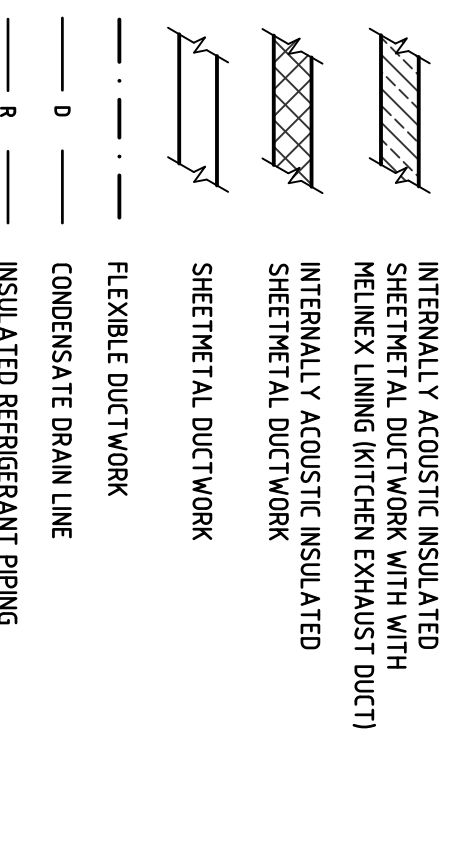


SCHEDULE OF DRAWINGS:

5460-M01	LEGEND OF SYMBOLS, SCHEDULES, DETAILS, NOTES & SPECIFICATIONS
5460-M02	GROUND FLOOR DUCTWORK & EQUIPMENT LAYOUT
5460-M03	ROOF PLAN DUCTWORK & EQUIPMENT LAYOUT

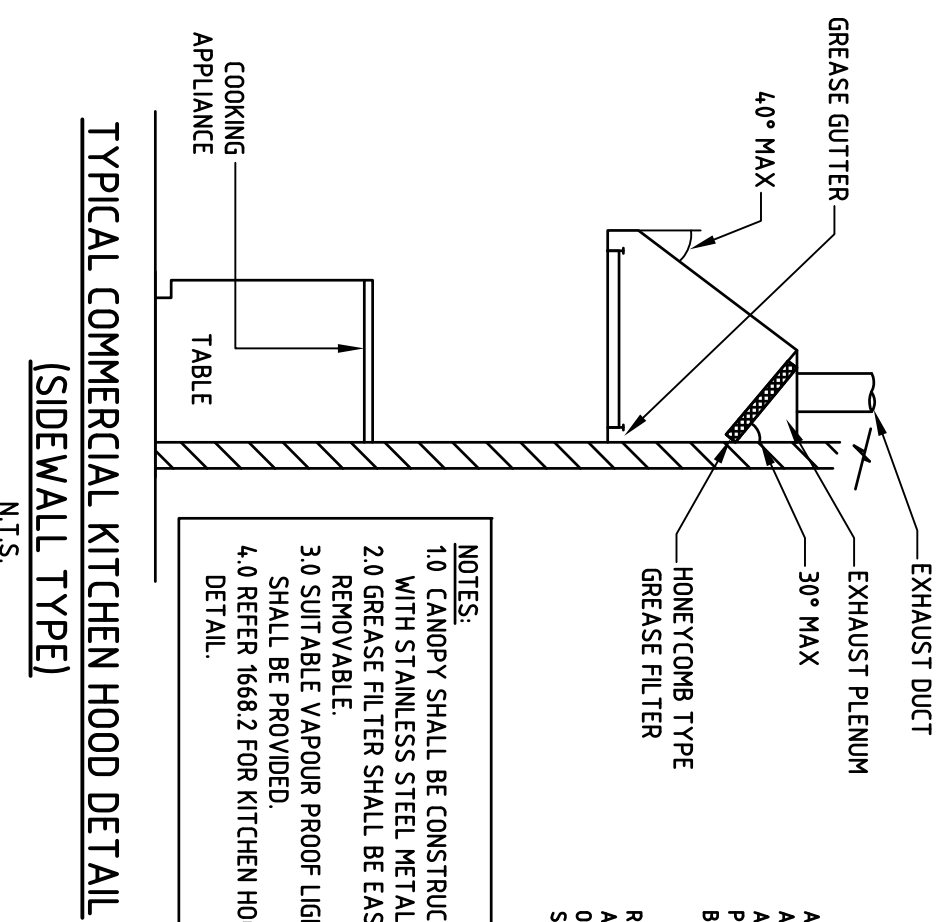
LEGEND OF SYMBOLS



- ☑ EGG GRATE AIR GRILLE
- ☑ SUPPLY AIR GRILLE (4-WAY DIRECTIONAL DIFFUSER)
- ☑ ROOF MOUNTED SUPPLY/EXHAUST FAN
- ☑ DOOR UNDERCUT
- ☑ 500X500 ACCESS PANEL (BY BUILDER)
- ☑ CEILING MOUNTED CASSETTE AIR CONDITIONING UNIT
- ☑ WALL MOUNTED AIR CONDITIONING UNIT
- ☑ OUTDOOR CONDENSER UNIT
- ☑ WIRELESS REMOTE CONTROLLER WITH WALL MOUNTED POCKET
- ☑ ON/OFF SWITCH (FOR KITCHEN VENTILATION)
- ☑ TUNISH BY HYDRAULIC CONTRACTOR
- ① TEMPERATURE SENSOR
- ② CENTRAL CONTROLLER
- ③ EXISTING ITEM
- ④ ITEM TO BE RELOCATED

ABBREVIATIONS:

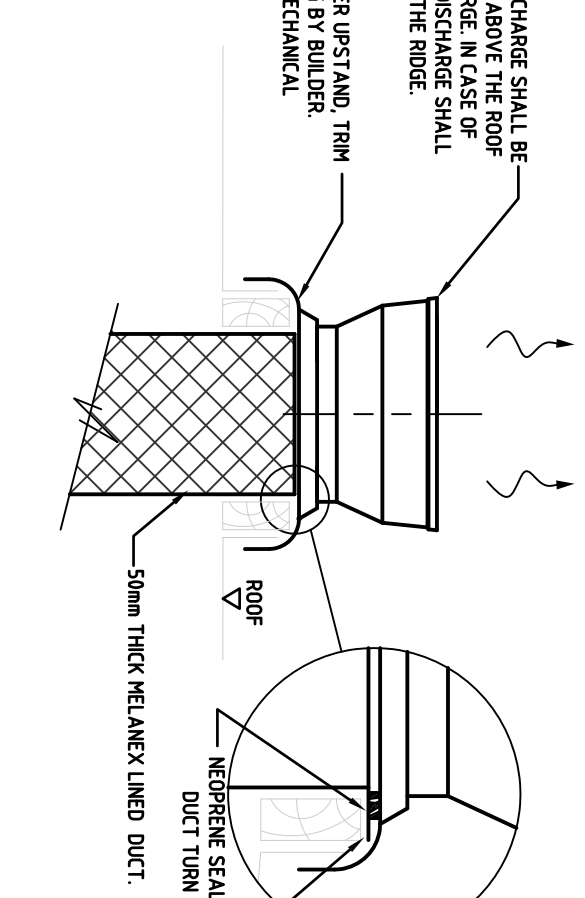
- CU- CONDENSING UNIT
- AC- AIR CONDITIONER
- TEF- TOILET EXHAUST FAN
- KEF- KITCHEN EXHAUST FAN
- OAF- OUTSIDE AIR SUPPLY FAN
- KH KITCHEN CANOPY/HOOD
- NRO NON-RETURN DAMPER
- MD MOTORIZED DAMPER



NOTES:
1) CANOPY SHALL BE CONSTRUCTED WITH STAINLESS STEEL METAL.
2) GREASE FILTER SHALL BE EASILY REMOVABLE.
3) SUITABLE VAPOUR PROOF LIGHT SHALL BE PROVIDED.
4) REFER 1668.2 FOR KITCHEN HOOD DETAIL.

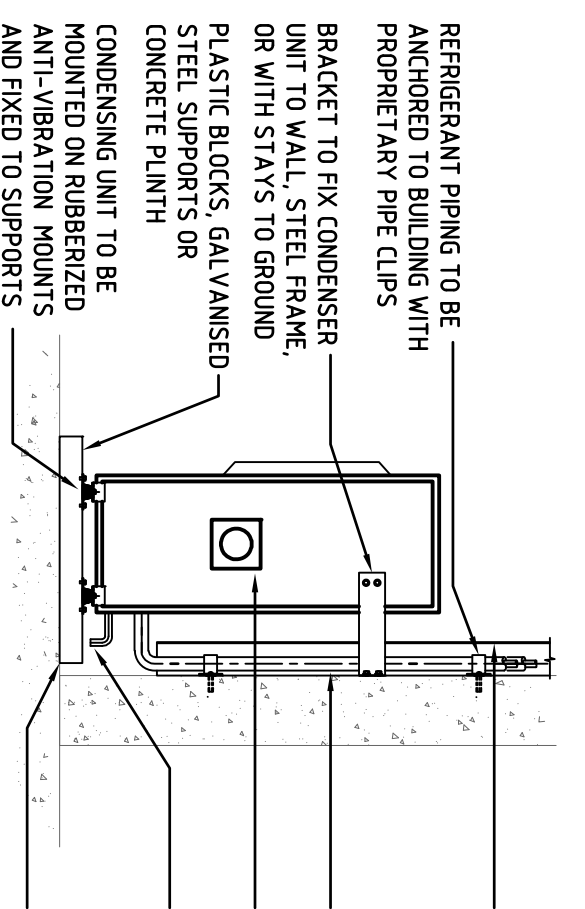
TYPICAL ROOF MOUNTED VERTICAL DISCHARGE EXHAUST FAN DETAIL

NOTE: INSTALLATION SHALL INCLUDE PROVISION TO COLLECT AND DISPOSE OF RAINWATER IN ACCORDANCE WITH ASS88.



TYPICAL FLOOR MOUNTED A/C CONDENSER UNIT DETAIL

NT.S



SCHEDULE 1: AIR CONDITIONING

VRV IV S SERIES (MAKE DAIKIN OR APPROVED EQUIVALENT)

OUTDOOR UNIT		INDOOR UNIT								
UNIT NUMBER	MODEL	POWER (PHASIS) (kW)	OUTDOOR UNIT DIMENSIONS (HxWxD / (mm))	WEIGHT (kg)	UNIT NUMBER	MODEL	SENSEBLE HEATING (kW)	SENSEBLE COOLING (kW)	INDOOR UNIT DIMENSIONS (HxWxD / (mm))	WEIGHT (kg)
CU-1	RXYM-AV1	36/41.5	1430x940x320	188	AC-11	FXQ-PVE	10.3	9.7	288x480x840	288x480x840
CU-2	RXYM-AV1	36/41.5	1430x940x320	188	AC-12	FXQ-PVE	10.3	9.7	288x480x840	288x480x840
CU-5	RXYM-AV4	16/230	990x940x320	82	AC-5.1	FXQ-PVE	6.8	6.5	246x480x840	246x480x840
					AC-5.2	FXQ-PVE	2.1	1.6	290x795x238	

SINGLE SPLIT SYSTEM UNITS (MAKE DAIKIN OR APPROVED EQUIVALENT)

OUTDOOR UNIT		INDOOR UNIT								
UNIT NUMBER	MODEL	POWER (PHASIS) (kW)	OUTDOOR UNIT DIMENSIONS (HxWxD / (mm))	WEIGHT (kg)	UNIT NUMBER	MODEL	SENSEBLE HEATING (kW)	SENSEBLE COOLING (kW)	INDOOR UNIT DIMENSIONS (HxWxD / (mm))	WEIGHT (kg)
CU-3	RXS-LVMA	16/230	550x765x285	34	AC-3	FTXS--LVMA	2.5	2.4	295x800x215	10
CU-4	RXS-LVMA	16/230	770x900x320	71	AC-4	FTXS--LVMA	5.0	4.0	340x1050x248	14
CU-6	RMS-LVMA (COOLING ONLY)	16/230	755x825x300	46	AC-6	FTXS--LVMA	2.0	-	295x800x215	10

NOTES: 1) PROVIDE WIRELESS CONTROL UNITS AS INDICATED.

2) PROVIDE CONDENSATE DRAIN PIPING AS REQUIRED.

3) ALL UNIT DESIGN CONDITIONS APPLICABLE TEMPERATURE: 35°C DB/24°C WB/19°C

SCHEDULE 2: FANS (FANTECH OR APPROVED EQUAL)

UNIT REFERENCE NUMBER	KEF-1	TEF-1	OAF-1
TYPE	GE SERIES - KITCHEN EXHAUST CENTRIFUGAL FANS	GAMMA SERIES - ROOF MOUNTED DOWN DISCHARGE CENTRIFUGAL FANS	NEW GENERATION MOUNTED DOWN AXIAL ROOF FANS
FANTECH MODEL No.	CG0566	CG0460	RDS0504P5 / 10
CAPACITY (l/s)	1260 L/S	335 L/S	200 L/S
EXTERNAL STATIC (Pa)	250 Pa	160 Pa	150 Pa
DIAMETER (mm)	560 mm	400 mm	500 mm
MOTOR POWER (kW)	1.10 kW	0.17 kW	0.37 kW
ELECTRIC SUPPLY (V/PH/Hz)	415V/3Ø/50Hz	415V/3Ø/50Hz	415V/3Ø/50Hz

DOOR GRILLE SCHEDULE		EXHAUST GRILLE SIZES		FLEXIBLE DUCT SIZES	
REF. NO.	SIZE	MAX. AIR QUANTITY (L/S)	0-250 L/S	0-600 L/S	1500
U	40mm UNDERCUT	4.0/5	25 - 60 L/S	65 - 100 L/S	200Ø
1	600x350	100 L/S	60 - 100 L/S	115 - 180 L/S	250Ø
2	600x200	80 L/S	105 - 160 L/S	185 - 250 L/S	300Ø
3	600x450	270 L/S	165 - 225 L/S	230 - 310 L/S	350Ø
4	600x600	360 L/S	315 - 450 L/S	455 - 600 L/S	400Ø
5	600x350	450 L/S	315 - 400 L/S	455 - 600 L/S	450Ø

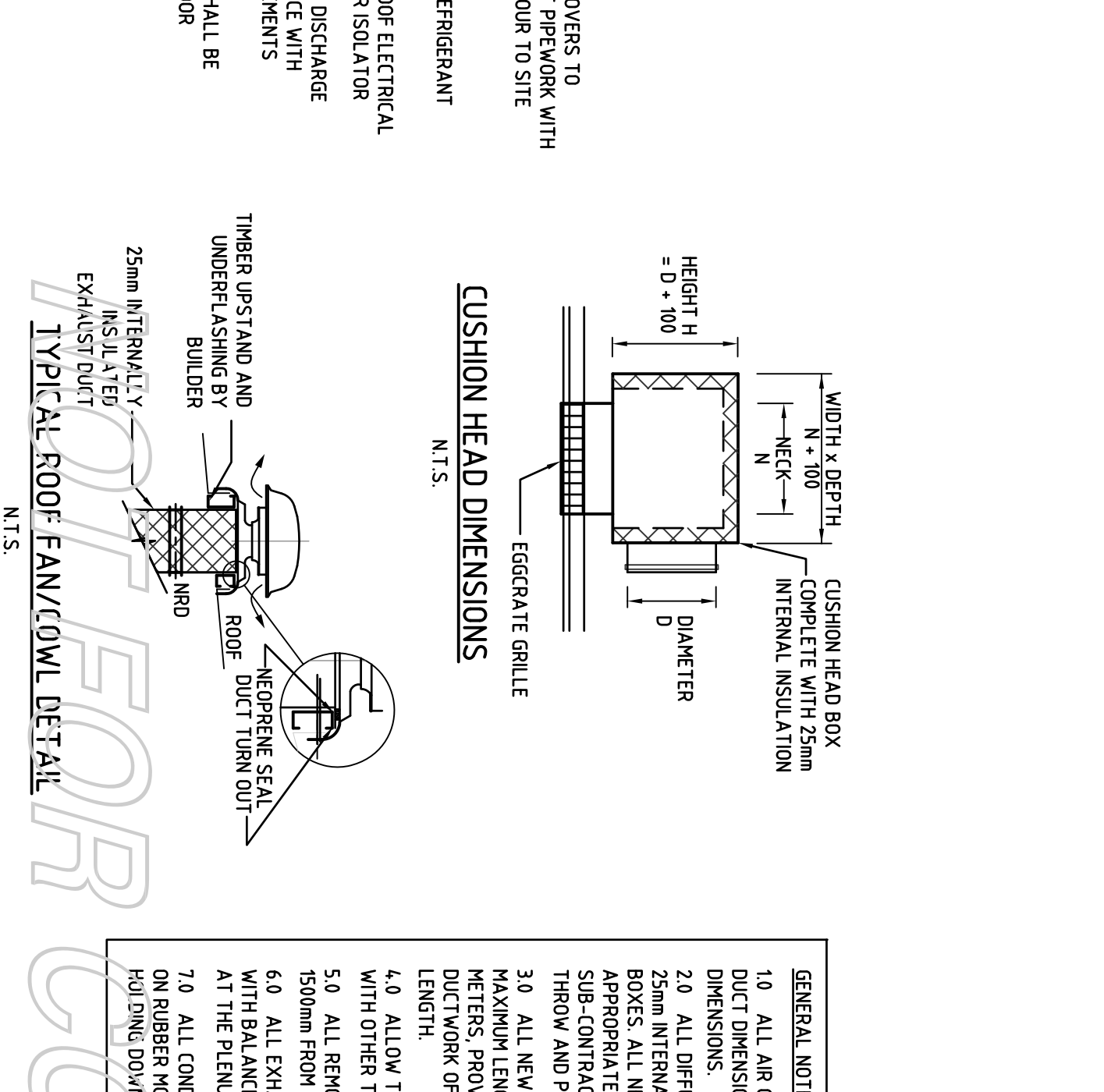
NOTE: DOOR GRILLES SUPPLIED BY MECHANICAL CONTRACTOR AND INSTALLED BY BUILDER. ALL UNDER CUT BY BUILDER. NOMINAL SIZES ONLY. (MINIMUM REFER ARCHITECTURAL DRAWINGS FOR DETAILS).

NOTE: CONTRACTOR TO USE ACOUSTICALLY INSULATED FLEX.

MECHANICAL SPECIFICATIONS AND SCOPE OF WORKS

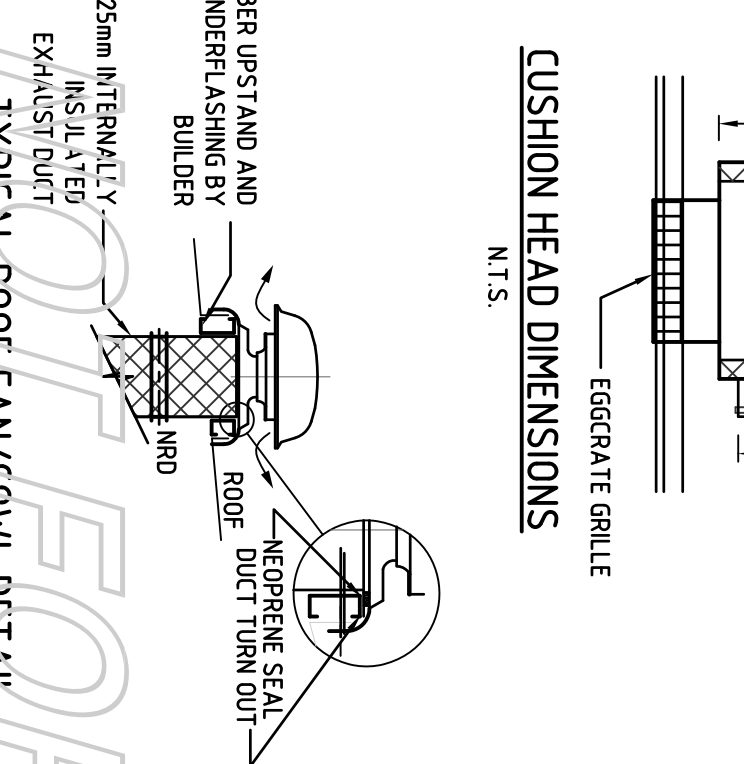
- A) CODES, REGULATIONS & CONTRACT TO COMPLY WITH THE REQUIREMENTS OF ALL CURRENT CODES AND REGULATIONS AND ANY OTHER AUTHORITY HAVING JURISDICTION. WORK NOT COVERED BY THE STATUTORY AUTHORITIES SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
- B) THIS SPECIFICATION IS A PART OF MAIN CONTRACT DOCUMENTS FOR THIS PROJECT. THE WORKS COVERED BY THIS SPECIFICATION ARE THEREFORE GOVERNED BY ALL THE CONDITIONS OF THIS MAIN CONTRACT BETWEEN THE BUILDER & PRINCIPAL. THIS SPEC SHALL BE READ IN CONJUNCTION WITH THE ACUSTIC REPORT BY 'RENZO TONIN & ASSOCIATES (VIC) PTY LTD'. REVISION DATE 7TH OCT 2016.
- C) DUCTWORK TO EXHAUST AIR SHALL BE GOOD QUALITY ACOUSTIC DUCT EXHAUST AIR FLEXIBLE DUCT SHALL BE R1 ACOUSTIC DUCT MANUFACTURED BY WESTFLEX.
- D) INTERNAL SOLID DUCTWORK SHALL BE GRS DUCT FABRICATED IN ACCORDANCE WITH THE STANDARD.
- E) ALL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD.
- F) INTERNAL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD.
- G) INSULATION TO INTERNAL DUCTWORK ACOUSTIC INSULATION SHALL BE INTERNALLY POLYESTER WITH ISILATION FACED VAPOUR SEALED JOINTS.
- H) REFRIGERANT AND DRAIN PIPING INSULATION SHALL BE APMARFLEX (NON-CONDITIONALLY SPLIT).
- I) ENSURE DUCTWORK & REFRIGERANT PIPE WORK INSULATION ARE IN ACCORDANCE WITH PART 7 OF THE BCA.
- J) NOISE LEVELS TO MAXIMUM INTERNAL NOISE LEVELS FROM THE INSTALLED SYSTEMS DO NOT EXCEED THE FOLLOWING WHEN OPERATING AT TYPICAL SPEED/DUTY:
 - 30DB(A) LEO IN COY ROOMS / 35DB(A) LEO IN LEARNING AREAS / 40DB(A) LEO IN OFFICE AREAS / 50DB(A) LEO IN BATHROOMS, LAUNDRIES AND KITCHENS
 - 20 THE MECHANICAL SUB-COOLING SYSTEMS SHALL PROVIDE EXHAUST ALL MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO FANS AND AIR-CONDITIONING SYSTEMS SUCH THAT RESULTING EXHAUST NOISE EMISSIONS TO ANY RESIDENTIAL NEIGHBOURHOOD SHALL NOT EXCEED THE FOLLOWING:
 - 20 THE PROPOSED ACOUSTICALLY LINING TRANSFER SHOULD NOT BE INCORPORATED INTO THE DOORS OF THESE ROOMS.
 - 20 DETAIL IS APPROPRIATE TRANSFER AIR DUCTS SHOULD NOT BE INCORPORATED INTO THE DOORS OF THESE ROOMS.
 - 4.0 ALL INTERNAL ACOUSTIC DUCT LINING SHOULD BE FACED WITH REFRIGERATED ISALATION G50. INTERNAL LINING SHALL BE EITHER:
 - 25MM OR 50MM THICK CSR BRAD-FOR-O UT TRAPHOOD DUCTLINER / 25MM OR 50MM THICK 48 KG/M3 DENSITY RIGID FIBREGLASS / 25MM OR 50MM THICK 48 KG/M3 DENSITY POLYESTER SIMILAR TO TONINNE ACOUSTISORB 3

- E) AIR CONDITIONING SYSTEMS TO SUPPLY, INSTALL AND COMMISSION AIR CONDITIONING SYSTEMS AS SPECIFIED IN THE SCHEDULE-1-1 AND AS SHOWN IN THE DRAWINGS. PROVIDE CONTROL UNITS (RCU) WHERE INDICATED IN THE DRAWINGS AT 1500mm ABOVE FLOOR LEVEL. (FINAL LOCATIONS TO BE CONFIRMED WITH ARCHITECT)
- F) THE OUTDOOR UNITS SHALL BE LOCATED AS SHOWN IN THE DRAWINGS.
- G) SUPPLY, INSTALL AND COMMISSION THE OUTSIDE AIR SYSTEMS C/W FANS, DUCTWORK, GRILLES, ACOUSTIC CELENS, CONTROLS, DAMPERS AS DETAILLED ON THE DRAWINGS PROVIDE ON/OFF/FAO/FAO SWITCH FOR OUTSIDE AIR FANS NEXT TO LIGHT SOURCE. DAMPERS AS DETAILLED ON THE DRAWINGS PROVIDE ON/OFF/FAO/FAO SWITCH FOR OUTSIDE AIR FANS NEXT TO LIGHT SOURCE. DAMPERS AS DETAILLED ON THE DRAWINGS PROVIDE ON/OFF/FAO/FAO SWITCH FOR OUTSIDE AIR FANS NEXT TO LIGHT SOURCE. DAMPERS AS DETAILLED ON THE DRAWINGS PROVIDE ON/OFF/FAO/FAO SWITCH FOR OUTSIDE AIR FANS NEXT TO LIGHT SOURCE.
- H) PROVIDE INSULATED REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS OF SIZES TO MANUFACTURERS RECOMMENDATIONS.
- I) MECHANICAL CONTRACTOR SHALL PROVIDE CONDENSATE DRAIN PIPING FOR ACS FROM THE INDOOR UNITS TO THE NEAREST TUNISH OR DOWNPIPE AS SHOWN SUPPLY & INSTALL CONDENSATE DRAIN PIPES IF REQUIRED. IT IS THE RESPONSIBILITY OF MECHANICAL CONTRACTOR TO CO-ORDINATE WITH HYDRAULIC CONTRACTOR.
- J) IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT IF THE ACTUAL EQUIVALENT REFRIGERANT PIPE LENGTH BETWEEN THE PROPOSED INDOOR AND OUTDOOR UNITS EXCEEDS THE MAXIMUM ALLOWABLE PIPE LENGTH AS SPECIFIED BY THE MANUFACTURER, AN ALTERNATIVE A.C. SYSTEM IS TO BE SELECTED TO SUIT, SUBJECT TO APPROVAL FROM THE MECHANICAL CONSULTING ENGINEERS. THE CONTRACTOR TO BEAR ALL COSTS ASSOCIATED WITH THE ALTERNATIVE SELECTION.
- K) SUPPLY & INSTALL CENTRAL CONTROLLER FULLY PROGRAMMABLE 365 DAYS ELECTRONIC THER & CENTRAL CONTROLLER FOR MECHANICAL SERVICES. THE OPERATION OF THE A/C UNITS TO PERFORM THE FOLLOWING FUNCTIONS:
 - TEMPERATURE SET POINT ADJUSTMENT
 - THE CLOCK CONTROL
 - STATUS DISPLAY
 - ON/OFF SWITCHING
- L) TOILET EXHAUST & OUTSIDE AIR SUPPLY SYSTEMS TO SUPPLY, INSTALL AND COMMISSION THE EXHAUST/SUPPLY AIR SYSTEMS COMPLETE WITH FANS, DUCTWORK, GRILLES, ACOUSTIC PLENUMS, CONTROLS, DAMPERS, WEATHER PROOF WALL LOUVERS AS DETAILLED ON THE DRAWINGS.
- M) 2 DUCTS SHALL RUN WITHIN BULKHEAD OR CEILING.
- N) SWITCHING OF FANS SHALL BE VIA MOTION SENSORS FOR ALL TOILET EXHAUST FANS, OUTSIDE AIR SUPPLY FAN OAF-1 OPERATION TO BE INTERLOCKED WITH AIR CONDITIONING SYSTEMS AC-11 & 12.
- O) REFER TYPICAL DETAILS.



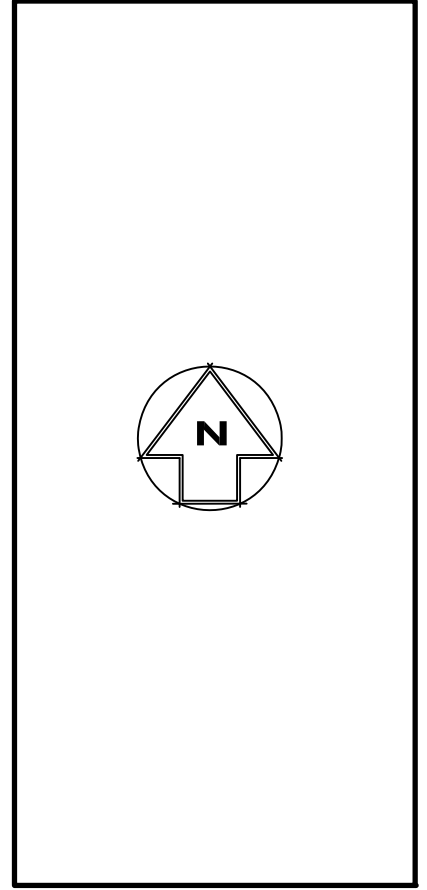
TYPICAL ROOF FAN/COIL DETAIL

NT.S



- 1.0 ALL AIR QUANTITIES ARE IN LITRES/SECOND. ALL DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.
- 2.0 ALL DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH 25mm INTERNALLY INSULATED CUSHION HEADS OR PLENUM BOXES. ALL NECK SIZES OF DIFFUSERS SHALL BE APPROPRIATELY SELECTED BY THE MECHANICAL CONTRACTOR TO OBTAIN ADEQUATE AIR DISTRIBUTION THROUGH AND PATTERNS TO SUIT ROOM LAYOUT.
- 3.0 ALL NEW FLEXIBLE DUCTWORK SHALL BE LIMITED TO A MAXIMUM LENGTH OF 5 METERS, FOR LENGTHS EXCEEDING 5 METERS, PROVIDE INSULATED CIRCUAR SHEET METAL DUCTWORK OF EQUIVALENT SIZE TO REDUCE FLEXIBLE DUCT LENGTH.
- 4.0 ALLOW TO THOROUGHLY & CO-ORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
- 5.0 ALL REPUTE CONTROL UNITS SHALL BE LOCATED AT 1500mm FROM FINAL FLOOR LEVEL.
- 6.0 ALL EXHAUST AIR OUTLETS SHALL BE PROVIDED WITH BALANCING DAMPERS EITHER BEHIND THE OUTLET OR AT THE PLENUM INLET FOR BALANCING VIA CORDS.
- 7.0 ALL CONDENSING UNITS SHALL BE ISOLATED ON ROOBER MOUNTS TYPE RHN, WARETE PADS WITH HOLDING DOWN BOLTS SHALL NOT BE USED.
- 8.0 ALLOW FOR PAINTING OF EXPOSED DUCTS, PIPING, TRAYS ETC. COLOURS TO BE ADVISED.
- 9.0 ELECTRICAL CONTRACTOR SHALL PROVIDE POWER & ISOLATOR ADJACENT TO MECHANICAL EQUIPMENTS.
- 10.0 RUN REFRIGERANT AND CONDENSATE DRAIN PIPES IN WALL & CEILING CAVITIES. PROVIDE CONDENSATE DRAIN LEFT PIPES IF REQUIRED TO ENSURE ADEQUATE FAL TO TUNISH, TUNISH BY HYDRAULIC CONTRACTOR. ALL REFRIGERANT PIPES FROM METAL DUCT ROOF VIA DERTITE RUBBER FLASHING TO CEILING BELOW.
- 11.0 BUILDER SHALL PROVIDE ALL PENETRATIONS, FLASHINGS, CONCRETE AND / OR STRUCTURAL SUPPORTS FOR MECHANICAL EQUIPMENTS. MECHANICAL CONTRACTOR TO INDICATE SIZE AND LOCATIONS.
- 12.0 ALL PENETRATIONS THROUGH FIRE RATED ELEMENTS SHALL BE FITTED WITH AN APPROVED FIRE COLLAR OR GAP SEALANT IN ACCORDANCE WITH BCA CLAUSE 3.15, AS 4072.1 & AS 530.4

REV. NO.	AMENDMENT	DATE	REV. NO.	AMENDMENT
A	REVISED TENDER ISSUE	18-10-18		
B	TENDER ISSUE	12-10-18		
P1	PRELIMINARY ISSUE	22-09-18		



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PROJECT:

SHIRE OF DUNDAS WOODLANDS CULTURAL COMMUNITY AND VISITORS CENTRE PROJECT
80 PRINSEP STREET, NORSEMAN WA 6443

FROM: CARTMAN WA PTY, LTD

WORK STAGE:	PRELIMINARY
DATE:	AUG 2018
DESIGNED/DRAWN:	RJ/GM
SCALE:	AS SHOWN
NTS @:	A1

TITLE:	MECHANICAL SERVICES LEGEND OF SYMBOLS, SCHEDULES, DETAILS, NOTES & SPECIFICATION
PROJECT NO.:	5460
DRAWING NO.:	1 of 3
REVISION:	A