



REQUEST FOR PROPOSALS: APPOINTMENT OF A SUITABLE SERVICE PROVIDER FOR THE SUPPLY AND INSTALLATION OF TWO (2) NEW PASSENGER LIFTS FOR NHBC HEAD OFFICE FOR A PERIOD OF TWELVE (12) MONTHS

RFP NO.: NHBC 17/2020

CLOSING DATE: 26 MARCH 2021

TIME: 11:00AM

COMPULSORY BRIEFING SESSION

DATE: 12 MARCH 2021

TIME: 11:00AM

**VENUE: NHBC HEAD OFFICE, 27 LEEUWKOP ROAD
SUNNINGHILL JOHANNESBURG
GAUTENG**

1 TERMS AND CONDITIONS

This Request for Proposal (RFP) has been compiled by the NHBRC and it is made available to the Bidders on the following basis.

Bidders submitting a Bid in response to this RFP are deemed to do so, on the basis that they acknowledge and accept the terms and conditions set out below:

- 1.1 The Bidder must be registered on the National Treasury's Central Supplier Database ("the CSD") and ensure that, if it is successful, it remains so registered and further ensure that the information on the CSD is up-to-date for the duration of the contract.
- 1.2 The Bidder must ensure that it is tax compliant at the time of submitting its bid in response to this RFP, and if it is successful, it remains tax compliant for the duration of the contract. In this regard, the Bidder undertakes to provide the NHBRC with a Tax Clearance Certificate issued by the South African Revenue Services ("SARS") on an annual basis, confirming that it is tax compliant.
- 1.3 The NHBRC reserves the right to amend, modify or withdraw this RFP or amend, modify or terminate any of the procedures or requirements set out herein at any time (and from time to time), without prior notice and without liability to compensate or reimburse any person.
- 1.4 If the NHBRC amends this RFP, the amendment will be sent to each Bidder in writing or publicized as the case maybe. No oral amendments by any person will be considered or acknowledged.
- 1.5 The NHBRC reserves the right to carry out site inspections or call for supporting documentation in order to confirm any information provided by a Bidder in its RFP Bid.
- 1.6 This RFP is not intended to form the basis of a decision to enter into any transaction involving the NHBRC, and does not constitute an offer or recommendation to enter into such transaction, or an intention to enter into any legal relationship with any person.
- 1.7 A Bid submitted in response to this RFP will constitute a binding offer which will remain binding and irrevocable for a period of ninety (90) days from the date of submission to the NHBRC. The offer constituted by the Bid will be deemed not to have been accepted and no agreement will be deemed to be reached with any Bidder, unless and until a binding Agreement and other related transactions/documents are concluded between the NHBRC and the Preferred Bidder.
- 1.8 The distribution of this RFP outside the Republic of South Africa may be restricted or prohibited by the laws of other countries. Recipients of this RFP are advised to familiarize themselves with and comply with all such restrictions or prohibitions applicable in those jurisdictions, and neither the NHBRC, nor any of their respective directors, officers, employees, agents, representatives or advisors, accepts liability to any person for any damages arising out of or in connection with the breach of any restriction or provision outside the Republic of South Africa. Persons contemplating submitting a Bid are advised to obtain legal advice as to the possible consequences thereof in terms of the law of the jurisdictions in which they are located.
- 1.9 Recipients of this RFP document may only distribute it to other parties whom they wish to involve as part of their Bidder consortium in submitting a Bid.
- 1.10 Neither the NHBRC nor any of their respective directors, officers, employees, agents, representatives or advisors will assume any obligation for any costs or expenses incurred by any party in or associated with preparing or submitting a Bid in response to the RFP.

- 1.11 No entity may be involved, whether directly or indirectly, in more than one Bid in response to this RFP. Failure to comply with this requirement may, within the sole discretion of the NHBRC, result in disqualification of the relevant entity.
- 1.12 Any material change in the control and/or composition of any Bidder or any core member of a Bidder after submission of a Bid, shall require the prior written approval of the NHBRC, and any failure to seek such approval from the NHBRC shall result in the NHBRC being entitled, in its sole discretion, to disqualify the relevant Bidder from any further participation in the Bid process. The NHBRC shall be the sole arbiter as to what constitutes a “material change in the control and/or composition of any Bidder”, and as to what constitutes a “core member of a Bidder” for purposes of such approval. Any request for such approval shall be made to the NHBRC’s Supply Chain Management (“SCM”) in writing and shall provide sufficient reasons and information to allow the NHBRC to make a decision. The NHBRC reserves the right to accept or reject any such request for approval at its sole discretion.
- 1.13 Briefing Session: There will be a compulsory briefing session. The sharing of information and clarifications of issues related to this Bid, as given by the NHBRC will form part of this Bid and responses.
- 1.14 Any requirement set out in this RFP that stipulates the form and/or content of any aspect of a Bid, is stipulated for the sole benefit of the NHBRC, and save as expressly stated to the contrary, may be waived by the NHBRC in its sole discretion at any stage in the RFP process.
- 1.15 The NHBRC and its advisors shall rely on a Bid as being accurate and complete in relation to the information and proposals provided therein by the Bidders.
- 1.16 All Bids submitted to NHBRC will become the property of the NHBRC and will as such are not returned to the Bidder. The NHBRC will make all reasonable efforts to maintain proposals in confidence. Proprietary information should be identified as such in each proposal.
- 1.17 The Bid submitted by the bidder shall be considered irregular if they show any omissions, alteration of form, additions, or conditions not called for, or irregularities of any kind. However, the NHBRC reserves the right to waive any irregularities and to make award in the best interest of the company.
- 1.18 Bids must only be submitted on documentation provided by the NHBRC. Late, emailed, faxed and telegraphic bids will not be considered.
- 1.19 The NHBRC reserves the right to accept or reject the Proposal.
- 1.20 RFP’s shall be rejected, among other reasons, where Bids are received after the closing date and time as specified in the RFP.
- 1.21 Potential service provider(s) shall be disqualified, and their Bids not considered among other reasons, for any of the following specific reasons:
- 1.21.1 If the SCM Mandatory Documents are not submitted and completed as per this RFP; and/or
 - 1.21.2 The Bid contains irregularities.
- 1.22 The NHBRC reserves the right to require that any bidder provide a formal presentation of its RFP at a date and time to be determined by the NHBRC. The NHBRC shall provide all instructions and clarification regarding the purpose and scope of the presentation. All expenses must be borne by the bidder.
- 1.23 All costs associated with the preparation and submission of the Bid is the responsibility of the Bidder. The costs shall not be chargeable to the NHBRC by successful or unsuccessful Bidder.

1.24 This document is released for the sole purpose of responding to this RFP and must be considered confidential. In addition, the use, reproduction or disclosure of the requirements, specifications or other material in this RFP is strictly prohibited.

1.25 All Bids must be formulated and submitted in accordance with the requirements of this RFP.

2 BACKGROUND

2.1 ABOUT THE NHBRC

2.1.1 The National Home Builders Registration Council (NHBRC) is a regulator established in terms of section 2 of the Housing Consumers Protection Measures Act 95 of 1998 (“the Act”). Section 3 of the Act provides that the objects of the NHBRC are to:

- (a) represent the interests of housing consumers by providing warranty protection against defects in new homes.
- (b) regulate the home building industry.
- (c) provide protection to housing consumers in respect of the failure of home builders to comply with their obligations in terms of this Act.
- (d) establish and to promote ethical and technical standards in the home building industry.
- (e) improve structural quality in the interests of housing consumers and the home building industry.
- (f) promote housing consumer rights and to provide housing consumer information.
- (g) communicate with and to assist home builders to register in terms of this Act.
- (h) assist home builders, through training and inspection, to achieve and to maintain satisfactory technical standards of home building.
- (i) regulate insurers contemplated in section 23 (9) (a); and
- (j) in particular, achieve the stated objects of this section in the subsidy housing sector.

2.2 NHBRC OFFICES

2.2.1 The NHBRC is a medium sized organization with a staff compliment of approximately 700 employees. The NHBRC’s Head Office is located in Sunninghill, Gauteng, with nine (09) Provincial Offices of varying size and 12 Satellite Offices which are located in the following areas:

	NHBRC OFFICE LOCATIONS	#	NHBRC OFFICE LOCATIONS
1	Head Office, (Sunninghill)	13	Eastern Cape (East London) - Satellite
2	Gauteng (Sunninghill) – Provincial	14	Western Cape (George) - Satellite
3	Kwa-Zulu Natal (Durban) – Provincial	15	North West (Klerksdorp) - Satellite
4	Western Cape (Cape Town) – Provincial	16	Limpopo (Tzaneen) - Satellite
5	Eastern Cape (Port Elizabeth) – Provincial	17	Limpopo (Bela Bela) - Satellite
6	North West (Rustenburg) – Provincial	18	Mpumalanga (Witbank) - Satellite
7	Limpopo (Polokwane) – Provincial	19	Free State (Bethlehem) – Satellite
8	Mpumalanga (Nelspruit) – Provincial	20	North West (Mafikeng) – Satellite
9	Free State (Bloemfontein) – Provincial	21	Limpopo (Thulamela) – Satellite
10	Northern Cape (Kimberly) - Provincial	22	Gauteng (Pretoria) – Satellite
11	Kwa-Zulu Natal (Newcastle) - Satellite	23	Eric Molobi Innovation Hub (Soshanguve)
12	Kwa-Zulu Natal (Richards Bay) - Satellite		

3 INTRODUCTION

The National Home Builders Registration Council is mandated by the Housing Consumers Protection Measures Act, 1998 (Act No. 95 of 1998) to regulate the homebuilding industry and protect housing consumers. The NHBRC ensures that it delivers on its mandate by delivering on its products and services, and the key performance indicators that are contained in the organisational scorecard.

VISION

To be the Champion of the Housing Consumers.

MISSION

To Protect the Housing Consumers and to Regulate the Homebuilding Environment.

MOTTO

Assuring Quality Homes.

STRATEGY OF NHBRC

The strategy of the NHBRC is based on the following pillars:

- To ensure that housing consumers and home builders are educated on their rights and obligations.
- To entrench a culture of compliance through fair and efficient enforcement mechanisms
- To research and introduce innovative products, methods, and technologies within the homebuilding industry.
- To maintain a sustainable warranty fund.

4 OBJECTIVE

- 4.1 The project is aligned to NHBRC strategic objective of enhanced public confidence in the governance and leadership of the NHBRC.
- 4.2 The main objective of the project is to provide uninterrupted universal vertical transportation for NHBRC employees and its stakeholders.
- 4.3 Project objective will cover but not limited to the following:
 - 4.3.1 To replace two (2) lifts in the NHBRC building.
 - 4.3.2 Ensure that the building complies with the National Building Regulations
 - 4.3.3 The reduction of high failure rate of the lifts which inconvenience the NHBRC employees and its stakeholders.
 - 4.3.4 Reduction of the maintenance cost.
 - 4.3.5 Compliance with Occupational Health and Safety Act (OHSA) in respect of universal access.
 - 4.3.6 Mitigate the reputational risk as high failure rate of lifts might have negative impact on NHBRC reputation.

5 SCOPE OF WORK

5.1 The scope of the works shall include, but is not limited to the following:

5.1.1 The complete design, supply, transport and delivery, installation, testing, setting in operation, leaving complete works in order, etc., for the Escalators & Lifts Installation of the Existing NHBRC Building, including the provision of labour, materials, establishment, supervision, equipment, tools, and all other items to complete the works, including de-establishment on completion and commissioning of the entire works.

5.2 The successful bidder shall carry out the work in accordance with the "Scope of Work" as mentioned in the Lift Tender Document reference. **(See attached Appendix 1)**

6 CONSTRUCTION PROGRAMME

6.1 The Contractor shall supply a bar chart setting out his activities in such a manner that the Principal Agent can accurately assess his progress throughout. The programme shall be submitted before any construction starts and must be in conjunction with the Clients approval.

6.2 The Contractor shall submit an organogram with the tender document for review. The organogram must indicate whether on-site, off-site or part time and the function to be performed by the personnel. A summary of the experience of the supervisory staff for this type of project must be submitted with the tender.

6.3 The Principal Agent reserves the right to request the removal of personnel should they prove unsuitable for this project.

6.4 The Contractor shall liaise and co-operate fully with the principal agent in order to establish and agree precise commencement, sequence and completion dates for the execution of the subcontract works. Thereafter, the Contractor shall expeditiously and diligently proceed with the execution of the Contract works and do everything necessary to adhere to the said programme and to complete the Contract works in the required sequence and the whole of the Contract works in the required time.

6.5 Should any delay occur, the Contractor shall take all necessary steps to ensure that the various sections of the Contract works are completed timeously including the provision by him of additional resources, plant, manpower, etc, the working of additional overtime and by all other adequate and proper means and methods.

7 DURATION

7.1 The duration for completing the project must not be more than three years. The service provider and NHBRC will enter into a SLA on an effective date to be determined by the parties.

7.2 The service provider and NHBRC will enter into the full comprehensive maintenance agreement for five (5) years at the end of the twelve (12) months free maintenance period.

8 SERVICE PROVIDER RESPONSIBILITIES

- 8.1 From the isolating switch or sub-distribution board provided by the Client, all electrical work required for the lift shall be the responsibility of the Contractor unless otherwise stated in the particular specification.
- 8.2 The Contractor will provide permanent lighting in the lift well and in the lift pit. The lighting in the lift will comprise of one lamp at 0.5 m from the highest and lowest points in the wall with intermediate lamps fitted at each landing header section trough out the lift shaft and shall be controlled by two-way switches located at the top landing and in the lift pit.
- 8.3 The shaft lighting shall be of the energy efficient type and provide for energy saving power consumption.
- 8.4 The Contractor will provide a permanent plug socket outlet in the pit. The socket outlet in the lift pit will be of splash-proof type.

9 FUNCTIONAL EVALUATION CRITERIA

- 9.1 The evaluation of the functional/ technical detail of the proposal will be based on the following criteria:

Functional Factors	Criteria Description
1. Number of years installing, repairing, and maintaining the lifts. (Project Experience)	At least five (5) years that the company has been installing, repairing and maintaining lifts. A company profile or a list of projects clearly indicating the number of years in the business of installing, repairing, and maintaining lifts
2. Client references	At least five (3) contactable references where installation, repairing and maintenance of lifts was successfully implemented. Details of similar current projects carried out and past projects completed during the past three years. Client letter must indicate the client name, contact person and telephone number, description, and value of the work on which the company fee was based
3. Qualification	Bidder must provide NQF Level 6 for all qualifications of the project team members
4. Detailed Project Plan	The Bidder must provide a detailed project plan that clearly indicates the project deliverables, responsible action owners and time frames. (A detailed statement of the company's approach and methodology for accomplishing the assignment of removing the existing elevators and for installation of the new lifts. This section should show the applicant's understanding of the process and input required towards the completion of the required services)

Proposals with functional/technical points that are less than minimum threshold of 60 points will be eliminated from further evaluation.

10 ELIMINATION CRITERIA

9.1 Proposals that do not meet the stipulated conditions of the NHBRC will be eliminated.

11 REPORTING

11.1 The report format will be agreed upon between the service provider, NHBRC and Principal Agent.

11.2 The service provider shall provide monthly, quarterly, and annual reports to management.

12 TRACK RECORD

12.1 A complete list of the five (5) most recent projects that were successfully completed within five years and signed off by the accounting officer or his/her delegated is required.

13 TECHNICAL DATA TO BE SUBMITTED BY BIDDER

13.1 General Information

13.1.1 The NHBRC requires the Goods or Services of interested and competent organisations or companies that are experienced in lift installation and maintenance services and the Service Provider is expected to provide proof of expertise.

13.2 Requisites of the Service Provider:

13.2.1 A detailed proposal:

- Understanding of terms of reference.
- Team composition competencies (please attach CVs and indicate roles of individuals).
- Quality Assurance measures (process and control).
- Summary of projects executed and completed.
- Appendix 1 attached on this document.

13.3 Documents to be submitted:

13.3.1 A list of at least five (5) projects that the bidder has completed in the last five years, the bidder must submit a summary of the projects in the format presented below:

Name of Project	Project Description	Project Period (Start date – End date)	Contract Value (incl. VAT)	Client Name	Client Contact Tel

Name of project:

Name of Client:

Client Contact Details

Contact person:

Role in Project:

Contact Tel No:

Contact Cell:

Project Start Date:

Project Completion Date:

Contract Amount (incl. VAT):

Summary of Project (maximum 200 words).

Note: Please attach a reference letter from the client indicating successful completion of the project as per the client's brief. (Excluding the NHBRC)

13.3.2 Expertise and experience of key personnel

13.3.3 The successful service provider will be required to provide the expertise, qualifications, and experience to successfully deliver

13.3.4 Suitably qualified and experienced technical personnel must be assigned to this project. Please complete a summary detail of the main Project Team in the format shown below:

NO	PROJECTS COMPLETED IN THE LAST FIVE (5) YEARS				
	Full Name	Role in Project	Current Academic Qualifications	Key Area of Specialization	Years of Experience in the industry
1.					
2.					
3.					
4.					
5.					

*Please attach recently (last 6 months) certified copies of academic qualifications.

Note, in addition please provide the following:

- CV for each of the project team members highlighting specific and relevant qualifications and experience.
- Key personnel may only be replaced by the personnel with similar expertise over the life of the contract and written permission must be obtained from the NHBRC.

14 TECHNICAL AND PRICE EVALUATION CRITERIA

14.1 In accordance with the NHBRC Supply Chain Management Policy, the bid evaluation process shall be carried out in three (3) stages namely:

14.1.1 Stage 1: Compliance check of Mandatory Requirements.

14.1.2 Stage 2: Functional Evaluation Criteria

14.1.3 Stage 3: Price and Preference Points Evaluation

Stage 1: Compliance check of Mandatory Requirements

All mandatory documents as per the SCM Mandatory Checklist in this RFP should be completed in full, signed and submitted with the Bidder's response to this RFP. Failure to comply with this requirement or submission of false, fraudulent or misleading information or documents will result in the disqualification of the Bidder or termination of the successful bidder's contract. In this regard, the NHBRC reserves its rights to take appropriate legal action.

DOCUMENTS TO BE SUBMITTED			
No.		Please note; the items marked with an (X) are mandatory requirements and failure to meet the requirements will result in your bid being disqualified.	Yes/No
1.		Valid B-BBEE Status Level or Copy/Sworn affidavit signed by the Commissioner of Oaths on the DTI template.	
2.	X	SBD1 Invitation to bid, Make sure it is completed signed.	
3	X	SBD 3.1 – Pricing Schedule.	
4	X	Pricing list / Activity Schedule 3.1 (including a detailed costing breakdown of all cost)	
5.	X	SBD 4 Declaration of interest, Make sure it is completed and signed.	
6.	X	SBD 6.1 Preference claim form should be completed and signed, regardless if points are claimed or not.	
7.	X	SBD 8 Declaration of Bidder's past supply chain management practices, Make sure it is completed and signed.	
8.	X	SBD 9 Certificate of independent bid determination, Make sure it is completed and signed.	
9.	X	SBD 6.2 Declaration Certificate for Local Production and Content and annexures*	
10.	X	Bidder must provide proof of COIDA (A Certified Copy)	
11.	X	Proof of Public Liability Insurance Cover for a minimum of at least R5 million	
12.	X	Proof of CIDB Registration – Grade 3SI	
13.		CSD/Central Supplier Database supplier number Report	
14.		General Conditions of the contract (GCC).	

***NB: Local Production and Content**

The NHBRC promotes Local Production and Content. In the case of designated sectors, only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

Bidders are required to assess their product and/or service offering against the designated sector lists as published by the Department of Trade and Industry (the DTI) and to ensure full compliance to the minimum local content threshold, before submitting its response to this tender. The DTI's latest list of designated sectors can be accessed on: http://www.dti.gov.za/industrial_development/ip.jsp

Stage 2: Functionality in terms of the set technical evaluation criteria

Bids must fully comply with all the Mandatory Requirements for the **Stage 1: Compliance check of Mandatory Requirements** in order to qualify for **Stage 2: Functional Evaluation** and those bids which failed to comply with all the requirements of Stage 1 will be invalidated or disqualified from the process.

The Bidders information will be scored according to the following points systems:

The following values and formulae will be applicable when evaluating the bid

Member score for criteria

$$\text{Member score for criteria} \times \text{Weight per criteria} = \text{Total Score per criteria}$$

Highest points for criteria

5=Excellent 4=Very good 3= Good 2= Average 1= Poor 0= Non-compliance

Item No	Evaluation Criteria	Description	Weight (%)
1	Number of years installing, repairing and maintaining the lifts	At least five (5) years that the company has been installing, repairing and maintaining lifts. A company profile or a list of projects clearly indicating the number of years in the business of installing, repairing and maintaining lifts Bidder Experience 0 Years' Experience = 0 Points 1 Year Experience = 1 Point 2 Years' Experience = 2 Points 3 Years' Experience = 3 Points 4 Years' Experience = 4 Points 5 Years' Experience = 5 Points	20
2.	Client References	The Bidder must provide three (3) positive written contactable references indicating the similar services rendered. The reference letters from the clients of a bidder must include: <ul style="list-style-type: none"> • Company name • Company letterhead • Contact person and contact telephone numbers • Details of similar current projects carried out and past projects completed during the past three years. • Value of the work on which the company fee was based • The letter must be signed by a duly authorized person 	30

Item No	Evaluation Criteria	Description	Weight (%)
		0 reference letter= 0 Points 1 reference letter = 1 Point 2 reference letters = 2 Points 3 reference letters = 3 Points 4 reference letters = 4 Points 5 reference letters = 5 Points	
3.	Qualification	Bidder must provide certified qualifications (within 6 months) of the following project team members <ol style="list-style-type: none"> 1. Project Manager (At least NQF Level 6) 2. Lift Mechanics (Trade Test Certificate) <ul style="list-style-type: none"> • No qualification or 1 qualification submitted=0 Points • Both qualifications submitted= 5 Points 	30
4.	Detailed Project Plan	The Bidder must provide a detailed project plan that clearly indicates the project deliverables, responsible action owners and time frames <ul style="list-style-type: none"> • No project plan or Plan with no project deliverables, no responsible action owners, and No timeframes specified = 0 Points • A detailed project plan submitted with all project deliverables, responsible action owners and timelines specified = 5 Points 	20

NB: The minimum threshold for functionality is 60 out of 100 points. Bidders who fail to meet minimum threshold will be disqualified and will not be evaluated further for price and preference points.

Stage 3: Price and Preference Points Evaluation

Only bids that obtained a minimum qualifying score (**60 points**) for **Stage 2 (Functional Requirements)** will be evaluated further.

The contract will be awarded in terms of Regulations 4 of the Preferential Procurement Regulations pertaining to the Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000) and Preferential Procurement Regulations, 2017 and bids will be adjudicated in terms of a (80/20) preference point system in terms of which points are awarded to bidders on the basis of:

80/20 Preference point system (for acquisition of services, works or goods with a Rand value not more than R 50 million) (all applicable taxes included)

$$P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where;

P_s = Points scored for comparative price of bid or offer under consideration

P_t = Comparative price of bid or offer under consideration

P_{min} = Comparative price of lowest acceptable bid or offer.

The points scored will be rounded off to the nearest two decimal places.

The points will be awarded to a Bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

BBBEE Level	80/20
Level 1	20
Level 2	18
Level 3	14
Level 4	12
Level 5	8
Level 6	6
Level 7	4
Level 8	2
Non-Compliant Contributor	0

The points scored for price will be added to the points scored for B-BBEE status level to obtain the Bidders total points scored out of 100 points.

15 RFP SUBMISSION INSTRUCTIONS

15.1 All RFP documents must be sealed in a clearly marked envelope and deposited into the tender box at the
NHBRC HEAD OFFICE: 27 LEEUWKOP ROAD, SUNNINGHILL, JOHANNESBURG

16 AVAILABILITY OF THE RFP DOCUMENT

16.1 Bid documents can be downloaded on the NHBRC Website (www.nhbrc.org.za/current-tenders) from the **05 March 2021**.

16.2 There will be a compulsory briefing session that will be held on the **12 March 2021** at 11h00 at the
NHBRC HEAD OFFICE: 27 LEEUWKOP ROAD, SUNNINGHILL, JOHANNESBURG

17 RFP CLOSING DATE

17.1 Bid documents should be marked for Attention: Supply Chain Manager and deposited into the Bid boxes at the NHBRC National Office, 27 Leeuwkop Road, Sunninghill on or before the **26 March 2021 at 11h00**. No emailed or faxed bids will be accepted. The bid document should be supplied in a sealed envelope and clearly marked (**Copy or Original**) with the bid number and the full name of the service provider(s).

17.2 No late submissions will be accepted.

18 VALIDITY PERIOD OF BIDS

18.1 All bids submitted by the bidders must be valid for a period of 90 days from the closing date specified above.

19 ENQUIRIES SHOULD BE DIRECTED TO BOTH:

19.1 The administrative enquiries may be directed to:

Department: Supply Chain Management

Contact Person: Ms.Paballo Relela, Mr.Bernard Kekana

E-mail address: Tenders@nhbrc.org.za

20 SUBMISSIONS OF PROPOSALS

20.1 Submission of bid MUST include **one** (1) original and **three** (3) copies of the proposals in a clearly marked **(Copy or Original)** envelope and deposited into the Bid box.

20.2 All costs and expenses incurred by the Bidder relating to the participation in, and preparation of this proposal process shall be borne by the Bidder exclusively. All documentation and manuals submitted in respect of this RFP shall be retained by NHBRC, whether or not the proposal is accepted

APPENDIX 1

TENDER FOR THE SUPPLY AND INSTALLATION OF TWO (2) NEW LIFTS FOR NHBRC

TECHNICAL SPECIFICATION

FORWARD

This Lift Specification has been compiled under the guidelines of the latest revision of **the EN81 Code, SANS 1545 standards and parallel codes** the **SANS 50081-1 (EN 81)** Electric lifts, **SANS 50081-20** Passenger & Goods Lifts, **SANS 1545-5** for Goods Only Access Lifts **SANS 21 Escalators & Passenger Conveyors** and the **Occupational Health and Safety Act, Act No 85 of 1993**.

It must be clear that this document has been compiled for and is only to be used solitary for the proposed two (2) new Passenger Paraplegic lift installations required for **NHBRC, 27 Leeuwkop Road, Sunninghill, Johannesburg 2157**

TENDER FOR THE SUPPLY AND INSTALLATION OF TWO (2) LIFTS FOR NHBRC

FORM OF TENDER

PROJECT NAME AND LOCATION:

SUPPLY AND INSTALLATION OF TWO LIFTS FOR NHBRC
27 Leeuwkop Road
Sunninghill
Johannesburg
2157

DEPARTMENT:

NHBRC – HEAD OFFICE

WORK DESCRIPTION:

Full replacement of two (2)

NAME OF TENDERER:
Postal Address:

Tel: _____ **Fax:** _____
Email: _____

TOTAL TENDER PRICE INCLUDING VAT

R _____ (main offer)

FORM OF TENDER

The tender price shall include for all work to be performed and completed as described herein and with the tender conditions as prescribed in these documents for the entire scope of works and technical specifications.

MAIN OFFER

Two (2) New Lifts as specified.

TOTAL TENDER PRICE INCLUDING

VAT:

R _____ (main offer)

TOTAL TENDER SUM FOR MAIN OFFER

Total Tender sum in words **inclusive of tax**

_____ (main offer)

TENDERERS ACCEPTANCE

Tenderer Name

_____ (name and address of organisation)

Capacity

Name

Signature

Date

CLIENT'S / AGENT'S ACCEPTANCE

This Offer may be accepted by the Client or Client's Agent by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the this Form of Tender.

Signatures

Name(s)

Capacity

Date

Employer

(name and address of organisation)

FORM OF TENDER

1. CONDITIONS OF TENDER

1.1 PRICING

The tender price shall include for all work which could have been reasonably foreseen as being necessary to complete this works/subcontract in terms of the works/subcontract documents.

No claim shall be entertained at a later stage due to the tenderer having failed to take necessary items into account in his tender price.

Cost for imported content / equipment is to be based on **USD 1= ZAR17.80 / EURO 1 = R19.00 / THB 1 = R0.55** demonstrated in **Table 1** below.

Allow for pre-escalation price to be fixes for local content.

Table 1.

PLEASE SPECIFY YOUR IMPORT CONTENT VALUE -					
(Foreign Currency)					
CURRENCY	EXCHANGE RATE	IMPORT CONTENT	RAND VALUE	LOCAL CONTENT – FIXED RAND VALUE	TOTAL
EUR	19.00				
USD	17.80				
THB	0.55				

FORM OF TENDER

1.2 TENDER REQUIREMENTS

Tenders are expected to examine the specifications, delivery schedule, and all instructions pertaining to supplies and services. Failure to do so will be at the tenderer's risk.

By submitting a tender, the tenderer agrees that he has acquainted himself fully understands the tender documents, local requirements and laws, all aspects of the envisaged works and the conditions on site under which the works are to be undertaken and completed.

2 NOTES TO TENDERERS

2.1 SITE INSPECTION

The nature of the site, means of access to and any restrictions on such access area for site establishment and on transport and storage of materials and equipment to and from the site, and generally all circumstances, conditions under which the work under this subcontract has to be carried out, and all matters which may in any way influence the cost, conduct or execution of the work, before submitting their tenders as no extra arising out of their failure to do so will be entertained.

2.2 The lowest or any tender will not necessarily be accepted. The Agent is not bound to accept the lowest, or any tender, nor is he required to give reasons for selecting one tender in favour of another. Results of the tender will be published upon adjudication of all tenders received. The Tenderer shall within two weeks after receiving a letter of acceptance, contact the Employer's agent to arrange the delivery of guarantees, proof of insurance and any other documentation to be provided in terms of the Contract. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

2.3 VERIFICATIONS AND DEVIATIONS

Deviations from the work shall not be accepted. When the standards of the equipment specified cannot be met in terms of specific design requirements; substitution or alternative equipment may be considered provided that the substituted equipment does not reduce the intended performance, operation, duty-rate, and redundancy and reliability requirements of the specification.

Deviations or substituted equipment not clearly shown and detailed BELOW, shall not be considered or accepted and shall not limit the **Contractor's** responsibility to provide equipment in terms of the specification.

Should approval for the revised equipment not be obtained from the **Client**, the **Contractor** shall be liable for all costs associated with providing equipment in terms of the specification.

3 PRICING INSTRUCTIONS

3.1 PRICE LIST / ACTIVITY SCHEDULE

3.1.1 ITEM_1 - MAIN OFFER FOR TWO (2) NEW ELEVATORS FOR NORTH SHORE

3.1.1.1	TENDER	TOTAL AMOUNT EXCLUDING VAT
ITEM	DESCRIPTION	
1.	Complete supply and installation of two (2) new DUPLEX Five (5) stop passenger paraplegic elevators as specified	
2.		
3.1.1.2	TOTAL TENDER SUM FOR ITEM 1 (OF THE PRICES EXCLUSIVE OF VALUE ADDED TAX)	
	Add 14% VAT	R
	Total Tender Sum inclusive VAT	R

3.1.2 ITEM 2- MAIN OFFER FOR BUDGETARY / OPTIONAL ALLOWANCE

3.1.2.1	TENDER	TOTAL AMOUNT EXCLUDING VAT
ITEM	DESCRIPTION	
1.	Emergency battery rescue device for two (2) elevators	
2.		
3.		
3.1.2.2	TOTAL TENDER SUM FOR ITEM 2 (OF THE PRICES EXCLUSIVE OF VALUE ADDED TAX)	R
	Add 15% VAT	R
	Total Tender Sum inclusive VAT	R

3.1.3 TOTAL CONTRACT SUM

3.1.1.2	TOTAL CONTRACT SUM	
3.1.2.2	Total Contract sum (total of 3.1.1.2 and 3.1.2.2)	R
	Add 15% VAT	R
3.1.3.1	Total Contract Sum inclusive VAT	R

TENDER FOR THE SUPPLY AND INSTALLATION OF TWO (2) LIFTS FOR NHBRC

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PART A

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1. NOTES TO TENDERERS
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1 NOTES TO TENDERERS

1.1 SITE INSPECTION

Tenderers shall inspect the site to verify and confirm all site information on existing equipment details, shaft dimensions, car sizes and door openings. Tenderers shall make themselves thoroughly acquainted with the site conditions under which the work is to be carried out at

PHYSICAL SITE ADDRESS: NHBRC, 27 Leeuwkop Road, Sunninghill, Johannesburg 2157

The nature of the site, means of access to and any restrictions on such access area for site establishment and on transport and storage of materials and equipment to and from the site, and generally all circumstances, conditions under which the work under this subcontract has to be carried out, and all matters which may in any way influence the cost, conduct or execution of the work, before submitting their tenders as no extra cost arising out of their failure to do so will be entertained.

1.2 DETAILS AND CLARIFICATION FOR SITE MEETING / INSPECTION

1. Successful tenderer to Submit program **within three weeks** of appointment
2. Penalties – Late submission of Program, Non-Conformance to OHS, Project Management and Delay in Completion
3. Technical specifications
 - i) Latest state of the art “Energy efficient” lifts
 - ii) Provide “claims” and complete table for power consumption and energy savings
 - iii) No oil / lubricants
 - iv) Noise Levels
 - v) Landing and car door roller type
 - vi) Gear-less Machine
 - vii) Auto car light and fan – 12volt lighting
 - viii) LED signalization
 - ix) Lifts to enter “sleep mode”
 - x) Specifics for Emergency Power / Fire operation of elevators
4. Special Notes
 - i) Rear glass panel inside car together with bumper rails and hand rails.
 - ii) Accessible Lockable hoarding on all floors
 - iii) Noise and after hours work arrangements
 - iv) Exiting fire signals to be re-instated
 - v) Paint rear wall of lift shaft
 - vi) Additional Machine room lights
 - vii) 3 Phase power to top of lift shaft
 - viii) Turnkey project
 - ix) COC for electrical works

PART B

SECTION 1

SCOPE AND GENERAL REQUIREMENTS OF CONTRACT

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SECTION 1

SCOPE AND GENERAL REQUIREMENTS OF CONTRACT

1.1 INTENT

Work described in this Section includes providing equipment, incidental material and labor required for complete, lift installation. Where singular reference is made to lifts or lift components, such reference shall apply to number of lifts or components required to complete installation. This specification provides a broad outline of required equipment and does not describe the details of design and construction. Lifts shall be erected, installed, adjusted, tested and placed in operation by lift system manufacturer, or manufacturer's authorized installer.

1.2 SCOPE OF SPECIFICATION

1.2.1 INSTALLATION TO COMPLY WITH THIS GENERAL SPECIFICATION

This General Specification details the intrinsic properties (including materials and workmanship) required of the lift installations carried out for or on behalf of, **NHBRC – HEAD OFFICE**, 27 Leeuwkop Road, Sunninghill, Johannesburg, 2157.

1.2.2 INSTALLATION TO COMPLY WITH THE SPECIFICATION AND STANDARDS

The Lift installation shall comply in every respect with this General Specification unless otherwise specified in the currently in force Legislation and other Subsidiary Legislation, the Particular Specification, Drawings and/or any other relevant contract documents of the Contract, and in particular the latest revision of any specification **under the EN81 Code, SANS 1545 (2009) standards and any parallel codes of practice or standards** referred to in this specification shall apply.

1.2.3 INSTALLATION TO COMPLY WITH STATUTORY OBLIGATIONS, REGULATIONS & STANDARDS

Lift (passenger, bed/passenger, service and goods) and Escalator/ Passenger Conveyor Installations shall comply with the following statutory obligations, regulations, standards together with any additions or amendments thereto currently in force: -

- SANS 10400 The Code of Practice for the application of the **National Building Regulations**
SANS 10400 Part - N
SANS 10400 Part - S Facilities for disabled persons
SANS 10400 Part - T Fire protection
- SANS 1545-1 - SANS 50081-1 (EN 81-1) Electric lifts
- SANS 81-20 – Safety Rules for the Construction & Installation of Lifts – Lifts for the transport of Persons & Goods
- SANS 1545-5 – Goods Only Access Lifts
- SANS 50081-70 (EN 81-70) Accessibility to lifts for persons including persons with disability.

- Occupational Health and Safety Act, Act No 85 of 1993.
- Local Municipal by-laws and Local fire regulations
- SANS 1545-9 - Lift landing doors – Fire resistance testing
- SANS 1543-21 – Escalators and Passenger Conveyors

1.2.4 SCOPE OF WORK

This Specification, the Equipment Schedules and Drawings detail the performance requirements of the work. The work to be carried out in accordance with this Specification shall include the whole of the design, labour and all materials necessary to form a complete installation including any necessary tests, adjustments, commissioning and maintenance as prescribed and all other incidental sundry components necessary, together with necessary labour for installing such components, for the complete execution of the works and for the proper operation of the installation. It shall also include all necessary co-operation with other contractors involved on the Site in respect of co-ordination, programming, scheduling and sequence of installation of the works.

The brief scope of works will be for the Contractor to supply and install new equipment as follows:

- **Strip and remove existing elevators**
- **New MRL electric elevator**
- **Passenger paraplegic type elevator**
- **Regenerative energy efficient VVVF drive**
- **Low level lubricant elevator equipment**
- **Low noise elevators**
- **Energy efficient car lights and fans**
- **VVVF car door operator**
- **Low voltage energy efficient Landing/Car buttons and signalization**
- **Low voltage energy efficient Shaft and top of car lighting**
- **Emergency Battery Rescue device (Optional)**

1.2.5 QUALITY ASSURANCE

The execution of work of this section shall be conducted by a company who has adequate product liability insurance.

The employees of the contractors must be skilled tradesmen registered and certified with the relative qualifications authority, with demonstrated ability to perform the work on a timely basis.

1.2.6 DEFINITIONS, INTERPRETATIONS & ABBREVIATIONS

In this General Specification, the following words shall have meanings herein assigned: -

"Employer" - NHBRC – HEAD OFFICE, 27 Leeuwkop Road, Sunninghill, Johannesburg, 2157

"Builder Contractor" - The person(s), firm or company whose Tender has been accepted by the Employer for the building construction, including his or their personal representatives, successors and permitted assigns.

"Contractor"- The person(s), firm or company whose Tender for the Lift Installation has been accepted by the Employer, and includes the Contractor's personal representatives, successors and permitted assigns.

"Electrical Contractor" - The person(s), firm or company whose Tender for the Electrical Works has been accepted by the Employer, and includes the Electrical Contractor's personal representatives, successors, and permitted assigns.

"Particular Specification" The specifications referred to in the Contract for a particular project.

"Works" - means all the buildings, structures, or services (including any omissions, substitutions, additions, alterations and variations thereto) that are to be erected or constructed in terms of this Contract and includes materials or goods wherever the same are being manufactured or prepared, whether the same are on the site or not, and all excavations and other structures and services that are necessary for the execution of the work under this Contract.

"Domestic Sub-Contractor" - shall mean the Sub Contractor(s) directly appointed by and under the full direction, control and responsibility of the Sub-Contractor. The Domestic Sub Contractor(s) shall not be assigned or assume any of the contractual responsibilities of the Sub-Contractor.

1.2.7 INFORMATION REQUIRED FROM CONTRACTOR

1.2.7.1 PROGRAMME OF WORKS

The **Contractor** shall submit a detailed programme within **2 WEEKS** of the acceptance of the Tender showing his intended method, stages and order of preceding the Works, together with the period of time he has estimated for each and every stage of progress for comment by the Employer or his/her Representative.

The programme shall include the following: -

- a) date of order of equipment and materials,
- b) site establishment and date of delivery of equipment and materials to site,
- c) date of commencement and completion of every stage of the Works in line with the building construction programme,
- d) date of requirement of temporary and permanent electricity supply, and
- e) date of completion, commissioning and testing
- f) date of works completion and handover

Programme shall be regularly updated to reflect the actual progress and to meet the obligations under the Contract.

1.1.7.2 TENDER DRAWINGS

The general arrangement drawings supplied with the Tender documents are provided for the Contractor's guidance and information when tendering. Should the arrangement and dimensions shown be inadequate for the Contractor to properly install the equipment as specified, he should draw the **Client's** attention to the fact at the time of submitting his Tender, together with details of amendments required. If no such request for amendments were included in the Tender submission, the Contractor shall be deemed to have satisfied with the arrangement and dimensions shown. Any amendment raised out by the Contractor after the commencement of the Contract shall be subject to the agreement and approval by the **Client's**.

1.1.7.3 DRAWINGS TO BE SUBMITTED AFTER ORDER PLACEMENT

The **Contractor** shall submit to the **Client** for approval, within **Two (2) weeks** of placing of the order, three (3) copies (unless otherwise specified) of drawings giving details of all Builder's Work required for the Lift installation. Such drawings shall indicate clearly the position and sizes of all holes and cuttings, the loads on beams and structures, and all other requirements in relation to:-

Lift Installation

- a) Lift machine room and associated equipment, including sub-floor where appropriate;
- b) The arrangement of scaffolding required in the lift well for the installation of the equipment;
- c) All structural openings, such as landing entrances (including structural dimensions), ventilation openings, etc.;

- d) All bases, channels, holes, grouting-in of fixings, etc.;
- e) Lifting beams or other facilities for supporting lifting tackle in the machine room and lift well;
- f) Permanent means of access to the lift pit;
- g) Suitable locations of luminaries for machine room and lift well lighting;
- h) Guard rails in the machine room;
- i) Details of structural steelwork for lift machinery in the lift machine room;
- j) Details of shaft dividing steelwork for supporting guard brackets etc., and inter-well screens for multiple wells; and
- k) Method of fixing guide rails,
- l) Power and Ventilation requirements,
- m) General illustration and finish of the lift and/or escalator/passenger conveyor installation.

1.1.7.4 OPERATING AND INSTRUCTION MAINTENANCE MANUALS

The **Contractor** shall, unless otherwise specified, provide three (3) hard copies and three (3) soft copies in CD-ROMs of approved software format of the operating & maintenance manual of the whole installation. The structure and contents of the operation and maintenance manual shall be as specified in the Contract Preliminaries and approved by the **Client**. All commissioning and testing results, certificates and record, photographs as necessary, description of the lift system and equipment detail, user operating instruction and safety procedures, “as build” drawings, electrical wiring diagrams, rope certificates and planned maintenance schedule shall be included in the final manuals.

The emergency “Passenger Release Instructions” shall be incorporated in the operating manual, in addition to being displayed clearly in each machine room. Documentation proving that the control system has been subjected to extensive testing by an approved authority in order to verify the design in terms of safe, redundancy, reliable and full compliance with the **SANS81-20 (Type Tested)** and all national and local regulations and by-laws shall without exception be provided with the tender submission.

Presentation of the manual shall be as follows:

1. Index
2. User Operating & maintenance manual for the hoist / passenger lift and safety procedures
3. “as built” drawings
4. Electrical wiring diagrams
5. Planned maintenance schedule
6. All commissioning and testing results – Annexure A document
7. Annexure One (permission to install and use) and Annexure B Compliance certificate
8. Certificates for main ropes
9. Type test Certificates
10. Emergency release instructions
11. Guarantee’s

1.1.7.5 OCCUPATIONAL HEALTH AND SAFETY PLAN

In terms of the Occupational Health and Safety Act, the Contractor as the “Mandatory” shall issue the necessary documentation to the **Client** pertaining to on-site duties.

By means of a Safety Plan (File), the Contractor shall ensure statutory regulatory requirements in terms of the Occupational Health and Safety Act are met in various aspects such as:

- a) Method statement
- b) Insurance,
- c) Administration
- d) Supervision, and Appointments
- e) Training
- f) Safety Induction
- g) Accident Procedures
- h) Health & Safety Representatives/Safety Meetings
- i) First Aid, Accident Procedures
- j) Machinery
- k) Portable Electrical Equipment
- l) Working at Heights
- m) Housekeeping
- n) General Health and Safety Requirements

1.1.7.6 TENDER SUBMITTALS

At tender stage, the **Contractor** shall provide the following supplementary information and documents as requested by the **Client**.

1. Covering Letter confirming verification, standards, and substitutions deviations and alternatives as specified.
2. Brochures and technical information as specified
3. List of names for Construction(key) personal as specified
4. Domestic Sub Contractor information as specified.
5. Competent Project Manager Information as specified.

SECTION 2

EXECUTION OF WORKS

2.1. BUILDERS WORKS

The following builder's works in connection with Lift installation shall be carried out by the **Contractor** unless otherwise stated in the Particular Specification:-

- Construction of the lift well and enclosures with pit and machine room in accordance with the Drawings.
- Provision of lifting beams or other facilities for supporting lifting tackle in the machine room and lift well
- Provision of necessary holes, chases, openings, vents.
- Provision and fixing steel joists and scaffoldings required for the lift shaft construction.
- Provision of concrete fill and/or grouting in for architraves, landing door frames, sills and associated safety guard, etc.
- Provision of structural steelwork for lift machinery in lift shaft or lift machine room.
- Provision of drain outlet and/or sump pump in the lift pit, where necessary.

All additional openings, holes through the building structure, partition walls and all concrete bases, supports, ducts etc. required by the **Contractor** beyond those included in the Architectural or Structural Drawings will also be carried out by the **Contractor**, provided that the **Contractor** shall submit to the **Client's** for approval, full details of such requirement, so that due consideration may be given before the **Contract** commences work in the area concerned.

Following approval by the **Client**, the **Contractor** shall be responsible for marking out the exact position and sizes of all such work or providing detailed information to the (Building) **Contractor** to carry out such work as his work proceeds. The **Contractor** shall check that the builder's works executed by the (Building) **Contractor** are carried out to the **Contractor's** requirements.

Existing Buildings: The **Contractor** shall obtain approval from a Structural Engineer to be appointed by the **Contractor** for all cutting / core drilling of existing floor slabs or structural supports or beams. Should the **Contractor** proceed with the cutting or core drilling of floor slabs or structural supports or beams without written approval from the **Client**, the **Contractor** shall be held liable for any consequence associated with the weakening of the slabs, beams or supports covered under this section.

2.1.2 COST FOR BUILDING WORKS

The **Contractor** shall make provision building works to be completed by the **Contractor**, unless otherwise specified.

2.1.3 APPOINTMENT OF BUILDING CONTRACTOR

The **Contractor** may appoint a Building Contractor to be recommended and approved by the Lift Consultant Engineer to conduct the necessary scope of works.

Building Contractors tendering for the building works only, will have to be approved by the **Client / Engineering Lift Consultant**.

2.2 EQUIPMENT GUARANTEE

All materials and apparatus that is used for the erection of the installation shall be new and of a good quality.

Where applicable the material and apparatus shall in terms of quality, manufacture testing and performance comply with the relevant specifications of the following:

- a) The South African Bureau of Standards (SABS)
- b) European National Standards (ENs)

Where material or apparatus that are used comply with the standard of any other recognised standards organisation, this should be clearly stated to avoid any ambiguity.

The contractor shall provide a certificate from a recognised bureau of standards (EN81) for material that is used in the contract.

Samples of all equipment or material shall on request be made available to the **Client** before they are installed.

- All exposed equipment and finishes shall be submitted to the **Client** for approval in sample form.
- Present technical information and brochures for equipment and finishes

Failing to submit the required information covered under this section shall entitle the **Client** to disqualify the Tenderer.

Provide fully comprehensive maintenance for the equipment for a period of twelve (12)-months after Works Completion. As a minimum the maintenance work shall be performed in terms of the **Client's** Maintenance Agreement.

Replacement equipment shall be readily available. The **Contractor** shall be requested to guarantee that the equipment or components will be available in South Africa in the foreseeable future for at least **20 years**.

All losses, costs or expenditures which may arise as a result of negligence to comply with any regulation applicable to this installation as specified above shall be for the explicit account of the **Contractor**.

All materials shall be new, undamaged, free of rust or other defects and shall be of the best quality. Materials shall comply with the relevant SANS and EN81 specifications where applicable. The contractor shall upon the request of the **Client**, furnish him with documentary proof to his satisfaction that the materials are of the quality specified. Samples of materials for testing, if required, shall be supplied by the contractor, free of charge.

2.3 SITE SUPERVISION

2.3.1 OCCUPATIONAL HEALTH AND SAFETY COMPLIANCE

The **Contractor** shall employ a Safety Officer under the Occupational Health and Safety Act (85 of 1993) (Safety) Ordinance to carry out the **Client's** responsibilities in terms of the requirements as mentioned in the Contract Regulations. The Safety Officer will ensure that the statutory requirements according to the Occupational Health & Safety Act and the Project Health & Safety Specification are implemented and maintained.

2.3.2 PROJECT MANAGEMENT

The **Contractor** shall appoint Construction Supervisor under Section 16.2 of the Occupational Health and Safety Act 85 of 1993 that is employed **full time** by the **Contractor** and will be responsible for the **Contractor's** Occupational Health & Safety management on site.

The Construction Supervisor shall attend weekly / bi-weekly site meetings and inspections and any additional site meetings as called for by the **Client**, prior to and during the Contract period.

2.3.3 CO-ORDINATION OF CONTRACTORS WORKS

The **Contractor** shall co-ordinate his proposed programme of work with that of the **Client** and all other contractors and sub-contractors in order to adhere to the latest overall construction programme of the **Client**.

The **Contractor** shall co-operate at all times with the **Client** and all other contractors and sub-contractors in order to achieve efficient and safe working on Site.

In order to effectively monitor the installation programme, the Contractor shall provide a detailed monthly programme (Gantt chart for works completed according to the programme submitted.

2.4 ELECTRICAL SUPPLY AND ELECTRICAL INSTALLATIONS

2.4.1 ELECTRICITY POWER SUPPLY

Unless otherwise stated in the Particular Specification, the electricity supply for the electrical machinery will be 380V, 3-phase, 50 Hz, 5 wire i.e. 3 live with neutral and 10mm earth and the electricity supply for lighting will be 220V single-phase, 50 Hz, 2 wire + 10mm earth conductor.

2.4.2 ELECTRICAL CONTRACTOR RESPONSIBILITIES

The **Contractor** will be responsible for providing the power supply for the electrical equipment. The supply point will be terminated at an isolating switch or sub-distribution board at the following location according to the type of installation:-

- Lift installation: - lift machine room
- Machine room-less lift installation: - at the top of the lift shaft as specified in the Contractors approved layout drawings

The **Client** will provide permanent lighting in the machine and pulley rooms and socket outlets in the machine room.

Temporary electricity supply during the construction period will be provided by the **Client**.

The **Contractor** (Electrical Contractor) must provide a COC (**Certificate of Compliance**) for any new or additional electrical installations on the Project.

2.4.3 CONTRACTOR RESPONSIBILITIES

From the isolating switch or sub-distribution board provided by the **Client**, **all electrical work required** for the lift shall be the responsibility of the **Contractor** unless otherwise stated in the Particular Specification

The **Contractor** will provide permanent lighting in the lift well and in the lift pit. The lighting in the lift well will comprise one lamp at 0.5 m from the highest and lowest points in the well with intermediate lamps fitted at each landing header section through out the lift shaft and shall be controlled by two-way switches located at the top landing and in the lift pit.

The shaft lighting shall be of the energy efficient type and provide for energy saving power consumption.

The **Contractor** will provide a permanent plug socket outlet in the pit. The socket outlet in the lift pit will be of weather-proof type.

2.4.4 CONDUIT/TRUNKING FACILITIES BY ELECTRICAL CONTRACTOR

The **Contractor** shall be responsible for the provision of all cabling, buzzers (or alarm bells) and indicator board(s) in connection with all alarm system specified in this General Specification.

2.4.5 WIRING

All cables, trunkings, conduits and conduit fittings necessary for the circuits (including power, lighting and control circuits) for the lift installation shall be installed in accordance with the SANS 81-20 regulations.

All exposed metalwork liable to become electrically charged shall be bonded and earthed.

All wiring installed in the lift machine room and lift well, other than traveling cables, shall be enclosed in galvanized steel or plastic conduits or trunkings.

2.4.6 TEMPORARY ELECTRICAL SUPPLY

Temporary electricity supply during the construction period will be provided by the **Client**.

2.5 SOUND REDUCING

The whole of the lift/escalator/passenger conveyor machinery including the opening and closing of the car and landing doors shall be quiet in operation, and sound reducing rubber pads or other means shall be provided by the **Contractor** where necessary to eliminate vibration and noise transmission.

The maximum permissible noise level shall be not more than fifty five (55) decibels within a distance of one (1) meter from the lift landing doors on all the landings.

2.6. FINISH AND PAINTING

All metal work supplied by the **Contractor** in out of the way locations such as the lift shaft, lift pit, machine room and on the outside of the lift car shall be properly wire-brushed, cleaned of rust, scale, dirt and grease prior to the application of one coat of rust inhibiting primer, with particular attention paid to the priming of outer surfaces of car doors, inner surfaces of landing doors, metal work associated with door assemblies, the underside and the framework of lift cars. Any part of the equipment, including guide rails, which requires greasing or oiling and any components that are supplied unpainted by the manufacturers due to functional reasons shall not be painted.

All normally visible metal surfaces, other than stainless steel and non-ferrous surfaces, shall be finished with one coat of rust inhibiting primer, one under coat/finishing coat and one finishing coat of enamel paint to a colour to be selected by the **Client**.

All exposed rotating elements in the shaft and machine room and the counterweight frame shall be painted "caution" yellow.

All components that show signs of rust or where the paint-work has been damaged shall be de-rusted and shall receive a coat of rust inhibiting paint before the final coat is applied.

2.7 CUTTING AWAY AND MAKING GOOD

The requirements of cutting away and making good of builder's work shall be kept to a minimum. If in the opinion of the **Client**, the (Building) **Contractor** is fully or partly responsible for the cost of abortive and/or omission work incurred by the **Client** as such, the **Client** shall value such cost to the extent that the (Building) **Contractor** is responsible and deduct the same from the Contract Sum accordingly.

2.8 REMOVAL OF EXISTING ELEVATORS

2.8.1 CONTRACTOR'S RESPONSIBILITIES

The **Contractor** shall be responsible for all work to remove and dismantle all existing equipment, unless otherwise specified, including the old machine room equipment that must be completely removed to a mutually agreed location as per the **Client's** instruction.

The chopping out and building in of the landing frames and sills as required shall **form part of the Contractor's scope of work, unless otherwise specified.**

The **Contractor's** shall be responsibility to check and verify all on-site dimensions and on-site conditions prior to tender and/or placing the order for the equipment. The **Contractor** assumes full responsibility to ensure that the equipment offered and supplied is compatible with the existing shaft structure.

On **steel type** lift shafts, the **Contractor** will be responsible for any modifications to the existing shaft steels as deemed necessary to accommodate the installation of the new equipment and components.

2.8.2 PROTECTION OF THE BUILDING

The **Contractor** shall ensure that the elevators are removed without damage to the existing finish of the building. The **Contractor** must take all the necessary precaution to ensure that the existing building finish including the floor and walls are not damaged during the removal and installation of the new elevators. The **Contractor** shall repair any damage caused during the removal and installation of the escalators.

2.8.3 INSPECTION OF EXISTING EQUIPMENT

The **Contractor** shall inspect the existing elevators and inform the **Client** of any foreign equipment to be removed.

2.8.4 BARRICADES AND HOARDING OFF THE WORK AREA

The **Contractor** shall provide sufficient barricades / hoarding together with the necessary safety notices and signs as per the requirements of the Occupational Health & Safety Act 85 of 1993.

All Access to danger zones, including any open lift door shall be completely barricaded by using solid barricading of at least 2.1 meters high, able to block access to the danger zone. Symbolic safety signs depicting "Danger" and "No entry" shall be clearly attached to the barricading and shall be visible from all directions, with contact information of the **Contractor.**

Any components temporary stored or placed in any area in the parking shall have solid barricading around it with clear signage depicting "No entry" and shall be visible from all directions.

During construction, each landing door of that lift shall be fitted with a clear sign depicting "Lift under construction, closed until further notice", with contact information of the contractor.

The **Contractor** shall provide all barricading and signage as requested by the **Client.**

Hoarding shall be installed on all landing floors on all lift entrances and shall be equipment with a hinged type lockable door. The **Contractor** shall install one such hoarding for the Client's approval before proceeding to install hoarding on all the lift entrances as required.

The hoarding shall be as follows:

- a) 16 mm white melamine board with lockable doors, supported by a 25 mm x 25 mm square tubing frame.
- b) Standard minimum size is 1500 mm wide x 2200 mm high, however the hoarding must be built according to site measurement and customer satisfaction..

2.9 SCAFFOLDING

The **Contractor** shall provide for all scaffolding required to complete the works including temporary working platforms as required.

2.10 APPOINTMENT FOR CONTRACTORS AND CONSTRUCTION STAFF

The **Contractor** shall provide at tender stage, a detailed list of the names of the following personnel together with their training records and years of experience on the equipment:

- Construction Manager,
- Construction Project Manager / Supervisor
- Installation team and installers
- Field Engineer / Commissioning Engineer
- Domestic Sub Contractor contracted to install the equipment.(if appointed)

Personal appointed above to perform project management duties and to install the equipment, shall meet with the Clients approval before work commences on site.

2.11 LIFT INTERIORS AND FINISHES

2.11.1 LIFT INTERIOR CONTRACTOR'S RESPONSIBILITIES

The **Contract** may appoint a Lift Interior Contractor to be recommended and approved by the **Client** to conduct the necessary scope of works for the lift interiors and splayed frames on the landings as required,

Lift Interior Contractors tendering for the scope works only, will have to be approved by the **Client**.

The Lift Interior Contractor will be responsible for providing the following:

- Detailed shop drawings for the required car and landing finishes
- Provide brochures or pictures for samples of car finishes already installed.
- Provide samples for materials to be used in the car and landing finishes
- Local manufacture, supply and install car interiors and finishes and landing door architrave

SECTION 3

GENERAL REQUIREMENTS OF CONTRACT

3.1 VERIFICATIONS AND DEVIATIONS

Deviations from the work shall not be accepted. When the standards of the equipment specified cannot be met in terms of specific design requirements; substitution or alternative equipment may be considered provided that the substituted equipment does not reduce the intended performance, operation, duty-rate, and redundancy and reliability requirements of the specification.

Deviations or substituted equipment not clearly shown and detailed in the **Covering Letter**, shall not be considered or accepted and shall not limit the **Contractor's** responsibility to provide equipment in terms of the specification.

Should approval for the revised equipment not be obtained from the **Client**, the **Contractor** shall be liable for all costs associated with providing equipment in terms of the specification.

3.2 PROGRAM

3.2.1 PROJECT COMMENCEMENT DATE

The contract commencement date shall be from the notification date of acceptance and contract awarded to the successful tenderer.

Cognisance is to be taken at contract commencement to timeously place orders for materials as no claims will be entertained due to non-availability of equipment, materials or labour.

Tenderers are therefore required, at the time of tendering, to investigate and ensure that the specific materials, equipment and components required for the works will be available at the relevant estimated construction times.

3.2.3 COMPLETION AND HANDOVER

Completion of the Contract will occur once the installation is handed over by the **Contractor** to the **Client** and the **Client** has issued a formal First Delivery Completion Certificate.

For hand over to occur, the installation must be complete in its entirety, including:-

- 1) Acceptance of the installation by the **Client**, and the issue of the relevant Compliance Certificate by an independent "Registered Lift Inspector" as per PC sum for selected inspector.
- 2) Receipt by the **Client** of all as-built drawings and manuals.
- 3) Receipt by the **Client** of all typed test certificates for replaced components and assemblies as applicable.
- 4) Receipt by the **Client** of all outstanding claims for payment.

3.3 PAYMENT AND SECURITY GUARANTEE

As specified in the **Contractor's** "Letter of Appointment"

3.4 FINES AND PENALTY

3.4.1 COMPLETION OF WORKS

If the **Contractor** fails to complete the works within the time of completion, the **Contractor's** only liability to the employer for such failure shall be to pay the amount of **R5000.00** for each day for which he fails to complete the work. The basis for any penalty calculations and payments shall revolve around the mutually agreed implementation programme.

3.4.2 PROJECT MANAGEMENT

If the **Contractor** fails to attend weekly / bi-weekly site meetings and inspections and any additional site meetings as called for by the **Client**, without giving at least **2 weeks written notice** prior to due date for the meeting during the Contract period, the **Contractor** shall be liable to pay the amount of **R1000,00** for each time the **Contractor** is deemed to be absent from the site meeting.

In order to effectively monitor the installation programme, the **Contractor** shall provide a detailed weekly programme (Gantt chart for works completed and updated according to the programme submitted). The **Contractor** shall be liable to pay the amount of **R 500,00** for failure to submit the updated program on a weekly basis, and for failure to submit the initial program **within 2 weeks** of being appointed for each day which he fails to submit the initial program.

3.4.3 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

All Contractors that are found to be in not conformance to the Project Occupational Health & Safety requirements will result in fines been imposed upon them for the non-conformances.

Transgressions of Health and Safety rules by the Contractors employees will result in the **Contractor** being liable to pay the amount of **R 500,00** for each transgression as follows:

- Failure to display Safety Notices and Signs
- Employees not wearing Personal Protective Equipment
- Poor House keeping
- Stacking and Storage
- Letter of Good Standing expired
- Health and Safety File not kept up to date
- Fall protection and Fall Prevention
- Failure to maintain Barricading and Hoarding protection
- Fire fighting procedures not adhered too

3.4.4 MAINTENANCE AGREEMENT

- The **Contractor** shall be prepared to enter into the Employer's Fully Comprehensive Maintenance Agreement for a term of not less than three (3) years at the end of the twelve (12) month free maintenance period. It is accepted that the Contractor is acquainted with the Employer's performance / penalty based maintenance agreement as per the specimen copy of the maintenance agreement provided with this specification document which shall be applicable from the start of the free maintenance period.

3.5. DOMESTIC SUB CONTRACTOR

The **Contractor** may appoint a Domestic Sub-Contractor to install the lift equipment, however in this case the following conditions shall apply:

- The **Contractor** shall remain responsible for the day to day management of the installation and on-site works and shall attend all the design, and site meetings as may be called for by the **Client**.
- Should the Domestic Sub-Contractor not perform in accordance with the works information, the **Client** reserves the right to have the Domestic Sub-Contractor removed from site and replaced with construction staff directly employed by the **Contractor**.
- The commissioning and final adjustments shall remain the direct responsibility of the **Contractor's** field engineer.
- Without restricting the **Contractor's** contractual obligations and responsibilities, the **Client** reserves the right to nominate and or approve Domestic Sub-Contractors.

3.6 PERMITS, TESTING COMMISSIONING AND MAINTENANCE

3.6.1 ADJUSTMENTS, PERFORMANCE TESTS AND COMMISSIONING

The **Contractor** shall commission the installation and carry out complete performance tests for all equipment and systems installed by him, making all necessary adjustments including setting all controls and checking the operation of all protective and safety devices in accordance with the manufacturers' instructions, the requirements of the statutory rules and regulations and to the satisfaction of the **Client**.

3.6.2 CERTIFICATE OF COMPLIANCE

The **Contractor** shall employ a Registered Lift/Escalator Engineer [National Elevator Consulting CC], **approved by the Client**, under the Lifts and Escalators (Safety) Ordinance to undertake the examination, testing and commissioning of the complete installation. All labour, materials, tools and instruments necessary for carrying out the work shall be provided by the **Contractor**. The **Client** will provide the necessary electricity supply but the Contractor shall coordinate with and inform the **Client** of his requirements.

3.6.3 TESTING

The tests and examination undertaken by the Registered Lift/Escalator Engineer [National Elevator Consulting CC], **approved by the Client**, shall include those specified in the Code of Practice on the Design and Construction of Lifts and Escalators, the Code of Practice for Lift Works and Escalator Works and those recommended by the lift/escalator/passenger conveyor manufacturer. The relevant forms/certificates as required by the Lifts and Escalators (Safety) Ordinance shall be signed and submitted by the Registered Lift/Escalator Engineer [National Elevator Consulting CC] to the **Client** on completion of the lift/escalator/passenger conveyor installation.

Tests which purely demonstrate the performance characteristics of the lift shall be performed in the presence of the **Client** or his/her Representative at the acceptance of the installation.

All instruments used in the testing and commissioning shall be calibrated as required. The period between calibration and testing shall not exceed the calibration period as recommended by the instrument manufacturer or twelve (12) months whichever is shorter.

3.6.4 SPECIAL TOOLS AND COMMISSIONING MANUALS

The **Contractor** shall handover any special tools, equipment, software and commissioning manuals to the **Client** as required for maintaining or re-commissioning the elevators and escalators if necessary, on completion of the project.

3.6.5 MAINTENANCE AND GUARANTEE PERIOD

3.6.5 1 FREE MAINTENANCE PERIOD

The **Contractor** shall, in addition to his obligations under the General Requirements of Contract, furnish maintenance free of charge of the entire installation for period of (12) months, following the certified date of completion as per the **Client's** completion certificate. It is accepted that the Contractor is acquainted with the Employer's performance-based maintenance agreement as per the specimen copy of the provided with this specification document. The Contractor shall conform to the terms and conditions of the specimen copy of the maintenance agreement which shall be effective and apply from the start of the free maintenance period

Call backs during the free maintenance will be strictly monitored and assessed at the end of the twelve-month period. Depending on the severity and frequency of the callbacks, the Client will use his discretion to have the free maintenance period extended if necessary.

3.6.5.2 MAINTENANCE AND EQUIPMENT GUARANTEE

The **Contractor** shall be prepared to enter into the **Client's** Fully Comprehensive Maintenance Agreement for a term of not less than three (3) years at the end of the twelve (12) month free maintenance period.

Equipment supplied shall be guaranteed against defect or failure of design, material and workmanship for a period of **Twelve (12) months** from date of works completion.

The Lift-Contractor shall be responsible for making good, adjusting, replacing or re-designing at no additional cost, any defect in or damage to the works or any portion thereof, which may appear or occur during the equipment guarantee period and which has resulted from either from defective material, design, workmanship during free maintenance / guarantee period.

Latent and patent defects for equipment supplied shall be guaranteed against latent defect in design of material for a period of 10-years after date of works completion.

The extent of work required to be carried out is as follows: -

- To be responsible for any repairs necessary to maintain the installation in good and safe working order at all times.
- To dispatch competent workers once a month during normal working hours to maintain each lift.
- To supply all lubricants, cleaning materials, rope preservatives etc.
- Replace all burnt out lamp bulbs/tubes with bulbs/tubes of correct rating.
- To provide, repair or replace at no additional cost to the **Client** such mechanical and electrical parts of the installation necessary for the safe and normal operation of the installation.
- To provide a 'call-out' service during and outside normal working hours to carry out emergency maintenance by competent workers.
- To attend to any breakdowns reported to him by telephone (or other means) with the utmost effort and in no circumstances attendance to the breakdown shall exceed 30 minutes after the call is received. The **Contractor's** performance in this aspect will be reflected in the **Contractor's** Performance Appraisal Report for the Contract.
- To carry out the periodic examination and periodic testing of the safety equipment as stated in the Lifts and Escalators (Safety) Ordinance and to provide such copies of the test certificates, duly signed by a Registered Lift/Escalator Engineer.
- Provided always that any renewals or repairs necessitated by reason of negligence or misuse of the equipment by others or by reason of any other cause beyond the **Contractor's** control with the exception of normal wear and tear, these works shall be carried out by the **Contractor**, if so required by the **Client**.

3.7 STORAGE

If the building is not sufficiently advanced to enable the lift machinery, equipment or materials to be brought to site as per the agreed program schedule, and should the purchaser at any time not designate a place for the storage thereof, the **Contractor** will be responsible to store the machinery , equipment or material at the **Contractor's** expense.

3.8 SITE LIABILITY AND INSURANCE

The lift machinery, equipment or materials to be installed shall not be accepted by the **Client** and shall remain the **Contractor's** responsibility. The **Contractor** will be held liable for any loss, damage or missing components required for the lift or escalator installation until the installation is complete in terms of the Scope of Works as specified in this specification.

3.9 INACCURACIES

The **Contractor** shall be responsible for executing the required work in accordance with this tender specification and shall remain responsible for any discrepancies, errors or omissions of any sort on the submitted data, program, layouts or shop drawings, whether it has been approved or not approved.

SECTION 4

GENERAL SPECIFICATIONS FOR EQUIPMENT

4.1 LIFT MACHINERY FOR ELECTRIC LIFT

4.1.1 LIFT MACHINERY

Lifts with machines located directly over the lift shaft and machines below shall be mounted on steel beams on steel or concrete up-stands. Motor room less lift machines shall be mounted on steel beams at the top of the shaft and outside the projection of the car.

4.1.2 POWER SYSTEM APPLICATION

For variable voltage variable frequency (Closed Loop VVVF) system, the leveling accuracy shall be ± 5 mm. The motor rating shall be 180 starts per hour.

The control of the motor shall be achieved, through power transistors, by finite adjustment to the frequency and voltage of an AC power supply through a Pulse Width Modulator incorporating four-quadrant regeneration.

The inverter drive shall meet the harmonic limits laid down in the current Electricity Council Recommendation and must fulfill all radio interference requirements.

The motor and its control shall be compatible to the power supply to the machine room and is to incorporate a sound filter to dampen the Pulse Width Modulator enabling the Lift to run at all loads/speed without appreciable noise or hum.

The motor control shall be by means of either an Open loop up to a contract speed of 0.63 m/s or a Closed Loop System incorporating a speed regulator that must be fully adjustable to give optimum performance throughout the intended travel of the Lift.

The regulator will respond to feedback signals derived from the motor speed, motor voltage, and distance to travel and load within the Lift car.

The motor control shall incorporate direct floor approach and stopping, with the machine brake being applied only after the car is stationary.

The system shall maintain its speed between -2% and +2% of its designed operating speed.

Protection to the lift controller, door drive and motor windings shall be in the form of thermistors with additional protection provided by the inverter should any of the following occur:

- Over-current in the drive circuit
- Over-current in the control circuit
- **Phase rotation including protection for the neutral**
- Over-voltage of the intermediate circuit
- Under-voltage of the intermediate circuit
- Network voltage asymmetry not correct
- Temperature rise of the semi-conductor cooling plates
- Regulator electronic voltages incorrect
- Operation of the electronic braking network incorrect
- The speed of regulator becomes saturated

The motor shall bear the actual manufacturers name and data plate. All motor terminals shall be readily accessible and of screw fixed or bolted design located within a terminal box.

4.1.3 ELECTRO-MECHANICAL BRAKE

Every lift machine shall be provided with a brake which is capable of stopping the machine when the car is traveling at its rated speed and with the rated load plus 25%. It shall also be fitted with a manual emergency operating device capable of having the brake released by hand while a constant manual pressure is required to keep the brake open.

4.2 GUIDE RAILS AND FIXINGS

4.2.1 GUIDE RAILS:

Rigid steel guides shall be used for guiding lift cars and counterweights throughout their travel.

- The strength of the guides, their attachments and joints shall be sufficient to withstand the forces imposed due to the operation of the safety gear and deflection due to uneven loading of the car.

4.2.2 GUIDE BRACKETS

Guide brackets shall be provided at suitable intervals and shall be embedded into the walls enclosing the lift shaft or fixed to such walls by one of the following methods:-

- Self-drilling anchor bolts - this method shall be used as the standard practice for fixing guide rail brackets in reinforced concrete walls of 100 mm thick or more.
- Bolts grouted and embedded into the walls - this method shall only be used in special conditions, e.g. brick walled lift shaft, or reinforced walls of less than 100 mm thickness, or as and when specified in the Particular Specification or by the Engineering Consultant.

4.2.3 DRIP-TRAYS

Oil drip-trays are to be provided for the car and counterweight guide rails in the pit.

4.3 BUFFERS

Buffers shall be provided at the bottom limit of travel for cars and counterweights. Energy accumulation type buffers shall only be used if the rated speed of the lift does not exceed 1m/s. Energy accumulation type buffers with buffered return movement shall only be used if the rated speed of the lift does not exceed 1.6 *m/s*. Energy dissipation type buffers may be used whatever the rated speed of the lift.

4.4 COUNTERWEIGHTS

The counterweight shall be of metal and constructed from multiple sections, contained and secured within a steel frame, and shall equal to the weight of the complete car plus approximately 40% to 50% of the Contract Load. At least, four guide shoes, capable of being easily renewed or having renewable linings shall be provided on the counterweight.

4.5 ROPE RETAINERS AND ROPE GUARDS

Rope retainers are to be provided to the pulley wheels, which shall prevent the main hoisting ropes leaving their respective grooves, through rope bounce or the application of the safety gear.

The main machine and any associated pulleys are to have rope retainers, which shall prevent the main hoisting ropes leaving their respective grooves through rope bounce.

All pulleys especially on the car counterweight shall incorporate devices to avoid: -

- the suspension ropes from leaving the grooves, if slack,
- the introduction of objects between ropes & grooves.

4.6 PIT SCREEN AND PARTITION IN LIFT WELL

4.6.1 PIT SCREEN FOR COUNTERWEIGHT

The **Contractor** shall provide a rigid metal screen for the Counterweights. The rigid metal screen shall extend from a position 0.30 m above the lift pit floor to a position at least 2.50 m above the lift pit floor.

4.6.2 PARTITION IN LIFT WELL / PIT DIVISION SCREEN

Where two or more lifts are installed in a common lift well, the **Contractor** will provide a dividing beam and inter well rigid metal screen to separate each lift from an adjacent lift or its counterweight. The **Contractor** shall coordinate with the Sub-Contractor and to check and ensure that the height of the screen as provided complies with the following: -

- Where the horizontal distance between the edge of the roof of a car and an adjacent car or its counterweight is 0.3 m or more, the screen shall be erected from the bottom of the lift pit to a minimum height of 2.5 m and across the whole depth of the lift well.
- Where the horizontal distance between the edge of the roof of a car and an adjacent car or its counterweight is less than 0.3 m, the metal screen shall be erected from the lift pit to the FULL height of the lift well and across the whole depth of the lift well.
- Where the lift shaft contains several lifts, the **Contractor** shall provide a ridged metal screens to separate the moving parts of the individual lifts. The metal screen shall be from the level of the first landing to a height of **2500-mm** and shall be the full width / depth of the shaft.

4.6.3 PIT ACCESS LADDER

The Contractor shall provide a permanently fixed pit access ladders as required to service the pit equipment. The pit ladder shall extend from the pit floor to **1100-mm** beyond the level of the lower entrance.

It shall comprise of flat steel steps and a separate grab rail and shall be easily accessible from the lowest terminal landing.

4.7 PROTECTIVE SCREENS AND GUARDING

All dangerous rotating equipment shall be effectively guarded. Where applicable, components shall be designed to be inherently safe, obviating the need for external or removable guards.

Fixing protection guards provide shall meet the following requirements:

- The fixings for the guards are to be easily removable.

- Framed hinged access flaps shall be provided, sensibly sited for ease of inspection and maintenance.
- Steel rope hole “kick angles” shall be provided to reduce the rope hole size and incorporate a 50mm raised collar with a safe minimum running clearance.
- Motor and generator commutators shall be guarded.
- The flanges of beams and other hazards with less than 2.1 meters clear height shall be cladded in 25mm thick Neoprene padding having BLACK and YELLOW warning stripes.

4.8 TOP OF CAR BALUSTRADE

The top of car shall be fitted with a balustrade where the free distance between the car roof and the shaft, or where there are spaces that are larger than 0.3 X 0.3 meters around any side of the car roof.

The steel balustrade must be of 35mm square section and shall not bridge the car isolation and shall fulfill the following requirements:

- Minimum height for the balustrade must be 0,7 meters, except when there is free distance greater than 0.85 meters around the car roof, the balustrade must be a minimum height of 1.1meters
- In addition, a 100mm toe guard shall be provided to the car top, which shall be painted in black and yellow diagonal stripes.

4.9 SUSPENSION ROPES

Cars and counterweights shall be suspended from steel wire ropes of best quality, the size and number being in accordance with "Specification for ropes for lifts". The factor of safety for the suspension ropes shall be not less than 12 in the case of traction drive with three ropes or more.

The minimum number of ropes shall be two and they shall be independent.

The safety factor of the suspension ropes shall be at least:

- 12 in the case of traction drive with three ropes or more;
- 6 in the case of traction drive with two ropes;
- 12 in the case of drum drive.

The nominal diameter of the ropes shall be at least 8 mm

4.10 COMPENSATION ROPES

For travels over 30 m and/or rated speed of the lift exceeds 2.5m/s, the Contractor shall provide compensation ropes with tensioning pulleys. For speeds of 2.5 m/s or below, quiet operating chains or similar devices may be used as the means of compensation. For speeds above 3.5 m/s, an anti-rebound arrangement of idler tension pulley shall be provided to prevent the counterweight jumping with the application of the car safety gear.

4.11 ANTI-TWIST FOR MAIN ROPES

Wire lanyards are to be run through the car and counterweight rope terminations to prevent twisting. This is to be done as soon as the ropes have been fitted and properly tensioned.

4.12 NORMAL TERMINAL STOPPING AND FINAL SWITCHES

4.12.1 NORMAL STOPPING SWITCHES

Each lift shall be provided with normal terminal stopping switches and final limit switches. They shall be positively operated by the movement of the car. These switches shall either be mounted on the car frame or in the lift well.

4.12.2 FINAL LIMIT SWITCHES

The final limit switches shall for single or two speed lifts either,

- open directly by mechanical separation of the circuits feeding the motor and brake, and
- provisions shall be made so that the motor cannot feed the brake solenoid, or
- open, by an electrical safety device, the circuit directly supplying the coils of the two contactors, the contacts of which are in series in the circuits supplying the motor and brake.

in the case of D.C. variable voltage or AC variable speed lifts, cause the rapid stopping of the machine.

4.13 WIRING FOR THE INSTALLATION

The **Contractor** shall provide all new wiring from the main switch isolator and for the lift installation.

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 electrical cabling and wiring shall be terminated using the correct glands and lugs. The ends of the conductors where lugs are not used shall be made off and terminated correctly. Only terminals with clamping plates shall be used for the termination of the control wiring.

4.14 SAFETY GEAR

4.14.1 PROVISION OF SAFETY GEAR

Every lift shall be provided with safety gear capable of operating only in the downward direction and capable of stopping a fully laden car, at the tripping speed of the overspeed governor, even if the suspension devices break, by gripping the guides and holding the car there.

If accessible spaces do exist underneath the counterweight, the counterweight, as well as the car, shall be provided with safety gears.

4.14.2 REQUIREMENTS OF SAFETY GEAR

Safety gear shall comply with the following general requirements:

- The release of the safety gear on the car (or the counterweight) shall only be possible by raising the car (or the counterweight).
- Each safety gear shall be tripped by its own overspeed governor.
- The operation of the safety gear shall not cause the car platform to slope at more than 1 in 20 to the horizontal.
- Vibration of the car shall not in any case cause a safety gear to operate.
- The tripping of safety gears by devices which operate electrically, hydraulically or pneumatically is forbidden.

4.14.3 TYPES OF SAFETY GEAR

Car safety gear shall be of the progressive type if the rated lift speed exceeds 1 m/s. It shall be of: -

- the instantaneous type with buffered effect if the rated lift speed does not exceed 1 m/s, or
- the instantaneous type if the rated lift speed does not exceed 0.63 m/s.

The safety gear of the counterweight shall be of the progressive type if the rated speed exceeds 1m/s, otherwise the safety gear may be of the instantaneous type.

4.15 OVERSPEED GOVERNOR AND ROPE

Overspeed governor shall be of the centrifugal type which shall operate the safety gear at a speed at least equal to 115% of the rated speed. The means for adjusting the overspeed governor shall be sealed after setting the tripping speed.

Operation of the overspeed governor shall be such that the motor control and brake-control circuits shall be opened before or at the same time as the governor trips and cause the lift motor to stop.

The governor ropes shall not be less than 6 mm in diameter and shall be of flexible wire rope. The rope shall be tensioned by a tensioning pulley and the pulley (or its tensioning weight) shall be guided. The rope shall have a minimum safety factor of six.

The breakage or slackening of the governor rope shall cause the motor to stop by means of an electrical safety device requiring manual reset.

4.16 ASCENDING CAR OVERSPEED PROTECTION MEANS

Ascending car overspeed protection means shall be provided to a traction drive lift and shall act on the car or counterweight, main traction drive sheave or on the main suspension ropes, rope shall be controlled by one of the following:

- Ascending safety gear fitted to the car,
- Governor and safety gear fitted to the counterweight,
- Main hoisting rope brake / clamp fitted to the machine bedplate,
- Brake fitted to the main drive sheave.

If the ascending car overspeed protection means requires external energy to operate, the absence of energy shall cause the lift to stop and keep it stopped. This does not apply for guided compressed springs.

4.17 CAR

4.17.1 CAR CAPACITY AND LOAD

The available car area, rated load and number of passengers shall be determined from Table 1.1 and 1.2 of Clause 8.2 SANS50081-1

Every lift car body shall be carried in a steel car frame sufficiently rigid to withstand the operation of the safety-gear without permanent deformation of the car frame.

At least four renewable guide shoes, or guide shoes with renewable linings, or sets of guide rollers shall be provided, two at the top and two at the bottom of the car frame.

4.17.2 INTERNAL CONSTRUCTION OF PASSENGER LIFT CAR

Unless otherwise specified in the specification and/or on the drawings, passenger lift car enclosure shall be of steel with 4mm studded rubber floor to colour and pattern as approved by the **Client** or his/her Representative. The whole of the internal face of the car shall be of 1.5mm thick hairline stainless steel sheet with etched pattern as approved by the Client or his/her Representative.

A stainless steel handrail situated 0.1 meters above finished floor level shall be provided on three sides of the lift car, extended to within 0.15 meters of all comers and a stainless steel skirting panel approximately 0.1 meters deep shall be provided.

Hairline finished stainless steel false ceiling with concealed fluorescent luminaries and ventilating fan complete with metal ceiling diffuser shall be provided. The layout of the false ceiling and lighting fittings shall be subject to the approval by the **Client** or his/her Representative. The fan shall be of quiet running type having a noise level not greater than 55 dBA when measured at a distance of 1 m.

4.17.3 INTERNAL CONSTRUCTION OF GOODS LIFT CAR

Unless otherwise specified, the complete enclosure of the lift car shall be constructed in stainless steel and as detailed below: -

- CAR WALLS - All car wall panels shall be of 1.5 mm thick stainless steel sheet. The side and rear wall panels shall each be provided with three-equally-spaced full length lateral protective oak battens of 200 mm wide by 25 mm thick. The surface of the wood battens shall be covered with 1.0 mm thick stainless steel sheet fixed by stainless steel screws. The top battens shall be fixed at a height of 1100 mm above finished car floor level.
- CAR ROOF -The car roof shall be of 1.5 mm minimum thickness stainless steel sheet. It shall be able to support the weight of two persons, i.e. to withstand a vertical force of 2000N at any position without causing permanent deformation.
Ceiling lights shall be of recessed type and be protected by stainless steel metal bars.
A recessed ceiling fan complete with heavy duty metal diffuser and capable of providing 20 air changes per hour in the car shall be provided. The fan when running shall have a noise level not greater than 55 dBA measured at a distance of 1 m from the fan.
The internal clear height of the car shall be not less than 2.5 meters.
- CAR FLOOR - The car floor shall be constructed of stainless steel plate with 2 mm high multi-grip non-slip pattern, making a total thickness of 5 mm, unless other-wise specified.

4.18 TOP OF CAR AND CONTROL

The car top control station panel shall be mounted vertically within 1000mm of the landing entrance and easily accessible from the landing. (In the through car condition it shall be accessible from the side with the majority of landing entrances)

A control station shall be fitted on the car roof and it shall be so made that when in use

- it is not possible to control the car from any other position;
- the car will only travel at a speed not exceeding 0.3 m/s;
- the car will not move until all safety devices are in, and remain in, the safe position;
- the car will move only whilst two buttons are subjected to continuous pressure.

The control station shall comprise the following switches clearly marked:-

- 'STOP' switch;
- 'NORMAL/INSPECTION' switch;
- directional inspection buttons, protected against accidental operation; and
- movement buttons, protected against accidental operations.

An enshrouded continuously illuminated alarm push button in yellow and engraved **alarm** shall be located below the stop button.

All controls shall be fully shrouded and sensibly positioned, accessible and no further than 1 meter from the entrance.

A 15A 3 pin switched socket outlet shall be provided on the top of the lift car.

A permanent light, suitably protected and separately switched, shall also be fitted on top of the lift car.

4.19 CAR ILLUMINATION AND EMERGENCY LIGHTING

Every lift car shall be provided with lighting / emergency lighting operated by a rechargeable battery supply.

Unless otherwise specified, every lift car shall be adequately illuminated by a minimum of four (4) energy efficient electric 5 watt L.E.D type lamps. The illumination level shall not be less than 150 lux on the lift floor level.

Operation:

The power supply and lamps must be wired such that power supply is permanently supplied with 110 / 220v AC. The lighting shall be automatically switched on in the event of failure of normal power supply to the lift and shall be self-maintained emergency type with rechargeable batteries having a capacity sufficient to maintain the lighting for two hours upon failure of the normal lighting supply. The battery is to be connected to the trickle charge terminals of the power supply. The L.E.D lamps are to be connected to the dedicated 12 volt output of the power supply.

4.20 TRAVELLING CABLES

Travelling cables between the lift well and lift car terminal boxes shall be suspended by looping over reels or by suitable clamps and terminated at a suitable position that they will not be prone to damage by water seepage.

Travelling cables shall be hung in the lift well, suspended from one end only, for sufficient time to avoid twisting or kinking before making final connections. Facility shall be provided on both car and well cable anchorages to permit each cable to be rotated to counter accumulated twist.

Cables with twelve (12) or more cores shall be used, and all cables that are to be grouped together shall be of the same size unless otherwise approved by the Engineering Consultant's.

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.

4.21 EMERGENCY ALARM DEVICE

4.21.1 EMERGENCY ALARM DEVICE

An emergency alarm push button together with a buzzer (or an alarm bell), an intercom shall be provided in the lift car and be connected to the building management office, caretaker's office or emergency control room (security control station) and the machine room, backed up by an emergency power supply. Additional emergency alarm push buttons shall be provided on top and at the bottom of the lift car.

4.21.3 BATTERIES AND CHARGERS

The batteries for the emergency power supply for each lift shall be capable of maintaining a supply to the connected emergency load for a minimum period of two hours. The batteries shall be of sealed, high rate maintenance free nickel-metal hydride type, or a type of better functions and performance and approved by the **Client** and shall have a guaranteed life expectancy of at least four (4) years. The battery charger shall be compatible with the batteries used. The charger shall be capable of fully re-charge the batteries in not more than 12 hours.

4.21.4 INTERCOM SYSTEM

An intercom system, or similar device powered by the emergency supply shall be provided by the **Contractor** for all lifts between the lift car and the lift machine room. The intercom system shall comprise a 5-way system.

- The conduit/trunking facilities to the caretaker's office or emergency control room or any area identified on site will be provided by the **Contractor**. All cabling shall be carried out by the **Contractor**.

4.22 CAR OPERATION PANEL

4.22.1 MAIN CAR OPERATING PANEL

Each lift car shall have a flush mounted control station comprising:-

- Call buttons with acceptance signals engraved in Arabic number to correspond with the landing served;
- An alarm push button with protection from being operated accidentally; the colour of this button shall be yellow;
- "door open" and "door close" push buttons;
- Audible and visible signals in connection with the overload device;
- Fan switch and independent "Stop-switch" keeping the car door open in the form of key switch.
- Two-way intercom speaker for intercom system.

All wordings shall be engraved in English. The material for the control station shall be stainless steel with a thickness of not less than 2.5 mm.

4.22.2 AUXILIARY CAR OPERATING PANEL

For passenger lifts, two car control station, one on either side of the car doors, shall be provided such that one shall have the functions as stated in **4.22.1 above**.

The auxiliary car operating panel control station shall comprise of

- Call buttons with acceptance signals engraved in Arabic number to correspond with the landing served;
- An alarm push button with protection from being operated accidentally; the colour of this button shall be yellow;
- "door open" and "door close" push buttons;

4.23 CAR DIRECTION AND POSITION INDICATOR

4.23.1 CAR AND LANDING INDICATORS

Position indicators shall be of vandal resistant type with stainless steel protected pressed held rigid solid bezel that is secured by nuts to the threaded studs welded to the back of the faceplate. The faceplates shall have tamper-proof fixings.

The direction indicators shall be of illuminated directional indicator. The position indicator shall be of digital type display with lamp matrix actuated by solid state circuitry unless otherwise specified.

The position indicator shall have a minimum height of 50 mm and easy to read even from a wide angle of view and under an illumination level of 500 lux.

The indicators shall be mounted onto the back of at least 2.5 mm stainless steel faceplates by welded studs and screws.

4.23.2 VOICE ANNUNCIATION

Voice annunciation shall be provided for passenger lifts to announce the floor due to be stopped. Unless otherwise specified, the announcement shall be in English.

The voice annunciation shall be software generated and shall have the capabilities of being re-programmed to enunciate special words or messages as required and approved by the Client and Consulting Engineer.

Voice annunciation shall include:

- Next selected landing at which the lift will stop,
- The direction the lift is committed to travel,
- Special door safety instructions,
- Special instructions if the lift is held up at a landing for an extended period of time.

4.24 PUSH BUTTONS AND ELECTRONIC BUTTONS

All push buttons shall be vandal-resistant design and flush mounted construction.

Electronic touch buttons or micro-movement push buttons shall be provided in place of vandal-resistant buttons for office buildings and where specified in the specification.

The push/electronic touch buttons shall have acknowledgement of the call by illumination. Shock loads due to pressing of the pressel must be borne by the body of the unit and not by the contacts.

4.25 ESSENTIAL LIFT CONTROL BUTTONS

Essential lift controls buttons such as the emergency alarm button, intercom button, door opening button, call buttons on landings, floor buttons in the lift car, shall not be lower **than 900 mm** or higher than 1200 mm above finished floor level. Braille and tactile markings shall be placed either on or to the left of the control buttons. Such markings shall be minimum 15 mm in height and 1 mm raised. All lift control buttons shall have a minimum dimension of 20 mm.

4.26 CAR AND LANDING DOORS

Each car entrance shall be provided with an imperforated car door which shall extend the full height and width of the car opening. The top track of the door shall not obstruct the car entrance.

All landing openings in lift well enclosures shall be protected by imperforated doors which shall extend the full height and width of the landing opening. The top track of landing door shall not obstruct the entrance to the lift car.

Any projections on or recesses in the exposed parts of the car doors or landing doors shall be kept to a minimum in order to avoid finger trapping between sliding parts of the door and any fixed part of the car or landing entrance.

The clearance between panels or between panels and any fixed part of the car or landing entrance shall not exceed 6 mm.

Sliding car and landing doors shall be guided on heavy duty door tracks and hanger cases and sills for the full travel of the doors. The distance between the car and landing sills shall not exceed 35 mm.

The clear height of all entrances on car and landings shall not be less than 2 m.

Glass doors and Panels

Doors, with glass of dimensions shall use laminated glass and, additionally withstand the pendulum shock tests, described in annex **d of SANS50081-70:2004**

The fixing of the glass in doors shall ensure that the glass cannot slip out of the fixings, even when sinking.

The glass panels shall have markings giving the following information :

- a) name of the supplier and trade mark ;
- b) type of glass ;
- c) thickness (e.g. 8/8/0,76 mm).

To avoid dragging of children hands, automatic power operated horizontally sliding doors made of glass shall be provided with means to minimize the risk, such as :

- a) reducing the coefficient of friction between hands and glass ;
- b) making the glass opaque up to a height of **1,10** m ;
- C) sensing the presence of fingers, or
- d) other equivalent methods.

Car walls with glass placed lower than 1,10 m from the floor shall have a handrail at a height between 0,90 m and 1 ,10 m. This handrail shall be fastened independently from the glass.

The fixing of the glass in the wall shall ensure that the glass cannot slip out of the fixings, even when sinking.

4.26.1 CAR DOORS FOR PASSENGER LIFTS

Unless otherwise specified in the Particular Specification, the doors for passenger lifts shall be of metal construction, and the internal face of the car door shall be lined the same as the car. The doors shall be two panels, centre opening with automatic power opening and closing unless otherwise specified.

4.26.2 LANDING AND CAR DOORS FOR GOODS LIFT

Landing and car doors for goods lift shall be of the construction as indicated in the specification and/or Equipment Schedule and shall be one of the following constructions:-

4.26.2.1 MANUALLY OPERATED, HORIZONTALLY SLIDING DOORS

The doors shall be of stainless steel construction, robust for goods lift use.

4.26.2.2 POWER OPERATED, AUTOMATIC, HORIZONTALLY SLIDING DOORS

The doors shall be multi-panel of stainless steel construction, similar to those for passenger lifts, but strong enough for goods lift use.

A timer shall be incorporated in the door opening circuitry to function as follows. Whenever the "DOOR OPEN" button on the car control panel is pressed, the doors shall remain open for a pre-set period of time, adjustable by the timer between 2 and 10 minutes. By the end of the period, a buzzer shall sound prior to the closing of the doors. Pressing of the "DOOR OPEN" button a second time shall set the timer for another period of time. However pressing of the "DOOR CLOSE" button on the same control panel shall cause the doors to close immediately. The doors shall not remain open for the pre-set period of time, but operate normally, unless the "DOOR OPEN" button is pressed.

An instruction, in English engraved on a 1.5 mm thick stainless steel plate notifying the user of the facility, shall be displayed conspicuously adjacent to the car control panel.

4.26.2.3 VERTICALLY BI-PARTING DOORS, MANUALLY OPERATED OR POWER CLOSING

The doors shall be of stainless steel construction and shall only be used on goods lifts. They shall be vertically bi-parting, manually operated or power closing. For power closing doors, all the following conditions shall be fulfilled: -

- closing is carried out under the continuous control of the users;
- the average closing speed of the door panels is limited to 0.3 m/s
- the car door is of perforated or mesh panel construction;
- the car door is at least two thirds closed before the landing door begins to close

4.26.3 DOOR SHOES FOR CAR AND LANDING DOORS

Door shoes shall be secured with bolts with lock-nuts or spring-washers or lock-plates and door slippers fixed with screws shall not be accepted. The door shoes shall be designed, reinforced and fixed to easily and efficiently accommodate the door construction / weight and the continuous operation of the door panels. The entire door shoe shall be fully engaged in the sill profile throughout the travel of the door panel. It shall not be possible to bend the shoe or to dislodge shoe from the sill profile without significantly and permanently distorting or bending the door panel.

4.26.4 SILLS AND SUPPORT ANGLES

The landing sills for all openings shall be of narrow extruded aluminium or stainless steel. Grooves in sills for the door guides shall be machined with minimum clearances for the guides. The sills shall be supported on steel angles securely fastened to the building floor construction.

4.27 ELECTRICAL DEVICE FOR PROVING THE CAR DOORS ARE CLOSED

Every car door shall be provided with an electrical switch which will prevent the lift car from being started or kept in motion unless all car doors are closed. A mechanical locking device shall also be provided such that the car door cannot be opened from the inside while the car is outside the unlocking zone.

4.28 LANDING DOOR LOCKING DEVICES

Every landing door shall be provided with an effective locking device so that it shall not normally be possible to open the door from the landing side unless the lift car door is in that particular landing zone.

It shall not be possible under normal operation to start the lift car or keep it in motion unless all landing doors are in the closed position and locked.

All door locking devices and door switches, together with any associated actuating rods, levers or contacts, shall be so situated or protected as to be reasonably inaccessible from the landing or the car.

4.29 EMERGENCY LANDING DOOR UNLOCKING DEVICE AND KEY

Every landing door shall be provided with an emergency landing door unlocking device which, when operated by an authorized person with the aid of a key to fit the unlocking triangle as defined in SANS1545, would open the landing door irrespective of the position of the lift car for rescue purpose. This unlocking key shall not be able to remain in the unlocked position with the landing door closed, when there is no action to unlock.

In the case of coupled car and landing doors, the landing doors shall be automatically closed by means of weight or springs when the car is outside the unlocking zone.

All door locking devices and door switches, together with any associated actuating rods, levers or contacts, shall be so situated or protected as to be reasonably inaccessible from the landing or the car.

4.30 EMERGENCY DOOR IN LIFT WELL

Where there is a long stretch of lift well without a landing door, an emergency door shall be provided at a distance apart not **exceeding 11 m** for evacuating the passengers. The emergency doors shall be provided by the Contractor who shall check and ensure that the doors provided comply with the following:-

- have minimum dimension 1.8 m x 0.5 m with an F.R.P. of not less than one hour;
- not open towards the interior of the lift well;
- be located in a position readily accessible to rescuers;
- be provided with a lock of such a type that it can be opened from the outside with a key only and from the inside without a key and can be re-locked and re-closed without a key;
- be provided with an electrical safety device by the Contractor of such a type to secure that the lift cannot be set or kept in motion unless the door is fully closed, and
- bear on its outside surface a permanent notice in English.

4.31 DOOR RE-OPENING DEVICES

The car shall be equipped with an electronic door sensor which can detect an obstruction at the car entrances and controls the closing of the doors. This prevents the passenger, wheeled chair from getting bumped by the closing doors, and relieves the user from holding down the DOOR OPEN button.

Door re-opening device shall be fitted to the leading edge of both car door panels, which shall automatically initiate re-opening of the door. The sensor shall scan for any object across the full height of the car entrance. In the event of a passenger being struck (or about to be struck) by the door in crossing the entrance during the closing movement, the doors shall reverse immediately if the sensor detects any obstruction at the car entrances, and reverse operation is possible up to 2 times.

It shall be so designed and installed that for centre opening doors the obstruction of either leading edge when closing will cause it to function. The device shall extend from not more than 25 mm above the sill (measured to the extended position of the protective device) to a minimum height of 1.8 m

Where specified, electronic safety edge may be employed in lieu of the mechanical door re-opening device in which a solid-state detector shall be located on or beside the leading edge of the car door(s). The electronic safety edge shall produce a detection field which shall cover the entire car opening width and extend from not more than 25 mm above the sill to a minimum height of 1.8 m above the sill. When the detection field is interrupted, the device shall initiate re-opening of the car doors.

The door re-opening device for a fireman's lift shall not be of light, flame, heat or smoke sensitive type.

4.32 DOOR-OPEN" ALARM FOR MANUALLY OPERATED DOORS

N/a

4.33 ARCHITRAVES

At each landing entrance the **Contractor** shall provide, unless otherwise specified, architraves of 1.5 mm thick stainless steel of hairline finish or heavy gauge sheet steel profiled to an approved design and spray painted to an approved colour, and shall include all packing and filling (or grouting) as necessary. All surfaces of architrave shall be formed true and gaps between sections will not be allowed. Bolts shall not be visible on the exposed surfaces of the architraves. The architrave shall extend to enclose the thickness of the enclosing front wall.

4.34 LANDING FIXTURES

Unless otherwise specified in the Specification a landing fixture will be mounted adjacent to the lift landing entrance for "simplex" control lift and between the landing entrances for "duplex" control lifts, or group control lifts.

This fixture shall consist of landing call button(s) and illuminated call acceptance signal, with a stainless steel cover plate. The button(s) shall be of vandal-resistant design and flush mounted construction similar to the buttons inside lift car. Electronic touch buttons or micro-movement push buttons shall be provided for office buildings and where specified in the Particular Specification.

4.35 LOAD PLATES, NOTICE BOARDS AND INSTRUCTIONS

A stainless steel plate engraving the rated load of the lift shall be fitted in each lift car in a conspicuous position.

The rated load plate shall give:-

- the maximum number of persons and weight in kilogram,
- the name of the manufacture,
- the lift official registration number,
- "No Smoking", which shall be in each car,

A stainless steel plate engraving with maintenance service providers 24 hour emergency contact details shall be fitted in a conspicuous position on the main landing.

4.36 OVERLOAD DEVICE AND FULL LOAD DEVICE

4.36.1 PROVISION FOR OVERLOAD DEVICE

Every lift shall be provided with an overload device which shall operate when the load in the car is 10% or more in excess of the rated load of the lift. Each lift shall be provided with a strain gauge type load-weighing device to ensure optimum service.

The overload devices shall operate so as to:-

- prevent any movement of the car,
- prevent the closing of any power operated door whether fitted to the car or to the landing at which the car is resting, and
- give **audible and visible** signals inside the car.

The lift shall resume normal operation automatically on removal of the excessive load. The overload device shall be inoperative while the lift car is in motion.

4.36.2 FULL LOAD DEVICE

Every lift shall be provided with a full load device having an adjustable setting range from 80% to 100% of the rated load and when operated, it shall by-pass all landing calls. When the load in the car is reduced, the car shall stop for landing calls as normal.

4.36.3 AUTOMATIC FULL LOAD BY-PASS

To eliminate the inconvenience of having fully-loaded cars stop for landing calls, all lifts shall be equipped with a full load device which detects the load condition in the car and allow landing calls to be by-passed.

4.36.4 LOAD WEIGHING SENSORS

Every lift shall be provided with strain gauge load weighing sensors to be installed on the lift car or on the main ropes or rope hitch mechanism.

The car load weighing device shall interfaced to the VVVF Drive and be used for accurate start torque pre-setting

4.37 EMERGENCY RELEASE EQUIPMENT AND INSTRUCTIONS

A board with suitable instructions placed next to the necessary tools, together with clear instructions on the method for releasing the brake and moving the lift car in an emergency shall be positioned in the machine room in a conspicuous manner. The equipment shall be wall-mounted adjacent to its

corresponding hoisting machine and shall be easily viewed from the normal hand winding position.

It shall also be stated on the board "Emergency release operation shall only be undertaken by authorized person."

The direction of movement of the car shall be clearly indicated on the machine.

As each lift travels through the lift shaft, its floor level position shall be indicated by a battery operated LED indicator mounted in a position clearly visible from the machine. This indicator shall operate independently to the lift control and shall not be dependent on the lift supply for its operation. Supply to the indicator shall be from an independent low-voltage source incorporating an emergency supply which automatically becomes available in the event of mains power failure.

4.38 'RUN/STOP' SWITCHES

Each Run/Stop switch shall be provided with positive action safety switches and shall comply with **SANS-1545**. They shall be clearly distinguished from other switches in the area and the on/off position shall be clearly marked.

4.38.1 Where lift equipment is housed in a compartment separated from the motor room or lift well, a switch shall be provided in that compartment which, when placed in the "STOP" position, shall cause the lift to stop and refrain from being started until the switch is placed in the "RUN" position.

4.38.2 Each lift pit shall be provided with pit safety switches easily accessible from the entrance to the pits without the necessity of entering.

A second and if necessary, a third pit switch shall be provided if the pit switch is not easily assessable when standing on the pit floor or platform.

4.39 CONTROLLER

4.39.1 CONSTRUCTION

The controller shall be constructed in accordance with SANS1545 standards and shall be mounted in a ventilated steel cubicle with hinged front doors and removable hinged rear panels, in which all contactors, solenoids, relays, motor starting equipment etc, shall be fitted and clearly indicated by means of permanent labels. All steel sheets shall be no less than 1.2 mm thick, internally and externally finished in powder coating or plastic skin plate

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

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

4.39.2 GENERAL REQUIREMENTS FOR THE LIFT CONTROLLER

The controller shall comply with the general requirements as stated in SANS1545, and in particular, the following features shall be included: -

- The controller shall be mounted in a ventilated steel cubicle with hinged front doors and removable hinged rear panels, in which all contactors, solenoids, relays, motor starting equipment etc. shall be fitted. All steel sheets shall be no less than 1.2 mm thick.
- The components shall be designed and mounted in a manner which will facilitate easy inspection, maintenance, adjustment and replacement.
- Wirings shall be terminated in such a way that the wires are not damaged.
- Accessible terminals suitably marked, shall be provided for incoming and outgoing cables.
- The control circuit shall be protected by suitably rated over-current circuit breakers or HRC fuses independently.
- Motors connected to three phase a.c. power supplies shall incorporate means to prevent the motor from being energized in the event of phase failure.

4.40 SOLID STATE CONTROLS

Microprocessor-based control shall include the following design features:-

- The system hardware shall be capable of supporting fully software based supervisory and motor control systems.
- Interruption of the electrical supply to the lift shall not affect the system memory or software.
- **It shall be possible to change the supervisory control algorithm to meet a change in the use of the building by re-programming the instruction memory.**
- It shall be possible to interrogate, by means of communication access/test points on the controller, the system operating functions by use of a portable unit using diagnostic routines.
- Visual indicators, e.g. LED'S, shall be provided on the controller to display information on the operational status of the lift. The indicators should show each of the following sequences:
 - Power on
 - Power to each processor board
 - Lift in service
 - Lift travel direction
 - Calls registered
 - Door open/door close
 - Safety edge operation
 - Lift on car preference
- Multiplexing techniques may be employed to reduce the number of trailing cables normally required, if considered cost effective to do so.

The control cabinet shall be provided with an external changeover switch to convert from NORMAL to INSPECTION operation, together with UP and DOWN buttons.

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

4.41 CONTROLLER SYSTEM OPERATION

4.41.1 DIRECTION AND POSITION INDICATOR FOR LANDINGS

Audible and visual direction indicators shall be provided on each landing. The indicator shall sound once for an arriving lift that is traveling upwards and twice for downwards. Audible signal shall be at least 58 dBA measured at 1 m from the landing door. The visual direction indicator shall be designed with a minimum protrusion of 10 mm to give a better visual effect to the passengers waiting.

4.41.2 PRE-ARRIVAL SIGNAL FOR GROUPED PASSENGER LIFTS

For group control of two or more lifts, the audible and visual signal provided for each passenger lift at each landing shall be activated before the arrival of each lift. The time between activation of the signal and the arrival of the lift shall not be less than 2 seconds.

4.41.3 DOWN COLLECTIVE CONTROL FOR SINGLE LIFT ("SIMPLEX" CONTROL)

All calls shall be stored in the system and answered in sequence regardless of the order in which they are registered.

When travelling in the 'Up' direction, the car travels to the highest call, stopping at any intermediate floor for which a car call has been registered. On stopping for the highest call, preference is established for the 'Down' direction.

When travelling downwards, the car stops for all car and landing calls that have been registered. When all calls have been answered, the car remains with doors closed at the floor to which it last travelled.

4.41.4 DOWN COLLECTIVE CONTROL FOR TWO INTER-CONNECTED LIFTS ("DUPLEX" CONTROL)

When both cars are away from the landing of designated point of entry and all calls have been answered, one car will return automatically to the landing of designated point of entry and is referred to as the 'Next' car. The second car remains at the floor at which it last deposited passengers and is referred to as the 'Free' car. Both cars stand with doors closed.

With the cars standing with doors closed as described above the first landing call will be answered as follows:-

- for a landing call from the landing of designated point of entry, by the 'Next' car.
- for any other floor landing call, by the 'Free' car.

With the 'Free' car answering calls, the 'Next' car will not start for 'Down' calls behind the 'Free' car until the "Free" car is descending.

The passenger entering the 'Free Car' at the landing of designated point of entry would be able to register a call and travel to any destination. With both cars standing at the landing of designated point of entry with doors closed, the 'Next' car (i.e. the one that arrived first) will answer the first landing call. Directional preference should be maintained when a car stops for its last call until the doors close.

4.41.5 DIRECTIONAL COLLECTIVE CONTROL FOR SINGLE LIFT

All calls shall be stored in the system and answered in sequence regardless of the order in which they are registered.

When the car is travelling in a given direction it shall travel to the further-most call, answering any car call or landing call for the corresponding direction of travel.

Landing calls for the direction opposite to that in which the car is traveling shall be by-passed but shall remain stored in the system to be answered when the car returns in the opposite direction.

When the car stops for the last call in its direction of travel, preference is given to car call(s) for an adjustable period.

When all calls have been answered the car remains with doors closed at the floor to which it last travelled.

4.41.6 DIRECTIONAL COLLECTIVE CONTROL FOR TWO INTER CONNECTED LIFTS

When both cars are away from the landing of designated point of entry and all calls have been answered, one car shall return automatically to the landing of designated point of entry and is referred to as the 'Next' car. The second car remains at the floor to which it last travelled and is referred to as the 'Free' car. Both cars stand with doors closed.

With the cars standing with doors closed as described above, the first landing call shall be answered as follows :-

- for a landing call from the landing of designated point of entry, by the 'Next' car.
- for any other floor landing call, by the 'Free' car.

With the 'Free' car answering calls, the 'Next' car shall not start for 'Up' calls or 'Down' calls behind the 'Free' car until the 'Free' car is descending. If the 'Free' car is delayed for a pre-determined time which is adjustable, the controller shall operate to dispatch the 'Next' car.

With both cars standing at the landing of designated point of entry with doors closed, the 'Next' car shall answer the first landing call.

The passenger entering the 'Free Car' at the landing of designated point of entry shall be able to register a call and travel to any destination.

4.42 AUTOMATIC GROUP SUPERVISORY CONTROL FOR 2-8 INTER CONNECTED PASSENGER LIFTS

4.42.1 AUTOMATIC GROUP OPERATION AND CONTROL

This group control system when specified in the specification shall incorporate a micro-computer or other similar solid state devices which continuously monitor the transportation demand and automatically adjust the group operation to suit the prevailing traffic pattern and to optimize passenger waiting time.

In the case of a fundamental change in the use or occupancy of the building, the system shall be re-programmable to cater for revised traffic pattern without inconvenient hardware modifications.

Facility shall be provided in the system such that the fault record and the actual traffic pattern of the lifts could be printed out when required.

Control system features to be included are generally as described below but by no means exhaustive which may be either included as standard or specified elsewhere in the specification.

4.42.2 GROUP SUPERVISORY SYSTEM

The lifts shall operate as an interconnecting collective group and the system shall arrange for cars to answer demands in accordance with priorities established by recording the time that calls have been registered. The lifts are to operate as completely flexible units and shall not therefore invariably make round trips, or park at specific floors, or operate to specified programme, or in accordance with dispatch times.

Landing calls shall be grouped into 'UP' and 'DOWN' sectors, the number of floors included in each sector depending on the anticipated traffic and the degree of priority to be accorded to the occupants of the floors. The priority of each sector shall be determined by the length of time that calls have been registered in the sector. It shall be possible to increase or reduce the priority of a sector by reducing or increasing the units of time for a sector.

When not answering calls, cars shall park with doors closed at the floor at which the last passenger is discharged. When a call is registered, the nearest parked car shall answer the call and when travelling to the floor at which the call is registered it shall by-pass calls in sectors through which it may have to pass. Should there be more than one call in sectors embracing several floors the car shall travel to the highest call in a 'Down' sector or the lowest call in an 'Up' sector.

When a car has answered all the landing calls in a sector to which it is assigned and the resulting car calls, it shall park at the final floor and become available for further assignment. When under normal

condition of two way traffic, any car which has answered the calls in its assigned sector and is not fully loaded, shall answer landing calls in the same direction in any sector through which it is passing while answering the car calls resulting from the assignment. The presence of an intense local demand shall be detected and additional cars assigned to this demand as required, provided always that elsewhere are of lower priority.

4.42.5 DOOR PROTECTION “TIME OUT” FEATURE

An electronic detection system shall be incorporated to reduce the preset waiting time to landings and to supplement the operation of the door safety edge. After an adjustable period of time, the starting of the car shall be initiated immediately when the detection system detects that passenger movement across the threshold has ceased.

Should the sensor of the traffic sentinel be failed for an excessive period, the doors shall commence to close slowly after a pre-determined time delay.

4.42.6 CAR PREFERENCE

It shall be possible to withdraw any car or cars from service for maintenance purposes or for attendant control by means of a key operated switch or similar means. Under this condition, other cars in the bank shall continue to answer calls in the system. If required, a car or cars shall be able to be withdrawn from the group and assigned to serve selected floors only.

4.42.7 CAR SEPARATION

An out-of-order car or cars shall be automatically separated from the group, while the remaining ones shall continue to operate under group supervision.

4.43 GROUP OPERATION OF LIFTS UNDER EMERGENCY POWER SUPPLY

Where a group of lifts are to be operated from the same emergency power source which is not sufficient to operate all the lifts at the same time, the **Contractor** shall provide an automatic selector switch such that upon the availability of emergency power, one lift or more lifts at a time shall travel to and park at the landing of designated point of entry to release passengers. After all the lifts are parked at the landing of designated point of entry, the emergency power supply shall remain connected to one of the lifts.

In case where the group of lifts consists of fireman's lift(s), sufficient emergency power shall be available for the operation of the fireman's lift(s) and the sequential returning of the other non-fireman's lift(s) of the group to the designated point of entry at the same time. The operation of the fireman's lift(s) shall not be affected in any case.

The **Client** will provide conduit/trunking facilities for the interconnections between different lift machine rooms, where applicable. The interconnecting control cables shall be provided by the **Contractor**.

4.44 LANDING AND CAR DOORS

On arrival of the lift to a landing in response to a car call or landing call, the landing and car doors shall be open automatically and be kept open for a pre-determined period before closing. This period shall be adjustable from 5 seconds to 30 seconds. A sensitive door re-opening device shall be provided to automatically initiate the re-opening of the doors in the event that a person is about to be struck by the doors in crossing the entrance during the closing movement.

4.45 INDEPENDENT SERVICE OPERATION AND CONTROL

For lifts equipped with attendant control, the control station shall also incorporate: -

- A key-operated attendant control switch shall be included for the purpose of bypassing landing calls. When this switch is in the "On" position, the removal of the key from the barrel shall be prevented and the lift shall be operated from the car buttons only and independent of all other automatic or special operation modes. Independent operation switches mounted behind a lockable cabinet below the COP shall not be accepted.
- The power operated car and lift shaft doors shall remain open when a lift is at a landing until a car call for another landing is registered and door close button is pressed. If another car call has been registered, it shall be necessary, after each stop, to repress the door close button to affect the closing of the doors.

4.46 EMERGENCY POWER MANAGEMENT OF LIFT SYSTEM

The following emergency management provisions shall be included in the lift control system for a bank of lifts:

NORMAL MODE: Under normal operating status, at least one lift car of a lift bank shall operate under a standby mode during off-peak period when the traffic demand on the vertical transportation system is low.

STANDBY MODE: Under a standby mode of operation, a lift car shall not respond to passenger calls until it returns to the normal operation mode.

For each lift car within a lift bank, when it has been idling for 2 minutes with the lift doors closed, the lift car's ventilation and lighting shall be shut off automatically until the lift car is activated again by passenger call.

4.47 ENERGY MANAGEMENT OF LIFT SYSTEM

For each lift car within a lift bank, when it has been idling for 2 minutes with the lift doors closed, the lift car's ventilation and lighting shall be shut off automatically until the lift car is activated again by passenger call.

4.48 FIRE SERVICE REQUIREMENTS

4.48.1 FIREMAN'S SWITCH

The fireman's lift shall be provided with a suitable control switch, clearly indicated in English as Fireman's Switch, at the designated point of entry to enable Fire Services personnel to gain control over the lift which, upon operation shall override the instructions registered and return to the designated point of entry as quickly as mechanically possible.

The Fireman's Switch shall be of a type which does not require a key for operation. Where a toggle switch is used the "down" position shall correspond to the "on" position. The Fireman's Switch shall be located adjacent to the lift opening at the designated point of entry and shall be at a height of approximately 2 m above the floor level. Where two or more lifts are installed together, the switch shall be labeled such that there is no doubt as to which lift it controls.

4.48.2 HOME LANDING OPERATION

Every lift shall be provided with a facility to bring the lifts to the designated point of entry in case of fire by manually operated key switch installed at the designated point of entry.

4.48.3 ALL LIFTS TO RETURN TO LANDING OF DESIGNATED POINT OF ENTRY UPON ACTUATION OF FIRE ALARM SYSTEM

Where specified, the **Contractor** shall connect the lift control to the fire alarm system so that all lifts shall return to the landing of designated point of entry upon actuation of the fire alarm devices (other than smoke detectors) at the appropriate zone. Upon reset of the alarm system, the lifts shall only return to normal service after positive reactivation.

4.48.4 RELEVANT LIFTS TO RETURN TO LANDING OF DESIGNATED POINT OF ENTRY UPON ACTUATION OF FIRE ALARM SYSTEM

Where specified, the **Contractor** shall connect the lift control to the fire alarm system so that upon actuation of the fire alarm devices (other than smoke detectors) at the particular zone, all lifts serving that zone shall return to the landing of designated point of entry. Upon reset of the alarm system the lifts shall only return to normal service after positive reactivation.

4.48.5 CAR DOOR OPENING MODE FOR FIREMAN'S LIFT

N/a

4.48.6 NOTICE FOR FIREMAN'S LIFT

N/a

4.49 FIREMAN'S LIFT REQUIREMENTS

N/a

4.50 ELECTRICAL POWER SUPPLY FOR FIREMAN'S LIFT

N/a

4.51 CHANGEOVER OF ELECTRICAL POWER SUPPLY FOR FIREMAN'S LIFT

N/a

4.52 FIREMAN'S LIFT EMERGENCY POWER OPERATION AND CONTROL

N/a

4.53 CONSTRUCTION OF DOORS FOR FIREMAN'S LIFT

N/a

4.54 LIFT INTERIOR FOR FIREMAN'S LIFT

N/a

4.56 SUPPLEMENTARY FEATURES

4.56.1 Security Access Control

N/a

4.56.2 Two-way switching for shaft lights

The primary control for the shaft lights switches shall be via the 'NORMAL/INSPECTION' switch provided with the top of car control station.

The two-way switches provide at the top and bottom of the lift shafts shall be fed from the top of car 'NORMAL/INSPECTION' switch and shall operate only once the car has been placed on inspection mode. It shall not be possible to switch the shaft lights on if the lift is in on "NORMAL" mode.

4.57 REMOTE MONITORING OF ELEVATORS

4.57.1 REMOTE MONITORING SYSTEM

N/a

4.57.2 FUNCTIONAL DESCRIPTION

N/a

SECTION 5

REQUIREMENTS FOR MACHINE ROOM LESS LIFT

5.1 SPECIFIC REQUIREMENT

The following specific requirements shall be complied with:

- Maintenance, repair, major alteration, replacement and examination of the overspeed governor and machine shall be able to be carried out on the car roof safely and without difficulty;
- Tripping and re-setting of the overspeed governor shall be able to be remotely controlled outside the lift well;
- The motor brake shall be able to be remotely released outside the lift well,
- When the counterweight buffer is completely compressed, the over-travel of the lift car above the upper terminal landing floor level shall not exceed a dimension that will hinder the release of passengers in a safe manner;
- Sufficient lighting shall be provided for illumination of the overspeed governor and machine in the lift well.

5.2 CONTROL PANEL

When the control panel is located outside the lift well, it shall be lockable and only accessible by authorized person. Position of the control panel shall be as specified in the Contractors drawings. It shall be enclosed by a rigid enclosure constructed of stainless-steel frame and stainless steel sheet of minimum 1.5mm thick unless otherwise specified. The door(s) of the enclosure shall not open towards the control panel and shall be fitted with a lock which can be open without a key from inside and can be locked without a key from outside. It shall bear on the outside face a notice in English in letters and characters not less than 25mm high as follows: -

“CLOSE AND LOCK THIS DOOR” “UNAUTHORIZED ACCESS PROHIBITED LIFT CONTROL PANEL”

When the control panel is located inside the lift well, it shall be located at a position that will enable the lift maintenance personnel to carry out inspection and maintenance work in a safe and efficient manner. All necessary working platform and access to the control panel shall be provided by the **Contractor**.

5.3 PROVISIONS FOR RESCUE OF PASSENGERS

The following facilities shall be provided by the Contractor and be readily available for use by the rescue personnel:-

- Car lifting tool for moving the car in case it is stuck.
- Weights for adding to the car in case of balanced loading condition where the car cannot be moved by releasing the motor brake or other means to move the lift car as approved by the **Client**.

SECTION 6

TECHNICAL INFORMATION FOR THE SCOPE OF WORK

❖ SCOPE OF WORK –

The existing passenger lift must be completely removed and replaced. The new lifts to be installed shall be of the Motor Room-less (MRL) type and will be a passenger/paraplegic type lift to conform to the SANS 50081-70 (EN 81-70) Accessibility to lifts for persons including persons with disability.

The general scope of works will be for the Contractor to supply and install new equipment as follows:

- Remove the existing elevators
- New MR (Machine Room) elevators
- Supply and install new Micro-processor controllers
- Supply and install new VVVF drives
- Supply and install new Shaft information equipment
- Supply and install new VVVF car door operator
- Supply and install new car door tracks and rails
- Supply and install new landing door tracks and rails
- Provide Emergency Rescue Device (option)
- Supply and install new Landing buttons and signalization
- Supply and install Shaft lighting

The new lifts to be installed shall be of the Machine Room (MR) type. Low energy consumption latest energy efficient type of equipment with regenerative drives and energy saving features as specified must be offered. Low noise level equipment that is environmentally friendly with zero oil requirements and minimum CO2 emissions will be preferred.

EQUIPMENT / NUMBER OF UNITS

LIFT SCHEDULE	STOPS / OPENINGS	LOAD / PERSONS	TYPE	UNIT
Passenger Lifts	5 stops / 5 openings	1000 kg / 13 per	Passenger paraplegic	2
			Total	2

TECHNICAL SPECIFICATIONS

6.1 Duplex Passenger Lifts (full replacement)

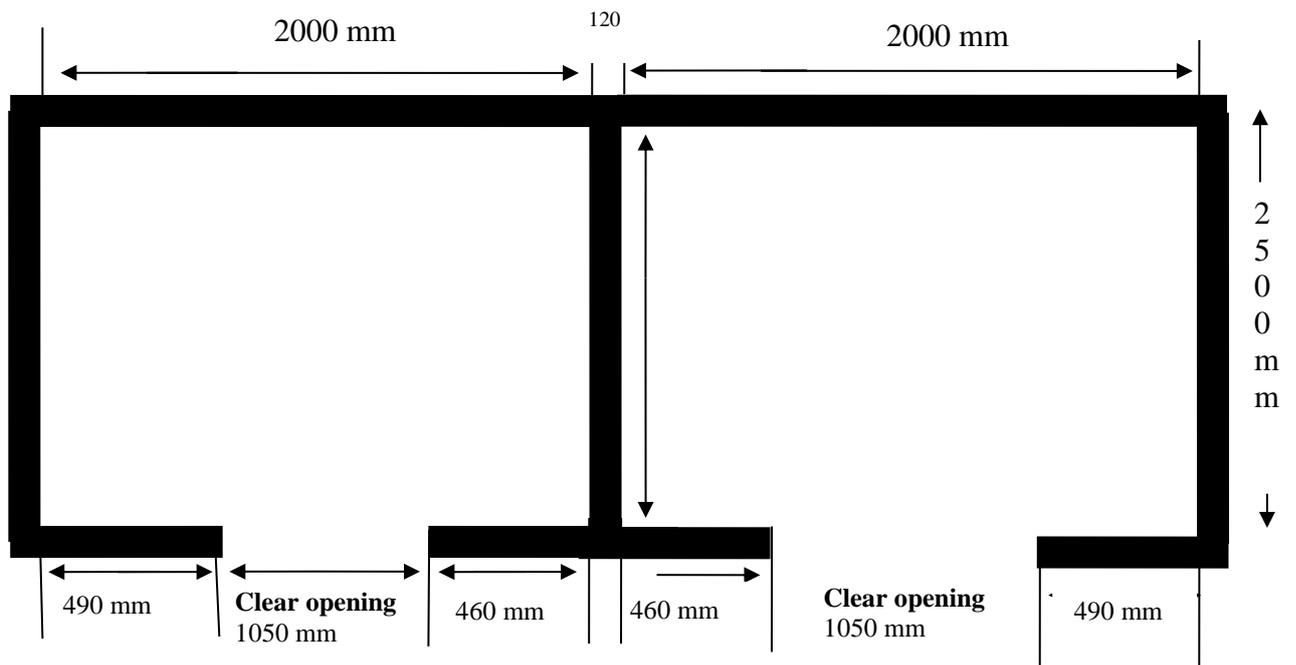
6.1.1 VERTICAL SHAFT DIMENSIONS (Existing dimensions)

TECHNICAL INFORMATION – FLOOR TABLE FOR SIMPLES LIFT				
Levels	Floor Distance	Floor Description (Designation)		
		[MR] – Machine Room		
	3750 mm	[HR] – Head room	Openings	
			Front	Rear
Level 5	Travel 12750 mm	[3] 3 rd Floor	x	-
Level 4		[2] 2 nd Floor	x	-
Level 3		[1] 1 st Floor	x	-
Level 2		[G] G Floor	x	-
Level 1		[B] Basement	x	-
	1500 mm	Pit		

6.1.2 HORIZONTAL SHAFT AND INTERNAL CAR DIMENSIONS – Duplex Lift shaft (Existing dimensions)

TECHNICAL INFORMATION – Shaft size & internal car dimensions	
Shaft size	2000 mm wide x 2500 mm deep (Existing)
Car and Landing door clear opening	900 mm wide x 2100 mm high
Internal lift car size: Platform dimensions	1100 wide x 2100mm deep
Clear internal car height	2300mm high
Door type	Automatic 2 panel center opening

6.1.3 Vertical Shaft



6.1.4 SCOPE OF WORKS

6.1.4.1 GENERAL REQUIREMENTS

SCHEDULE No.1 – GENERAL REQUIREMENTS FOR SCOPE OF WORK	
Type of Lift (s)	Passenger paraplegic
Number of Elevators	Duplex elevators
Carrying Capacity	15 Persons 1150 Kg Tenderer to advise on biggest car size possible
Car floor area size	1200 wide x 2100 deep
Rated Speed *	1.0 m/s
Travel	12,750 meters
Number of Floors Served *	5
Number of openings / entrances	5 in line
Floor Designation *	[B] / [G] / [1] / [2] / [3]
Power Supply	400VAC \pm 10% 50Hz 3ph 4 Wire - 3PE (3 wire + neutral)) 230V 50Hz 1 ph .(2 wire + earth)
Machine Room Location	Above the lift shaft
Main Motor	Provide gearless machine with permanent magnet synchronous motor
Motor Drive System	Provide energy efficient Variable frequency Variable voltage drive unit
Duty Rating	180 starts per hour
Control System	Fully collective, microprocessor, full load bypass, automatic return to main landing with doors open, automatic rescue device (emergency battery backup), with voice annunciation, emergency fire operation,
Signalization for car and landing type	Provide low energy consumption units (LED)
Operation for car and landing Signalization	Provide Standby mode for hall and car signalization when elevator is idle
Noise Levels	Provide 55 decibels or less as specified
Lubrication	0 lubrication to be provided
Control System	Fully collective, microprocessor, full load by pass, automatic return to main landing with doors open, automatic rescue device (emergency battery backup),
Entrance Protection Type	Electronic edge as specified
Ascending over-speed protection:	Provide new as specified
Main ropes	Provide new as specified
Shaft lights and two-way switches	Provide as specified
220 VAC Plug Socket Outlet in lift Pit	Provide new SANS approved as specified
Communication / intercom system	Provide new as specified
Car Light / Emergency Light	Provide new as specified.
Emergency Alarm Unit	Provide new as specified
Travelling Cables	Provide new as specified

Electrical Wiring - Car, Shaft Harness	Provide new as specified
Load Weighing Device	Provide strain gauge as specified
Car Lighting and Ventilation	Provide auto light and fan for inside the car as
Car Door Drive System	Provide new VVVF as specified
Automatic Rescue Device (Emergency Battery Backup)	Provide as specified (Optional)
Voice Annunciation	Provide as specified
Buffers for car and counterweight	Provide new as specified
Pit Emergency Stop Switch (s)	Provide new pit switch(s) to be reachable from the landing floor and from the pit floor. (Provide pit switches at the both the front and rear of the lift shaft.
Overspeed governor tension sheave electrical switch (broken rope switch)	Provide new as specified
Overspeed governor and rope	Provide new as specified
Compensation	Not required
Guide Rollers / Shoes	Provide shoes for the car and counterweight
Remote Monitoring system	Not required
Auto-dialer system	Not required
Emergency fire operation	Provide as specified
Emergency power operation and homing of elevator	Provide as specified
Pit division screen	Provide as specified
Pit floor	Not required.
Rear wall of lift shaft	Patch and paint the entire rear wall of the lift shaft in dark grey colour.
Old machine room	Close unused exiting openings. Patch, paint to be as smooth as possible. Light Grey colour paint to be used

6.1.4.2 LIFT CAR FIXTURES AND FINISHES

SCHEDULE No.2 – TECHNICAL DESCRIPTION FOR LIFT CAR AND EQUIPMENT	
Car Station	Provide one (1) new car operating panels on the front wall (rear and front of car) finished in stainless steel with built in direction and floor indicators.
Number of Car Stations	Provide one (1) operating panels (front and rear of car)
Contents of Car Station	Door open button Door close button Alarm / intercom button Overload light and buzzer Independent service switch Fire man's lift equipment when fire control level key switch Voice Annunciation components as specified.
Car Station for Blind Persons	COP to conform to SANS 50081-70 (EN 81-70) Accessibility to lifts for persons including persons with disability.
Car Push Button Type	Provide new Micro-push operation illuminated to incorporate signal for call acceptance.
Position Indicator Type	Provide new digital with separate direction of travel arrows
Car Station Faceplate Finish	Provide stainless steel
Car door rails and hangers	Provide new as specified.
Car Door Type	Provide automatic two (2) panel centre opening doors
Car Door clear opening size	Provide new 900 mm wide x 2100 mm high
Car Door Finish	Provide stainless steel as specified
Car Sill Finish	Provide new extruded aluminium sill
Front Return Panels	Provide stainless steel as specified.
Side Wall Finish (Right)	Client to specify
Side Wall Finish (Left)	Client to specify
Rear Wall Finish	Provide full glass panel
Handrails	Provide handrails on all three panels
Bumper guards rails for rear glass panel in car	Provide bumper rails for the rear wall glass panel to be installed to the car floor and to be part of the car handrail system.
Skirting	Client to specify
Flooring	Client to specify
Ceiling	Client to specify
Lighting	Provide as specified
Mirrors	Client to specify
Top of Car Control Station	Provide as specified
Top of car guardrails	Provide as specified
Drapes and Studs	Not required
Signage	Provide as specified

6.1.4.3 LANDING FIXTURES AND FINISHES

SCHEDULE No.3 – TECHNICAL DESCRIPTION FOR LANDING EQUIPMENT	
Push Button Type	Provide new Micro-push braille buttons operation illuminated to incorporate signal for call acceptance.
Hall Position Indicator and Hall Lantern Type	Provide hall position indicators on ALL LANDINGS.
Special Features	Not required
Emergency Fireman's Switch	Provide Fire Switch as specified to be incorporated into the ground floor landing push button station.
Landing Button Face Plates	Provide new 3mm stainless steel plates
Number of Hall Button Risers	One front
Boxes for hall position indicators, fireman's service and landing call	Provide new boxes to be recessed into the existing wall on the landing. Landing signals and equipment must be of the
Blanking Plates	Provide as required.
Landing Door Type	Provide stainless steel as specified.
Landing door clear opening size	Provide new 900 mm wide x 2100 mm high doors and frames
Landing Door Equipment	Provide new door rails and tracks as required.
Landing door frame and Architrave	Provide as specified.
Landing door Sill	Provide new as specified.
Fire Rated Landing Doors	N/a
Infill pieces and re-cladding	Re-clad exiting landing door frames and headers sections as required.
Spray paint existing doors frames.	N/a
Fire Floor	Ground Floor
Emergency Fire Control	Provide as specified
Emergency Power Operation	Provide as specified

6.4.1 GENERAL REQUIREMENTS

6.4.1.1 OCCUPATIONAL HEALTH AND SAFETY

DETAILS FOR OHS COMPLIANCE	
Compilation of OHS plan	Include in main offer
Provision and maintenance of OHS file	Include in main offer
Implementation and maintenance of Health and Safety training (Safety induction to be provided by consultant)	Include in main offer
Provide external training for employees, Fire Fighting / First Aid and Health and Safety Representatives Risk assessment	Include in main offer
Maintenance and implementation of Health and Safety Signs and Notices	Include in main offer
Appointment of external (Consultant) Occupational safety officer for duration of contract	Not required
Clients Monthly Health and Safety Compliance Audit and Report. Appointment of external Safety Consultant.	Include in main offer
Provide lockable hoarding on all landing floors and building floor protection.	Provide as specified. Include in main offer

6.4.1.2 PROJECT MANAGEMENT

DETAILS FOR PROJECT MANAGEMENT BUDGETARY ALLOWANCES	
Project Manager to co-ordinate scope of works	Include in main offer

6.4.1.3 BUDGETARY ALLOWANCES

CAR INTERIORS	
DETAILS FOR CAR INTERIORS, LANDING FINISHES & BUDGETARY ALLOWANCES	
Car finishes	Tenderer to advise
Bumper rails / guard rails	Tenderer to advise
Handrail	Tenderer to advise
Side Wall Finish (both sides)	Tenderer to advise
Rear Wall Finish	Full glass panel to be included in main offer.
Car Flooring	Tenderer to advise
Special Guard rails for top of car	Not required
Skirting	Tenderer to advise
Mirror	Client to advise
Energy efficient car lights / emergency lights	Included in main offer
External lift inspector – for Annexure A inspection and test and to issue Annexure B Compliance Certification	Contractor to provide allowance for National Elevator Consulting cc R9,600.00 per lift
Protective Drapes and Studs	Not required
Splayed frames / architraves / infill pieces	Re-clad existing door frames and headers on all landing floors – include in main offer

6.4.1.4 OPTIONAL ALLOWANCES

DETAILS FOR GENERAL OPTIONAL BUDGETARY ALLOWANCES	
Emergency rescue device (Emergency battery device)	Provide optional allowance
Three-way voice communication	Include in main offer
Remote Monitoring	Not required
Automatic monitoring / auto dialer	Not required
Ascending overspeed protection	Included in main offer
Fire Rated Landing Doors (120 minutes fire rating with smoke proof guarding)	Included in main offer
Additional Monitors for Remote Monitoring	Not required
Destination control for car call and dispatch	Not required
Other	
Spray Painting landing door frames	N/a

6.4.1.5 GENERAL ALLOWANCES

DETAILS FOR GENERAL ALLOWANCES	
Provide 380VAC electrical supply to top of lift shaft. COC to be issued on completion	Include in main offer
Machine room lighting to be improved	Include in main offer. Additional lighting to be installed in the Machine room
Provide supply for sump pump in lift pit	Not required
Modification to existing door openings and building in new landing door frames and sills. Tile existing landings at lift entrance.	Include in main offer
Hoarding off and barricading for landing entrances	Include in main offer
Future Additional Stops	Not required
Install I Beam with lifting hooks at the top of the lift shaft / or Lifting hooks	No required
Removal of existing elevator	Provide optional offer
Install sump pump and grid cover	Not required
Screed existing pit floor	
Security access control	Not required
Patch and paint existing Machine room floor	Include in main offer
Close openings in existing Machine room floor	Include in main offer
Alterations to existing false pit floor	Not required