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1.0 Design Principles Overview

This design standard will apply to all new and fully refurbished:

- Passenger lifts
- Goods / Material Lifts

Plus any other vertical transportation or materials handling device with the exception of cranes and overhead hoist systems.

1.1 General

- Lifts must be safe and comply with all NSW and national relevant codes and standards
- Lifts must be easily maintained by multiple (other than the original manufacturer) lift maintenance contractors
- Lifts are to be as flexible and versatile in operation as possible
- Lifts must have a proven (5 year) local history of reliability
- The passenger lifts must meet the requirements of handling capacity and waiting time for passenger lifts, depending on the lift's expected usage and building type, as defined by the latest version of the Transportation Systems in Buildings Guide "D", Chartered Institute of Building Services Engineers (CIBSE)
- Lifts must meet the minimum requirements for use of persons with disabilities as defined by the lift code AS1735.12
- The safe handling of hazardous goods must be allowed. Refer University CIS Manager for the procedure and details for the safe operation of lifts for hazardous goods
- If the lift/s is installed in potential explosive areas all of the lift equipment located in the explosive areas must be appropriately certified for that area
- Lift/s directly exposed to "non-standard" conditions, i.e. the weather (e.g. external applications), water (e.g. external applications, kitchens, etc), direct sun light (e.g. glass lift shafts), excessive heat loading (e.g. glass or metal clad lift shafts) or any other adverse condition must be appropriately protected, designed and documented for that particular condition.

1.2 Requirements

A competent, well-established, lift contractor with at least 10 years local lift installation experience shall only install or modify lifts. The lift contractor must be large enough and have enough competence to maintain all of the lifts in the existing lift maintenance portfolio. 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 prior to the lift being placed into service.

Full compliance with the lift code AS 1735.12 is required except for dedicated goods lifts.

Consideration shall be given to lift power systems that are energy efficient and environmentally friendly. Any lift power system that can be proven to be more efficient or less power consuming and environmentally friendly shall have preference over a less efficient system.

Only non proprietary lift equipment or lift equipment that has been available locally for at least 5 years in Australia as well as lift equipment that has a ready supply of spare parts to local lift companies, other than the original manufacturer, may be used. The availability of all parts must be guaranteed for a minimum of 20 years. Lift equipment shall mean any and all parts of the entire lift installation, in particular the controller and its various parts including soft ware and hard ware.

A list of how many lifts of the same type and in particular with the same control and drive 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.

Compliance with these guidelines shall be verified by the lift design consultants for discussion and approval by the University CIS Lift Maintenance Manager before any design and selection progression is made.

Only deviations from the guidelines which present a clear, quantifiable and demonstrable improvement and advantage to the University CIS Lift Maintenance Manager will be considered.

2.0 Specific Design Requirements

2.1 Lift Types

The following lift types are permissible:

- ***Geared Traction***

A dedicated lift machine room is required. To be used for up to 15 floors served or 60 metres rise. It shall be used for general passenger, people with disabilities or for goods services. This type of lift shall be the standard for all new installations of up to 15 floors in height. Heights above 15 floors will require a review and consideration by the University.

The lift speed shall not exceed 2.0 metres per second without a review and consideration by the University CIS Lift Maintenance Manager. Only Variable Voltage Variable Frequency Alternating Current drives shall be used.

- ***Overhead Gearless***

A dedicated lift machine room is required. To be used for lifts requiring a speed of 2.5 metres per second and higher. Alternating Current machines are to be used for the main driving machine. Variable Voltage Variable Frequency Alternating Current machines are preferred for both geared and gearless lifts. Variable Voltage Direct Current shall only be considered in modernisations of existing gearless installations.

Note. Machine Room Less (MRL) lifts shall not be considered

2.2 Lift car interiors

Shall comprise low maintenance and long term durable finishes, with scratch resistance / textured surfaces to minimise scratches and minor damage.

Walls, doors and landings are to be resistant to impact with high resilience type finishes with linished, patterned stainless steel being the preferred and minimum requirement.

Laminate finishes shall not be used on lift car walls.

Lift car floors are to be of resilient long term performance material suitable for lift flooring such as seamless floor sheeting or commercial tiling.

Carpet materials or loose type panelling are not to be used.

If mirrors are installed they shall be provided on the wall opposite lift entrance (back wall), mirror shall be of half height and of a low brightness reflectivity type.

Ceiling material is to be of a solid panelling surface material - with ease of cleaning and maintaining surface appearance. Grid or “egg crate” panelling materials surfaces are not to be used.

Lift cars are to be designed to hang suitable protective blankets to protect all internal finishes. A full set of protective blankets shall to be provided for all lift car interiors or to be shared between a group of lifts in a single bank.

Car buttons, landing buttons, indicators shall be: Vandal resistant high quality components. Buttons shall be illuminated by embedded LED equal to or better than Dewhurst US95 buttons with blue/white illumination. Car and landing indicators type: Scrolling LED or backlit LCD screens indicating level and direction of travel. The buttons and indication shall be weather proof or adequately protected if the landings are exposed to the weather. The metal work of the landing entrances, sill supports, headers, uprights, well flushing, etc shall be galvanised or rust protected to the approval of the University CIS Lift Maintenance Manager prior to installation.

Car fan: required, low velocity low noise, axial flow fan. The fan must auto power off after a predetermined time (30 to 300 seconds). The use of handrails shall be restricted to the minimum requirement for AS 1735.12. The use of “bump” rails shall be used on all walls if the use of trolleys, goods, beds, etc is to be used.

Lift car lighting shall be LED fittings with maximum light spread capable of reflecting light off walls and ceiling surfaces rather than point / concentrated light pattern. Shall provide clear and glare free lighting across all surfaces. Low voltage concentrated lights/lamps or “dichroic” type fittings are not to be used. The lights must auto power off after a predetermined time (30 to 300 seconds). All lights, globes, fittings, etc must be easily accessed, removed and maintained.

All lift key operated controls and locks must be keyed to comply with the University key register. This is to include lift machine room doors, controller cabinets, lift COPs, etc.

An Uninterrupted Power Supply (UPS) shall be provide by the lift contractor to allow any new lift or new VVVF drive system to operate, when mains power electrical fails. The lift shall. As a minimum continue to operate to at least the nearest landing floor where the lift doors will open and allow passengers to leave the lift car before shutting down.

All wiring (including double insulated cabling) installed within the lift shaft, lift machine room and lift car (excluding the travelling flexes) shall be mechanically protected using approved duct or conduit.

The lift car and landings will be provided with suitable wiring to allow for the connection of an access control reader and space on the interior of the control panels allocated for the access reader irrespective of whether such controller is planned in the installation of the lift or otherwise.

University CIS Lift Maintenance Manager is to be involved in all new lift tender assessments. All documentation must be made available to the University CIS Lift Maintenance Manager with at least one week prior notice of the assessment date.

University CIS Lift Maintenance Manager is to be involved in the commissioning of all new lift installations. At least 2 weeks prior notice is to be given to the Section of any commissioning of new lifts.

Prior to commissioning of any new lifts (at least 2 week) University CIS Lift Maintenance Manager is to be provided with at least one copy of the Operational and Maintenance Manuals for the particular lift.

On completion of the installation a complete set of as-installed documentation is to be provided which to the University CIS Lift Maintenance Manager.

A training session or sessions is to be provided for the lift users and the University CIS Lift Maintenance Manager after the testing and commissioning is successfully completed. This training session/s is to be at no additional cost. The training session/s is 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/storage of protective curtains, etc. The Lift contractor is to allow for at least 2 sessions of 2 hours each.

Maintenance (DLP)

The University has many lifts under maintenance and requires all new lifts to be as compatible and easily integrated with the existing lifts and lift maintenance contractor. To that end consideration must be given, and documentation must be provided, before accepting any new lift system that clearly identifies the new or refurbished lift as being easily and effectively maintained by the existing lift maintenance contractor to the approval of the University CIS Lift Maintenance Manager.

A regular and comprehensive maintenance and breakdown service shall be provided during the Defects Liabilities Period. DLP maintenance shall conform to the conditions and maintenance performance parameters set by the University of Sydney's campus wide maintenance agreement. A copy of the maintenance contract can be obtained from the University CIS Lift Maintenance Manager

3.0 Documents and Certifications

3.1 Required Standards Compliance / Standards

Installations and modernisations of lifts shall comply with all applicable codes of practice, statutory codes and standards, including but not limited to:

- Vertical transport (this document) and associated services
- Telephone Wiring Supplement of the University Communications Cabling Standard,
- Electrical Services - Including communications and access control provisions; Mechanical Services (ventilation systems)
- Fire and Essential Services Standards;
- Security Services Standards
- University of Sydney CAD standard specification;
- Standards shall be the current version including updates. Only Australian Standards are to be used. Lift design must be register and approved by Work Cover NSW
- Building Code of Australia.