



2011 Lifts design and install

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00 Design principles

0.01 Main considerations

It is a requirement to undertake the [PLANNING AND DESIGN/ 0001R - DESIGN REFERENCE](#) and [GLOSSARY OF TERMS](#) information into all aspects of design, detailing and delivery when developing the content here within. Clear demonstration of adherence to these requirements is part of the services and will be called upon at key points in the project and during at the discretion of the Department of Education (DoE).

Lift services shall be installed in education buildings generally that are greater than two floors. The primary functions for buildings up to 4 storeys high are to provide disability access, conveyance of heavy or bulky goods and facilitate non-emergency pedestrian flows within the building. For buildings that are over 4 floors in height, the lift services will be used for mass student and staff vertical movements.

This design standard outlines the minimum functional, installation and technical requirements for a new or refurbished vertical transportation installations.

The lift designer must use these standards as the minimum DoE requirements for the system design, it is incumbent upon the designer to ensure that the design satisfies site specific operational, logistical and performance requirements and meets DoE's transportation objective for the facility.

Where the designer considers that an alternate equipment type is preferred to the equipment type specified in the design standard, the designer will advise the principal of the functional, performance or cost benefit that will be achieved through the use of the alternate equipment type.

In determining the most appropriate equipment types and control systems for a particular installation, the designer shall consider the long-term energy efficiency, maintenance implications, operational efficiency and life cycle costs as well as the initial capital costs.

0.02 General

Compliance with Codes, Standards and Legislation

All new installations and lift modernisations must comply Australian Standards (AS) and British Standards European Norm Standards (BS EN), including:

- National Construction Code (NCC) - current edition at the time
- AS 1735.1 – General requirements.
- AS 1735.4 – Service lifts: power operated.

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- AS 1735.11 – Fire-rated landing doors.
 - AS 1735.12 – Facilities for persons with disabilities.
 - AS1735.14 – Low-rise platforms for passengers.
 - AS 1428 – Design for access and mobility; part two: enhanced and additional requirements - buildings and facilities.
 - BS EN 81-20 – Passenger and goods passenger lifts.

Lift Type

All lifts shall be Machine Room Less (MRL). Unless prior approval from the NSW DoE is achieved, no lifts shall be of the geared, hydraulic, screw drive or cantilevered type.

All drives are to be high efficiency Variable Voltage, Variable Frequency.

Regenerative drives are not mandatory, however, if they are proven beneficial and appropriate for a particular installation, regenerative drives will be encouraged.

A detailed list of how many lifts of the same type and model and in particular with the same control system that have been installed over the past 5 years is required to be supplied by intended installers in order to be considered at the time of tender. The list is to show the address of the lift installations and if the original manufacturer or installer is now maintaining the lift. Preference shall be given to well established lift systems that have a proven track record of reliability and ease of maintenance.

Prequalify Requirements

Only a competent, well-established, lift contractor with at least 10 years local lift installation experience shall complete lift installations or modernisations.

The lift contractor shall have the ability to maintain the school campus in compliance with the maintenance agreement, this includes access to replacement materials and resources to provide continuous operations.

Minimum Requirements for Person with Disabilities

All new installations and lift modernisations at any of NSW DoE campus shall provide access for persons with disabilities in compliance with AS1428 and A1735.12.

Where compliance with AS1428 and/or AS1735.12 cannot be achieved, prior approval in writing via Governance processes by the NSW DoE Secretariat shall be provided, and

demonstration that the lift(s) shall still comply with at least the Building Code of Australia (BCA) requirement for Facilities for People with Disabilities Clause E3.6.

All lift car control buttons shall comply with AS1735.12 Clauses 8.3 Tactile Information and Clause 8.4 Shape of Characters.

All passenger lifts must have lift car audio (voice, not just a sound) position indication regardless of how many floors are served.

Unless prior approval in writing via the approved Governance process is provided from NSW DoE Secretariat the following lifts shall not be used for the access of people with disabilities:

- AS1735.7 – Stairway Lifts
- AS1735.15 – Low rise passenger lifts – Non-automatically controlled
- AS1735.16 – Lifts for persons with limited mobility – Restricted use – Automatically controlled
- AS1735.17 – Lifts for persons with limited mobility – Restricted use – Water-drive
- AS1735.18 – Passenger Lifts for Private Residence

Passenger Lifts

Passenger lift cars are to have a minimum size of 1400mm wide by 2000mm deep. Unless prior approval in writing via Governance processes is provided by the NSW DoE Secretariat, no passenger lift car shall be smaller than this size. Car sizes may be larger than this as required to suit code requirements and lift traffic studies.

Door openings must comply with AS1735.12.

Dual access doors (enter one side and exist the other) should be considered on a project specific basis.

Stretcher and Emergency Lifts

Provision shall be made for the use of stretchers and emergency lifts as detailed in the current NCC, clause E3.2.

Guaranteed Life

All new lift installations and modernisations should have operational life and product support guarantee of minimum 25 years. The designer shall develop the system to accommodate any foreseeable increase in demand/usage so that the system remains functional and effective throughout the operational life.

0.03 Architectural Considerations

Lift Grouping

Where multiple lifts are specified, they shall be grouped to maximise operational and energy efficiency. The objective is to meet peak demands and minimise waiting times.

Lift Numbering

All lifts are to be numbered consecutively and integrate with any existing lift installation numbering. Each lift door should have the Department's Asset Management System (AMS) door number identifier.

Water Ingress

Architects, engineers and lift designers must ensure that all lift doors, landing fixtures and controller cabinets are protected from wind driven rain and water runoff.

Refer to [03 STRUCTURE/0314 CONCRETE IN-SITU](#) for information on the lift pit requirements.

Passenger Lift Car Finishes

The finishes must comply with the following requirements.

Table 01: Passenger Lift Car finishes

Item	Detail
Side walls and lower half of rear wall	Vandal-resistant and patterned stainless steel
Mirror	Aluminium-framed silver to upper half of rear wall
Car ceiling	Fixed "white" coloured or stainless steel
Handrail	Linished stainless steel in compliance with the requirements of AS1735.12
Car door, car front	Linished stainless steel
Skirting	Linished stainless steel
Flooring	Black vinyl.

Item	Detail
Car control panels - main and auxiliary	Steel, satin finish and complying with AS1735.12 and mounted in vertical alignment
Car and landing buttons	Commercially available “third party supplier” items that comply with AS1735.12. Generic lift company manufactured buttons are generally not acceptable
Car and landing indication	Commercially available “third party supplier” items that comply with AS1735.12. Generic lift company manufactured indicators are generally not acceptable

Goods Lifts

Goods transportation shall be provided as required for particular projects including mid- and high-rise schools. With wood and metal workshops on the upper floors, as a minimum, the following must be provided:

- Minimum lift door size to load specified goods.
- Minimum lift car size to carry specified goods. Where the goods lift is also used for passenger transport, the lift car size shall not be less than 1600mm wide by 2100mm deep.
 - Specified goods may include educational equipment such as lathes, saws, fridges, photocopiers, 3D printers, etc. as well as delivery of curriculum material including lengths of timber and steel. The designer shall consider the equipment that is required to be transported and specify the goods lift appropriately.
 - The designer shall consider the needs of other services in the ongoing operation of the building. This may include the need to transport various items of plant, mobile plant and façade items. Where lifts are integral in the future maintenance of the building the lifts shall be designed to accommodate the maintenance requirements where practical.
- Bump rails
- Hazardous Goods Operation mode.
- Extra landing indication to show lift availability, operation mode and position on each landing.

Goods Lift Car Finishes

The finishes must comply with the following requirements.

Table 02: Goods Lift Car finishes

Item	Detail
Side walls and lower half of rear wall	Vandal-resistant and patterned stainless steel
Mirror	Aluminium-framed silver to upper half of rear wall
Car ceiling	Fixed “white” coloured or stainless steel
Handrail	Finished stainless steel in compliance with the requirements of AS1735.12
Car door, car front	Finished stainless steel
Skirting	Finished stainless steel
Bump rails	Stainless steel installed on side and rear walls. Bumps rails shall be a flat plate of approximately 150mm wide by 6mm thick securely mounted to the lift car walls.
Flooring	Galvanised steel floor plate
Car control panels - main and auxiliary	Stainless steel, satin finish and complying with AS1735.12 and mounted in vertical alignment
Car and landing buttons	Commercially available “third party supplier” items that comply with AS1735.12 and with White/Blue Illumination. Generic lift company manufactured buttons are generally not acceptable
Car and landing indication	Commercially available “third party supplier” items that comply with AS1735.12 and with. Generic lift company manufactured indicators are generally not acceptable
Special applications	Goods lifts used for chemicals, animals, etc. must use specific fit-for-purpose durable and resistant finishes to resist exposure damage.

0.04 Performance and Traffic

For schools with four or less floors it is recommended that lift services are reserved for students with limited mobility and for staff use only, all other students will typically use the stairs.

Where a school has floor levels above level 4 (including ground floor), the general student body will be using the lifts to access the higher levels. A traffic study must be conducted by a suitably experienced vertical transport engineer using analysis software such as ‘Elevate’.

The traffics study shall consider the following traffic patterns:

- Morning up peak;
- Class/period changes;
- Breaks such us recess and lunch (down and up peaks);
- Afternoon down peak.

Performance requirements and definitions

Interval

The period of time between successive car arrivals (or departures) at the main lobby level with cars loaded to any value.

Interval is considered a measure of the “quality” of the elevator service when a conventional dispatching system is used.

Handling Capacity

Handling Capacity is defined as the total number of passengers (expressed as a percentage of the calculated building population) that an elevator system can transport from the main lobby level during a peak 5-minute period assuming, that the elevators cars are not loaded to more than 80% of their rated capacity.

Handling capacity is considered a measure of the “quantity” of lifting that the elevator system provides.

Lift Capacity

Lifts shall be designed to a maximum of 65% filling capacity to enable sufficient space for students with backpacks.

Stair Factors

Due to the high-peak demand cycles of an education building, heavy stair use can be expected. Therefore, stair factors in traffic calculations is allowable but shall be a rational factor based on:

- stair location and accessibility;
- stair visibility (preferably encountered before the lift lobby);
- the width of the stairs.

The performance targets nominate a suitable stair factor for each traffic pattern, provided the above points are met.

Performance Targets

The traffic profiles for a school building vary depending on the function of the building and the arrangement of the school timetable. Considering an education building with classrooms on all levels and a standard (non-split) timetable, the following performance targets shall be implanted.

Table 03: Primary School Performance Targets

Traffic Pattern	Interval(s)	Handling Capacity	Traffic Profile Incoming	Traffic Profile Outgoing	Traffic Profile Interfloor	Utilisation Factor	Stair Factor
Morning Up Peak	50 – 60	25%	100%	0%	0%	90%	50%
Break Down Peak	50 – 60	25%	0%	100%	0%	80%	70%
Break Up Peak	50 – 60	25%	100%	0%	0%	80%	50%
Afternoon Down Peak	50 – 60	25%	0%	100%	0%	90%	70%

Table 04: High School Performance Targets

Traffic Pattern	Interval(s)	Handling Capacity	Traffic Profile Incoming	Traffic Profile Outgoing	Traffic Profile Interfloor	Utilisation Factor	Stair Factor
Morning Up Peak	50 – 60	15%	100%	0%	0%	90%	60%
Class Change	50 – 60	33%	10%	10%	80%	25%	60%
Break Down Peak	50 – 60	25%	0%	100%	0%	60%	80%
Break Up Peak	50 – 60	25%	100%	0%	0%	60%	60%
Afternoon Down Peak	50 – 60	25%	0%	100%	0%	80%	80%

Skip Stop Arrangement

To improve the efficiency and performance of the vertical transportation system, the designer may consider a 'skip stop' arrangement. Generally, in skip stop arrangement the lift system will only service some flows within the building, with the other floors accessed via the stairs.

As a general principle, the lifts in a skip stop arrangement service every third floor. This allows users to catch a lift to a served floor then use the stairs to reach their destination by either:

- walking one floor up to their destination, or;
- walking two floors down to their destination.

For a skip-stop arrangement to work effectively the stairs must be suitably wide, easily accessible and located near the lifts.

Other Performance Considerations

Other performance considerations that to be discussed with the designer and DoE include:

- Pedagogy and school operations;
- Consideration for split timetabling, early starts or late finishes.

Consult with the School Principal and the DoE to confirm if these considerations apply, the performance targets shall be adjusted to suit specific application.

Performance Criteria Parameters

The following performance criteria shall apply to all passenger lifts:

Lift Speeds

All new installations of passenger lifts shall have a minimum lift speed of 1.0 m/s.

Table 05: Door Times

Door Movement	Time
Opening	2.2 Seconds

Door Movement	Time
Closing	2.8 Seconds

Door Open Dwell Times

For lifts installed in line and arranged interconnected in operation, the following door dwell times shall be used:

Table 06: Door Dwell Times (no advanced warning)

Action	Dwell Time
Car Call	6.0 Seconds
Lobby Call	6.0 Seconds

Where the lifts provide an advanced warning of at least 3 seconds prior to arrival, the dwell times shall be:

Table 07: Door Dwell Times (advanced warning)

Action	Dwell Time
Car Call	3.0 Seconds
Lobby Call	3.0 Seconds

Where more than 3 lifts are installed in line and arranged in interconnected operation, the door dwell times of the lifts furthestmost from the centre of the lift lobby must be increased by 2 seconds.

Floor Levelling Accuracy

At all levels served, irrespective of the direction of travel, and for all loading conditions, the car door sill shall be:

- not more than 6mm above,
- not more than 6 mm below the landing door sill

Automatic relevelevelling may be used to achieve this tolerance on levelling accuracy.

Noise

The ambient noise inside the lift car shall not exceed 55 dBA

Acceleration, Jerk and Vibration

The following parameters shall stay within the specified limits:

Table 08: Lift Acceleration, Jerk and Vibration requirements

Condition	Rate
Maximum vertical acceleration	< 1.0 m/s ²
Maximum jerk rate	< 1.2 m/s ³
Maximum Lateral Vibration	< 10 milli-g
Maximum Vertical Vibration	< 15 milli-g

0.05 Lift Features

Non-Proprietary Systems

Only non-proprietary lift equipment, or lift equipment that has been available locally for at least 5 years in Australia, or lift equipment that has a ready supply of spare parts to local lift companies, other than the original manufacturer, must be used. Lift equipment refers to any and all parts of the entire lift installation, in particular the controllers, drivers and its various component parts.

Lift Car Lighting

Lifts shall be equipped with LED lights that illumine the lift car in accordance with AS1735.12.

The lighting system shall operate automatically in response to the passenger demand of the lift. Key switches shall not be provided except for isolation of the lights to enable testing and maintenance.

Lift Car Emergency Lighting

All lift cars shall have an emergency lighting feature that shall be energised automatically following the failure of the mains supply to the normal car lighting and shall provide

constant illumination of 20 Lux at the Centre of Place (CoP) for a duration of not less than 2 hours.

The luminaries for the emergency lighting shall be located and rated such that, in addition to providing general illumination of the car, they shall provide sufficient luminance to distinguish the car threshold and all communication and control features within the lift car.

Provision shall be made for a suitable means of simulating mains failure for testing the emergency lighting system for both luminance and duration.

Required Hands Free Communication Systems

The Lift Contractor shall provide a 'hands free' communication system.

The hands-free system shall be activated by a telephone / alarm push button incorporating an appropriate legend in accordance with EN81-20. Continuous activation of the telephone push button for a nominal period of 3 to 5 seconds shall initiate automatic, sequential dialling to a minimum of three numbers.

The system shall be available at all times, including during a loss of mains power supply. The system shall utilize a suitable cellular network and not rely on any base building communication network or National Broadband Network (NBN).

Telephone buttons, speakers and microphones, shall be located in the car- operating panel and shall interface with the telephone system as required by EN81-20 in relation to connection feedback and confirmation.

A suitable notice shall be engraved in the car informing passengers how the hands-free telephone is operated. The wording, size and location of the notice shall be agreed with the Engineer.

A cellular gateway device must be provided and mounted in an appropriate location to ensure that a reliable cellular network signal is maintained. The Lift Contractor must provide all wiring from the gateway device to the lift shaft, the gateway device must be provided to terminals and travelling cables with a termination point in the lift machinery space. Where there are two or more lifts installed the gateway device may be common to multiple lifts.

The communications system shall automatically identify the lift and its location and relay this to the answering service.

The operation of the communication system shall allow the Lift Contractors call centre to dial into any lift car at any time.

The communication system shall include remote stations on the car top and in the pit.

The system shall be of the latest technology and not include any reliance on technology that is slated for disconnection in the near future.

Protective Curtains

The lifts are to have provision for protective curtains in all lift cars to protect their finishes. Each building which has lifts is to have minimum of one (1) set of lift protective curtains. Therefore, if only one lift in the building it must have set of curtains supplied with the lift.

Notices

All required notices in the landing buttons panels and lift car operating panels are to be engraved. No stick-on labels will be accepted.

This applies to such notices as the Statutory warning against the use of lifts in a fire, lift number, building address, emergency telephone instructions, lift car load details etc.

Emergency Battery Drive

A facility shall be provided to automatically move the lift car to a floor when the car has stopped between floors due to a failure of the normal power supply.

The emergency operation is performed at low speed and all safety functions shall remain operational to prevent an unsafe condition occurring. When the car has reached a floor, the doors shall be opened.

The lift shall return into normal service automatically following re-instatement of the power supply.

Lift Well Lighting

The lift well shall be provided with permanently installed electric lighting in accordance with EN81-20. The lighting will provide illumination of the well and car roof so that, at any point in the car's travel within the well, the following intensity of illumination shall be achieved:

- at least 50 lux, 1.0m above the car roof within its vertical projection;
- at least 50 lux, 1.0m above the pit floor everywhere a person can stand, work and/or move between working areas;
- at least 20 lux outside of the locations defined in a) and b), excluding shadows created by the car or components.

This illumination must be achieved with all doors closed.

Machinery spaces and pulley rooms shall be provided with permanently installed electric lighting with an intensity of at least 200 lux at floor level everywhere a person needs to work and 50 lux at floor level to move between working areas. In the case of MRL lifts, this machinery space is part of the well, and therefore, this lighting may be part of the lighting of the well.

To achieve this illumination, a sufficient number of lamps shall be fixed throughout the well and where necessary additional lamp(s) may be fixed on the car roof as a part of the well lighting system.

Lighting elements shall be protected against mechanical damage.

Well lighting switches (or equivalent) shall be located both in the pit and close to the main switch (within the lift controller cabinet for MRL lifts) so that the well light can be operated from either location. The pit lighting switch shall be positioned within a maximum horizontal distance of 0.75m from the pit access door frame inner edge and at a minimum height of 1.0m above the access floor level.

The electric lighting supply to the well, machinery spaces and pulley rooms, shall be independent of the supply to the machine.

In the case additional lamps are installed on the car roof, they shall be connected to the car light circuit and switched from the car roof. The switch(es) shall be in an easily accessible position not more than 1.0m from the entry point(s) for inspection or maintenance personnel.

Maintenance of lift car, shaft, pit and machine space lighting is to be included as part of the lift maintenance contract for each lift installation.

Glass Cars and Glass Shafts

Where the building design and budget allows, glass lift cars, shafts and doors can be used. All glass shall be specified in accordance with EN81-20.

Where glass cars and glass shafts are installed, analysis is required to determine the severity of potential solar gain in the lift shaft and car. Mechanically ventilation of the lift shaft is required to remove heat generated by Air Conditioned (AC) unit.

Keys

All Fire Service keys are to be TOK 3. All other lift control keys are to be TOK 6.

The MRL lift controller door lock(s) must be keyed the same as other DoE controller door locks.

Closed Circuit TV (CCTV) Camera in the Car

All CCTV use in schools should comply with the Department Legal Services Legal Issues Bulletin 41.

Suitable cabling shall be provided by the Lift Contractor, within the travelling cables to suit the provision of a monitoring camera installed in the lift car. The Lift Contractor shall include for fitting a camera within the lift car. The camera will be supplied by others.

The Lift Contractor will be responsible for liaising with the security contractor to ensure the correct cabling is provided. The CCTV camera feed will be connected to a master station at a nominated location within the school.

Security Access Control

All new lift installations and modernisations shall be equipped with security access control in the form of proximity card readers positioned adjacent to the external cell call button on all floors. The call button must not activate without a valid proximity card/fob being presented to the reader.

When the security access control system is activated it will restrict access to specified floors by disabling the lift car buttons. Authorised persons and students will access restricted floors by presenting a valid proximity card which will enable the lift car button/s for the floors to which the passenger is granted access.

Where two (2) card readers are specified, each card reader will operate independently of the other.

The security operation is described below:

- Security access card readers will be provided in the lifts.
- Staff will access their floors by presenting a valid proximity card within the lift car.

When the security access control system is active the lift control system shall not automatically zone lifts to park at levels that are secured unless special measures are used to ensure there are no passengers in the lift car.

The access control system must be integrated into the school's alarm system and comply with the School Security Unit (SSU) Specifications and Guidelines, Section 8 Access Control Systems.

The Lift Contractors are responsible for liaising with the security contractor to ensure sufficient space is provided within car operating panels for security card readers.

System Interfacing where a BMS is available

All lifts (excluding Service Lifts) are to have certain functions monitored by a campus Building Management System (BMS). The BMS shall be located in one particular place on campus. The system interfacing will run on the communication protocol active on the campus (i.e. BACnet).

The following lift functions and operations shall be monitored by the BMS:

- Lift failure to start
- Lift on Fire Service
- Alarm button pressed
- Lift on Independent Service
- Lift on normal operation
- Lift on maintenance
- Lift on Hazardous Goods Operation
- Lift Position (optional – for buildings or more than 10 floors)

The level of the interface (high or low) is to be determined on a campus by campus basis depending on the requirements of the campus.

Hazardous Goods Operation

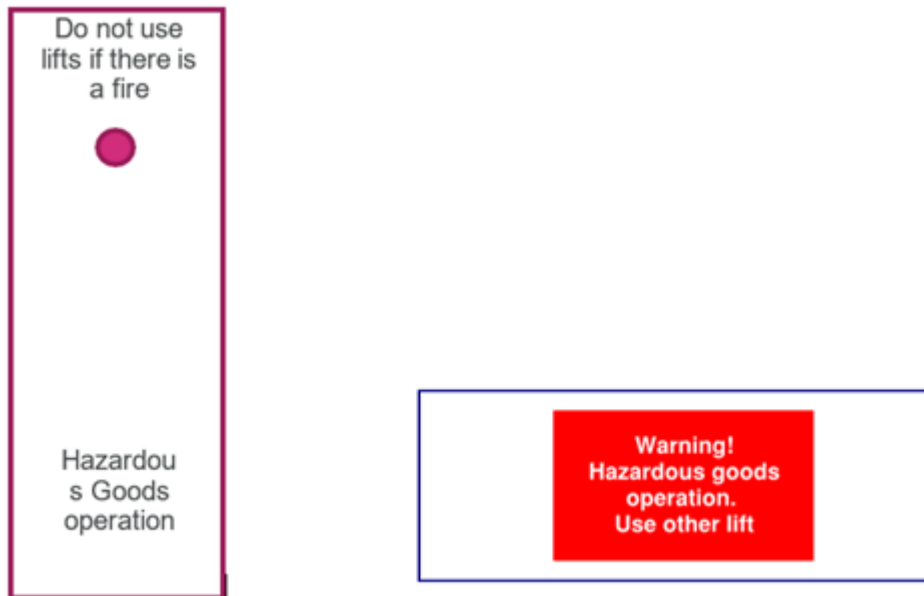
Hazardous Goods Operation is to be used only by authorised personnel and is restricted by security swipe cards as described in this section. The lift contractor shall liaise with the client to ensure that all required features of the system suit the building operational requirements.

Method of Operation

The hazardous goods operation mode shall be controlled as follows:

1. When the hazardous goods feature is not active, the designated lift will operate normally and where applicable as part of a lift group.
2. The attendant calls the lift using the card reader in the hall operating panel. A tone shall sound when the card reader is activated. The landing indicators for the lift shall display “Warning! Hazardous goods operation. Use other lift.”

Figure 01: Examples of Hazardous Goods indicators



3. The lift will deliver any current passengers to their required destination, and then travel to the floor at which the hazardous goods call was made. All other lift car calls will be cancelled and new lift car calls will not be accepted. If the lift is idle, it will immediately travel to the floor at which the hazardous goods call was made.
4. The lift will park at the called floor and open its doors.
5. The car indicator shall display “Warning! Hazardous goods operation initiated” The car announcement shall say “hazardous goods operation”. This audio announcement shall repeat approximately every 10 seconds.

Figure 02: Hazardous Goods Warning indicator



6. The lift will remain ‘captive’ in hazardous goods operation mode for 60 seconds. If the process does not proceed to the next stage, the lift will return to normal service.
7. The attendant enters the car and swipes the hazardous goods card reader in the car operating panel. A tone shall sound when the card reader is activated.
8. Car indicator to change to display “Warning! Hazardous goods loading in progress”. Voice announcements to continue as per step 5.
9. The goods are loaded into the car.
10. The attendant exits the car and checks no one is in the car with the hazardous goods.

-
11. The attendant swipes the card reader in the hall operating panel. A tone shall sound when the card reader is activated.
 12. The doors of the lift close, and the lift will remain parked at the current floor. The car indicator shall display "Warning! Hazardous goods operation in progress". The car door open buttons will remain active.
 13. The attendant travels via another lift or stairs to the destination floor.
 14. The attendant swipes the card reader in the hall operating panel of the destination floor. A tone shall sound when the card reader is activated.
 15. The lift travels to the destination floor.
 16. The doors open.
 17. The attendant removes the hazardous goods from the lift.
 18. The attendant swipes the card reader in the car operating panel to deactivate the hazardous goods operation and return the lift normal service. A tone shall sound when the card reader is activated. The car indicator and landing indicators shall return to normal.

The hazardous goods operation will not initiate if

- The hall or car fire service is active
- The lift is in inspection mode
- The lift is independent service

Selection of the hall fire service mode while the lift is in hazardous goods operation will return the lift to a designated floor for unloading.

If the hall fire service mode is selected while the lift is on hazardous goods operation, there will be an announcement in the lift car, advising the attendant (passenger) to abandon the use of the lift and exit the lift before the doors close and the lift returns to the designated floor.

0.06 Special Lifts

Service Lifts for wood/metal workshops located on upper floors

Service lifts shall be provided as required for particular projects. These lifts are restricted for staff use only. The following minimum requirements must be provided:

- Minimum lift door size to load specified goods
- Minimum lift car size to carry specified goods
- Proximity card reader or a keyed switch

-
- Comply with AS1735.4

Service Lifts supplying Laboratories with chemicals and equipment

Where a high school has multiple science labs on multiple floors a dedicated lift for the movement of chemicals and equipment is to be provided.

This lift is restricted to staff access only and should have a proximity reader or keyed switch

Service lifts for use in transporting laboratory equipment must be sized to accommodate a large laboratory trolley. This lift is not for people, only chemicals and equipment that is transported on trolleys.

The dimensions of a large 3 shelf laboratory trolley are as follows: 1100mm x 520mm x 1020mm high.

Figure 03: Large 3 Shelf Laboratory Trolley



A service lift for this application shall have a minimum size of 1200mm x 600mm x 1500mm high.

The size of the service lift may exceed this, but it may not exceed the requirements of Class 2 Service Lifts as specified in AS1735.4

Platform Lifts for loading areas

Platform lifts shall be provided as required for particular projects where deliveries of large and bulky items are required. The following minimum requirements must be provided:

- Minimum platform size of 1100mm x 1400mm

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- The area of the platform shall not exceed 1.6m².
 - Travel of the platform shall not be more than 2000mm.
 - Access controlled by keyed switch
 - Comply with AS1735.14.

0.07 Lift Documentation and Support

As-Installed Documentation and Service Manuals

On completion of the lift installation a complete set of as-installed documentation is to be provided to the DoE in electronic format.

The following design documents must be provided:

1. Lift layouts.
2. Lift car interiors.
3. Lift landing entrances.
4. Lift car and landing faceplate details.
5. Lift labels, notices and signage.
6. Project specifications check sheets for each major component detailing each lift plant and equipment item that needs to be checked, tested and verified during the installation process.
7. Return Brief defining the systems proposed and any deviations from this specification.
8. Applications to Supply authorities, and their responses.
9. Designer's statutory compliance certificates.

The following documents must be provided at practical completion:

a) Completed project specification check sheets for lift plant and equipment verified by the project consultant/designer, including the rectification of identified defects including:

- Ride quality results.
- Door open and close times.
- Door dwell times.
- Floor levelling accuracy.
- Acceleration and deceleration rates.
- Jerk rate.

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- Contract speed.
 - Flight times (door open to door open) for one, two and four floor runs.
 - Power consumption.

b) Operation and Maintenance manuals.

c) Commissioning records.

d) Product Manufacturer specific information.

e) System schematics.

f) Complete As-built workshop drawings.

g) Electrical and wiring diagrams.

h) Lift functionality and operation description.

i) Plant registration documentation.

j) Hazard and risk assessment provided by lift contactor.

k) Work Cover registration.

l) Installer's statutory certificates.

m) Safe-to-Operate certification.

Testing and Commissioning

DoE Asset Management Unit is to be involved in the commissioning of all lift installations. At least 2 weeks prior notice is to be given to DoE Asset Management Unit of any commissioning of lifts.

The lift contractor shall carry out such tests as required by EN81-20.

The lift contractor shall allow access to lift spaces for the consultant to inspect the lift prior to final handover.

Training

A training session or sessions to be provided for DoE maintenance personnel and the School staff. Training session/s are to be at no additional cost to the DoE.

The training session/s to include the operation of the lift and its controls, keys and locks, cleaning of all finishes, operation in an emergency (such as fire or power failure), hanging,

cleaning and storage of protective curtains, etc. The Lift contractor is to allow for at least 2 sessions of 2 hours each. Written documentation of the training details is to be provided.

0.08 Maintenance

Independent Maintainability

All new lift equipment must be able to be fully and effectively repaired, serviced and maintained, in accordance with the requirements and recommendations of each designer, supplier, manufacturer and installer of the lift equipment (including as set out in the Operation and Maintenance Manuals required under the contract) by any qualified and competent lift maintenance contractor. There shall be no need to rely on or use devices or intellectual property of a proprietary nature such as, but not limited to, tools, instruments, pass words, software, keys and access cards, even if only required on very infrequent occasions.

The Department or its maintenance contractor must not be required to pay and/or enter into contractual arrangements with the designer, supplier, manufacturer or installer of the lift equipment in order to perform repair, service or maintain the lift equipment.

Supported Maintainability

The Department will consider new lift equipment, which is not compliant with the independent maintainability requirement in Independent Maintainability above if:

- a all devices, spare parts and intellectual property required for independent maintainability will be provided to or made available to the DoE at, and as part of the requirements for, practical completion; and
- b no additional amount will be payable at any time to the contractor or any third party for the DoE or its contractors to receive or to have access to the relevant devices, spare parts or intellectual property. All Operation and Maintenance manuals are to include instructions on how to use or apply these tools, instruments, pass words, keys, cards, spare parts and intellectual property, etc.

Integration with Existing Maintenance Procedures

The following procedures shall be included in any new lift construction specification to assist the integration of any new lifts into the existing lift maintenance program.

SINSW Asset Management Unit must review all documentation regarding the lift tender and specifications. Information must be made available with at least two weeks prior notice of the assessment date.

SINSW Asset Management Unit is to be involved in the commissioning of all lift installations. At least 2 weeks prior notice is to be given prior to any commissioning of lifts.

Prior to commissioning of any lift (at least 1 week) SINSW Asset Management Unit is to be provided with at least one copy of the Operational and Maintenance Manuals for that particular lift.

Any lift in Defects Liability Period must comply with the procedures for recording and reporting of the existing lifts that are in place for the DoE at the time of tender. It is the contractor's responsibility to ensure that the procedures being applied are current and the latest available.

Maintenance Schedule

All maintenance and inspections are to be carried out as per the Maintenance Schedule. All scheduled maintenance is to be initialled and dated in the appropriate column in the Maintenance Schedule by the person carrying out the work.

Inspections

The Contractor shall, when required by the Departments Representative and at no greater than 12 monthly intervals, inspect the entire lift equipment in company with the DoE's Asset Management representative to ascertain the condition in which the equipment is being maintained. Such an inspection shall not in any way relieve the Contractor of its obligations to perform the Lift Services.

The Contractor shall immediately prior to the completion of the Defects Liability Period inspect the entire lift equipment in company with the DoE's Representative to ascertain the condition in which the equipment is being maintained.

The responsibility for arranging such inspections shall rest with the Contractor. The Contractor must give a minimum of two (2) weeks' notice to the DoE's Asset Management representative of such any inspection.

Final completion at the end of the Defects Liability Period will not be granted without this inspection being satisfactorily completed and all defects rectified.

Spare Parts

Each building with a lift installation shall have a collection of spare parts stored on within the building at a location confirmed by the School Principal. These spare parts shall include, but are not limited to:

- Door locks
- Buttons

Specification

01 General

As per current NATSPEC.

02 Product

As per current NATSPEC.

03 Execution

As per current NATSPEC.

04 Selections

As per current NATSPEC.