# CIS Vertical Transportation Standard

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<th>CIS-Standard-Vertical Transportation</th>
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1 PURPOSE

The CIS Vertical Transportation Standard sets out the University of Sydney's minimum requirements for the design, construction and maintenance of lifts. It ensures new and refurbished lifts are fit-for-purpose, made from durable good-quality materials, cost effective to operate and maintain and energy efficient.

Applicable requirements documented in Workplace Health and Safety legislation, Disability Discrimination legislation, State Environmental Planning legislation, Commonwealth and State legislation, National Construction Codes (NCC), the Building Code of Australia (BCA) and Australian and New Zealand Standards (AS/NZS) are the minimum and mandatory compliance requirements.

Where any ambiguity exists between this standard and the aforementioned mandatory requirements then:

a. the highest performance requirements must apply
b. applicable requirements must follow this order of precedence:
   I. Workplace Health and Safety legislation
   II. Disability Discrimination legislation
   III. State Environmental Planning and Assessment legislation
   IV. All other Commonwealth and State legislation
   V. NCC and BCA
   VI. AS/NZS
   VII. This standard and other University standards

2 SCOPE

This standard describes minimum requirements for design, purchase, construction, and operation and maintenance of lifts and associated plant, equipment and infrastructure for buildings and spaces owned, operated, maintained and/or managed by the University of Sydney. It applies to:

a. new building construction
b. refurbishment projects for University-owned spaces
c. refurbishments of spaces that form part of a broader medium-term (less than five years) programme/plan of progressive upgrades to a University-owned building
d. refurbishment projects for long-term University-leased spaces
e. facilities maintenance services

Where specific applications are not explicitly covered or ambiguity exists, the intent of the design standard must be satisfied. In such cases a return design brief must be provided for review and approval by the issuer of this standard or their appointed delegate who must have relevant technical competence in the subject matter.

The standard applies to architects, planners, project managers, consultants, contractors, subcontractors, tenants, managing agents, University staff and others involved in the design, construction, installation, operation and maintenance of existing, new and proposed University buildings and facilities.

Lift plant, equipment and services provided or specified by designers, consultants, staff and contractors must conform to this standard.
3 GLOSSARY OF TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>AC</td>
<td>Alternating Current</td>
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<tr>
<td>Goods lift</td>
<td>Lift primarily designed to carry goods and passengers</td>
</tr>
<tr>
<td>Hoist</td>
<td>Device primarily designed to carry goods only</td>
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<tr>
<td>“non-standard” operating conditions</td>
<td>Weather (e.g. in external applications), water (e.g. external applications, kitchens, etc), direct sunlight (e.g. glass lift shafts), excessive heat loading (e.g. glass or metal clad lift shafts) or any other adverse condition</td>
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<tr>
<td>Part 14, 15, and 16 lifts</td>
<td>Lift primarily designed to carry passengers with limited mobility and no goods</td>
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<tr>
<td>Part 3 lift</td>
<td>Lift that uses a hydraulic medium to raise and lower the lift car</td>
</tr>
<tr>
<td>Passenger lift</td>
<td>Lift primarily design to carry passenger</td>
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<tr>
<td>VVVVF</td>
<td>Variable Voltage Variable Frequency</td>
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4 AUTHORITIES & RESPONSIBILITIES

This standard is owned by CIS. It is approved and signed-off by the Director, CIS. The CIS Engineering and Sustainability Unit is responsible for maintaining the standard and keeping it up-to-date. The Standard must be reviewed biennially.

5 TECHNICAL REQUIREMENTS

5.1 GENERAL REQUIREMENTS FOR LIFTS

Lifts must be safe, reliable, durable, efficient, cost-effective to maintain, and comply with all NSW and national relevant codes and AS/NZS. The University requires:

a. Lifts to be easily maintained by multiple local lift maintenance contractors other than the original manufacturer
b. Lifts to be flexible and versatile in operation.
c. Lifts of the exact same componentry to have a proven 5 year local history of reliability.
d. Passenger lifts to meet the requirements of handling capacity and waiting time, depending on the lift’s expected usage and the building type, as defined by the latest version of the Transportation Systems in Buildings Guide “D”, Chartered Institute of Building Services Engineers (CIBSE).
e. Lifts to meet the requirements for use by persons with disabilities as defined AS/NZS and current building codes.
f. Provision for safe handling of hazardous goods.
g. Lifts installed in potentially explosive areas to be appropriately certified for that area.
h. Lifts directly exposed to “non-standard” operating conditions or any other adverse condition to be appropriately protected, designed, detailed and constructed.

i. Well-established lift systems that have a proven track record of reliability and ease of maintenance.

5.2 LIFT CONTRACTOR REQUIREMENTS

Only a competent, well-established, lift contractor with at least 10 years local lift installation experience may install or modify lifts. The lift contractor must have proven and demonstrated experience and capability in installing and maintaining:

a. similar types and sizes of lifts operating in environments similar to the University.
b. lifts with the same control and drive systems operating at the University.

The lift contractor must comply fully with all local rules, regulations, codes and practices as well as gain approval (e.g. design registration) and certification from the local lift inspectorate e.g. WorkCover prior to the lifts being offered for tender.

Only contractors that can provide a comprehensive reference list of lifts of the same type, control systems and drive systems installed over the past 5 years may be considered for lift installation projects at the University. Prospective lift contractors must supply information in Attachment 1.

5.3 LIFT EQUIPMENT AND SERVICEABILITY

Non proprietary lift equipment with a 5 year local track record of reliable performance and a ready supply of locally available spare parts from a range of lift companies must be used. Availability of all parts must be guaranteed for a minimum of 20 years. Lift equipment includes all parts of the entire lift installation, in particular the controller and its various parts including software and hardware and any equipment required for servicing of the lift equipment.

Lift contractors must clearly specify if the lift equipment will require Independent Maintainability or Supported Maintainability by the lift supplier/installer.

5.4 LIFT TYPES

All University lifts must be robust, durable and well-suited to intensive use. Only high efficiency AC gearless lifts with Variable Voltage Variable Frequency (VVVF) drives are permissible for new lift installations and full replacements. Geared machines with modern AC motors are acceptable for upgrades and modernisations after review and approval by the issuer of this standard.

The following lift types may be considered:

a. Conventional overhead lift motor room traction lifts
b. Machine Room-Less (MRL) lifts

Conventional overhead lift motor room traction lifts must be used for speeds exceeding 2.5m/s and must also be considered where a high rated load is required e.g. large goods lifts. MRL lifts may be considered for passenger lifts where speeds are 1 to 2.5m/s.
Lifts complying with AS/NZS 1735.14, AS/NZS1735.15 and AS/NZS 1735.16 must be key-restricted to limit access and use and clearly labelled "not for goods use".

The following lifts must not be used unless approved by the issuer of this standard:
   a. Platform lifts meeting AS/NZS 1735.14 or 15 (for short rise very low use applications only)
   b. Hydraulic lifts meeting AS/NZS 1735.14, AS/NZS 1735.15, AS/NZS 1735.16 and AS/NZS 1735.3

Lifts must use regenerative drives wherever possible and appropriate, and where no adverse power quality problems are likely.

The lift contractor must provide a 20 year whole-of-life cost analysis and present this to the issuer of this standard for review. The cost analysis must include an indicative cost breakdown of the whole-of-life costs showing plant, labour, power and material costs for the following items:
   a. Power and energy consumption
   b. Consumables such as ropes, sheaves, bearings, guides, etc
   c. Comprehensive maintenance

5.5 LIFT DESIGN

Designers must incorporate these general requirements into lift designs:
   a. Lifts must be durable and easy to operate and maintain
   b. Lifts must incorporate best-practice energy efficiency measures
   c. Passenger lifts must be wider than they are deep for ease of ingress and egress
   d. Stretcher requirements of the BCA must be met where required
   e. Where a dedicated goods lift is not being provided, a clear internal height of at least 3m must be provided in the lift car
   f. Duty of the lifts must handle peak periods typically occurring at class/lecture changeover periods
   g. A dedicated goods lift designed to the appropriate class detailed in AS/NZS1735 must be considered for buildings needing specialist goods movement. Class C goods lifts must be used for heavy loading conditions
   h. Access control provisions for possible future connection
   i. Access into the lift well pit/overrun must be provided

5.6 LIFT CAR DETAILS

Lift cars must comprise low maintenance and long term, durable finishes with scratch resistant, textured surfaces designed to minimise minor damage.

5.6.1 LIFT CAR FINISHES

The finishes must comply with the following requirements:
   a. Vandal-resistant and patterned stainless steel to side walls and lower half of rear wall
   b. Aluminium-framed silver mirror to upper half of rear wall
   c. Fixed “white” coloured laminated lift car ceiling
d. A single 600 mm long linished stainless steel hand rail to side of lift car under auxiliary car operating panel securely fixed to sustain heavy loads. No other hand rail is required.

e. Quality LED down lights as per the CIS Lighting Standard.

f. Linished stainless steel car door, car front and skirting.

g. Durable, long-wearing, sustainable and readily replaceable floor covering which is GECA-Certified or Eco-specifier certified.

h. Car control panels - main and auxiliary must be stainless steel, satin finish and complying with AS/NZS 1735.12 and mounted in vertical alignment.

i. Car and landing buttons must be commercially available “third party supplier” items that comply with AS/NZS1735.12 and with White/Blue Illumination. Generic lift company manufactured buttons are generally not acceptable.

j. The main entry level/street level landing button must be labelled by engraving “Street Level” next to the relevant floor level button in situations where the where the button corresponding to the main entry level/street level is not labelled “G”.

k. Goods lifts must have similar finishes with the addition of hardwood bump rails 300 mm x 20 mm thick with a durable environmentally friendly coating.

l. Lift car mirror may be omitted from goods lifts.

m. Special application goods lifts e.g. for chemicals, animals, etc must use specific fit-for-purpose durable and resistant finishes to resist exposure damage.

5.6.2 HAZARDOUS GOODS LIFTS

Hazardous Goods lifts must use the University hazardous goods feature in Attachment 2.

All lifts must have a self-contained fully automatic self rescue feature that runs the lift to the nearest floor to allow passengers to exit safely if mains power fails.

All lift control keys (fire service, independent service, hazardous goods feature, controller cabinets, lift machine room door, etc) must comply with the University Key Register.

5.6.3 PREVENTION OF ELECTROMAGNETIC INTERFERENCE

Equipment likely to be incompatible with emission levels, harmonics and power quality requirements in the building e.g. light fittings, apparatus, appliances, wiring, etc must have electromagnetic interference filtering.

5.6.4 DDA REQUIREMENTS

The minimum facilities to meet the access needs of people with disabilities include the following:

a. Minimum 600mm long handrail located adjacent to the car operating panel in compliance with the requirements of AS/NZS 1735.12

b. Floor dimensions not less than 1400mm wide x 1600mm deep

c. Lift entrance protection system complying with AS/NZS 1735.12

d. Minimum clear door opening of 900mm wide in accordance with AS/NZS1735.12

e. Lighting in accordance with AS/NZS1735.12

f. Emergency hands-free self dialling push button initiated communication system with audible feedback

g. Car operating panels designed to meet AS/NZS1735.12 requirements

h. Levelling accuracy of ± 6mm

i. Visible, tactile and audible information on landings and within the car.
5.6.5 **LIFT FIXTURES**

The main control panel must have the lift car number, load and an additional notice of "**CIS Security Emergency Phone Number 9351 3333**" inscribed with black infill at a height of approximately 1800 mm above floor level. There must be no traditional "Part IV" notice in the lift car.

The number of key switches in a lift car must be kept to a minimum. There must be no key switch in the lift car for lights and fan operation. These features must automatically turn off and on.

Only a minimum length 600 mm long hand rail for disabled use must be used. It must be tubular stainless steel, securely attached to the lift car wall and fully complying with AS/NZS 1735.12 as shown in the section drawing below.

The engraved emergency phone instruction shown below must be provided on the main car operating panel at approximately 1,400 mm above the finished floor level. It must be in white with a minimum font size equivalent to Arial 20 point.

The lift car emergency lighting must comply with or exceed AS/NZS 1735.2:2001 Clause 23.25.2.9 (not AS/NZS 1735.1 Amendment 2006). EN81 compliance is not acceptable. In particular there must be a minimum of 20 lux on each control panel.
Protective curtains must be supplied for one lift (and interchangeable for the other lifts if more than 1 lift is installed). They must be hung on brackets and hooks supplied and installed by the lift contractor in the lift machine room or other space nominated by CIS.

The hands free auto-dialing phone must be installed and the car operating panel must accommodate the speaker and microphone. The phone must be an "emFone" or equivalent. Proprietary systems will not be accepted. It must be hard wired in the lift machine room/space (not plug-in) to the 240V supply.

5.7 LIFT PHONE FINAL DISTRIBUTION POINT (LIFT FDP)

For effective maintenance of the lift phone line, the University requires a demarcation point between the lift technician and the telephone technician, installed in the top passenger lift lobby where both trades can readily access it. The design philosophy and details for this distributor, called the Lift FDP, are given in the University of Sydney Communications Cabling Standard.

For new lifts, the designer of the lift shaft must ensure requirements for the Lift FDP are reflected in all relevant documentation packages. Architectural approval must be obtained for the appearance of the enclosure, any penetrations for conduits must be documented by the structural engineer, and the electrical designer must include the voice grade cable from the main distribution frame (MDF) to the Lift FDP on the communications cabling schematic. It may be necessary to form a recess in the concrete of the lift shaft to accommodate the enclosure elegantly.

Where existing lifts are being refurbished, a Lift FDP must be installed if not already present, and the voice grade cable to the MDF must be re-run. Old arrangements such as an existing FDP in the lift motor room, or a connection from a general independent distribution frame (IDF) or FDP, do not comply with the current requirement for a dedicated Lift FDP. To fit a Lift FDP to an existing lift shaft, a surface-mounted enclosure with surface-mounted conduits is usually necessary.

5.8 BUILDING CONTROL MAINTENANCE SYSTEM MONITORING

The lifts must provide connection to the Building Control Management System (BCMS) monitor the following functions:

a. Lift fail to start
b. Lift on Fire Service
c. Alarm button pressed
d. Stop button pressed
e. Lift on Independent Service
f. Hazardous Good Service

Inputs from the lifts to indicate status and fault information to the BCMS must be by voltage free relay contacts rated at 240V AC 1A resistive load.

The lift contractor must supply and install all cable and conduit between terminal strips in an interface box adjacent to the lift machine room, or in the top floor lift lobby, and the lift controller for the transfer of signals between the systems.

5.9 LIFT PERFORMANCE

The lift/s must achieve the fastest floor-to-floor performance possible without unduly affecting the quality of the lift car ride. The following performance parameters must not be exceeded:
a. Maximum acceleration rate of 1.0 m/s²
b. Maximum deceleration rate of 1.0 m/s²
c. Maximum jerk rate of 1.5 m/s³
d. Maximum lateral and vertical movement 20 milli-g (10Hz filtered A95)
e. Rated lift car speed +/- 5% (up/down, full/no load)
f. Floor levelling accuracy +/- 6mm
g. Noise levels in a lift car in motion at must not exceed 55db(A) taken in the middle of the lift car at approximately 1 metre above the floor
h. Door operation noise must not be more than 60 db(A)
i. Lift car fan noise levels must not be more than 60 db(A)
j. Lift Car Lighting must comply with AS/NZS 1735.12:1999 Clause 10 and have a minimum of 100 lux
k. Lift Car Emergency Lighting must comply with AS/NZS 1735.2:2001 Clause 23.25.2.9 and have of a minimum of 20 lux on each control panel

To reduce noise and vibration, lift equipment such as hoisting machines, controller, and if appropriate, switchgear, sheave, guide shoes, door mechanism and rope hitch must be mounted on appropriate isolating pads or mountings.

5.10 ENERGY EFFICIENCY

Best practice energy efficiency features must be incorporated into lifts, including but not limited to:

a. Use of quality LED luminaires according to the CIS lighting Standard
b. Automatic switching of light fittings and screens in lift cars and on landings when lifts are idle. Lights and screens must automatically switch off whenever the lift has been idle for 2 minutes, except when the lift is in a special operation mode (exclusive, fire, etc) or if the lift is in a failed start or fault condition
c. Variable frequency AC permanent magnet motor drives
d. Drives shall have a regenerative capability to recover and return excess energy to the electrical mains rather than dumping it as heat.

5.11 ASSOCIATED REQUIREMENTS

All lifts must include these requirements:

a. If fitted with roller guides, spring tension rollers guides with a diameter of at least 150 mm
b. If fitted with slipper guides, have effective devices to safely contain any oil from the guide rails and prevent oil draining onto the lift pit floor, guides and brackets, under the lift car or on to the lift car.
c. Lift car access control reader, including all wiring between the lift car and a point near the lift machine room or lift controller
d. A lift car CCTV camera, including all wiring (including 240 Volt supply) between the lift car and a point near the lift machine room or lift controller. The camera must comply with relevant requirements in the CIS Security Services Standard.
e. 300 mm x 300 mm x 300 mm dry sump with a chequer plate steel cover. The sump must not interfere with the lift equipment or personnel. The pit floor must be graded to the sump.
f. Mains supply cables must not have any interposing switches or circuit breakers installed between the lift main switch in the building’s main switch board and the lift circuit breaker in the lift machine room or control cabinet.
g. All cabling (including low voltage and shaft lighting) in the lift machine room, lift shaft, lift pit, top of car, etc must be mechanically protected in rigid conduit (flexible conduit must not be used) or ducting or some other protection as approved by the issuer of this Standard.
h. Stick-on labels must not be used in the lift car or landings. All lift car and landing signage must be engraved.

5.12 MAINTENANCE

Requirements for independent and supported maintenance are provided below.

5.12.1 INDEPENDENT MAINTAINABILITY

All new lift equipment must be repaired, serviced and maintained, in accordance with the minimum requirements of:

a. Designers
b. Suppliers
c. Manufacturers
d. Installers
e. Operation and Maintenance Manuals

All lift equipment must be non-proprietary and open source. Lift system software must allow maintenance, servicing and tuning by independent third party contractors. Any qualified and competent lift maintenance contractor must be able to perform maintenance without use of proprietary devices or information, including but not limited to:

a. external devices
b. spare parts
c. tools
d. instruments
e. codes
f. passwords
g. keys
h. locks
i. cards
j. reactivation sequences
k. software
l. information and intellectual property

The University 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.

5.12.2 SUPPORTED MAINTAINABILITY

The University will consider new lift equipment, which is not compliant with the aforementioned independent maintainability requirements only if:

a. all plant, equipment, materials and intellectual property required for independent maintainability are provided or made available to the University at practical completion
b. no additional amount is payable to the contractor or any third party for the University or its contractors to receive or to have access to proprietary plant, equipment, materials and/or intellectual property to perform maintenance.

5.12.3 DEFECTS LIABILITY PERIOD MAINTENANCE

A regular comprehensive maintenance and breakdown service must be provided during the Defects Liabilities Period (DLP). DLP maintenance must conform to the conditions and maintenance performance parameters set by the University of Sydney's current campus wide maintenance agreement.

6 COMMISSIONING

Commissioning must be performed according to the CIS-Commissioning standard.

An independent commissioning agent not involved with the design or construction of the project must test, verify and certify that the lifts meet or exceed the required performance criteria of this standard.

Detailed testing and commissioning requirements must be specified for each project by the consultant/designer.

Detailed testing and commissioning records must be provided for critical lift systems and equipment as appropriate. All such records must be witnessed and verified by the project consultant/designer.

Minimum lift commissioning requirements are provided in following sections.

6.1.1 TESTING AND COMMISSIONING REQUIREMENTS

Detailed testing and commissioning requirements must be specified for each lift by the consultant/designer and include all statutory requirements. Testing and commissioning records must be provided for each lift and each component as appropriate. All such records must be witnessed and verified by the project consultant/designer.

6.1.2 TRAINING

Training must be provided to the issuer of this standard and nominated users after completion of the testing and commissioning. It must include the operation of the lift and its controls, keys and locks, cleaning of all finishes, operation in an emergency, hanging/cleaning/storage of protective curtains, etc.

6.1.3 CERTIFICATION

A Safe-to-Operate Certificate must be provided prior to the lift going into service.
7 DOCUMENTATION & RECORDS

On completion of the installation a complete set of as-installed documentation is to be provided to the issuer of this standard.

The following design documents must be provided:

a. Lift layouts
b. Lift car interiors
c. Lift landing entrances
d. Lift car and landing faceplate details
e. Lift labels, notices and signage
f. 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.
g. CIS Project Design Certification Form, CIS-ENG-F001
h. Return Brief defining the systems proposed and any deviations from this specification
i. Applications to Supply authorities, and their responses
j. 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:
   I. Ride quality results
   II. Door open and close times
   III. Door dwell times
   IV. Floor levelling accuracy
   V. Acceleration and deceleration rates
   VI. Jerk rate
   VII. Contract speed
   VIII. Flight times (door open to door open) for one, two and four floor runs
   IX. 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

8 OPERATIONS

Consultants/designers must include detailed requirements for operation and maintenance manuals in the project specification. These include but are not limited to the lift system description, operation procedures, testing and commissioning records, maintenance instructions, product support information and recovery protocols for any computer related systems. Operation and maintenance manuals are to include instructions on how to use or apply tools, instruments, passwords, keys, cards, spare parts and intellectual property, etc. Contractors must provide these to the satisfaction of the
consultant/designer. Providing a collection of manufacturers’ brochures and catalogues is not acceptable.

Contractors must submit loose leaf log book designed for recording operational and maintenance activities including materials used, test results, comments for future maintenance actions and notes covering asset condition. Completed log book pages recording the operational and maintenance activities undertaken for Practical completion and during the defects liability period must also be provided.

Facilities Maintenance must establish, document and implement procedures for lift plant and equipment operation and maintenance to ensure lifts are fit-for-purpose and provide secure, efficient, safe and reliable vertical transport.

9 AUTHORISATION OF VARIATIONS

Project managers, consultants, contractors, commissioning agents and facilities maintenance personnel must ensure compliance with these requirements is achieved.

Variations to this standard must only be considered where:

- the University Standard’s requirement cannot physically or technically be achieved.
- the alternative solution delivers demonstrated and proven superior performance for the same capital and life cycle cost or better.

Consultants and contractors must identify and justify requirements of the standard that do not apply to the project or which need to be varied and these which must be approved by the issuer of this standard. Formal requests for all variations to this Standard must be submitted using the CIS Request Dispensation from Standard Form (CIS-ENG-F001). The issuer of this standard or their delegated authority must review and consider requirements of stakeholders from clients, projects and facilities management before deciding whether to approve variations. Their formal sign-off is required for acceptance of any non-compliances and departures from this standard’s requirements.

10 QUALITY CONTROL

10.1 DESIGN STANDARD COMPLIANCE

Compliance with requirements of this standard must be checked throughout the design, construction and commissioning phases of projects by:

- The CIS project consultant
- The issuer of this standard or their delegate

Competent CIS representatives must check compliance with this standard during design reviews and formal site inspections. Any non-compliances with requirements of this standard must be documented in the Non-conformance Report Form, CIS-SYS-F001 and provided to the CIS Project Manager for issue to contractors and their consultants. Project Managers must maintain a register of non-conformances and manage close out of outstanding non-conformances. Contractors and their consultants issued with non conformances must take appropriate corrective or preventive actions. Proposed corrective or preventive actions and close out of non-conformances must first be formally approved by issuer of the standard or their delegate.

Where alternative solutions are proposed by contractors, all information and detailed calculations must be provided in accordance with this specification. The contractor must pay any costs associated with design verification for the alternative proposal.
10.2 DESIGN STANDARD CERTIFICATION

Contractors and their consultants must certify compliance to the design standard by completing and submitting the CIS Project Design Certification Form, CIS-PROJ-F001 to the CIS Project Manager at each of the following project phases:

a. Design and Documentation
b. Tender
c. Construction

Notwithstanding CIS’ internal quality control processes, contractors and their consultants must implement their own robust quality assurance and control procedures to ensure compliance with requirements of this standard.

11 REFERENCES

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<tr>
<th>Standard</th>
<th>Title</th>
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<tr>
<td>AS1735</td>
<td>Lifts, Escalators and Moving Walks (including full compliance with AS1735.12)</td>
</tr>
<tr>
<td>BCA</td>
<td>Building Code of Australia, specifically Section J energy efficiency</td>
</tr>
<tr>
<td>Chartered Institute of Building Services Engineers (CIBSE)</td>
<td>Buildings Guide “D”</td>
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<td>University Communications Cabling Standard</td>
<td>Telephone Wiring Supplement of the standard</td>
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<td>CIS Security Services Standard</td>
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<td>CIS Essential Fire Safety Measures Standards</td>
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<td>University of Sydney CAD standard specification</td>
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<td>Workcover requirements</td>
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<td>All Health Authority Requirements</td>
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<td>State Fire Brigade requirements</td>
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<td>All Local Council regulations</td>
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<td>Electricity Safety (Installations) Regulation</td>
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12 NOTES

N/A

13 DOCUMENT AMENDMENT HISTORY

<table>
<thead>
<tr>
<th>Revision</th>
<th>Amendment</th>
<th>Commencing</th>
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14 ATTACHMENTS

Attachment 1  Lift Contractor References
Attachment 2  Hazardous Goods Service
### Attachment 1 Lift Contractor References

<table>
<thead>
<tr>
<th>Building Address</th>
<th>Year Installed</th>
<th>Manufacturer</th>
<th>Client Name</th>
<th>Drive system</th>
<th>Control system</th>
<th>Maintenance Contractor</th>
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Attachment 2 Hazardous Goods Service

All landing button panels (LOP) for the goods lift will be provided with a three position key operated switch labelled “HAZARDOUS GOODS OPERATION” with the positions labelled as follows:

```
  CALL LIFT
      |
      |
-- OFF --              CLOSE
```

The lock will be spring return to the “OFF” position from both other positions.
In addition to normal switches, there will be a two position switch in the car operating panel (COP) labelled “HAZARDOUS GOODS OPERATION”. The two positions will be labelled “OFF” and “ON” and the key can be withdrawn in either position.

The key switches in both the COP and the LOP will be of the Bi-Lock type.

a. When the hazardous goods service (HGS) key switch is in the “OFF” position the designated lift will operate normally and where applicable as part of a lift group.
b. The attendant turns the key switch in the landing operating panel (LOP) clockwise from the “OFF” to the “CALL LIFT” position.
c. An in car announcement is made.
   i. “Please exit at the next stop, this lift is required for special service”. Note, this audio announcement will repeat approximately every 10 seconds
   ii. An illuminated flashing sign in the lift COP will light “Special service operation”
d. Hall call response is inhibited
e. The lift will travel to answer the next registered lift car call in its direction of travel, the doors will open, all other lift car calls will be cancelled and new lift car calls will not be accepted. All passengers are expected to leave the lift car. The doors will close and the lift travel directly to answer the HSG key switch. If the lift is idle it will immediately travel directly in answer to the HSG key switch.
f. The lift will travel (non Stop) to the “calling” floor (at which the HGS switch is selected.)
g. Open its doors.
h. The lift will remain at that floor with the doors open.
i. The attendant will remove the key switch from the landing fixture in the “OFF” position.
j. The lift will remain “captive” in the HGS mode of operation for 60 seconds. If the process does not proceed to the next stage, the lift will return to normal service.)
k. The HGS car operating panel (COP) key switch is turned to the “ON” position.
l. The key is removed in the “ON” position.
m. The goods are loaded.
n. The key is inserted into the hall switch and turned counter clockwise to the “CLOSE DOORS” POSITION. The doors close and the key returns to the central “OFF” position and withdrawn.
o. The attendant travels via other lift or stairs, to the “destination” floor.
p. The attendant then turns the HGS key switch in the LOP to the “CALL LIFT” position at the “destination” floor.
q. The lift travels to the “destination” floor.
r. The doors open.
s. The goods are removed.
t. The key is removed from the “destination” landing HGS key switch.
u. The COP HGS key switch is returned to the “OFF” position.

The HGS mode of operation will not initiate if:
a. The Hall or Car Fire Service is operated. (HFS & CFS)
b. The lift is in Inspection mode. (INS)
c. The lift is on Independent Service. (INDS)

Selection of the Hall Fire Service mode while the lift is on HGS will return the lift to a designated floor for unloading.
If the HFS mode is selected while the lift is on HGS, 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.