CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

Tenders and Contracts
E : SCM.Tenders4@capetown.gov.za

04 JUNE 2025

NOTICE TO TENDERERS NO. 5

Amendments to Schedule of Rates

Tender Number:	**245Q/2024/25**
Description:	**TERM TENDER FOR THE SUPPLY, INSTALLATION, REPAIRS AND MAINTENANCE OF HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS AT VARIOUS MUNICIPAL FACILITIES WITHIN THE CITY OF CAPE TOWN**
Box Number:	**180**
Closing date:	**17 June 2025 @ 10h00**

Tenders should take note of the following:

This "Notice to Tenderers" forms an integral part of the Contract and is to be bound into the Tender Document and returned with the tender submission.

4. AMENDMENTS:

4.1 C2.2 Schedule of Rates (Pages 103 – 131)

Please note that the Schedule of Rates has been amended as outlined in table 1 below. Pages 103 to 131 of the original tender document are hereby replaced with pages 7 to 48 of the attached PDF titled 245Q/2024/25 Schedule of Rates v2 which incorporates the amendments.

The PDF 245Q/2024/25 Schedule of Rates v2 is included below.

Tenderers are to ensure that they use the latest version of the Schedule of Rates.

Tenderers **must** email Alan van Heerden to request a copy of the latest electronic (excel) version of the amended Schedule of Rates titled 245Q/2024/25 Electronic Schedule of Rates v2.

Alan.VanHeerden@capetown.gov.za

Completion and Submission Requirements:

Tenderers that have already submitted their tender are to retrieve the tender document from Alan van Heerden.

Tenderers completing the Schedule of Rates by hand must use the attached PDF version below (PDF 245Q/2024/25 Schedule of Rates v2) and submit it as part of the tender document.

Tenderers completing the Schedule of Rates electronically must use the 245Q/2024/25 Electronic Schedule of Rates v2 (Excel format), print it and submit the hard copy with the tender document.

Tenderers are advised to **only** draw a line through the pages (103 – 131) of the Schedule of Rates that were advertised which are now replaced by the pages (7 - 48) hereunder.

Tenderers are referred to SCHEDULE 26: DECLARATION OF TENDERED RATES SUBMITTED. Tenderers are required to submit (1) electronic copy (on a USB Flash drive), and one (1) hardcopy (printed) of the Schedule of Rates, and that both copies submitted are to be in the same format as those issued by the City of Cape Town.

Tenderers are to return a signed copy of this notice/addendum/attachment, with the submission of their Tender.

Table 1 indicating the amendments to the original Schedule of Rates. Refer to key below for ease of reference.

Key	
	Item removed from Schedule of Rates
	Item description amended

Item No.	Description	Amendment	Comment
1.1.1	Provide health and safety compliance with the health and safety specification refer to C3.5 Management for works projects, Occupational Health and Safety Act No. 85 of 1993 and Construction Regulations, 2014. Including the appointment of a Construction Health and Safety Officer in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations. (Unit in percentage of total Works Project value)	Provide health and safety compliance with the health and safety specification refer to C3.5 Management for works projects, Occupational Health and Safety Act No. 85 of 1993 and Construction Regulations, 2014. Including the appointment of a Construction Health and Safety Officer in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations.	Item description amended: "(Unit in percentage of total Works Project value)" removed from item. Unit per item is "Sum" as per Unit of Measure
1.1.2	ENVIRONMENTAL MANAGEMENT PLAN COMPLIANCE Provide compliance with the environmental management plan refer to C3.5 Management for works projects. (Unit in percentage of total Works Project value)	ENVIRONMENTAL MANAGEMENT PLAN COMPLIANCE Provide compliance with the environmental management plan refer to C3.5 Management for works projects.	Item description amended: "(Unit in percentage of total Works Project value)" removed from item. Unit per item is "Sum" as per Unit of Measure
3.1.1.1	9000 BTU; 2.64 kW cooling/heating; power input:0.787 kW; EER: 3.21, COP: 3.21; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.1.6	18 000 BTU; 5.3 kW cooling/heating; power input:1.8 kW; EER: 3.02, COP: 3.01; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.5	16 800 BTU; 4.84 kW cooling/ heating; power input: 1.6 kW; EER: 3.08, COP: 3.5; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.9	19500 BTU; 5.71 kW cooling/ heating; power input: 1.88 kW; EER: 3.04, COP: 3.52; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.13	24200 BTU; 7.1 kW cooling/ heating; power input: 2.53 kW; EER: 2.81, COP: 3.33; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.14	24200 BTU; 7.1 kW cooling/ heating; power input: 2.53 kW; EER: 2.81, COP: 3.33; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.15	30700 BTU; 9 kW cooling/ heating; power input: 2.75 kW; EER: 3.27, COP: 3.7; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.16	30700 BTU; 9 kW cooling/ heating; power input: 2.75 kW; EER: 3.27, COP: 3.7; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.17	34100 BTU; 10 kW cooling/ heating; power input: 3.12 kW; EER: 3.21, COP: 3.61; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.21	40900 BTU; 12 kW cooling/ heating; power input: 4.12 kW; EER: 2.55, COP: 3.42; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.22	40900 BTU; 12 kW cooling/ heating; power input: 4.12 kW; EER: 2.55, COP: 3.42; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.23	45700 BTU; 13.4 kW cooling/ heating; power input: 4.45 kW; EER: 3.01, COP: 3.41; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.24	45700 BTU; 13.4 kW cooling/ heating; power input: 4.45 kW; EER: 3.01, COP: 3.41; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates

3.1.3.27	55000 BTU/h; 16.1 kW cooling/ heating; power input: 6.7 kW; EER: 2.41, COP: 2.7; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.3.28	55000 BTU/h; 16.1 kW cooling/ heating; power input: 6.7 kW; EER: 2.41, COP: 2.7; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.5	27000 BTU cooling/ heating; 7.9 kW; power input: 2.1 kW; EER: 3.33, COP: 3.75; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.6	27000 BTU cooling/ heating; 7.9 kW; power input: 2.1 kW; EER: 3.33, COP: 3.75; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.9	36000 BTU cooling/ heating; 10.6 kW; power input: 3.8 kW; EER: 2.8, COP: 3.6; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.10	36000 BTU cooling/ heating; 10.6 kW; power input: 3.8 kW; EER: 2.8, COP: 3.6; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.11	45700 BTU cooling/ heating; 13.4 kW; power input: 4.45 kW; EER: 3.01, COP: 3.41; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.12	45700 BTU cooling/ heating; 13.4 kW; power input: 4.45 kW; EER: 3.01, COP: 3.41; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.15	51200 BTU; 15 kW cooling/ heating; power input: 5.28kW; EER: 2.34, COP: 2.88; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.16	51200 BTU; 15 kW cooling/ heating; power input: 5.28kW; EER: 2.34, COP: 2.88; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.18	55000 BTU; 16 kW cooling/ heating; power input: 6.9 kW; EER: 3.01, COP: 3.61; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.20	60 000 BTU/h; 17.58 kW cooling/ heating; power input: 6.9 kW; EER: 2.34, COP: 2.88; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.21	61 000 BTU; 18 kW cooling/ heating; power input: 6.02kW; EER: 3.07, COP: 3.86; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.4.22	61 000 BTU; 18 kW cooling/ heating; power input: 6.02kW; EER: 3.07, COP: 3.86; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.1	9 000 BTU; 2.6 kW cooling/heating; power input: 0.76 kW; EER: 3.42, COP: 3.76; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.5	17 100 BTU; 5 kW cooling/heating; power input: 1.56kW; EER: 3.21, COP: 3.8; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.6	17 100 BTU; 5 kW cooling/heating; power input: 1.56kW; EER: 3.21, COP: 3.8; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.9	19 800 BTU; 5.8 kW cooling/heating; power input: 1.95kW; EER: 2.97, COP: 3.59; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.10	19 800 BTU; 5.8 kW cooling/heating; power input: 1.95kW; EER: 2.97, COP: 3.59; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.13	30 700 BTU; 9 kW cooling/heating; power input: 2.9kW; EER: 3.1, COP: 3.64; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.14	30 700 BTU; 9 kW cooling/heating; power input: 2.9kW; EER: 3.1, COP: 3.64; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.15	34 100 BTU; 10 kW cooling/heating; power input: 3.5kW; EER: 2.86, COP: 3.39; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.5.19	40 900 BTU; 12 kW cooling/heating; power input: 4.4kW; EER: 2.73, COP: 3.25; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates

3.1.5.20	40 900 BTU; 12 kW cooling/heating; power input: 4.4kW; EER: 2.73, COP: 3.25; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.6.2	70000 BTU; 23 kW cooling/ heating; power input: 8 kW; EER: 3.1, COP: 3.45; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.6.6	96 000 BTU; 28.5 kW cooling/ heating; power input: 12 kW; EER: 2.62, COP: 3.24; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.6.8	150 000 BTU; 45 kW cooling/ heating; power input: 12.9 kW; EER: 3.5, COP: 4.2; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.6.10	205 000 BTU; 56 kW cooling/ heating; power input: 16 kW; EER: 3.5, COP: 4.05; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.7.8	76000 BTU/h; 22.23 kW cooling/ heating; power input: 11.7 kW; EER: 2.34, COP: 2.97; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.7.10	96000 BTU; 28.13 kW cooling/ heating; power input: 14.4 kW; EER: 2.34, COP: 2.93; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.8	CONSOLE AIR CONDITIONER Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.8.1	11900/13600 BTU/hr cooling/ heating; 3.5 kW/ 4kW; power input: 1.09kW; EER: 3.21, COP: 3.61; R410A refregirant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.8.2	11900/13600 BTU/hr cooling/ heating; 3.5 kW/ 4kW; power input: 1.09kW; EER: 3.21, COP: 3.61; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.8.3	17100/19100 BTU/hr cooling/ heating; 5 kW/ 5.6 kW; power input: 1.75kW; EER: 3.21, COP: 3.61; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.8.4	17100/19100 BTU/hr cooling/ heating; 5 kW/ 5.6 kW; power input: 1.75kW; EER: 3.21, COP: 3.61; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.9.13	335 000 BTU; 98 kW cooling/heating; power input: 32.8 kW; EER: 2.99; COP: 3.05; R410A refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.9.14	335 000 BTU; 98 kW cooling/heating; power input: 32.8 kW; EER: 2.99; COP: 3.05; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.9.15	345 000 BTU; 97 kW cooling/ heating; power input: 48.6 kW; EER: 10, COP: 10.3; R410 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.9.16	345 000 BTU; 97 kW cooling/ heating; power input: 48.6 kW; EER: 10, COP: 10.3; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.3.1	12 300 BTU; 3.6 kW cooling/ heating	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.4.6	24 200 BTU; 7.1 kW cooling/ heating	Item removed from Schedule of Rates	Item removed from Schedule of Rates

3.1.12.7.4	172 000 BTU; 50.4 kW heating/cooling; power input: 11.96 kW; EER: 4; COP: 4.76; R32 refrigerant	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.9.4	9 ports	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.9.5	16 ports	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.9.6	18 ports	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.12.9.7	36 ports	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.16.1	25 l/s	25 l/s (Window wall mounted)	Item description amended
3.1.16.2	50 l/s	50 l/s (Window Wall mounted)	Item description amended
3.1.16.3	55 l/s	55 l/s @ 80 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.4	78 l/s	78 l/s @ 80 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.5	110 l/s	110 l/s @ 100 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.6	140 l/s	140 l/s @ 100 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.7	170 l/s	170 l/s @ 150 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.8	217 l/s	217 l/s @ 150 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.9	250 l/s	250 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.10	300 l/s	300 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.11	310 l/s	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.16.12	400 l/s	400 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.16.13	500 l/s	500 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.1	25 l/s	25 l/s (Mixed-Flow inline fan)(Discharge/ Intake Diameter 100mm)	Item description amended
3.1.17.2	50 l/s	50 l/s (Mixed-Flow inline fan)(Discharge/ Intake Diameter 100mm)	Item description amended
3.1.17.3	55 l/s	55 l/s @ 80 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.4	78 l/s	78 l/s @ 80 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.5	110 l/s	110 l/s @ 100 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.6	140 l/s	140 l/s @ 100 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.7	170 l/s	170 l/s @ 150 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.8	217 l/s	217 l/s @ 150 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.9	250 l/s	250 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.10	300 l/s	300 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.11	310 l/s	Item removed from Schedule of Rates	Item removed from Schedule of Rates
3.1.17.12	400 l/s	400 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.17.13	500 l/s	500 l/s @ 200 Pa (Mixed-Flow inline fan)	Item description amended
3.1.19.2.1	600 x 600 x 600 mm	600x600 H14	Item description amended
3.1.20.14.2	DOOR GRILLES - BACK TO BACK	DOOR GRILLES - BACK TO BACK (NATURAL ANODIZED FINISH)	Item description amended

ITEM NO	DESCRIPTION	UNIT	Area 1 rate (Excl. VAT)	Area 2 rate (Excl. VAT)	Area 3 rate (Excl. VAT)	Area 4 rate (Excl. VAT)	Citywide rate (Excl. VAT)
1	BILL NO. 1						
1.1	PRELIMININARIES						
	(CPAP WORK GROUP 190 UNLESS OTHERWISE STATED)						
	(ONLY APPLICABLE IN EXCEPTIONAL CIRCUMSTANCES, IF AND WHEN REQUIRED, IN WHOLE OR IN PART OR DEDUCTED IN ITS ENTIRETY BY THE DISCRETION OF THE CLIENT OR THE PROJECT MANAGER)						
	PREAMBLES						
	For preambles refer to "The General Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors"						
	SUPPLEMENTARY PREAMBLES						
	THE TENDERER SHALL NOTE THE FOLLOWING AND IT WILL BE DEEMED TO BE UNDERSTOOD AND AGREED UPON WHEN SUBMITTING THIS TENDER DOCUMENT: Items captured under "Premilimaries", will only be applicable in exceptional circumstances if and when required, in whole or in part or deducted in its entirety by the client or the project manager. Rates for items in their respective trades throughout this entire schedule of rates will be deemed to include the supply and installation of each item, unless otherwise stated. The tenderer is referred to the pricing assumptions in part C2.1 in this document. The Contractor is responsible for ensuring a safe working environment and compliance with all conditions of the Occupational Health and Safety Act (OHS Act 85 of 1993) and the Construction Regulations 2014. Appropriate allowances for such compliance must be made within the rates contained in this contract.						
1.1.1	Provide health and safety compliance with the health and safety specification refer to C3.5 Management for works projects, Occupational Health and Safety Act No. 85 of 1993 and Construction Regulations, 2014. Including the appointment of a Construction Health and Safety Officer in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations.						
1.1.1.1	Work project value above R0 up to R500 000	Sum					
1.1.1.2	Work project value above R500 001 up to R1 000 000	Sum					
1.1.1.3	Work project value above R1 000 001 up to R3 000 000	Sum					
1.1.2	ENVIRONMENTAL MANAGEMENT PLAN COMPLIANCE Provide compliance with the environmental management plan refer to C3.5 Management for works projects.						
1.1.2.1	Work project value from R0 up to R500 000	Sum					
1.1.2.2	Work project value from R500 001 up to R1 000 000	Sum					
1.1.2.3	Work project value from R1 000 001 up to R3 000 000	Sum					

1.1.3	**LABOUR CHARGES** **Supply the following labour (licenced where applicable) based on normal hourly labour rates for labour only works or other works that are required to be executed, work excludes materials and includes all installations, transport, incidental costs, equipment, hand tools, power tools and safety equipment, etc. as instructed by the principal agent on an ad hoc basis.** **Weekdays (standard 8 hour working day)**						
1.1.3.1	Labour only rate: Certified Refrigeration technician	hr					
1.1.3.2	Labour only rate: General Assistant/Labourer	hr					
1.1.3.3	Labour only rate: Qualified Electrician	hr					
1.1.3.4	Labour only rate: Drivers/Plant operators	hr					
1.1.4	**Additional labour rates over and above the normal working hour rates for labour teams/individuals engaged in labour only works or other works that are required to be executed outside of the normal working hours, weekdays after hours and Saturdays:**						
1.1.4.1	Labour only rate: Certified Refrigeration technician	hr					
1.1.4.2	Labour only rate: General Assistant/Labourer	hr					
1.1.4.3	Labour only rate: Qualified Electrician	hr					
1.1.4.4	Labour only rate: Drivers/Plant operators	hr					
1.1.4.5	Call out fee - Emergency work (After hours)	Sum					
1.1.5	**Additional labour rates over and above the normal working hour rates for labour teams/individuals engaged in labour only works or other works that are required to be executed outside of the normal working hours, Sundays and Public Holidays**						
1.1.5.1	Labour only rate: Certified Refrigeration technician	hr					
1.1.5.2	Labour only rate: General Assistant/Labourer	hr					
1.1.5.3	Labour only rate: Qualified Electrician	hr					
1.1.5.4	Labour only rate: Drivers/Plant operators	hr					
1.1.5.5	Call out fee - Emergency work (After hours)	Sum					
1.1.6	**SCAFFOLDING** **Supply, transport to site, erect, keep maintained in good order, dismantle and remove from site appropriate scaffolding including rental of equipment**						
1.1.6.1	Single bay independent/free standing scaffold exceeding 2.5m high and not exceeding 5m high (to be multiplied by total bays required)	Day					

1.1.6.2	Single bay independent/free standing scaffold exceeding 5m high and not exceeding 7.5m high (to be multiplied by total bays required)	Day					
1.1.6.3	Single bay independent/free standing scaffold exceeding 7.5m high and not exceeding 10m high (to be multiplied by total bays required)	Day					
1.1.6.4	Single bay independent/ free standing scaffolding exceeding 10m high and not exceeding 15m high (to be multiplied by total bays required)	Day					
1.1.7	**AERIAL PLATFORMS** **Supply, maintain and operate the following equipment (fully inclusive wet rate, including fuel, transport to and from site, operator, etc.)**						
1.1.7.1	Cherry picker mobile access platform/aerial platform trucks with 17m vertical height reach	Day					
1.1.7.2	Cherry picker mobile access platform/aerial platform trucks with 20m vertical height reach	Day					
1.1.7.3	Cherry picker mobile access platform/aerial platform trucks with 22m vertical height reach	Day					
1.1.7.4	Cherry picker mobile access platform/aerial platform trucks with 25m vertical height reach	Day					
1.1.7.5	Trailer mounted articulating boom lift (maximum platform height of 15 metres with a safe working load capacity of approximately 230kg).	Day					
1.1.7.6	Scissor type platform lift (maximum platform height of 12 metres with a safe working load capacity of approximately 300kg).	Day					
1.1.8	**CERTIFICATE OF COMPLIANCE:**						
1.1.8.1	As required, provide Certificate of Compliance for electrical installation for works order	No.					
1.1.9	**PROVISIONAL SUMS**						
1.1.9.1	**Material required for replacing defective parts on existing HVAC systems** **All work must be executed in compliance with the latest standards and Original Equipment Manufacturer (OEM) instructions where applicable and any relevant laws and regulations. Only approved Manufacturers parts are to be used.**						
1.1.9.1.1	Manufacturers materials (Not covered in the schedule), required for replacing HVAC components and defective parts	Sum	R100 000.00	R100 000.00	R100 000.00	R100 000.00	R200 000.00
1.1.9.1.2	Profit and attendance on item above	%					
1.1.9.2	**Specialist Services**						
1.1.9.2.1	Specialist HVAC and HVAC related electrical Services required on works project	Sum	R100 000.00	R100 000.00	R100 000.00	R100 000.00	R200 000.00
1.1.9.2.2	Profit and attendance on item above	%					
1.1.9.3	**As-Built drawings and Shop drawings**						

1.1.9.3.1	As-built and Shop drawings per project	Sum	R10 000.00	R10 000.00	R10 000.00	R10 000.00	R10 000.00
1.1.9.3.2	Profit and attendance on item above	%					
2	**BILL NO. 2**						
2.1	**ALTERATIONS**						
	(CPAP WORK GROUP 102 UNLESS OTHERWISE STATED) PREAMBLES						
	For preambles refer to "The General Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors"						
	SUPPLEMENTARY PREAMBLES						
	Rates for items in their respective trades throughout this entire schedule of rates will be deemed to include for the necessary preliminary and general cost (Transport, supply and labour for installation of items, unless otherwise specified) in its entirety as it may apply. The tenderer is referred to the pricing assumptions in part C2.1 in this document.						
	The below list is not exhaustive: Prices for all items hereunder are deemed to include for the following: - scaffolding up to 2.5m high - work both inside and outside of existing buildings - carting all materials to work area to maximum 4 storeys high, whether internal or external - cleaning up of work area upon completion - protecting of existing premises - work in small quantities - All plant, equipment and tools required to carry out the work. Specifications, drawings, etc. Where there is conflict between the General Preambles for Trades and the Specifications, the Specifications will take preference. Special care is to be exercised not to interfere with any electrical installation, and notice is to be given to the Representative/Agent when any disconnections, removal of wires, etc. necessary. The Contractor shall not remove or interfere with any electrical work, furniture, fittings or similar articles unless specially mentioned in the following items and shall give adequate notice to the Representative/Agent of the removal of any articles from parts of the building are to be altered becomes necessary so that the Employer may have same removed before the Contractor commences work in such parts. The Contractor will be held solely responsible for any damage to persons and property and for the safety of the structures and must make good at his expense any damage that may occur. Old materials to become property of the employer unless stated otherwise. Old materials from alterations will become the property of the employer unless stated otherwise. Old materials to be carted away - Old materials from alterations except where described as re-used or where it becomes property of the employer, as well as all rubbish, etc. must be regularly carted from the site and not be allowed to accumulate on or around the site. Old materials to be re-used - None of the old materials are to be used for new work except where specifically described as being set aside for re-use. Handing over of materials: Where certain materials or articles from demolitions or alterations are described as to be handed over by the contractor to the Employer's Representative such materials or articles shall be properly stored by the contractor until handing over thereof. The contractor must obtain an official receipt listing the materials or articles and dates of handover.						

	If the contractor fails to submit the receipt when requested to do so it shall be deemed that the materials or articles are still in his possession and he will be held liable to the Department for the full replacement value thereof which amount will be deducted from any monies due to the contractor. General: The contractor shall carry out the whole works with as little mess and noise as possible and with a minimum of disturbance to the occupants of the building. electrical conduits and other piping that may be encountered and found necessary to disconnect or cut, shall be effectually stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the Client. The contractor shall make good and re-instate all existing finishes including substrates where disturbed as a consequence of alteration. Making good of finishes shall include making good existing substrates which includes but is not limited to brick, concrete, timber and metal surfaces onto which the new finishes are applied, where necessary. Temporary works: close any holes or gaps using sheet metal/wood up until a new unit is installed. Samples: Samples of all materials, elements, hardware or components must be provided for approval by the Principal Agent before the commencement of work. Carting away Materials to be carted away to its respective destinations as directed by the Client shall be included for in the prices of the pertaining items.						
	Please note that the price must be the total cost to remove and dispose of the air-conditioning units per item as per the "Regulations regarding the phasing-out and management of ozone-depleting substances" Government Gazette No. 37621, 8th May 2014 for all items listed. Decommissioning of existing units containing hydro-chlorofluorocarbons (HCFC-22) in accordance with legislation. Recovery of all gas and proper disposal or recovery thereof. (Including; all labour, safe transportation, appropriately permitted recycling and or recovery and certification).						
2.1.1	**REMOVAL OF EXISTING WORK** **Take down, remove and safe disposal of existing HVAC units and accessories, etc:**						
2.1.1.1	**Window/Wall Air Conditioning units:**						
2.1.1.1.1	9 000 BTU	No.					
2.1.1.1.2	12 000 BTU	No.					
2.1.1.1.3	18 000 BTU	No.					
2.1.1.1.4	24 000 BTU	No.					
2.1.1.1.5	30 000 BTU	No.					
2.1.1.1.6	36 000 BTU	No.					
2.1.1.1.7	Wall mounted heaters	No.					
2.1.1.2	**MID-WALL SPLIT AIR CONDITIONER**						

2.1.1.2.1	9 000 BTU	No.					
2.1.1.2.2	12 000 BTU	No.					
2.1.1.2.3	18 000 BTU	No.					
2.1.1.2.4	24 000 BTU	No.					
2.1.1.2.5	30 000 BTU	No.					
2.1.1.2.6	34 000 BTU	No.					
2.1.1.2.7	36 000 BTU	No.					
2.1.1.3	**CASSETTE SPLIT AIR CONDITIONER**						
2.1.1.3.1	9 000 BTU	No.					
2.1.1.3.2	12000 BTU	No.					
2.1.1.3.3	18000 BTU	No.					
2.1.1.3.4	24000 BTU	No.					
2.1.1.3.5	30000 BTU	No.					
2.1.1.3.6	36000 BTU	No.					
2.1.1.3.7	40000 BTU	No.					
2.1.1.3.8	48000 BTU	No.					
2.1.1.3.9	56000 BTU	No.					
2.1.1.3.10	60000 BTU	No.					
2.1.1.4	**UNDER CEILING SPLIT AIR CONDITIONER**						
2.1.1.4.1	9000 BTU	No.					
2.1.1.4.2	12 000 BTU	No.					
2.1.1.4.3	18 000 BTU	No.					
2.1.1.4.4	24000 BTU	No.					
2.1.1.4.5	30000 BTU	No.					
2.1.1.4.6	36000 BTU	No.					
2.1.1.4.7	40000 BTU	No.					

2.1.1.4.8	48000 BTU	No.					
2.1.1.4.9	60 000 BTU	No.					
2.1.1.5	**DUCTED SPLIT AIR CONDITIONER**						
2.1.1.5.1	9000 BTU	No.					
2.1.1.5.2	12 000 BTU	No.					
2.1.1.5.3	18000 BTU	No.					
2.1.1.5.4	24000 BTU	No.					
2.1.1.5.5	30 000 BTU	No.					
2.1.1.5.6	36000 BTU	No.					
2.1.1.5.7	48000 BTU	No.					
2.1.1.5.8	52 000 BTU	No.					
2.1.1.5.9	56000 BTU	No.					
2.1.1.5.10	60000 BTU	No.					
2.1.1.6	**LARGE DUCTED SPLIT AIR CONDITIONER**						
2.1.1.6.1	70 000 BTU	No.					
2.1.1.6.2	80000 BTU	No.					
2.1.1.6.3	100 000 BTU	No.					
2.1.1.6.4	150 000 BTU	No.					
2.1.1.6.5	205 000 BTU	No.					
2.1.1.7	**FLOOR STANDING AIR CONDITIONER**						
2.1.1.7.1	76 000 BTU	No.					
2.1.1.7.2	96 000 BTU	No.					
2.1.1.8	**CONSOLE AIR CONDITIONER**						
2.1.1.8.1	9 000 BTU	No.					
2.1.1.8.2	12 000 BTU	No.					
2.1.1.9	**ROOF TOP AIR CONDITIONER**						
2.1.1.9.1	90 000 BTU	No.					
2.1.1.9.2	100 000 BTU	No.					

2.1.1.9.3	120 000 BTU	No.					
2.1.1.9.4	150 000 BTU	No.					
2.1.1.9.5	180 000 BTU	No.					
2.1.1.9.6	240 000 BTU	No.					
2.1.1.9.7	345 000 BTU	No.					
2.1.1.9.8	358 000 BTU	No.					
2.1.1.9.9	374000 BTU	No.					
2.1.1.9.10	478 000 BTU	No.					
2.1.1.10	**PORTABLE AIR CONDITIONER**						
2.1.1.10.1	12 000 BTU	No.					
2.1.1.11	**AIR CURTAIN**						
2.1.1.11.1	900 mm (L)	No.					
2.1.1.11.2	1200 mm (L)	No.					
2.1.1.11.3	1500 mm (L)	No.					
2.1.1.11.4	1800 mm (L)	No.					
2.1.1.12	**VRV/VRF Mini heat pump (outdoor) unit:**						
2.1.1.12.1	41300 BTU	No.					
2.1.1.12.2	47800 BTU	No.					
2.1.1.12.3	52900 BTU	No.					
2.1.1.12.4	76400 BTU	No.					
2.1.1.12.5	95500 BTU	No.					
2.1.1.12.6	114300 BTU	No.					
2.1.1.13	**VRV/VRF Heat pump (outdoor) unit:**						
2.1.1.13.1	VRV/VRF Heat pump (outdoor) unit: 136 500 BTU/hr	No.					
2.1.1.13.2	VRV/VRF Heat pump (outdoor) unit: 153 500 BTU/hr	No.					
2.1.1.13.3	VRV/VRF Heat pump (outdoor) unit: 172 000 BTU/hr	No.					
2.1.1.13.4	VRV/VRF Heat pump (outdoor) unit: 191 000 BTU/hr	No.					
2.1.1.13.5	VRV/VRF Heat pump (outdoor) unit: 210 200 BTU/hr	No.					
2.1.1.13.6	VRV/VRF Heat pump (outdoor) unit: 229 300 BTU/hr	No.					

2.1.1.13.7	VRV/VRF Heat pump (outdoor) unit: 248 400 BTU/hr	No.					
2.1.1.13.8	VRV/VRF Heat pump (outdoor) unit: 268 200 BTU/hr	No.					
2.1.1.13.9	VRV/VRF Heat pump (outdoor) unit: 286 600 BTU/hr	No.					
2.1.1.14	**VRV/VRF Branch circuit controller / branch selector:**						
2.1.1.14.1	2 ports	No.					
2.1.1.14.2	4 ports	No.					
2.1.1.14.3	6 ports	No.					
2.1.1.14.4	9 ports	No.					
2.1.1.14.5	16 ports	No.					
2.1.1.14.6	18 ports	No.					
2.1.1.14.7	36 ports	No.					
2.1.1.15	**REMOVAL OF REFRIGERANT PIPING**						
2.1.1.15.1	1/4"	m					
2.1.1.15.2	1/2"	m					
2.1.1.15.3	5/8"	m					
2.1.1.15.4	3/8"	m					
2.1.1.15.5	3/4"	m					
2.1.1.15.6	7/8"	m					
2.1.1.15.7	1 & 1/8"	m					
2.1.1.16	**REMOVAL OF DIFFUSERS**						
2.1.1.16.1	Not exceeding 0.6m²	No.					
2.1.1.16.2	Exceeding 0.6m²	No.					
2.1.1.17	**REMOVAL OF DOOR GRILLES**						
2.1.1.17.1	Not exceeding 0.1m²	No.					
2.1.1.17.2	Exceeding 0.1m²	No.					
2.1.1.18	**REMOVAL OF LOUVRES**						
2.1.1.18.1	Not exceeding 0.3m²	No.					
2.1.1.18.2	Exceeding 0.3m²	No.					
2.1.1.19	**REMOVAL OF EXTRACTION AND AIR SUPPLY FANS INCLUDING ACCESSORIES**						
2.1.1.19.1	Not exceeding 200l/s	No.					
2.1.1.19.2	Exceeding 200l/s but not exceeding 500l/s	No.					

2.1.1.20	**REMOVAL OF FILTER PANELS**						
2.1.1.20.1	Not exceeding 0.3m²	No.					
2.1.1.20.2	Exceeding 0.3m²	No.					
2.1.1.21	**REMOVAL OF DUCTING AND ACCESSORIES**						
2.1.1.21.1	Not exceeding 0.25m²	m					
2.1.1.21.2	Exceeding 0.25m² but not exceeding 0.5m²	m					
2.1.1.21.3	Exceeding 0.5m² but not exceeding 1m²	m					
2.1.1.21.4	Exceeding 1m² but not exceeding 1.5m²	m					
2.1.1.21.5	Bends	No.					
2.1.1.21.6	Tees	No.					
2.1.1.21.7	Reducers	No.					
2.1.1.22	**REMOVAL OF SUNDRY ITEMS**						
2.1.1.22.1	Quadrant Dampers	No.					
2.1.1.22.2	Air valves	No.					
2.1.1.22.3	Extract valves	No.					
2.1.1.22.4	Electric driven motors for fans/pumps not exceeding 25kw	No.					
2.1.1.22.5	Electric driven motors for fans/pumps exceeding 25kw but not exceeding 50kw	No.					
2.1.1.22.6	Electric driven motors for fans/pumps exceeding 50kw but not exceeding 75kw	No.					
2.1.1.22.7	Electric driven motors for fans/pumps exceeding 75kw but not exceeding 100kw	No.					
2.1.1.22.8	Protection cages for 9 000 - 18 000 BTU units	No.					
2.1.1.22.9	Protection cages for 19 000 - 30 000 BTU units	No.					
2.1.1.22.10	Protection cages for 31 000 - 60 000 BTU units	No.					
2.1.1.22.11	HVAC electrical power supply	m					
2.1.1.22.12	HVAC mini circuit breakers	No.					
2.1.1.23	**CORE DRILLING**						
2.1.1.23.1	Concrete core drilling of holes not exceeding 50mm	No.					
2.1.1.23.2	Concrete core drilling of holes exceeding 50mm and not exceeding 80mm	No.					

2.1.1.23.3	Concrete core drilling of holes exceeding 80mm and not exceeding 100mm	No.					
2.1.1.23.4	Concrete core drilling of holes exceeding 100mm	No.					
2.1.2	**REFRIGERANT**						
	(CPAP WORK GROUP 172)						
	The re-gassing process must comply with applicable health, safety, and environmental regulations, including the Pressure Equipment Regulations (PER), as well as regulations for handling and disposal of refrigerants						
	Work on air-conditioning units shall only be carried out by certified technicians who are trained and licensed to handle refrigerants as per the Occupational Health and Safety Act.						
	Only refrigerants approved and specified for each unit shall be used, in compliance with manufacturer guidelines and industry standards						
	Replacement refrigerants must be compatible with the system components, and care must be taken to avoid cross-contamination with other refrigerants.						
	Payment shall cover the full cost of labor, materials, tools, and any other resources required to drain and complete the re-gassing, including any incidental costs such as refrigerant disposal fees.						
2.1.2.1	**REFRIGERANT RECOVERY - Remove remaining refrigerant from HVAC system**						
2.1.2.1.1	R32	kg					
2.1.2.1.2	R134a	kg					
2.1.2.1.3	R410a	kg					
2.1.2.1.4	R404	kg					
2.1.2.1.5	R407	kg					
2.1.2.1.6	R507	kg					
2.1.2.2	**Re-Gassing of HVAC System**						
2.1.2.2.1	R32	kg					
2.1.2.2.2	R134a	kg					
2.1.2.2.3	R410a	kg					
2.1.2.2.4	R404	kg					
2.1.2.2.5	R407	kg					
2.1.2.2.6	R507	kg					
2.1.3	**SERVICING AND MINOR REPAIRS**						
	(CPAP WORK GROUP 170 UNLESS OTHERWISE STATED) PREAMBLES						

	Servicing inclusive minor repairs of existing HVAC equipment. All servicing and maintenance shall be carried out in accordance with the manufacturer's instructions, including the provision of all necessary consumables to ensure optimal performance, as specified by the manufacturer. Pricing to include removal, cleaning, servicing, minor repairs (if required) and refixing etc. Refer to Project / Particular specification.						
2.1.3.1	**MINOR SERVICE:**						
2.1.3.1.1	**WINDOW /WALL AIR CONDITIONER**						
2.1.3.1.1.1	9000 BTU	No.					
2.1.3.1.1.2	12000 BTU	No.					
2.1.3.1.1.3	18000 BTU	No.					
2.1.3.1.1.4	24000 BTU	No.					
2.1.3.1.2	**MID-WALL SPLIT AIR CONDITIONER**						
2.1.3.1.2.1	9000 BTU	No.					
2.1.3.1.2.2	12000 BTU	No.					
2.1.3.1.2.3	18000 BTU	No.					
2.1.3.1.2.4	24000 BTU	No.					
2.1.3.1.2.5	30000 BTU	No.					
2.1.3.1.2.6	34 000 BTU	No.					
2.1.3.1.2.7	36000 BTU	No.					
2.1.3.1.3	**CASSETTE SPLIT AIR CONDITIONER**						
2.1.3.1.3.1	9 000 BTU	No.					
2.1.3.1.3.2	12000 BTU	No.					
2.1.3.1.3.3	18000 BTU	No.					
2.1.3.1.3.4	24000 BTU	No.					
2.1.3.1.3.5	30000 BTU	No.					
2.1.3.1.3.6	36000 BTU	No.					
2.1.3.1.3.7	40000 BTU	No.					

2.1.3.1.3.8	48000 BTU	No.					
2.1.3.1.3.9	56000 BTU	No.					
2.1.3.1.3.10	60000 BTU	No.					
2.1.3.1.4	**DUCTED SPLIT AIR CONDITIONER**						
2.1.3.1.4.1	12000 BTU	No.					
2.1.3.1.4.2	18000 BTU	No.					
2.1.3.1.4.3	24000 BTU	No.					
2.1.3.1.4.4	36000 BTU	No.					
2.1.3.1.4.5	48000 BTU	No.					
2.1.3.1.4.6	56000 BTU	No.					
2.1.3.1.4.7	60000 BTU	No.					
2.1.3.1.5	**LARGE DUCTED SPLIT AIR CONDITIONER**						
2.1.3.1.5.1	70 000 BTU	No.					
2.1.3.1.5.2	80000 BTU	No.					
2.1.3.1.5.3	90000 BTU	No.					
2.1.3.1.5.4	100 000 BTU	No.					
2.1.3.1.5.5	150 000 BTU	No.					
2.1.3.1.5.6	170 000 BTU	No.					
2.1.3.1.5.7	190 000 BTU	No.					
2.1.3.1.5.8	200 000 BTU	No.					
2.1.3.1.6	**FLOOR STANDING AIR CONDITIONER**						
2.1.3.1.6.1	76 000 BTU	No.					
2.1.3.1.6.2	96 000 BTU	No.					
2.1.3.1.7	**CONSOLE AIR CONDITIONER**						
2.1.3.1.7.1	9 000 BTU	No.					
2.1.3.1.7.2	12 000 BTU	No.					

2.1.3.1.7.3	18 000 BTU	No.					
2.1.3.1.8	**ROOF TOP AIR CONDITIONER**						
2.1.3.1.8.1	90 000 BTU	No.					
2.1.3.1.8.2	100 000 BTU	No.					
2.1.3.1.8.3	120 000 BTU	No.					
2.1.3.1.8.4	150 000 BTU	No.					
2.1.3.1.8.5	345 000 BTU	No.					
2.1.3.1.8.6	374 000 BTU	No.					
2.1.3.1.9	**PORTABLE AIR CONDITIONER**						
2.1.3.1.9.1	12 000 BTU	No.					
2.1.3.1.10	**AIR CURTAIN**						
2.1.3.1.10.1	900 mm (L)	No.					
2.1.3.1.10.2	1200 mm (L)	No.					
2.1.3.1.10.3	1500 mm (L)	No.					
2.1.3.1.10.4	1800 mm (L)	No.					
2.1.3.1.11	**VRV/VRF Mini heat pump (outdoor) unit:**						
2.1.3.1.11.1	41300 BTU	No.					
2.1.3.1.11.2	47800 BTU	No.					
2.1.3.1.11.3	52900 BTU	No.					
2.1.3.1.11.4	76400 BTU	No.					
2.1.3.1.11.5	95500 BTU	No.					
2.1.3.1.11.6	114300 BTU	No.					
2.1.3.1.11.7	136 500 BTU	No.					
2.1.3.1.11.8	153 500 BTU	No.					
2.1.3.1.11.9	172 000 BTU	No.					
2.1.3.1.11.10	191 000 BTU	No.					
2.1.3.1.11.11	210 200 BTU	No.					

2.1.3.1.11.12	229 300 BTU	No.					
2.1.3.1.11.13	248 400 BTU	No.					
2.1.3.1.11.14	268 200 BTU	No.					
2.1.3.1.11.15	286 600 BTU	No.					
2.1.3.2	**MAJOR SERVICE**						
2.1.3.2.1	**WINDOW /WALL AIR CONDITIONER**						
2.1.3.2.1.1	9000 BTU	No.					
2.1.3.2.1.2	12000 BTU	No.					
2.1.3.2.1.3	18000 BTU	No.					
2.1.3.2.1.4	24000 BTU	No.					
2.1.3.2.2	**MID-WALL SPLIT AIR CONDITIONER**						
2.1.3.2.2.1	9000 BTU	No.					
2.1.3.2.2.2	12000 BTU	No.					
2.1.3.2.2.3	18000 BTU	No.					
2.1.3.2.2.4	24000 BTU	No.					
2.1.3.2.2.5	30000 BTU	No.					
2.1.3.2.2.6	34 000 BTU	No.					
2.1.3.2.2.7	36000 BTU	No.					
2.1.3.2.3	**CASSETTE SPLIT AIR CONDITIONER**						
2.1.3.2.3.1	9 000 BTU	No.					
2.1.3.2.3.2	12000 BTU	No.					
2.1.3.2.3.3	18000 BTU	No.					
2.1.3.2.3.4	24000 BTU	No.					
2.1.3.2.3.5	30000 BTU	No.					
2.1.3.2.3.6	36000 BTU	No.					
2.1.3.2.3.7	40000 BTU	No.					
2.1.3.2.3.8	48000 BTU	No.					
2.1.3.2.3.9	56000 BTU	No.					

2.1.3.2.3.10	60000 BTU	No.					
2.1.3.2.4	**DUCTED SPLIT AIR CONDITIONER**						
2.1.3.2.4.1	12000 BTU	No.					
2.1.3.2.4.2	18000 BTU	No.					
2.1.3.2.4.3	24000 BTU	No.					
2.1.3.2.4.4	36000 BTU	No.					
2.1.3.2.4.5	48000 BTU	No.					
2.1.3.2.4.6	56000 BTU	No.					
2.1.3.2.4.7	60000 BTU	No.					
2.1.3.2.5	**LARGE DUCTED SPLIT AIR CONDITIONER**						
2.1.3.2.5.1	70 000 BTU	No.					
2.1.3.2.5.2	80000 BTU	No.					
2.1.3.2.5.3	90000 BTU	No.					
2.1.3.2.5.4	100 000 BTU	No.					
2.1.3.2.5.5	150 000 BTU	No.					
2.1.3.2.5.6	170 000 BTU	No.					
2.1.3.2.5.7	190 000 BTU	No.					
2.1.3.2.5.8	200 000 BTU	No.					
2.1.3.2.6	**FLOOR STANDING AIR CONDITIONER**						
2.1.3.2.6.1	76 000 BTU	No.					
2.1.3.2.6.2	96 000 BTU	No.					
2.1.3.2.7	**CONSOLE AIR CONDITIONER**						
2.1.3.2.7.1	9 000 BTU	No.					
2.1.3.2.7.2	12 000 BTU	No.					
2.1.3.2.7.3	18 000 BTU	No.					
2.1.3.2.8	**ROOF TOP AIR CONDITIONER**						
2.1.3.2.8.1	90 000 BTU	No.					

2.1.3.2.8.2	100 000 BTU	No.					
2.1.3.2.8.3	120 000 BTU	No.					
2.1.3.2.8.4	150 000 BTU	No.					
2.1.3.2.8.5	345 000 BTU	No.					
2.1.3.2.8.6	374 000 BTU	No.					
2.1.3.2.9	**PORTABLE AIR CONDITIONER**						
2.1.3.2.9.1	12 000 BTU	No.					
2.1.3.2.10	**AIR CURTAIN**						
2.1.3.2.10.1	900 mm (L)	No.					
2.1.3.2.10.2	1200 mm (L)	No.					
2.1.3.2.10.3	1500 mm (L)	No.					
2.1.3.2.10.4	1800 mm (L)	No.					
2.1.3.2.11	**VRV/VRF Mini heat pump (outdoor) unit:**						
2.1.3.2.11.1	41300 BTU	No.					
2.1.3.2.11.2	47800 BTU	No.					
2.1.3.2.11.3	52900 BTU	No.					
2.1.3.2.11.4	76400 BTU	No.					
2.1.3.2.11.5	95500 BTU	No.					
2.1.3.2.11.6	114300 BTU	No.					
2.1.3.2.11.7	136 500 BTU	No.					
2.1.3.2.11.8	153 500 BTU	No.					
2.1.3.2.11.9	172 000 BTU	No.					
2.1.3.2.11.10	191 000 BTU	No.					
2.1.3.2.11.11	210 200 BTU	No.					
2.1.3.2.11.12	229 300 BTU	No.					
2.1.3.2.11.13	248 400 BTU	No.					

2.1.3.2.11.14	268 200 BTU	No.					
2.1.3.2.11.15	286 600 BTU	No.					
2.1.3.3	**SERVICE EXISTING CONDENSATE PUMP**						
2.1.3.3.1	Aspen or equivalent inline condensate pump trunk kit.	No.					
2.1.3.4	**SERVICE EXISTING INSTALLED REFRIGERANT CONTROL BOXES (BS AND MCU)**						
2.1.3.4.1	2 ports	No.					
2.1.3.4.2	4 ports	No.					
2.1.3.4.3	6 ports	No.					
2.1.3.4.4	9 ports	No.					
2.1.3.4.5	16 ports	No.					
2.1.3.4.6	18 ports	No.					
2.1.3.4.7	36 ports	No.					
2.1.3.5	**SERVICE EXTRACTION FANS**						
2.1.3.5.1	25 l/s	No.					
2.1.3.5.2	50 l/s	No.					
2.1.3.5.3	55 l/s	No.					
2.1.3.5.4	78 l/s	No.					
2.1.3.5.5	110 l/s	No.					
2.1.3.5.6	140 l/s	No.					
2.1.3.5.7	170 l/s	No.					
2.1.3.5.8	217 l/s	No.					
2.1.3.5.9	250 l/s	No.					
2.1.3.5.10	300 l/s	No.					
2.1.3.5.11	310 l/s	No.					
2.1.3.5.12	400 l/s	No.					
2.1.3.5.13	500 l/s	No.					

2.1.3.6	**SERVICE SUPPLY AIR FANS**						
2.1.3.6.1	25 l/s	No.					
2.1.3.6.2	50 l/s	No.					
2.1.3.6.3	55 l/s	No.					
2.1.3.6.4	78 l/s	No.					
2.1.3.6.5	110 l/s	No.					
2.1.3.6.6	140 l/s	No.					
2.1.3.6.7	170 l/s	No.					
2.1.3.6.8	217 l/s	No.					
2.1.3.6.9	250 l/s	No.					
2.1.3.6.10	300 l/s	No.					
2.1.3.6.11	310 l/s	No.					
2.1.3.6.12	400 l/s	No.					
2.1.3.6.13	500 l/s	No.					
2.1.3.7	**SERVICE ELECTRIC MOTORS**						
2.1.3.7.1	0.5 KW to 0.75 KW	No.					
2.1.3.7.2	0.75 KW to 1,1 KW	No.					
2.1.3.7.3	1.1 KW to 2.5 KW	No.					
2.1.3.7.4	2,5 KW to 5.5 KW	No.					
2.1.3.7.5	5.5 KW to 7.5 KW	No.					
2.1.3.7.6	7.5 KW to 12 KW	No.					
2.1.3.7.7	12 KW to 25 KW	No.					
2.1.3.7.8	25 KW to 45 KW	No.					
2.1.3.7.9	55 KW to 75 KW	No.					
2.1.3.7.10	75 KW to 90 KW	No.					
2.1.3.8	**VENTILATION AND VENTILLATION ACCESSORIES CLEANING – Including all consumables required for optimum service as per Manufacturers instructions Diffusers**						
2.1.3.8.1	Door Grilles	m²					
2.1.3.8.2	Louvers	m²					

2.1.3.8.3	Ducting	m³					
2.1.3.8.4	Axial Fans	m²					
2.1.3.8.5	Fresh Air Fans	m²					
2.1.3.8.6	Exhaust intakes	m²					
2.1.3.8.7	Diffusers	m²					
3	**BILL NO. 3**						
3.1	**MECHANICAL INSTALLATION**						
	(CPAP WORK GROUP 170, 171 and 172 UNLESS OTHERWISE STATED) PREAMBLES						
	SUPPLY AND INSTALL AIR CONDITIONING UNITS						
	PREAMBLES						
	For preambles refer to "The General Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors"						
	SUPPLEMENTARY PREAMBLES						
	Rates for items in their respective trades throughout this entire schedule of rates will be deemed to include for the necessary preliminary and general cost (supply and labour for installation of items, unless otherwise specified) in its entirety as it may apply. The tenderer is referred to the pricing assumptions in part C2.1 in this document. Prices for all items hereunder are deemed to include for the following: - scaffolding up to 2.5m high - work both inside and outside of existing buildings - carting all materials to work area to maximum 4 storeys high, whether internal or external - cleaning up of work area upon completion - protecting of existing premises - work in small quantities - All plant, equipment and tools required to carry out the work.						
	Working Conditions: The contractor is hereby made aware that the proposed work is to be executed in confined spaces. The contractor is to allow for all costs in this regard in the tender price.						
	Ductwork: Where transformations or reducers occur the larger size ductwork has been measured through the fitting. Descriptions of ductwork shall be deemed to include stiffeners, jointing materials, sealants, couplers in the running length and access/inspection panels in accordance with the specification. Where an in-line reduction in size of ducting occurs, the larger size shall be measured over the full length of the fitting. No distinction shall be made between ducting fixed vertically, horizontally or raking nor between ducting fixed to different elements.						
	Air Diffusion: Descriptions of air terminals, grilles, louvres and the like shall be deemed to include necks, frames, supports and flexible connections.						

	Piping: All pipe diameters are nominal internal unless otherwise stated where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained. Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level.						
	This must include the making good of each item and the warranties of the items. Air-conditioning systems with inverter technology rates-based on a standard "back to back" installation with the condenser and evaporator situated approximately 10 meters apart for split units and appropriate piping length as per the manufacturer's instructions for the VRF/VRV units. Included in standard installation: delivery to site, refrigerant, control cabling, refrigerant & condensate piping sleeved in 100x40mm PVC trunking. Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction. All units to have both Heating and Cooling modes. The selected capacities and input power are based on nominal conditions; the selected units will have extra capacity when on high mode. The energy efficiency of units (EER/COP) are the minimum acceptable values.						
	Note: All sealants (e.g. silicone, acrylic sealant, duct tape etc.) and fasteners (e.g. bolts, nuts, washers, threaded rods, screws, clamps etc.) to be included in the pricing schedule for components where such materials would be required.						
3.1.1	**WINDOW/WALL AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. (complete with wired and/or infrared remote control):**						
3.1.1.2	9000 BTU; 2.64 kW cooling/heating; power input:0.787 kW; EER: 3.21, COP: 3.21; R32 refrigerant	No.					
3.1.1.3	12 000 BTU; 3.5 kW cooling/heating; power input:1.2 kW; EER: 3.01, COP: 3.05; R410A refrigerant	No.					
3.1.1.4	12 000 BTU; 3.5 kW cooling/heating; power input:1.2 kW; EER: 3.01, COP: 3.05; R32 refrigerant	No.					
3.1.1.5	18 000 BTU; 5.3 kW cooling/heating; power input:1.8 kW; EER: 3.02, COP: 3.01; R410A refrigerant	No.					
3.1.2	**MID-WALL SPLIT AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 metres of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.2.1	9000 BTU; 2.6 kW cooling/ heating; power input: 0.785kW; EER: 3.25, COP: 3.41; R410A refrigerant	No.					

3.1.2.2	9000 BTU; 2.6 kW cooling/ heating; power input: 0.785kW; EER: 3.25, COP: 3.41; R32 refrigerant	No.					
3.1.2.3	12000 BTU; 3.5 kW cooling/ heating; power input: 1.1kW; EER: 3.04, COP: 3,42; R410A refrigerant	No.					
3.1.2.4	12000 BTU; 3.5 kW cooling/ heating; power input: 1.1kW; EER: 3.04, COP: 3,42; R32 refrigerant	No.					
3.1.2.5	18000 BTU; 5 kW cooling/ heating; power input: 1.644kW; EER: 3.01, COP: 3.41; R410A refrigerant	No.					
3.1.2.6	18000 BTU; 5 kW cooling/ heating; power input: 1.644kW; EER: 3.01, COP: 3.41; R32 refrigerant	No.					
3.1.2.7	24000 BTU; 7 kW cooling/ heating; power input: 2.137 kW; EER: 3.03, COP: 3.42; R410A refrigerant	No.					
3.1.2.8	24000 BTU; 7 kW cooling/ heating; power input: 2.137 kW; EER: 3.03, COP: 3.42; R32 refrigerant	No.					
3.1.2.9	34 000 BTU; 10 kW cooling/ heating; power input: 3.23 kW; EER: 3.13, COP: 3.27; R410A refrigerant	No.					
3.1.2.10	34 000 BTU; 10 kW cooling/ heating; power input: 3.23 kW; EER: 3.13, COP: 3.27; R32 refrigerant	No.					
3.1.3	**CASSETTE SPLIT AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.3.1	9 000 BTU; 2.64 kW cooling/ heating; power input: 0.68kW; EER: 3.88, COP: 3.87; R410A refrigerant	No.					
3.1.3.2	9000 BTU; 2.64 kW cooling/ heating; power input: 0.68kW; EER: 3.88, COP: 3.87; R32 refrigerant	No.					
3.1.3.3	12 000 BTU; 3.52 kW cooling/ heating; power input: 1.09 kW; EER: 3.23, COP: 3.44; R410A refrigerant	No.					
3.1.3.4	12000 BTU; 3.52 kW cooling/ heating; power input: 1.09 kW; EER: 3.23, COP: 3.44; R32 refrigerant	No.					
3.1.3.6	16 800 BTU; 4.84 kW cooling/ heating; power input: 1.6 kW; EER: 3.08, COP: 3.5; R32 refrigerant	No.					
3.1.3.7	18 000 BTU; 18000 BTU; 5.2 kW cooling/ heating; power input: 1.75kW; EER: 3.21, COP: 3.41; R410A refrigerant	No.					
3.1.3.8	18 000 BTU; 18000 BTU; 5.2 kW cooling/ heating; power input: 1.75kW; EER: 3.21, COP: 3.41; R32 refrigerant	No.					
3.1.3.10	19500 BTU; 5.71 kW cooling/ heating; power input: 1.88 kW; EER: 3.04, COP: 3.52; R32 refrigerant	No.					
3.1.3.11	24000 BTU; 7 kW cooling/ heating; power input: 2.34 kW; EER: 3.01, COP: 3.40; R410A refrigerant	No.					
3.1.3.12	24000 BTU; 7 kW cooling/ heating; power input: 2.34 kW; EER: 3.01, COP: 3.40; R32 refrigerant	No.					

3.1.3.18	34100 BTU; 10 kW cooling/ heating; power input: 3.12 kW; EER: 3.21, COP: 3.61; R32 refrigerant	No.					
3.1.3.19	36 000 BTU; 10.6 kW cooling/ heating; power input: 4.15 kW; EER: 2.6, COP: 3.6; R410 refrigerant	No.					
3.1.3.20	36 000 BTU; 10.6 kW cooling/ heating; power input: 4.15 kW; EER: 2.6, COP: 3.6; R32 refrigerant	No.					
3.1.3.25	48 000 BTU ; 14.07 kW cooling/ heating; power input: 5.41 kW; EER: 2.67, COP: 3.31; R410 refrigerant	No.					
3.1.3.26	48 000 BTU ; 14.07 kW cooling/ heating; power input: 5.41 kW; EER: 2.67, COP: 3.31; R32 refrigerant	No.					
3.1.3.29	60000 BTU/h; 17.58 kW cooling/ heating; power input: 6.7 kW; EER: 2.41, COP: 2.7; R410A refrigerant	No.					
3.1.3.30	60000 BTU/h; 17.58 kW cooling/ heating; power input: 6.7 kW; EER: 2.41, COP: 2.7; R32 refrigerant	No.					
3.1.4	**UNDER CEILING SPLIT AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.4.1	18000 BTU; 5 kW cooling/ heating; power input: 2.95kW; EER: 3.21, COP: 3.35; R410A refrigerant	No.					
3.1.4.2	18000 BTU; 5 kW cooling/ heating; power input: 2.95kW; EER: 3.21, COP: 3.35; R32 refrigerant	No.					
3.1.4.3	24000 BTU; 7.6 kW cooling/ heating; power input: 3.35kW; EER: 4.14, COP: 4.44; R410A refrigerant	No.					
3.1.4.4	24000 BTU; 7.6 kW cooling/ heating; power input: 3.35kW; EER: 4.14, COP: 4.44; R32 refrigerant	No.					
3.1.4.7	34000 BTU; 10 kW cooling/ heating; power input: 3.34 kW; EER: 3.02, COP: 3.42; 410A refrigerant	No.					
3.1.4.8	34000 BTU; 10 kW cooling/ heating; power input: 3.34 kW; EER: 3.02, COP: 3.42; R32 refrigerant	No.					
3.1.4.13	48000 BTU cooling/ heating; 14 kW/ 16 kW; power input: 5.2 kW; EER: 2.71, COP: 3.51; R410A refrigerant	No.					
3.1.4.14	48000 BTU cooling/ heating; 14 kW/ 16 kW; power input: 5.2 kW; EER: 2.71, COP: 3.51; R32 refrigerant	No.					
3.1.4.17	55000 BTU; 16 kW cooling/ heating; power input: 6.9 kW; EER: 3.01, COP: 3.61; R410A refrigerant	No.					
3.1.4.19	60 000 BTU/h; 17.58 kW cooling/ heating; power input: 6.9 kW; EER: 2.34, COP: 2.88; R410 refrigerant	No.					
3.1.5	**DUCTED SPLIT AIR CONDITIONER** **Including all materials and accessories equired for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						

3.1.5.2	9 000 BTU; 2.6 kW cooling/heating; power input: 0.76 kW; EER: 3.42, COP: 3.76; R32 refrigerant	No.					
3.1.5.3	12 000 BTU; 3.5 kW cooling/heating; power input: 1.05kW; EER: 3.33, COP: 3.33; R410A refrigerant	No.					
3.1.5.4	12 000 BTU; 3.5 kW cooling/heating; power input: 1.05kW; EER: 3.33, COP: 3.33; R32 refrigerant	No.					
3.1.5.7	18000 BTU; 5 kW cooling/ heating; power input: 1.6kW; EER: 6.3, COP: 4.1; R410A refrigerant	No.					
3.1.5.8	18000 BTU; 5 kW cooling/ heating; power input: 1.6kW; EER: 6.3, COP: 4.1; R32 refrigerant	No.					
3.1.5.11	24000 BTU; 7 kW cooling/heating; power input: 2.15kW; EER: 3.33, COP: 3.64; R410A refrigerant	No.					
3.1.5.12	24000 BTU; 7 kW cooling/heating; power input: 2.15kW; EER: 3.33, COP: 3.64; R32 refrigerant	No.					
3.1.5.16	34 100 BTU; 10 kW cooling/heating; power input: 3.5kW; EER: 2.86, COP: 3.39; R32 refrigerant	No.					
3.1.5.17	36000 BTU; 10.5 kW cooling/heating; power input: 3.59kW; EER: 2.85, COP: 3.26; R410A refrigerant	No.					
3.1.5.18	36 000 BTU; 10.5 kW cooling/heating; power input: 3.59kW; EER: 2.85, COP: 3.26; R32 refrigerant	No.					
3.1.5.21	48000 BTU; 14 kW cooling/heating; power input: 5.43kW; EER: 2.59, COP: 3.46; R410A refrigerant	No.					
3.1.5.22	48 000 BTU; 14 kW cooling/heating; power input: 5.43kW; EER: 2.59, COP: 3.46; R32 refrigerant	No.					
3.1.5.23	60 000 BTU/h; 20 kW cooling/ heating; power input: 7.3 kW; EER: 3.30, COP: 3.61; R410 refrigerant	No.					
3.1.5.24	60 000 BTU/h; 20 kW cooling/ heating; power input: 7.3 kW; EER: 3.30, COP: 3.61; R32 refrigerant	No.					
3.1.6	**LARGE DUCTED SPLIT AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.6.1	70000 BTU; 23 kW cooling/ heating; power input: 8 kW; EER: 3.1, COP: 3.45; R410 refrigerant	No.					
3.1.6.3	85000 BTU; 25 kW cooling/ heating; power input: 9.58 kW; EER: 2.62, COP: 3.24; R410 refrigerant	No.					
3.1.6.4	85000 BTU; 25 kW cooling/ heating; power input: 9.58 kW; EER: 2.62, COP: 3.24; R32 refrigerant	No.					
3.1.6.5	96 000 BTU; 28.5 kW cooling/ heating; power input: 12 kW; EER: 2.62, COP: 3.24; R410 refrigerant	No.					
3.1.6.7	150 000 BTU; 45 kW cooling/ heating; power input: 12.9 kW; EER: 3.5, COP: 4.2; R410 refrigerant	No.					
3.1.6.9	205 000 BTU; 56 kW cooling/ heating; power input: 16 kW; EER: 3.5, COP: 4.05; R410 refrigerant	No.					

3.1.7	**FLOOR STANDING AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.7.1	8900/11900 BTU cooling/ heating 2.6 kW/3.5 kW; power input: 0.67kW; EER: 3.88, COP: 3.61; R410A refrigerant	No.					
3.1.7.2	8900/11900 BTU cooling/ heating 2.6 kW/3.5 kW; power input: 0.67kW; EER: 3.88, COP: 3.61; R32 refrigerant	No.					
3.1.7.3	11900/13600 BTU cooling/ heating; 3.5 kW/ 4kW; power input: 1.09kW; EER: 3.21, COP: 3.61; R410A refregirant	No.					
3.1.7.4	11900/13600 BTU cooling/ heating; 3.5 kW/ 4kW; power input: 1.09kW; EER: 3.21, COP: 3.61; R32 refrigerant	No.					
3.1.7.5	17100/19100 BTU cooling/ heating; 5 kW/ 5.6 kW; power input: 1.75kW; EER: 3.21, COP: 3.61; R410A refrigerant	No.					
3.1.7.6	17100/19100 BTU cooling/ heating; 5 kW/ 5.6 kW; power input: 1.75kW; EER: 3.21, COP: 3.61; R32 refrigerant	No.					
3.1.7.7	76 000 BTU; 22.23 kW cooling/ heating; power input: 11.7 kW; EER: 2.34, COP: 2.97; R410 refrigerant	No.					
3.1.7.9	96000 BTU; 28.13 kW cooling/ heating; power input: 14.4 kW; EER: 2.34, COP: 2.93; R410 refrigerant	No.					
3.1.9	**ROOF TOP PACKAGE UNITS** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction with 5 METRES of all interlinking piping, insulation, cabling and trunking. (PVC Trunking indoors, Galvanized Trunking Outdoors, ONLY Copper Piping to be used on all installations) (Excluding electrical supply to the unit). All units to have both Heating and Cooling modes. INVERTER UNITS ONLY. (complete with wired and/or infrared remote control):**						
3.1.9.1	89 000 BTU; 26 kW cooling/heating; power input: 7.9 kW; EER: 3.29; COP: 3.37; R410A refrigerant	No.					
3.1.9.2	89 000 BTU; 26 kW cooling/heating; power input: 7.9 kW; EER: 3.29; COP: 3.37, R32 refrigerant	No.					
3.1.9.3	90 000 BTU; 26 kW cooling/ heating; power input: 13.5 kW; EER: 9.7, COP: 11.6; R410 refrigerant	No.					
3.1.9.4	90 000 BTU; 26 kW cooling/ heating; power input: 13.5 kW; EER: 9.7, COP: 11.6; R32 refrigerant	No.					
3.1.9.5	120 000 BTU; 35 kW cooling/heating; power input: 10.7 kW; EER: 3.27; COP: 3.36; R410A refrigerant	No.					
3.1.9.6	120 000 BTU; 35 kW cooling/heating; power input: 10.7 kW; EER: 3.27; COP: 3.36; R32 refrigerant	No.					
3.1.9.7	180 000 BTU; 53 kW cooling/heating; power input: 16.7 kW; EER: 3.17; COP: 3.26; R410A refrigerant	No.					

3.1.9.8	180 000 BTU; 53 kW cooling/heating; power input: 16.7 kW; EER: 3.17; COP: 3.26; R32 refrigerant	No.					
3.1.9.9	240 000 BTU; 70 kW cooling/heating; power input: 22.6 kW; EER: 3.1 COP: 3.18; R410A refrigerant	No.					
3.1.9.10	240 000 BTU; 70 kW cooling/heating; power input: 22.6 kW; EER: 3.1 COP: 3.18; R32 refrigerant	No.					
3.1.9.11	300 000 BTU; 88 kW cooling/heating; power input: 28.9 kW; EER: 3.04; COP: 3.2; R410A refrigerant	No.					
3.1.9.12	300 000 BTU; 88 kW cooling/heating; power input: 28.9 kW; EER: 3.04; COP: 3.2; R32 refrigerant	No.					
3.1.9.17	358 000 BTU; 105 kW cooling/heating; power input: 41.5 kW; EER: 2.53; COP: 2.65; R410A refrigerant	No.					
3.1.9.18	358 000 BTU; 105 kW cooling/heating; power input: 41.5 kW; EER: 2.53; COP: 2.65; R32 refrigerant	No.					
3.1.9.19	478 000 BTU; 140 kW cooling/heating; power input: 52.5 kW; EER: 2.66 COP: 2.86; R410A refrigerant	No.					
3.1.9.20	478 000 BTU; 140 kW cooling/heating; power input: 52.5 kW; EER: 2.66 COP: 2.86; R32 refrigerant	No.					
3.1.10	**PORTABLE AIR CONDITIONER** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction (Excluding electrical supply to the unit). (complete with wired and/or infrared remote control):**						
3.1.10.1	12 000 BTU; 3.52 kW cooling/ heating; power input: 1.35 kW; R410 refrigerant	No.					
3.1.10.2	12 000 BTU; 3.52 kW cooling/ heating; power input: 1.35 kW; R32 refrigerant	No.					
3.1.11	**AIR CURTAIN** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction (complete with wired and/or infrared remote control):**						
3.1.11.1	900 mm (L) Airflow: 1630 m³/hr; Air Speed: 13m/s; Power: 205 W	No.					
3.1.11.2	1200 mm (L) Airflow: 2500 m³/hr; Air Speed: 13m/s; Power: 240 W	No.					
3.1.11.3	1500 mm (L) Airflow: 3580 m³/hr; Air Speed: 13m/s; Power: 320 W	No.					
3.1.11.4	1800 mm (L) Airflow: 4000 m³/hr; Air Speed: 13m/s; Power: 370 W	No.					
3.1.12	**Air Conditioning Units connected to VFR/VRV sized accordingly. (VRF/VRV Measured elsewhere)**						
3.1.12.1	**Wall Mounted indoor Air Conditioning Unit**						
3.1.12.1.1	5100 BTU; 1.5 kW cooling/ heating	No.					
3.1.12.1.2	7500 BTU; 2.2 kW cooling/ heating	No.					
3.1.12.1.3	9600 BTU; 2.8 kW cooling/ heating	No.					
3.1.12.1.4	12300 BTU; 3.6 kW cooling/ heating	No.					
3.1.12.1.5	15 400 BTU; 4.5 kW cooling/ heating	No.					

3.1.12.1.6	19 100 BTU; 5.6 kW cooling/ heating	No.					
3.1.12.1.7	23 200 BTU; 6.8 kW cooling/ heating	No.					
3.1.12.1.8	31 700 BTU; 9.3 kW cooling/ heating	No.					
3.1.12.2	**Hide Away (Ducted) indoor Air Conditioning Unit**						
3.1.12.2.1	5100 BTU; 1.5 kW cooling/ heating	No.					
3.1.12.2.2	7500 BTU; 2.2 kW cooling/ heating	No.					
3.1.12.2.3	9600 BTU; 2.8 kW cooling/ heating	No.					
3.1.12.2.4	12 300 BTU; 3.6 kW cooling/ heating	No.					
3.1.12.2.5	15 400 BTU; 4.5 kW cooling/ heating	No.					
3.1.12.2.6	19 100 BTU; 5.6 kW cooling/ heating	No.					
3.1.12.2.7	24 200 BTU; 7.1 kW cooling/ heating	No.					
3.1.12.2.8	30 700 BTU; 9 kW cooling/ heating	No.					
3.1.12.2.9	38 200 BTU; 11.2 kW cooling/ heating	No.					
3.1.12.2.10	43 700 BTU; 12.8 kW cooling/ heating	No.					
3.1.12.2.11	47 800 BTU; 14 kW cooling/ heating	No.					
3.1.12.2.12	54 600 BTU; 16 kW cooling/ heating	No.					
3.1.12.2.13	61 400 BTU; 18 kW cooling/ heating	No.					
3.1.12.2.14	76 400 BTU; 22.4 kW cooling/ heating	No.					
3.1.12.2.15	95 500 BTU; 28 kW cooling/ heating	No.					
3.1.12.3	**Under Ceiling indoor Air Conditioning Unit**						
3.1.12.3.2	19 100 BTU; 5.6 kW cooling/ heating	No.					
3.1.12.3.3	24 200 BTU; 7.1 kW cooling/ heating	No.					
3.1.12.3.4	38 200 BTU; 11.2 kW cooling/ heating	No.					
3.1.12.3.5	47 800 BTU; 14 kW cooling/ heating	No.					
3.1.12.4	**Console (Floor standing) Air Conditioning Unit**						
3.1.12.4.1	7 500 BTU; 2.2 kW cooling/ heating	No.					
3.1.12.4.2	9 600 BTU; 2.8 kW cooling/ heating	No.					
3.1.12.4.3	12 300 BTU; 3.6 kW cooling/ heating	No.					
3.1.12.4.4	15 400 BTU; 4.5 kW cooling/ heating	No.					

3.1.12.4.5	19 100 BTU; 5.6 kW cooling/ heating	No.					
3.1.12.5	**Cassette indoor Air Conditioning Unit**						
3.1.12.5.1	5 100 BTU; 1.5 kW cooling/ heating	No.					
3.1.12.5.2	7 500 BTU; 2.2 kW cooling/ heating	No.					
3.1.12.5.3	9 600 BTU; 2.8 kW cooling/ heating	No.					
3.1.12.5.4	12 300 BTU; 3.6 kW cooling/ heating	No.					
3.1.12.5.5	15 400 BTU; 4.5 kW cooling/ heating	No.					
3.1.12.5.6	19 100 BTU; 5.6 kW cooling/ heating	No.					
3.1.12.5.7	24 200 BTU; 7.1 kW cooling/ heating	No.					
3.1.12.5.8	30 700 BTU; 9 kW cooling/ heating	No.					
3.1.12.5.9	38 200 BTU; 11.2 kW cooling/ heating	No.					
3.1.12.6	**VRV/VRF Mini heat pump (outdoor) unit:**						
3.1.12.6.1	41300 BTU; 12 kW heating/cooling; power input: 3.6 kW; EER: 3.36, COP: 4.17; R410A refrigerant	No.					
3.1.12.6.2	47800 BTU; 14 kW heating/cooling; power input: 3.69 kW; EER: 3.79, COP: 4.43; R410A refrigerant	No.					
3.1.12.6.3	52 900 BTU; 15.5 kW heating/cooling; power input: 4.31 kW; EER: 3.6; COP: 4.1; R410A refrigerant	No.					
3.1.12.6.4	76 400 BTU; 22.4 kW heating/cooling; power input: 6.9 kW; EER: 3.25; COP: 3.86; R410A refrigerant	No.					
3.1.12.6.5	95 500 BTU; 28 kW heating/cooling; power input: 7.29 kW; EER: 3.84; COP: 4.68; R410A refrigerant	No.					
3.1.12.6.6	114 300 BTU; 33.5 kW heating/cooling; power input: 8.77 kW; EER: 3.82; COP: 4.79;R410A refrigerant	No.					
3.1.12.7	**VRV/VRF heat pump (outdoor) unit:**						
3.1.12.7.1	136 500 BTU; 40 kW heating/cooling; power input: 10.93 kW; EER: 3.66; COP: 4.43; R410A refrigerant	No.					
3.1.12.7.2	153 500 BTU; 45 kW heating/cooling; power input: 11.61 kW; EER: 3.72; COP: 4.34; R410A refrigerant	No.					
3.1.12.7.3	172 000 BTU; 50.4 kW heating/cooling; power input: 11.96 kW; EER: 4; COP: 4.76; R410A refrigerant	No.					
3.1.12.7.5	191 100 BTU; 56 kW heating/cooling; power input: 14.18 kW; EER: 3.95; COP: 4.53; R410A refrigerant	No.					
3.1.12.7.6	210 200 BTU; 51.6 kW heating/cooling; power input: 17.35 kW; EER: 3.55; COP: 4.15; R410A refrigerant	No.					
3.1.12.7.7	229 300 BTU; 67.2 kW heating/cooling; power input: 17.1 kW; EER: 3.93; COP: 4.34; R410A refrigerant	No.					
3.1.12.7.8	248 400 BTU; 72.8 kW heating/cooling; power input: 18.91 kW; EER: 3.85; COP: 4.55; R410A refrigerant	No.					

3.1.12.7.9	268 200 BTU; 78.6 kW heating/cooling; power input: 20.68 kW; EER: 3.8; COP: 4.37; R410A refrigerant	No.					
3.1.12.7.10	286 600 BTU; 84 kW heating/cooling; power input: 22.7 kW; EER: 3.7; COP: 4.59; R32 refrigerant	No.					
3.1.12.8	**VRV/VRF heat recovery (outdoor) unit:**						
3.1.12.8.1	76 400 BTU; 22.4 kW heating/cooling; power input: 5 kW; EER: 4.48; COP: 4.94; R410A refrigerant	No.					
3.1.12.8.2	95 500 BTU; 28 kW heating/cooling; power input: 6.8 kW; EER: 4.12; COP: 4.7; R410A refrigerant	No.					
3.1.12.8.3	114 600 BTU; 33.6 kW heating/cooling; power input: 8.4 kW; EER: 4; COP: 4.34; R410A refrigerant	No.					
3.1.12.8.4	136 500 BTU; 40 kW heating/cooling; power input: 9.5 kW; EER: 4.49; COP: 4.74; R410A refrigerant	No.					
3.1.12.8.5	153 500 BTU; 45 kW heating/cooling; power input: 11 kW; EER: 4.09; COP: 4.38; R410A refrigerant	No.					
3.1.12.8.6	172 000 BTU; 50.4 kW heating/cooling; power input: 11.9 kW; EER: 3.91; COP: 4.76; R410A refrigerant	No.					
3.1.12.8.7	191 100 BTU; 56 kW heating/cooling; power input: 15.19 kW; EER: 3.69; COP: 4.53; R410A refrigerant	No.					
3.1.12.8.8	210 200 BTU; 51.6 kW heating/cooling; power input: 17.35 kW; EER: 3.55; COP: 4.15; R410A refrigerant	No.					
3.1.12.8.9	229 300 BTU; 67.2 kW heating/cooling; power input: 16 kW; EER: 4.2; COP: 4.8; R410A refrigerant	No.					
3.1.12.8.10	248 400 BTU; 72.8 kW heating/cooling; power input: 17.33 kW; EER: 4.2; COP: 4.8; R410A refrigerant	No.					
3.1.12.8.11	268 200 BTU; 78.6 kW heating/cooling; power input: 19.65 kW; EER: 4; COP: 4.7; R410A refrigerant	No.					
3.1.12.8.12	286 600 BTU; 84 kW heating/cooling; power input: 22.7 kW; EER: 3.7; COP: 4.59; R410A refrigerant	No.					
3.1.12.9	**VRV/VRF Branch circuit controller / branch selector:**						
3.1.12.9.1	2 ports	No.					
3.1.12.9.2	4 ports	No.					
3.1.12.9.3	6 ports	No.					
3.1.13	**DIFFUSERS** **Including all materials and accessories required for the installation to be fully functional as per manufacturers instruction.**						
3.1.13.1	200mmØ x 600 x 600mm Constant Volume Diffuser	No.					
3.1.13.2	250mmØ x 600 x 600mm Constant Volume Diffuser	No.					
3.1.13.3	300mmØ x 600 x 600mm Constant Volume Diffuser	No.					
3.1.13.4	350mmØ x 600 x 600mm Constant Volume Diffuser	No.					
3.1.13.5	200mmØ x 600 x 600mm Variable Volume Diffuser	No.					
3.1.13.6	250mmØ x 600 x 600mm Variable Volume Diffuser	No.					

3.1.13.7	300mmØ x 600 x 600mm Variable Volume Diffuser	No.					
3.1.13.8	350mmØ x 600 x 600mm Variable Volume Diffuser	No.					
3.1.13.9	150mmØ round Diffuser	No.					
3.1.13.10	200mmØ round Diffuser	No.					
3.1.14	**DOOR GRILLES**						
3.1.14.1	200 x 300mm Aluminium Powder Coated Door Grille	No.					
3.1.14.2	200 x 400mm Aluminium Powder Coated Door Grille	No.					
3.1.14.3	400 x 400mm Door Grille Aluminium Powder Coated Door Grille	No.					
3.1.14.4	300 x 600mm Aluminium Powder Coated Door Grille	No.					
3.1.14.5	600 x 600mm Aluminium Powder Coated Door Grille	No.					
3.1.15	**LOUVERS**						
3.1.15.1	300 x 300 mm Aluminium Powder Coated Louver	No.					
3.1.15.2	300 x 600mm Aluminium Powder Coated Louver	No.					
3.1.15.3	600 x 600mm Aluminium Powder Coated Louver	No.					
3.1.15.4	800 x 800mm Aluminium Powder Coated Louver	No.					
3.1.16	**EXTRACTION FANS**						
3.1.16.1	25 l/s (Window wall mounted)	No.					
3.1.16.2	50 l/s (Window Wall mounted)	No.					
3.1.16.3	55 l/s @ 80 Pa (Mixed-Flow inline fan)	No.					
3.1.16.4	78 l/s @ 80 Pa (Mixed-Flow inline fan)	No.					
3.1.16.5	110 l/s @ 100 Pa (Mixed-Flow inline fan)	No.					
3.1.16.6	140 l/s @ 100 Pa (Mixed-Flow inline fan)	No.					
3.1.16.7	170 l/s @ 150 Pa (Mixed-Flow inline fan)	No.					
3.1.16.8	217 l/s @ 150 Pa (Mixed-Flow inline fan)	No.					
3.1.16.9	250 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.16.10	300 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.16.12	400 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.16.13	500 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.17	**SUPPLY AIR FANS COMPLETE WITH 2 x SILENCERS AND FILTER / SIDE ACCESS FILTER BOX**						

3.1.17.1	25 l/s (Mixed-Flow inline fan)(Discharge/ Intake Diameter 100mm)	No.					
3.1.17.2	50 l/s (Mixed-Flow inline fan)(Discharge/ Intake Diameter 100mm)	No.					
3.1.17.3	55 l/s @ 80 Pa (Mixed-Flow inline fan)	No.					
3.1.17.4	78 l/s @ 80 Pa (Mixed-Flow inline fan)	No.					
3.1.17.5	110 l/s @ 100 Pa (Mixed-Flow inline fan)	No.					
3.1.17.6	140 l/s @ 100 Pa (Mixed-Flow inline fan)	No.					
3.1.17.7	170 l/s @ 150 Pa (Mixed-Flow inline fan)	No.					
3.1.17.8	217 l/s @ 150 Pa (Mixed-Flow inline fan)	No.					
3.1.17.9	250 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.17.10	300 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.17.12	400 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.17.13	500 l/s @ 200 Pa (Mixed-Flow inline fan)	No.					
3.1.18	**PRIMARY FILTRATION**						
3.1.18.1	**Filter Panels for Fresh Air Intake Panel Type**						
3.1.18.1.1	600 x 600 x 50 mm - Washable	No.					
3.1.18.1.2	600 x 600 x 50mm - Disposable	No.					
3.1.18.1.3	600 x 600mm Metal frame and clips	No.					
3.1.18.2	**Filter Panels for AHU Panel Type**						
3.1.18.2.1	600 x 600 x 50 mm - Washable	No.					
3.1.19	**SECONDARY FILTRATION**						
3.1.19.1	**Filter Panels for AHU Bag Filters**						
3.1.19.1.1	600 x 600 x 600 mm	No.					
3.1.19.2	**Filter Panels for AHU Hepa Filters**						
3.1.19.2.1	600 x 600 mm H14	No.					
3.1.20	**DUCTING AND ACCESSORIES**						
	(CPAP WORK GROUP 171 UNLESS OTHERWISE STATED) PREAMBLES						
3.1.20.1	**SQUARE DUCTING**						
3.1.20.1.1	Not exceeding 150mm Square non- insulated sheet metal ducting	m					
3.1.20.1.2	Exceeding 150mm and not exceeding 200mm Square non- insulated sheet metal ducting	m					

3.1.20.1.3	Exceeding 200mm and not 250mm Square non-insulated sheet metal ducting	m					
3.1.20.1.4	Exceeding 250mm and not exceeding 300mm Square non- insulated sheet metal ducting	m					
3.1.20.1.5	Exceeding 300mm and not exceeding 350mm Square non-insulated sheet metal ducting	m					
3.1.20.1.6	Exceeding 350mm and not exceeding 400mm Square non-insulated sheet metal ducting	m					
3.1.20.1.7	Not exceeding 150mm Square insulated sheet metal ducting	m					
3.1.20.1.8	Exceeding 150mm and not exceeding 200mm Square insulated sheet metal ducting	m					
3.1.20.1.9	Exceeding 200mm and not exceeding 250mm Square insulated sheet metal ducting	m					
3.1.20.1.10	Exceeding 250mm and not exceeding 300mm Square insulated sheet metal ducting	m					
3.1.20.1.11	Exceeding 300mm and not exceeding 350mm Square insulated sheet metal ducting	m					
3.1.20.1.12	Exceeding 350 mm and not exceeding 400mm Square insulated sheet metal ducting	m					
3.1.20.2	**SQUARE DUCTING - BENDS**						
3.1.20.2.1	150mm x 150mm	No.					
3.1.20.2.2	200mm x 200mm	No.					
3.1.20.2.3	250mm x 250mm	No.					
3.1.20.2.4	300mm x 300mm	No.					
3.1.20.2.5	350mm x 350mm	No.					
3.1.20.2.6	400mm x 400mm	No.					
3.1.20.3	**SQUARE DUCTING - TEES**						
3.1.20.3.1	150mm x 150mm	No.					
3.1.20.3.2	200mm x 200mm	No.					
3.1.20.3.3	250mm x 250mm	No.					
3.1.20.3.4	300mm x 300mm	No.					
3.1.20.3.5	350mm x 350mm	No.					

3.1.20.3.6	400mm x 400mm	No.					
3.1.20.4	**RECTANGULAR DUCTING**						
3.1.20.4.1	100mm x 150mm	m					
3.1.20.4.2	300mm x 200mm	m					
3.1.20.4.3	400mm x 300mm	m					
3.1.20.4.4	500mm x 400mm	m					
3.1.20.4.5	600mm x 500mm	m					
3.1.20.4.6	700mm x 600mm	m					
3.1.20.4.7	800mm x 700mm	m					
3.1.20.4.8	900mm x 800mm	m					
3.1.20.4.9	100mm x 900mm	m					
3.1.20.4.10	1500mm x 1000mm	m					
3.1.20.5	**RECTANGULAR DUCTING - BENDS**						
3.1.20.5.1	100mm x 150mm	No.					
3.1.20.5.2	300mm x 200mm	No.					
3.1.20.5.3	400mm x 300mm	No.					
3.1.20.5.4	500mm x 400mm	No.					
3.1.20.5.5	600mm x 500mm	No.					
3.1.20.5.6	700mm x 600mm	No.					
3.1.20.5.7	800mm x 700mm	No.					
3.1.20.5.8	900mm x 800mm	No.					
3.1.20.5.9	100mm x 900mm	No.					
3.1.20.5.10	1500mm x 1000mm	No.					
3.1.20.6	**RECTANGULAR DUCTING - TEES**						
3.1.20.6.1	100mm x 150mm	No.					
3.1.20.6.2	300mm x 200mm	No.					
3.1.20.6.3	400mm x 300mm	No.					

3.1.20.6.4	500mm x 400mm	No.					
3.1.20.6.5	600mm x 500mm	No.					
3.1.20.6.6	700mm x 600mm	No.					
3.1.20.6.7	800mm x 700mm	No.					
3.1.20.6.8	900mm x 800mm	No.					
3.1.20.6.9	100mm x 900mm	No.					
3.1.20.6.10	1500mm x 1000mm	No.					
3.1.20.7	**SPIRAL DUCTING**						
3.1.20.7.1	Not exceeding 100mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.2	Exceeding 100mmØ and not exceeding 150mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.3	Exceeding 150mmØ and not exceeding 200mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.4	Exceeding 200mmØ and not exceeding 250mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.5	Exceeding 250mmØ and not exceeding 300mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.6	Exceeding 300mmØ and not exceeding 350mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.7	Exceeding 350mmØ and not exceeding 400mmØ Round spiral non-insulated sheet metal ducting	m					
3.1.20.7.8	Not exceeding 100mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.9	Exceeding 100mmØ and not exceeding 150mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.10	Exceeding 150mmØ and not exceeding 200mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.11	Exceeding 200mmØ and not exceeding 250mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.12	Exceeding 250mmØ and not exceeding 300mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.13	Exceeding 300mmØ and not exceeding 350mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.7.14	Exceeding 350mmØ and not exceeding 400mmØ Round spiral insulated sheet metal ducting	m					
3.1.20.8	**SPIRAL DUCTING - BENDS**						
3.1.20.8.1	Not exceeding 100mmØ Round spiral	No.					
3.1.20.8.2	Exceeding 100mmØ and not exceeding 150mmØ Round spiral	No.					

3.1.20.8.3	Exceeding 150mmØ and not exceeding 200mmØ Round spiral	No.					
3.1.20.8.4	Exceeding 200mmØ and not exceeding 250mmØ Round spiral	No.					
3.1.20.8.5	Exceeding 250mmØ and not exceeding 300mmØ Round spiral	No.					
3.1.20.8.6	Exceeding 300mmØ and not exceeding 350mmØ Round spiral	No.					
3.1.20.8.7	Exceeding 350Ø and not exceeding 400mmØ Round spiral	No.					
3.1.20.9	**SPIRAL DUCTING - TEES**						
3.1.20.9.1	Not exceeding 100mmØ Round spiral	No.					
3.1.20.9.2	Exceeding 100mmØ and not exceeding 150mmØ Round spiral	No.					
3.1.20.9.3	Exceeding 150mmØ and not exceeding 200mmØ Round spiral	No.					
3.1.20.9.4	Exceeding 200mmØ and not exceeding 250mmØ Round spiral	No.					
3.1.20.9.5	Exceeding 250mmØ and not exceeding 300mmØ Round spiral	No.					
3.1.20.9.6	Exceeding 300mmØ and not exceeding 350mmØ Round spiral	No.					
3.1.20.9.7	Exceeding 350Ø and not exceeding 400mmØ Round spiral	No.					
3.1.20.10	**FLEXIBLE DUCTING**						
3.1.20.10.1	Not exceeding 100mmØ Insulated flexible ducting	m					
3.1.20.10.2	Not exceeding 100mmØ Un-insulated flexible ducting	m					
3.1.20.10.3	Exceeding 100mmØ and not exceeding 150mmØ Insulated flexible ducting	m					
3.1.20.10.4	Exceeding 100mmØ and not exceeding 150mmØ Un-insulated flexible ducting	m					
3.1.20.10.5	Exceeding 150mmØ and not exceeding 200mmØ Un-insulated flexible ducting	m					
3.1.20.10.6	Exceeding 150mmØ and not exceeding 200mmØ insulated flexible ducting	m					
3.1.20.10.7	Exceeding 200mmØ and not exceeding 250mmØ Un-insulated flexible ducting	m					
3.1.20.10.8	Exceeding 200mmØ and not exceeding 250mmØ insulated flexible ducting	m					
3.1.20.10.9	Exceeding 250mmØ and not exceeding 300mmØ un-insulated flexible ducting	m					
3.1.20.10.10	Exceeding 250mmØ and not exceeding 300mmØ insulated flexible ducting	m					
3.1.20.10.11	Exceeding 300mmØ and not exceeding 350mmØ Un-insulated flexible ducting	m					
3.1.20.10.12	Exceeding 300mmØ and not exceeding 350mmØ insulated flexible ducting	m					

3.1.20.11	**REDUCERS**						
3.1.20.11.1	Not exceeding Ø400mm Spiral duct	No.					
3.1.20.11.2	Exceeding Ø400mm and not exceeding Ø1000mm Spiral duct	No.					
3.1.20.11.3	500mm x 500mm - 200mm x 200mm Square duct	No.					
3.1.20.11.4	1000mm x 1000mm - 600mm x 600mm Square duct	No.					
3.1.20.11.5	500mm x 400mm - 200mm x 150mm Rectangular duct	No.					
3.1.20.11.6	1500mm x 1000mm - 600mm x 500mm Square duct	No.					
3.1.20.12	**FIRE DAMPERS**						
3.1.20.12.1	150mm Square fusible link fire damper	No.					
3.1.20.12.2	200mm Square fusible link fire damper	No.					
3.1.20.12.3	250mm Square fusible link fire damper	No.					
3.1.20.12.4	300mm Square fusible link fire damper	No.					
3.1.20.12.5	350mm Square fusible link fire damper	No.					
3.1.20.12.6	400mm Square fusible link fire damper	No.					
3.1.20.12.7	150mmØ Round fusible link fire damper	No.					
3.1.20.12.8	200mmØ Round fusible link fire damper	No.					
3.1.20.12.9	250mmØ Round fusible link fire damper	No.					
3.1.20.12.10	300mmØ Round fusible link fire damper	No.					
3.1.20.12.11	350mmØ Round fusible link fire damper	No.					
3.1.20.12.12	400mmØ Round fusible link fire damper	No.					
3.1.20.13	**ALUMINIUM POWDER COATED DIFFUSERS AND VALVES**						
3.1.20.13.1	**AIR DIFFUSER**						
3.1.20.13.1.1	Ø 200mm Constant volume Circular disc diffuser	No.					
3.1.20.13.1.2	Ø 250mm Constant volume Circular disc diffuser	No.					
3.1.20.13.1.3	Ø 350mm Constant volume Circular disc diffuser	No.					
3.1.20.13.1.4	Ø 150mm Swirl diffuser	No.					
3.1.20.13.1.5	Ø 200mm Swirl diffuser	No.					

3.1.20.13.1.6	Ø 250mm Swirl diffuser	No.					
3.1.20.13.1.7	Ø 300mm Swirl diffuser	No.					
3.1.20.13.1.8	Ø 350mm Swirl diffuser	No.					
3.1.20.13.1.9	Ø 400mm Swirl diffuser	No.					
3.1.20.13.2	**QUADRANT DAMPER**						
3.1.20.13.2.1	Ø 150mm Damper	No.					
3.1.20.13.2.2	Ø 200mm Damper	No.					
3.1.20.13.2.3	Ø 250mm Damper	No.					
3.1.20.13.3	**AIR VALVES**						
3.1.20.13.3.1	Ø 100mm	No.					
3.1.20.13.3.2	Ø 150mm	No.					
3.1.20.13.3.3	Ø 200mm	No.					
3.1.20.13.4	**EXTRACT VALVES**						
3.1.20.13.4.1	Ø 70mm	No.					
3.1.20.13.4.2	Ø 100mm	No.					
3.1.20.13.4.3	Ø 150mm	No.					
3.1.20.13.4.4	Ø 200mm	No.					
3.1.20.14	**ALUMINIUM POWDER COATED GRILLES & LOUVRES**						
3.1.20.14.1	**GRILLES + OBD**						
3.1.20.14.1.1	200mm x 200mm	No.					
3.1.20.14.1.2	300mm x 300mm	No.					
3.1.20.14.1.3	400mm x 400mm	No.					
3.1.20.14.1.4	500mm x 500mm	No.					
3.1.20.14.1.5	600mm x 600mm	No.					
3.1.20.14.2	**DOOR GRILLES - BACK TO BACK (NATURAL ANODIZED FINISH)**						
3.1.20.14.2.1	200mm x 150mm	No.					
3.1.20.14.2.2	300mm x 200mm	No.					
3.1.20.14.2.3	400mm x 300mm	No.					
3.1.20.15	**WEATHER LOUVRES NO OBD + VERMIN MESH**						

3.1.20.15.1	300mm x 300mm	No.					
3.1.20.15.2	400mm x 400mm	No.					
3.1.20.15.3	500mm x 500mm	No.					
3.1.20.15.4	600mm x 600mm	No.					
3.1.20.15.5	700mm x 700mm	No.					
3.1.20.15.6	800mm x 800mm	No.					
3.1.20.16	**HVAC/ DUCT INSULATION**						
3.1.20.16.1	35 mm FRK	m²					
3.1.20.17	**HVAC/ DUCT INSULATION CLADDING ALUMINIUM / GALVANISED SHEETING**						
3.1.20.17.1	External ducting	m²					
3.1.20.18	**CONTROLLERS**						
3.1.20.18.1	Hard-wired remote controller for indoor units	No.					
3.1.20.18.2	Infrared remote controllers for indoor units	No.					
3.1.21	**ELECTRIC MOTORS** **Electric Driven Motors for Fans / Pumps** **Factory Manufactured Motors as Specified - 220 V / 380 V - 50 Hz** **Electric Motors including mounting and lining up / connection to Fans / Pumps** **Electrical Connection Testing / Commissioning .**						
3.1.21.1	0.5 KW to 0.75 KW	No.					
3.1.21.2	0.75 KW to 1,1 KW	No.					
3.1.21.3	1.1 KW to 2.5 KW	No.					
3.1.21.4	2,5 KW to 5.5 KW	No.					
3.1.21.5	5.5 KW to 7.5 KW	No.					
3.1.21.6	7.5 KW to 12 KW	No.					
3.1.21.7	12 KW to 25 KW	No.					
3.1.21.8	25 KW to 45 KW	No.					
3.1.21.9	55 KW to 75 KW	No.					

3.1.21.10	75 KW to 90 KW	No.					
3.1.22	**AIR CONDITIONING ACCESSORIES R410A & R32 REFRIGERANT GRADE COPPER PIPING**						
3.1.22.1	1/4" Copper Piping with insulation	m					
3.1.22.2	3/8" Copper Piping with insulation	m					
3.1.22.3	1/2" Copper Piping with insulation	m					
3.1.22.4	5/8" Copper Piping with insulation	m					
3.1.22.5	3/4" Copper Piping with insulation	m					
3.1.22.6	7/8" Copper Piping with insulation	m					
3.1.22.7	1 & 1/8" Copper Piping with insulation	m					
3.1.22.8	Extra over for jointing to existing piping	No.					
3.1.23	**TRUNKING**						
3.1.23.1	100 x 75mm Galvanized trunking for external use	m					
3.1.23.2	1 x 70 Galvanized Trunking	m					
3.1.23.3	100 x 40mm PVC	m					
3.1.23.4	40 x 40mm PVC	m					
3.1.23.5	25 x 16mm PVC	m					
3.1.23.6	16 x 16mm PVC	m					
3.1.23.7	1 x 16 EGA Trunking PVC	m					
3.1.23.8	1 x 40 EGA Trunking PVC	m					
3.1.24	**CONDENSATE PIPING AND FITTINGS**						
3.1.24.1	20mm Pressure Pipe (Blue)	m					
3.1.24.2	20mm Coupling (Grey)	No.					
3.1.24.3	20mm Bend (Grey)	No.					
3.1.24.4	20mm T Piece (Grey)	No.					
3.1.24.5	20mm Union (Grey)	No.					

3.1.24.6	25mm Pressure Pipe (Blue)	m					
3.1.24.7	25mm Coupling (Grey)	No.					
3.1.24.8	25mm Bend (Grey)	No.					
3.1.24.9	25mm T Piece (Grey)	No.					
3.1.24.10	25mm Union (Grey)	No.					
3.1.24.11	32mm Pressure Pipe (Blue)	m					
3.1.24.12	32mm Coupling (Grey)	No.					
3.1.24.13	32mm Bend (Grey)	No.					
3.1.24.14	32mm T Piece (Grey)	No.					
3.1.24.15	32mm Union (Grey)	No.					
3.1.24.16	40mm Pressure Pipe (Blue)	m					
3.1.24.17	40mm Coupling (Grey)	No.					
3.1.24.18	40mm Bend (Grey)	No.					
3.1.24.19	40mm T Piece (Grey)	No.					
3.1.24.20	40mm Union (Grey)	No.					
3.1.25	**CONDENSATE PUMP**						
3.1.25.1	Aspen or equivalent inline condensate pump trunk kit.	No.					
3.1.26	**GALVANIZED ANTI-THEFT CONDENSOR CAGES To secure Condensor Units with anti-theft cage complete with all accessories and padlocks etc. Refer to Project specification.**						
3.1.26.1	To secure 9 000 to 18 000 BTU Condensor Unit with anti-theft cage complete with all accessories and padlocks etc.	No.					
3.1.26.2	To secure 19 000 to 30 000 BTU Condensor Unit with anti-theft cage complete with all accessories and padlocks etc.	No.					
3.1.26.3	To secure 31 000 to 60 000 BTU Condensor Unit with anti-theft cage complete with all accessories and padlocks etc.	No.					
4	**BILL NO. 4**						
4.1	**ELECTRICAL**						
	(CPAP WORK GROUP 160 UNLESS OTHERWISE STATED)						
	PREAMBLES **For preambles refer to "The General Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors"**						

	Rates for items in their respective trades throughout this entire schedule of rates will be deemed to include for the necessary preliminary and general cost (supply and labour for installation of items, unless otherwise specified) in its entirety as it may apply. The tenderer is referred to the pricing assumptions in part C2.1 in this document. Prices for all items hereunder are deemed to include for the following: - scaffolding up to 2.5m high - work both inside and outside of existing buildings - carting all materials to work area to maximum 4 storeys high, whether internal or external - cleaning up of work area upon completion - protecting of existing premises - work in small quantities - All plant, equipment and tools required to carry out the work.						
4.1.1	**ELECTRICAL POWER SUPPLY CABLE**						
4.1.1.1	3 core 1.5mm cabtire	m					
4.1.1.2	3 core 2.5mm cabtire	m					
4.1.1.3	1.5mm twin and earth	m					
4.1.1.4	2.5mm twin and earth	m					
4.1.1.5	4mm twin and earth	m					
4.1.1.6	5 core 1.5mm cabtire	m					
4.1.1.7	5 core 2.5mm cabtire	m					
4.1.1.8	7 core 2.5mm cabtire	m					
4.1.1.9	1.5 mm x2 core surfix white/black cable	m					
4.1.1.10	2.5 mm x2 core surfix white/black cable	m					
4.1.1.11	4 mm x2 core surfix white/black cable	m					
4.1.1.12	1.5 mm x3 core surfix white/black cable	m					
4.1.1.13	2.5 mm x3 core surfix white/black cable	m					
4.1.1.14	4 mm x3 core surfix white/black cable	m					
4.1.2	**ISOLATOR BOX**						
4.1.2.1	4 x 4 double pole weather proof PVC rotary switch isolator	No.					
4.1.2.2	4 x 4 triple pole weather proof PVC rotary switch isolator	No.					
4.1.3	**MINIATURE CIRCUIT BREAKER**						
4.1.3.1	5amp orange lever single pole	No.					

4.1.3.2	10amp orange lever single pole	No.					
4.1.3.3	15amp orange lever single pole	No.					
4.1.3.4	20amp orange lever single pole	No.					
4.1.3.5	25amp orange lever single pole	No.					
4.1.3.6	30amp orange lever single pole	No.					
4.1.3.7	15amp orange lever triple pole	No.					
4.1.3.8	20amp orange lever triple pole	No.					
4.1.3.9	25amp orange lever triple pole	No.					
4.1.3.10	30amp orange lever triple pole	No.					
4.1.3.11	40amp orange lever triple pole	No.					

Yours Faithfully,

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On behalf of Director: Supply Chain Management

WRITTEN ACKNOWLEDGEMENT OF RECEIPT FOR 245Q/2024/25

At …… on this …… Day of …… 2025.

Signature: ……

Name of Signatory: ……
(in ink and capitals)

TENDERER: ……
(Legal Name of tendering entity in ink and capitals)