

DIRECTORATE OF ESTATES
PROCEDURE AND INFORMATION MANUAL
EPM PM9 – Standard Lift Specification

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INDEX

1.0	Purpose of the document	<i>Page 3</i>
2.0	General Requirements	<i>Page 3</i>
3.0	Particular Requirements	<i>Page 5</i>
3.1	Control Systems	
3.12	Motor Room Lift Installations	
3.33	Machine Room Less Lift installations	
3.41	Hydraulic Lift Installations	
3.42	Scenic Lifts – Additional Requirements	
3.49	Goods Lifts - – Additional Requirements	
3.55	Disabled Access Lifts – Basic Requirements	
3.66	Scissor Lifts – Basic Requirements	
3.76	Service Lifts – Basic Requirements	
3.86	Fire Fighting Lifts – Additional Requirements	
3.87	Escalator Installations – Basic Requirements	
3.93	Shaft Requirements	
3.108	Car Finish	
3.123	BREEAM / Sustainability	
3.126	Handover	

1.0 Purpose of Document

- 1.1 This document sets out the Standard Lift Specification to be used for all lift installation work at the University of Manchester.

2.0 General Requirements

- 2.1 This specification states the minimum requirements for new lift installations at the University of Manchester. It is intended to focus on standards which are a particular requirement of the University of Manchester.
The intention of this specification is to set out the standards the University of Manchester require for lift installations, our aim is to deliver a standard of lift installation that shall be robust, reliable and shall meet the building users requirements and expectations.
- 2.2 Passenger carrying lifts shall meet or exceed all D.D.A statutory requirements and best practices and University of Manchester's commitment to D.D.A requirements for access for all.
- 2.3 The lift installation shall also be designed to produce a safe working environment for Engineers and Auxiliary workers to work on or around. This specification is generic and shall be used in conjunction with a full technical specification as required for each lift installation.
- 2.4 If any discrepancy is found between this specification and the related documents, regulations or standards, the Consultant Engineer shall be informed during the tender period.
- 2.5 Any deviation or non-compliance with this specification shall be brought to the immediate attention of the University Electrical Engineer.
- 2.6 The completed installations shall comply in all respects with the University of Manchester Standard Electrical Specification. The work shall be carried out in compliance with the University of Manchester Code of Practice for Contractors, and all other Health and Safety policy documents.
- 2.7 The completed installations shall comply in all respects with all applicable and up to date British and European Standards.
- 2.8 The works shall comply fully with all applicable Acts, Regulations and Working Rules.
- 2.9 Equipment not manufactured in the United Kingdom shall have been agreed to be a standard, which ensures its compliance with all appropriate British and European Standards, Certificate of Conformity and CE markings.
- 2.10 The installation shall be to the highest standard as expected of a fully experienced trade contractor. All contractors shall be accredited to LEIA and have appropriate Quality Assurance accreditation (ISO 9000 / ISO 14001).
The installation shall be carried out to LEIA standards and in accordance with all manufacturers' recommendations and established methods and practices and to the entire satisfaction of the Lift Consultant. The installation shall be robust as in engineering standards. The equipment shall be hardware designed to give maximum performance and reliability.
- 2.11 The lift designer shall complete a comprehensive Traffic flow survey, to ensure the correct lift capacity, speed etc is specified, and complies with the requirements of CIBSE Guide D. This survey shall also give full consideration to maintenance requirements and the implications on the building of a lift being out of service.

- 2.12 The lift manufacturer / installer shall include for taking every practical precaution to ensure quiet operation of the new equipment. Every precaution shall also be taken to prevent vibration being transmitted to the building structure from the controller and all other items of lift equipment. The lift manufacturer / Installer shall provide details of the guaranteed noise and vibration levels which will be achieved by completed installation.
- 2.13 The Car Call system shall be selected to maximise performance of the lift, and typically shall be a full collective micro processor type.
- 2.14 Passenger lifts shall generally be designed at the following speed and average waiting times for:
1.0 m/s 8 persons lift serving 0-4 floors
1.6 m/s 10 persons lift serving 0-12 floors
Average waiting time 30 sec
15% arrival rate
- 2.15 Passenger lifts shall have the following minimum dimensions:
- Door entrance 900mm
 - Car width 1100mm
 - Car depth 1400mm
 - Car height 2200 mm.
- 2.16 Passenger lifts door landing entrances shall be angled architraves (patterned stainless steel) to allow for easier access and egress to the lift. The architraves shall be full depth splayed.
- 2.17 Building / lift floor numbering. In new buildings / new lifts the requirements in EN81-70 for European standards require -1 0 1 2 3 etc is to be met, however on lift refurbishments consideration should be given to the existing floor markings to avoid different identification.
- 2.18 Lift I.D number shall be marked on a traffolite label mounted on the ground floor architrave in the top left hand corner, and also engraved inside the lift car on the car operating panel and the engraving shall be filled with an epoxy resin. The University of Manchester, Specialist Engineering Contracts Supervisor will advise the ID number of the lift.
- 2.19 Included in any lift project there shall be a 12 month warranty period and service agreement. Both shall start at the time of practical completion to the University. The condition of the installation at practical completion shall be as new including all lamps and consumables.
The maintenance contract shall be a fully comprehensive contract and shall include for 12 service visits for passenger carrying lifts, 6 service visits for disabled access lifts, and quarterly service visits for service lifts.
This shall also include a 2 hour call out response, and no lone working.
The payment for the service element will be paid on completion of the 12 month warranty period. Any service visits missed will be deducted from the service premium on a pro-rata basis. Service and breakdown reports shall be issued to The University of Manchester, Specialist Engineering Contracts Supervisor.
- 2.20 During the 12 month warranty period if the lift breakdowns exceed 5 failures, the warranty period shall be extended until reliability has been improved to the satisfaction of the University of Manchester Specialist Engineering Contracts Supervisor.
- 2.21 Guidance on the requirements of this specification can be sought from either the University Electrical Engineer (Tel: 0161-275-7539) or the University Specialist Contracts Supervisor. (Tel: 0161-275-7801).

3.0 Particular Requirements

Control Systems

- 3.1 The main drive system of the lift shall be a Variable Voltage Variable Frequency drive, and shall provide step-less acceleration/deceleration and stopping cycles, and achieve a floor levelling accuracy of +/- 5mm.
The drive system shall be a closed loop system utilising a Tacho-generator and/or digital encoder directly coupled to the hoist motor or geared machine high-speed shaft to provide a speed feedback / motor shaft position reference.
Speed Regulation between no load and full load shall be within 5% of the contract speed. The entire lift installation shall operate normally with supply voltage fluctuations between +/-10% of the declared supply voltage.
- 3.2 The following key switches shall be provided in passenger carrying lift cars: -
- Car key preference
 - Light switch key (Three position type on/off and emergency light test.)
 - Override of fan.
 - Lift isolation key shall be fitted on ground floor landing call point and lift car doors shall close on operation.
- 3.3 The Car control panel in passenger carrying lift cars shall incorporate but not be limited to the following features installed:
- Dot matrix digital position indicator.
 - Car call buttons shall illuminate and stay lit until car call is complete
 - Car call buttons shall have tactile markings and shall be supplemented with Braille markings.
 - Car call buttons shall have an audible acceptance signal on each and every operation.
 - Home floor button shall be prominent to all other buttons.
 - D.D.A hearing induction loop on emergency alarm system.
 - Door Open / Close button (Automatic doors)
 - Alarm button.
- 3.4 Each lift floor landing for passenger carrying lifts shall have but not be limited to the following features installed:
- Dot matrix digital position indicator with audible signalling. (One tone for up and two for down).
 - Landing call buttons shall have tactile markings supplemented by Braille.
 - Landing call buttons shall illuminate and stay lit until lift arrival.
 - Audible signal shall sound on Call acceptance on each and every occasion.
 - Landing call points and indicators shall be flush mounted.
- 3.5 Each passenger carrying lift shall be installed with an Auto-dialler. The Auto-dialler will be manufactured by Windcrest and shall be capable of ringing 5 telephone numbers as issued by the University of Manchester Specialist Engineering Contracts Supervisor. This unit shall also provide emergency communication between the lift pit, the car top, and the motor room. The car alarm call point shall incorporate an illuminated pictogram to fully comply with EN81. The car call unit shall also incorporate an inductive loop or acoustic coupler with suitable indication of its availability. The auto-dialler unit shall also incorporate a self monitoring test system.
- 3.6 Each passenger carrying lift with Automatic doors shall be fitted with a voice enunciator, which shall convey the following messages:
- Arrival at the floor and its designation.
 - Doors opening.

- Preparing to depart.
- Doors closing.
- Remove obstruction from doors.
- Lift overloaded.
- Lift failed to start please press door open push.

The enunciator shall be of a digital type capable of on site programming with facility for incorporating a further ten separate transmissions.

- 3.7 Each passenger carrying lift with automatic doors shall be fitted with a Memco 3D curtain safe edge.
- 3.8 Door operators shall be heavy duty variable voltage variable frequency.
- 3.9 The lift shall include but not be limited to the following features installed:
- An emergency recall switch shall be installed above the ground floor architrave. The switch is to be flush mounted and shall be contained behind a Euro key locked hinged metal plate front cover. The cover shall be engraved "Emergency Recall Switch" the engraving shall be in filled with red epoxy resin. The emergency recall switch shall bring the lift to the ground floor and the lift shall operate in an Emergency type mode.
 - The lift shall also be provided with connection points which may be interfaced to the Fire Alarm system, so that on fire alarm activation the lift returns to one of two floors. This is to prevent the lift returning to the floor of fire alarm activation. This connection is only to be used on agreement with the University of Manchester, Specialist Engineering Contracts Supervisor.
- 3.10 The passenger car sling or platform shall incorporate an automatic load-weighing feature, which will detect a 10% overload. This shall prevent the lift doors closing and the lift moving, in addition to activating an audible and visible warning signal, in the car operating panel. The load weighing feature shall also detect when the car is loaded 80%, which will then cause the lift to bypass other landing calls in the direction of travel.
- 3.11 A supply fan shall be installed in passenger carrying lift cars. It shall operate when the emergency alarm is activated and it shall run for 2 hours on a timer. The fan shall be designed to provide a minimum of five air changes per hour.

Motor Room Lift Installations

- 3.12 All Lift Motor Rooms locks shall be suited onto the lift master system. The University of Manchester, Specialist Engineering Contracts Supervisor shall provide details as required.
- 3.13 All doors accessing Lift Motor Rooms are to be clearly labelled with B.S warning signs.
- 3.14 Within the Motor Room an Electric Shock Notice shall be installed.
- 3.15 Within the Motor Room adequate Rubber Matting shall be installed.
- 3.16 Within the Motor Room an RCD protected 13 Amp socket outlet shall be installed.
- 3.17 The Motor Room shall be heated by Tubular heaters.
- 3.18 An extract fan shall be installed within the Motor Room, and it shall be thermostatically controlled to suit the heat output of the lift equipment.
- 3.19 Motor Room lighting shall be twin, 1500mm Lud type fittings which incorporate level. The level of illumination in a power failure shall be a minimum of 50 Lux to floor level throughout.

- 3.20 A motor room lighting switch shall be installed with engraved identification above the switch "Motor Room" an emergency lighting key test switch shall be installed for the emergency lighting with engraved identification on the switch.
- 3.21 A shaft Lighting switch shall be installed with engraved identification above the switch "Shaft Lighting" an emergency lighting key test switch shall also be installed for the emergency shaft lighting with engraved identification above the switch "Emergency Shaft Lighting"
- 3.22 The electrical installation shall be installed in galvanised trunking / conduit.
- 3.23 Walls, floor and ceiling shall be painted with appropriate paint.
- 3.24 All machinery moving parts shall be painted yellow.
- 3.25 Main isolator shall be lockable.
- 3.26 The lift I.D number shall be clearly marked with a traffolite label with a white background red letters on the main isolator, lift control panel, hoist motor and all other auxiliary lift equipment.
- 3.27 An emergency stop switch "mushroom type" shall be installed adjacent to the machine in a position where it is readily accessible. The switch will be wired into the safety circuit to isolate the motor. The stop switch shall be fitted with a label engraved 'Emergency Stop'.
- 3.28 The traction and diverter sheaves (and overhead pulleys) shall be fitted with a suitable, removable guard in full compliance with EEC Machinery Directives, and the PUWER and LOLER Regulations. All guards shall be easily removable without the need for tools to allow easy access for maintenance.
- 3.29 A wall mounted wooden cabinet 1000m.m high x 500m.m wide shall be fitted in the motor room with hinged framed display boards containing a full set of "As Fitted" drawings in respect of the completed installation.
- 3.30 A Tool board shall be fitted in all lift Motor Rooms and it shall comprise of the following minimum equipment:
- Release keys
 - Winding Wheel
 - Log card
 - Hand Winding instruction
- 3.31 Hatchways in motor rooms shall have chequer plate finish with the Safe Working Load marked. A handrail/ barrier shall be fitted around the hatch.
- 3.32 Designers and installers shall ensure safe access and egress to the motor room this shall be demonstrated to the University at handover.

Machine Room less Lift Installations

- 3.33 Any Machine Room less installation specified shall be manufactured to a high quality standard.
- 3.34 Any Machine Room less installation specified shall be robust and engineered for heavy usage and durability.
- 3.35 The lift shall meet the criteria of the University of Manchester's standard car finish as detailed in later clauses.
- 3.36 Landing floor control panels shall have an identified safe working zone. The designer / installer shall agree this prior to installation and shall fully detail this in the O&M Manuals.
- 3.37 Emergency lighting shall be installed on the landing near landing control panel.

- 3.38 Rubber mats to BS921 shall be provided for car top working and landing control panels.
- 3.39 Full emergency release instructions shall be provided for both engineers and the fire brigade this shall be laminated and fixed on the inside of the control panel.
- 3.40 Landing control panels locks shall be either a Euro type key, or suited onto the lift master system. The University of Manchester, Specialist Engineering Contracts Supervisor shall provide details as required.

Hydraulic Lift Installations

- 3.41 If any hydraulic lifts are to be specified their application shall be agreed with the University Senior Electrical Engineer before the specification is developed.

Scenic Lifts – Additional Requirements

- 3.42 The installer shall provide full glass specification and glass manufacturer details.
- 3.43 The provision of 2 glass cleaning visits shall be included in the 12 month warranty period. The glass cleaning shall include internal and external car and shaft installation.
- 3.44 All access equipment / scaffold required for future safe working shall be provided. The use of such equipment shall be clearly demonstrated and detailed in the Operations and Maintenance Manual, which shall incorporate full written risk assessments and method statements for cleaning and lift maintenance
- 3.45 Particular attention shall be given to preventing finger trapping on glass panel lift doors.
- 3.46 Fan assisted ventilation shall be installed in the car for passenger comfort with a minimum air flow exchange rate of 5 air changes per hour.
- 3.47 Full emergency release instructions shall be provided for both engineers and the fire brigade. The instructions shall be laminated and fixed on the inside of the control panel.
- 3.48 The designer shall consider the installation of modesty panels.

Goods Lifts – Additional Requirements

- 3.49 A car call acceptance system shall be fitted
- 3.50 A sounder alarm signal shall be fitted in the car which activates when the lift is called with the gates are open.
- 3.51 Vision panels shall be installed on landing and car gates.
- 3.52 A robust and hard wearing car finish shall be installed which shall incorporate bumper rails at low level and metallic hard wearing wall surfaces such as pattern steel.
If the goods lift is the only lift in the building and is also to be used as the main passenger lift, the standard car finish as detailed later shall be incorporated where applicable and power operated doors shall be fitted.
- 3.53 Flush fluorescent lighting shall be installed and shall obtain a minimum 200 Lux floor lighting level.
- 3.54 The designer / installer shall liaise with the Architect and building users to ascertain what materials the lift will be used to carry. Consideration shall be given for additional safety features these lifts may require. (E.g. Autoclave system)

Disabled Access – Basic Requirements

- 3.55 Disabled Access Lift installations shall only be installed where no alternative exists as it is University preference to install full lift installations.
- 3.56 Control equipment shall be fully accessible from the landing control panel.
- 3.57 Landing floor control panels shall have an identified safe working zone. The designer / installer shall be responsible for detailing this in the O&M Manuals.
- 3.58 Rubber mats shall be supplied. The designer / installer shall be responsible for ensuring their storage and accessibility for use.
- 3.59 Emergency release shall be a lever type or a key operation type.
- 3.60 Isolation keys shall be removable when lift is in operation.
- 3.61 A windcrest auto-dialler shall be fitted.
- 3.62 Fluorescent Lud type fittings with self contained emergency lighting shall be fitted in shaft type installations.
- 3.63 Landing control panels locks shall be either a Euro type key, or suited onto the lift master system. The University of Manchester, Operations and Maintenance Specialist Engineering Contracts Supervisor shall provide details as required.
- 3.64 It is noted that Disabled lifts have manufactured car finishes and shafts therefore the University standards in these areas shall not apply.
- 3.65 Any car lighting shall be controlled automatically by means of a sensor controlled fitting.

Scissor Lifts – Basic Requirements

- 3.66 Protective blinds or chain link skirts shall be installed on the underside of the platform.
- 3.67 A safety edge trip bar shall be installed on the underside of the platform.
- 3.68 A pit prop shall be supplied and fitted in a secured storage area near or within the lift installation.
- 3.69 A Lud fluorescent light fitting shall be installed under the platform, which on power failure will operate a self contained emergency fluorescent.
- 3.70 An emergency stop switch shall be located under the platform next to the machine.
- 3.71 Machinery control equipment shall be caged off and lockable by a Yale type lock which is master suited details available from the University of Manchester, Operations and Maintenance Specialist Engineering Contracts Supervisor.
- 3.72 A rubber mat shall be provided and stored in a lockable storage area near or within the lift control unit area. The designer / installer shall be responsible for ensuring their storage and accessibility for use.
- 3.73 Instruction signage shall be supplied and securely fixed near the lift operating controls.
- 3.74 Safe Working Load traffolite signage stating metric weight shall be fitted and clearly visible for lift users.

- 3.75 The designer / installers shall ensure that due consideration is given to the safe loading and unloading of goods onto the scissor lift. This task shall be clearly demonstrated and detailed in the Operations and Maintenance Manual, which shall incorporate full written risk assessments and method statements for this.

Service Lifts – Basic Requirements

- 3.76 A gong arrival shall be fitted on every landing.
- 3.77 A landing arrival light shall be fitted on every landing.
- 3.78 Call points shall illuminate on call acceptance.
- 3.79 User's instruction signage shall be fitted near the lift control panel.
- 3.80 Access equipment shall be provided to maintain the hoist equipment, and shall be stored near or within the lift installation in a secured lockable area this shall include rubber mats and steps/ platform.
The designer / installer shall be responsible for detailing this in the O&M Manuals.
- 3.81 A fluorescent lud type light fitting shall be installed incorporating a self contained emergency back up above hoist /control equipment this shall be switched from near the access entrance door.
- 3.82 An emergency stop button mushroom type shall be installed near hoist motor.
- 3.83 Mains isolator shall be located within equipment access area.
- 3.84 Access doors to lift machinery shall be marked up with current B.S signage for lift machinery.
- 3.85 All service lifts shall incorporate a car door installation.

Fire Fighting Lifts – Additional Requirement

- 3.86 In addition to previous clauses any Fire Fighting lift shall meet the requirements of the building users, the University Fire Officer, and the Fire Service and shall comply fully with the requirements of all relevant British Standards.

Escalator Installations – Basic Requirements

- 3.87 Handrails shall have white dots to clearly indicate moving parts.
- 3.88 Brush guards shall be installed on the skirting and the guards shall stop 50 mm short from the comb plates.
- 3.89 A key start switch shall be fitted and a minimum of 4 keys supplied.
- 3.90 Emergency stop switches shall be fitted at the top and bottom of machine.
- 3.91 Under step lighting shall be provided at the access and egress points this shall be green coloured.
- 3.92 A digital fault logger shall be provided and fitted within the inner decking.

Shaft Requirements

- 3.93 Shaft requirements detailed in this section are considered to be minimum standards where maintenance is completed from the roof of the lift car.
- 3.94 All shaft wiring shall be enclosed in trunking and conduit in strict accordance with the University of Manchester Standard Electrical specification (EPM PM8).
- 3.95 Shaft lighting shall be Twin, 1500mm Lud type fittings which shall act as an emergency light in the event of failure of the normal lighting supply.
The minimum level of illumination under normal operation shall be 100 Lux, and the lighting shall be switched at the lift pit, the top floor, and the Motor Room. The installation shall comply with the requirements of the University of Manchester Standard Electrical specification.
In Emergency operation the lighting shall operate for a minimum duration of 3 hours.
- 3.96 An RCD protected 13 amp socket outlet shall be installed in the Lift pit.
- 3.97 In the lift pit two identical Stop Switches shall be fitted adjacent to the Landing entrance. One shall be fitted where it accessible from the Landing, and 1300mm above the sill level, with the second switch accessible from the pit floor.
- 3.98 The traction and diverter sheaves (and overhead pulleys) shall be fitted with a suitable, removable guard in full compliance with EEC Machinery Directives, and the PUWER and LOLER Regulations. All guards shall be easily removable without the need for tools to allow easy access for maintenance.
- 3.99 In the case of a shallow pit a safe working zone shall be clearly identified and be marked out in yellow paint, and a pit prop shall be provided.
A definition of a shallow pit shall be with the lift resting on full compressed buffer there shall be sufficient space in the pit to accommodate a rectangular block not less than 0.5 metres x 0.6 metres x 1 metre resting on one of its faces.
- 3.100 All shafts walls and ceilings shall be painted white, and pit floors painted red. Paint to the shaft shall be designated Class 0 in accordance with Building Regulations and shall comply with BS 476 pt 6: Fire Propagation. Paint shall be Low VOC.
- 3.101 All machinery moving parts shall be painted yellow.
- 3.102 All shafts shall be clear of any obstructions, and all voids covered.
- 3.103 Designers / Installers shall ensure safe access and egress to the lift pit. This shall be demonstrated to the University at handover.
- 3.104 The roof of the car if used for a maintenance platform shall be robust and have engineered handrails and toe boards fitted.
- 3.105 The designer / installer shall take due account of safe working around gaps between the shaft and car, and further issues such as restricted headroom's etc.
- 3.106 The car and landing door sills shall be manufactured from heavy section aluminium.
- 3.107 An Inspection light(s) shall be fitted to the car top, adjacent to the Control Station, this is in addition to the shaft lighting requirements.

Car Finish

- 3.108 Please note the car finish specified is for passenger lifts in academic buildings. Other applications for example Goods / passenger lifts in multi storey car park or in student accommodation shall require a more robust type car finish.

- 3.109 Lighting within the lift car shall be latest technology; low energy recessed spotlighting and the installation shall obtain a minimum of 200 Lux at floor level. The lights shall automatically shutdown after the lift is idle for 10 minutes. The lighting shall be agreed with the University of Manchester, Specialist Engineering Contracts Supervisor.
- 3.110 The light fitting nearest the car operating panel shall be an emergency light which in the event of failure of the normal lighting supply will maintain the lighting for a minimum of 3 hours, at an illumination level of 20 lux throughout.
- 3.111 A toughened glass mirror etched with the University of Manchester logo shall be fitted on the back wall in the lift car. Where this is not possible (on through cars) a side mirror shall be fitted.
- 3.112 Lift car walls shall be finished in true wood veneered panels above the handrail, and linen stainless steel complete with bumper rail below the handrail. The standard and type of veneer shall be by agreement with the University of Manchester Specialist Engineering Contracts Supervisor.
- 3.113 The door panels shall be sheet steel and be a minimum of 16 SWG.
- 3.114 The finish colour or linen pattern stainless steel finish to all doors shall be in agreement with to the University of Manchester Specialist Engineering Contracts Supervisor.
- 3.115 The car operation panel and inserts shall be finished in linen pattern stainless steel.
- 3.116 The details of the capacity expressed in metric terms in compliance with BS 5655 requirements shall be engraved in the car operational panel and filled with epoxy resin, colour to approval.
- 3.117 The lifts I.D number shall be engraved in the car operational panel and the engraving shall be filled with epoxy resin colour to approval.
- 3.118 The lift car shall be fitted with a steel tubular handrail on back and side walls.
- 3.119 The floor covering within the lift car shall be coloured so as to contrast with landings floors. A 3.5 mm thick Altro K35 safety floor covering, colour shall be selected in agreement with to the University of Manchester Specialist Engineering Contracts Supervisor.
- 3.120 Kapox filled protective drapes shall be supplied, with the associated hooks fitted in the lift car.
- 3.121 If the width of the lift car exceeds 2 Metres, there shall be 2 Car Operating Panels installed, one on either side of the car doors.
- 3.122 In residences buildings CCTV shall be installed within the lift cars where feasible. The installation shall be agreed with the University Specialist Supervisor (Tel: 0161 275 2099).

BREEAM / Sustainability

- 3.123 Lifts shall have the ability to operate in a stand by mode during off peak and idle periods, whereby the lift effectively shuts down.
- 3.124 Lift motors shall use an energy efficient drive controller as detailed in Section 3.1.
- 3.125 Lifts shall be fitted with regenerative units to maximise their energy efficiency.

Handover

- 3.126 The University of Manchester Specialist Engineering Contracts Supervisor shall be notified prior to any new lift being put in to service.
- 3.127 At handover 2 copies of the Operation and Maintenance Manual and an electronic copy on CD shall be issued to the University of Manchester Specialist Engineering Contracts Supervisor.
The Operation and Maintenance Manual shall include as a minimum the following:
- Full set of As-fitted Drawings
 - Full set of test certification to include as a minimum:-
 - Hoisting Ropes
 - Governor Ropes
 - Over speed Governor
 - Hoisting Motor
 - Door Gear Motor
 - Car and Counter-Weight buffers
 - Safety Gear
 - Fire certificate for Landings
 - Lifting Beam where applicable
 - Electrical completion Certificates
 - Certificate of conformity
 - Lux lighting level readings
 - Noise and vibration levels in accordance with 1.11
 - Maintenance advice / procedures / method statements / Risk assessments.
 - Details of Guarantee given for parts.
 - Details of availability and expected delivery times of critical equipment.
 - Details of any components which require specialist manufacturer's equipment.
- 3.128 At handover there shall be 3 sets of keys issued to the University of Manchester's Specialist Engineering Contracts Supervisor.
The set shall include landing release keys, and car key switches.
- 3.129 A demonstration of the lift operations shall be arranged by the installers with the University of Manchester's Specialist Engineering Contracts Supervisor for a minimum group of 6 people.
- 3.130 At handover a demonstration to the University representatives of the access arrangements to the Motor Room and lift pit as per clause's 3.32 and 3.103.