

SECTION - VI
SPECIFICATIONS

GENERAL: TECHNICAL SPECIFICATIONS

1.0 INTRODUCTION

This section consists of the general rules that apply to the design, manufacture, shop testing, delivery to site, erecting, commissioning, site testing, maintaining, and handing over the material, equipment plant and services required for **Supply & Installation of 1000 kg Fixed type Scissor Lift for two storied laboratory Building for Coconut Processing Research Division of Coconut Research Institute at Lunuwila.**

The manufacturer of the Scissor lift equipment shall have at least ten (10) years' experience in the design, manufacture, installation and commissioning and maintenance of lifts.

All equipment being supplied shall be suitable for operation under tropical conditions with ambient temperature up to 36°C and relative humidity up to 90% but not both simultaneously.

1.0 LOCATION OF SITE

Coconut Research Institute, Bandirippuwa Estate, Lunuwila.

1.1 STANDARD

Unless otherwise specified, the whole of the works shall conform to the following standards:

- BS EN 1570 -1 Safety requirements for lifting tables.
- Machinery Directive 2006/42/EC.
- Relevant British Standard Specifications.
- IEE Regulations for Electrical Equipment in Buildings
- Regulations and Recommendations of the Ceylon Electricity Board and the Sri Lanka Standards Institution.

Other recognized national or international specifications, not less exacting than those above may be used, provided the latest edition of such specification (in English) had been furnished with the tender and accepted.

1.2 DRAWINGS

The Contractor shall furnish the following documents, drawings, diagrams and schedules for approval by the Engineer.

1. General arrangement drawings showing layout of lift well positions of all plant and equipment, ancillaries, cable trunking, conduits etc.
2. Loads on floor slab, beams, and pedestals.
3. Details of landing entrances.
4. Details of block-outs, holes, and built-in fixing devices to be incorporated in the civil works.
5. Details of lift design, finishes, landing station panels, interior lighting, and ventilation.

6. Electrical wiring diagrams, schematics, layouts for the entire installation.
7. Co-ordinated wiring/connection details between equipment and cables, cable core size and identification.
8. Operation and maintenance manuals.

Working diagrams shall be provided in respect of all electrical equipment and/or systems, which form part of the works. Under this contract, schematic layouts shall be presented in ladder or similar format such that it is possible to comprehend the operation of a system, the interconnections between various systems, and to identify the components, wiring/connections shown on the diagrams.

1.3 STEEL WORK

1. Material shall be hot dipped Galvanized Iron
2. The Contract shall include supply and erection of the steel work required for the support of machines, guides, door tracks, gear etc. complete. That which forms part of the structural steel work of the building will be provided by others.
3. A substantial galvanized steel cat ladder shall be provided as per BS Codes and fixed by the Contractor to give easy means of access to the pit.

1.4 DRIVE EQUIPMENT

Drive system shall be Electro – Hydraulic. It shall consist of Gear pump, Hydraulic Tank, Electric Motor, electrically operated Solenoid valve, pilot operated check valve, hoses, Manifold block, flow control valve, pressure relief valve, suction filters, pressure gauge, etc.

Motor

The motor shall be specially designed to meet the severe load conditions encountered in lift service. It shall be suitable for local ambient conditions.

The starting current shall not exceed 2.5 times the rated full load current of the motor and tenderers shall specify in the tender specification, the rated full load current and the starting current of the offered motor.

The motor shall be fitted with a forced ventilation unit and thermistors shall be incorporated in the motor windings to give protection against overheating and the motor shall have a minimum of class.

Hydraulic Unit

Hydraulic unit shall consist of 2 numbers of inclined hydraulic cylinders with internal honed pipe having hard chrome plated piston, hard chrome plated piston rod, hoses and overflow oil collection tray.

LANDING DOORS AND ENTRANCES (ROLLER DOORS)

The Contractor shall furnish and install at all landing openings (Ground Floor and First Floor), complete metal entrances consisting of frames, architraves, roller doors (2Nrs. 2.00m x 2.40m).

SCISSOR LIFT OPERATION SEQUENCE

- Each landing door shall be equipped with an electro-mechanical interlock, which shall prevent the operation of the Scissor lift unless the Roller doors are closed and positively locked. The interlock shall also prevent the opening of any door until the Lifting table has reached the respective landing zone with the operating circuits open.
- Each entrance shall have a Green and Red light to show lifting table status.

INDICATION	STATUS
RED	Running
GREEN	Stationary

- Following Safety notices shall be displayed at the Entrance of each landing zone. Before placement of this notices contactor shall submit the design and locations of the notices for the approval.
 - NOT FOR PASSENGER USE
 - MAXIMUM LOAD :1000KG

1.5 ELECTRICAL WORK – GENERAL

Power Supply shall be terminated in the following manner.

1. HRC type switch fuse or breaker for lift at which the main supply will be terminated.
2. HRC type switch fuse or breaker at which the control circuit supply will be terminated.
3. Power supply to the machine shall be obtained from the out-going terminals of these switch fuses or breakers.
4. PVC insulated cables shall be 450/750 Volt grade, manufactured in accordance with BS 6004 or equivalent.

1.6 ARRIVAL GONG

Arrival Gong, which strikes, indicating arrival of the lifting table at a floor.

1.7 PAINTING

- All iron except where finished bright or plated shall be thoroughly cleaned of all scale and rust and painted two coats of oil resistant paint at maker's works. On completion of the work on site the paintwork shall be touched up to make good any damage sustained during installation. All bright and plated parts should be greased or otherwise protected against corrosion and discoloring during erection.
- Cellulose and other special finishes shall be protected so that they are handed over in perfect conditions.

1.8 VIBRATION

All lift table and controllers shall be as silent in operation as possible and in addition are to be effectively insulated from the structure so that in the opinion of the Engineer no noise or vibration is transmitted to other parts of the building.

1.9 TESTING AND COMMISSIONING

Bidders shall submit with the bids, a complete proposal with time schedule for testing and commissioning. The program shall include a trial operation of all main equipment with any necessary adjustments to ensure that the system is working correctly. The Contractor shall provide all instruments and equipment together with commissioning engineers and adequate assistance for carrying out the commissioning and testing activity which shall be done in accordance with the recommendations of relevant Standards. If any portion of the works fails to pass the tests, the Contractor shall, at his own expense carry out such alterations or replacements as are required to the satisfaction of the Engineer. The Engineer shall be at liberty to call for further commissioning when such alterations have been completed to their satisfactory. The Contractor shall provide commissioning spares at his own expense.

1. The scissor lift will be tested for no load, full load and 25% overload.
2. Satisfactory operation of each control switch, contactor, limit switches and other control and protective devices.
3. Satisfactory operation of all motors, brakes, resistors, etc.
4. Insulation test, earth continuity and impedance test.
5. Dimensional inspection as per the standards.
6. That the various safety devices, locks and other safety provisions operate as intended.
7. That the levelling is correctly adjusted for each floor and remains so after extended use.
8. All instruments required for the tests shall be provided by the Contractor.

2.0 INSTRUCTIONS TO EMPLOYER'S STAFF

The Contractor shall, at times agreed with the Engineer, instruct the Employer's staff in the correct use, operation, and routine maintenance of the works, and shall satisfy himself and the Engineer that the staff are competent to take over and operate the Works.

2.1 SUBMISSIONS

The Contractor shall submit for approval the following documents and samples in quantities as indicated:

3.1.1 Shop Drawings

Shop drawings of all systems, electrical circuit and wiring diagram and any other drawings necessary for fabrication and installation of the system shall be submitted.

2.1.2 Technical Literature of Equipment

Technical literature of all equipment proposed to be used in the system inclusive of dimensional drawings, capacity, tables, test reports and other relevant information shall be supplied in triplicate for the Engineer or determine the adequacy and suitability of the equipment for the proposed Scissor lifting system.

2.1.3 Maintenance & Operating Manuals

Maintenance and operating manuals of all equipment supplied shall be furnished in triplicate with detailed wiring of the equipment, piping & valve arrangements and instructions of the regular maintenance of the equipment. Frequency of lubrication and specifications of the lubricants recommended shall also be provided. All manuals should be printed, and ring bound with.

A schedule which may be in the form of a material list giving all particulars together with ordering references of all replaceable parts for all the equipment shall be supplied.

2.1.4 Samples

Samples of all materials to be supplied under the contract shall be supplied to the Engineer for approval. Such samples shall be kept with the Engineer until completion of the Works and same will be released to the Contractor on completion of work. The items of supplies used for the project shall be at least equal in quality to the approved sample.

2.1.5 As-Built Drawings

On completion of the installation, the Contractor shall prepare a set of As-built drawings incorporating all changes made to the original design and drawings, which drawings shall represent an accurate description of the installed systems. These drawings shall be bound with covers in to an album and handed over to the Engineer.

2.2 HANDING OVER DOCUMENTS

The final handing over documents to be submitted by the Contractor on completion of the installation shall comprise the following:

- a) Operation and maintenance manuals (3 copies)
- b) Commissioning sheets (3 copies)
- c) Test reports (3 copies)
- d) As built drawings (3 copies)

These documents in required number of copies specified should be supplied to the Engineer within 30 days on issue of taking over certificate.

2.3 TRAINING OF OWNER'S STAFF

Bidders shall submit with the bid, a full proposal of the recommended training necessary for the owner's personnel to attend to routine testing, maintenance service and minor repairs including an indication of the duration of such training.

The number of persons required to be trained shall be determined jointly by the Engineer, and the Contractor.

The scope of training shall include on-site training and such training shall be prior to hand-over of the system. Technical training and system operation instructions to the owner's personnel shall also be provided during the commissioning and performance tests phases of the system.

System operation instructions shall be given by an experienced and competent representative of the Contractor who is thoroughly conversant with the Scissor Lift installed.

2.4 SERVICING AND MAINTENANCE ON PROVISIONAL ACCEPTANCE

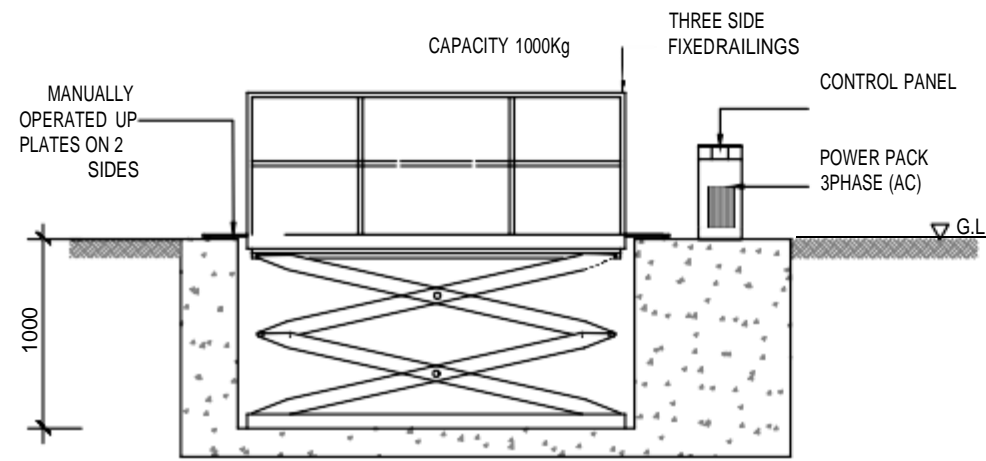
1. After provisional acceptance, when the lifting table is put into service, the Contractor shall maintain lifts as necessary, for a period of twelve months.
2. All necessary stores, spares, tools, and other material required for such work shall be provided by the Contractor.
3. An efficient local breakdown call-out organization whereby the services of an engineer can be obtained immediately at any hour of the day or night will be deemed to fulfil the above requirements.
4. All equipment's and installations provided under the Contract shall be continuously maintained free of charge by the Contractor throughout the whole maintenance period of twelve months including routine service and maintenance, periodic checking, inspection, adjustment etc., as deemed necessary to guarantee smooth and uninterrupted service.
5. The Contractor shall replace or repair with utmost speed and at his own expense any point of the plant or equipment or material or work performed or furnished under lifts works in the contract which may prove defective in design, installation and erection, operation, performance workmanship or from any act of omission of the Contractor that may develop, under the conditions provided by the contract and under proper use in the works or any section thereof during the maintenance period after the work.
6. The Contractor shall obtain and submit to the Engineer any guarantee or certificates of warranty available from the manufacturers but only as supplementary to the Contractors own guarantees and in no way invalidating them.

DETAILED SPECIFICATION FOR SCISSOR LIFT INSTALLATION

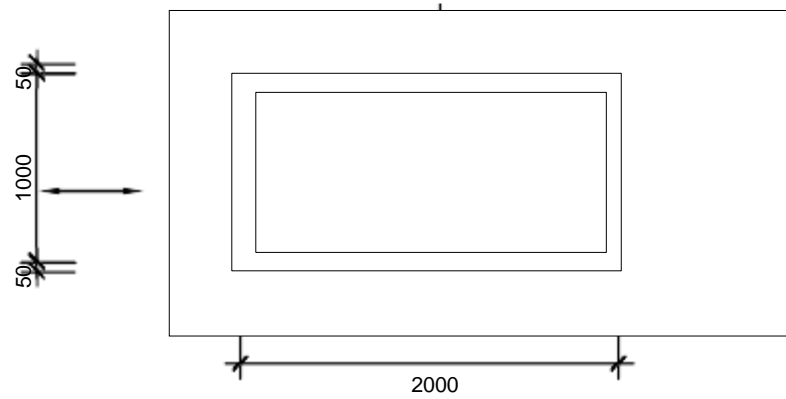
1. Standard : BS EN 1570 - 1
2. Capacity of the Scissor Lift : 1000 kg
3. Platform Dimension : 2000 mm (L) x 1000 mm (W)
4. Maximum Height : 4500 mm
5. Minimum Height : Ground Level
6. Safety Railing height of platform : All for side with standard height
7. Lifting : Electro hydro – Electrically operated through push buttons and platform is to be lifted by hydraulic cylinders.
8. Hydraulic Unit : Hydraulic Unit shall consist of 02 number of inclined hydraulic cylinders with internal honed pipe having hard chrome plated piston, hard chrome plated piston rod, hose and overflow tank.
9. Electrical System : Scissor lift system shall have a motor of suitable capacity. The cylinder unit shall be provided with limit switch and push button control with panel board. The electric panel shall have starter contactors, MCB's, push buttons, limit switches and terminal strips.
10. Controls : UP, DOWN, and Emergency stop to be controlled through push buttons provided outside the platform. The lift shall stop automatically when the platform reaching the desired floor level by actuation of pre-adjusted levelling limit switches.
11. Roller Doorsize : Height x Width = 2100mm x 2000mm
12. Power supply : 400 Volts 3 Phase 50 Hz
13. Lighting supply : 230 Volts 1 Phase 50 Hz (03 nrs. of fluorescent lights placed in pit, shaft and soffit of the lift well.)

SECTION - VIII

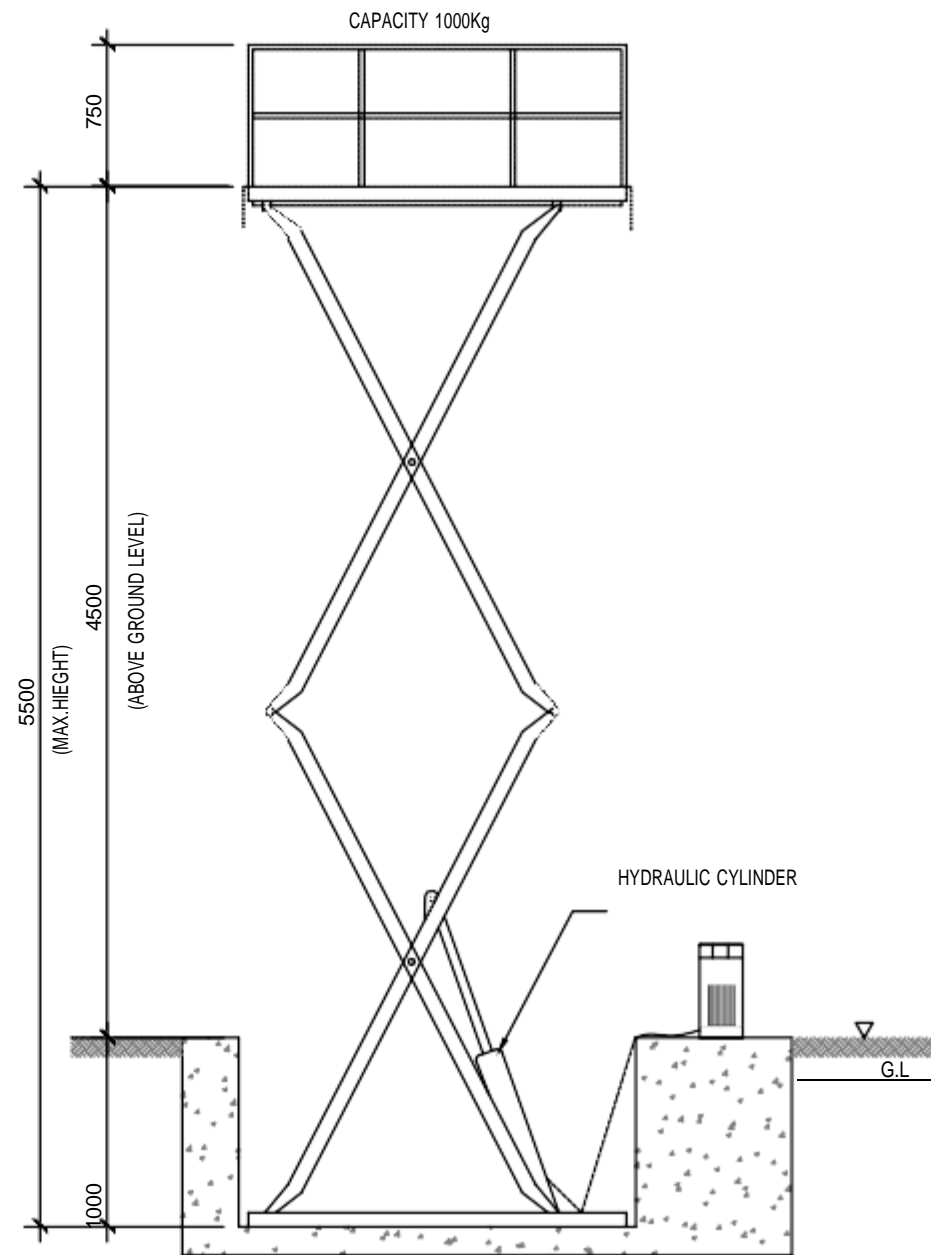
DRAWINGS



SECTIONAL ELEVATION



PLAN VIEW



VIEW WHEN SCISSOR LIFT IN MAXIMUM LIFTING CONDITION

Rev.	Date	Descd.	Description	Drawn	Checked	Appr.
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF PLANTATION INDUSTRIES						
Project PROPOSED TWO STORIED LABORATORY BUILDING FOR COCONUT PROCESSING RESEARCH DIVISION OF COCONUT RESEARCH INSTITUTE AT LUNUWILA						
Title SCISSORS LIFT INSTALATION PLAN AND SECTION						
Head Office						

