# PORT SHEPSTONE HOSPITAL
# NEW PSYCHIATRIC WARD

# PASSENGER/STRETCHER LIFT INSTALLATION

## (WIMS 044044)

**TECHNICAL SPECIFICATIONS**

**Prepared by:**


**MAHESH KHOOSAL AND ASSOCIATES cc**
58 Hilken Drive
UMHLANGA ROCKS
1320

**Contact person:** Mr M Khoosal
**Phone Number:** (031) 5368306


**Prepared for: Dept. of Public Works**

public works
Department:
Public Works
**PROVINCE OF KWAZULU-NATAL**

AUGUST 2024

## PART ONE : TECHNICAL SPECIFICATION

# C O N T E N T S

Page

1.1.0 GENERAL ..... L.2
1.1.1 Technical Specification ..... L.2
1.1.2 Tender Drawings ..... L.2
1.1.3 Works Programme ..... L.2
1.1.4 Maintenance And Guarantee ..... L.2
1.1.5 Shop Drawings ..... L.3
1.1.6 Tender Price Details ..... L.3
1.1.7 Make and Model of Equipment Offered ..... L.3
1.1.8 Price Variance/Price Adjustment ..... L.4
1.1.9 Progress Payments ..... L.4
1.1.10 Ordering Of Materials ..... L.4
1.1.11 As-Built Drawings ..... L.4
1.1.12 Maintenance And Operating Manuals ..... L.4
1.1.13 Power Supply For Site Works ..... L.5
1.1.14 Contracts Management ..... L.5
1.2.0 SITE DESCRIPTION, SCOPE of CONTRACT, etc ..... L.5
1.3.0 GENERAL DESCRIPTION OF LIFT INSTALLATION ..... L.6
1.4.0 PARTICULAR SPECIFICATIONS ..... L.7
1.5.0 TESTING AND COMMISSIONING ..... L.11
1.6.0 SERVICE AND MAINTENANCE ..... L.11
1.7.0 PLANT LABELLING ..... L.11
1.8.0 PAINTING ..... L.11
1.9.0 LOGBOOK AND BENCH ..... L.11
1.10.0 CORROSION PROTECTION ..... L.12
1.10.0 INFORMATION SCHEDULE ..... L.13

# PORT SHEPSTONE HOSPITAL – NEW PSYCHIATRIC WARDS

## PASSENGER/STRETCHER LIFT INSTALLATION

## PARTICULAR TECHNICAL SPECIFICATION

### 1.1.0 General

#### 1.1.1 Technical Specification

This part of the tender specification documentation is for the design, supply, Installation and maintenance of a Passenger/stretcher lift.

#### 1.1.2 Tender Drawings

The following drawing(s) shall form part of this specification and must be read in conjunction with it:

M652/L/01 (REV 0) – LIFT INSTALLATION

#### 1.1.3 Works Programme

Type of contract : as per contract data in main contract document.
Contract period : as per contract data in main contract document.

Unless otherwise stated, in the tender documentation, the successful Tenderer, shall within 14 days of appointment, provide the Engineer with a comprehensive programme of works to tie in with that of the main contract programme. The programme must be comprehensive and indicate lead times for equipment, production of shop drawings, first and second fix items, and commissioning. At least one month must be allocated for commissioning of the systems prior requesting the Engineer to inspect the works for practical handover.

#### 1.1.4 Maintenance and Guarantee

All equipment supplied under this contract shall be guaranteed for a period of twelve (12) calendar months from the date of practical or first handover of the installation, whichever occurs first.

Four (4) copies of maintenance and operating manuals are required for this installation. The manuals must include the following items;

(a) List of contents.
(b) Client's, Consultant's and Contractor's details including name, contact person telephone and fax numbers, etc.
(c) Full description of installation and operating features.
(d) Description of automatic control system, accompanied by control schematics.
(e) Step-by-step instructions for testing of the system
(f) List of equipment suppliers names and addresses.
(g) Names and addresses of firms from whom spare parts can be obtained if different from the above.
(h) Spare parts lists.
(i) Commissioning data, and statutory annexures.
(j) Manufacturers data, brochures, etc.
(k) Full maintenance and servicing schedules (as recommended by equipment suppliers and including schedules attached to this document)
(l) Full set of as-built installation drawings, etc.

Each manual must be bound in a hard covered ring file or similar, with the institute's and the client's names and type of installation printed permanently on the face of the manual.

**A full scanned electronic copy of the manual shall be saved on a flash drive and included in each manual, in a plastic protective sleeve.**

### 1.1.5 Shop Drawings

It shall be the responsibility of the appointed Lift contractor under this contract to design and install a system that is in compliance with the following applicable codes of, or later codes;

- Health and Safety Act July 2003 including amendments,
- The National Building regulations - SAN 100400 and SANS 10287,
- The by-laws and Regulations of the applicable Local Authority,
- SANS 10142 : Code of Practice for the wiring of premises
- SANS 1543 : Escalators and passenger conveyors
- SANS 1545 : Specifications for lifts and escalators

The Contractor shall within **two weeks** of being appointed, produce and submit to the Engineer, shop drawings, complete with detail equipment and electrical and building works requirements. Plan layout and section details shall be produced.

The successful tenderer shall be required to show the Engineer, installations done by the contractor of similar installations.

The successful Tenderer will be required to issue for the Engineer's acceptance three copies of all shop drawings, including control board circuit diagram within three weeks of the tender being awarded or as and when requested by the Engineer.

These drawings shall be adjusted and re-submitted should they be red-lined by the Engineer.

The acceptance of shop drawings by the Engineer shall in no way relieve the Contractor of his responsibilities, such as accurate dimensioning of builder's works, providing correct size and strength of supporting structures, location of plants, fittings and access panels for adequate access for servicing and maintenance, and adherence to all applicable regulations, generally accepted good practice, and the technical specification and drawings.

The Contractor must draw to the Engineer's attention, in good time, if any part of the design he believes to be not correct.

### 1.1.6 Tender Price Details

The tenderer shall be required to complete the tender price schedule at the time of tender. Failure to do so may result in the tenderer being disqualified. Alteration to the bill of quantities, in anyway whatsoever, shall render the tender invalid.

### 1.1.7 Make and Model of Equipment offered

Where alternate make of equipment to that indicated in this specification is offered, then this shall be equal, and subject to acceptance by the Engineer, prior to submission of the tenders. Acceptance of the alternative shall not relieve the tenderer from his/her obligation to ensure compliance with the specification, compatibility with other components forming part of the system, and that the equipment will fit in the space available without compromising functionality and access. The Engineer reserves the right to reject the alternate, for any reason whatsoever, and call for the make and model specified to be provided at no additional cost.

1.1.8 Price Variance/Price adjustment

Refer to contract data in the main contract document.

1.1.9 Progress Payments

The Contractor shall submit his/her claim timeously to allow for the Engineer/Quantity Surveyor at least 7 working days to process and submit his payment certificate to the Professional Quantity Surveyor.

1.1.10 Ordering of Materials and Equipment

Within 3 working days of acceptance of the successful Tenderer, the Contractor shall submit, for the Engineer's approval, a list of make and model numbers of all equipment and materials to be utilised in this contract. An acceptance by the Engineer shall not absolve the Contractor from complying with the specification unless the Contractor has specifically applied for deviation from the specification for the item in question.

The equipment and materials referred to above shall include but not be limited to;

- Lift
- Drive motor
- Door drives
- Floor finishes,
- Internal finishes,
- Lighting,
- Car panel,
- Lift App based management system

The Contractor shall be responsible to ensure that the contract programme is adhered to and that no delays are caused by late deliveries of equipment and materials. Other activities which must precede placing of orders must be taken into account when the Sub Contractor schedules his activities.

1.1.11 As-Built Drawings

The Contactor shall provide hardcopies of one complete set of as-built drawings with each operating and maintenance manual, together with a full set on a flash drive.

The provision of complete and approved as-built drawings shall be a prerequisite to final payment.

1.1.12 Maintenance and Operating Manuals and Maintenance Plan

Four (4) copies of maintenance and operating manuals are required for this installation. The manuals must include the following items;

(a) List of contents.
(b) Client's, Consultant's and Contractor's details including name, contact person telephone and fax numbers, etc.
(c) Full description of installation and operating features.
(d) Description of automatic control system, accompanied by control schematics.
(e) Step-by-step instructions for testing of the system
(f) List of equipment suppliers names and addresses.
(g) Names and addresses of firms from whom spare parts can be obtained if different from the above.
(h) Spare parts lists.

(i) Commissioning data, and statutory annexures.
(j) Manufacturers data, brochures, etc.
(k) Full maintenance and servicing schedules (as recommended by equipment suppliers and including schedules attached to this document)
(l) Full set of as-built installation drawings, etc.

Each manual must be bound in a hard covered ring file or similar, with the institute's and the client's names and type of installation printed permanently on the face of the manual.

**A full scanned electronic copy of the manual shall be saved on a flash drive and included in each manual, in a plastic protective sleeve.**

**The provision of complete and approved set of Operating and Maintenance Manuals shall be a prerequisite to first delivery or beneficial handover.**

1.1.13 Power and Water Supply for site Works

Power and Water supply to site works shall be as per the main contract. The main contractor will charge for provision of these services. Power requirements for welding and cutting purposes shall be allowed for under this subcontract.

1.1.14 Contracts Management

1.1.14.1 Upon appointment, the Contractor shall allocate to this project, a suitably qualified Contracts Engineer and a site foreman, each with at least 7 years experience in the installation of lifts and similar scope and extent of the works, who shall at all times be in full control of, and be able to report expediently to the Engineer and the principal Contractor's manager on all aspects of the the Contract. The site foreman will be required to be full time on site, and as and when the Engineer and/or the main Contractor deems it necessary.

1.1.14.2 Should the Engineer indicate that the Contractor has not satisfactorily complied with the above and has failed to remedy the situation within 14 days of written instruction to do so, the contract may be cancelled or payments withheld.

## 1,2.0 **Site Description, Scope of Contract, etc**

1.2.1 Site Description

1.2.1.1 The site is located in the Port Shepstone hospital at 7 Bazley Street, Port Shepstone, Hibiscus Coast, 4240**.**

1.2.2 Site Conditions

Site conditions are as follows:

(a) Altitude: Sea level
(b) Electrical Supply 400 Volts (+/-10%), 3 phase, 50 Hz, 4 wire
(c) Design summer outdoor air condition: 35.0$^{o}$C db/80%RH

Fault levels for Switchboards:

(a) Switchboards – 5kA

All equipment selected must be capable to operate safely at a voltage supply of 220V or 400V with +/-10% fluctuation.

### 1.2.3 **Abnormal and/or unusual conditions**

The tenderer shall make note of the following conditions, and shall make adequate allowance in his/her rates for such conditions;

i) The project is on a live hospital site, and due care must be taken at all times to ensure that no unplanned disruptions of services are experienced.

ii) Ensure that construction activities does not pose a safety hazard to the hospital staff and patrons utilizing the hospital.

### 1.2.4 **Scope of Contract**

The scope of this contract is to supply one 2000kg stretcher lift and fully commission, hand over and maintain for 12 months from practical completion.

All material and labour required to complete the works and handover in a safe, effective and operating condition shall be allowed for in this contract.

The installation shall include, all shaft equipment (including guide rails, trimmers and support brackets), architraves, controllers, landing equipment, aprons, landing door tracks, lanterns, car, landing doors, etc. All equipment shall be new, no previously used equipment will be acceptable.

The drive motor shall be located in the shaft at high level.

The tenderer shall allow for the design, supply, erection, testing, planning, coordinating, making of shop and as-built drawings, producing of operating and maintenance manuals, and maintaining the system for a period of 12 months.

The successful contractor shall be required to take accurate measurements of the lift shaft, landing openings, pit depth, shaft head height, etc. and take all site conditions prior to producing of shop drawings and procuring of equipment. Alternatively, the measurements shall be taken of construction drawings where the shaft has not yet been constructed.

The successful contractor shall be required to timeously make all necessary applications and registrations to the applicable authorities, obtain approvals, and lift inspector's test certifications.

### 1.2.5 Electrical and Builder's Works

1.2.5.1 Power supply for site works shall be as per the contract data in the main tender documentation.

1.2.5.2 Power supply to the lift panel shall be brought to an isolator in the shall at the uppermost floor by the contractor's electrician. The lift installer shall complete the installation to the lift panel. The power specification for the lift shall be given to the Engineer the beginning of the contract and shall ensure that the correct supply is provided.

1.2.5.3 Unless otherwise specifically indicated, builder's works shall be by the main contractor. It will be the responsibility of the lift installer, to timeously provide the necessary information to the Main Contractor, including marking up on site, builder's works drawings, verification on site that builder's works has been correctly provided, and provide assistance to the main contractor in ensuring that the builder's works is timeously done. Where openings are required in slabs, this must be verified on site, prior to the concrete been poured.

1.2.6 Site Inspection

1.2.6.1 The contractor shall be required to inspect the site prior provide a quotation to suit.

## 1.3.0 GENERAL DESCRIPTION OF LIFT INSTALLATION

**i) The lift drives shall be located in the shaft with the main lift control panel located on the topmost floor).**

ii) Lift supplied shall be new, own manufacture, of high quality, for high (continuous) usage, robust, reputable make, vandal proof, with easily available spare parts.

iii) The make and model of the lift offered shall be reputable locally. Where requested by the Engineer, the tender must be able to provide references of at least 10 sites where it has been successfully installed in the Durban area and running for at least 12 months.

iv) The lift shall run and operate smoothly and quietly, without evidence of sway or bumps in the ride.

v) Power supply at high level in the shaft shall be provided by the Contractor's Electrician. Take off from here to the control panel and to equipment and shaft lighting shall for part of this contract. Installation of shaft lighting shall form part of this contract.

vi) All panels on cars, doors and architraves shall be of stainless steel high grade type and shall not be less than 1.0mm thick.

vii) The car wall panels shall be constructed ridged such that the lift runs quietly, without any noise emanating from the car panels, and without any noticeable vibration or bumps in the ride.

viii) Architraves shall be provided with a timber backing, such that it feels and sounds full and solid.

**ix)** Fault/alarm logging facility in the lift controller shall be provided, such that serviceman can have access to the fault history.

**x) The contractor shall allow for permanent covers to protect the lift drive motor, controllers, shaft electronic equipment from water from roof or floors above. Any water damage to electronic equipment during construction oshall be to the lift contractor's account.**

**xi) The lift shall be provided with a building management system with self-contained software package that allows users to perform specific tasks and monitor the lift on a mobile or desktop device.**

## 1.4.0 PARTICULAR SPECIFICATIONS

### 1.4.1 DETAIL SPECIFICATIONS

| Item | Description | Detail Requirements |
|---|---|---|
| | **G E N E R A L** | |
| (a) | Number of Units | *1 (Simplex)* |
| (b) | Type of Lift | *Variable frequency drive , gearless, Passenger* |
| (c) | Load (minimum) | *2000kg* |
| (d) | Speed | *1.0 m/sec* |
| (e) | Lift Numbers | *TBA* |
| (f) | Number of Stops | *3 Stops* |

| | | |
|---|---|---|
| (g) | No of Openings | *3 (In-line)* |
| (h) | Car Entrances | *1 per Lift* |
| (i) | Floor Designation | *0,1,2 (to be confirmed prior to order)* |
| (j) | Travel distance | *Approximately 12.0m* |
| | | |
| **MACHINE** | | |
| (a) | Drive | *VVVF (regenerative technology – not necessary)* |
| (b) | Machine | *Gearless* |
| (c) | Roping | *As required* |
| (d) | Automatic Self-leveling | *Yes* |
| (e) | Compensation | *Yes* |
| | | |
| **CONTROL OPERATION** | | |
| (a) | Operation | *Simplex* |
| (b) | Up/Down Peaks | *Yes* |
| (c) | Fire Control | *yes* |
| (d) | Fireman's Floor | *Ground floor* |
| (e) | Emergency Power Control | *yes* |
| (f) | Automatic rescue Device | *Yes (upon power failure lift to move to nearest floor and open doors). Automatic reset upon power resumption* |
| (g) | Remote alarm notification | *yes* |
| (h) | Evacuation Floor | *Ground floor* |
| (i) | Independent Control | *Yes* |
| (j) | Load Measuring | *Over Load, Landing Call By-pass, Anti-Nuisance* |
| | | |
| **LANDING EQUIPMENT** | | |
| (a) | Landing Doors | *1.6mm thick Stainless steel , Architraves to be wrap around type with hardwood timber infill* |
| (b) | Door Operation | *Two panel centre opening, 2 speed, Heavy duty and smooth function* |
| (c) | Door Control | *VVVF* |
| (d) | Door Fire rating | ***2hr fire and 30min smoke rated.*** |
| (e) | Position Indicators | *Digital Indicators on each landing (direction and position)* |
| (f) | Waiting Lanterns | *Yes* |
| (g) | Gongs/annunciation | *Yes on all landings (Voice annunciation in ZULU language)* |
| (h) | Call Buttons | *Approved, Vandal Proof* |
| (i) | Direction Arrows | *Yes (on all landings)* |
| (j) | Finishes | *Brushed stainless steel* |
| (k) | Location of Control panel | *On top most floor* |
| | | |
| **CAR EQUIPMENT** | | |
| (a) | Number of COP's | *One per Lift* |
| (b) | Protection Drapes | *Not required* |
| (c) | Position Indicators | *Yes* |
| (d) | Direction Arrows | *Yes* |
| (e) | Intercom | *Yes (at security/reception)* |
| (f) | Call Buttons | *Vandal Proof* |

| | | |
|---|---|---|
| (g) | Door Detectors | *full height edge strips* |
| (h) | Signage | *Yes* |
| (i) | Emergency Light | *Yes – battery backup* |
| (j) | Braille Call Buttons | *Yes* |
| (k) | Paraplegic friendly | *Yes* |
| (l) | Lift position announcement | *Yes* |
| (m) | Lift light power saving | *Yes* |
| (n) | Hand rails | *On three sides, Stainless steel finish with curved ends. Sturdy fixings. Provide additional reinforcement to prevent rails coming loose with continuous use* |
| (o) | Mirror | *Not required* |
| (p) | Finishes | *Glazed panels and Brushed stainless steel frames and control panel facia* |
| (q) | Door close button | Yes |
| | | |
| **SHAFT DIMENSIONS AND EQUIPMENT** | | |
| (a) | Shaft Dimensions | *2800depth x 2800width* |
| (b) | Head Room | *Approx. 4200mm* |
| (c) | Pit depth | *Approx. 1400mm* |
| (d) | Shaft Lighting | *required* |
| (e) | Pit Access | *To comply* |
| | | |
| **CAR ENCLOSURE** | | |
| (a) | Car Dimensions | *2300mm height x 1750mm wide x 2400mm deep (Stretcher lift)* |
| (b) | Clear Door Opening | *1400mm wide x 2100mm high* |
| (c) | Internal Finishes | *Stainless steel brushed* |
| (d) | Door Finishes | *Stainless steel brushed* |
| (e) | Floor Finish | *Rubber black ( to be confirmed upon appointment)* |
| (f) | Ceiling | *Stainless steel with concealed fluorescent or LED lighting* |

Note 1 :Successful tenderer will be required to verify the dimensions on site or from structural Engineers construction drawings)

### 1.4.2 ADDITIONAL TECHNICAL REQUIREMENTS

a. Guide rails

The guide rails shall be installed plumb and parallel with a maximum deviation of **3mm**. Guide shall be sufficiently supported to prevent distortion by eccentric loading or the by the application of the safety devices.

b. Sill Support

Provide a 100 x 100 x 10mm angles over the full width of the hoist way to support the elevator hoist way sills at the relevant entrances. These angle sections shall be firmly and permanently fixed to the building structure.

c. Guide Shoes

Guide shoes shall be installed on the top and bottom of the elevator car and the counterweight frame. The guide shoes shall be of the sliding type adjustable with removable nylon gibs. These shoes shall be suitable for operating the lubricated guide rails and the guide rail lubricators shall be provided on the top of the car.

d. Solid State Motor Drives

The contractor shall provide the necessary isolation transformers, reactors, capacitors, AC line filters, noise suppressors, and other devices to limit the overall distortion factor at the point of connection of the elevator converter feeders to the electrical distribution system to a maximum of 3%. This shall include compensation for the following:

i) Harmonic distortion(3%)
ii) Line notching
iii) Power factor (0.97 pf)
iv) Flicker

e. Controller

Provide a microprocessor controller design specifically for elevator use. All printed circuits shall be burnt-in to prevent early failures.

The self leveling device shall correct any over and/or under travel, maintain the car level within +/- 3mm with the landing, regardless of the load change in the car.

f. Wiring

Trail cables shall have a fire and moisture resistant outer braid and steel support strands. A minimum of 10% spare capacity shall be provided in the trail cables.

Short connections in non-moist locations shall be carried out in flexible conduit.

g. Emergency car lighting and bell System

This system shall consist of rechargeable batteries, battery charger, control circuitry, battery operated light fitting and alarm bell or siren.
The system shall automatically provide lighting in the event of a power failure, and shall enable the raising of an alarm by means of an emergency push button incorporated in the car operating panel.

The battery shall be a sealed nickel cadmium or approved, with a voltage of at least 6 volts. The charger shall be capable of restoring a full charge within 12 hours after power has been restored.
Means shall be provided to test the battery, light and bell/siren from the lift control panel DB.

h. Car operating panel

The following minimum functions shall be provided on the car operating panel;

i) Landing selector buttons,
ii) Alarm button
iii) Door open button
iv) Door close button
v) intercom

i. Main power failure

The power supply to the elevator shall be backed up by the buildings generator, supplied by others. The lifts shall be capable of operating on this generator supply whose voltage could dip by 20%. During running conditions the generator voltage may fluctuate by 10% from its rated voltage of 400V.

j. First Delivery

First delivery will not be issued if the following has not been complied with;

i) The certificate of registration with Department of Labour,
ii) Certificate of compliance for the electrical installation in terms of SANS 0142 as amended,
iii) The provision of a logbook which shall be kept in the control panel
iv) The provision of statutory signage,
v) Qualified Lift inspectors certification

## 1.5.0 TESTING & COMMISSIONING

All testing and commissioning shall be done as per latest applicable SABS, Health and Safety Act requirements.

## 1.6.1 SERVICE AND MAINTENANCE

Allowance shall be made for regular servicing and maintenance of the entire lift installation, over the 12-month guarantee period. This shall include monthly service inspections and attendance to call outs.

**The maintenance shall be of preventative in nature to ensure zero stoppages or discomfort .**

A site log book shall be provided on site, which shall be maintained with accurate records of all service procedures, site visits, stoppages, breakdowns, planned repairs and safety equipment operation tests and checks. The log book shall become the property of the Client and shall be kept on site in an agreed location.

Upon request by the Client or his duly appointed representative, provide reports detailing history of the equipment call-backs, repairs and breakdown repairs.

Maximum callout times shall not exceed 20 minutes and 40minutes for occupied and unoccupied stoppages respectively.

## 1.7.0 PLANT LABELLING

1.7.1 Allowance must be made all statutory labels as well as contact details in case of emergency.

## 1.8.0 PAINTING

1.8.1 Allowance shall be made for painting of the concrete shaft with one undercoat and two final coats of white PVA.

1.8.2 All brackets exposed to the weather shall be galvanized and primed and painted.

## 1.9.0 LOGBOOK

1.9.1 A hard covered log book shall be supplied on site and kept in the control panel. All events shall be logged following practical handover or beneficial use being passed to the client.

## 1.10.0 CORROSION PROTECTION

1.10.1 The tenderer shall note that the installation being at the coast and shall select appropriate material to ensure longevity of the installation.
1.10.2 All metal surfaces, unless otherwise stated shall be hot dipped galvanized to SANS121 (ISO 1461).

1.10.3 All nuts, bolts and washers exposed to the weather shall be stainless steel.

### 1.11.0 INFORMATION SCHEDULE

| | EQUIPMENT | MAKE AND MODEL/ SPECIFICATIONS |
|---|---|---|
| 1. | Lift | |
| 2. | Lift Doors | |