



PASSENGER LIFT CONDITION SURVEY
3 York Street
Manchester
M2 2AW



On behalf of:



Design Coalition
C/o Mitchells & Butler
1 Navigation Court
Calder Park
Wakefield
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EXECUTIVE SUMMARY

This report is completed on the instruction of Design Coalition, to examine the existing condition of the passenger lift located at 3 York Street, Manchester. A lift condition survey of the passenger lift that previously served the premises above Browns was undertaken on Wednesday 29th January 2019. The lift was out of service at the time of our inspection. However, we were able to visually ascertain age and condition of the lift whilst at rest.

The lift previously would have been considered suitable for passenger transportation and the movement of light goods throughout the building.

The lift was originally installed in the 1960's by Hammond & Champness Ltd and later upgraded by Thyssen in approximately 1996 with the addition of a French Autinor microprocessor control system. These works also included the upgrade of the door systems with a partial modernisation using GAL door drives and lock systems.

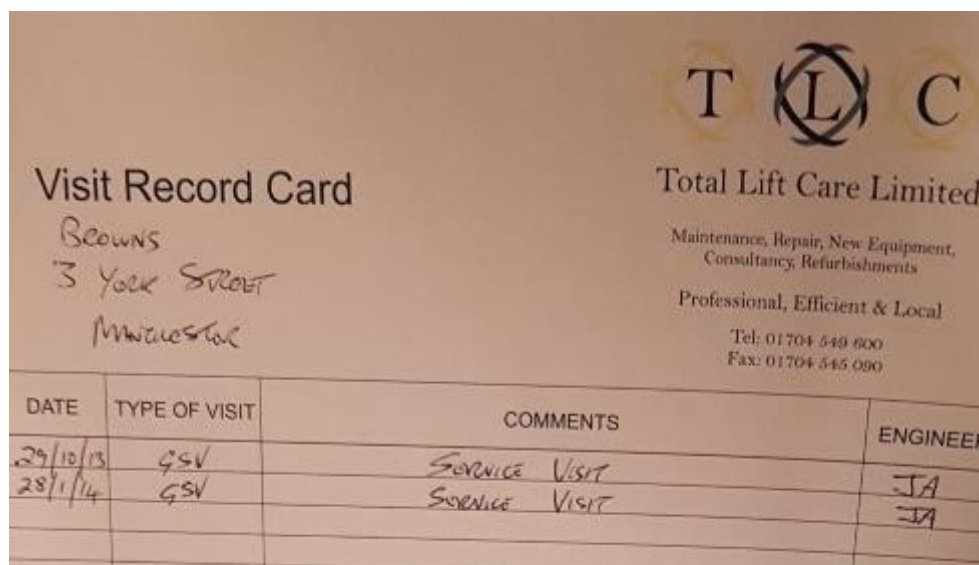
The lift is a bottom drive electric traction lift with the hoisting equipment housed beneath the lift shaft in a purpose built machine room. At the time of the installation a steel, self-supporting tower was erected through the stairwell of the building, into which the lift was installed with the outside clad in steel sheet to form an imperforate shaft. The lift is designed to provide passenger and light goods access to all upper floors of the building. The lift serves to floors G, M, 1, 2 & 3 the lift is a through car configuration with two lift car entrances.

Our full recommendations are listed later in this document and are summarised briefly below:

Component	Life Expectancy	Performance Benefit	Budget Cost
Controller	Expired	Install open protocol, UK based control system for reliability	£18,000
Door operators	Expired	Replace for robust system, to improve door performance and reliability	£7,500
Landing door equipment	Expired	Renew the landing door system	£12,500
Main machine	Expired	Renew with Gearless or Geared machine driven by VVVF drive	£9,500
Shaft Limits	Expired	Renew for long term reliability	£1,500
Landing controls	Expired	Renew for long term reliability	£2,000
Car operating panel	Expired	Renew for long term reliability	£2,500
Car structure, sundries and supporting steel work		Renew for long term reliability	£10,000
Car interior	Expired	Aesthetic appeal for passengers	£7,500
H&S items*	Expired	Reduce potential for accidents and ensure compliance with current appropriate standards	£12,500
* Note that H&S items should be addressed when any future works to the lift are undertaken.			

1 GENERAL MAINTENANCE

The last recorded maintenance visit shown on site was made by Total Lift Care Ltd 28th January 2014, it is assumed the lift has been out of normal service since then. No further records were available on site.



The image shows a 'Visit Record Card' from Total Lift Care Limited. The card is light brown with a logo at the top right consisting of the letters 'T', 'L', and 'C' inside a circle. Below the logo, the company name 'Total Lift Care Limited' is printed, followed by their services: 'Maintenance, Repair, New Equipment, Consultancy, Refurbishments' and 'Professional, Efficient & Local'. Contact details include 'Tel: 01704 549 600' and 'Fax: 01704 545 090'. The card is filled out with handwritten information. At the top left, 'Beowns' is written, followed by '3 York Street' and 'Manchester'. Below this, there is a table with four columns: 'DATE', 'TYPE OF VISIT', 'COMMENTS', and 'ENGINEER'. The table contains two rows of data: the first row shows '29/10/13', 'GSV', 'SERVICE VISIT', and 'JA'; the second row shows '28/1/14', 'GSV', 'SERVICE VISIT', and 'JA'.

DATE	TYPE OF VISIT	COMMENTS	ENGINEER
29/10/13	GSV	SERVICE VISIT	JA
28/1/14	GSV	SERVICE VISIT	JA

The lift shaft has significant levels of dust and debris as a result of little maintenance or use. The machine room is relatively clean with some redundant materials stored within.

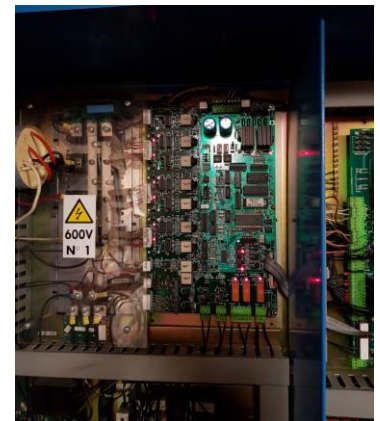
If the lift is to be reinstated as it currently exists, a full maintenance regime should be undertaken, in addition, LOLER inspections and BS5655–Part 10 test, must be undertaken to ensure the lift remains safe for use.

1 EXISTING INSTALLATION

Lift Details		Documentation	
Manufacturer Installer	Hammond & Champness Ltd	Refurbished / Modified by	1996 approx. Thyssen
Number & Type	Passenger lift	Year installed / Modified	Mid 1960's approx.
Drive	VVVF open loop, Geared traction	O & M Manual	Control System Manual on Site
Unit Number	Unknown	Log card	Present
Contract Load	5 person 410kg	Drawings	Present
Control System	Collective	Emergency release notice	Yes
Speed	0.75m/s	Electric shock notice	Yes
Floors served	5	Last LOLER Exam	Not seen
Stops / Openings	G, M, 1, 2 and 3	SAFed Annual test	Not seen
Car doors	Two panel side opening	SAFed 5 Year test	Not seen
Landing Doors	Two panel side opening	SAFed 10 Year test	Not seen
Lift Motor Room (LMR)	Motor room below	Rope Certificates	Not seen
LMR Access	Main Stairs	Service provider	None
LMR Access Lighting	Adequate	Service contract type	None

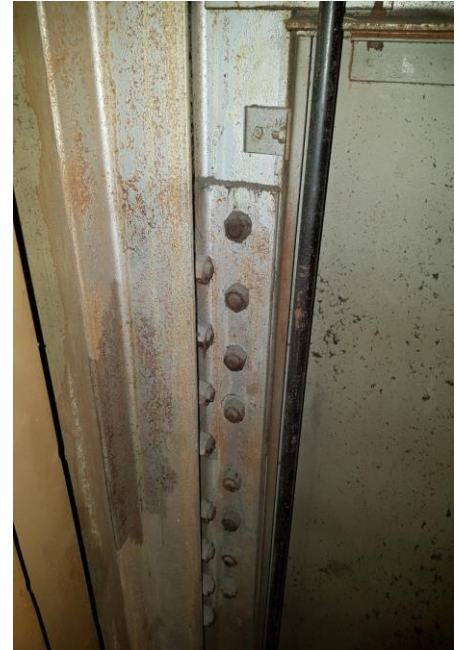
2.1 Machine Room

- 2.1.1 The lift control and hoisting equipment is housed in a conventional machine room located in the basement area beneath the lift shaft, the shaft steel tower extends through the lift machine room.
- 2.1.2 The door to the machine room is currently fitted with a “Yale” type night latch, the key is in the lock. This lock provides keyless egress from the machine room. The door opens out into the main plant room.
- 2.1.3 There is a small step across the machine room door threshold, this should be marked and identified as a tripping hazard.
- 2.1.4 There are no specific provisions for lifting provided in the machine room, shaft or upper wheel house, future works will require some provisions to be made for lifting operations.
- 2.1.5 The main controller is housed in a steel control cabinet. The controller was installed in 1996 by Thyssen being and manufactured by the French company Autinor. The system is unlikely to be able to support current requirements for uncontrolled movement etc and being generally considered to be beyond the normal life expectancy for microprocessor controlled system and VVVF drive should be considered for replacement in any future planned works.
- 2.1.6 The motor room lighting is provided via two single fluorescent fittings, these should be upgraded to twin dust proof units, incorporating emergency backup as none is provided currently.
- 2.1.7 The incoming 415v 3 phase power supply terminates in a 63amp switch fuse adjacent to the machine room door and control system, it is lockable in the off position.
- 2.1.8 The 3 phase 415V rising main appeared to be a PVC/SWA/PVC armoured cable, the switch gear and fusing at the intake should be checked, tested and certified for continued use
- 2.1.9 Currently all single phase supplies for the lift auxiliary equipment, shaft lighting, machine room lighting and power are derived externally from the machine room. Any future works should see the provision of a dedicated single supply in the machine room terminated in a suitable CCU with suitable RCD protection for distribution of single phase power for all ancillaries associated with the lift installation.
- 2.1.10 The main hoisting unit is the original Hammond & Champness No3 worn reduction gearbox as originally installed in the mid 1960's. This machine is obsolete being considered to be far beyond its original design life. We recommend this machine is replaced by a modern gearless alternative.
- 2.1.11 It was noted that both the car and balance weight buffer points are sited on the pit reinforced concrete slab. Consideration should be given for the transfer of buffer loads down through the machine room and machine room slab.



2.2 Lift Shaft

- 2.2.1 The lift shaft is formed within the confines of the original building stairwell. The main structure is a self-supporting steel tower, braced from the stairwell treads and floors. The tower is clad in sheet steel externally. The shaft is currently begrimed, dusty with considerable build-ups of old grease and oil deposits being evident.
- 2.2.2 The shaft headroom was difficult to accurately measure during our survey. Access to the head of the shaft through the loft space was considered unsafe, it was approximately 3200mm.
- 2.2.3 The car and counterweight guides are of "Tee" section, the guides are fitted to the side walls of the shaft with a combination of brackets to both sides of the shaft to carry both car and balance weight guides. These guides, brackets and associated fixings are considered satisfactory for continued use, following checks for plumb and alignment.
- 2.2.4 The guides and their supporting brackets should be cleaned, degreased and de-rusted. Thereafter, followed by two coats of good quality corrosion inhibiting paint, the blades of the guides being left unpainted.
- 2.2.5 The lift car top control was replaced during the refurbishment works undertaken in 1996 approx. Though suitable for continued usage it would not be deemed compliant to current standards. Its replacement should form part of any planned future works.
- 2.2.6 The hoisting ropes appear to have been changed at the time of the controller change works in 1996, they are worn, now being beyond 10 years old the ropes should be replaced as part of any planned works.
- 2.2.7 The lift shaft lighting does not comply with current standards, the pit unit is defective with no provision made for emergency lighting, the upgrade and replacement of the shaft lighting should form part of any planned future works. The shaft lighting as renewed, should include 3-way switching between the pit, car top and machine room.
- 2.2.8 A safe refuge area requires marking on the car top and within the lift pit if safe to do so, or alternative warning signage provided.
- 2.2.9 The car and counterweight guide shoes should be replaced with maintenance free roller type, avoiding the use of mineral oil based lubricants with in the shaft.
- 2.2.10 The counterweight is a structural steel assembly and appeared in reasonable condition. As a moving part within the lift shaft the counterweight should be painted statutory warning yellow in its entirety.
- 2.2.11 The reeving pulleys are currently housed above the shaft in the roof space supported directly by the lift shaft structural tower. This area is exposed, resulting in a potentially dangerous situation, whereby those accessing the roof space can access the unguarded pulleys and open lift shaft. Previously, the head of the shaft had a board cladding which is partially



removed, this was not load bearing. This situation is potentially dangerous and life threatening to those working on the lift or in the roof space and needs to be addressed urgently.

2.2.12 The revving pulleys must be fully inspected and or renewed. Thereafter guarded and “anti-rope jump” devices added.

2.2.13 The shaft structure should be extended up through the roof space to provide a safe working space for both lift engineers and other trades persons. If access is provided into this area emergency lift stop switches and decking to provide safe access. Should the shaft be extended to the existing roof structure, this area above the shaft should be protected against propagation of fire throughout the roof structure.



2.2.14 The balance weight rope hitch is of a “single pin” rope tension equalisation type. This must be replaced for a conventional multipoint hitch using compression springs for rope tension equalisation as part of any future planned works.

2.2.15 The balance weight assembly should be assessed and checked for adequate size and mass for the lift car as existing and or any intended works to achieve balance at 50% of the duty load.

2.3 Lift Car

- 2.3.1 The lift car interior is dated, suffering from wear and tear as a result of continued use. The car has previously been refinished, internally; however, the exterior remains the original timber construction which with the significant oil contamination represents a significant fire risk. In preference to cleaning and adding fire protection it would be preferable to replace the lift car and supporting steel work with new modern lighter materials reducing the overall mass of the lift system for improved lift efficiency.
- 2.3.2 The current speed of the lift being approximately 0.75 metres per second, makes the current instantaneous safety gear system obsolete. This must be replaced even if the lift is refurbished especially if the speed is increased to 1 metre per second, enabling the emergency retardation rates of deceleration to stay within current standard limits. The new safety gear system should be operated by an over speed governor system.
- 2.3.3 Any future lift car lighting upgrades or renewal should be of the LED type for improved longevity and efficiency incorporating emergency backup.
- 2.3.4 The current car door systems are a combination of the original 1960's Hammond & Champness equipment and later GAL upgrades of the door drive and locking systems. The original equipment is worn and dated in operation with questionable life expectancy.
- 2.3.5 The door systems to both car entrances should be replaced with a modern package system of harmonious design to provide smooth reliable operation.
- 2.3.6 The current lift car pushes, indicators, hand rails, mirrors are not compliant with the requirements of the 2010 equalities act, the lift car cannot be increased in size to fit within the confines of the current lift shaft.
- 2.3.7 The lift car should have a load weighing device fitted to ensure the lift operates within its design capabilities.
- 2.3.8 A full intercom and autodial communication should be included as part of any future planned works, to provide full emergency communication throughout the installation.



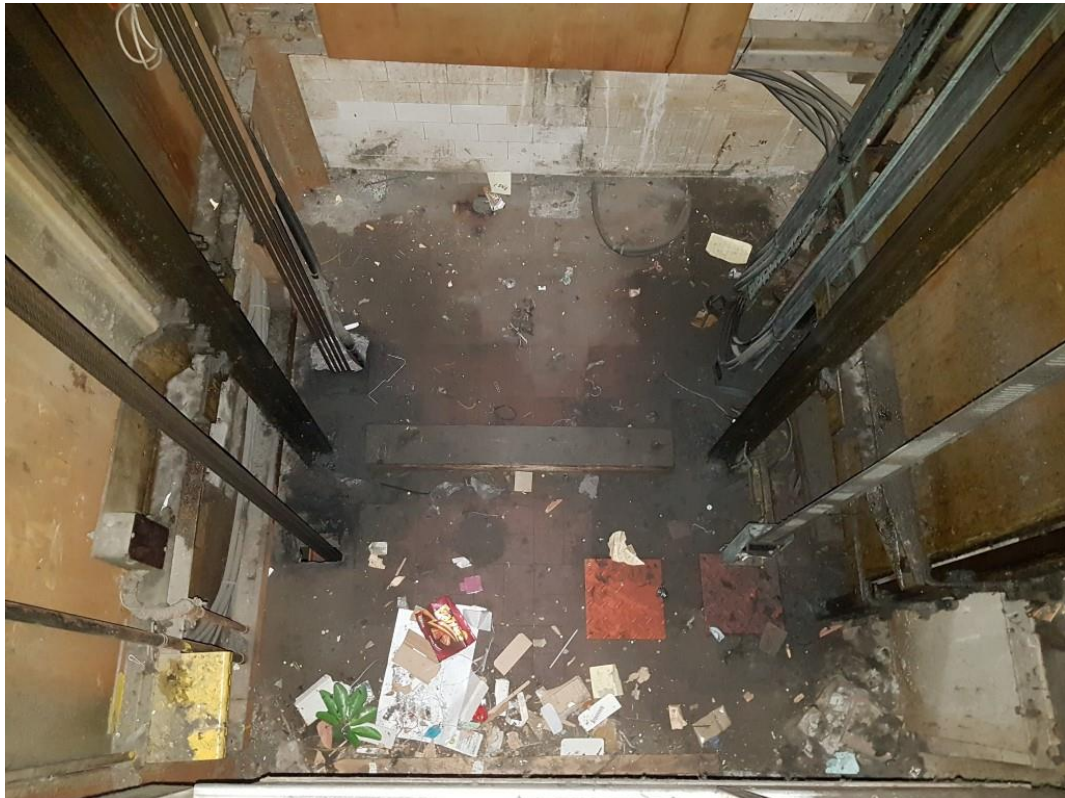
2.4 Landing Doors and Fixtures

- 2.4.1 The landing doors and associated equipment are as originally installed by Hammond and Champness, these are now worn both mechanically and visually.
- 2.4.2 The door system was upgraded with GAL locks and pickup rollers during the 1996 refurbishment scheme.
- 2.4.3 The emergency release mechanisms of the doors are of the “U” key type, having two key apertures in each set of doors, one now being redundant.
- 2.4.4 The landing door equipment should be replaced in its entirety to provide reliable, efficient and safe operation over the long term.
- 2.4.5 The door closure devices, which ensure the landing doors are automatically shut, operated as intended when tested.
- 2.4.6 The landing buttons are electro-mechanical type, and formed part of the control system replacement works carried out in 1996 approx. These are not compliant with the Equality Act 2010 both in operation and location.



2.5 Lift Pit

- 2.5.1 The lift pit slab is of reinforced concrete construction supported within the lift shaft steel tower, this being supported by the 4 RSA legs of the tower. The pit is approximately 1000mm deep currently.
- 2.5.2 The car and balance weight buffers are of the helical coil spring type mounted directly on the underside of the lift car and balance weight assemblies, contacting timber blocks located within the pit.
- 2.5.3 For the current lift speed and loads and any future increase up to 1 metre per second polyurethane buffers should be fitted to the pit floor on supporting steelwork.
- 2.5.4 A form of intercom to enable communication will need to be fitted.
- 2.5.5 Pit stop emergency stop switches will be required at high and low level.
- 2.5.6 The governor gear rope tension weight system will require replacement with a fully guarded unit compatible with the new overspeed governor.
- 2.5.7 A pit ladder to provide safe access and egress to the lift pit will be required, if space is adequate a fixed type should be installed along with a handrail, if not a demountable type is acceptable preferably stored in the pit, signed and electrically interlocked.
- 2.5.8 Protection to be provided around pit slab rope apertures.
- 2.5.9 An imperforate balance weight guard will be required, of sufficient height to comply with EN81, also including a vision panel to enable the lift rope lengths to be readily observed and checked during maintenance and inspection. The current guard is of insufficient height at 2200mm



3 SUMMARY

- 3.1 The installation date of the original Hammond & Champness lift is difficult to determine precisely, we suspect this to be some time in the mid1960's judging by the type of equipment that is retained from this era.
- 3.2 Since the original installation a refurbishment was undertaken by Thyssen, which included a new control system with VVVF drive, door gear upgrade along with pushes and indicators in the lift car and landings.
- 3.3 Currently the power supply to the lift remains live, this is derived from a dedicated switch fuse in the intake room adjacent to the lift machine room.
- 3.4 Please note the following health and safety items should not be considered an exhaustive list. Professional advice should be sought from ARDENT Lift Consultancy before any works are undertaken. These works would form part of a major overhaul, refurbishment and reinstatement of the lift.
- 3.5 Our survey did not identify any specific ACM in the lift installation, however as part of any future planned works a R & D survey should be undertaken with specific attention being paid to the lift shaft, lift car, machine room, roof space and pulley area.

Machine Room

- Provide All statutory notices for the lift installation, including those to the main door, electric shock treatment, emergency procedures, warning and advisory notices
- Provide emergency intercom and communication systems to car, car top, pit and service providers/client
- Upgrade motor room lighting and include emergency lighting to aid with emergency procedures
- Install FB4 type lock to motor room door
- Mark and identify trip hazard on entry to machine room
- Asbestos survey should be undertaken throughout the lift installation

Lift Shaft and Pit

- Provide pit control station for engineers working within this space
- Install a low and high emergency pit stop switches within lift pit
- Mark safe refuge area within the lift pit and car top
- Renew shaft lighting to incorporate an emergency back-up facility at strategic points within the shaft and include 2 way and intermediate switching for car top, pit and machine room
- Remove debris and oil contamination from lift pit and seal lift pit in an oil retardant red paint
- Supply and fit an imperforate balance weight guard in compliance with EN81 and including a vision panel to aid engineers to observe and assess lift overruns
- Provide maintenance barrier to ensure safe working practices during maintenance and repair
- Install car top controls which incorporate car top alarm, emergency lighting and RCD protected socket

Lift Car

- Programme auto dialler systems in lift car to enable the safe release of passengers in an emergency situation
- Provide a car top guard rail complete with toe boards for the protection of those working on the car top and in the pit area
- Define and sign a safe refuge area on the car top
- Provide new car lighting complete with emergency backup to achieve a minimum of 100Lux at floor level within the lift car

4 RECOMMENDATIONS

To return the lift to safe and reliable service will require considerable work, in the form of a complete refurbishment of existing installation or the installation of a completely new lift.

- 4.1 If a refurbishment is undertaken there are a number of key components that can be retained and re-used, these being the guides, guide bracketry, balance weight assembly, new machine, lift car, safety gear system, car supporting steel work, control system and complete door system will be required along with all required ancillary components to provide a complete working, safe and compliant lift. This solution can provide reliable lift service in the long term, circa 20-25 years.

Component	Life Expectancy	Performance Benefit	Budget Cost
Controller	Expired	Install open protocol, UK based control system for reliability	£18,000
Door operators	Expired	Replace for robust system, to improve door performance and reliability	£7,500
Landing door equipment	Expired	Renew the landing door system	£12,500
Main machine	Expired	Renew with Gearless or Geared machine driven by VVVF drive	£9,500
Shaft Limits	Expired	Renew for long term reliability	£1,500
Landing controls	Expired	Renew for long term reliability	£2,000
Car operating panel	Expired	Renew for long term reliability	£2,500
Car structure, sundries and supporting steel work		Renew for long term reliability	£10,000
Car interior	Expired	Aesthetic appeal for passengers	£7,500
H&S items*	Expired	Reduce potential for accidents and ensure compliance with current appropriate standards	£12,500
* Note that H&S items should be addressed when any future works to the lift are undertaken.			

- 4.2 Alternatively, a new MRL (machine room less) type model package lift could be installed in the existing lift shaft, although it should be noted the shaft size will still restrict the lift size to that not fully complying with the requirements of the Equality Act 2010 (formally DDA). Again if the choice of product is carefully made a lift providing long term service can be installed.
- 4.3 The identified health and safety works can only proceed in this case as part of the 2 proposed options, full refurbishment or total renewal.

5 BUDGET COSTS

- 5.1 Modernise the lift to incorporate a modern variable frequency drive controller, operating fixtures and complete rewire. Refurbish/replace lifting machine, subject to condition. During the modernisation include all necessary health and safety works and where practical alterations to comply with disabled access regulations.

Budget Cost £83,500.00

- 5.2 Install a new MRL lift from manufacturer standard ranges of equipment, compliant with all current legislation, safety recommendations and disability discrimination regulations where reasonably practical. Subject to full dimensional survey.

Budget Cost £110,000.00

- 5.3 All outstanding Health and Safety items will be dealt with as part of the reinstatement and refurbishment and also included in a complete renewal and cannot be considered in the case as a stand alone cost as a result of the lift being decommissioned.

Budget Cost £12,500.00

- 5.4 We have not budgeted for specialist survey and subsequent removal of any asbestos materials.

CLARIFICATIONS

This document cannot be considered a specification of works as the items listed within are not exhaustive. The recommendations of this document are based on the findings during the site assessment and with a view of offering a high level of lift performance for future usage. To maximise the effectiveness of any of the aforementioned schemes, we recommend that the professional advice of ARDENT Lift Consultancy is sought.

The findings highlighted within this document were accurate at the time of the site assessment and should only be considered an accurate reflection of the lift condition for a limited period, due to potential changes in condition of equipment and regulations/standards.

The budget costs contained within this document are given for guidance only and are based on the prices within the lift industry and current economic climate at the time of print. These prices do not include any structural, statutory or professional fees.

It is economically prudent to incorporate any health and safety items highlighted into the remedial works rather than on an individual basis. However, they should be undertaken whatever course of action is taken. Dependent on the level of recommendations undertaken, some saving could be made through economies of scale.

Any proposed modernisation works should be based on “non-proprietary” components readily available from within the marketplace, with full technical support of the UK lift industry.