**Gerald Honey Partnership**
Lift • Escalator • Cradle Access System Consultants
16 St Johns Hill, Sevenoaks, Kent TN13 3NP
Tel: 01732 458222 Fax: 01732 740123 E-Mail: ghp@geraldhoney.co.uk

**PROJECT No:** C12714

**DATE:** 22nd March 2019

# CONTRACT DOCUMENTS INCORPORATING

1. **Terms & Conditions**
2. **Specification (EN81-20)**
3. **Forms of Tender**
4. **Pre-Construction Information**

RELATED TO:

## HYDRAULIC PASSENGER REFURBISHMENT

AT:

**MAISON DIEU HOUSE**
**BIGGIN STREET**
**DOVER**
**KENT CT16 1DW**

**CLIENT:**

Dover Town Council
Maison Dieu House
Biggin Street
Dover
Kent CT16 1DW

| ISSUE |
| --- |
| **FINAL DOCUMENT** |

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# MAIN INDEX

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## INTRODUCTION & PREAMBLE

Your company is invited to provide your **FIXED PRICE TENDER** bid for the major refurbishment of the single hydraulic passenger lift located within Maison Dieu House, Biggin Street, Dover, Kent CT16 1DW. Maison Dieu House is Dover Town Council's main offices, which will remain occupied during the refurbishment which is proposed to be carried out between the 24th July 2019 to the 17th September 2019, at which time the building will not be holding any main functions.

The works will incorporate the replacement of the machine room equipment, including the pump unit and control system and new hosing, the existing lift car will be retained and cleaned with some minor upgrade works as within the schedules provided, along with new car and landing entrances, pushes and indicators. The works will be completed in line with the Gerald Honey Partnership's specification C12714 and specific attention should be placed to the schedules for the required finishes.

With the lift being the sole access for functions rooms on the 1st floor and with disabled access within the building, the lift shall be made as far as reasonably practicable in line with EN81-80 requirements, although it is appreciated the lift car size is limited compliant but low profile handrails must be installed to one side wall, as at present this is just within the tolerances for wheelchair use.

Your company must attended site to inspect the lift before offering your fixed price tender return. Access to site must be made prior to attending by contacting the Dover Town Council's Treasurer Diana Baldwin on 01304 242625 or via email - diana.baldwin@dovertowncouncil.gov.uk. Your tender must be provided with all sections completed and duly signed by a director of your company and posted using the attached return label as a sealed bid **no later than 2.00 pm on Monday, 22nd April 2019**.

Storage may well be limited to the machine room only and therefore consideration must be given to storage arrangements for redundant material being placed within this area awaiting collection along with new entrances being brought directly into the lift shaft upon delivery, therefore piece meal deliveries may well be required.

Your company will act as the Principal Contractor on site and all operatives will wear your company's motif logo workwear at all times, so that they may be identified by members of staff. You will be responsible for all deliveries and signing of packages, as the client will not take on any responsibilities.

The tender may only be presented in the prescribed form with the Specification document duly completed in full and returned with Technical Sections (5 & 6) and Financial Sections (8, 9 & 10) signed by a Director of your company. Should you find any necessity to deviate from the Specification this should be indicated in your covering letter and fully detailed within section 9 of the Specification returned, including confirmation of any financial implications relevant to any deviations. Any incomplete tender in this respect may not be considered further, this includes items such as the technical information sheets and request of programming details.

Special care and adequate supervision must be given in maintaining safe working conditions on site, no breaches will be acceptable. All work areas, including the lift machine room, must be kept secure when not occupied by the Lift Contractor and fully guarded under normal working conditions. These conditions, particularly supervision, must be carried out to the letter with all specialised sub-contracted, as well as direct employed labour. A responsible Foreman must be on site during all working hours, including periods when sub-contracted labour may only be present.

All site operatives are to wear clean overalls at all times and these are to display not only the company's logo but also a sealed photographic company identification pass.

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All refuse and items of old equipment are to be stored within the Contractor's agreed work area and as it accumulates must be removed at least weekly from site. All deliveries are to be to an agreed access point. When equipment is to be delivered to site, prior notice must be given to site engineers so that disturbances are kept to a minimum. The client or his representatives will not be available for any unloading or acceptance of packages or delivery notes.

It is anticipated that the Lift Contractor will offer the best and most economical solution that shall result in the minimum of work required to comply with the specification.

All associated builders and electrical works are to be included and are to form an integral part of the pricing and programme details submitted. It is essential that any specialist sub-contractor works are carefully integrated to ensure completion by the agreed date. As engineers' holiday breaks occur replacement personnel are to be made available to maintain programme. It is imperative that your most competitive delivery and on site periods are provided at the time of tendering, but with full consideration given to your ability to maintain progress as detailed.

The Contractor shall establish whether the rating, capacity and condition of the existing lift mains power supply is suitable for retention with their proposed new equipment, including new main drive system and if applicable new hoisting machine. If it is determined that the existing supply is not adequate then due allowance shall be made by the Contractor for the installation of a new, suitably, rated power supply from an appropriate position in the building within his tender.

Any additional visits by the Lift Consultant later than two weeks following the agreed completion date necessitated by the Lift Contractor not having fulfilled the works specified or agreed, will be contra charged to the Lift Contractor at the Lift Consultant's hourly rate applicable at the time.

The tender shall be open for a period of 16 weeks from the date of return.

Any queries or clarifications required relating to this specification document shall be referred to the Lift Consultant before completion of the tender submission.

## Maintenance of Lifts

The successful Lift Contractor will be required to maintain the lifts from the date of taking possession of the site or unless otherwise agreed. All lifts are to be maintained on a fully comprehensive basis for the duration of the contract.

## CDM 2015

The Contractor will be required to provide a Construction Phase Plan which is to include site specific Risk Assessment and Method Statements (RAMS) as required for the works being carried out as part of the contract.

The information and requirements of the INTRODUCTION & PREAMBLE form an integral part of the Contract requirements.

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# CONDITIONS OF CONTRACT

## 1:1 DEFINITIONS

1:1:1 In this contract (which will be made by the acceptance of a Tender and will comprise the accepted tender, an order (from the Employer) and/or other documents (if any) referred to therein) the following words and expressions used in the Contract Documents shall have the meanings attached to them as defined below:

1:1:2 The **"Employer"** shall mean Dover Town Council.

1:1:3 The **"Engineer"** shall mean Gerald Honey & Partners Limited, 16 St John's Hill, Sevenoaks, Kent TN13 3NP.

1:1:4 The **"Contractor"** shall mean the successful and appointed Contractor.

1:1:5 The **"Architect"** shall mean – Not applicable.

1:1:6 The **"Principal Contractor"** shall mean the successful Lift Contractor.

1:1:7 The "**Principal Designer**" shall be Gerald Honey & Partners Limited, 26 St John's Hill, Sevenoaks, Kent TN13 3NP.

1:1:8 **Practical Completion** shall be the date on which the Installation is placed into service and on which minor outstanding items may remain incomplete, following the Engineer's witness test. **However where a LEIA contract Guarantee Bond is offered, Practical Completion will only be issued following the completion of all defects identified during the Witness test, from which the LEIA bond shall become effective.**

1:1:9 **Completion** shall be the date upon which the Engineer shall have certified that the outstanding items have all been completed and is the commencement date for the 12 months Defects Liability and Maintenance Period. **However where a LEIA contract Guarantee Bond is offered this will be issued on the same date as the Practical Completion.**

1:1:10 **Non-Completion** shall be where the agreed date for completion is not met by the Contractor and where items remain outstanding and from when any liquidated and ascertained damages may apply.

1:1:11 **Final Completion** shall be the date on which retention monies shall be released and which will normally be 12 months after the date of Completion.

1:1:12 **The Works** shall be the works will incorporate the replacement of the machine room equipment, including the pump unit and control system and new hosing, the existing lift car will be retained and cleaned with some minor upgrade works as within the schedules provided, along with new car and landing entrances, pushes and indicators. The works will be completed in line with the Gerald Honey Partnership's specification C12714 and specific attention should be placed to the schedules for the required finishes.

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1:1:13 **Maintenance** shall mean the fully comprehensive service care of the lifts in their entirety.

## 1:2 INSTRUCTIONS FOR TENDER

1:2:1 The contractor should immediately acknowledge receipt of the tender documents and either confirm his intention to submit a tender by the required date in accordance with the documentation, or return all documentation advising of the reason for non-submission of a tender. (Returning a tender invitation with suitable explanation will not preclude the contractor from being invited to tender on other projects).

1:2:2 When completing the tender documents the contractor should complete the following sections as applicable in their entirety and return them with the original tender documents.

(1) TECHNICAL & CONSTRUCTIONAL DETAILS OF EQUIPMENT
(2) PERFORMANCE DATA
(3) FORM OF TENDER & SUMMARY (Both Financial & Programme)
(4) DECLARATION
(5) SCHEDULE OF DEVIATIONS FROM THE CONTRACT.

Any other submittals specifically requested at tender stage should also be attached.

1:2:3 The completed tender should be returned in the envelope provided by the due-in time and date.

1:2:4 The contractor shall tender in accordance with the provisions laid out in the Tender documents and any drawings made available.

1:2:5 The tender submitted shall be held not to be modified or varied by any conditions which may be printed on the Contractor's letter paper which may accompany the tender, except where such conditions shall have been discussed with the Engineer prior to the submission of the tender and accepted by the Engineer in writing.

1:2:6 A detailed method statement is to accompany the tender highlighting key operations and processes and paying particular attention to Health & Safety issues for both installation engineers and the general public.

1:2:7 The Specification indicates generally the requirements of the installation. Where the Contractor's tender for carrying out the work is based on any deviations from the Specification, in respect of any materials, method of installation, performance, builder's work or the like, such deviations shall be clearly set out in a covering letter or schedule to be submitted with this Tender.

1:2:8 In the absence of such a covering letter or schedule it will be deemed that the price quoted by the Contractor includes for the whole of the work to be carried out as specified herein. No such later requests for deviations will be considered.

1:2:9 Any qualifications made must be specific: any generalisations will be interpreted by the Engineer as meaning that the terms of the Specification are **not** being met.

1:2:10 Any tender submitted with literature or standard printed forms other than that required by the Specification may not receive further consideration.

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1:2:11 No alteration to the text of these Contract Documents will be permitted. Any qualifications to the Contract Documents must have been agreed in writing by the Engineer prior to the submission of the Tender.

1:2:12 The Employer does not bind himself to accept the lowest or any tender and will not be liable for any costs incurred by any Contractor in the preparation of such tender.

1:2:13 The delivery and installation periods are of great importance and will be taken into strict account in the tender analysis. The tenderer is to indicate his most competitive delivery and installation periods based upon receipt of instructions within the acceptance period of the tender.

1:2:14 Where a detailed maintenance specification and tender is to be submitted at the same time as the Tender for the main works you should be aware that both tenders will be evaluated jointly. You may return both tenders in the same envelope.

## 1:3 SUFFICIENCY OF TENDER

1:3:1 The Contractor shall satisfy himself as to the correctness and sufficiency of his tender/quotation to cover all his obligations under the Contract and all matters and things for the proper completion and maintenance of the works. The prices shall include for the detailed design, manufacture, supply, delivery, installation, test and maintenance, undertaking and carrying out of everything required by the documentation or, in the opinion of the Employer or his appointed representative reasonably to be inferred therefrom.

1:3:2 Any other conditions submitted by the Tenderer with this tender which conflict in any way with its terms and conditions will not be accepted unless agreed by the Engineer in writing prior to the tender return date.

1:3:3 Submission of a tender will imply that this is understood and agreed.

1:3:4 Where the tender is requested as fixed price, the fixed price element will relate to the manufacturing and installation periods which have been given in the programme.

1:3:5 The Contractor shall, at the time of tender:

(1) where builder's and electrical work are included with his tender, give a detailed list of works, or

(2) where builder's and electrical work are to be provided by "others" give detailed breakdown of all his requirements, including electrical loadings, structural load, scaffold requirements and temporary power and lighting requirements.

1:3:6 One "site copy" of the Specification will be provided by the Engineer to the successful contractor.

## 1:4 EXECUTION OF WORK

1:4:1 The Contractor shall provide all necessary and proper superintendence on site and all operatives must be familiar with and experienced in the specific works being undertaken.

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1:4:2 One of the Contractor's operatives (the "responsible operative") shall assume responsibility for the site management and shall in the absence of the Contractor direct other operatives until a certificate of Completion has been issued by the Engineer.

1:4:3 This responsible operative shall have charge of all documents, drawings, specifications and the like concerning the installation and shall receive and execute any instructions which may be given from time to time by the Engineer. He shall be responsible for the "site copy" of the Specification and shall make it available upon request.

1:4:4 The responsible operative shall also have charge of the Construction Phase Plan, and shall ensure completion of all appropriate documents required and the issuing of all instructions to other site operatives to ensure compliance with the agreed method of working and all safety procedures.

1:4:5 Work involving multiple installations must be attended to by an experienced charge hand and such person shall be fully familiar with all aspects of the contract, including those areas where programme and costs are concerned.

1:4:6 Where the size and complexity of the Contract dictates and this is agreed by the Engineer, the Contractor shall provide a Project Manager to be responsible for all areas of the Contract.

1:4:7 The Contractor shall cease to employ upon the site any person who in the opinion of the Engineer or Employer is incompetent or in any other way conducts himself in a manner prejudicial to the progress of the Works.

## 1:5 CO-ORDINATION

1:5:1 During the progress of the Contract the contractor will be required to co-ordinate his work and liaise with the Engineer and any other contractors on site at all times to ensure that the installation is completed within the contract period agreed.

## 1:6 QUALITY OF WORK

1:6:1 The design, manufacture, supply, delivery, installation, test and maintenance of the equipment and associated works shall be to the entire satisfaction of the Engineer and Employer who reserve the right to inspect any part of the installation whether on site or at the manufacturer's works and to call for samples of any materials it is proposed to use on this Contract. Design responsibility remains with the Contractor and the satisfaction of the Employer or Engineer does not alter this.

1:6:2 The site engineers employed shall be fully experienced in all aspects of the works including setting out and other preliminary procedures.

1:6:3 Any work required under this Specification, the quality and/or method of installation of which has not been specified shall conform to good practice for the type of work involved.

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1:6:4 The Contractor is to be fully accredited to ISO 9001 Quality Management Assurance, which will cover design and manufacture of the Works in all aspects and that all proposed sub-contractors are equally accredited. The Quality Management System must be checked for full compliance by the Contractor's nominated notified body no less than once every 6 months.

1:6:5 Where it is necessary for the Contractor to deviate from British Standard Specification BS5655, European Standard BSEN81 series or other appropriate Standards, the Engineer is to be advised and his written agreement obtained before submission of a Tender.

## 1:7 STANDARDS & REGULATIONS

1:7:1 These shall be as defined within Section 4, Specification of Work, of the Contract Document.

## 1:8 DESIGN RESPONSIBILITY

1:8:1 This tender shall be read in conjunction with the Introduction & Preamble, Specification, Drawings, Schedules and Conditions of Contract and Preliminaries being construed as a whole and the Contractor shall carry out such work accordingly. The Contractor will be held responsible for the works embodied therein and shall take all necessary particulars and provide at his own expense all other necessary working and detailed drawings of equipment specified or to be supplied herein, copies of which must first be submitted for approval before the work is put into hand.

1:8:2 THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECT OR INSUFFICIENCY IN The design of the work as contained in the Contractor's proposal and in what the Contractor is to complete in accordance with the Employer's requirements and conditions (including any further design which the Contractor is to carry out as a result of change in the Employer's requirements) NOTWITHSTANDING THAT A THIRD PARTY MAY HAVE SUPPLIED THAT DESIGN.

1:8:3 The Contractor's liability for loss of use, loss of profit or other consequential loss arising in respect of the Contractor's design liability (where indicated in the immediately proceeding paragraph) shall be separately considered in the amounts due to those amounts or rates set out and payable as liquidated and ascertained damages in the event that the lift Contractor fails to complete the work by the Completion date.

1:8:4 The Contractor shall be responsible for any designs, drawings, specification, orders or other particulars supplied by him and for any discrepancies, errors or omissions in the same.

1:8:5 This Contract includes for materials, designs, manufacturing, supply, delivery, installation, tests and maintenance for the whole of the work necessary commencing from the incoming supply or disconnector, all in accordance with the Sections of this Specification whether specifically mentioned, inferred, or otherwise agreed, together with the remedying of defects period as provided herein. Where components are replaced due to failure within the 12 months Defects Liability and Maintenance Period such replaced equipment shall also be covered by a further 12 months Defects Liability and Maintenance Period subject to the Contractor retaining an interest in the maintenance of the plant.

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## 1:9 MATERIALS

1:9:1 Where materials and manufacturers have not been specified the materials shall be of the highest possible grades of their respective kinds and shall conform where relevant to the British and / or European Standard Specification for such materials.

1:9:2 All unspecified materials proposed for use by the Contractor on the Contract will only be considered by the Engineer if in his opinion the material is acceptable and is equal in all respects and is in no way inferior to that which has been specified by manufacture or duty. The decision as to whether any material is "equal" or "approved" will be determined solely by the Engineer whose decision in this respect will be final.

1:9:3 Materials approved for use on other contracts will not necessarily be approved for use under this contract. Where written approval is given for the use of certain materials those materials will be used throughout. Any samples which have been submitted shall be retained by the Engineer.

1:9:4 All specified materials to be used under this Contract shall be new, shall comply fully with the relevant British and / or European Standard Specifications and on delivery to site shall not be removed without the consent of the Engineer or Employer. If any material is considered by the Engineer to be in any way unsuitable or inferior in quality, damaged, or not of the required standard it shall be removed by the Contractor forthwith at his own expense. Suitable material approved by the Engineer shall be substituted for any rejected.

1:9:5 Any of the Contractor's plant and material on or off site must be properly stored and protected to prevent damage to the material itself and is to be packed or protected even on a temporary basis so as to prevent any form of safety hazard. Extensions to the programme shall not be granted for items mislaid or stolen due to incorrect or insecure storage.

1:9:6 The Contractor shall provide information sufficient to allow the Employer or his agent to access the control system and where appropriate interrogate or modify the operation of the system within its operating parameters. Replacement or new components shall be supplied at reasonable rates and in reasonable times as may be necessary to maintain the installation in the proper working order.

1:9:7 The Contractor shall warrant that all software, systems and equipment shall not contain any value or date that will cause any interruption to the safe operation of the lift.

1:9:8 The Contractor shall not transport to, use, generate, dispose of or install at the site of the Works any Deleterious Materials or Hazardous Substances except in accordance with Environmental Laws applicable at the time of performing the Works. The Contractor shall use the Standard of Care not to cause any release of Deleterious Materials or Hazardous Substances into, or contamination of the environment, including soil, the atmosphere, any water course or ground water, except in accordance with Environmental Laws applicable at the time of performing the Works. It is the Contractor's responsibility to comply with this Clause 2.1.8 based on the Environmental Laws in effect at the time its services are rendered.

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The Contractor will not specify or use in the Works any substance and/or material that is not in conformity with any relevant British or European Standards or Codes of Practice or which is generally known to the UK construction industry to be deleterious to health and safety or the durability of the Project and/or the Works in the particular circumstances in which it is used or which is not used in accordance with the guidance contained in the publication "Good Practice in the Selection of Construction Materials" British Council for Offices (edition current as at time of such specification).

Deleterious Materials

The following materials are not to be used in the works unless it can be demonstrated, to the satisfaction of the Engineer, that they are safe during manufacture, installation and use, and that they are suitable:

a) Asbestos or asbestos-containing products, as defined in the United Kingdom's The Control of Asbestos Regulations 2012, or any statutory modification or re-enactment thereof.

b) Lead, where the metal or its corrosive products may be directly ingested, inhaled or absorbed. Applications of lead such as roofing, flashings, rainwater goods and copper alloy fittings containing lead which are specifically required will be acceptable, until equal or better alternatives are available.

c) Lead based paints and primers.

d) Urea formaldehyde foam or materials which may release formaldehyde beyond British Standard limits.

e) Pitch polymer DPC.

f) Materials which generally comprise mineral fibres, either man-made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less, or which contain any fibres not sealed, encapsulated, or otherwise stabilised to prevent fibre migration. Products that may contain these fibres include insulation, fire protection and air filters. For mineral fibre insulation products, test evidence must be available and produced confirming that the materials fulfil the requirements of European Directive 2014/33/EU and the CLP Regulation (EC) No 1272/2008 (The Classification, Labelling and Packaging of Substances and Mixtures) and consequently are not classified as a possible human carcinogen.

g) Chlorofluorocarbons or hydro chlorofluorocarbons or any goods and/ or materials containing the same (e.g. materials in which CFCs, HCFCs or HFAs have been used as blowing agents).

h) High alumina cement in structural elements.

i) Wood wool slabs in permanent formwork to concrete or in structural elements.

j) Calcium chloride in admixtures for use in reinforced concrete.

k) Aggregates for use in reinforced concrete that do not comply with BS EN 12620:2013 and aggregates for use in concrete that do not comply with the provisions of BS EN 1992-1-1:2004 + A1:2014.

l) Polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or any goods and/ or materials containing the same.

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m) Sea dredged aggregates that do not comply with the chloride limits specified in BS EN206:2013+A1:2016, BS EN 12620:2013, BS EN 1744-1:2009+A1:2012 1 and BS 8500-1:2015.

n) Lindane - wood treatment/insecticidal spray.

o) Pentachlorophenol (PCP) or timber treated with Pentachlorophenol - biocide/ wood preservative.

p) Chromated Copper Arsenate (CCA) timber preservative treatment.

q) Tributyltin (TBT).

r) Medium density fibreboard (MDF) that is neither zero formaldehyde nor conforms to class E1 according to BS EN 13986:2004 + A1:2015.

If wishing to use any of the materials that are listed above, detailed observations shall be prepared for the Engineer based upon the guidelines contained within the document.

'Good Practice in the Selection of Construction Materials' published by the British Council for Offices (BCO:2014).

**Note: Latest edition, any subsequent addendum, upgrade or revision to the above.**

**Note: The contractor is required to confirm within the tender document Section 8, and provide written confirmation as part of the tender submission and signed by an Executive Director of the company as evidence of full compliance with this clause.**

### 1:10 TESTING OF MATERIALS

1:10:1 The Engineer shall have the power to charge against and recover (by deduction or otherwise) from the Contractor the cost of testing materials or components which may have to be submitted to the Engineer for testing and which, upon test, are found to be faulty or not in accordance with the requirements of this Specification.

1:10:2 In the event that a test proves any materials or components to be faulty the Contractor shall, at his own cost, prove to the Engineer the acceptability of all replacements and/or other works.

### 1:11 VISITS TO SITE

1:11:1 Where the specification calls for works on existing lifts the Contractor must visit the site before submitting his tender to satisfy himself as to the local conditions which may influence his tender. The submission of a tender shall be deemed to confirm that the provisions of this clause have been complied with.

1:11:2 No subsequent claim for any extra costs incurred by the Contractor in carrying out work not included for in this Specification, but the necessity for which should have been foreseen by the Contractor by inspecting the site will be considered by the Engineer.

1:11:3 The site may be inspected on application to the Engineer or Employer.

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1:11:4 Contractor's staff visiting the site must comply with local house safety rules and permit to work systems.

1:11:5 Any representatives of the Contractor shall carry formal identification including an authorised photograph.

1:11:6 Where drawings are provided as part of the contract particulars they shall not infer that the Contractor need not visit the site, and any discrepancies on drawings shall be brought to the attention of the Engineer and Architect for verification and clarification.

## 1:12 DEFECTS LIABILITY

1:12:1 The Defects Liability and Maintenance Period shall commence from the issue of the Completion Certificate and shall continue in force for 12 months from that date unless extended in accordance with the requirements of this Specification.

1:12:2 If after carrying out witness tests the Engineer's decision is to place the lift in service pending the completion of items, then the Contractor will be required to maintain the lift free of charge until Completion. This arrangement is in addition to the 12 months included maintenance period which would normally follow on from Completion.

1:12:3 On group or multiple lift installations the 12 months Defects Liability and Maintenance Period will not commence until all lifts have been accepted by the Engineer and a Completion Certificate issued.

1:12:4 Where a lift installation is completed before the main contract for the building the Defects Liability and Maintenance Period must run from the main contract completion date. Where this is unknown, the Contractor must indicate a cost on a per month per lift basis for extending the Defects Liability and Maintenance Period as necessary. This cost must include the associated maintenance which is necessary to validate the Defects Liability and Maintenance Period.

1:12:5 Where the Contract provides for phased completion, the 12 months Defects Liability and Maintenance Period will run on each phase from completion of all lifts in that phase.

1:12:6 During the 12 months Defects Liability Period the Contractor shall provide all cleaning material and necessary lubricants and make good or replace at his own expense any part that shall be found to be defective or show signs of any weakness or undue wear in consequence of faulty design, workmanship, material or maintenance.

## 1:13 OVERTIME WORKING

1:13:1 The Contractor shall give at least 48 hours written notice of his desire to carry out work at any other time outside the normal working hours of the site.

1:13:2 Additional overtime working at the Employer's expense will only be allowed on the written instruction of the Engineer and only the nett cost in respect of the non-productive element of such overtime will be reimbursed to the Contractor.

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1:13:3 Where the contract programme is delayed by the Contractor, overtime working shall take place to re-establish the programme at no additional cost to the Employer. Where other contractors may also be required to work overtime or otherwise incur extra costs as a result of such delays, the Contractor will be liable for the reimbursement of all such costs.

1:13:4 No extension to programme will be accepted for delays where it can be established that the Contractor did not voluntarily work overtime or employ additional labour in order to meet the agreed programme, nor will the voluntary working of overtime reduce the Contractor's responsibility for the delay.

1:13:5 Extensions to programme will only be considered where contract variations have been issued or if the regular progress of the Contractor's work is materially affected by any of the following events. The Contractor must give immediate notice of the fact to the Engineer, as soon as it becomes reasonably apparent. The Engineer may, if he agrees with the Contractor's submissions, grant a fair and reasonable extension of time to the agreed completion date if the Works are directly affected by any of the following:

1. Force majeure
2. Exceptionally adverse weather
3. Fire and flood damage unless caused by the Contractor’s negligence
4. Civil commotion
5. Unreasonable delay in Engineer's or Employer’s instructions
6. Variations issued by the Engineer or Employer.

## 1:14 DETERMINATION

1:14:1 In the event of the Contractor committing an act of bankruptcy or being a company going into liquidation whether voluntary or compulsory (other than voluntary liquidation for the purpose of reconstruction or amalgamation) or if the Engineer shall certify to the Employer that in the opinion of the Engineer the Contractor has committed a breach of material provision of the Contract or have in the opinion of the Engineer failed to make proper progress with the works for 14 days after receiving from the Engineer written notice of default, then the Employer may give to the Contractor notice in writing of their intention to take the whole or any specified part of the Works out of the hands of the Contractor and may thereupon enter upon the site and the works and expel the Contractor therefrom and may themselves use the materials and plant thereon for the completion of the Works and employ any other contractors to complete or may themselves complete the work and upon such entry this Contract shall either wholly or with reference to the part of the work so specified (as the case may be) be determined save as to the rights and powers conferred upon the Employer and the Engineer thereby. Any notice given by the Employer under this Section shall state expressly that it is a notice under Section 1 Item 1:13 of these conditions.

## 1:15 RE-LETTING

1:15:1 In the event that determination of the Contract takes place, the Employer and Engineer may re-let any or all of the outstanding works as they may see fit, provided that they have made a fair and reasonable assessment of the work carried out already and have properly paid the Contractor.

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1:15:2 Any retentions held from the Contract shall be held for a period of 12 months from completion of the project and released on application by the Contractor, provided he has delivered a true and proper claim for the outstanding amount.

1:15:3 Any damages, losses or extra costs incurred by the Employer or Engineer will be taken into account in assessment of the sum outstanding to the Contractor at determination.

## 1:16 ASSIGNMENTS OR SUB-CONTRACTING

1:16:1 The Contractor shall not without the written consent of the Employer, which consent may be given subject to such conditions, if any, as the Employer may think fit to impose, transfer, assign or sub-let, directly or indirectly, the Contract or any portion thereof for the benefit or burdens thereof to any person, company or firm.

1:16:2 The Contractor may, with the prior written permission of the Engineer, sub-contract any portion of the Contract where such sub-contracting is customary in the trade. The Engineer retains the right to vet and approve any proposed sub-contractors. (A list of approved sub-contractors and suppliers is provided at the end of this document).

1:16:3 Where the Contractor proposes to use installation engineers on a sub-contract basis, such engineers must be engaged for the full course of the work including the testing period and completion of outstanding items and **under no circumstances** must sub-contract labour be responsible for the purchase or supply of materials, or testing of the completed works.

1:16:4 Where sub-contracting takes place the Contractor shall be responsible for the observance of these conditions by the sub-contractor and shall be responsible to the Employer in respect of any claims resulting from this work. A list of proposed sub-contractors who may be used shall be submitted by the Contractor at the time of the tender, and where these are not from the approved list, approval shall be sought from the Engineer by the Contractor for their use.

## 1:17 PAYMENT

1:17:1 No payment for any work executed under this Contract shall be made unless and until the Contractor shall have delivered a true and proper claim therefore in such form and containing such details of value as the Engineer may require.

1:17:2 Claims for payment shall be set out as in the attached format and shall relate to the value of material delivered to site and the actual work completed. In exceptional circumstances and by prior agreements the contractor may apply for up to 30% of the contract sum at material order or placement of instruction.

1:17:3 Where material has been manufactured but not delivered to site, a claim may be submitted provided that the material is permanently labelled, stored and bonded by the Contractor and that this has been verified by the Engineer.

**SECTION 1**

## CONDITIONS OF CONTRACT

1:17:4 Payment for works and materials shall be made generally as follows:

(i) Once all material has been delivered to site at the commencement of the installation up to 70% of the Contract Sum.

(ii) During site progress and up to Practical Completion stage payment up to 90% of the Contract Sum.

(iii) At issue of Completion Certificate up to 97.5% of the Contract Sum.

(iv) At issue of Final Completion Certificate 100% of the Contract Sum.

1:17:5 The Contractor is responsible for submitting payment application in the prescribed format for release of retentions.

1:17:6 Any variations to the Contract Sum must be substantiated by variation orders or agreed price variation and confirmed in writing by the Engineer.

1:17:7 The Employer undertakes to make payment to the full value of the Payment Certificate issued by the Engineer and such payments will be made by the Employer within 45 days of receipt of the Engineer's Payment Certificate.

1:17:8 The value of any application submitted by the Contractor may be reduced, if in the view of the Engineer, the passing of any such application in its original form will be an over-valuation. In this event Payment Certificates will be issued showing a lesser amount as determined by the Engineer and depending upon the stage of work reached.

1:17:9 Where delivery of materials may affect the conditions of payment, the Engineer will make the necessary visit to the Contractor's Works to establish the full extent of materials available. In this circumstance any materials stored at the Contractor's Works will be labelled and held in bond as the property of the Employer. The Contractor hereby agrees that the property in such materials shall pass irrevocably to the Employer upon issue of the Engineer's certificate.

1:17:10 PAYMENT ALTERNATIVE (where a Contract Guarantee is offered).

1:17:11 Where the Contractor does not accept retentions from the Contract Sum the following terms of payment shall apply:

(i) Upon work commencing on site and delivery of all materials up to 65% of the Contract Sum.

(ii) Monthly Valuations and Certification of works done up to the issue of the Practical Completion Certificate up to 95% of the Contract Sum.

(iii) At issue of the Completion Certificate up to 100% of the Contract Sum.

(iv) Following the completion of the 12 months defects liability period the Contract Guarantee Bond shall deemed to have expired.

**SECTION 1**

# CONDITIONS OF CONTRACT

## 1:18 PROVISIONAL OR CONTINGENCY SUMS

1:18:1 Any provisional sum that may be indicated in the Tender Summary Sheet hereof shall be used in whole or in part, or otherwise deducted as the Engineer shall direct. No provisional sum is to be indicated in the documents by the contractor, unless specifically requested.

1:18:2 Expenditure from provisional or contingency sums will be determined and agreed in writing by the Engineer and substantiated by a detailed cost from the Contractor.

1:18:3 Funds for provisional or contingency sums will not form any element of the contract value until expenditure from the funds has been agreed and notified in writing. Accordingly contractors should not base their tenders on further expectation of payment or profit from these sources.

## 1:19 FINAL ACCOUNT

1:19:1 The Final Account when submitted shall show all details of variation orders together with the dates of all relevant correspondence.

1:19:2 Where a fixed price period has been exceeded through no fault of the Contractor, then price variation may apply from date of the proposed completion to the actual completion date.

1:19:3 Price variation, where applicable, shall be calculated in accordance with the LEIA Formula of Contract Price Adjustment, and shall be submitted only with the final account.

1:19:4 Prices quoted are to be in £ Sterling and fluctuations in exchange rate will not be accepted.

## 1:20 DAMAGES

1:20:1 The Contractor shall indemnify the Employer against all costs arising as a result of his failure to perform his obligations in accordance with the Contract. For the purpose of this Contract, the Employer's liquidated and ascertained damages will be applied at the rate of **1%** of the Contract Sum for a maximum of ten weeks. In addition, any further costs incurred by other parties affected by such delay but which cannot be pre-estimated, such as other Contractors' costs, will be charged to the Contractor.

1:20:2 If the Contractor fails to complete the Works by the agreed date for Completion, or any extension thereto as set out in Clause 1:26, then the Engineer shall issue to the Contractor a notice to that effect in which the extent of the delay shall be quantified and the total amount of Employer's liquidated and ascertained damages and other parties' costs will be summarised and totalled. As a minimum, the liquidated and ascertained damages for late Completion will be 1% of the Contract Sum per week.

1:20:3 This total sum shall be payable by the Contractor to the Employer and may be offset against any monies otherwise due from the Employer to the Contractor.

**SECTION 1**

# CONDITIONS OF CONTRACT

1:20:4 Where the programme involves phased completions, damages shall be restricted to lateness only incurred within each phase.

## 1:21 INSURANCES

1:21:1 The Contractor shall produce annually to the Employer or on request at any time a certificate of insurance or satisfactory evidence that he is fully insured with a reputable insurer for all purposes of this Contract against all third party risks in relation to persons and property and against liability whether at common law or under statute in respect of accident or injury to workmen employed on the work whether or not being employees of the Contractor.

1:21:2 This certificate of insurance must be furnished within 15-days of request. Failure to provide such a certificate of insurance may be taken by the Employer to indicate that the Contractor has failed to meet his obligations to provide the insurance cover under this Contract.

1:21:3 The Contractor shall immediately give notice in writing to the Employer and all insured parties in the event of cancellation or material change of its insurance policy which may affect the Employers or any insured party's interest.

1:21:4 If the Contractor does not furnish proof of insurance as requested under Clause 1:20:2 then the Employer may take up such insurance and deduct the premiums and any other costs from the Contractor's annual premium.

1:21:5 The Contractor shall not be liable for any loss, damage, injury or delay due to any cause beyond its control including (without prejudice to the generality of the foregoing expression) act of government, strike, lockout, fire, lightning, aircraft, explosion, flooding, riot, civil commotion, act of war, malicious mischief or theft, PROVIDED THAT if the Works in respect of any lift or lifts shall be materially interrupted for a period of 72 hours or more by such cause as aforesaid and as a result thereof there is a failure in the equipment resulting in loss of use then the annual premium payable in respect of the period of such interruption shall be reduced to such extent as may be reasonable having regard to such loss of use and the proportion that the affected equipment bears to the whole PROVIDED FURTHER that such reduction of annual premium shall not apply insofar as the Employer is insured against such loss.

1:21:6 Under normal circumstances gas or electric burning or welding or dry disc grinding is not permitted. Where special circumstances necessitate this operation the Contractor shall provide specific insurance coverage and shall take all necessary fire and other safety precautions where required by the Insurer, Local Fire Officer or other Authority.

## 1:22 ARBITRATION

1:22:1 If any dispute or difference should arise not being a matter or thing in respect of which by the Contract the Engineer or the Employer are expressly or by implication required or permitted to decide then such dispute or difference shall be referred to and be determined by a single arbitrator under the provisions of the Arbitration Act 1996, or any statutory modifications or re-enactments thereof. At this time the arbiter shall be appointed by the President of the Institution of Mechanical Engineers.

**SECTION 1**

# CONDITIONS OF CONTRACT

## 1:23 VALUE ADDED TAX

(1) In this clause "tax" shall mean value added tax and "exempt supply" "invoice" "value added tax" "taxable persons" and "taxable supply" have the same meaning as in the Value Added Tax Act 1994 or any amendment to or replacement thereof (hereinafter referred to as "the Act") including any amendment (Value Added Tax Regulation (Amendment) 2017) or re-enactment thereof.

(2) The Contractor shall be deemed not to have allowed in his tender for any tax payable by him as a taxable person to the Commissioners of HM Revenue & Customs being tax chargeable on any taxable supplies to the Employer which are to be made under the contract.

(3) The Contractor shall not in any application for payment for the supply of any goods and services under the Contract include any element on account of tax in any items or claims contained in such application or in any item or claim contained in such application show any amount of money on account of tax as a separate item or claim.

(4) At the same time as payment (other than payment in accordance with this sub-clause) for goods or services which were the subject of a taxable supply provided by the Contractor as a taxable person to the Employer is made in accordance with the Contract there shall be paid by the Employer a sum (separately identified by the building owners and in this Clause referred to as "the tax payment") equal to the amount of tax chargeable on that supply. Within seven days of each payment the Contractor shall:

(a) if he agrees with that payment or any part thereof issue to the Employer an authenticated receipt of the kind referred to in the Regulation 13(4) of the Value Added Tax Regulations 1995 (1995/2518), together with Value Added Tax (Amendment No.2) Regulations SI 2012/1899, in respect of that payment or that part, or:

(b) if he disagrees, notify the Employer in writing that he disagrees stating at the same time the grounds of his disagreement, and for the purpose of this sub-clause the reference to Regulation 13(4) of the said Regulations of 1995 shall be treated as a reference to any enactment corresponding to that Regulation for the time being in force in consequence of any amendment or re-enactment of the said Regulation 1995.

(5) (a) If any dispute difference or question arises between the Employer and the Contractor in relation to any of the matters specified in Section 83 of the Act, then:

(i) if the Employer so requires the Contractor shall refer the matter to the Commissioners for their decision on it.

(ii) if the Contractor refers the matter to the said Commissioners (whether or not in pursuance of sub-paragraph (i) above) and the Employer is dissatisfied with their decision on the matter the Contractor shall at the Employer's request refer the matter to a Value Added Tax Tribunal by way of appeal under Section 40 of the Act whether the Contractor is so dissatisfied or not.

(iii) a sum of money equal to the amount of tax which the Contractor in making a deposit with the said Commissioners under Section 84(3) of the Act is required so to deposit shall be paid to the Contractor, and

**SECTION 1**

## CONDITIONS OF CONTRACT

(iv) if the Employer requires the Contractor to refer such matter to the Tribunal in accordance with (ii) above then the Employer shall reimburse the Contractor any costs or expenses reasonably and properly incurred in making that reference less any costs awarded to the Contractor by the Tribunal.

(5) (b) The Employer shall without prejudice to their rights under any Clause hereof be entitled to recover from the Contractor:

(i) any tax payment made to the Contractor of a sum, which is in excess of the sum (if any), which in all the circumstances was due in sub-clause (4) of this Clause.

(ii) in respect of any sum of money deposited by the Contractor pursuant to sub-clause (5)(a)(iii) of this Clause a sum equal to the amount repaid under Section 84(8) of the Act together with any interest thereon which may have been determined thereunder.

(6) If after the date for the return of tenders any supply of goods or services which are to be provided to the Employer by the Contractor in accordance with the Contract shall as a result of an order made by the Treasury under Section 31(2) of the Act become an exempt supply then there shall be paid to the Contractor any amount of account of tax in respect of those goods and services comprised in that supply which the Contractor has had to pay and which he has due to that exemption been unable to recover from the said Commissioners. Provided always that before such amount is included in any contract the Employer requires to satisfy themselves as to the Contractor's entitlement under this sub-clause.

### 1:24 GENERAL MATTERS

1:24:1 In the interest of safety it will not be permissible for site staff to play radios, cassette recorders or other similar devices irrespective of whether or not these items are audible to others or are of the headphone type.

1:24:2 All site staff are to wear regularly cleaned close fitting overalls bearing the company's full trading name and it is expected that at all times staff will be required to conduct themselves in an orderly and well-mannered fashion.

1:24:3 Unless with the agreement of the Engineer, under no circumstances must the Contractor take instruction from other contractors under separate terms of employment. Only the Employer or Engineer is empowered to give direct instruction outside of the Contractor's supervisory and management staff.

1:24:4 Access for personnel and materials shall be discussed and agreed with the Employer and Engineer prior to commencement of work on site. Normally these shall be restricted to the immediate vicinity of the lift shaft and machine room/space although where special access is needed, this shall be approved by the Employer or his representative on site and any abuse of this requirement may result in the person being prohibited from the site and any resulting extra costs being charged to the Contractor.

**SECTION 1**

# CONDITIONS OF CONTRACT

## 1:25 PRINCIPAL CONTRACTOR

1:25:1 From commencement of appointment the Contractor will assume the role of Principal Contractor for the purposes of the Construction (Design & Management) Regulations 2015 (or any amendment or replacement thereof). He shall liaise at all times with the Principal Designer and provide information/advice as and when required.

1:25:2 From commencement of work the Construction Phase Plan will become the responsibility of the contractor, who will be passed the file by the Principal Designer and who must then maintain and the Construction Phase Plan through to site completion of the Works.

1:25:3 The Principal Contractor will complete the appropriate method statements and risk assessments as called for within the pre-tender Pre-construction Information and as is appropriate to the scope of the Works envisaged and method for undertaking the Works.

1:25:4 At the conclusion of the Works, the Construction Phase Plan is to be developed into Health & Safety File and passed back to the Principal Designer fully completed with all appropriate records for onward transmission to the Employer, together with a copy of the Operating and Maintenance Manual.

## 1:26 PROGRAMME

1:26:1 The Contractor will, either as agreed or within one month of acceptance of his tender, produce for the Engineer's approval, a detailed programme for the whole works, indicating all essential key dates for the provision of information or data, procurement of materials and labour, approvals, site events and the like, and completion to enable regular monitoring of the progress of the works throughout the whole Contract period.

1:26:2 The Contractor shall satisfy the Engineer that materials which have been placed on order will be delivered in due time for the satisfactory execution of the works within the target programme as agreed with the Engineer.

1:26:3 Visits may be made to the Contractor's offices, workshops and suppliers by the Engineer to ensure that the manufacturing process is proceeding in accordance with the agreed programme.

1:26:4 The Contractor shall ensure that the dates of deliveries covered by orders placed with other manufacturers, suppliers or sub-contractors are confirmed at regular periods between the placing of the order and the date of delivery. Any variations to the dates of supply must immediately be given to the Engineer with revised sequencing of the project to fulfil the original agreed Completion date.

**SECTION 2**

# PRELIMINARIES

**The Contractor shall ensure that his tender sum covers for the provision of the following lift specific preliminaries in addition to the specified works, where these are necessary for the proper execution of the Contract.**

2:1:1 Safety, health and welfare of workpeople. It is a requirement of this Contract that the Contractor uses the appropriate numbers and skill level staff such that each operation is undertaken safely.

2:1:2 Holidays for workpeople.

2:1:3 Transport for workpeople.

2:1:4 First Aid facilities, to include on site First Aid trained personnel.

2:1:5 Site Welfare Facilities.

2:1:6 Keeping clean public and private roads, paths, drains and sewers where such works become necessary as a direct result of the lift contract works.

2:1:7 Demolition, excavation and the removal of all spoil to an authorised tip.

2:1:8 All gangways and passages shall be kept free of obstruction.

2:1:9 Floors shall be kept free of oil, water and any other spilled liquid, swarfs, wires, paints and tools.

2:1:10 All exits, entrances, stairways and ramps are to be kept clear.

2:1:11 No shavings or other inflammable waste shall be allowed to accumulate.

2:1:12 All working areas to be kept as tidy as possible and to be left tidy when work stops each day. All areas including the immediate places of work are to be left locked and secured during those times when the areas are unattended.

2:1:13 In the interest of safety it will not be permissible for site staff to play radios, cassette recorders or other similar devices irrespective of whether or not these items are audible to others or are of the headphone type.

2:1:14 Toilet, washing and messing facilities.

2:1:15 All site staff are to wear regularly cleaned close fitting overalls bearing the company's full trading name and it is expected that at all times staff will be required to conduct themselves in an orderly and well-mannered fashion.

2:1:16 When special permission is granted for gas burning/welding equipment, pressurised gas bottles must be stored external to the building and removed from the premises following the completion of each item of work. Where works extend beyond the close of the working day then all pressurised gas bottles, inert or otherwise, must be removed from the premises and immediate areas.

**SECTION 2**

## PRELIMINARIES

2:1:17 Any accident or dangerous occurrence must be reported in writing to the Lift Consultant and Employer. Where the incident is serious it must be reported to the Health & Safety Executive on the appropriate form. Any action to be taken must be immediate.

2:1:18 Safeguarding the works, material and plant against damage and theft.

2:1:19 Police regulations and Local Authority licences.

2:1:20 The particular requirements of the Electricity Supply Company within the area shall be identified and complied with having particular regard to power factor and power factor correction.

2:1:21 Wherever the works present a safety hazard, purpose-made hoardings using new materials must be provided and maintained throughout. Their construction is to be in accordance with the enclosed sketch. [**See Sketch Nº1**] and must include secondary entrance protection in the form of a barrier rail and kick board when landing doors are removed. These hoardings must be firmly secured to avoid unauthorised removal, and shall be repainted between each phase of works.

2:1:22 Hazard warning notices to be provided to all protective screens and hoardings in accordance with the drawings enclosed.

2:1:23 Protection to all floors, walls and ceilings in the vicinity of the works.

2:1:24 Protection to all architraves and entrances.

2:1:25 Fencing and security of any storage area provided by the Employer.

2:1:26 Weatherproofing where the works result in the building being temporarily exposed to the elements.

2:1:27 Prevention of the spread of dust.

2:1:28 Temporary protection of completed finishes including car interiors, doors, architraves, pushes and enclosures.

2:1:29 The Contractor shall cover up and protect the equipment and work from rough treatment, dust, grit, frost or injury from other causes.

2:1:30 Deliveries shall be made in the manufacturer's packing cases and when these are to be stored outside, then a secure waterproof covering shall also be provided.

2:1:31 All parts of plant which are liable to rust shall be covered for protection during the progress of the work. Upon completion this covering shall be removed and all parts restored. The completed installation shall be handed over perfectly clean with all finishes unimpaired.

2:1:32 Only properly certified coded welders shall be used, where welding is necessary and when permitted.

2:1:33 Only suitably qualified lift adjusters/testers shall be employed to test and witness test the lift installation.

**SECTION 2**

## PRELIMINARIES

2:1:34 Prior to painting all welds shall be cleaned and all traces of flux residue removed.

2:1:35 Plant, tools and vehicles, barriers and lifting facilities, whether temporary or permanent.

2:1:36 Site office facilities and communications equipment.

2:1:37 Craneage and associated Road Closure licenses

2:1:38 Certified scaffolding required for the successful and safe completion of the contract. Where scaffold free installation is to be undertaken the contractor should highlight this in his method statement accompanying his tender.

2:1:39 Final cleaning in preparation for hand-over.

2:1:40 Chasing apertures forming new and making good for landing pushes, indicators and other signals.

2:1:41 Where holes must be formed in existing machine room/space slabs, these must be referred to the contractors Structural Engineers for confirmation and acceptance.

2:1:42 Where any structural modification to the lift shaft, pit, machine room/space or wheelhouse is necessary or if there is any increase in the load bearing factor on the building structure a structural engineer's assessment and report must be provided.

2:1:43 Co-ordination and notification of the delivery of materials and receipt of equipment on site.

2:1:44 Lifting beams to be supplied and fitted (or supplied only for building-in on new construction sites) to suit all lifting requirements in the machine room/space and head of the lift shaft if appropriate.

2:1:45 All lifting beams are to be tested and marked with their safe working load using a purpose-made permanently fixed label, bearing the current certificate number.

2:1:46 Controllers are to be fully simulation tested prior to delivery to site and the Lift Consultant may elect to view these tests at the Contractor's Works.

2:1:47 All test weights, test tools, thermometers, instruments and personnel required for testing and equipment examination are to be provided. All test instruments are to be marked with the current and next due calibration dates.

2:1:48 Provide sufficient inserts in due time to be built into the lift shaft structure by others in locations determined on the general arrangement drawings. If other forms of fixings are proposed they shall be the lift contractor' responsibility.

2:1:49 Where the method of guide or other fixing is not into inserts the Contractor will be responsible for all fixings and the forming of suitable holes or pockets and the provision of any special bolts, clips etc., together with any supporting or secondary steelwork that may be necessary.

2:1:50 All supplementary steelwork and fixings are to be provided by the Contractor.

**SECTION 2**

## PRELIMINARIES

2:1:51 All works shall be performed by fully qualified trades person.

2:1:52 Temporary power and task lighting together with an adequate supply of replacement lamps.

2:1:53 Where work is being undertaken to multiple Lift installations with a common set of landing pushes, allowance shall be made for providing temporary pushes in the event that the final pushes cannot be fitted without disruption to the Lifts remaining in service. Any disconnection and/or reconnection necessary shall be carried out outside normal working hours to ensure the minimum of inconvenience to the Employer.

2:1:54 Arrangements for transporting to the site the equipment and plant required for the execution of the work. All items of equipment and material shall be off-loaded, hoisted, distributed, positioned and handled on site by the Contractor. The Contractor will be required to manufacture and deliver the materials at such time as may be necessary to achieve the agreed programme.

2:1:55 Full site meetings will be held at regular intervals during the currency of the on-site works. The Contractor will be required to have representatives in regular attendance at these meetings. The representative shall be totally familiar with the particular contract and shall be authorised to make decisions on behalf of the Contractor. If it is warranted then additional site meetings may be called on the same basis.

2:1:56 The Lift Consultant may require the attendance of sub-contractor's representatives at certain of the site meetings.

2:1:57 If an adequate area within the premises is not available for the storage of removed and redundant equipment on a consolidated basis, then the Contractor must allow for piecemeal removal of equipment. Proper protection of areas allocated for storage must be provided for any material stored on site prior to its removal.

2:1:58 The Contractor is to allow in his tender for the cost of overtime working which is to avoid excessive disruption or inconvenience and to meet the agreed programme. Disruption or inconvenience is, for example: spray cellulosing in occupied premises or the disconnection/ interconnection of multiple Lift installations or noisy and disruptive works.

2:1:59 The Employer will provide free of charge a 240 volt electrical power supply for use by the Contractor of small power tools, temporary lights and power. The Contractor will be responsible for providing all necessary 110V transformers, leads, plugs, &c, from this supply and ensure that these shall be kept in a safe condition.

2:1:60 Where the presence of asbestos has been highlighted, removal or treatment shall be carried out in accordance with Guidance Notes issued by the Health & Safety at Work Executive available at HMSOs. It shall be carried out by qualified specialists who shall furnish certification of proper disposal.

2:1:61 Lubricant and hydraulic fluid must be removed and disposed of by a licensed waste disposal contractor.

**SECTION 2**

## PRELIMINARIES

2:1:62 The Lift Contractor shall be responsible for the removal of the redundant lift equipment and shall ensure that such works are carried out in a careful and workmanlike manner to avoid damage or nuisance to the occupiers and/or users of the building or adjacent property.

2:1:63 Equipment shall be degreased and drained of any lubricant before removal from the machine room/space.

2:1:64 Removed or redundant equipment will not be allowed to build-up on site and must be removed regularly by the Contractor. Adequate protection must be supplied to protect any area allocated for redundant material consolidation on site, or where the transport of waste through the site may cause damage.

2:1:65 Adequate protection to existing finishes will be provided by the Contractor at all times and any damage made good at the conclusion of the contract by the Contractor, or by the appropriate specialist at the cost of the Contractor.

2:1:66 A minimum of two experienced lift engineers must be employed at all times on site.

2:1:67 Adequate allowance shall be made for off-site storage of all materials unless otherwise stated.

2:1:68 The contractor will be required to provide a Construction Phase Health & Safety Plan which is to include site specific Risk Assessment and Method Statements (RAMS) as required for the works being carried out as part of the contract.

**SECTION 3**

## SUBMITTALS

The following shall be provided by the Contractor in the quantities and at the time indicated in the schedules unless otherwise advised by the Engineer.

**Drawings for Review:** To be provided no later than 6-weeks after instruction to proceed has been given.

| | Type of Drawing | Number of Copies |
|---|---|---|
| 1 | Machine Room/Space General Arrangement | 2 |
| 2 | Shaft & Pit General Arrangement | 2 |

**Drawings for Distribution:** To be submitted 2-weeks after final comment and revisions:

| | Type of Drawing | Number of Copies |
|---|---|---|
| 1 | Machine Room/Space General Arrangement | 2 |
| 2 | Shaft & Pit General Arrangement | 2 |

**Owner Manual(s):** A draft copy shall be submitted to the engineer for comment and approval at least 2 weeks before the date of Practical Completion with the final document being submitted on Completion.

The Manual(s) shall be in the form of A4 sized hard-backed ring binders with a copy provided in electronic format on recordable media in duplicate. The Owner Manual(s) shall contain, as a minimum, the following information:

The complete maintained on site Construction Phase Plan developed into a Health & Safety File.
Full Drawing Issue
"As Installed" Wiring Diagrams
Test Certificates in accordance with BS5655 Part 10 2.1:1995 / PAS 32-2:1999 /
BS8486-3:2017 (New Lifts)
Stainless Steel Grade Specification Certificate
Rope Test Certificates
Component Type Test Certificates
CE Certificate of Conformity (where applicable)
Electrical Installation Test Certificates (where applicable)
Structural Engineers Report (where applicable)
Landing Entrance Fire Test Certificate (where applicable)
Maintenance Instructions
Lubrication Chart
Handwinding Instructions
Operating Instructions

**SECTION 3**

# SUBMITTALS

Component Description and Part Number List
Diagnostic Check Chart
Full description of Control System
Specialist Finish Cleaning Schedule

Manuals, "As Installed" drawings and operating instructions may also be required in electronic format. You should indicate the extra cost for current AutoCAD system compatibility.

**Sub-Contractors:**

Tenderer's are to state the proposed sub-contractors to be used for the following work at the time of the tender in addition to the technical and constructional details of equipment requested:

1. Builders Work
2. Electrical Work
3. Lift Engineers (where sub-contracted)
4. Specialist Finishes
5. Steel Fabrication and Enclosure work
6. Access and Guarding
7. Layout Draughtsman

Please see the approved list of sub-contractors and specialists at the rear of the Specification.

Where the Contractor proposes the use of named specialists, sub-contractors or suppliers at the time of tender, these may not be varied without the written approval of the Engineer.

Maison Dieu House
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Dover
Kent
CT16 1DW

Project N° C12714

# SCHEDULE Nº1: GENERAL REQUIREMENTS

| Details | Lift No.1 | |
|---|---|---|
| Type of Lift | Passenger | |
| Carrying Capacity | 6 Person / 450Kg | |
| Operating Speed | 0.4 m/s | |
| Direct or Indirect Acting | Direct | |
| Number of Rams | 1 | |
| Chain or Roped [if Indirect] | | |
| Control System | Collective | |
| Floors Served | 2 | |
| Floor Designation | G & 1 | |
| Machine Room Location | Ground | |
| Car Entrance Type | Power Operated | |
| Landing Entrance Type | Side Opening 3 Speed | |
| **DIMENSIONS (Approx. only)**<br>Lift Shaft | Width<br>Depth | 1300mm<br>1700mm |
| Lift Car | Width<br>Depth<br>Height | 860mm<br>1400mm<br>2200mm |
| Entrance | Width<br>Height | 800mm<br>2000mm |
| Machine Room | Width<br>Depth | Existing<br>Existing |
| Total Travel | 3.1 metres | |
| Pit Depth | 1500mm | |
| Headroom | 2900mm to beam, 3500mm. | |
| **SPECIAL REQUIREMENTS** | | |
| Fire Fighting Lift to BS EN 81 - 72 | | |
| Fire Fighting Control Only to BS8899:2016 | | |
| Standby Generator Interface | | |
| BMS Interface | | |
| Fire Recall | Yes | |
| Fire Evacuation | | |
| Eco-Mode Control System | Yes | |
| Regenerative Drive System | | |

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## SCHEDULE Nº2: LANDING FIXTURES AND FINISHES

| Detail | Lift No.1 |
|---|---|
| **Landing Door Finish** Ground | RAL 5001 Green Blue |
| Others | RAL 5001 Green Blue |
| **Architrave Finish** Ground | RAL 5001 Green Blue |
| Others | RAL 5001 Green Blue |
| **Sill Type** | Aluminium |
| **Pushplate Finish** Ground | Satin Stainless Steel |
| Others | Satin Stainless Steel |
| **Other Faceplates** Ground | |
| Others | |
| **Pushbutton Type** | Dewhurst US 91 –EN White LED |
| **Number of Risers** | 1 |
| **Landing Indicators** Ground | White LCD |
| Others | White LCD |

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## SCHEDULE Nº3: LIFT CAR FIXTURES AND FINISHES

| Details | Lift No.1 |
|---|---|
| Car Door Finish | RAL 9001 Cream |
| Car Sill Finish | Aluminium |
| Front Return and Overgate Panel Finish | Existing cleaned. |
| Position Indicator Type | White LCD |
| Separate Faceplate | N/A |
| Pushbutton Type | Dewhurst US 91 –EN White LED |
| Number of Car Stations | 1 |
| Faceplate Finish | Satin stainless steel. |
| Side Wall Finish | Existing cleaned. |
| Rear Wall Finish | Existing cleaned. |
| Skirting | Existing cleaned. |
| Ventilation | 12 volt backed up fan. |
| Flooring | Altro non-slip. |

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## SCHEDULE Nº3: LIFT CAR FIXTURES AND FINISHES

| Details | | Lift No.1 |
|---|---|---|
| Ceiling | | White pressed metal. |
| Lighting | | LED Isolux down lighters. |
| Handrail | Type | Tubular |
| | Finish | Satin stainless steel. |
| | Walls | One side wall. |
| Drapes and Studs | | Yes |
| Telephone Unit-Emergency Communication System | | Windcrest retained with new visual indication in COP. |
| Fan Unit | | 12 Volt back up. |
| Lift Car Weight Allowance (where finishes not specified) | | N/A |

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**SCHEDULE 4**

## OUTLINE SCOPE OF WORKS

**The following list will indicate generally the project outline. The tenderer must refer to the relevant sections within the main body of the Specification for full details of requirements.**

| **KEY: R = Retain; R/O = Retain & Overhaul; N = New; * = Contractor's Option to Renew** | |
|---|---|
| **Equipment** | **Lift No.1** |
| Control Panel | |
| Control Panel (Eco-Mode) | N |
| Pump & Hydraulic Tank | N |
| Valve Assembly | N |
| Cylinder & Ram | R |
| Hosing | N |
| Position Reference Device | N |
| Car Overspeed Governor | |
| Car Guides | R |
| Counterweight Guides | |
| Car Sling | R |
| Car Guide Shoes | N |
| Car Safety Gear | R |
| Car Platform | R |
| Car Sill | N |
| Car (Base) | R |
| Car Interior | R |
| Car Operating Panel(s) | N |
| Car Door Operator (Front) | N |
| Car Door Operator (Rear) | |
| Car Door Tracks | N |
| Car Door Hanger Rollers | N |
| Car Door Bottom Shoes | N |
| Car Door Lock | N |
| Car Door Panels | N |

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**SCHEDULE 4**

## OUTLINE SCOPE OF WORKS

| **KEY: R = Retain; R/O = Retain & Overhaul; N = New; * = Contractor's Option to Renew** | |
|---|---|
| **Equipment** | **Lift No.1** |
| Car Door Detectors | N |
| Car Toe Guard | N |
| Car Top Control | R |
| Pit Control | |
| Divertor Pulleys | |
| Top Pulley Wheels | |
| Counterweight | |
| Counterweight Overspeed Governor | |
| Counterweight Guide Shoes | |
| Counterweight Safety Gear | |
| Landing Door Top Tracks | N |
| Landing Door Hangers | N |
| Landing Door Rollers | N |
| Landing Door Locks | N |
| Landing Door Panels | N |
| Landing Door Bottom Shoes | N |
| Landing Door Sills | N |
| Landing Door Closers | N |
| Landing Door Cording Systems | N |
| Shaft Fascia Panels / Toe Guards | N |
| Car Buffers | N |
| Counterweight Buffers | |
| Protection Against Involuntary Movement from Landing with Doors Open | N |
| Automatic Battery Recovery System | |
| Reduced Headroom and Pit Protection | |
| Pit Mechanical Device | |

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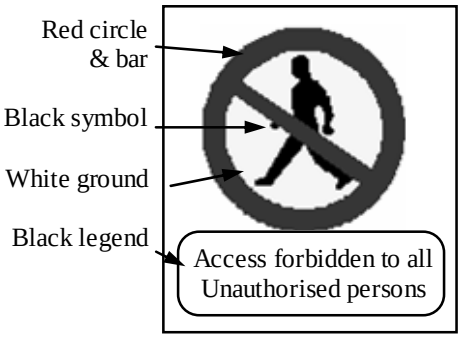
**SCHEDULE 4**

## OUTLINE SCOPE OF WORKS

| **KEY: R = Retain; R/O = Retain & Overhaul; N = New; * = Contractor's Option to Renew** | |
|---|---|
| **Equipment** | **Lift No.1** |
| Suspension Ropes/Chains | |
| Governor Rope | |
| Travelling Cables | N |
| Wiring | N |
| Car Position Indicator | N |
| Hall Position Indicator | N |
| Hall Lanterns | N |
| Landing Push Buttons | N |
| Architraves/Transoms | N |
| Shaft Lighting | N |
| Guarding | N |
| Painting | N |
| 3-PH Supply | R |
| 1-PH Supply | R |
| Remote Monitoring | |
| Building Management System | |
| Associated Specific Works | N |

**Notice No.1**

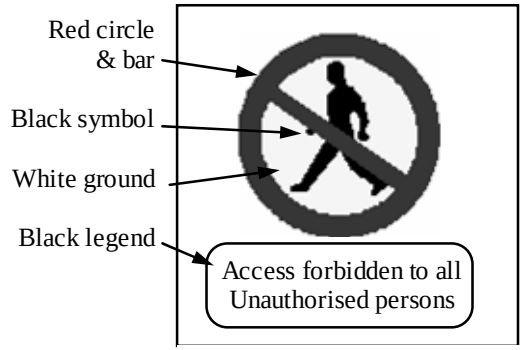



**Notice No.2**

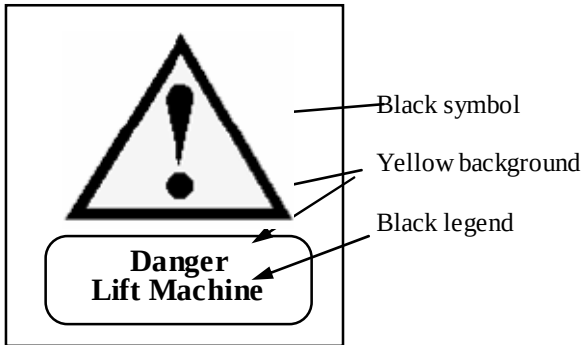

**Notice No.3**


Typical examples of safety signs and warning notices on outsude of Escalator entry

**Notice No.4**

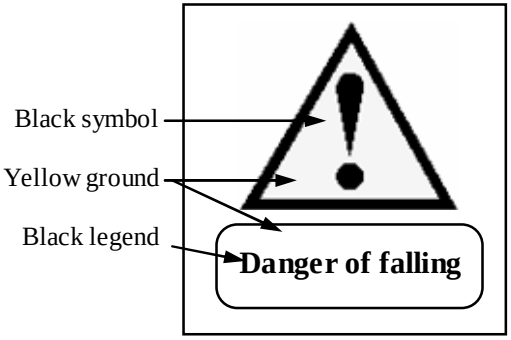



**Notice No.5**

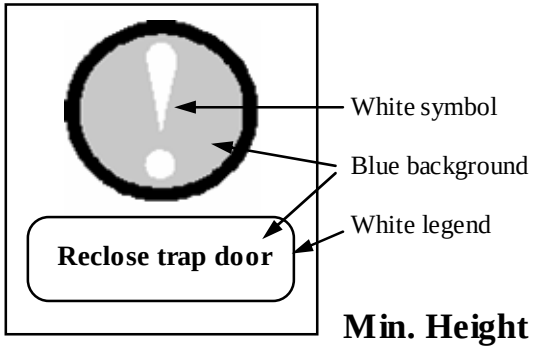



Typical examples of safety signs and warning notices on outside of machine

**Notice No.6**



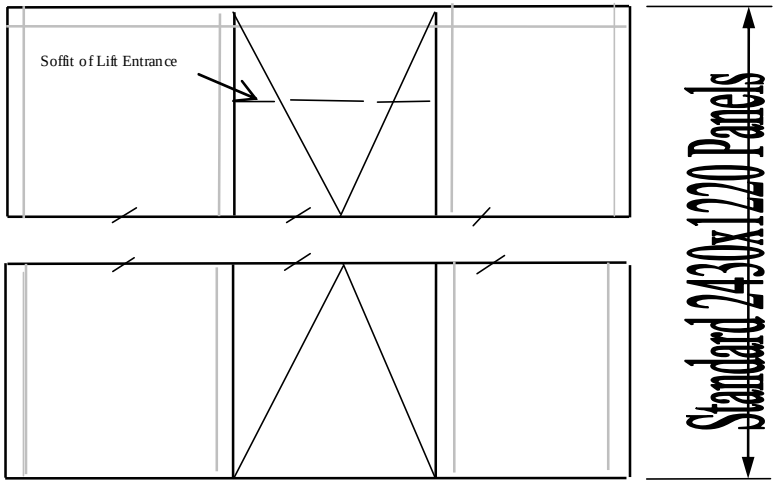

**Notice No.7**



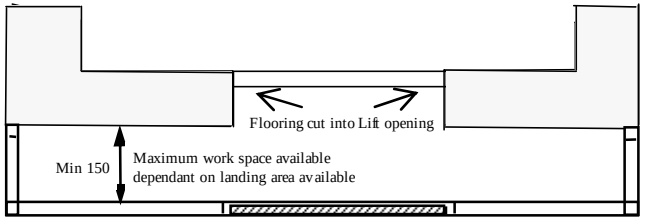

**Min. Height of all Symbols 120 mm**

Typical examples of safety signs and warning notices associated with trap doors.

**TYPICAL DETAIL OF LANDING HOARDINGS**




ELEVATION



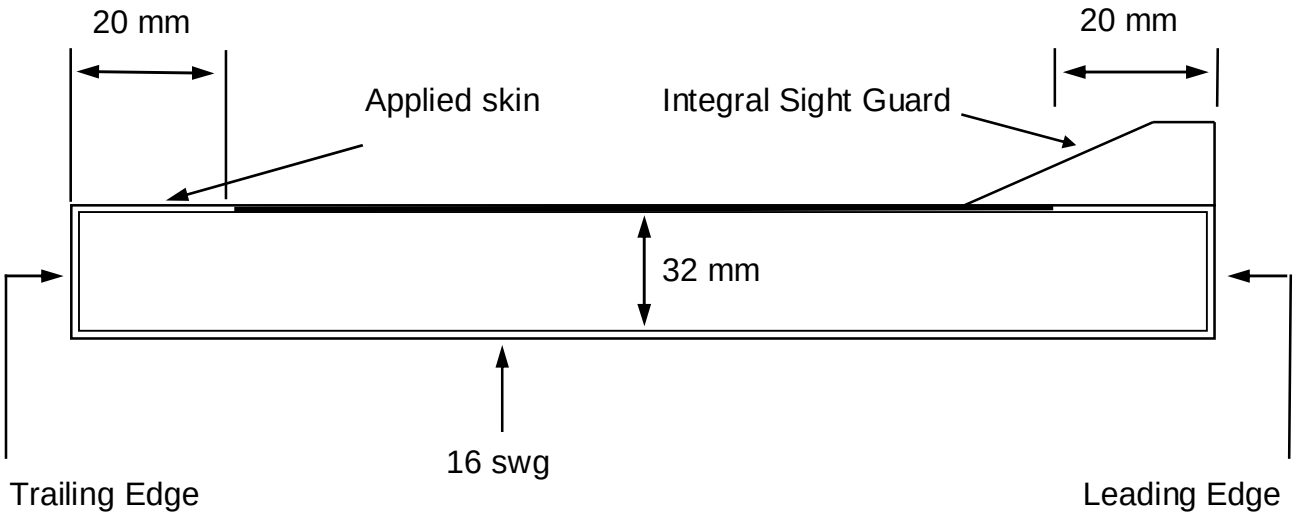

PLAN

Hoarding constructed from 50x50 framing with cladding, flooring and roof from adequate thickness plywood, 6mm min..
Outside to be free from dangerous projections.

1. Hinged doors to be self closing and fitted with Danger Notice, bolted on the inside and fitted with a Yale type latch on outside with common key for all locks.

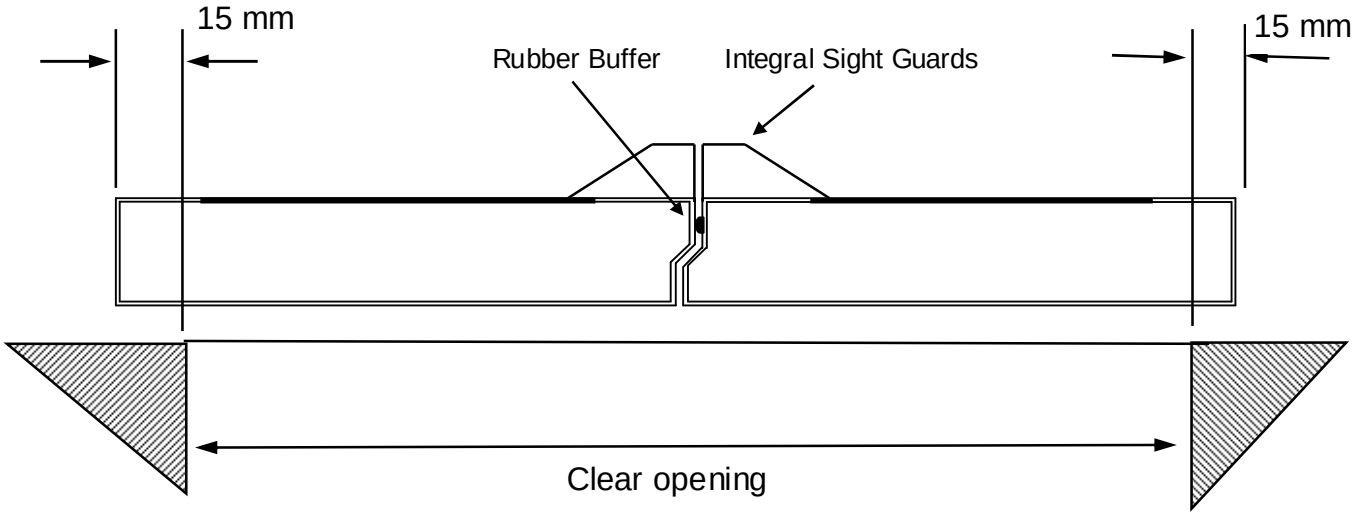
2. Hoardings to be painted white emulsion and repainted where dismantled and reused.

**SK No.1**




**TYPICAL PAN CONSTRUCTED DOOR**

---




**CENTRE OPENING DOORS**

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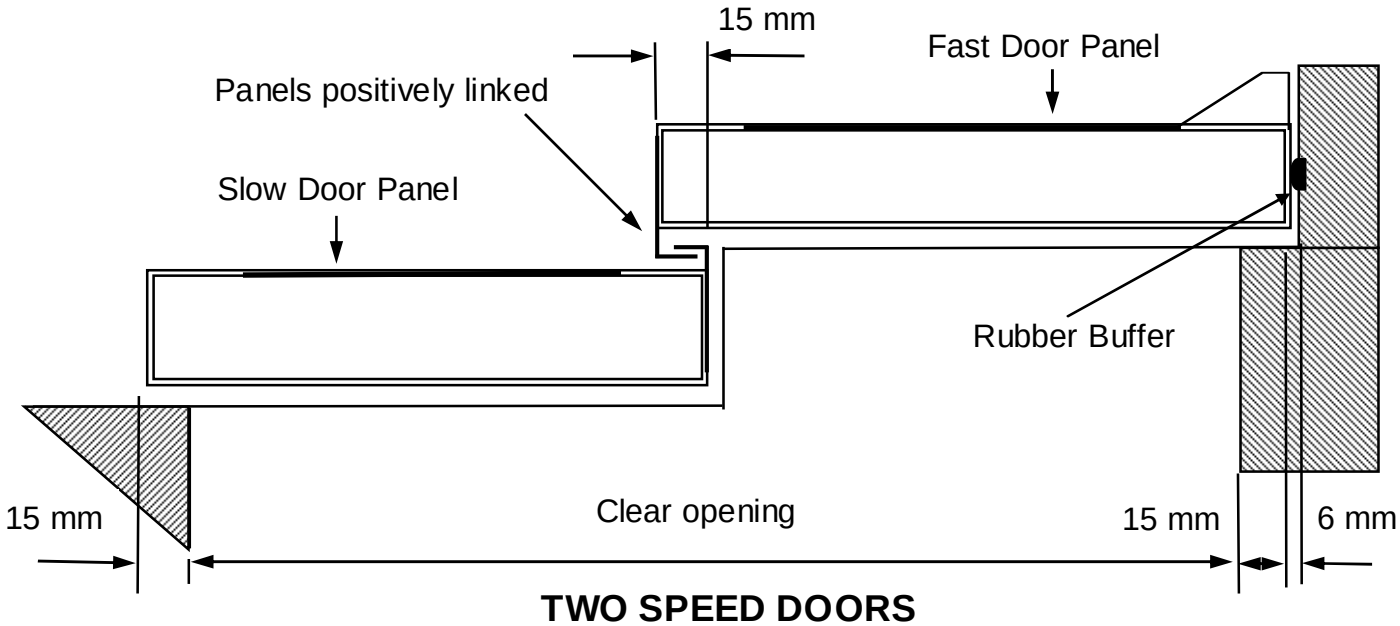
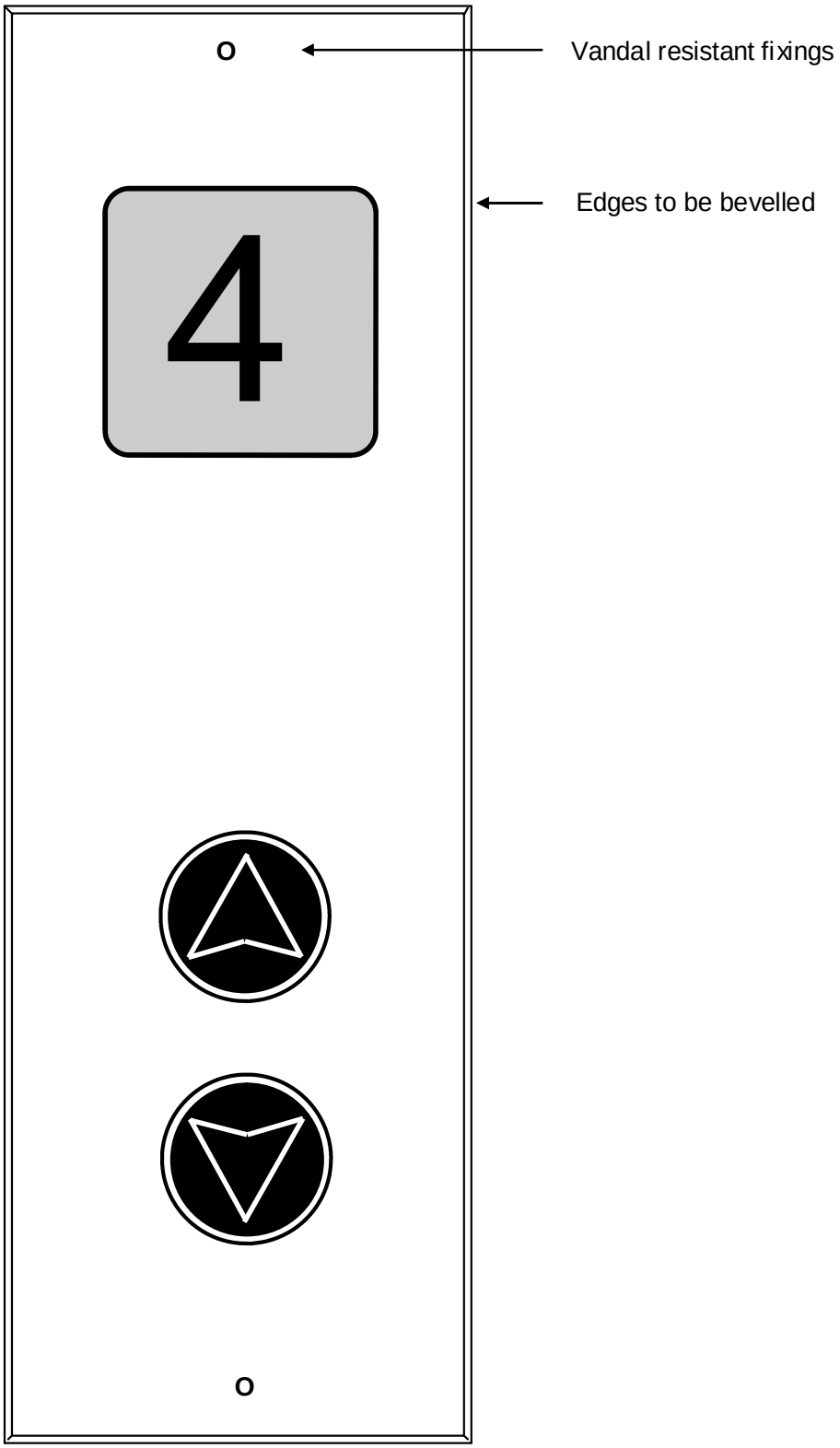



**TWO SPEED DOORS**

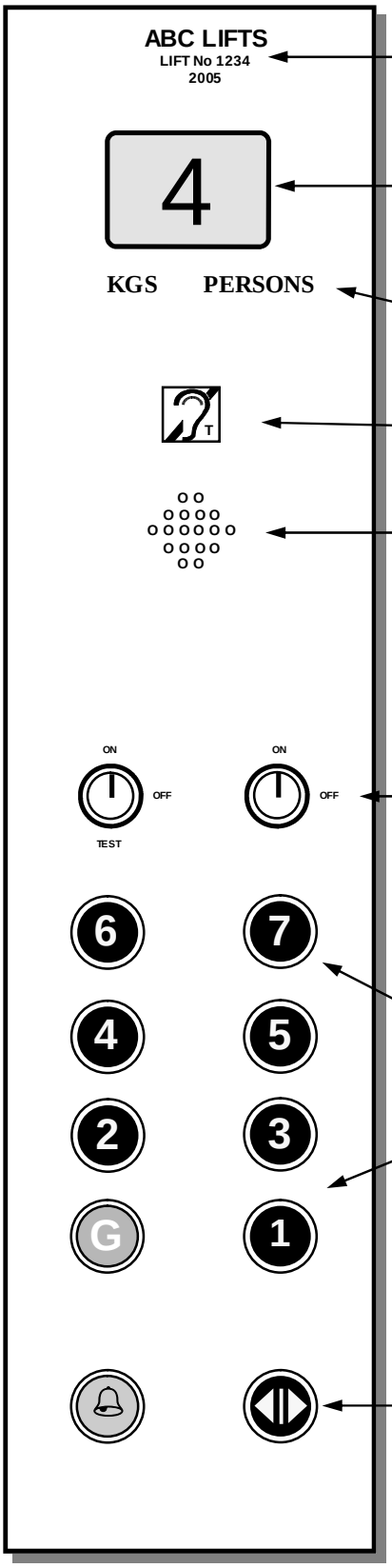
**SK No. 2**

# TYPICAL LANDING PUSH DETAIL WITH INTEGRAL INDICATOR




**SK No. 3i**

# CAR OPERATING PANEL [Diagrammatic only]




Lift Contractors name, lift identification no., year of installation and CE marking where applicable

Dot Matrix Position Indicator[Character height to be a minimum50mm], incorporating ”Lift Overloaded”,“Lift Returning to Ground Floor on Fire Service” advisory scrolling notices.

Load details engraved in kgs & persons [minimum height 15mm]

Inductive Loop Symbol

Emergency Communication System activated by the Alarm Button. Visual indication of alarm having been registered. Space behind to accommodate a speaker.

Key operated Light Switch with Emergency Light Test Facility.

Key operated Car Preference Switch

Micro - Movement, illuminating Raised Tactile push buttons, with both visual and audible call registration indication.

Main exit floor to be green and raised 5mm from faceplate.

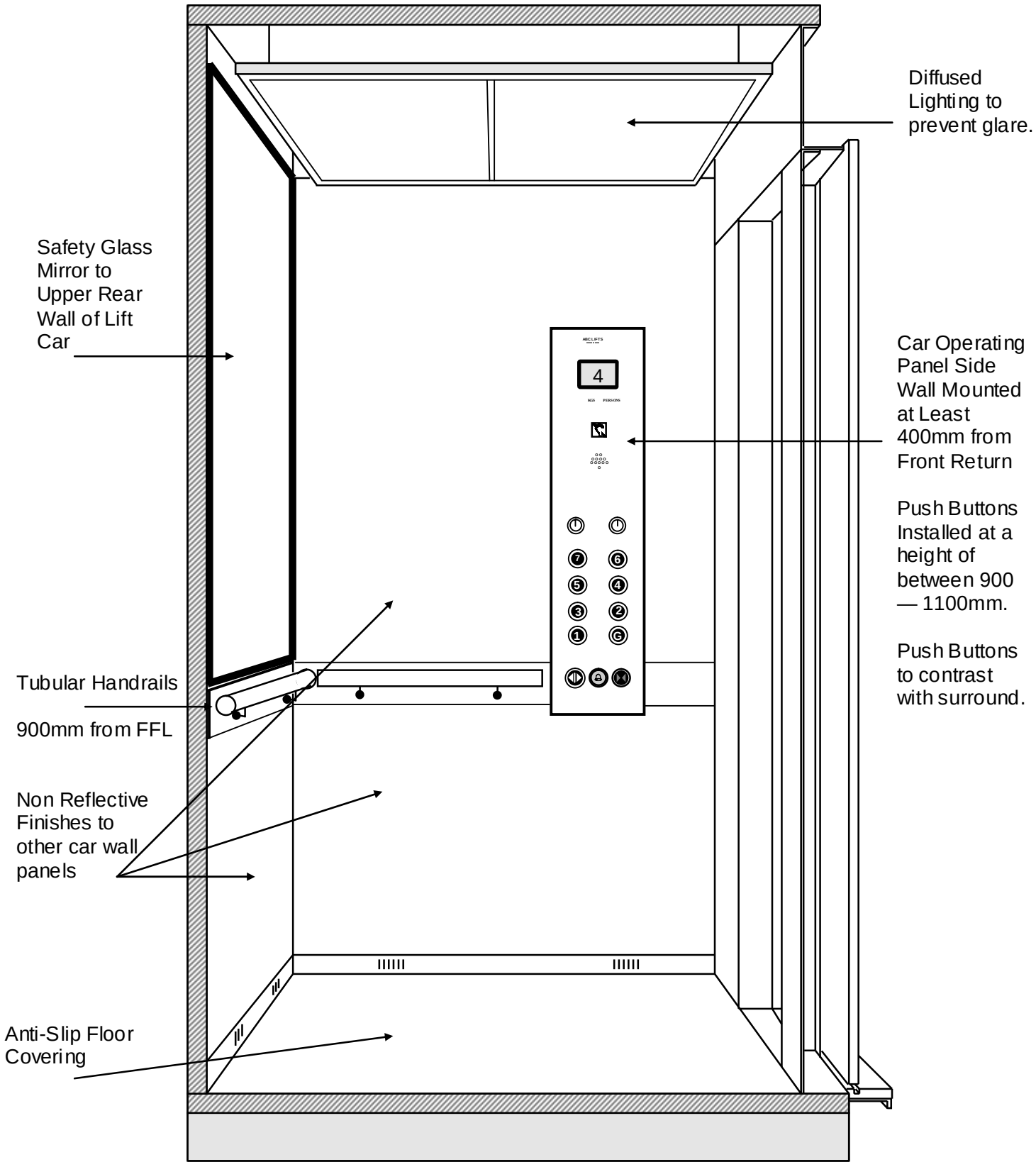
Door Open Push [ illuminating during door close cycle ]

Alarm Push, yellow [ illuminating during Mains Power failure]

**FINAL DESIGN AND LAYOUT TO BE APPROVED BY THE ENGINEER**

**SK No. 5**

# STANDARD DDA COMPLIANT
# LIFT CAR PERSPECTIVE




**Sk No.8**

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**SECTION 4**

# SPECIFICATION

## 4:1 STANDARDS & REGULATIONS

The installation shall as a minimum conform to the following current Codes & Standards where applicable together with any amendments or updates issued:

The references below shall not be considered to be fully exhaustive, and any other applicable Standards & Regulations shall be included where the contractor considers them appropriate.

1. Asbestos removal or protection must be carried out in accordance with current Asbestos Removal Regulations.
2. British Codes & Standards, including the following series: 2655, 5655; 5656; 8899; 9999.
3. European Codes & Standards EN81 series.
4. BS 7255:2012. Code of practice for safe working on lifts.
5. BS 7671:2008 + A3:2015 Requirements for electrical installations, IET Wiring Regulations current edition.
6. BS 8300:2018 Design of an accessible and inclusive built environment. Buildings – Code of practice.
7. BS 8486-3:2017. Examination and test of new lifts before putting into service. Specification for means of determining compliance with BS EN 81-20. Electric / Hydraulic lifts.
8. BS EN12015: 2014 – Electro-Magnetic compatibility. Product family standard for lifts, escalators and moving walkways. Emission.
9. BS EN12016:2013– Electro-Magnetic compatibility. Product family standard for lifts, escalators and moving walkways. Immunity.
10. BS EN12385-5: 2002 - Steel wire ropes. Safety. Stranded ropes for lifts.
11. BS EN13015:2001 + A1:2008 – Maintenance for lifts and escalators. Rules for maintenance instructions.
12. BS EN13411-6:2004 + A1:2008 – Terminations for steel wire ropes. Safety Asymmetrical wedge sockets.
13. BS EN13411-7:2004 + A1:2008 – Terminations for steel wire ropes. Safety Symmetrical wedge sockets.
14. EN ISO 13857:2008 Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.
15. BS ISO 14798:2013. Lifts (elevators), escalators and moving walks. Risk assessment and reduction methodology.
16. BS ISO 18738-1:2012. Measurement of ride quality. Lifts.
17. BS EN50214:2006 – Flat polyvinyl chloride sheathed flexible cables.
18. BS EN60204-1:2006 + A1:2009 – Safety of machinery. Electrical equipment of machines. General requirements.
19. BS EN61000 series (including 3.2, 4.3, 4.4 and 6.3) – Electro magnetic compatibility (EMC). Limits.
20. BS EN 61111:2009. Live working. Electrical insulating matting.

**SECTION 4**

## SPECIFICATION

21. Building Regulations (including Part M & P).
22. COSHH Regulations 2002.
23. Fire Authority requirements.
24. Fire Regulatory Reforms (Fire Safety) Order 2005.
25. SAFed LG1 Guidelines on the supplementary tests of in service lifts 2009.
26. SAFed LR1 Recommendations – Safe working on lifts – Car top controls and Pit Access 2016.
27. Health and Safety at Work Act 1974.
28. Management of Health & Safety at Work Regulation 1999, plus amendment 2006.
29. Manual Handling Operations Regulations 1992 plus amendment 2002.
30. Personal Protective Equipment Regulations 2002.
31. Provision and Use of Work Equipment Regulations 1998.
32. The Electricity at Work Regulations 1989.
33. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).
34. Requirements of the Health & Safety Executive.
35. Scaffolding (Working at Height Regulation 2005).
36. Supply of Machinery (Safety) Regulations 2008, and amendments 2011.
37. Site Waste Management Plans Regulations 2008.
38. The Construction (Design & Management) Regulations 2015.
39. The Electric Equipment (Safety) Regulations 2016.
40. The Equality Act 2010 including (Specific Duties and Public Authorities) Regulation 2017.
41. The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).
42. The Lift Directive 2014/33/EU.
43. The Working at Height Regulations 2005, plus Amendment 2007.
44. Work Place Health Safety and Welfare Regulations 1992, including L24 (second addition).
45. Local Democracy, Economic Developments and Construction Act 2009.
46. Control of Noise at work 2005.
47. Control of Vibration at work 2005.
48. Local by-laws and any other statutory requirements.
49. ISO 3008-2:2014 ED1. Fire-resistance tests. Lift landing door assemblies.
50. DD CEN/TS 81-76:2011 - Safety rules for the construction and installation of lifts. Particular applications for passengers and goods passenger lifts. Evacuation of disabled persons using lifts.

**SECTION 4**

# SPECIFICATION

51. DD CEN/TS 81-83:2009. - Safety rules for the construction and installation of lifts. Existing lifts. Rules for the improvement of the resistance against vandalism.

## 4:2 GENERAL PERFORMANCE REQUIREMENTS

The Trade Contractor may choose to offer either Start Delta, Direct on line or Variable voltage / Frequency motor control to achieve the high level of ride characteristics required. By design of the load bearing elements, safe normal operation of the lift is assured for loads ranging from 0% to 100% of rate load, plus any designed overload capacity (110%).

The lift contractor shall provide clear guidance as to the requirements of ventilation within the machine room/space and/or lift shaft to maintain the required ambient temperature control to facilitate the continued operation of the lift to achieve the following performance requirements.

The following levels of ride comfort and performance are to be achieved by the completed installation and they will be verified to the satisfaction of the Lift Consultant at the conclusion of the Contract, in accordance with BS ISO 18738-1 Measurement of Ride Quality – Lift.

Performance and Ride Comfort characteristics are to be entered in to the TECHNICAL & CONSTRUCTIONAL DETAILS OF EQUIPMENT and any special installation or design requirements are to be indicated in the covering letter accompanying your Tender.

The characteristics to be achieved are to be broken down into the following areas:

1. NOISE LEVEL IN THE LIFT CAR
2. VERTICAL VIBRATION IN THE LIFT CAR
3. LATERAL VIBRATION IN THE LIFT CAR
4. JERK RATE
5. GUARANTEED VELOCITY ACHIEVEMENT

All test equipment will be able to record instantaneous readings and will have fast response recording.

**LIFT VIBRATION**

Vibration measurements should be made at the centre of the car, on the floor, in three mutually agreed perpendicular axes corresponding to vertical, front-to-back and side to side. Measurements should be made of acceleration levels in each direction over two complete cycles, one from the bottom of the building to the top, and one from the top of the building to the bottom.

The measurement method is critical to the repeatability of results. It is, therefore, preferable to use real time vibration analyser covering all frequency bands, as opposed to taking individual frequency band measurements over repeated lift runs.

A cycle as defined as the period from just before the door starts to close at one level, to just after the doors open at the final level.

**SECTION 4**

# SPECIFICATION

Acceleration levels should be measured as rms. values using a time constant of 0.125 seconds ("fast"), and the maximum values recorded in each 1/3 octave band from 1Hz inclusive over each complete cycle.

The following limits will apply:

**HORIZONTAL VIBRATION**

1 – 80 Hz inclusive:- The maximum rms. acceleration level should not exceed 0.08 $m/s^2$.

The above limits apply to any time during a complete cycle, in any 1/3 octave band in the range specified.

**VERTICAL VIBRATION**.

At maximum speed:- The maximum rms. acceleration level in any 1/3 octave band should not exceed 1.80 $m/s^2$ in the frequency range 1-80 Hz.

During acceleration/deceleration and start/stop periods: The maximum rms. acceleration in any 1/3 octave band should not exceed 0.1 $m/s^2$ in the frequency range 1-80 Hz.

The above limits apply to lifts with a speed up to 1 m/s.

**ACCELERATION/DECELERATION**

Acceleration/deceleration rates of the car should not exceed 1.4 $m/s^2$ at any time during a complete cycle, and should preferably be below 1.2 $m/s^2$.

**LIFT NOISE**

In-Car Noise Levels.

Door noise, when measured at 1.5m from the floor and 1m from the door face, should not exceed LAMAX: 65dB when measured with a precision grade sound level meter or real time analyser set to "fast" meter response.

Noise levels in the car at the maximum car velocity in the cycle should not exceed the following when measured as above:

| Lift Speed | Maximum Level |
|---|---|
| 0.5 – 2.0 m/s | LAMAX: 55dB(A) |

**LIFT LOBBIES**

Lift noise, when measured at 1.5m from the floor and 1m from the door face, should not exceed LAMAX: 55dB when measured with a precision grade sound level meter or real time analyser set to "fast" meter response.

**SECTION 4**

# SPECIFICATION

## LIFT SHAFT NOISE

The noise from the lift activities entering each landing space when measured at 1.5m from the floor and 1m from the door face with a precision grade sound level meter or real time analyser set to “fast” response, should generally not exceed 55 dB (A) at any time during the lift cycle. The maximum noise level in the lift shaft during a lift cycle should not exceed 50 dB (A) when measured with a precision grade sound level meter set to “fast” response.

## LIFT MACHIINE ROOM / SPACE

The trade contractor shall make the following information available with tender as follows:

1. Maximum and average (as an Leq) dB(A) levels over a complete cycle of lift operation.
2. Maximum levels in each of the eight octave bands centred at 63, 125, 250, 500, 1000, 2000, 4000 and 8000Hz.

The measurements shall be made with a precision grade sound level meter fitted with an octave band filter set or a real time analyser. This positions at which measurements are made should be noted on a drawing showing the principal noise-producing elements of the lift machinery. No measurements should be closer than 1m from any wall or floor surface. All measurements should be made using the “fast” meter response no values should exceed those of any surrounding area.

## VELOCITY CONTROL

The maximum Lift speed shall always be maintained between design speed and -5% of design speed under all load characteristics and acceleration and retardation patterns shall be pre-determined for all travel conditions. The system shall incorporate full direct floor approach with the brake being applied for holding only.

## 4:3 HYDRAULIC DRIVING MACHINE - NEW

The power unit shall consist of the pump, pump motor, main control valve assembly, oil tank, oil coolers and mufflers, &c, combined as a simple assembly installed with its own drip tray incorporating a tray depth of 100mm minimum.

The equipment is to be designed for 60 motor starts per hour, i.e. 120 starts per hour.

The oil tank to be of rigid steel welded or pressed seamless construction suitably treated both internally and externally to prevent corrosion. The exterior of the tank to be fitted with a notice indicating the type, operating pressure and quantity of oil used with the system. In addition, the data of the motor/pump unit to be duplicated and fixed as a separate notice to the outside of the tank assembly. The data plate shall give all motor details including the manufacturer, type and design of the pump.

The oil tank shall incorporate a close fitting top cover which shall be provided with a separate oil filler point that will have a screw cap fitted. Adequate ventilation to the tank must also be incorporated in the tank cover or filler cap design.

**SECTION 4**

## SPECIFICATION

The filling point shall be so arranged that dust and debris from the tank casing cannot enter the oil reservoir during the initial charging or replenishing of the system hydraulic oil.

The tank shall be fitted with an oil level indicator providing a visual check of the oil levels, and showing the maximum and minimum. Dipsticks or other mechanical means as sole methods of checking the oil levels will not be allowed.

A "low oil level" sensor is to be fitted in the oil reservoir which, when operated, will illuminate an indicator on the control panel. The indictor will illuminate to signify LOW OIL LEVEL.

Under these circumstances the Lift will return to the lowest terminal floor and park with its doors closed and remain out of service until the low oil level condition is corrected.

Means for draining the oil reservoir shall be provided and the drain point shall be fitted in a position to allow the draining of the entire contents of the tank from an accessible area. The "drain-off" shall be designed to prevent its operation without the use of a special tool.

The oil reservoir shall be of adequate depth to permit the settling of fluids and a full flow removable oil filter should be fitted.

The motor and pump may be mounted internal to the oil tank reservoir in a position whereby the unit is totally immersed in the system hydraulic oil.

The oil intake of the pump shall be protected with an open sieve type strainer.

The motor winding shall be protected with thermal sensors and the motor should have a continuously rated duty cycle. When the pump and motor equipment is not visible when in position the units should be fitted with data plates which give full details of the equipment design including the maker's name and reference numbers.

The motor and pump should run at all loads without any appreciable noise or hum.

The pump motor will be of the "super quiet" type.

A means of cooling the hydraulic oil shall be incorporated in the hydraulic system. The design and competence of the cooling system shall make all due allowance for the maximum operational usage of the lift and the environment in which the equipment operates. The cooler may take the form of a thermostatically controlled external pump, pipework and radiator if this is considered sufficient. This form of cooling shall only be provided where radiated heat can be easily dissipated from the machine room/space area, otherwise the radiator shall be remote or an extractor heat exchanger system shall be provided.

A thermostatically controlled and immersed heater is to be incorporated in the hydraulic system to prevent the operating temperature of the oil falling below its design parameters.

All external pipework connections to be provided with driptrays.

All pressure and volume controls shall be so constructed that they are not adjustable outside of the safe working range of the system design.

**SECTION 4**

# SPECIFICATION

A manually operated valve shall be installed in the system to allow the emergency lowering of the lift car. The external parts of the valve lowering assembly shall be painted in a significant shade of red and a separate notice indicating the use of the device shall be fitted immediately adjacent to the valve. This will be the only means of manual lowering. If the valve block is enclosed then the manual lowering valve is to be positioned externally on the tank is an easily visible and accessible location.

A positive check valve is to be installed that will hold the fully loaded Lift car in the event of the pump stopping or the pressure of the mains dropping below the normal minimum operating pressure.

A manual pump is to be provided for the manual raising of the Lift car.

A relief valve shall be positioned between the pump and check valve with a by-pass connection discharging directly into the oil reservoir.

The main control valves shall be solenoid operated and shall be designed to remain closed when the oil pressure is shut-off.

The hydraulic pipework to the main control valves on the valve block assembly shall incorporate manually operated gate valves that will require the use of special keys or other restricted issue tools to operate. The system shall also incorporate a non-return valve and pipework rupture valves.

All valves shall be electronically controlled and shall incorporate close loop feedback that continually monitors the actual flow rate within the control valve and adjusts it accordingly to ensure the lift contract speed and acceleration and retardation parameters are maintained.

All valves must be designed to fail safe in the event of a power failure. Adjustment to the valve assemblies must be able to be carried out without removing the component from the system.

The lift shall be fitted with an anti-creep device that will automatically limit any change in the level of the Lift caused by any leakage on the system.

The anti-creep device shall automatically limit the car movement within 50mm of the landing from any point within the interlock zone irrespective of the hoistway door or doors.

## 4:4 RAM AND CYLINDER – RETAIN & OVERHAUL

The following is the minimum level of work to be undertaken and included within the tender sum.

Any work found in addition to that specified below shall be identified and reported to the engineer, together with any additional cost.

It is expected that specialist inspection and repair work will be carried out by a specialist sub-contractor unless the contractors own employees have an equal level of competence and a written report shall be provided.

**SECTION 4**

# SPECIFICATION

The cylinder shall be cleaned and examined for any degradation of the cylinder walls. Supporting stools and brackets shall be inspected and the cylinder checked for correct alignment.

The piston shall be inspected along its entire length for pitting and scoring, where surface marks cannot be easily rectified on site the piston shall be removed and taken to a workshop where a full repair shall be undertaken.

New long life seals and wiper rings shall be installed at the cylinder head.

Surplus oils collecting in the drain collar of the ram cylinder shall be drained via small bore transparent flexible pipe leading to a separately enclosed oil collecting can that is rigidly fixed in-situ. The waste oil receptacle must be designed for convenient emptying.

Where a rupture valve has been provided, the valve shall be cleaned and checked for correct operation. Where a rupture valve is found to be faulty it shall be replaced with one of the same design and operation features as that existing.

Where a pulley wheel is mounted on the top of the ram head assembly, the pulley shall be retained but completely dismantled and all lubricants and greases removed.

Fixing bolts, washers and locknuts shall be renewed.

A new sealed for life bearing is to be fitted. All old bearings shall be retained until examined by the Engineer.

All retaining rings shall feature locking tabs or if bolt fixed these shall be drilled and wired to maintain adjustment.

Rope retainers are to be provided to the pulley wheel, which shall prevent the main hoisting ropes / chains leaving the pulley through rope / chain bounce or the application of the safety gear.

## 4:5 SUPPLY PIPEWORK - NEW

Flexible pipework shall connect the valve assembly to the main supply pipework to absorb normal movement and vibration of the power unit. Where the distance or bend radii is likely to exceed the manufacturers recommended tolerances, then pipework shall be run in drawn seamless tube.

Flexible pipe must neither be formed into bends or radiuses other than that possible by the inherent flexibility of the material, nor in smaller radiuses than those indicated in the manufacturer's specification.

Where the hydraulic pipework is routed from motor room to shaft it shall be securely fixed to the side wall with purpose-made brackets, fitted at no less than 900mm centres. The bracket fixing shall hold the pipework around the complete circumference and for at least half of the circumference the enclosing section of the pipework holder shall be removable to allow for the dismantling of the pipe with the body of the bracket in-situ. The bracket will be such that the pipe is secured approximately 30mm from the wall surface.

# SPECIFICATION

Where pipework is taken through any wall it shall pass through steel collars of twice the pipework diameter and the collars shall extend for the full wall thickness. Any solid pipework shall be painted prior to being installed and the collars are to be packed with Rockwool or similar wadding. Where flexible hose is taken through any fabric aperture adequate protection against abrading is to be provided at the entry/exit points to guard against possible chaffing of the hose.

Surplus oils collecting in the drain collar of the ram cylinder shall be drained via small bore transparent flexible pipe leading to a separately enclosed oil collecting can that is rigidly fixed in-situ. The waste oil receptacle must be designed for convenient emptying.

## 4:6 INSTALLATION WIRING

The contractor shall provide all new wiring from the fused mains disconnector for the lift installation unless otherwise specified.

Under no circumstances will it be permitted to run conduits or trunking above floor level in the motor room where this will constitute a tripping hazard.

When floor trunking is used it will lie flush with the floor level and incorporate chequer plate covers, which shall be removable for their entire length.

All cables shall be enclosed throughout their length in heavy gauge galvanised steel conduit or trunking. Any conduit finishes where disturbed shall be re-coated with galvafroid or similar.

No machine or control panel isolation shall be bridged by conduit or trunking systems.

Trailing cables are to be suspended without the use of junction boxes. They shall be suspended from a cable hanger incorporating clamps that will secure the cable without damage or undue pressure on the conductors or insulation.

The cable anchorage shall be installed at the top and approximately halfway position of travel. Beyond the halfway point additional intermediate clamps are to be fitted every 3 metres which shall be carried from the shaft wall or guides. Clamps must be in accordance with the manufacturer instructions.

Each trailing cable shall contain a minimum of 20% spare ways, together with 2 twisted screened pairs.

Trailing cables will be terminated direct to the controller, at one end and either within the car station panel or in a junction box on the car top at the other.

Under no circumstances will junction boxes in alternative locations be permitted.

Flexible metallic conduit shall be used only as approved by the Engineer in cases where it is necessary to provide for adjustment or to reduce the transmission of noise and vibration. Flexible conduit length to be a maximum of 450 mm. Where such approval is given the flexible conduit shall terminate in suitable couplings and shall positively grip the flexible conduit, and an additional earth continuity conductor shall be run outside the conduit between lengths.

**SECTION 4**

## SPECIFICATION

The conduit shall be screwed between lengths and into all boxes and fittings and where bends or sets are required they shall be made from the conduit.

Hexagonal male brass bushes shall be used to terminate new conduit in boxes where an adequate screwed spout outlet is not provided.

All cables and wiring shall be of the same manufacturer and only one make of cable shall be used on the entire installation. All new cables shall be multi-strand and the minimum area of any one conductor shall not be less than 1mm sq (except travelling cables).

All wiring and travelling cables shall be 600/1000 grade having low smoke and fume insulation (LSF).

It must not be possible for any travelling cable to foul any fittings or equipment in the lift shaft and a suitable screen shall be fitted up to the halfway point in the shaft constructed from a non-combustible material. The cable screen must be of maximum width for the area of the shaft occupied by the cable and if of weld mesh, must be of continuous length, having a grid size no greater than 13mm. Any form of flexible screen must be fitted with an adjustable tensioning device capable of having adjustment of at least 100mm.

All cables and travelling cables shall be subjected at the maker's Works to the appropriate voltage tests, tests for thickness of insulation, insulation resistance, fire resistance and flexibility.

Screened ways are to be incorporated for intercom and car telephones terminated separately in the machine room/space and Lift car as approved by the Engineer.

The terminations to car lighting and fan supplies are to be shrouded and labelled.

All fixed items and components are to be fully earth bonded using 6mm insulated cable, the earthing to include such items as pit ladders, guards, lifting beams, &c.

To ensure EMC compliance the lift contractor shall provide all necessary earthing in accordance with the control panel, drive and motor manufacturer requirements. This may require change to the existing earthing arrangements within the building and the lift contractor shall be satisfied that the existing mains supply earthing is adequate.

The use of armoured cable is to be discussed and approved with the Engineer.

All trunking fittings shall be of a standard proprietary manufacture except where special fittings are necessary.

A cable strainer is to be provided in every 3 metre length of trunking.

Existing trunking and conduit may be reused where the existing run is not subject to extensive modification and where it is rigidly fixed, not corroded and in good condition and where the earth continuity satisfies current earthing requirements.

**SECTION 4**

# SPECIFICATION

## 4:7 STOP/RUN SWITCHES

Stop/run lock down switches shall be supplied and installed in accordance with the following. When placed in the stop position they will cause the lift to stop and prevent it being started until returned to the run position. It must not be possible for the switch to be accidentally returned to the run position.

The switch knob is to be of a push/pull type and coloured red, it shall be a minimum of 50 mm in diameter and must clearly indicate when the switch is in the OFF position.

1. In the machine room/space within easy reach when standing at the hydraulic pump unit.
2. In the lift pit and within 1 metre of the entrance installed 1.3 metres above the lowest floor level served.
3. At low level within the lift pit where the normal stop/run switch is inaccessible from the pit floor.
4. Within the top pulley wheel area.
5. In the secondary level of the machine room/space.
6. On the car top within 1 metre of any landing entrance.

## 4:8 UNCONTROLLED MOVEMENT OF LIFT WITH OPEN CAR DOORS

The lift shall be provided with a means of protection against unintended movement of the car away from floor level in the up and down direction with the landing door/s not in a locked position and the car door/s not in the closed position.

The means shall:

a. Detect unintended movement of the car, causing the car to stop and keep it stopped.

b. Capable of performing as required without assistance from any lift component that, during normal operation, controls the speed or retardation , stops or keeps it stopped, unless there is built-in redundancy and correct operation is self-monitored.

c. Activate at the latest when the car leaves the unlocking zone.

d. Act on the car or counterweight or rope system.

e. Stop the car at a distance of not more than 1.2m away from the landing.

f. The vertical distance between the landing sill and the lowest part of the car apron shall not exceed 200mm.

g. The free distance from the car sill to the landing door lintel or from the landing sill to the car door lintel shall not be less than 1m.

h. Stop the car with a maximum retardation of 1g.

i. Require the intervention of a competent person for release.

j. Operate an electrical safety device.

**SECTION 4**

# SPECIFICATION

## 4:9 SAFETY GEAR RETENTION (CAR) - NEW

The Lift Contractor must verify and identify by load calculations shown on drawings, the suitability for reuse of the retained safety gear for his intended design.

The complete safety gear assembly is to be removed from its mountings and the individual components dismantled. All items are to be cleaned and checked for condition before reassembly.

All components are to be painted prior to reassembly.

Any items requiring replacement or repair shall be brought to the attention of the Engineer before works are put in hand.

The safety gear shall be provided with a new positively operating switch that does not rely on spring tension, such that in the event of the safety gear being engaged the supply to the motor and brake will be disconnected.

Where load and design calculations cannot verify the reuse of the safety gear a new safety gear, of suitable design, shall be provided.

## 4:10 CONTROL SYSTEM GENERAL REQUIREMENTS (ENERGY SAVING)

**Control Cabinet**

A new control panel shall be provided being of the enclosed steel cabinet type with louvered ventilation, finished internally and externally in powder coating or plastic skin plate. The identity of all the contactors, relays, solenoids, and other equipment in the controller shall be clearly indicated by means of permanent, heat resistant non-fade, plastic labels. A nomenclature to abbreviations and symbols used will be affixed to the inside of the control panel or control panel door.

Access shall be from the front only unless complexity of equipment necessitates rear entry also. The doors shall be full height and width of the panel and shall be of double hinged mechanically latched type.

The enclosure shall provide protection to IP23 Standard.

All cable entry shall be from below.

The new controller must be designed and constructed to pass through the building without any alteration to the building fabric. Notwithstanding this requirement, the controller shall be of a suitable design to be comfortably accommodated within the motor room.

Two external lifting eyes are to be fitted to the top of the controller cabinet to allow lifting without distortion.

All resistors are to be mounted externally to the main control equipment in a housing mounted to suit the site conditions and with suitable ventilation.

**SECTION 4**

# SPECIFICATION

Doors shall not be of the lift-off type and shall be separately earthed.

A notice shall be permanently attached to the inside of the control panel door detailing the final torque settings of the drive motor programmed into the inverter.

Where location dictates, control panel(s) shall be sound isolated.

**Control Components**
The system shall be microprocessor controlled.

Electrical safety devices shall be implemented in an intrinsically fail safe manner via electromechanical devices.

Means of residual current protective device (RCD) not exceeding 30 mA shall be provided for all circuits over 50 V AC on the lift car, landing controls & indicators, and safety circuits.

Solid state controllers shall always revert to a safe condition under all failure modes.

The microprocessor section of the control panel shall be separately mounted, such that the inadvertent connections of high voltages or physical damage from falling objects are prevented.

All input/output lines must be capable of withstanding short circuits and the application of 500v for short duration i.e. megger tests, without permanent damage.

An electronic permanent display, non-resettable, digital trip counter shall be provided to record the number of journeys for the lift.

Each control panel is to be provided with a visual display showing the operating status of the Lift and incorporating a display indicators which show each of the following sequences:

- Power on
- Power to each processor board
- Lift in service
- Lift direction
- Calls registered for car and landing
- Door open/door close
- Door Detector operation
- Lift overload
- Lift on car preference
- Lift on door hold

**Eco-Mode**
The control system shall incorporate an Eco-Mode which shall be programmable by time of day.

The Eco-Mode system shall provide various stages of shut down of non-essential supplies/control circuitry. Typically this will require the car light/fan/indicators/speech controls and other peripherals being turned off after pre-determined periods of inactivity.

**SECTION 4**

## SPECIFICATION

Normal resumption of these supplies are to be made upon the activation of a car/landing call, special service or inspection control.

If any push button is pressed, either within the car or on a landing, or a fault condition arises the car lights shall switch on. When the car is on Car Preference Control the car lights shall remain switched on at all times. This facility shall be provided in conjunction with a permanently illuminated Alarm Push Button.

When in Eco-Mode the system shall evaluate the demand and where this is deemed to be 'light' then the control of the acceleration, jerk and speed of the lift will be reduced for single call journeys.

**Over-ride Controls**
The control cabinet shall be provided with an external changeover switch to convert from NORMAL to INSPECTION operation, together with UP and DOWN buttons, and an OVER-RIDE button.

When switched to INSPECTION all safety circuits will be in use. On operating the continual pressure OVER-RIDE button, the safety gear switch on the car, slack rope and chains switches, buffer switches, over travel limits, and governor switch shall be over-ridden. This OVER-RIDE button is to assist in the release of the safety gear or to move the Lift from the over travel limits.

This INSPECTION/NORMAL switch will NOT OVER-RIDE the mechanics control stations or any other part of the safety circuit.

**Landing & Car Door By-Pass**
A bypass device shall be provided to facilitate maintenance of the car and landing door electrical contacts. The device shall be protected against unintended use by mechanical movable means. The device shall be clearly identified for purpose and only function where the required criteria within EN81 has been satisfied.

**Maintenance/Normal Service Switch**
For each individual Lift a MAINTENANCE/NORMAL SERVICE switch is to be provided on the control cabinet which will prevent the Lift answering its landing calls.

**Door Isolation Switch**
A door isolation switch is to be provided on the control cabinet which will prevent operation of the car doors.

**Terminal Floor Calls**
Provision to facilitate the input of at least terminal calls shall be provided for maintenance purposes.

**Car Lighting**
The car lighting shall switch off automatically when there has been no activity of the lift car for more than a 5 minute period (adjustable). If any push button is pressed, either within the car or on a landing, the car lights shall switch on. If a fault condition arises or when the car is on Car Preference Control the car lights shall remain switched on at all times. This facility shall be provided in conjunction with a permanently illuminated Alarm Push Button.

**SECTION 4**

# SPECIFICATION

Emergency lighting shall be provided, in the event of a power failure the emergency car lighting will continue to operate normally under emergency supply for 3 hours at a minimum of 5 lux from the same source as the alarm and fan, but separately fused.

**Remote Overspeed Governor Operation**
Where a remote overspeed governor is installed which cannot be easily accessed from outside the lift shaft, a key switch shall be provided on the control cabinet to operate and reset the governor.

Where the Contractor's standard custom-built control system is proposed all items detailed in the specification are features and components that will be required as a minimum.

**Interrogation/Service Tool**
Where the preferred method for interrogating the lift control system when fault finding or altering specific lift operating parameters is by the use of a portable or hand held device, then any such device shall be permanently located within the controller cabinet and shall become the employer's property. It shall be site specific and any unique identification number shall be recorded on the device.

Where the method of interrogation is through 'on board' diagnostic systems, any security devices/codes required to gain access to the system in order to retrieve information from the control panel shall be provided with full explanation on their use.

Such interrogation equipment shall not allow unauthorised personnel to alter parameters on the control system which may affect lift safety. Different levels of secure access facility on interrogation equipment is therefore permissible.

The Contractor's control system must be of proven design. No prototype equipment or components will be accepted. Any system with a RESTRICTED design protocol will not be acceptable.

Special cooling and/or filtration equipment is to be incorporated to reduce the spread of dust through the controller and to maintain satisfactory ambient temperatures and prevent local hot-spots.

The following items are required:

- Phase failure/phase reversal protection.
- Double journey timers.
- Automatic homing [switched].
- Door nudging with audible signal.
- All control equipment to be protected by miniature circuit breakers not fuses.
- Door open/door close timers fully adjustable for dwell and operating speeds.
- Anti-interference features for all car controls.
- Earth terminals and full earth bonding.
- Supplies to printed circuit boards shall be protected by miniature circuit breakers.
- Microprocessor based car position reference system.

**SECTION 4**

## SPECIFICATION

- Thermal overloads for main motor protection or alternatively protection within the controller software.
- Car and landing door lock short-circuit protection.
- A device shall be fitted that determines the lift machine and machine room/space temperature. An over temperature will cause the lift to shut down at the next floor in a controlled manner.
- Lift alarm push button to be permanently illuminated even in the event of a power failure.
- The door open push button shall illuminate during the door close cycle.
- Suitable outputs shall be provided to initiate speech generation. The processor shall provide advanced signals to highlight such items as “Doors Closing” etc.

**Speed Reference Device Failure**
In the event of loss of feedback from the speed reference device, under normal conditions and on car top control, the lift will immediately shut down and the brake will be applied. The Lift will no longer attempt to respond to calls until the speed reference device has been satisfactorily reinstated.

**Equipment Reliability**
The control circuit where fed from an alternating current source shall be greater than 110V and not greater than 240V.

On relay components the "VOLTAGE RELIABILITY" shall be at least 80%, i.e. the control circuits must operate at 25% below design voltage.

The "COMPONENT RELIABILITY" shall not be less than three million, i.e. the expected number of operations between two failures.

All timers shall be of solid state design.

All car and landing call acceptance indicators will illuminate until the call is answered.

The lift should not interfere with the reception of radio and television programmes or the supply of computer-related equipment. The lift equipment shall be fitted with the necessary interference suppression and filtration components during manufacture.

Car position reference systems shall be actuated by one of the following:

Digital Encoders; Transducers

Any other proposed system shall be with the approval of the engineer.

**Car Preference**
Car preference operation will be provided. With the key in the ON position the Lift will be removed from NORMAL operation and will respond only to car calls and will ignore all other automatic operations. The key will be captivated when in the "ON" position.

When under car preference the Lift will park with both car and landing doors open.

**SECTION 4**

# SPECIFICATION

The Lift will respond to continuous pressure on the selected car floor push only and only the first call will be answered. For any subsequent call it will be necessary to press the car button to achieve further door closing.

**Wiring Diagrams**
Contract specific, including authorised and recorded post-test revisions, plastic encapsulated wiring diagrams are to be provided within the machine room/space in addition to those supplied with the O & M Manuals.

## 4:11 HAND LOWERING SYSTEM

An electronic hand lowering system shall be provided which shall incorporate both audible and LED illumination. The equipment shall be wall-mounted adjacent to its corresponding tank and shall be easily viewed from the normal hand lowering position. Where the control panel is situated close to the tank, the hand lowering system may form part of the control panel if the landing floor level indicators can be easily seen from the normal hand lowering position.

A control switch mounted on the hand lowering unit shall initiate the operation of the hand lowering system. When switched "ON" and under hand lowering operation, it will indicate both visually and audibly as the Lift becomes level with a landing floor level. The unit shall display the position of the lift car relative to its position within the lift shaft.

Supply to the hand lowering system shall be from an independent low-voltage source incorporating an emergency supply which automatically becomes available in the event of mains power failure.

Irrespective of the position of the mains supply switch, the operation of the ON/OFF switch on the hand lowering buzzer system shall render all other controller components inoperative and an illuminating indicator shall be sited adjacent to the hand lowering switch to notify that the system is switched on.

## 4:12 DOWN COLLECTIVE CONTROL

When idle, the car shall remain at the last landing served with the doors closed. The first call shall determine the direction of travel.

Momentary pressure by car or landing push button shall register a call, any number of which shall be stored on the system until answered.

The car shall answer the calls in the order in which the landings are reached. Once it has started travelling in the down direction it shall answer the car and landing calls in sequence of that direction only. The lift shall not reverse until it has answered the highest or lowest call.

Each controller is to incorporate automatic logging etc.

Primary safety circuit failure
Primary loop failure
Car door switch fault

**SECTION 4**

## SPECIFICATION

Landing door switch fault
Failure of doors to open
Lift overloaded condition
Landing and car calls cancelled
Shutdown due to successive failed attempts to start
Limited force door closing having been operated
Memory failure
Programme error
Stuck landing/call button
Service to engineers visit
Two spare signal/record facilities

### 4:13 ENERGY ACCUMULATION BUFFERS - NEW

The buffers shall be capable of bringing the car/counterweight to a gradual and positive stop.

Energy accumulation buffers shall be located in the pit beneath car and counterweight and securely fixed to the base support.

The steel buffer supports shall be of robust construction securely fixed between their respective guides and be of sufficient height to maintain the necessary over travel of the Lift and maximise man clearance.

Spring buffers, when provided, shall incorporate an impact cap.

In the cases where buffers are fixed to the underside of the Counterweight or Car the impact area shall form an obstacle (pedestal) of a height not less than 300mm. Unless the counterweight screen extends to within 50mm of the pit floor.

### 4:14 LIFT CAR FRAME & PLATFORM OVERHAUL - NEW

The car frame shall be retained and, with all redundant components removed, shall be checked for obvious distortion or defect. Where a defect is found it shall be brought to the attention of the Engineer and remedial action agreed. These checks must be completed and reported on within the first week of site work commencement.

All fixings used in the construction of the car frame are to be checked for security. The spring washers of any bolt fixings loosened or removed as part of these works must be replaced with new.

For Passenger Lifts new sound isolation is to be provided between platform and car frame. The isolation shall be of oil-resistant resilient compound pads of suitable density for the contract load and car weight.

New isolation shall be fitted to the top of the car enclosure and may be of an adjustable design. It shall not be fitted until the Lift car has been plumbed and levelled.

**SECTION 4**

# SPECIFICATION

Plumbing and alignment shall be made by packing to the base, not by jacking of the top of car isolation.

A new load weighing device shall be provided such that when an overload condition occurs the lift shall be prevented from moving until the overload has been reduced.

On Passenger Lifts auto-bypass information shall be provided to the control system when the load in the lift car reaches 80% of its carrying capacity. The load weighing device shall automatically reset.

Buffer plates shall be provided to the underside of the car frame, centrally over the buffer.

The platform shall be externally lined in sheet steel if manufactured from timber.

## 4:15 ROLLER GUIDE SHOES - NEW

The car and counterweight guide shoes shall be of the roller type and fitted with guard plates to prevent a finger trap between the rollers and the guide face.

Car guide roller shoes shall be spring loaded and self-adjusting.

Roller bearings shall be of the sealed for life type.

A metal retainer shall be provided to top and bottom shoes so that the frame assembly will not move from the normal running position in the event of roller failure.

## 4:16 LIFT CAR – RETAIN & OVERHAUL

The existing Lift car is to be retained and refinished internally in accordance with the *Schedule of Finishes*, which form part of the works.

All fixings shall be checked and re-secured.

Any distorted or damaged panels are to be replaced.

All timber external surfaces shall be lined in 20swg steel sheet.

The car roof must withstand the weight of 2 operatives working thereon without permanent deformation and should provide a smooth working surface.

A quiet running isolated extract fan is to be located on the car roof. It shall be properly enclosed to prevent accidental damage and shall be capable of 3 changes of air in the Lift car in 15-minutes.

Any redundant apertures shall be filled.

Adequate ventilation shall be provided.

**SECTION 4**

# SPECIFICATION

An inductive loop cable shall be fitted and wired to all speech units within the lift car.

Where a car roof access hatch is retained it shall be hinged outward with a full width hinge. A mechanical lock and electrical contact shall be provided which shall ensure that the mechanical lock is secured before the electrical contact is made.

## 4:17 CAR OPERATING PANEL

The facilities and features shown elsewhere within the specification shall be provided, with the design and final layout to be approved by the Engineer. The push buttons shall be installed at a height of between 900mm and 1100mm from the finished car floor and positioned on the side wall 400mm from the front return. Push button pressels shall be in contrast to their surroundings.

Where applicable a CE marking and notified body identification number shall be displayed in a position to be agreed by the engineer.

Where called for the following will be provided:

**Alarm Button**
The alarm button shall be permanently illuminated and yellow in colour and shall incorporate a tactile bell shape symbol. It shall be fully illuminated during power failure.

The alarm button shall be located below the car call push buttons.

**Audible Annunciator**
A programmable audible annunciator is to be incorporated which shall be simply and easily recorded to provide a variety of messages within the lift car. The volume shall be adjustable and as a minimum the available messages shall comprise *'Doors Opening', 'Doors Closing', 'Lift Going Up', 'Lift Going Down',' Lift Overloaded' and 'Floor N' where N is the actual floor where the lift is positioned.*.

The voice messages shall be of high quality and clarity.

**Emergency Communication System**
In the event of the alarm button being pressed an Auto-Dial system will be activated and will sequentially dial a minimum of three preset numbers, which shall be notified by the employer.

Communication from the auto dial unit shall be to a 24 hour manned call centre.

The emergency alarm device shall be equipped with both visual and audible signals, integrated into the car operating panel, comprising of:

- A yellow illuminating pictogram in addition to the audible signal for the emergency alarm transmission to indicate that the alarm has been given.
- A green illuminating pictogram in addition to the audible signal normally required (voice link), to indicate that the emergency call/alarm has been registered. The audible signal (voice link) shall have a sound level between 35dB(A) and 65dB(A), adjustable to suit site conditions.

**SECTION 4**

## SPECIFICATION

- An induction loop shall be provided to aid people with impaired hearing.

The type and manufacturer of the auto-dial system shall be an approved device and shall be of such design which does not prevent other contractors from maintaining or reprogramming the system.

The auto-dial unit shall be installed behind the car operating panel faceplate or front return panel.

The operational procedure of the auto-dialler shall be engraved on to the car station panel.

The auto-dialler is to be enabled by the operation of the alarm bell push button and disabled at the receiver terminal.

With the exception of a time-out facility that will be initiated by operation of the alarm push button, it shall not be possible to enable the system to listen into the Lift car.

A timer unit capable of 0 to 60 minute setting shall be incorporated which will allow the receiving station to communicate with the car at any time during the agreed set period, which can only commence on operation of the alarm push button.

The alarm push button will also operate a "comfort" alarm bell mounted on the car top and a separate Alarm Bell mounted at Main Floor level.

**Car Fan**
The car fan shall be operated by a push button or rocker switch mounted on the car operating panel. When pressed the fan shall operate for 15 minutes and then switch off automatically.

The fan shall be capable of three air changes in 15 minutes.

In the event of a power failure the fan will continue to operate normally under emergency supply for 3 hours from the same source as the alarm and emergency light unit, but separately fused.

**Car Light Switch**
The car light switch shall comprise a three position double pole switch within a unit of similar size to the car pushes.

Position 1 is to be ON
Position 2 is to be OFF
Position 3 is to be TEST which will test the emergency lighting unit within the lift car.

**Car Position Indicator**
A visual display unit incorporating either a dot matrix or LCD position indicator behind a coloured diffuser shall be located in the car station panel. It shall be a minimum of 50mm in height and shall incorporate a scrolling feature as well as separate direction of travel indication.

The visual display unit shall be located within the car operating panel positioned at a height between 1600mm and 1800mm above the car finished floor level.

**SECTION 4**

# SPECIFICATION

The visual display unit shall be easily visible and legible and shall be capable of displaying a variety of standard messages, as well as floor position, including but not restricted to:

Lift Overloaded
Lift Out Of Service
Lift On Preference Control
Lift On Fire Control
Lift Returning To Main Floor

**Car Preference**
A key operated car preference switch is to be incorporated in the car operating panel. The key shall be captivated when in the "ON" position.

**Car Push Buttons**
The car push buttons shall be of micro movement design with raised tactile facility and shall have both audible and visual call registration indication.

The push buttons shall have LED illumination and their pressels shall be in contrast to their surroundings.

A single operation of the push buttons shall register a call on the lift control system, whilst subsequent operation of the push shall initiate quick close of the doors.

The main exit floor push button shall be green in colour and project from the car operating panel by 5mm.

**Door Open Push**
A door open push shall be provided with LED illuminated halo which shall be activated during the door closing cycle.

**Door Close Push**
A door close push shall be provided.

**Overload Warning Indicator**
A message shall be announced when the lift car becomes overloaded and the visual indicator shall display a standard message to advise of the overload condition. Both audible and visual messages will cease when the overload condition has been corrected.

## 4:18 INFRA-RED ENTRANCE PROTECTION

A protective device shall be fitted to the full height of the leading edge of the car doors. Its field of operation shall be a minimum of 50mm from the leading edge and it shall initiate re-opening before any contact with obstruction.

It shall comprise a curtain of intersecting beams and shall continue to function with up to 25% failure in any of the modules.

**SECTION 4**

# SPECIFICATION

## 4:19 CAR DOOR OPERATOR - NEW

The new door operator(s) shall provide a high speed, smooth and quiet motion of the car and landing doors.

The door speed during operation shall have sinusoidal characteristics with variable speed control.

The doors shall be driven by an AC Variable Frequency or Linear controlled motor in both opening and closing directions.

The lift shall normally park with the doors closed.

All couplers shall be of metal construction, and where moving skates are used then, for rigidity in door coupling, twin pick-ups are to be used.

All door gear components shall be of the same manufacture.

The car top door operating equipment shall be provided with suitable removable mechanical protection constructed to withstand a force of 1000 Newton's without permanent deformation or damage.

## 4:20 CAR ENTRANCE – RETAIN & OVERHAUL

Dismantle and clean all car door equipment.

Top and bottom tracks are to be checked for distortion and security. Any defects must be reported to the Engineer.

New top hanger rollers shall be provided, the rollers shall be polyurethane tyred with a steel boss.

Provision shall be made to adjust the door height by 5mm.

Where the design of the top track does not prevent the rollers from leaving the track or tipping, anti-kicking rollers will be required.

The clearance between door panels and surrounds shall be between a minimum of 3mm and a maximum of 6mm.

New air cords and air cord rollers shall be provided, pulleys must be fitted with roller bearings and cord retainers.

A minimum of two new bottom door shoes shall be provided to each door panel each having an offset vertical flange so that the shoes can easily be replaced without lifting the door.

In the event of the failure of the door shoes and/or fixings the doors must be retained in their bottom track.

**SECTION 4**

# SPECIFICATION

New electro-mechanical interlocks shall be provided to each door panel and these shall be provided with metal removable covers. The lock pick up roller bases be pinned following final positioning. All contacts shall be suitably enclosed.

Where any doors contain glass vision panels these shall be of laminated glass only.

## 4:21 LANDING ENTRANCE - NEW

The landing doors are to be constructed in 16 swg sheet steel.

The doors shall be of welded construction incorporating purpose-designed mounting plates, cross-bracing and fire-retardant anti-drumming compound.

The steel mounting plates shall be of a minimum 6mm thick suitable for drilling and tapping. [*The use of RIVNUTS or similar fixings will not be acceptable*].

Door hangers shall be fixed with bolted fixings into the door panel and will allow a minimum of 15mm penetration.

The door panels shall incorporate additional stiffening at their base for the fitting of door shoes.

The finished faces of the door panels shall show no visible fixings or weld marks and, where facing material is applied, it shall be fully wrapped and riveted in addition to the bonding material. [*See Sketch SK No 2*].

It is permissible to profile the leading edge of the door panels.

The top track shall be separately fixed to the header to allow for replacement.

All rollers shall be polyurethane tyred with a steel boss and shall incorporate a minimum of 2 bolted fixings into the door assembly.

Provision shall be made to adjust the door height by 5mm.

Where the design of the top track does not prevent the rollers from leaving the tracks or tipping, anti-kicking rollers will be required.

Two sliding shoes per door panel shall be provided each having an offset vertical flange secured to the well side of the door so that the shoes can easily be replaced without lifting the doors.

In the event of the failure of the door shoes and/or fixings the doors must be retained in their bottom track.

The bottom track shall be machined, supported throughout its length and all packing used is to be steel full size of the track section.

Where dissimilar metals abut they shall be separated by a plastic membrane to prevent electrolytic corrosion.

**SECTION 4**

## SPECIFICATION

The gate contact for each door panel shall be housed within a substantial metal casing and shall be easily adjustable. It must *not* be possible to open the doors while the Lift is in motion.

The clearance between door panel and surrounds shall be between a minimum of 3mm and a maximum of 6mm.

The back edge of the doors shall overlap the clear entrance width by a minimum of 15mm [*See Sketch SK No 2*].

Where the entrances are arranged as 2-speed, an approved mechanical link shall be provided between the fast and slow speed doors, and the slam post is to be formed as a rebate for the fast speed door.

The fast and slow speed doors shall each overlap by a minimum of 15mm and shall overlap the architraves by 15mm.

All landing entrance assemblies are to be certified for 2-hour fire rating. **The submission of a valid Fire Test Certificate and entrance design is required at tender submission stage.**

**All landing entrance designs and method of installation must be compatible with the lift shaft front wall construction, and installed in accordance with the manufacturer design requirements.**

The landing doors shall be located within a bolted angle section frame, which shall consist of two side angles, a bottom sill and a connecting header.

The wall anchors shall be designed to suit the building fabric.

Where sills are fitted to concrete nosing's the recesses are to be cleaned prior to the positioning of the sill and a bonding agent applied prior to the bedding in of the sill. (Bonding agents must be applied in accordance with the manufacturer's instructions.)

Where tracks are fitted to a steel angle nosing the angles are to be provided by the contractor and any steel packing used shall be full size track section.

Electro mechanical interlocks shall be provided to each door panel and these shall be provided with metal removable covers. The locks shall be pinned following final positioning. All contacts shall be enclosed.

A triangular lock release mechanism shall be provided at each landing door panel.

A spring loaded lever action automatic door closer shall be provided to each door panel.

Alternatively gravity type closers may be incorporated. These however, must be metal weights running within plastic tubes fixed to the door frame or other fixed position. Tubes fixed to the rear of the moving door panels will not be acceptable.

Rubber buffers shall be provided to the rear of the doors to prevent them opening more than 5mm beyond the clear opening width.

**SECTION 4**

# SPECIFICATION

A full height sight guard shall be fixed to the edge of the leading door panel and shall be finished in the same material as the landing doors. The sight guard may be formed as part of the door panel folding process.

Where any doors contain glass vision panels these shall be of laminated glass only.

## 4:22 STEEL ENTRANCE TRIM - NEW

A rectangular section steel trim is to be fitted within the entrance reveals.

In addition to the vertical fixings, the trim shall be fixed to the header of the door frame and all fixings shall be concealed.

The trim shall be of 16 swg steel.

An allowance shall be made for the trims to be made measuring 100mm deep and to project by 13mm from the entrance reveals. The final size of the reveals has yet to be established and may be varied from the above.

## 4:23 PROTECTIVE SCREENS & GUARDS

1. Steel fascias of a minimum 16 SWG shall be provided the full width of the header. Bracing and stiffening is to be provided to prevent distortion. The header is to extend from sill level to the header of the floor below.
2. At the lowest terminal floor a ramped steel fascia will extend to 750mm. At the upper terminal floor a similar ramped section will be affixed to the header.
3. A ramped toe-guard shall be fitted to the underside of the car of sheet steel construction. It shall extend 50mm beyond each side of the clear opening and be ramped and braced back to the underside of the car. The toe-guard shall be 16 SWG steel sheet minimum and extend 750mm below the car sill. Countersunk screw fixings shall be used at 150mm centres.

   Where a shallow pit depth prevents the use of a standard 750mm fixed length toe guard, a sliding multi-leaf toe guard shall be installed to provide maximum protection for the given dimensions. This design of toe guard shall incorporate an electro-mechanical locking mechanism, released through the use of a standard euro key, such that the lift will only operate normally when the toe guard is in its raised position.

   Instructions on the release of the toe guard to its full length shall be mounted on the face of the toe guard.

## 4:24 HALL FIXTURES

**General**
The fixtures shall be fitted within plastic or steel back boxes.

**SECTION 4**

## SPECIFICATION

The back boxes shall be keyed before building-in and lie flush with the finished front wall. Where existing back boxes can accommodate the units specified they may be re-used.

Faceplates shall be of 3mm thickness with edges bevelled at an angle of 30º to the face.

Faceplates shall be secured by at least 2 tamper-proof fixings and shall be directly earthed.

**Push Buttons**
The push buttons shall be of micro movement design with raised tactile facility and shall have both audible and visual call registration indication.

The push buttons shall have LED illumination and their pressels shall be in contrast to their surroundings.

Push buttons shall be of the same type and design as the car pushes.

The push buttons shall be installed at a height of between 900mm-1100mm from finished floor level.

**Direction of Travel/Position Indicator [Hall Lanterns]**
The Hall Lantern shall comprise a visual display unit incorporating either a dot matrix or LCD indicator behind a coloured diffuser. The display will show the intended direction of travel and car position.

The illumination shall have a minimum size of 50mm x 40mm.

The unit shall incorporate an electronic and audible adjustable tone generator which shall sound once when the committed direction of travel is UP, and twice when the committed direction of travel is DOWN.

The display shall remain illuminated while the Lift is at the floor and until the doors have commenced to close.

The display shall incorporate a scrolling feature as well as separate position and direction of travel indication.

The visual display unit shall be easily visible and legible and shall be capable of displaying a variety of standard messages, including but not restricted to:

Lift Overloaded
Lift Out Of Service
Lift On Preference Control
Lift On Fire Control
Lift Returning To Main Floor

**Alarm**
The lift audible alarms shall be clearly identifiable from other building signals. The alarms shall be located within 6 metres of the lift shaft at the main floor and on the car top.

**SECTION 4**

# SPECIFICATION

## 4:25 3-PHASE ELECTRICAL SUPPLY – RETAIN & OVERHAUL

The electrical installation shall conform to current IET Wiring Regulations and shall be tested and certified in accordance with these Regulations.

It is anticipated that the existing 3-phase supply to the lift will be retained and re-used.

If the supply is inadequate or unsuitable for connection to the new equipment then the contractor shall include the cost for running a new 3 phase neutral and separate earth supply cable from the intake room to the machine room/space, and shall note within the covering letter accompanying his tender the reasons why.

A certificate shall be provided by an NICEIC registered electrician for the adequacy of the new or existing supply.

Whether the existing or a new supply is provided, it will be terminated adjacent to the machine room/space door in an HRC switched fused disconnector suitably rated.

This shall incorporate a facility to lock the switch in the “off” position.

In order to avoid potential problems with the control and motor drive systems it is vital that the buildings earthing arrangements are checked and verified for compatibility with the new equipment.

## 4:26 SINGLE-PHASE ELECTRICAL SUPPLY – RETAIN & OVERHAUL

The electrical installation shall conform to current IET Wiring Regulations and shall be tested and certified in accordance with these Regulations.

It is anticipated that the existing single-phase supply to the lift will be retained.

**If the supply is inadequate or unsuitable for connection to the new equipment then the contractor shall include the cost for running the new supply cable from the intake room to the machine room/space, and shall note within the covering letter accompanying his tender the reasons why.**

A certificate stating either that the existing supply has been tested and is adequately rated, or that a new supply is required is to be provided by an NICEIC registered electrician.

Whether the existing or a new supply is provided, it will be terminated adjacent to the machine room/space access point in a suitably rated consumer unit having a minimum of 10 ways per lift, to feed the following:

(a) Car Lighting and Car Emergency Lighting
(b) Shaft Lighting
(c) Machine Room/Space, Pulley Room Lighting
(d) Machine Room/Space, Pulley Room/Pit Emergency Lighting
(e) Machine Room/Space Heating
(f) Machine Room/Space Ventilation

(g) Alarm Supply
(h) Machine room/space, lift pit and/or pulley room power sockets.
(i) Hydraulic oil cooling system.

It is vital that the buildings earthing arrangements are checked and verified for compatibility with the new equipment.

### 4:27 SINGLE PHASE ELECTRICAL REQUIREMENTS

The electrical installation shall conform to current IET Wiring Regulations and shall be tested and certified in accordance with these Regulations.

The following is to be provided by the Lift Contractor:

**Machine Room/Space Lighting**
Machine room/space lighting shall comprise double tube fluorescent fittings sensibly sited to give an even spread of light with a minimum of 200 lux at floor level in all work areas.

It is permissible to retain existing fluorescent light fittings where these are in good condition and sensibly sited, but new tubes and starters are to be fitted.

All motor room lighting shall be switched from a position adjacent to the normal machine room/space access. The switch to incorporate an emergency machine room/space light test facility.

Light fittings adjacent to control equipment, hoisting machines and access door shall incorporate an emergency light conversion unit to operate either existing or new luminaires giving 3 hours maintained illumination.

Secondary machine room/space shall be provided with light fittings of similar characteristics. All fittings to be approved by the Engineer.

**Machine Room/Space Heating**
Enclosed tubular heaters with remote thermostatic controls shall be wall mounted and positioned safely.

The heaters shall be fed from a separately protected supply.

The heater must be capable of maintaining the machine room/space at a minimum of 5ºC with an outside ambient air temperature of 0ºC.

A suitable protective guard shall be provided.

All fittings to be approved by the Engineer.

**Hydraulic Oil Cooling System**
Where the hydraulic system design requires the hydraulic fluid to be cooled, to maintain the optimum operation of the hydraulic system, the lift contractor shall provide a suitable means of dissipating the generated heat from the oil and/or machine room/space.

**SECTION 4**

# SPECIFICATION

**Power Outlets**
13 amp socket outlets shall be provided close to the position of the main switch in the machine room/space and adjacent to the stop/run switch in the lift pit and secondary machine room/space.

The socket outlet is to be switched and shall incorporate an illuminated indicator to show power ON.

If the supply for the emergency lighting of the Lift car is taken from the machine room/space, it shall be from a switched outlet point incorporating an illuminated indicator and positioned adjacent to the main switch.

All power socket outlets shall have RCCD protection.

All fittings to be approved by the Engineer.

**Lift Shaft Lighting**
Shaft lighting shall comprise twin bulkhead fluorescent fittings with each lamp wired to operate independently should either lamp fail. The level of lighting shall be at least 50 lux, 1 metre above the car roof and the pit floor even when all doors are closed.

Diffusers shall be of a high impact resistant prismatic type held by captive screws.

Fittings shall be located at 500mm from the head of the shaft, 500mm from the pit floor and one at each floor level.

The shaft lights shall be positioned such that lamps or tubes can be easily replaced from the car top.

All fittings to be approved by the Engineer.

The luminaire within the pit area shall incorporate an emergency backup supply providing 3 hours maintained illumination.

It is permissible to retain existing shaft lighting provided it complies with the Specification.

Shaft lighting shall be 2-way and intermediate switched. The switches shall be located as follows:

One in the machine room/space
One on the car top (on or adjacent to the car top control unit)
One within the lift shaft accessible from the lowest terminal floor landing. The lowest terminal floor shaft light switch shall incorporate a facility to test the pit emergency luminaire.

The wiring shall be within galvanised steel conduits, and all bends and elbows shall be completed with the use of access boxes fitted with screwed covers.

**SECTION 4**

# SPECIFICATION

## 4:28 LIFTING BEAM – RETAIN & OVERHAUL

The existing lifting facilities are to be inspected, tested and marked with their Safe-Working Load upon a Traffolyte label secured to the beam and a copy of the Test Certificate(s) shall be plastic encapsulated and displayed in the machine room/space.

## 4:29 ASBESTOS SURVEY

**The lift contractor shall allow for cost and arrange with an appropriate specialist to undertake a full (type 2) Asbestos survey of the lift housing structure and associated working areas.**

## 4:30 PAINTING

**The following schedule of painting is for guidance and pricing purposes only. The final finish colours may vary and will be advised by the Engineer prior to work being undertaken.**

All painting including priming and undercoating shall be completed in accordance with the paint manufacturer's instructions.

Any factory-sprayed equipment shall be to the standard contractor's colour. If any factory-sprayed equipment becomes damaged then it must be properly re-sprayed on site to leave the equivalent of a factory applied finish.

Where equipment to be painted on site has become rusted, or is otherwise coated in some form of protection, it shall be solvent cleaned, all rust and deposits removed and then painted in accordance with the paint manufacturer's instructions.

All spray painting shall be undertaken outside of normal working hours.

All paint shall be non-toxic and low fume.

**Final Finish Colours**

Royal Blue Gloss:
Complete hoisting machine

Black Gloss oil-based enamel to
BS4800 BS No 00-E-53
All machine supporting steels
Machine bedplate
Diverter mountings
Machine room/space access ladders and barriers
Toolboard
Lifting beams (where less than 2.1 metres clear headroom,
2" YELLOW diagonal stripes to be added)
Matt Black shaft side of car and landing doors

**SECTION 4**

## SPECIFICATION

Door frames and angle nosing's
Guide brackets and guides
Car and balance weight frames
Fascia's and toe-guards
Buffer channels and drip trays
Decking
External faces of lift car (unless Zintec or stainless steel sheet) and car top equipment

Grey Gloss oil-based enamel to
BS4800 BS No 00-A-01

Shaft division steels and top steels
Shaft screen framing & screens

Yellow Reflective to BS4800

All rotating pulleys, sheaves, flywheels
Counterweight frame and fillers
Car top perimeter
Access ladders
Car top and pit area refuge spaces

Orange Reflective to BS4800

All wire mesh guards except shaft division screens
2:1 pulley guards
Car top barriers
Rope traverse guards

Spray cellulose semi-gloss to BS4800 colour to selection

Landing entrances
Car entrances
Lift car

Machine, shaft and pulley rooms

At the commencement of site works all machine, shaft and pulley room walls and ceilings shall be sealed with a suitable sealant and one coat of white emulsion applied.

At the conclusion of the installation two further coats of white emulsion are to be applied to machine, shaft, ceilings and pulley rooms and two coats of proprietary floor dressing are to be applied to each floor.

Lift Pit

The lift pit is to be cleaned, degreased and painted with two coats of proprietary floor dressing, up to 300mm from the pit floor upon completion.

**4:31 NOTICES** [See Sketch SK No1]

Where standard wording is used notices shall be of the prescribed standard size.

***All notices shall be in English.***

**SECTION 4**

## SPECIFICATION

Notices shall be screw fixed.

Notices shall be screw fixed or engraved on the relevant item.

All non-standard signs shall be manufactured from Paxolene, Traffolyte or Fibrolyte, or similar purpose-made material.

They should be engraved through the face of the base material to display the colour of the middle layer.

A suitable notice, above the ground floor entrance, shall be fitted, to advise that the lift car has been wired with an inductive loop system.

**The colours of signs and notices shall be as follows:**

| | |
|---|---|
| **Prohibition:** | White script on red background |
| **Warning:** | Black script on yellow background |
| **Mandatory:** | White script on blue background |
| **Emergency/Safe Condition:** | White script on green background |
| **Information:** | Black script on white background |

**Machine Room/Space Notices:**

Notices of the appropriate kind shall be fitted to the following, where applicable:

Machine room/space door and access traps.
Controller doors advising of live condition.
To consumer units and all controlled electrical circuits.
Identification of each machine controller isolator and governor.
All run/stop switches.
Wheelhouse doors.

Fully detailed and illustrated handwinding instructions incorporating the use of the emergency handwinding floor level indicator system.
Emergency passenger release procedure.
Electric shock notices.
Pit Prop notice detailing use and positioning before entering pit.

Toolboard identification.
Governor data plate information.
Intercom and telephone terminations and systems.

Safe working loads on lifting beams. The load details must be in the form of a separate notice and painting of this information on the steels will not be acceptable.

Where applicable, a notice shall be displayed to advise the correct procedure, when gaining access to the lift car top from the landing entrance, to operate the lift on test control and to return the lift to normal service when exiting the shaft.

All electrical junction box terminals shall be identified with a permanent label.

**SECTION 4**

# SPECIFICATION

**Lift Shaft Notices:**

Restricted headroom.
Advising clearance from crosshead and where applicable restricted headroom
UP test limit.
Pit switch.
Shallow or deep pit configuration.
Pit Prop notice detailing use and positioning before entering pit.
Shaft lighting switch.
Hydraulic buffer oil type.
Sump pump details.
Car crosshead data plate.
All mechanics car control station switches.
To the rear of each landing entrance the relevant floor number will be stencilled in 75mm high white numerals.

## 4:32 MISCELLANEOUS

**Control Panel mats**, appropriately marked with their safe insulation value, are to run the full width of the control cabinet and to a minimum of 1 metre to the front of the cabinet. Where rear access is required then a suitable insulating mat shall be provided.

**Tool Board.** The board shall accommodate the landing door release key, tool for release of all guarding, handwinding wheel brake release device and padlock for mains disconnector. Each component shall be clearly identified by permanent labels and the design of the complete unit shall be approved by the Engineer. A pocket enclosure shall be provided for the Maintenance Log Cards and Supplementary Test Certificates.

Legend for all controller components.

**Maintenance Log Cards**.

**A portable collapsible entrance barrier** complete with requisite danger notice, stored within the machine room/space.

**A mechanical restraint** where the safe man clearance space beneath or on top of the car is below the minimum requirements as defined within the Harmonised European Standard.

**A wall mounted spares cabinet** is to be provided of sheet steel construction having a key lockable door and adjustable shelf to be approximately 600mm high, 600mm wide, 300mm deep. The cabinet shall be similar in design and finish to the control panel cabinet. (This will only be required on group installations).

**3 sets of operating and emergency keys** with all identifying labels.

**A hand pump** lever shall be provided.

The **safe refuge spaces** shall be clearly marked and identified within the pit and on the car top.

Where equipment or procedures require a preset sequence or events these shall be detailed on notices in appropriate locations as required by the Lift Consultant.

A facility shall be provided to enable **emergency manual movement** of the lift car under all load conditions.

### 4:33 TESTING, WITNESS TESTING & HANDING OVER

After installation the Contractor shall carry out his own testing and commissioning procedures following which they shall complete any outstanding items. A copy of the Contractor's items list and completed test sheet must be supplied to the Engineer appointed to carry out the Witness Test. Only after this has been received will witness testing be undertaken.

Where the lift contractor has not completed this procedure, resulting in the failure of the witness test, where the unit requires subsequent retesting we reserve the right to contra charge the lift contractor for the abortive test/visit by a negative variation order.

Witness Testing will be carried out in accordance with the appropriate Sections of British Standard Specification 5655: Part 10.2.1: 1995, PAS 32.2:1995 and/or BS8486-3:2017 plus all subsequent revisions. It will be carried out in the presence of the Engineer and shall incorporate all requirements as set out in the Specification.

Full dynamic tests shall form part of the full witness test procedures. These shall be but not necessarily confined to:

- Rated load/rated speed buffer tests to car and counterweight.
- Rated load/rated speed car and counterweight safety gear test.
- Uncontrolled upward movement test.
- Movement away from landing with car door open test.
- Door pressure test.

Full control and dispatching systems check shall be undertaken upon completion of each lift in any group.

The cost of any consequential damage to the lift car, finishes and equipment shall be covered by the Lift Contractor.

All test weights, thermometers, instruments and personnel shall be provided together with the appropriate "Test and Examination" Certificates duly completed including all Certificates required.

Personnel carrying out the witness tests shall be the Test Engineer who tested on behalf of the Contractor.

Items requiring rectification following the test shall be carried out by the installing engineers who should also be present during the witness testing procedure.

**SECTION 4**

# SPECIFICATION

The Contractor shall not offer the installation for witness testing until all works are completed including the Contractor's own testing and application of all finishes.

The Contractor shall give a minimum of one weeks' notice to the Engineer prior to the date for testing and immediately advise of any changes.

If the installation is not ready for testing at the appointed time then any subsequent visits by the Engineer may be to the cost of the Lift Contractor. [*It is to be noted that test items are considered to be adjustments and minor rectifications only*].

Following completion of the witness testing a date will be set for the completion of any outstanding items. When these have been confirmed by the Contractor as completed, the Engineer will accept the installation at a formal handover in the presence of the Contractor.

Tenderers are to note that their programme must include for the testing and snagging periods and completion will not be granted until all items have been accepted.

A full set of Test Certificates and where appropriate CE marking and Declaration of Conformity shall be provided upon completion including a grading certificate for all stainless steel, plus Certificates for all electrical services.

## 4:34 TWELVE MONTHS DEFECTS LIABILITY & MAINTENANCE PERIOD

From the date of Completion of the final lift on the project the contractor shall commence the fully comprehensive maintenance and defects liability which shall continue for 12 months or as otherwise agreed.

Regular maintenance shall be carried out monthly and shall include the cleaning, oiling, greasing, adjustment and replacement or repair of all parts of the installation and accessories as necessary to ensure satisfactory operation of the installation, including checking of levelling and making any necessary adjustments. Maintenance visits must be carried out strictly on a one visit per Lift, per month basis and under no circumstances will the routine maintenance visit be incorporated with the periods of attendance for breakdowns or other specific requests.

Any components which become necessary but are not covered by the Defects Liability shall be provided at no extra cost.

The servicing of the Lift during the initial twelve months Defects Liability & Maintenance Period shall include the full cleaning of the lift motor room, lift pit and lift shaft and shall include the cleaning and dusting of all voids, ledges, and internal building fabric in addition to the installed Lift equipment.

The Contractor will not be permitted to store cleaning material, grease or oil in the lift shaft or motor room.

The Contractor shall renew all lamps which may be found at the time of any inspection to be defective. This includes shaft lighting, machine and car lighting.

**SECTION 4**

# SPECIFICATION

A report shall be made available, upon request, which shall provide details of the following:

The service visits performed and their dates.

Whether the installation is in a satisfactory and serviceable condition.

A detailed list of all breakdowns and other site attendance together with the remedial action taken.

The Contractor must attend to breakdowns and emergency visits on a 24-hour a day basis at no extra cost.

The Contractor shall include for giving full instructions as to the running, operation and handwinding of the installation to the Employer's appointed staff or their client's appointed employees.

Failure to submit the reports as requested will result in the final payment not being released. [Refer to appropriate section in this Specification].

## 4:35 ASSOCIATED SPECIFIC WORKS

- The existing landing entrances will be removed in their entirety with new full width entrances installed to be finished in RAL 5001 Green/Blue.

- The existing lift car will be retained with the existing finishes chemically cleaned where specified.

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**SECTION 5**

## TECHNICAL & CONSTRUCTIONAL DETAILS OF EQUIPMENT

The following information, where appropriate to the installation, shall be supplied by the Contractor when submitting his tender:

| **HYDRAULIC PUMP & MOTOR** | **Lift No** |
|---|---|
| Make And Type | |
| Is Motor Immersed | |
| Rating | |
| Motor Starts Per Hour | |
| H.W. Rating | |
| Hrc Disconnector Rating | |
| Protection | |
| RPM of Motor | |
| Full Starting Current | |
| Running Current | |
| System Pressure | |
| Pump Type | |
| Is Valve Block Motorised | |
| Pump Motor Starts Per Hour | |
| Number of Rams | |
| Diameter of Rams | |
| Type of System Direct/Indirect | |

| **PROTECTION AGAINST INVOLUNTARY MOVEMENT FROM LANDING WITH DOORS OPEN** | **Lift No** |
|---|---|
| Manufacturer & Type | |
| Location | |
| Method of Release | |

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**SECTION 5**

# TECHNICAL & CONSTRUCTIONAL DETAILS OF EQUIPMENT

| CONTROLLER | Lift Nº |
|---|---|
| Make | |
| Type | |
| Control Voltage | |
| Eco-Mode Incorporated? | YES / NO |
| Floor/Wall Mounted | |
| Front/Rear Access | |

| SHAFT POSITIONING REFERENCE SYSTEM | Lift Nº |
|---|---|
| Make | |
| Type | |
| Control Voltage | |

| GUIDE SHOES | Lift Nº |
|---|---|
| Manufacturer & Type | |
| Length of Sliding Shoe | |
| Insert Material | |
| Number & Diameter of Rollers | |
| Spring Loaded ? | YES / NO |

| DOOR OPERATOR (FRONT) | Lift Nº |
|---|---|
| Make | |
| Type | |
| Type of Door Motor Protection | |
| Type of Passenger Protection | |
| Type of Car/Landing Door Coupler | |
| Out of Floor Zone Locking | YES/NO |

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**SECTION 5**

## TECHNICAL & CONSTRUCTIONAL DETAILS OF EQUIPMENT

| **CAR & LANDING ENTRANCES** | | **Lift Nº** |
|---|---|---|
| Manufacturer | | |
| Type | | |
| Clear Entrance Dimensions: | Width: | |
| | Height: | |
| Type of Emergency Release | | |
| UK Certificated Fire Rating (Landings) | | YES / NO |
| Sill Type and Support | | |

| **OPERATING FIXTURES** | | **Lift No** |
|---|---|---|
| Manufacturer (Car and Landing) | | |
| Type (Car and Landing) | | |
| Type of Position Indicators | | |
| Manufacturer of Position Indicators | | |
| Indicator Display Size: | Width: | |
| | Height: | |

**TELEPHONE NUMBERS TO BE USED FOR EMERGENCY CASES:**

**NAMES AND ADDRESSES OF PREMISES WHERE INSTALLATIONS SIMILAR TO THOSE BEING OFFERED MAY BE INSPECTED BY THE LIFT CONSULTANT:**

**SECTION 6**

## PERFORMANCE DATA

The tenderer is to complete the following information to evaluate Lift Performance, Handling Capacity and Ride Comfort.

| | Detail | |
|---|---|---|
| 1. | Full door opening time | Secs |
| 2. | Full door closing time | Secs |
| 3. | Door dwell time | Secs |
| 4. | Is advanced door opening included? | Yes / No |
| 5. | Acceleration from zero to full speed | Secs |
| 6. | Deceleration from full speed to zero | Secs |
| 7. | Floor to floor flight times [door open to door open] for: | |
| | [i] Single floor run | Secs |
| | [ii] Two floor run | Secs |
| | iii] Three floor run | Secs |
| 8. | Jerk rate initial setting | Secs |
| 9. | Adjustment in jerk rate | Secs |
| 10. | Vibration | Secs |
| 11. | Noise Levels | Secs |

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**SECTION 7**

# APPROVED SUB-CONTRACTORS AND SPECIALISTS

The following list of suppliers and sub-contractors is offered to the Contractor as a guide to the preferred specialists who are known by the Engineer. This list is not to be considered definitive and does not prevent the tenderer from offering his own equipment where this is of approved and equal design and performance or putting forward an alternative from a different source.

The Engineer, however, reserves the right to sanction the use of equipment or sub-contractors at all times, whether mentioned in this list or not and it is to be noted that all sub-contractors are to be quality assured to ISO 9001 – 2000.

The tenderer shall not, without the written authority of the Engineer, put forward a product or sub-contractor at the tender stage and then substitute an alternative product or sub-contractor when the work proceeds.

At all times the tenderer will be responsible for the performance and design of equipment and/or sub-contractors.

**Builders & Associated Works**
Drurycourt Ltd
P H Jackson & Son (Building) Ltd
Elevator Building Services
M D Construction (Bolton) Ltd

**Steel Structures**
Drurycourt Ltd
Evans Turner (Finishes) Ltd
Propbrook Ltd
Scott Fabrications
Major Lift Services Ltd
Essex Wire Works Ltd

**General Guarding**
As Steel Structures, plus
Liftech Ltd
Cocare Ltd
Delmark
Surrey Engineering
Seagrave Metal Works
Triple A Lift Refurbishment (NW) Limited
Bramptons Lift Manufacturers Ltd

**Pumps / Valves**
GMV
Blain
Bucher
ALGI
Leistritz (Mongrain Vertical Transport)
Hydroware
Lift Components Ltd
Global Lift Equipment

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**SECTION 7**

# APPROVED SUB-CONTRACTORS AND SPECIALISTS

**Cylinder / Pistons**
Leistritz
GMV
Blain
Bucher
ALGI
Leistritz (Mongrain Vertical Transport)

**Pulleys & Divertors**
Pye London
Brownings Electric
Hollister Whitney
Sassi
ThyssenKrupp
Volpi Elevator

**Door Operators (Speed to be electronically adjustable)**
GAL Manufacturing
MAC
Propbrook
Selcom
Sematic
Kone Parts
Fermator
Prisma

**Car / Landing Entrances**
GAL
MAC
Propbrook
Selcom
Sematic
Kone Parts
Fermator
Prisma
Mullhouse
Meiller??
Earlswood

**Control Systems**
Hydroware
C.E.S. (Swift Futura)??
International Lift Equipment Ltd
Kollmorgen UK Ltd
Lester Controls Ltd
Lifteknic Ltd
Liftstore (Thames Valley Controls Ltd)
Motion Control Engineering (MCE)

**SECTION 7**

# APPROVED SUB-CONTRACTORS AND SPECIALISTS

**Specialist Finishes [Lift Cars, Entrances &c]**
Evans Turner (Finishes) Ltd
P H Jackson & Son (Building) Ltd
Mulhouse Ltd
H H Martyn ???
Major Lifts Services Ltd (Dissolved)
Lift Cars Ltd ???
Triple A
MarCo Specialist Interiors Ltd
Stirling
GB Lifts

**Pushes & Indicators**
Liftstore
GAL
Schaffer
Drucegrove
Adams
Switching Components
Lift Components
C.E.Electronics
A & A
Stentorgate

**Car Door Protection / Detectors**
Memco
Sonaray
Visulux
Drucegrove/Formula Systems
T L Jones

**Lift Factors (where not listed above).**
International Lift Equipment Ltd
Kone Parts
Schindler UK Ltd
Otis Plc
Thyssenkrupp Elevators Ltd
Shorts Lifts
Global Lift Equipment Ltd
Hydrax
Hydratec
GF Hydraulics
Hydroware

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**SECTION 8**

# FORM OF TENDER & SUMMARY

**FINANCIAL**

| | |
|---|---|
| **LIFT INSTALLATION AS SPECIFIED:** | |
| **LIFT 1** | **£** |
| **ASBESTOS SURVEY** | **£** |
| **TOTAL COST AS SPECIFIED** | **£** |
| **CONTINGENCY** | **£** |
| **CURRENT FULLY COMPREHENSIVE CONTRACT SUM** | **£** |
| **CURRENT LEIA SERVICE INDEX** | |
| **CURRENT LEIA – INSTALLATION INDEX** | |

Working Director's Signature: _____

Name & Address of Company Tendering: _____

_____

_____

Date: _____

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**SECTION 8**

## FORM OF TENDER & SUMMARY

**PROGRAMME**

| | |
|---|---|
| **MANUFACTURING PERIOD** | **Weeks** |
| **LIFT INSTALLATION PERIOD** | **Weeks** |
| **Consultant's Test** | |
| **Snagging Period** | **Weeks** |
| **TOTAL CONTRACT PERIOD** | **Weeks** |
| **FIXED PRICE EXPIRES** | |
| **TENDER OPEN FOR ACCEPTANCE** | **Weeks** |

Working Director's Signature: _____

Name & Address of Company Tendering: _____

_____

_____

Date: _____

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**SECTION 9**

# DECLARATION

**I/WE** declare that the tender submitted is a bona fide tender and has not been prepared in collusion with other tenderers.

The tender fully covers the order, design, manufacture, supply, installation and maintenance as detailed in the Specification and covered by the Conditions of Contract and Contract Documents and it will be my/our intention to complete the said works in an efficient and workmanlike manner within the period stated, subject to there being no delays on the part of others.

**I/WE** confirm that we have made sufficient allowance in this tender for the resources of both time and money in order to undertake the works in a safe manner and have included in our Safety Plan the requirements of the Pre-Tender Safety Plan.

**I/WE** will also ensure that the methods employed with the installation and all completed works will meet the highest level of quality for the given item/component and the installation as a whole.

**I/WE** declare that in submitting this tender, Ref: I/WE confirm having a full understanding of the works/equipment involved and I/WE have familiarised myself/ourselves with the scope and intent of all works covered by my/our tender.

Signature [Director's signature only]: _____

For & On Behalf of: _____

_____

_____

_____

Date: _____

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**SECTION 9**

## SCHEDULE OF DEVIATIONS FROM THE CONTRACT

[To be completed by the Lift Contractor]

| Clause Nº | Deviation |
|---|---|
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**SECTION 10**

## DETAILS OF PROPOSED SUB-CONTRACTORS & SPECIALISTS

Where the sub-contractors proposed are not from the approved list the Contractor must confirm details so that they can be approved by the Engineer.

| Name and Address of Proposed Sub-Contractor | Scope of Proposed Sub-Contract Works |
|---|---|
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Working Director's Signature: _____

Name & Address of Company Tendering: _____

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_____

Date: _____

# SPECIFICATION ADDENDUM – C12714

## Design Notice – European Code & Standard BS EN81-20 / 50:2014

This specification has been developed to include the requirements of BS EN81-20/50:2014, encompassing all of the amendments from BS EN81-1/2:1998 + A3:2009. These improvements are exhaustive, therefore it is not our intention to detail these individually within this specification, but where any lift has a design compliance CE certification for BS EN81-20/50:2014, these requirements shall be included in their entirety.

Therefore provision shall be included within the lift contractors tender documents relative to all costs and programme periods associated for the new lifts to achieve full compliance to BS EN81-20/50:2014, ensuring that any design compliance CE certification indicates the new lifts compliance, and that the requirements of BS EN81-20/50:2014 shall be included in their entirety for any new lift handed over (Practical Completion).

Where any new lifts are handed over before midnight on the 31st August 2017., they can effectively remain compliant to BS EN81-1/2:1998 + A3:2009 where this has been agreed by the engineer or client, unless all of the requirements of BS EN81-20/50:2014 have been achieved.

It shall remain the responsibility of the lift contractor to ensure that all of the appropriate requirements of EN81-20/50 have been achieved before any new lift can be handed over for service following 31st August 2017.

Any declaration of conformity certificate issued during the handover process must clearly indicate which code & standard regulation the lift complies.