SA Port Operations	REFERENCE EEAM-Q-029	REVISION 0
DOCUMENT TYPE SPECIFICATION	**AUTHORISATION DATE: Date signed by CEO**	
TITLE: **SPECIFICATION FOR THE PURCHASE OF AIRCONDITIONS**		**PAGE 1 of 6**

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FUTURE REVISION RECORD NUMBER	DESCRIPTION OF REVISION	APPROVAL	DATE
			01/04/2003
-1-			

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KEYWORDS	DATE OF LAST REVIEW: N/A
SPECIFICATION	DATE OF NEXT REVIEW: 01/06/2005

DETAIL CONTENTS

1.0 PLANT DESCRIPTION

This specification covers the supply of air conditioning units that will be used to condition the proposed procurement offices at the existing Ben Schoeman workshop. The air conditioning units will form an integral part of the new office complex.

2.0 SCOPE OF RESPONSIBILIES

2.1 cope of Supply

Supply and install split unit air conditioners complete with heating and cooling capabilities. All evaporator units shall be supplied with a remote control to adjust the temperature as required.
Detailed design calculations showing the heat and cooling load for each office as well as all relevant assumptions made.
A detailed layout for the position of all evaporators, condensers and piping routes.
One set of replacement filters.
Three sets of as build data and technical drawings
Detailed price list of commissioning and operating spares.
Data for all electrical requirements and connection points as well as recommended wire and fuse sizes or MCB ratings, safety and start-up instructions.

2.2 Scope of Activities

Selection of air conditioning units based on attached process specifications
Works inspection and performance testing
Quality assurance and control
Preparation for shipment
Supply and installation of evaporators, condensers and associated piping
Submission of technical literature for commissioning and maintenance purposes and submission of test certificates

2.3 Exclusions

Building Work
All civil work
Electrical Supply

3.0 REFERENCED DOCUMENTATION

The following documentation is referenced in this specification; latest editions apply

Portnet Specification: HE 9/2/8: Corrosion Protection.
International Electrotechnical Commission IEC 34 and IEC 72
SABS 0147-1987 Code of Practise for Refrigeration and Air-Conditioning Installations
SABS 0142 Code of Practice for the wiring of Premises
SABS 1125 Standard specifications for Room Air Conditioners
SABS 0400 The application of the National Building Regulations
Occupational Health and Safety Act: Act 85 of 1993

4.0 DESIGN AND MANUFACTURE

4.1 Mechanical and Process Requirements

The air conditioning units will be used to control the atmospheric conditions in the proposed procurement offices. The design temperatures for cooling requirements shall be as follows:

Summer: Outdoor: Dry Bulb 32°C
Indoor : Dry Bulb 22° c
Wet Bulb 16°C

The design temperatures for heating requirements shall be as follows

Winter: Outdoor: Dry Bulb 5°C
Wet Bulb 4°C
Indoor : Dry Bulb 20°C

Drawings indicating office layout and occupancy are attached.

The evaporator shall be wall or ceiling mounted on suitable brackets properly secured to the wall or ceiling. The evaporator shall be supplied with an over-heat function as well as an indoor anti-ice coil sensor
The filters for the evaporator shall be treated with Anti Mould agent.
If the recommended evaporator unit is the cassette or hideaway type, the unit must be supplied with a condensate Lift Pump.

The condenser shall air cooled and mounted outside the building in a suitable position on properly designed galvanised brackets. The condensers must be accessible to maintenance personnel. The condenser must be able to operate in adverse weather conditions as well as harsh environmental conditions. The

condenser unit and associated piping will be subject to high wind, occasional sea spray with a high salt content as well as dust. The coil of the condenser unit shall be coated with blygold or similar approved corrosion protection.

The compressor shall be the hermetic type.

All refrigeration piping shall be insulated with 20 mm (min), flexible elastomeric closed cell rubber insulation with a maximum k value of 0,26 W/m° C. All refrigeration piping shall be properly secured to galvanised metal trunking, which is secured to the walls in the space above the suspended ceiling
Where piping passes through walls, or ceilings, the pipe shall be wrapped in "Jointex" or similar product before the pipe is caulked.
Provisions shall be made to allow for thermal expansion of piping.

The condenser will be supplied with a suitable drainpipe used for the discharge of condensate during normal operation. The condensate drain shall be appropriately secured to an external wall and be manufactured from UV resistant material.

The refrigerant used in the system will be R22.

The air-conditioning units supplied must be complete with Remote Control units to enable setting the desired environmental conditions.

4.2 Electrical Requirements

The standard electrical supply at the port of Cape Town is as follows
Voltage : 380 V
Frequency : 50 Hz

The electrical Supply is solidly earthed, neutral
All motors shall be a Squirrel cage AC motor, TEFC, and shall meet the IEEE standards and have a min enclosure rating of IP55.
South African Port Operations will provide a power supply cable of 380 V, 50Hz up to an isolator provided on his control panel.

5.0 QUALITY, INSPECTION AND TESTING

The Suppliers " Manufacturing Quality Plan", to be submitted to the client for review, shall indicate the quality control steps and inspection, testing conformance criteria. Certification of Inspection and testing carried out at the works should be included in the Technical Manual, supplied at delivery.

Test certificates and test curves shall be issued showing the relevant recordings of the test data.

The equipment shall be guaranteed against defective material and workmanship for a period of 12 months from date of operation or 18 months from date of delivery, whichever is sooner. The motors and compressors shall have a minimum warranty of 5 years based on three options: material only, labour only, labour and materials.

6.0 DELIVERY, INSTALLATION AND COMMISSIONING

The successful tenderer must satisfy himself that the equipment is properly packed before shipping. No damaged or soiled equipment will be accepted at the site.
The commissioning procedures of the equipment suppliers will be used during the commissioning of the equipment and a letter from the supplier stating they are satisfied with the installation will be required before the units are accepted.
The contractor is responsible for handing over the equipment in full working condition and must include all work necessary to achieve this state in his tender.

The tenderer is to submit a bar chart indicating the tasks and time periods required to complete the installation and commissioning of the equipment.
The contractor will be required to work in the same area as other trade such as builders and electricians. This must be taken into account when planning the installation of equipment.
The tenderer must also indicate lead times for purchase and delivery of equipment.

The tenderer will be required to provide the specific information in the quantities as stated below

Quality Plan:	2 weeks after order	2 Copies
Equipment Detail Drawings:	2 weeks after order	2 Copies
Test Certificates	At Delivery	2 Copies
Manufacturers Data Book:	At Delivery	2 Copies
Priced Spare Parts List	At Delivery	3 Copies
Operating Installation and Maintenance Manual	At Delivery	3 Copies

Any Damage to South African Port Operations property during the execution of the project shall be to the cost of the tenderer.

7.0 ATTACHED DOCUMENTS

Drawing ARCT-P76-CT-200