanisms and custom finishes. Beyond this, HLS Equipment's custom solutions have a rapid ascension speed of up to one metre per second, to meet and exceed the AS 1735 code.

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REFERENCES

- ¹ New South Wales Government. "Regulated Design Guidance Material." Fair Trading NSW.
https://www.fairtrading.nsw.gov.au/__data/assets/pdf_file/0010/989335/regulated-design-guidance-material.pdf (13 February 2022).

All information provided correct as of March 2022. Updated October 2022.