

DIFE Multi Tertiary Building Extension, County Louth

Volume A.2.3 Lift Specification

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1.1. INTRODUCTION

This specification calls for the delivery, installation, testing, commissioning and setting to work, all necessary materials and equipment to provide a new passenger lift installation at Drogheda Institute of Further Education (DIFE), Drogheda, Co. Louth.

All works generally required as detailed in the specification hereafter shall be provided and shall include for the provision, installation setting to work and commissioning of a new passenger lift installation as follows:-

- 1 No. minimum 8-person, 630kg machine-roomless Traction Drive Lift, to serve two stops with a front opening door both on the ground, and first floor

The lift shall be installed in the proposed lift shaft. Proposed shaft sizes shall be determined from the architectural floor plans and sections drawings. Final shaft dimensions shall be confirmed by the contractor prior to commencement of works on site.

The passenger lift shall be in full compliance with BS 5810 and 5655-1 and 2 and BS 5588-8:1999. Lift shall be in full compliance with Approval Document M (Building Regulations 1999), Access and Facilities for Disabled people. The lift shall also comply with EN81.

The lift shall comprise front opening doors on each level and shall be traction drive controlled, which shall not require the provision of a lift plant room. Lift electrical and mechanical controls shall be housed within the shaft. Remote external panels **will not** be accepted. The lift control panel shall be provided with **user-friendly** software and interfaces to enable maintenance by other lift manufacturers.

Exact measurements shall be obtained from site measurement prior to any commencement of ordering of the lift.

The main contractor shall be responsible for employing a 3rd part company to carry out a thorough examination of the lift sub specialists installation in accordance with the Safety, Health & welfare at Work (General Application) Regulations 2007, as amended, articles 30, 52 & 53 which is a legal requirement in Ireland. This 3rd part specialist upon satisfactory inspection of the works shall be responsible for providing ancillary certificate Si of compliance with the relevant lift standard. All costs of complying with this requirement shall be the responsibility of the main contractor. Practical completion of the project shall not occur until this requirement is met in full and the design team are in receipt of the ancillary certificate. Self-certification by the lift sub-contractor is deemed not acceptable.

1.2. ELECTRICITY SUPPLY

Fully detailed wiring diagrams for all equipment being provided shall be provided. All electric wiring and supply provisions required for the lift shall be carried out.

1.3. GENERAL CHARACTERISTICS OF LIFT

This section of the specification covering the general lift characteristics shall apply

General Lift Details

Lift Type	Machine-room less Traction Drive Passenger lift
Lift Usage	Transportation of passengers within low rise building, school environment.
Quantity	1 No.
Load Capacity	Minimum 8 Person - 630kg
Applied Standards	IS EN81-20:2014, EN81-50:2014, EN81-70, EN81-58, EN81-28, EN81-71, EN81-73, EN12015 and EN12016. Lift Directive 95/16/EC, ISO 18738:2003, PAS 32-1:1999 & Part M: 2010 building regulations. The lift shall also include equipment required to fully comply with EN81-1: 1998 + A3: 2009 for uncontrolled movement of the lift car while at floor level.
No. of Floors served	2 Floors - 1 Stops (Ground and 1 st floor)
Position of openings	Refer to Architectural Drawings
Clear internal lift well dimensions	1810mm Shaft Width – to be measured on site (Refer to architectural layouts) 1810mm Shaft Depth – to be measured on site 1400mm Pit Depth – to be measured on site 3600mm Headroom – to be measured on site. 7650mm Travel – to be measured on site. Note: contractor to advise their domestic lift sub-contractor of proposed dimensions regarding the lift provisions prior to commencement of construction works.

Internal Car Finishes

Car Walls	Internal panelling with recessed joints on all 4 walls in eggshell PVC finish on a galvanised sheet steel base and 42mm tubular satin chrome handrail to be provided on 1 walls. Toe guard in stainless steel. ½ height non-tinted mirror to be provided on back wall. Colour of wall panelling to be agreed with architect & engineer prior to ordering.
Car Operating Panel	Alphanumeric liquid crystal display showing car position & direction, containing lift data plate with load specifications and remote elevator monitoring information, finished surround in stainless steel with a brushed finish. Operating panel runs full height of car providing maximum illumination. Target buttons finished in solid stainless steel with backlit floor numbering, including Braille characters.
Ceiling	Flat panelled eggshell textured white PVC finish on a galvanised sheet steel base, with LED recessed luminaires. In-car lighting to achieve 100-lux. Shaft lighting to achieve:

Lighting	• minimum 50-lux @ 1-metre above the car-roof within its vertical projection. • minimum 50-lux above @ 1-metre above pit floor everywhere a person can stand/work and/or move between the working areas. • minimum 20-lux outside the locations defined above, excluding shadows created by car or component.
Car Flooring	Flooring shall be hard wearing marmoleum. Colour to be agreed with architect & engineer prior to ordering.
Induction loop system	The lift car intercom system shall be provided with an induction loop system
Loudspeaker grill with inter-communication unit	Yes
Bi-lingual voice annunciation	The lift communication system shall be supplied fully equipped to support bi-lingual Irish/English languages in accordance with Department of Education & Science TGD guidelines.
UCM	The lift shall also include equipment required to fully comply with the above EN standards for unintended car movement (UCM) while at floor level and to protect against ascending car overspeed.

Car Doors & Supply Details

Car Dimensions (inside)	Minimum 1100mm Width x 1400mm Depth x 2200mm Height To be provided by contractor at tender return stage.
Car Door Design/finish	Brushed Stainless steel
Door Opening Dimensions	Minimum 900mm wide x 2100mm height centre opening doors
Fire Rated Doors	Yes: Minimum 120 minutes
Door Protection	Anti-evacuation, electro mechanical device to prevent forced opening of car doors when lift is outside any landing zone. Mechanical door protection shall re-open car and landing doors if an obstruction is encountered during the closing cycle. Full height infrared obstruction protection ensuring the doors cannot close if there is any body part obstructing the door opening.
Power Supply	TPN, 400 Volts, 50 Hertz, 3 phase & neutral supply by contractor to suit proposed lift. Electrical supply to suit proposed lift. Refer to LV distribution schematic for supply cable size.

Landing Fixtures & Signals

Car front returns	Finished in brushed stainless steel
Car position indicator	These shall be provided at each floor level. Combined hall position

	indicator & signal hall lantern, sophisticated high-resolution LCD. Brushed stainless steel finish.
Call Buttons	These shall be provided at each floor level. They shall be Illuminating, micro-movement push button type in Brushed stainless steel finish. A key switch shall also be provided at each floor level to enable authorised school personnel to control usage and operation of the lift.
Independent service key switch	At each level, Brushed Stainless Steel Finish.
User Keyswitch	To enable School to control and authorise use of the Lift as required.
Door Landing Surround architrave/elevation	Brushed stainless steel architrave Each lift entrance shall be provided with a “total-frame/full depth” solution where the front elevation of the lift doors is aligned flush with the bordering blockwork walls on each side and above. A facing section shall extend for a distance not less than 200mm on either side and above the lift door to fully protect the wall elevations adjacent the lift entrance at each floor level.
Door Controller	A closed loop variable frequency controlled door operator shall be provided to drive the car and landing doors fully automatically. The open and close speed profile shall be software based and reprogrammable via a test tool. In the event of the door meeting an obstruction during closing, re-opening will occur by way of a motor slip detection device. The time interval for which the lift remains open when a car stops at a landing shall be independently adjustable for response to car calls and response to hall calls. The maximum time to completely open and completely close the doors shall be 8 seconds. The manufacturer shall guarantee a complete door time of 10 seconds. The maximum door noise measured one metre from the landing entrance shall not exceed 55 dB (A).
Communication System	Auto dialler and telephone links shall be supplied and installed between the lift pit, top of car, the car itself and a link to Central Monitoring Agency as required under European Legislation. A GSM/IP Telephone or GSM/GSM auto dialler shall be supplied and connection shall be provided and the tender shall include for one year’s subscription to a central monitoring station.
Access Control	Access control to be provided on at landing of each floor to control lift access/usage of lift. Include for integration with network-based

Ladders	access control system serving remainder of building. Ladders shall be in accordance with EN131-1 and stored to avoid tripping for safe deployment upon emergency. A safety feature in conformance with EN81-20:2014 which prevents the lift from operation shall be installed if the ladders are not in stored position.
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Additional Requirements

Gears	Gear box with VVVF, Variable frequency drive An AC Closed Loop, Variable Frequency, motion control and velocity profile shall be provided. The micro-computer based speed control system shall incorporate a digital closed loop feedback system ensuring the actual lift speed is in line with a dictated pattern during all phases of travel, namely acceleration, full running speed and deceleration. All phases of travel shall be controlled regardless of load or direction of travel.
Traction Ropes	4 No. 10mm diameter
Car and Counterweight Guides	90x75x16 machines steel 50x50x05
Car indicator	LCD Indicator, 1 lighting, Overload signalization in car
Speed	1.0m/s minimum
Travel distance	Ground to Second floor 7650mm (FFL to FFL) (Refer to architectural drawings). To be measured by contractor prior to contract start.
Control Systems	Microprocessor controller providing full collective simplex operation
Lift Machine Location	Machine Room at top of lift shaft and integrated.
Speed Control	Yes
BS Applies	Yes
EN 81-70 latest revision applies	Yes
Inductive Loop	Yes
RCD Protection on Supply	Yes
Emergency Lowering Device	Must be battery operated bi-directional.
Safety Gear	Bi directional progressive The car safety gear shall be mounted on the members of the frame and shall be operated by an over speed governor. Guide shoes shall

	be mounted to top and bottom of the car frame to engage the guide rails and ensure smooth car operation.
Waiting Time	TBC
Starts Per Hour	No. of motor starts 120 minimum.
Levelling Accuracy	+/- 3mm
	To compensate for rope stretch under various load conditions, an automatic levelling system shall be furnished to ensure the car stays within the floor-levelling zone at all times.
Ventilation	Yes - Car fan
Emergency lighting	Internal car emergency lights to provide a minimum of 5 lux on the floor.
Power Failure and/or Fire Alarm Operation	If the lift experiences a failure in the electrical power supply or if the fire alarm activates, the lift shall automatically slowly return to the <i>ground floor</i> of the building and all doors shall open automatically and remain open until the power has been restored. This shall include overriding any access control restrictions that may apply.
Fire Alarm Interface	Yes
Load Testing	All testing shall be in accordance with the above standards Static & dynamic load testing required. This shall also include the setting of the overload indicator light.
BCaR	The manufacture of the lift is to provide full detailed design including all BCAR Design Certificates.
Emergency Stop	To be provided in pit

TESTING, COMMISSIONING & WARRANTY

Testing	Suitable design tests shall have been made to ensure the unit meets the requirements of the Electro Magnetic Compatibility Regulations. Load tests shall be carried out on site in the presence of the engineer. A minimum of 5 working days shall be given to the engineer prior to these tests being carried out. The completed installation shall be inspected and tested to ensure it meets the requirements of the Lift Regulations 1997. The lift manufacturer shall provide a full comprehensive warranty on the lift installation, which shall commence at the date of practical completion. The lift manufacturer shall undertake to provide in the first year a warranty to cover any parts and material, which may become defective. This will include all labour and the response time to any call outs shall not exceed eight hours. This shall be inclusive of the defects liability period.
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Operations &
Maintenance Manuals
(O&M)

The contractor shall be responsible for compiling a lift O&M manual. It shall take the form of two completed sets of plan prints in hard copy and an electronic copy on 2004 .dwg AutoCAD/Format. The manual shall eventually form part of the overall H&S file for site and shall contain:

- Index
- General description of the installation, equipment used and method of operation of the installation.
- Handbooks, maintenance instructions, drawings and spare parts list for all components, plant and equipment used in the contract works.
- Schedule of routine maintenance complete with routine oil and grease points and recommended lubricants. Schedule of periodic and preventative maintenance for specialised equipment.
- Wiring Diagrams of plant, etc.
- Manufacturers Service Manuals for all specialised plant giving all details, as listed above.
- Schedules of equipment supplied giving names of manufacturer, serial number of plant, electrical supply and power rating.
- Outline design data of plant.
- Test and performance data.
- Commissioning Certificates.
- A set of as installed drawings showing the complete installation and incorporating any changes or additions to the installation, carried out during the course of the contract.
- Parts lists for identification of spares & replacements.
- A full manual including drawings shall also be provided in electronic format.

The cost of the preparation and submission of the 'As Fitted' drawings shall be included in the appropriate space in the Lump Sum Form of Tender. Tenderers shall note that the drawings are required to be submitted to the consulting engineers for approval and/or comment not later than two weeks before the programmed completion date for the works. One set of the prints is to be handed over to the employer at the Hand-Over Inspection. Under no circumstances will a certificate of practical completion be issued until "As Fitted" drawings and operation and maintenance manuals have been produced and accepted by the Engineers/Employer.

In the event of a failure of the Contractor to supply a full set of

documents, the engineers shall deduct up to 10% of the contact value, to cover the costs incurred in producing these documents by a third party, on behalf of the client.

Traction Cables	The contractor shall undertake responsibility of maintenance of the lift traction cables and guarantee them for the first 5 years after handover without any expense to the Employer. Any traction cables which become worn, frayed or degraded below British/European standards shall be replaced free of charge to the Employer within the first 5 years following handover.
Warranty	A comprehensive warranty shall be provided for the first 12months. The date of commencement shall be based on issue of the engineers/architects substantial completion certificate. Within the first 12 months warranty the contractor shall respond to any call outs within a four-hour period 365 days per year. The warranty package shall cover all parts and labour cost for the first 12 months and any call outs associated with any failure in the lift operation. This shall include failure in plant, parts, general defects and also cover faults generated through misuse of the lift including acts of vandalism.