

1. EQUIPMENT SCHEDULE

FNB FERNDALE:

| Aurecon Reference Number | Serving | Make | Qty |
|--------------------------|----------------------------|-------------|-------|
| AHU-FF-1 | Open Plan Office Spaces | Systems Air | 1-off |
| AHU-FF-2 | Reception | Systems Air | 1-off |
| AHU-FF-3 | Open Plan Office Spaces | Systems Air | 1-off |
| AHU-GR-1 | Call Center Open Plan Area | Systems Air | 1-off |
| AHU-GR-2 | Call Center Open Plan Area | Systems Air | 1-off |
| AHU-GR-3 | Call Center Open Plan Area | Systems Air | 1-off |
| AHU-GR-4 | Call Center Open Plan Area | Systems Air | 1-off |
| AHU-GR-5 | Open Plan Office Spaces | Systems Air | 1-off |
| AHU-GR-6 | Open Plan Office Spaces | Systems Air | 1-off |

AHU GR-1



30-11-2020

REVISION 03

| UNIT SPECIFICATION | | | |
|--|-------------------|---|-------|
| Unit Identification Number | | AHU GR-1 | |
| Quantity | | 1 | 1 |
| Typ (CAV,VAV,FA) | | VAV | |
| Unit Arrangement | H/V | Vertical | |
| Supply Air Flow | m ³ /s | 4.000 | 4.00 |
| Outside Air Flow | m ³ /s | 0.300 | 0.30 |
| Return Air Flow | m ³ /s | 3.700 | 3.70 |
| Total Cooling (Required) | kW | 80.30 | 80.30 |
| Total Cooling (Supplied) | kW | 77.32 | 77.32 |
| Sensible Load (Supplied) | kW | 61.78 | 61.78 |
| Heating | kW | 37.50 | |
| Supply Air Fan Type | Type | EC PLUG FAN | |
| Supply Air Fan VSD | Yes/No | YES - EC MOTOR | |
| Baseframe Specification | Name | 2mm BLUNT UP GALVANISED BASE | |
| Flooring type | Type | 3mm Aluminium "Vastrap" | |
| Housing Details | Name | 25mm Polystyrene Panels + 0.5 mm Chromadek interior & Exterior Finish | |
| Filters | G4/F7/F8/H13 | G4 - Pleated- Washable Type | |
| External Static | Pa | 350 | |
| Unit Handlings + Access | | | |
| Coil connect handling - LH or RH | LH/RH | RH | |
| Condensate drain connect - LH or RH | LH/RH | RH | |
| Fan access - LH or RH | LH/RH | RH | |
| Filter access - LH or RH | LH/RH | RH | |
| OA damper location - LH or RH or Top or Back | | Top | |
| RA damper location - LH or RH or Top or Back | LH/RH | Front | |
| Fan discharge - Vertical or Horizontal | | Vertical | |
| Duct direction - Left or Right or Toward or Away or Down | # | Toward | |
| Filters | | | |
| Filter Quantity | No. | 6 x500*600 | |
| Filter Height | mm | 1200 | |
| Filter Width | mm | 1500 | |
| Filter Velocity | m/s | 2.22 | |
| Filter Type - Primary | | G4 - Pleated- Washable Type | |
| Arrestance Level | % | 60 | |
| Supply Air Connections | | | |
| Duct Connection Width | mm | 1400 | |
| Duct Connection Height | mm | 400 | |
| Flow Velocity | m/s | 7.14 | |
| Return Air Connections | | | |
| Duct Connection Width | mm | 800 | |
| Duct Connection Height | mm | 900 | |
| Flow Velocity | m/s | 5.14 | |
| Outside Air Damper and Louvre | | | |
| Duct Connection Width | mm | 1500 | |
| Duct Connection Height | mm | 1000 | |
| Flow Velocity | m/s | 2.67 | |

SUPPLY FAN PERFORMANCE DATA

FanGrid

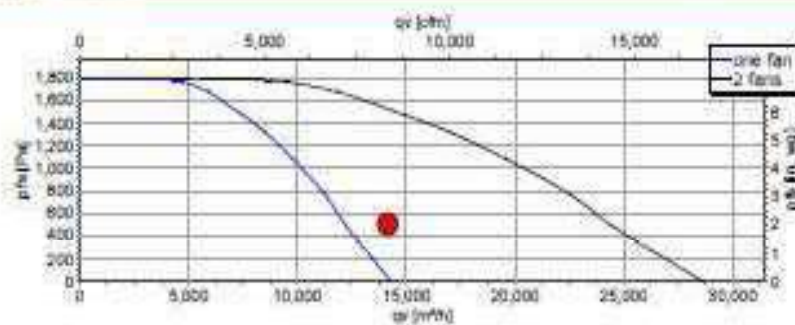
| FanGrid data | | | Input | |
|--------------------|------|--------------|-----------------------------|---------|
| Type (mid-205097) | | K30450PA3103 | Redundant fans | 0 |
| Type code | | V8H0450FTTL8 | Max. FanGrid width | mm 2100 |
| Number of fans | | 2 | Max. FanGrid height | mm 2100 |
| Energy consumption | kWh | 26052 | with backward flow | no |
| Phase / Voltage | Ph/V | 3~ 380...450 | Calc. method air power loss | no |
| Speed factor | % | 70 | | |

| Nominal fan data | | | Ambient conditions | | |
|---------------------|-------|-------|------------------------------|-------------------|--------|
| Voltage | VAC | 400 | p calculated to | kg/m ³ | 1.200 |
| Frequency | Hz | 50/60 | p measured at | kg/m ³ | 1.153 |
| Speed | 1/min | 2480 | Available installation space | | |
| Power input | W | 4450 | Width per fan | mm | 2100 |
| Current draw | A | 8.8 | Height per fan | mm | 1050 |
| Minimal temperature | °C | -40 | Fan size (nominal/average) | mm | 470/55 |
| Maximal temperature | °C | 40 | with intake finger guard | | no |

Operating points of FanGrid

| OP | qv[m ³ /h] | p _{st} [Pa] | t[h] | tes[%] | ted[%] | P _{ed} [W] | n[1/min] | SFP | U _{ctrl} [V] | p _d [Pa] | I[A] | E[kWh] | P _v [W] | η _r [%] | η _{st} [%] | η _{tot} [%] |
|------|-----------------------|----------------------|------|--------|--------|---------------------|----------|-------|-----------------------|---------------------|------|--------|--------------------|--------------------|---------------------|----------------------|
| 1 | 14170 | 500 | 5762 | 61 | 67 | 3202 | 1728 | 0.814 | 5.9 | 48.8 | 5.1 | 26052 | 0.0 | 89 | 70 | 80 |
| p.s. | | | 5762 | | | | | | | | | 26052 | | | | |

Air performance



q_v = air flow
 p_{st} = static pressure
 t = Operating time [h]
 U_{ctrl} = control voltage
 η_{es} = overall static efficiency - includes fan, motor, drive (W2A)
 η_{ed} = overall total efficiency - includes fan, motor, drive (W2A)
 P_{ed} = electrical input power - includes fan, motor, drive (W2A)
 n = fan speed
 E = energy consumption
 I = current
 p_d = dynamic pressure ($p_d = \rho \cdot v_m^2 / 2$)
 P_v [W] = Power loss due to installation
 SFP = specific fan power [SFP/(kW/(m³/s))]
 η_r = efficiency total fan impeller
 η_{st} = efficiency static fan impeller
 η_{tot} = efficiency motor

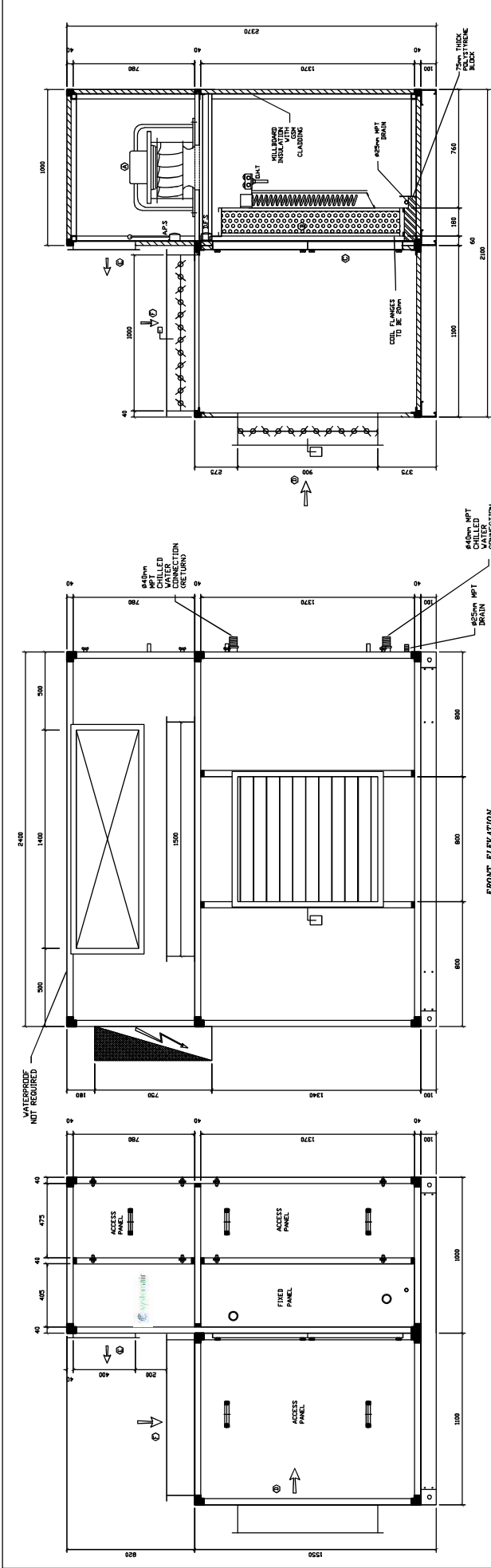
AHU GR-1



30-11-2020

REVISION 03

| EVAPORATOR COIL | | | |
|---------------------------------|----------|---|--|
| Number of coils | no | 1 | |
| Coil Model Number | | PCW - 4B - 34 x 1500 x 4R x 12F x 17C - CU/Al | |
| FLUID | | H2O | |
| Altitude | m | 1700 | |
| On Coil Conditions | °C db/wb | 26/16.8 | |
| RH On | % | 42.39 | |
| Off Coil Conditions Offered | °C db/wb | 10.34/10.06 | |
| RH Off | % | 96.88 | |
| Rows/Fins | NO | 4row/12fin | |
| Tubes High | No | 34.00 | |
| Coil Height | mm | 1073.5 | |
| Coil Width | mm | 1500 | |
| Coil face Velocity | m/s | 2.49 | |
| Air Pressure Drop | Pa | 59.17 | |
| Dehumidification Rate | kg/hr | 22.49 | |
| Temp In | °C | 6.00 | |
| Temp Out | K | 12.01 | |
| Fluid Pressure Drop | kPa | 37.45 | |
| Volume Flow | l/s | 3.07 | |
| Total Cooling Capacity Coil | kW | 77.32 | |
| Total Sensible Cooling Capacity | kW | 61.76 | |
| Latent Capacity | kW | 15.54 | |
| Electric Heaters | | | |
| Capacity Required | kW | 37.50 | |
| Capacity Supplied | kW | 42 | |
| Unit Dimensions | | | |
| Unit Length | mm | 2400 | |
| Unit Width | mm | 2100 | |
| Unit Height | mm | 2370 | |
| Approximate Unit Mass | Kg | 800 | |



SIDE ELEVATION
SHOWING ACCESS
PANELS

FRONT ELEVATION

SECTION THRU

- NOTE
1. DRIPTRAY TO BE S/S INSULATED UNDERNEATH
 2. COIL FLASHING TO BE GSM
 3. UNIT COLOUR - WHITE CHROMADEK EXTERNAL & INTERNAL WITH FIRE RETARDANT POLYSTYRENE
 4. BASE TO BE BEND UP GSM
 5. APPROXIMATE UNIT RIGGING WEIGHT - 750kg

| LEGEND | |
|---------|-------------------------------|
| D.F.S | DIRTY FILTER SWITCH - 0-100PA |
| L.S | LIGHT SWITCH |
| F.L.D.S | FAN LOCK OUT SWITCH |
| A.P.S | AIR PRESSURE SWITCH - 0-500PA |

HEATING ARRANGEMENT

STEP 1: 3 X 4KW = 12KW 600LNG COIL D/S
STEP 2: 3 X 4KW = 12KW 600LNG COIL D/S
STEP 3: 6 X 3KW = 18KW 600LNG COIL D/S

1 OFF REQ'D

UNIT REF: AHU-GR-1

| EQUIPMENT SCHEDULE | | | | | | |
|--------------------|-----|----------------------------|--------------|-----------------|---------------|----------------|
| ITEM | QTY | DESCRIPTION | MODEL | DIMENSIONS (MM) | CAPACITY (KW) | VELOCITY (M/S) |
| A | 2 | SUPPLY AIR FAN | K3C40AP3103 | - | 4.45 | 4.00 |
| B | 1 | COOLING COIL | 1500X1079.5H | - | 77.32 | 2.43 |
| C | 6 | PRIMARY FILTERS | WASHABLE V | 500X600X400 | - | 2.24 |
| D | 1 | RETURN AIR DAMPER | ALUMINIUM | 500X1800H | - | 5.35 |
| E | 1 | SUPPLY AIR SPRIDOT | GSM | 1400X400H | - | 7.03 |
| F | 1 | OUTSIDE AIR & COOLING COIL | ALUMINIUM | 1800X1200H | - | 2.87 |
| G | 1 | SWITCHBOARD | ALUMINIUM | 510X750X270 | - | - |
| H | 6 | HEATER ELEMENTS | 40W & 30W | 600LNG | 42 | - |

| | | | | | |
|-----------------------------|----------|-------------------|----------|---------|----------|
| 02 | 27/11/20 | REDESIGN | JARYD L. | STAN B. | CRAB W. |
| 01 | 13/11/20 | COILS RESELECT | JARYD L. | STAN B. | CRAB W. |
| 00 | 09/11/20 | ISSUED FOR REVIEW | JARYD L. | STAN B. | CRAB W. |
| REV | DATE | DESCRIPTION | PREPARED | CHECKED | APPROVED |
| MANUFACTURING ORDER NUMBER: | | | | | |
| PROJECT: | | | | | |
| FNB FERNDAL | | | | | |
| SCALE: 1:25 | | | | | |
| SHEET NO. 1/1 | | | | | |
| PAGE 5 | | | | | |
| A3 | | | | | |

| | |
|--|--|
| UNIT REFERENCE: | AHU-GR-1 |
| MODEL No: | SYS-AH-V-7 |
| DRAWING No: | VE - M - 4M - P |
| SYSTEM JOB NO. DISCIPLINE DWG NO. STATUS | SYSTEM JOB NO. DISCIPLINE DWG NO. STATUS |
| HIGH LEVEL MANUFACTURING ORDER NUMBER: | |



STATUS CODES:

RAREPORT
E-ENQUIRY
PAPER PRIMARY
A3
A4
A5
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