

# TMK CONSULTING ENGINEERS

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SPECIFICATION 1710168\_A  
OCTOBER 2018



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## SPECIFICATION FOR VERTICAL TRANSPORTATION SERVICES

**PROPOSED RESIDENTIAL DEVELOPMENT  
419 REGENCY ROAD, PROSPECT**

**FOR: NIATRON 10 PTY LTD**

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# **1 GENERAL**

## **1.1 SCOPE**

The Contract Conditions, Preliminaries Specification and the Drawings form a part of the contract.

The work includes, but is not limited to, the design supply and installation, testing, commissioning and associated work on the following:

- 12 passenger lift (Refer Section 15)
- Compliance with AS1735.1, AS1735.12, AS3000, BCA E3.6 (Disable Code) and EN81.20
- CCTV, security and intercom interface
- ERD (Emergency Rescue Device)
- Liaise with electrical contractor for the installation of access control in lift
- 1 independent passenger machine roomless lift (Passenger Lift). The lifts shall comply with the schedule and the general requirements of this specification and relevant standards (including relevant disability and stretcher complaint standards).
- Fire rated cables from isolator to lift car. Isolator shall be provided by the electrical contractor.
- Label all switches/circuit breakers controlling the MSB power supply with warning.
- Lift contractor to liaise & coordinate with electrical contractor for a dedicated telephone point for each lift car, wired from local MDF. Mounting position to be confirmed on site.
- Supply and install one (1) control panel in Passenger Lift car with key operated switches for car lighting, control of landing buttons, door hold open key switch & fire service.
- Lift contractor to coordinate the entire lift installations with all other services.
- Clean dry freestanding hoistway.
- Vibration isolation of all plant.
- Supply and install lift shaft lighting.
- Coordinate with security contractor and allow to interface security system to lift. This includes the interface components required for the security system to connect.
- Seal all penetrations, fire proof at fire barriers. All conduit and wiring runs are to be concealed unless otherwise directed.
- Where items are of dissimilar metals, they shall be separated by suitable material.
- Preparation of co-ordinated shop drawings and as constructed drawings.
- Operating and Maintenance manuals.
- Testing and commissioning of all installed systems.



- Twelve months maintenance, warranty and defects liability for the entire installation.
- The provision of all hoisting and scaffolding required for the installation of the above systems.

All technical questions regarding this contract shall be directed to TMK Consulting Engineers on Ph: 8238 4100, Fax: 8410 1405, Level 6 100 Pirie Street, Adelaide SA 5000.

All work shall be carried out under the terms of this Specification and shall conform with all relevant Statutory Authorities, relevant Australian Standards, Building Code of Australia and Government requirements. All electrical works are to be carried out in accordance with AS3000, SAA Wiring Rules, Supply Authority requirements and by licensed tradesman.

The extent of the work stated above is not a complete list of each component, action or work to be undertaken in this Contract. It is up to the tenderer to obtain information as required through a site inspection, interpretation/understanding of the Specification and drawings to allow for all work required to complete the project to the satisfaction of the Superintendent.

The Contractor shall review all tender documents and ensure that the tender includes all work, insurances, etc required to complete the work to the satisfaction of the Principal.

## **1.2 CO-ORDINATION**

Co-ordinate with the Construction manager to ensure that the following is carried out.

- Openings in walls.
- Penetrations at walls and access for piping and cabling.
- Construction of lift shaft to Lift manufacturer's recommendation.
- Access to plant areas.
- Provide 2 hour fire separation for the lift shaft.
- Provide sump and cover in the lift over run pit to Lift manufacturer's recommendation.
- Provision of relief louvres in bottom of lift shaft wall.

## **1.3 MAKING GOOD**

Make good, and paint to match the surrounding surfaces, areas on walls, floors and ceiling after installation of accessories and equipment. Make good to floors, ceiling and walls after work has been installed.

## **1.4 PENETRATIONS**

Do not penetrate fire walls and structural members without approval.

## **1.5 EQUIPMENT**

Supply and install new proprietary materials, equipment and appliances as specified and scheduled. Install in accordance with the manufacturer's recommendations.

## **1.6 INSPECTION OF SITE**

Arrange to inspect the site prior to pricing submission where applicable or review all associated architectural and services drawings. Select equipment to meet the specified limiting conditions in this specification.

## **1.7 ASSOCIATED BUILDING WORK**

Before commencing work or ordering equipment/materials a detailed list of associated Construction managers Work including suitable access requirements for plant, access panels, service points, and penetrations runs is required.



Any works found necessary after this action, to allow the Lift Services to be installed and function in accordance with the performance criteria, shall be at the Contractors cost unless it can be proven that it was as a direct result of the building works being altered in design from the Drawings identified at tender, or the building as constructed not conforming to those documents.

Submit at least two weeks before ordering plant or commencing work, two preliminary copies of Drawings showing plant, equipment and services locations and arrangement, wiring diagrams and details of associated building work, for agreement and the written approval of the principal.

#### **1.8 AT TIME OF COMMISSIONING**

Supply three bound sets of system Operating and Maintenance Instructions and wiring diagrams.

Be responsible for the initial start-up and operation of the complete systems and each item of equipment until the time that the whole installation is operating under commercial load to the satisfaction of the Principal.

#### **1.9 INTENT**

It is intended the Works shall include everything obviously required to complete the installation to the satisfaction of the Principal. The Specification shall take precedence over the Drawings.

#### **1.10 TERMINATION POINTS**

The work covered by this specification shall be fully complete and independent within the limits of the following termination points at which it shall connect to existing system of work carried out by others.

(a) ELECTRICAL:

Connect to power supply provided by electrical contractor at top of lift shaft.

(b) CONTROLS

Control and wiring of all shall be incorporated in the tender.

Allow for key operation of lift floor buttons.

(c) TELEPHONE

Connect lift car telephone to new MDF. Lift contractor to pay all Telstra fees and charges.

#### **1.11 DRAWINGS**

<b><i>DRAWING NO.</i></b>	<b><i>TITLE</i></b>
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	Refer to Architectural drawings
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#### **1.12 INFORMATION REQUIRED WITH QUOTATION**

- |     |  |
|-----|--|
| (a) | Full schedule of technical data of equipment offered.              |
| (b) | Schedule of Sub-Contractors.                                       |
| (c) | Service history and statement of expected breakdown response time. |
| (d) | Delivery and installation schedule.                                |



## **2 MAINTENANCE AND COMMISSIONING**

### **2.1 GENERAL**

Be responsible for the initial start up and operation of both the complete system and of each item of equipment covered by this Specification and until the time that the whole installation is operating under commercial load to the satisfaction of the Principal. Make all adjustments and alterations during the commissioning period which are required to establish safe, reliable and automatic operation and to achieve the specified conditions of service, operation and performance.

Demonstrate to the Principal that the system is satisfactorily commissioned before the Certificate of Practical Completion can be issued. Notice of intent to issue this Certificate of Practical Completion will be given in writing with effect from 4.00pm on the date of satisfactory conclusion of that demonstration.

### **2.1 SAFE WORKING PROCEDURES**

Establish safe, working procedures applicable to the site and provide danger notices, danger tags, and the like, for use during the Maintenance Period.

#### **OPERATIONAL MAINTENANCE**

The Maintenance Period shall be co-extensive with the Defects Liability Period.

During the Maintenance Period promptly rectify faulty parts and equipment.



### **3 SYSTEM PERFORMANCE**

#### **3.1 PERFORMANCE AND GUARANTEE**

A continuous electricity supply will be maintained at the terminals of all connected switchboards, appliances, lights and other equipment at the current ratings required for start up, shut down and simultaneous operation of the whole installation and that voltage drop from the 400 V main switchboard shall be within the limits specified by AS 3000 for the specified period following the issue of the Certificate of Practical Completion.

The contractor shall be held to guarantee that the entire lift electrical installation, within the specified termination points, will operate reliably and automatically under the above conditions fully protected against fire, hazard, risk or damage to personnel, to connected equipment or to the permanent electrical installation itself.

The contractor shall also be held to guarantee that the performance and efficiency of all items of electrical equipment supplied by him under the terms of the contract will be maintained throughout the period of the contract in accordance with that required by this specification or that published by the manufacturer, in each case, at the date on which tenders close.

The above guarantees shall hold provided that electricity supply is maintained at 400 V, 50 Hz, three phase earthed neutral at the specified service terminals, that the maximum available prospective fault current at these terminals is 6 kA for one second limited by HRC fuses and that electricity is otherwise supplied in accordance with the Local Supply Authority published Service Rules and Conditions of Supply.

The contractor shall guarantee the lift complies with the following:

##### **PASSENGER LIFT**

- NCC and BCA requirements
- EN81.20 compliance
- AS 1735 requirements in particular AS1735.12 – Facilities for persons with disabilities and Stretcher
- Provide signage warning complying to NCC performance requirements EP4.1. Signage to include warning against use of lift in an event of fire.

The contractor shall indicate the following performance times of the installation for inclusion in the tender:

##### **PASSENGER LIFT**

###### **Lift 1**

- Walk Through Entrances required only for Ground Floor
- Doors close, travel from Ground Level to Third Floor, doors open.
- Doors close, travel from Third Floor to Ground Level, doors open.
- Lift to be programmed to park at Ground Level.





## **4 CONTROLS**

### **4.1 LIFT CONTROLS**

Lift controls shall be solid state and latest state of the art with computerised logic and shall include manual controls for regular maintenance on the lift during normal working hours. Control circuitry shall include a time protection device to prevent the lift motor from burning out in the event of the equipment stalling or locking in at levelling speed.

### **4.2 LIFT CAR CONTROLS**

#### **GENERAL**

#### **PASSENGER LIFT**

Supply and install a superior grade brush finished stainless steel car control panel in the lift car. The car control panel shall be located for use by people in a wheelchair.

Car control panel buttons shall be tactile, illuminated and be located in side walls of lift car.

Car control panel shall contain the minimum following controls:

- Door open button
- Telephone/Alarm button
- Switches required by mechanics for maintenance
- Jack for maintenance telephone
- Key operated switch for car lighting
- Key operated switch for control of the landing buttons – the lift car must have the ability to hold open the car doors when switched, and shall not automatically close in this mode.
- Key operated switch for fire service
- Digital position indicator (50mm) located in the car operating panel
- Illuminated destination buttons
- A hands free, self dialling phone system to be installed in the lift car

All push button lamps shall be low voltage lamps operating at reduced voltage. All push button lamps shall be suitable for use by vision-impaired persons (ie. Braille) and shall comply with Section 7 of AS1735.12.

### **4.3 GENERAL PROGRAM ADJUSTMENTS**

After the lift has been placed in regular service, the lift shall be regularly observed under normal conditions and minor adjustments shall be made as found necessary to ensure that the lift operates at maximum efficiency.



## **5. DOORS, DOORWAYS AND LANDINGS**

### **PASSENGER LIFT**

Doors to have sensors to detect any obstructions and to remain open when obstruction is detected.

Doors shall be superior grade, brush finished stainless steel with multiple beam electronic door protection barriers.

Passenger protection of doors shall comprise a curtain of light. Doors shall have automatic closers with two speed operation. Lift doors shall have one hour fire rating.

Both landing and lift doors shall operate automatically and simultaneously. Pre-opening of the doors shall occur so that the doors are fully open when the lift stops at the floor level.

Aluminium door sills shall be installed on all landings.

Call buttons shall be to one of the manufacturer's standard designs and include warning notices in accordance with the Building Code Of Australia Requirements.

Call buttons shall be tactile and self-illuminated when a call is registered, mounted in a superior quality brush finished stainless steel escutcheon as shown on the drawing. Install one set of hall buttons at all lift door landings. Each level will have a lift control switch with an additional key switch for fire service control located on the Ground panel.



## **6 CAR LIFT SERVICES**

### **6.1 GENERAL**

The car shall be manufactured to manufacturer's standard designs. Enclosing lift car panels shall be sprayed on the lift well side with sound deadening material. The panels shall be removable. The car shall be sound isolated from the car sling and frame.

### **6.2 FITOUT**

Digital car position indicators shall be installed in or above the car operating panel in the car. Two 1 x 36 W fluorescent lights mounted above the ceiling for general lighting.

The car shall be equipped with lights under and above the car, together with GPO's above the car to Code requirements. Self-contained emergency lighting shall be installed in the lift car.

The floor finish shall be carpet or tiled to the architect's requirements – provide options for review by the architect prior to ordering and indicate all finishes on the tender and shop drawings.

### **6.3 LEVELLING**

Lifts shall be self-levelling under all load and direction conditions to +/- 12 mm of landing level. Levelling shall be stepless and re-levelling shall occur in a smooth movement if outside the above tolerance.

### **6.4 COMPENSATION**

Compensation if required should be fitted.

### **6.5 COMMUNICATIONS**

Supply and install a hands-free telephone or approved equal within the car operating panel, activated by the emergency stop button.



## **7 LIGHTING & POWER OUTLETS**

Provide lighting and power outlets in lift wells, pits and cars, using electricity supply from the lift submain.



## **8 NOISE & VIBRATION**

The structure as shown on the architectural drawings.

The sound from the lifts shall not exceed the levels given in AS 2107.

Vibration levels shall be such that the efficiency and comfort of normal function and occupancy of the particular area is not impaired.



## **9. STATUTORY AUTHORITIES & CODES**

The whole of the lift installation shall comply with the requirements of AS 1735, the requirements of the Work Health Authority and the Building Code of Australia including EN81.20.



## **10 TESTING**

Testing of the lift installation shall be arranged and carried out by the lift contractor as required by code. Submit certificates of acceptance to the engineer at the completion of the installation.

Test the installation and prove it complies with the guaranteed predicted performance.



## **11 TESTING, COMMISSIONING AND MAINTENANCE**

### **11.1 GENERAL**

On completion of the work commission the entire installation and put it into operation.

Provide proper facilities and instruments to carry out such tests as may be necessary to satisfy the Principal.

Capacity tests on plant shall be carried out at a time determined by the Principal.

Tests will be carried out during the maintenance period when the plant has been in unserviced operation for not less than one week.

### **11.2 COMMISSIONING**

Carry out all adjustments necessary for the safe, reliable and satisfactory operation of the plant prior to the Practical Completion.

### **11.3 MAINTENANCE AND OPERATING INSTRUCTIONS**

Prepare a Maintenance and Operation Instruction Manual.

The Manual shall comprise an A4 size plastic back hard cover 3-ring binder containing the following documents.

- (a) Index
- (b) General Description of Plant
- (c) Plant Operation
  - Starting and Stopping Procedure
- (d) Automatic instructions
  - Description of all control functions, with instructions for re-setting and adjusting controls.
- (e) Maintenance Instructions
  - Routine
  - Preventative
- (f) List of Equipment Suppliers
- (g) Schedule of Technical Data
- (h) Equipment Suppliers Literature
- (i) Electrical Wiring Diagrams
- (j) Installation Shop Drawings

All installation Drawings shall be neatly folded and inserted in a strong plastic envelope(s) which can be fixed into binder.

### **11.4 SERVICE AND MAINTENANCE**

Carry out regular inspections at periods scheduled below and fully service all plant for the term of the Guarantee and Maintenance Period.

#### ***SERVICE REPORTS***

During each visit complete a report, and send it to the Engineer, in the form of a check list which indicates the readings of all gauges, the condition of all items, any remedial work carried out, and the wet and dry bulb temperatures of the outside air, and the return air.

Final payment of retention monies will be only certified pursuant to receipt of Service Reports which indicate that the Maintenance and Service requirements have been regularly and satisfactorily completed.



## 11.5 TRAINING OF STAFF

The Contractor shall instruct persons nominated by the Principal in the correct practice of operations, routine adjustment and maintenance. Instructions shall continue as needed until the Principal can operate correctly all systems.



## **12 SHOP DRAWINGS & CO-ORDINATION OF SERVICES**

### **12.1 SHOP DRAWINGS**

The Lift contractor shall produce co-ordinated shop drawings showing all required construction manager's work.

Submit three copies of all drawings to the Engineers for perusal following which revise and resubmit three copies to the Principal.

### **12.2 CO-ORDINATION OF SERVICES**

The Lift contractor shall obtain information from all other trades as required for the purpose of co-ordination.

The tender shall make allowance for changes that may occur. The Contractor will need to amend shop drawings as required.

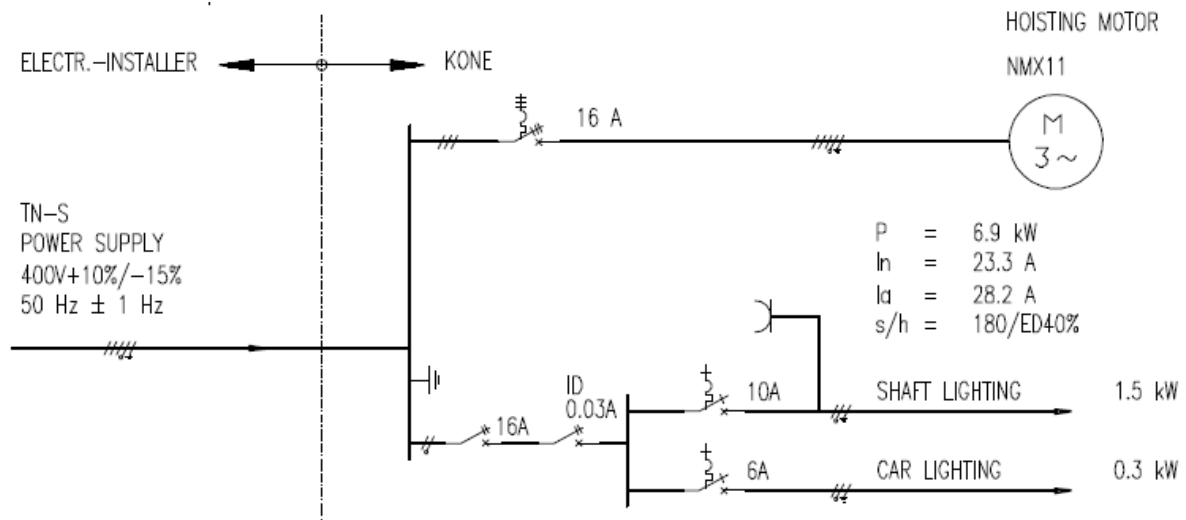
## 13 ELECTRICAL INTERFERENCE

### 13.1 ELECTRICAL INTERFERENCE

Tenders shall state in the schedule of technical data included in the tender documents, the compliance of the complete lift installation with the requirements of AS 2279 Disturbances in mains supply networks.

### 13.2 ELECTRICAL SUPPLY

Provide power to the lift control panel from the live side of the main switch of the Main Switchboard. Label all switches controlling the Main Switchboard supply with warning labels. Provide power and lights for the machine room from local distribution board.



- MAIN POWER CABLES TO BE CONNECTED BY ELECTRICIAN INSTALLER
- MINIMUM PROTECTIVE EARTH CONDUCTOR SIZE = 10mm<sup>2</sup>
- TELEPHONE LINE TO THE PUBLIC PHONE NETWORK TO BE CONNECTED TO THE SERVICE ELEVATOR PANEL INSIDE THE SHAFT



## **14 LIFT SHAFT**

A free standing clean and dry lift shaft as detailed on the architectural and structural engineers drawing and as specified shall be provided. Lift contractor to coordinate this work.



## 15 LIFT SCHEDULES

### 15.1 PASSENGER LIFT, LIFT 1

#### Performance

Lift Designation	LIFT
Make/Model	AUSTAND SLM SERIES OR APPROVED EQUIVALENT
Number Of Lifts	1
Speed	1.5 metre per second
Hoisting System	Fully Automatic
Levelling Accuracy	+/- 6mm
No. Of Passengers	12
Min. Load Capacity	900 kg
Car dimensions	1300 wide x 1600 deep x 2350 high
No. Of Stops	4
Power requirements (Volts/Phase/Amps)	415/3/32

#### Lift Well

Lift Well Size	1900 wide x 2400 deep (Refer architectural)
Travel	7 metres
Entrances	Single Entry/Walkthrough type (Ground)
Door Size	Min. 1100w x 2200h
Headroom	4200mm
Pit	1500mm

#### Car and Landing Equipment

<b>LANDING:</b>	
Landing door operation:	Side Opening doors
Door frame manufacture:	ST4 Brushed satin stainless steel
Door manufacture:	ST4 Brushed satin stainless steel
<b>CAR</b>	
Car door operation:	Side Opening doors Through door for basement
Car door manufacture:	Stainless steel (TBC)
Car Internal finish:	TBC by architect/client
Car lighting:	TBC by architect/client
Emergency lighting:	To comply with AS2293



## Lift Fitout

Walls	Metal Clad walls (ST4 Stainless Steel) Brushed Rear wall – MR1 full width and full height mirror (Silver Mirror)
Floor	15410PA 300x300mm Sheet of 25mm Mosaics - SF Surface Range (FT.02) SF Off White Matt R10 Newton Ceramics
Car Operating panel	TBA BY ARCHITECT
Handrail	HR61 Round Stainless Steel (Brushed)
Ceiling	CL95 with T5 Flourescent (ST4 Stainless Steel) Brushed
Landing Doors	Metal clad doors (ST4 Stainless Steel) Brushed
Landing station	Landing call station <ul style="list-style-type: none"> <li>Surface mounted landing call station in jet black with mirror polished frame</li> <li>Fire warning as per BCA</li> </ul>
Hall Lantern Indicators	Jet black with mirror polished frame.
Others	Lights – T5 Flourescent External door reveal – 50mm Boxed Stainless Steel reveals to lift opening (Brushed) Skirting – ST4 stainless steel(Brushed)

## 16 SHOP/AS CONSTRUCTED DRAWINGS

### 16.1 SHOP/AS CONSTRUCTED DRAWINGS - ELECTRICAL SERVICES

The Electrical contractor shall allow the following minimum scales for shop drawings:

#### SCALE

As constructed drawing 1:100

Submit three copies of all drawings to the Engineers for perusal following which revise and resubmit three copies to the Principal.



## APPENDIX "A"

### TENDER SCHEDULE

#### **TENDER SCHEDULE SCHEDULE OF TECHNICAL DATA**

NAME OF TENDERER:

.....

TENDERER'S SIGNATURE:

.....

ASSOCIATED FIRMS (if any):

.....

.....

.



## **LIFT 1 - PASSENGER LIFT**

### **LIFT SPEED**

- (a) Up  
.....
- (b) Down  
.....

### **CIRCUIT BREAKERS**

- (a) Manufacturer  
.....
- (b) Type  
.....
- (c) Rating  
.....

### **MOTOR STARTER**

- (a) Manufacturer  
.....
- (b) Type  
.....
- (c) Rating  
.....

### **VOLTAGE RECTIFICATION**

- (a) Transformer  
.....
- (b) Phase  
.....
- (c) Transformer Manufacturer  
.....
- (d) V.A. Rating  
.....
- (e) Primary Volts  
.....
- (f) Secondary Volts  
.....

### **OVER-RUN REQUIRED**

- (a) Top over-run  
.....
- (b) Bottom over-run  
.....





(c) Service Protection Required

.....

#### HEAT DISSIPATION IN LIFT MOTOR ROOM

Based on 20 round trips per hour .....mJ/hr

#### POWER REQUIREMENTS

(a) Lift Starting – Full Load Amps

.....

(b) Lift accelerating with full load up – Amps .....

(c) Lift running at constant with full load up – Amps .....

(d) Submain size

.....

(e) Light fittings

.....

#### LIFT FINISHES

(a) Floor

.....

(b) Walls

.....

(c) Ceiling

.....