NAENAE COLLEGE ADMINISTRATION

910 HIGH STREET
AVALON
LOWER HUTT 5011

MECHANICAL SERVICES - VENTILATION

CONSENT ISSUE

Prepared By:

Simx

Drawing Index

SHEET	SHEET TITLE
M-01	Cover
M-02	Legend
M-03	Equipment Schedule and Ventilation Summary
M-04	System Layout

General Notes

- All work to comply with current edition of New Zealand Building Code (NZBC), relevant standards and statutory requirements for mechanical ventilation. Work to be carried out as per industry best practice and to good workmanship.

- This mechanical ventilation specification is in accordance with the requirements of NZBC G4/AS1. To ensure compliance, outdoor airflow rates are calculated as per NZS 4303 Ventilation Rate Procedure, and exhaust airflow rates as per AS1668.2. If at a later time, space use changes and/or new contaminants are introduced, then this design will need to be re-evaluated by Simx.

- Equipment locations and system layouts are a guide only, based on the information provided at the time, and without the benefit of an onsite inspection. Contractor to coordinate with other trades to ensure that the systems will fit in the designated spaces, confirm all required products and prepare shop drawings.

- All dimensions are in millimetres (mm), duct dimensions are the air stream sizes, and other dimensions are the nominal sizes unless otherwise specified (e.g. face size, neck size). Refer to product dimensional data and installation manual when determining space requirements.

- Requested fan static pressure is an estimate only, based on the pressure drop allowance across the index run of the particular system. Where the actual system layout is expected to vary significantly from the proposed layout thereby affecting airflow delivery, the contractor is to verify fan suitability with Simx.

- Systems to be designed, installed, and commissioned as per AS/NZS 3666.1, with specific requirements as per AS 1668.2 and other applicable standards, using materials and methodology to ensure compliance with NZBC B2 Durability. Systems to be maintained to ensure compliance with NZBC H1 Energy Efficiency (clause H1.3.6).

- Ductwork to be constructed and installed as per SMACNA HVAC Duct Construction Standards, AS 4254 (parts 1 and 2 as applicable), and other applicable standards.

- Weatherproofing of roof and external wall penetrations to comply with NZBC E2/AS1. Penetration details to be prepared by architect or registered building practitioner.

- Firestopping to be specified and installed where components penetrate fire walls, floors and ceilings. Smoke dampers to be specified and installed as required.

- Acoustic dampening to be specified and installed where components penetrate acoustic rated building elements, and/or system noise exceeds space acoustic requirements. Vibration dampening to be installed as required.

- Seismic restraints to be specified and installed for mechanical plant and systems in accordance with the requirements of NZS 4219.

- Fans to be accessible for service and maintenance as per New Zealand Electrical Regulations. All other plant, equipment and components to be accessible for service and maintenance as per AS/NZS 3666.2.

- All electrical work to comply with the requirements of AS/NZS 3000 and other applicable electrical standards. Wiring and additional required controls to be provided by the contractor.

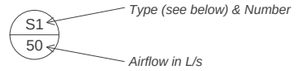
- Supply Diffuser
- Supply Diffuser (3-way/2-way opp/2-way cnr)
- Swirl Diffuser
- Slot Diffuser w/ Plenum
- Exhaust/Return Grille
- Louvre Grille
- Wall Cowl
- Roof Cowl
- Wye Branch
- Branch Take-off
- Double Branch Take-off
- Bevelled Junction
- Tee Junction
- Bend
- Transition
- Offset Transition
- Manual Damper
- Back-draught Shutter
- Circular duct cross-section (towards/away)
- Rectangular duct cross-section (towards/away)

- Rigid Duct
- Sem-rigid Duct
- Flexible Duct
- Inline Axial Fan
- Inline Mixed Flow Fan
- Inline Centrifugal Fan
- Ceiling Fan
- Wall Fan
- Roof-mounted Fan
- Heat Recovery Unit
- Air Filter
- Air Filter + Box
- Silencer (Circular)
- Silencer (Rectangular)
- Rangehood

Flexible duct recommended airflow	
Size (mm)	*Airflow (L/s)*
ø150	25 – 54
ø200	55 – 96
ø250	97 – 152
ø300	153 - 220
ø350	221 - 300
ø400	301 - 390

Grille/Diffuser Reference Tag

(supply diffuser example shown)



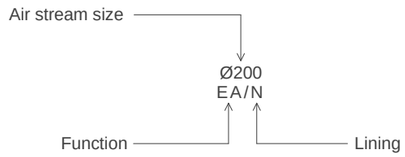
RC - Roof Cowl	DG - Door Grille	E - Extract
WC - Wall Cowl	RG - Relief Grille	R - Return
WG - Wall Grille	S - Supply	T - Transfer

Under-door Gap

From top of floor covering to underside of door.

Duct Reference Tag

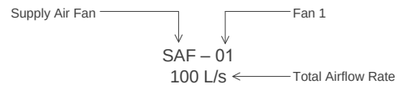
(sizes shown are examples only)



ø200	Circular duct air stream diameter in mm	
300x150	Rectangular duct air stream size in mm	
Function:	OA - Outdoor Air	RA - Return Air
	EA - Exhaust Air	TA - Transfer Air
	SA - Supply Air	
Lining:	N - Nude	I - Insulated

Equipment Reference Tag

(supply fan example shown)



Other Reference Tag

SAF - Supply Air Fan	ATT – Attenuator/Silencer
EAF - Exhaust Air Fan	AF - Air Filter
TAF - Transfer Air Fan	MD - Manual Damper
HRU - Heat Recovery Unit	BD - Back-draught Shutter

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REV.	DATE	DESCRIPTION	BY
B	27/10/21	Remove passive transfer system, add door grilles.	AM
A	26/10/21	Original Issue	AM

CLIENT: RESOLVE IT ARCHITECTS	PROJECT: Naenae College Administration	ADDRESS / LEGAL DESCRIPTION: 910 High Street, Avalon, Lower Hutt 5011	SHEET TITLE: Legend	DESIGNED: AM	REVIEWED: -	DATE: 27/10/2021
				SCALE: NTS	REV.: B	SHEET: M-02

FAN SCHEDULE											
Ref.	**Serving**	**Type**	**Manufacturer**	**Model**	**V/Ph/Hz**	**Motor (kW)**	**FLC (A)**	**Requested Duty**	**Order Code**	**Operation**	***Control**
EAF-01	WC1, WC2, and WC3	Inline – Mixed Flow	Simx	IMF-150SIL-EC	230/1/50	0.073	0.48	85 L/s @ 120 Pa	FAN6858	Continuous	Speed controller for commissioning (supplied), master HVAC control system with isolation switch for service and maintenance (by others).

GRILLE, DIFFUSER, & COWL SCHEDULE								
Ref.	**Type**	**Manufacturer**	**Model**	**Nom. Neck Size (mm)**	**Neck Adaptor/ Plenum Box**	**Airflow (L/s)**	**Order Code**	**Comments**
E1	Ceiling Grille	Simx	Eggcrate Round	Ø150	-	25-35	DCT2608	w/ inbuilt damper
RC1	Roof Cowl	Simx	General Purpose	Ø150	-	85	DCT0172	c/w 0.5m HPDE tube + EPDM flashing
DG1	Door Grille	Simx	DRAG	300x300	-	-	DCT3486	c/w 2-pieces for both sides of door
MD	Manual Damper	-	-	Ø150	-	-	-	Part of duct system (by others)

VENTILATION SUMMARY											
Room	**Floor Area m²**	**Number of Fixtures**	**Number of Occupants**	**Ventilation Type**	**Ventilation Rate (L/s)**				**Minimum Airflow (L/s)**	**Design Airflow (L/s)**	**Comments**
					Per Room	**Per Sqm**	**Per Fixture**	**Per Person**			
WC1	1.98	1	-	Extract	-	10	25	-	25	25	Make-up air via door grille DG1 and 25mm under-door gap.
WC2	1.98	1	-	Extract	-	10	25	-	25	25	Make-up air via door grille DG1 and 25mm under-door gap.
WC3	3.47	1	-	Extract	-	10	25	-	35	35	Make-up air via door grille DG1 and 25mm under-door gap.

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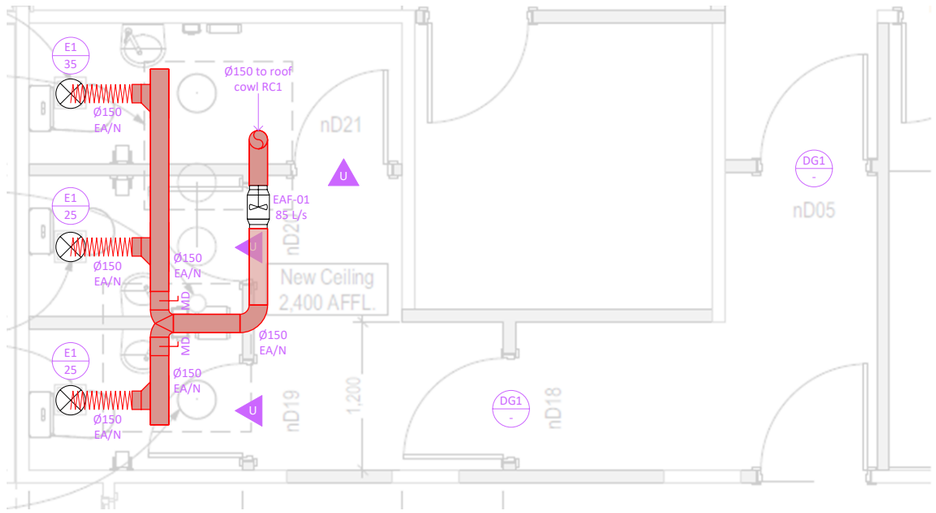
ADDRESS / LEGAL DESCRIPTION: 910 High Street, Avalon, Lower Hutt 5011

SHEET TITLE: Equipment Schedule & Ventilation Summary

DESIGNED:	REVIEWED:	DATE:
AM	-	27/10/2021
SCALE:	**REV.:**	**SHEET:**
NTS	B	M-03



GROUND FLOOR

NTS

Duct Reference

Legend

Rigid

Semi-rigid

Flexible

Colour

Outdoor/Supply Air

Exhaust/Return Air

Transfer Air

Size, Function, & Lining

Air stream size → Ø200 EA/N ← Function, Lining

Function:

OA - Outdoor Air
RA - Return Air
EA - Exhaust Air
TA - Transfer Air
SA - Supply Air

*Lining:

N - Nude
I - Insulated

**Refer to Drawing Notes*

Original drawing in colour

Consent issue.
Not for construction.

Drawing Notes:

- Weatherproofing, fire stopping, seismic restraint, acoustic dampening, and vibration dampening to be provided by others as required.

- Duct system to be provided by contractor. Sizes to be confirmed before construction.

- All supply and return duct to be insulated with min. 25mm lining (internal or external).

- All extract duct to be nude; use externally insulated duct with min. 25mm lining in colder environments.

- Flexible duct not to exceed 6m for main runs, and 3m for take-off runs.

- Minimum separation distances to be maintained from discharges to intakes, natural ventilation openings and boundary.

- Use speed controller to adjust fan speed to meet design airflow rate. Refer to equipment schedule.

- Use inline balancing damper and grille adjustable damper to balance airflow in each area.

- Access panels to be provided for service and maintenance.

- All dimensions are in millimetres (mm), duct dimensions are the air stream sizes, and other dimensions are the nominal sizes.

- Do not scale from this drawing.

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SHEET TITLE: System Layout

DESIGNED:	REVIEWED:	DATE:
AM	-	27/10/2021
SCALE:	REV.:	SHEET:
NTS	B	M-04