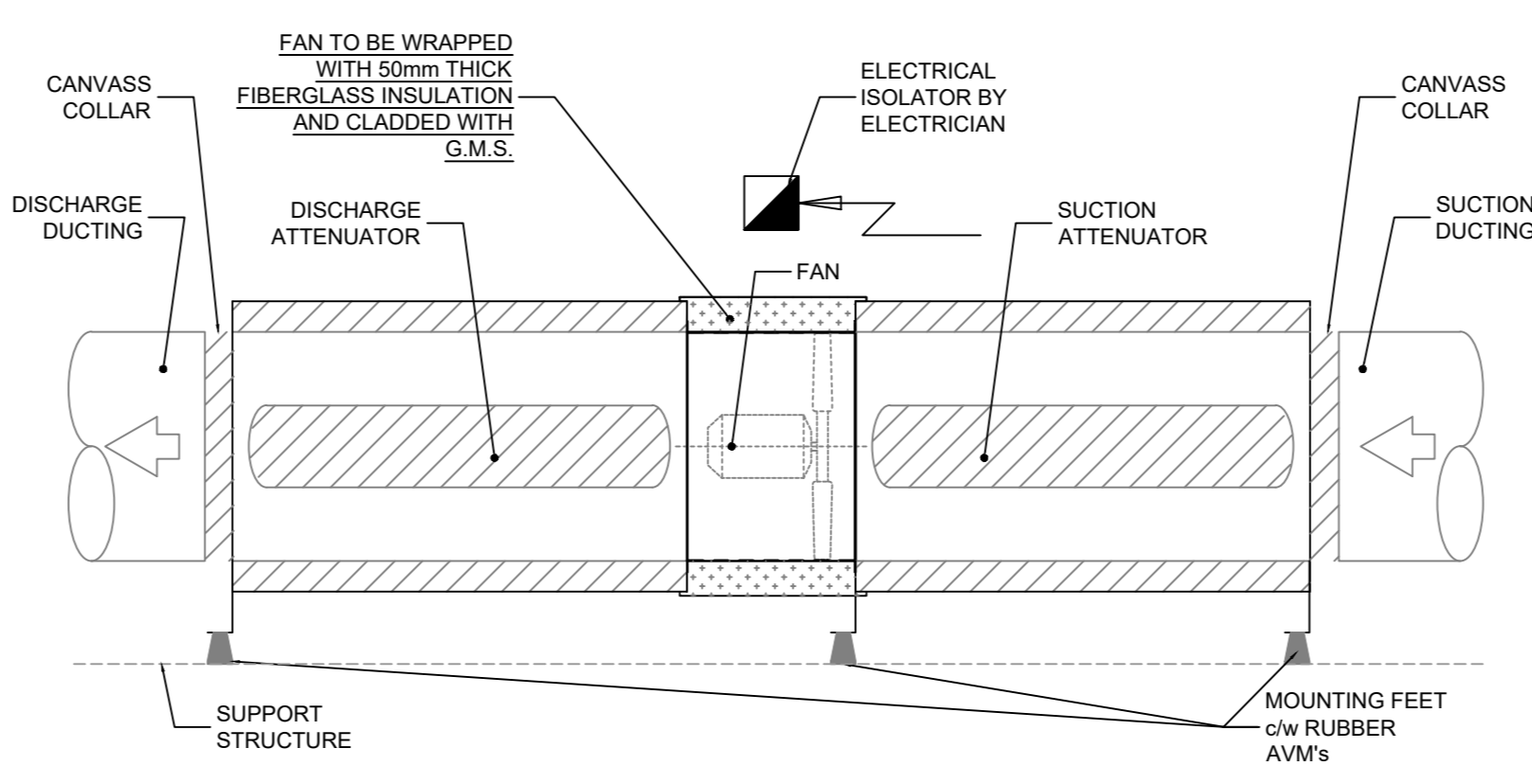
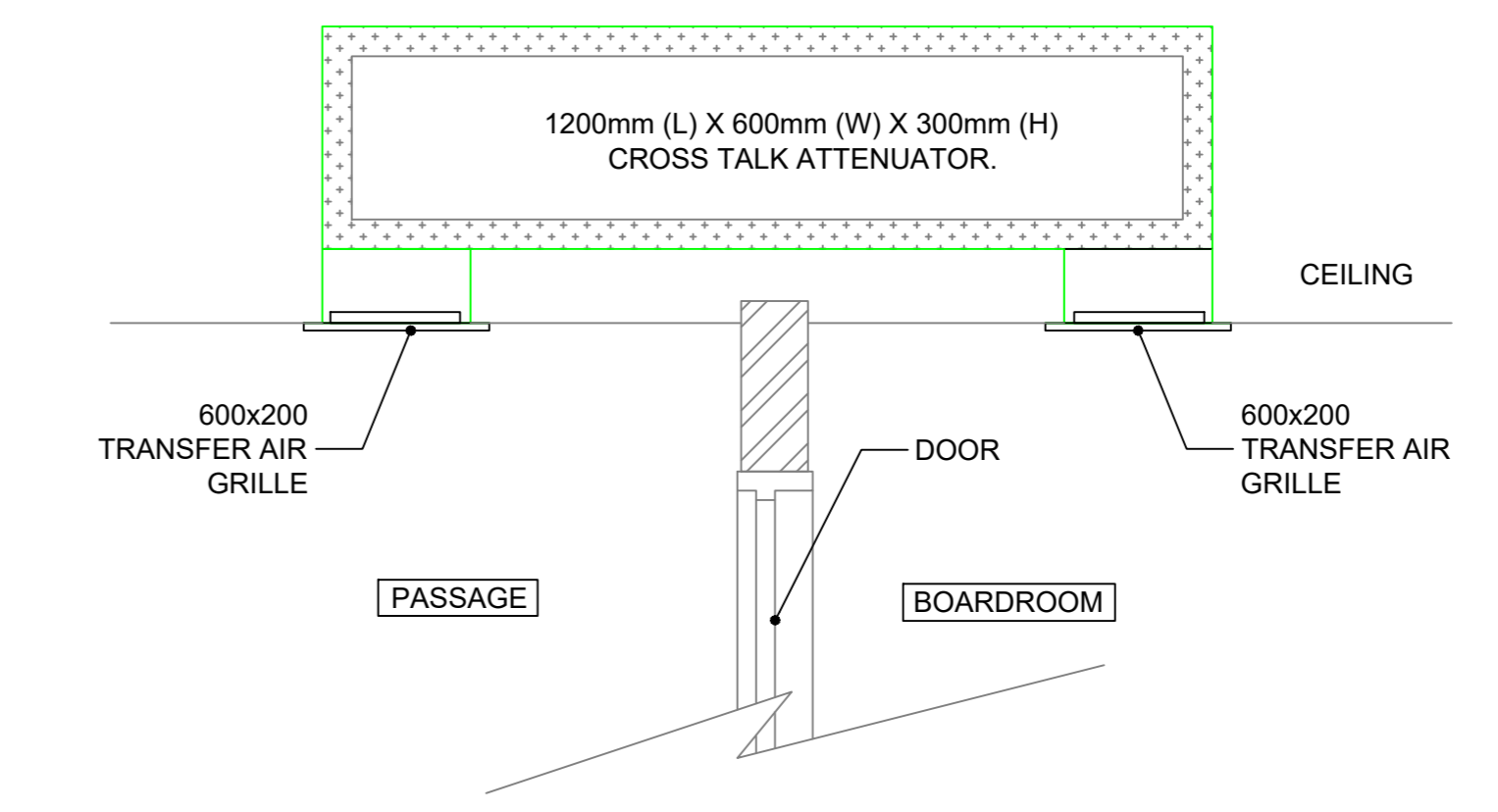




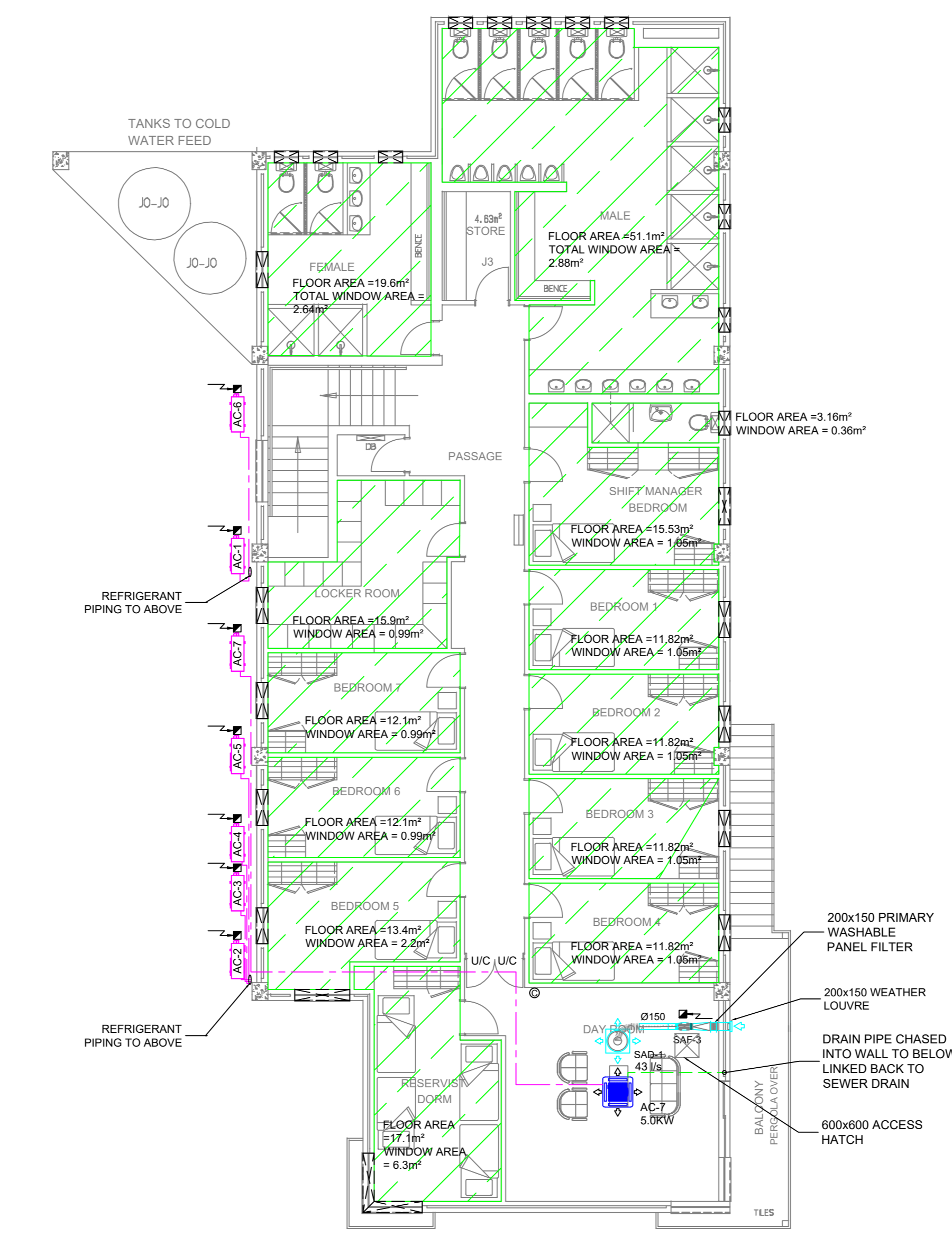
HVAC LAYOUT - GROUND FLOOR PLAN (SCALE 1:100)



DETAIL A: TYPICAL FAN DETAIL (SCALE 1:25)



DETAIL B: CROSS TALK ATTENUATORS DETAIL (SCALE 1:10)



HVAC LAYOUT - FIRST FLOOR PLAN (SCALE 1:100)

PRESSURE DROP CALCULATION

ITEM	DESCRIPTION	SAF-1	SAF-2	SAF-3	EAF-1
1	Weather Louvre	30 Pa	30 Pa	30 Pa	30 Pa
2	Filter	80 Pa	80 Pa	80 Pa	-
3	Sound Attenuator (suction)	10 Pa	-	-	10 Pa
4	Sound Attenuator (discharge)	10 Pa	-	-	10 Pa
5	Ducting	15 Pa	2 Pa	2 Pa	12 Pa
6	Grilles	40 Pa	40 Pa	40 Pa	40 Pa
	Safety Factor (10%)	19 Pa	14 Pa	14 Pa	11 Pa
	Total	204 Pa	168 Pa	168 Pa	113 Pa

GRILLE / DIFFUSER / DAMPER SCHEDULE

REFERENCE	QTY	MANUFACTURER	STATUS	MODEL	DESCRIPTION	AIR QUANTITY	FINISH
SAD-1	4	-	NEW	Ø150 CONSTANT VOLUME	SUPPLY AIR DIFFUSER	AS SHOWN	WHITE
SAV-1	3	-	NEW	Ø100	SUPPLY AIR DIFFUSER	AS SHOWN	WHITE
DV-1	1	-	NEW	Ø150	SUPPLY AIR DIFFUSER	AS SHOWN	WHITE
DV-2	1	-	NEW	Ø200	EXTRACT GRILLE	AS SHOWN	WHITE
WL-1	2	-	NEW	800x250 WEATHER LOUVRE	WEATHER LOUVRE	AS SHOWN	WHITE
WL-2	1	-	NEW	300x150 WEATHER LOUVRE	WEATHER LOUVRE	AS SHOWN	WHITE
WL-3	1	-	NEW	200x150 WEATHER LOUVRE	WEATHER LOUVRE	AS SHOWN	WHITE
SAG-1	1	-	NEW	350x150 SUPPLY AIR GRILLE	SUPPLY AIR GRILLE	AS SHOWN	WHITE
SAG-2	1	-	NEW	350x150 EXTRACT AIR GRILLE (L002)	EXTRACT AIR GRILLE (L002)	AS SHOWN	WHITE
DG	4	-	NEW	400x300 DOOR GRILLE	DOOR GRILLE	AS SHOWN	WHITE

NOTE: ALL GRILLE / FLOUVER SIZES INDICATED ARE HECK SIZES.

FAN SCHEDULE

REFERENCE	MANUFACTURER	MODEL	DESCRIPTION	DUTY	ATTENUATORS	ELECTRICAL REQUIREMENTS	QUANTITY	CONTROL
SAF-1	AMS	TD2000315 (SILENT)	Ø315 MIXVENT	389 l/s @ 267Pa	2-OFF 600mm LONG SONEX	0.265 kw / 1/0	1	24 HR/7DAY TIMER (BY ELECTRICIAN)
SAF-2	AMS	TD600190 (SILENT)	Ø160 MIXVENT	90 l/s @ 168Pa	-	0.054 kw / 1/0	1	24 HR/7DAY TIMER (BY ELECTRICIAN)
SAF-3	AMS	TD600190 (SILENT)	Ø160 MIXVENT	43 l/s @ 168Pa	-	0.265 kw / 1/0	1	24 HR/7DAY TIMER (BY ELECTRICIAN)
EAF-1	AMS	TD2000315 (SILENT)	Ø315 MIXVENT	369 l/s @ 113Pa	2-OFF 600mm LONG SONEX	0.187 kw / 1/0	1	24 HR/7DAY TIMER (BY ELECTRICIAN)

VENTILATION REQUIREMENTS - GROUND FLOOR

AREA SERVED	AREA	DESIGN VENTILATION RATE (AIR CHANGES)	VENTILATION REQUIRED	DESIGN VENTILATION RATE (PER PERSON)	NO. OF PERSONS	VENTILATION REQUIRED	MINIMUM VENTILATION
FIRE ENGINE GARAGE	350.00m²	N/A	N/A	N/A	N/A	N/A	N/A
GEAR LOCKERS	38.20m²	10 AChour	266 l/s	N/A	N/A	N/A	266 l/s
FITNESS	20.50m²	2 AChour	29 l/s	7.5 l/s PER PERSON	4	30 l/s	30 l/s
PRINTING AND STATIONERY	6.20m²	N/A	N/A	N/A	N/A	N/A	N/A
OFFICE 1	12.40m²	2 AChour	18 l/s	7.5 l/s PER PERSON	3	23 l/s	23 l/s
OFFICE 2	9.10m²	3 AChour	19 l/s	7.5 l/s PER PERSON	3	23 l/s	23 l/s
RECEPTION	19.90m²	2 AChour	28 l/s	7.5 l/s PER PERSON	3	23 l/s	28 l/s
MEETING ROOM	22.70m²	2 AChour	32 l/s	7.5 l/s PER PERSON	10	75 l/s	75 l/s
DISABLED WC	5.10m²	20 AChour	71 l/s	25.0 l/s PER PERSON	1	25 l/s	71 l/s
WC	2.30m²	20 AChour	32 l/s	25.0 l/s PER PERSON	1	25 l/s	32 l/s
KITCHEN	22.80m²	N/A	N/A	N/A	N/A	N/A	N/A
DINING	46.5	4 AChour	130 l/s	7.5 l/s PER PERSON	12	90 l/s	90 l/s
APPARATUS STORE	10.80m²	N/A	N/A	N/A	N/A	N/A	N/A
INVERTER BATTERY ROOM	7.10m²	N/A	N/A	N/A	N/A	N/A	N/A
KIT SHIFT STORE 1	2.80m²	N/A	N/A	N/A	N/A	N/A	N/A
KIT STORE 2	3.30m²	N/A	N/A	N/A	N/A	N/A	N/A
KIT STORE 3	2.90m²	N/A	N/A	N/A	N/A	N/A	N/A
LAUNDRY	11.30m²	N/A	N/A	N/A	N/A	N/A	N/A
STORE	10.70m²	N/A	N/A	N/A	N/A	N/A	N/A
STORE	12.80m²	N/A	N/A	N/A	N/A	N/A	N/A
CONTAINER STORE	12.40m²	N/A	N/A	N/A	N/A	N/A	N/A

VENTILATION REQUIREMENTS - FIRST FLOOR

AREA SERVED	AREA	DESIGN VENTILATION RATE (AIR CHANGES)	VENTILATION REQUIRED	DESIGN VENTILATION RATE (PER PERSON)	NO. OF PERSONS	VENTILATION REQUIRED	MINIMUM VENTILATION
MALE ABLUTION	51.10m²	N/A	N/A	N/A	N/A	N/A	N/A
FEMALE ABLUTION	19.60m²	N/A	N/A	N/A	N/A	N/A	N/A
STORE	4.60m²	N/A	N/A	N/A	N/A	N/A	N/A
LOCKER ROOM	15.90m²	N/A	N/A	N/A	N/A	N/A	N/A
SHIFT MANAGER BED	15.50m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 1	11.20m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 2	11.20m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 3	11.20m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 4	11.20m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 5	11.20m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 6	12.10m²	N/A	N/A	N/A	N/A	N/A	N/A
BEDROOM 7	12.1	N/A	N/A	N/A	N/A	N/A	N/A
RESERVIST DORM	13.40m²	N/A	N/A	N/A	N/A	N/A	N/A
DAY ROOM	30.60m²	2 AChour	43 l/s	7.5 l/s PER PERSON	4	30 l/s	43 l/s

AIR CONDITIONING SCHEDULE

REFERENCE	DESCRIPTION	SUPPLY AIR QUANTITY	COOLING / HEATING	ELECTRICAL REQUIREMENTS	QUANTITY	CONTROL
AC-1	MIDWALL UNIT	-	2.5 kW / 2.5 kW	0.85 W / 1/0	1	WIRED
AC-2	MIDWALL UNIT	-	2.5 kW / 2.5 kW	0.85 W / 1/0	1	WIRED
AC-3	MIDWALL UNIT	-	3.5 kW / 3.5 kW	1.13 W / 1/0	1	WIRED
AC-4	CASSETTE UNIT	211 l/s	4.92 kW / 5.86 kW	1.60 kW / 1/0	1	WIRED
AC-5	CASSETTE UNIT	211 l/s	4.92 kW / 5.86 kW	1.60 kW / 1/0	1	WIRED
AC-6	CASSETTE UNIT	350 l/s	7.18 kW / 8.03 kW	2.60 kW / 1/0	1	WIRED
AC-7	CASSETTE UNIT	211 l/s	4.92 kW / 5.86 kW	1.60 kW / 1/0	1	WIRED

SYMBOL DESCRIPTION

	NEW FRESH AIR DIFFUSERS
	SUPPLY AND EXTRACT AIR GRILLES
	WEATHER LOUVRE
	DIRECTION OF AIR FLOW
	NEW FRESH AIR SUPPLY DUCTING
	NEW EXTRACT DUCTING
	FLEXIBLE DUCTING
	DISK VALVE
	SUPPLY AIR VALVE
	ISOLATOR BY ELECTRICIAN
	DOOR GRILLE
	DOOR UNDERCUT BY 20mm
	PRIMARY WASHABLE PANEL FILTER
	FAN WITH ATTENUATORS
	MIDWALL AIR-CONDITIONING UNIT
	CASSETTE AIR-CONDITIONING UNIT
	AIR-CONDITIONING CONTROLLING UNIT
	WIRED AIR-CONDITIONING REMOTE CONTROLLER
	NATURAL VENTILATED AREA WITH OPENABLE WINDOWS AND DOOR EQUIVALENT TO 1% FLOOR AREA
	EXTERNAL NATURALLY VENTILATED COVERED AREA
	REFRIGERANT PIPING
	CONDENSATE DRAIN PIPING

- GENERAL NOTES
1. SHEET METAL DUCTING MUST BE GALVANIZED MILD STEEL WITH MEZZ FLANGES. ALL HVAC EQUIPMENT TO BE ADEQUATELY SUPPORTED AT REGULAR INTERVALS WITH SUITABLE THREADED ROD AND UNISTRUT AS PER SABS 0193.
  2. ALL DUCTWORK JOINTS MUST BE PROPERLY SEALED AND AIRTIGHT.
  3. ALL DOORS TO TOILETS WITH MECHANICAL VENTILATION TO BE UNDERCUT BY A MINIMUM OF 20mm.
  4. THE HVAC CONTRACTOR TO WIRE BETWEEN THE HVAC EQUIPMENT AND HVAC DB OR ISOLATOR.
  5. ALL ARTIFICIAL VENTILATION SYSTEMS MUST NOT EXCEED A NOISE LEVEL OF WHICH WILL CAUSE THE AMBIENT NOISE LEVEL TO EXCEED 50dB(A) MEASURED AT THE BOUNDARY OF PROPERTY.
  6. ALL EQUIPMENT MUST BE MOUNTED ON ANTI-VIBRATION MOUNTINGS.
  7. AC UNIT FINAL POSITIONS TO BE INSTALLED TO ARCHITECT'S DIMENSIONS AS PART OF COORDINATION. ACCESS HATCH POSITIONS TO BE CO-ORDINATED WITH ARCHITECT'S CO-ORDINATED CEILING LAYOUT.
  8. FINAL DIFFUSER POSITIONS AS PER ARCHITECT'S CO-ORDINATED CEILING LAYOUT - COLOUR TO ARCHITECT'S SPECIFICATION.
  9. FINAL WEATHER LOUVRE POSITIONS AS PER ARCHITECT'S ELEVATION DRAWINGS, COLOUR TO ARCHITECT'S SPECIFICATION.
  10. ALL FIRE DAMPERS MUST BE 300mm LONG ELECTROVENT OR EQUAL AND BE APPROVED.
  11. ALL WASHABLE FILTERS MUST BE INSTALLED WITH PLEATS IN THE VERTICAL DIRECTION.

ARCHITECT PROJECT/DWG NO. REVISION DATE RECEIVED SCALE 1:100 ORIGINAL SIZE A0

REV.	DATE	DESCRIPTION	REV. BY
A	10/11/2024	ISSUED FOR APPROVAL	LC

CLIENT/EMPLOYER

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**SmartBuild**  
Consulting Engineers - Mechanical & Fire

ADDRESS  
NIEUWDRIFT FIRE STATION  
ALTERATIONS AND ADDITIONS TO  
EXISTING BUILDING REMAINDER  
PORTION 23 OF FARM 486  
BOLAND ROAD PAARL

PLAN DESCRIPTION  
HVAC LAYOUT

DESIGNED	NAME	SIGNATURE
L.C.	Comelissen	
DRAWN	L.C.	
CHECKED	L.C.	
APPROVED	Comelissen	
PR. NO.	201370078	
CONTRACT NO.	240901	
DRAWING NO.	240901-M-101	REVISION A

FOR APPROVAL ONLY  
DATE: 10/11/2024  
REV: A

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