# EL JANNAH - WARRINGAH MALL SHOP 2006 / 8, CROSS ST, BROOKVALE, NSW, 2100.

# MECHANICAL DRAWING LIST

COVER SHEET, LEGEND OF SYMBOLS & NOTES

M02 MECHANICAL SERVICES - PROPOSED GROUND FLOOR PLAN

M03 MECHANICAL SERVICES - PROPOSED ROOF PLAN

M04 MECHANICAL SERVICES - EQUIPMENT SCHEDULES

M05 MECHANICAL SERVICES - HOOD DETAILS

M06 MECHANICAL SERVICES - INSTALLATION DETAILS

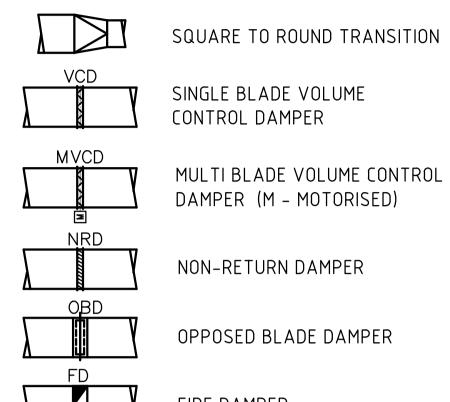
M07 MECHANICAL SERVICES - SPECIFICATIONS

### INSTALLATION NOTES:

- 1) WORKS TO BE CARRIED OUT AS PER DRAWINGS MO1 TO MO7.
- 2) CO-ORDINATE MECHANICAL SERVICES INSTALLATION ON SITE WITH ALL TRADES PRIOR TO INSTALLATION.
- 3) CONTRACTOR TO CONFIRM CEILING SPACE PRIOR TO ORDERING EQUIPMENT.
- 4) CO-ORDINATE ALL WALL CEILING AND SLAB PENETRATIONS WITH BUILDER DURING THE SHOP DRAWING PHASE OF THE PROJECT AND PRIOR TO ANY INSTALLATION WORKS
- 5) DUCTWORK SIZES SHOWN ARE EXTERNAL AIR SIZE.
- 6) ALL MECHANICAL EQUIPMENT SHALL BE VIBRATION ISOLATED.
- 7) COMPLY WITH ALL RELEVANT AUSTRALIAN STANDARDS PARTICULARLY AS1668.1 (2015) & AS1668.2 (2012) ASSOCIATED WITH THE SCOPE OF WORKS AND THE BUILDING CODE OF AUSTRALIA 2022 (NCC).
- 8) AIR BALANCE QUANTITY AS NOMINATED ON DRAWINGS.
- 9) COORDINATE WITH FIRE SERVICES CONTRACTOR FOR THE INSTALLATION OF SPRINKLERS AS (IF REQUIRED) TO COMPLY WITH AS STANDARDS.
- 10) DUCT ACCESS PANELS EVERY 3m AND TO AS STANDARDS REQUIREMENTS. PANELS TO BE MOUNTED TO THE SIDE OF THE DUCTWORK.
- 11) KITCHEN EXHAUST DUCT ROUTE TO BE CONFIRMED ON SITE PRIOR TO MANUFACTURING. ENSURE DUCT IS SLOPED TOWARDS RANGE HOODS PER AS1668.1 (1 IN 200 FALL). INSULATE KITCHEN EXHAUST DUCTWORK WHEN IT IS LOCATED WITHIN 300mm OF COMBUSTIBLE MATERIAL.
- 12) PROVIDE ON/OFF SWITCH TO OPERATE KITCHEN EXHAUST FAN.
- 13) NEW MECHANICAL PANEL & VSD TO BE PROVIDED IN LOCATION SHOWN. ELECTRICAL WORKS TO BE IN ACCORDANCE WITH A.S.3000 & A.S.3008.

# LEGEND DUCTWORK (see specification for details of any external insulation requirements) METAL DUCTWORK INSULATED EXTERNALLY METAL DUCTWORK INSULATED INTERNALLY MELAMINE DUCTWORK INSULATED INTERNALLY NEW ACOUSTIC FLEXIBLE DUCTWORK - SIZE AS PER SPECIFICATION (Note: maximum TOTAL length to be 5.0m) OPEN END - SUPPLY AIR DUCT OPEN END - EXHAUST/RETURN AIR DUCT DUCT SET UP IN DIRECTION OF SU ARROW (SD - SET DOWN) MITRE BEND WITH TURNING VANES (AIRFOIL BLADES) BRANCH DUCT CONNECTION WITH SPLITTER DAMPER STREAM SPLITTER FIRE DAMPER - TO BE INSTALLED WITH ADJACENT ACCESS PANEL (on upstream side where accessible) MOTORISED FIRE DAMPER - TO BE INSTALLED -M WITH ADJACENT ACCESS PANEL (on upstream side where accessible) $\langle ATT \rangle | \sim |$ ATTENUATOR No. 2.1 - REFER SCHEDULE DUCT SPIGOT WITH BUTTERFLY DAMPER PITOT TAPPING FLEXIBLE CONNECTION (e.g. fan coil unit) AIR TRANSFER DUCT WITH 50mm INTERNAL ACOUSTIC LINING

# LEGEND (Cont.)

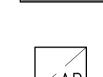


# FIRE DAMPER







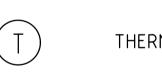


FCU-01

CEILING ACCESS PANEL (BY OTHERS)

EQUIPMENT REFERENCE

DUCT MOUNTED ACCESS PANEL



THERMOSTAT/CONTROLLER



CO SENSOR



FLOOR WASTE



KITCHEN EXHAUST FAN SWITCH (LABELED)

# GRILLES & DIFFUSERS



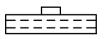
SQUARE SUPPLY AIR DIFFUSER WITH INTERNALLY INSULATED CUSHION HEAD NEW OR RELOCATED FROM ELSEWHERE



CEILING MOUNTED EXHAUST/RETURN EGGCRATE GRILLE



CIRCULAR SUPPLY AIR GRILLE/DIFFUSER. NEW OR RELOCATED FROM ELSEWHERE



WITH INTERNALLY INSULATED CUSHION HEAD NEW OR RELOCATED FROM ELSEWHERE

## **ABBREVIATIONS**

ATT	ATTENUATOR
AF	AIR FILTER
AP	ACCESS PANEL
CDU	CONDENSING UNIT
CEF	CAR PARK EXHAUST FAN
CSF	CARPARK SUPPLY FAN
DG	DOOR GRILLE
E	ESSENTIAL
E/A	EXHAUST AIR
EF	EXHAUST AIR FAN
ET	EQUAL TAPER
F/A	FROM ABOVE
F/B	FROM BELOW
FCU	FANCOIL CONDITIONING UNIT
FD	FIRE DAMPER
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
GEF	GARBAGE EXHAUST FAN
K/E	KITCHEN EXHAUST
KEF	KITCHEN EXHAUST FAN
MSSB	MECHANICAL SERVICES SWITCHBOAF
MVCD	MOTORISED VOLUME CONTROL DAMP
NE	NON ESSENTIAL
NRD	NON RETURN DAMPER
0/A	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
R/A	RETURN AIR
S/A	SUPPLY AIR
SF	SUPPLY FAN
SD	SET DOWN
SJ	SLIDE JOINT DUCT
S.M.	SITE MEASURED
SU	SET UP
TAD	TRANSFER AIR DUCT
T/A	TO ABOVE
T/B	TO BELOW
T/E	TOILET EXHAUST
TEF	TOILET EXHAUST FAN
TD	TUNDISH
U.N.O.	UNLESS NOTED OTHERWISE
VCD	VOLUME CONTROL DAMPER
VSD	VARIABLE SPEED DRIVE
, 55	THE STEED DINITE

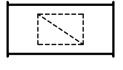




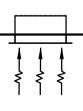
NEW OR RELOCATED FROM ELSEWHERE



LINEAR BAR/SLOT SUPPLY AIR DIFFUSER



UNDERSIDE GRILLE/DIFFUSER (REFER TO NOTES)



SIDEBLOW GRILLE/DIFFUSER (REFER TO NOTES)

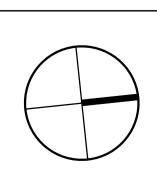


DOOR GRILLE



DOOR UNDERCUT - 15mm U.N.O.

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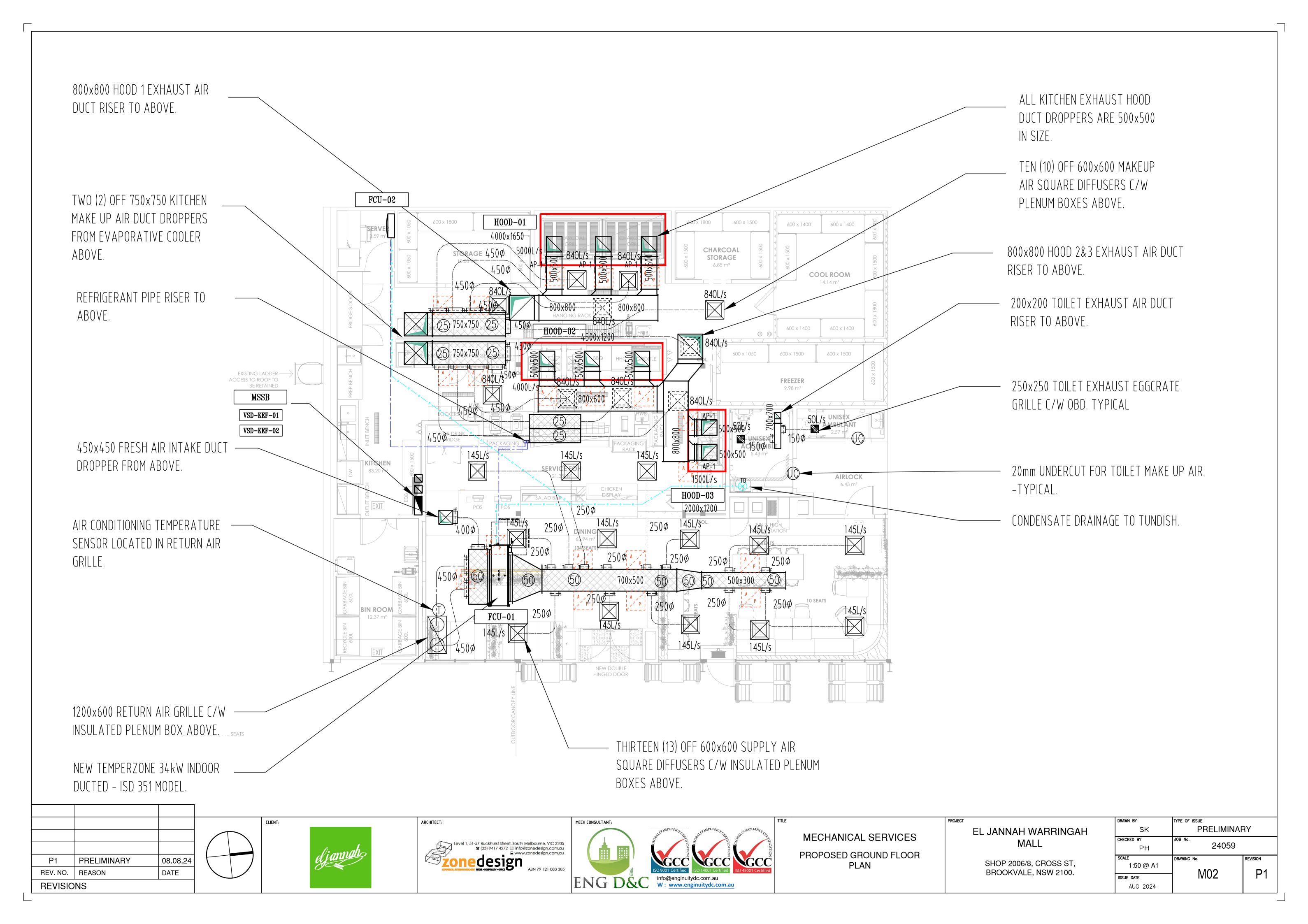
MECHANICAL SERVICES	
COVER SHEET, LEGEND OF	

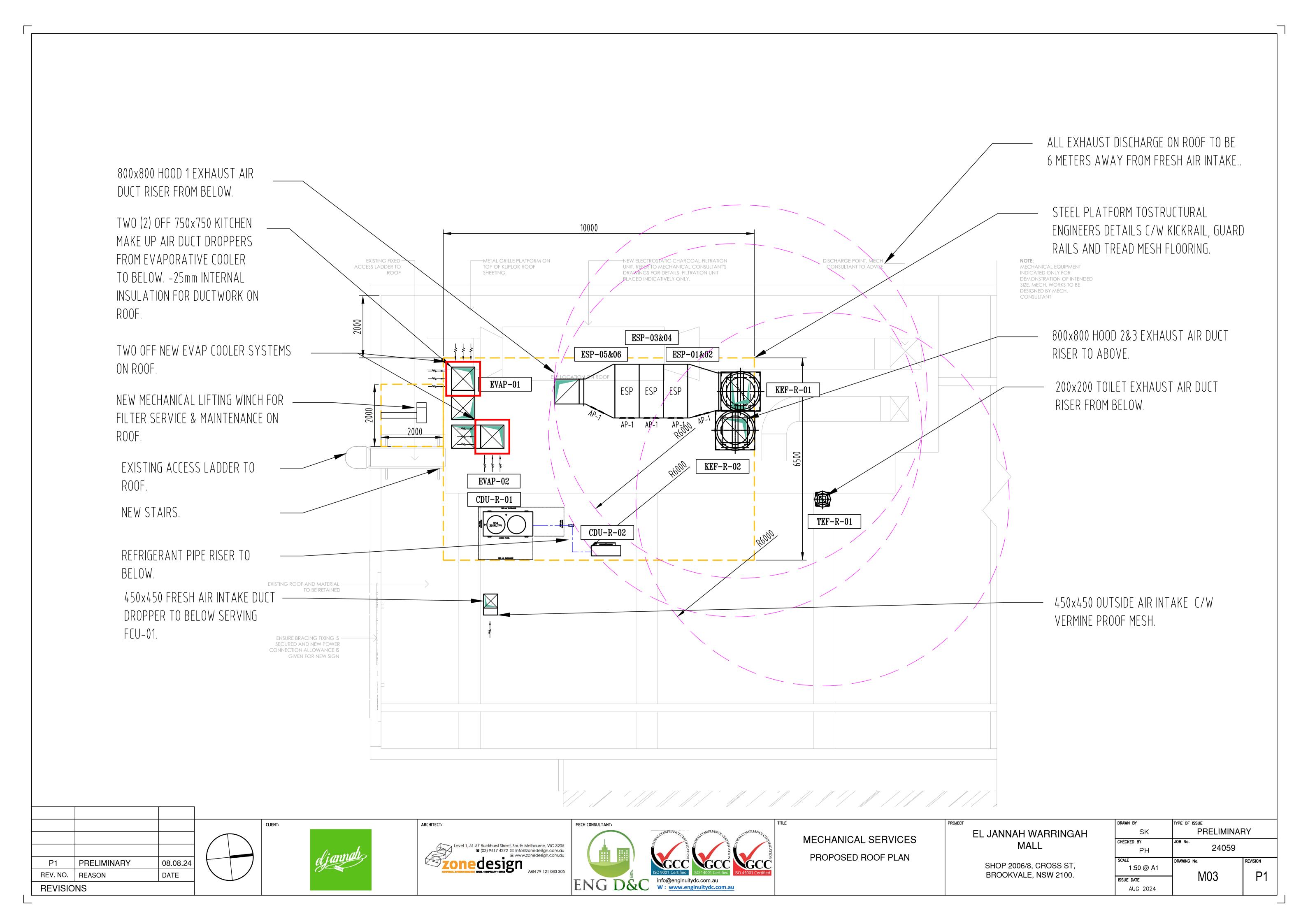
SYMBOLS & NOTES

**EL JANNAH WARRINGAH** MALL

> SHOP 2006/8, CROSS ST. BROOKVALE, NSW 2100.

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	CHECKED BY	<sup>ЈОВ №.</sup> 24059				
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	EL JANNAH FAN SCHEDULE													
ITEM NUM	QTY	SERVING	FLOW RATES (L/S)	EXTERNAL STATIC PRESSURE (Pa)	dB(A) @ 3m	SPEED (RPM)	POWER (kW)	FLC (A)	PHASE	VARIABLE FREQUENCY DERIVE	TYPE	POWER SOURCE	ESSENTIAL/ NON ESSENTIAL	MAKE / MODEL
KEF-R-01	1	HOOD 1 EXHAUST AIR FAN	5000	550	61	(40Hz)	7.50	13.40	3Ø	YES	VERTICAL DISCHARGE	MSSB	NON ESSENTIAL	ECO DYNAMIC MODEL ARV-1000-4D-AL
KEF-R-02	1	HOOD 2 & 3 EXHAUST AIR FAN	5500	550	61	(40Hz)	7.50	13.40	3Ø	YES	VERTICAL DISCHARGE	MSSB	NON ESSENTIAL	ECO DYNAMIC MODEL ARV-1000-4D-AL
TEF-R-01	1	TOILET EXHAUST AIR FAN	100	200	76	1935	0.16	1.39	1Ø	NO	DOWNFLOW DISCHARGE	MSSB	NON ESSENTIAL	FANTECH MODELCEEC25D

<sup>\*</sup> KEF-01 & 02 PROVIDED BY OTHERS, ENGINUITY TAKE NO DESIGN RESPONSIBILITY FOR THIS EQUIPMENT.

	EL JANNAH EVAPORATIVE COOLER SCHEDULE											
ITEM NUM	QTY	SERVING	FLOW RATE (L/S) HIGH SPEED	FLOW RATES (L/S) NOMINATED	POWER (kW)	FLC (A) LOW/HIGH	WATER USAGE L/HR	FILTER MEDIA SIZE(mm)xWIDTH(mm)	DEPTH/WIDTH/HEIGHT (mm)x(mm)x(mm)	POWER SOURCE	ESSENTIAL/ NON ESSENTIAL	MAKE / MODEL
EVC-01	1	KITCHEN MAKE UP AIR	5100	4200	1.00	2.9/5.6	35	3 OFF 830Hx 950W	1090x1090x1320	MSSB	NON ESSENTIAL	COOL BREEZE CASCADE MODEL S240
EVC-02	1	KITCHEN MAKE UP AIR	5100	4200	1.00	2.9/5.6	35	3 OFF 830Hx 950W	1090x1090x1320	MSSB	NON ESSENTIAL	COOL BREEZE CASCADE MODEL S240

	INDUSTRIAL ELECTROSTATIC PRECIPITATOR SCHEDULE								
ITEM NUM	QTY	SERVING	FLOW RATES (L/S)	SIZE (LENGTHxWEIDTHxHIGHT)	FLANCH HOLE SIZE (mm) (AxB)	WEIGHT (mm) (AxB)	RATED POWER (W)	MODEL	
ESP-01	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	ТВС	180	TBC	GxESP-10000X	
ESP-02	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	ТВС	180	TBC	GxESP-10000X	
ESP-03	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	TBC	180	TBC	GxESP-10000X	
ESP-04	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	TBC	180	TBC	GxESP-10000X	
ESP-05	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	TBC	180	TBC	GxESP-10000X	
ESP-06	1	CHARCOAL HOOD EXHAUST	2500	1725mm x 780mm x 890mm	TBC	180	TBC	GxESP-10000X	

	TEMPERZONE SPLIT AIR CONDITIONING SYSTEM INDOOR UNIT SCHEDULE (NOMINAL)												
ITEM TAG NUMBER	QTY	SERVING AREAS	TOTAL COOLING CAPACITY (kW)		EER/COP	AIR FLOW (L/s) (NOMINAL)	EXTERNAL STATIC PRESSURE (Pa)		CIRCUIT BREAKER	DESIGN DB TEMP.	COOLING WB TEMP.	UNIT WEIGHT	MAKE / MODEL
FCU-01	1	SHOP FRONT AREA	35.1	35	3.29/3.59	1900	200	350	3Ø/23A	27(°C)	19(°C)	124	TEMPERZONE MODEL ISD 351LYX TEMPERZONE MODEL OSA 351RLTFX
FCU-02	1	SERVER ROOM	8.50	9.00	3.62/3.38	380	-	-	1Ø/-A	27(°C)	19(°C)	19	DAIKIN MODEL FTXM85WVMA DAIKIN MODEL RXM85WVMA

FCU-01 -kW

23A

TEMPERZONE

	KITCHEN EXHAUST HOOD SCHEDULE							
ITEM NUM	QTY	COOKING APPLICATION	FLOW RATES (L/S)	HOOD SIZE				
HOOD 1	1	CHARCOAL PIT	5000	4000x1650				
HOOD 2	1	GENERAL COOKING	4000	4500x1200				
HOOD 3	1	GENERAL COOKING	1500	2000x1200				

### NOTES:

- 1) HOODS TO BE CONSTRUCTED TO AS1668.2 (2012) STANDARDS.
- 2) ALL HOODS STAINLESS STEEL TYPE.
- 3) CONNECTIONS TO HOOD FOR SUPPLY & EXHAUST AIR TO BE FINALISED AFTER SITE MEASURES.
- 4) ALL HOODS TO BE PROVIDED WITH SPARK ARRESTORS.

	AIR FLOW (L/s)	DIAMETE
	1 - 60	150
	60 - 110	200
	111 - 175	250
	176 - 200	300
	201 - 300	350
1	301 - 425	400
	425 - 550	450
	NOTE - ALL FLEXIBLE DUCTWORK (	CARRYING CONDITION
	APARTMENTS TO HAVE AN R VALU	E OF 1.2 OR BETTER.

111 - 175	250
176 - 200	300
201 - 300	350
301 - 425	400
425 - 550	450
NOTE - ALL FLEXIBLE DUCTWORK	CARRYING CONDITIONED AIR WITHI

FLEXIBLE DUCT SCHEDULE

DIAMETER (mm)

150

200

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INCOMING ESSENTIAL SUBMAINS

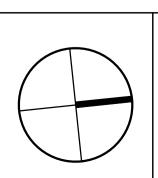
BY ELECTRICAL CONTRACTOR

415 V/ 50 Hz/ 3 PHASE FAULT RATING 32 kA RMS

FROM MAIN DB

PROVISION FOR

MSSB



NON ESSENTIAL MECHANICAL SERVICES SWITCHBOARD LOCATED ON GF WITHIN STORAGE A.

KEF-R-01 7.50kW 13.40A

M ENERGY METER

100 AMPS



KEF-R-02 7.50kW 13.40A

EXHAUST FAN HOOD EXHAUST FAN EXHAUST FAN

CHARCOAL HOOD GENERAL COOKING TOILET



CDU-R-01

-kW 23A

**TEMPERZONE** 

ISD 351LYX OSA 351LYX

FCU-02 -kW

FTXM85WVMA

CDU-R-02

23A



EVC-02 1kW 5.6A

**EVAPORATIVE** 

EVC-01 1kW

5.6A

EVAPORATIVE

ESP-03&04

ELECTROSTATIC

**PRECIPITATORS** 

**PRECIPITATORS** 

ESP-05&06

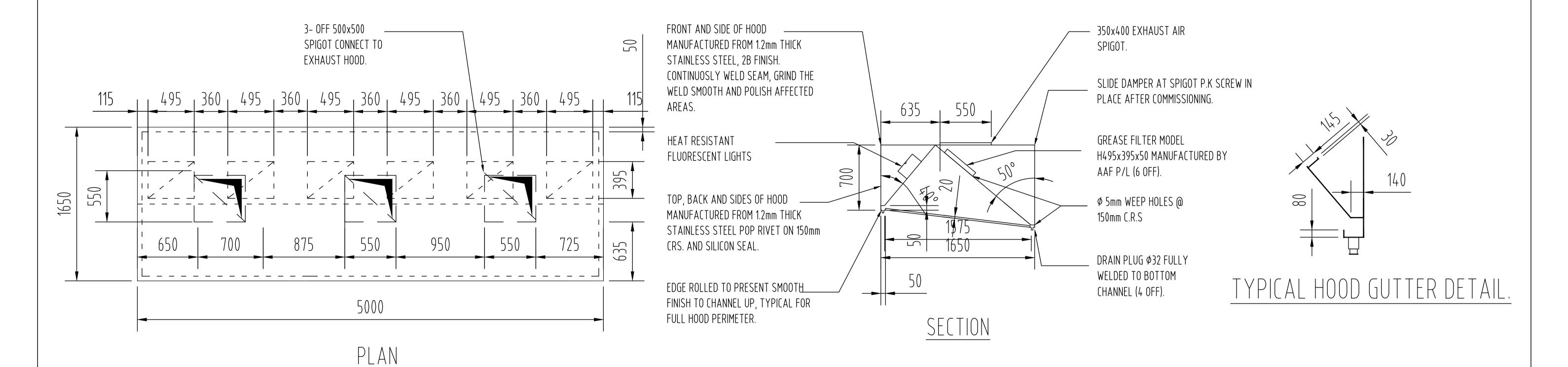
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MECHANICAL SERVICES **EQUIPMENT SCHEDULES** 

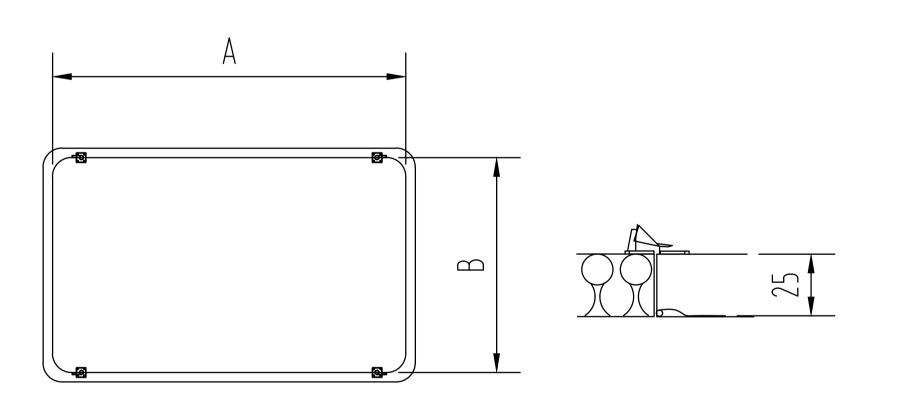
CONTROLS SPARE

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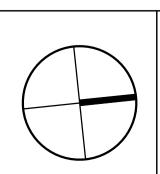
EL JANNAH HOOD DETAIL.



AP MODEL	AxB	No. of CAMLOCKS
0	648 × 500	4
1	500 x 368	4
2	375 x 241	2
3	241 x 149	2

TYPICAL ACCESS PANEL DETAIL.

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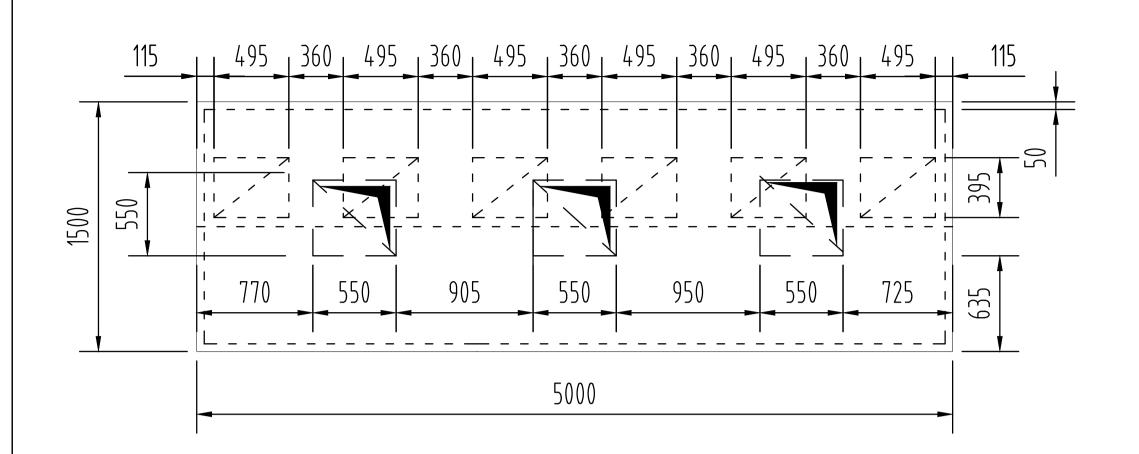


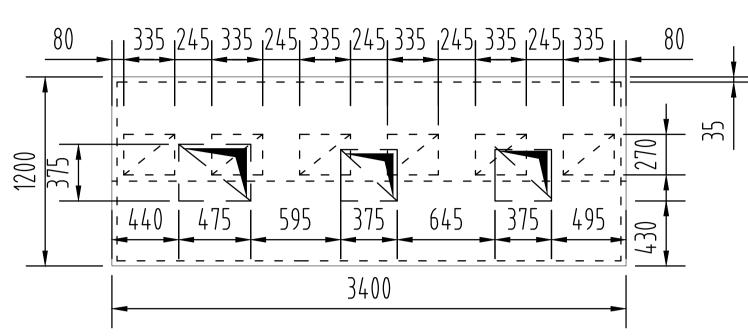
MECHANICAL SERVICES
HOOD DETAILS

DJECT	
	EL JANNAH WARRINGA
	MALL

SHOP 2006/8, CROSS ST, BROOKVALE, NSW 2100.

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### FRONT AND SIDE OF HOOD - 350x400 EXHAUST AIR MANUFACTURED FROM 1.2mm THICK SPIGOT. STAINLESS STEEL, 2B FINISH. CONTINUOSLY WELD SEAM, GRIND THE SLIDE DAMPER AT SPIGOT P.K SCREW IN WELD SMOOTH AND POLISH AFFECTED PLACE AFTER COMMISSIONING. AREAS. GREASE FILTER MODEL HEAT RESISTANT H495x395x50 MANUFACTURED BY FLUORESCENT LIGHTS AAF P/L (6 OFF). TOP, BACK AND SIDES OF HOOD ø 5mm WEEP HOLES @ MANUFACTURED FROM 1.2mm THICK 150mm C.R.S STAINLESS STEEL POP RIVET ON 150mm CRS. AND SILICON SEAL. DRAIN PLUG Ø32 FULLY WELDED TO BOTTOM EDGE ROLLED TO PRESENT SMOOTH CHANNEL (4 OFF). FINISH TO CHANNEL UP, TYPICAL FOR FULL HOOD PERIMETER. SECTION

NOTE: METHOD OF SEALING

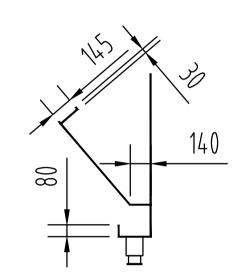
TO BE APPROVED BY LOCAL

PACK PENETRATION

WITH APPROVED FIRE

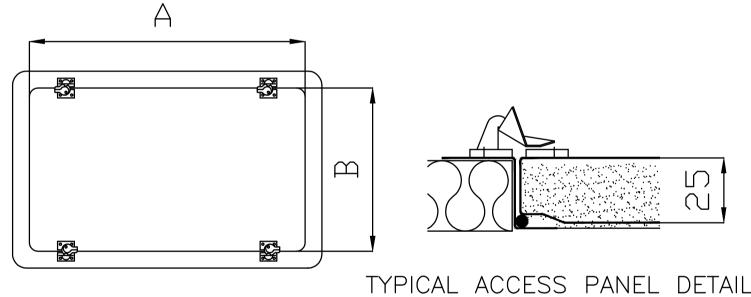
RESISTANT MATERIAL

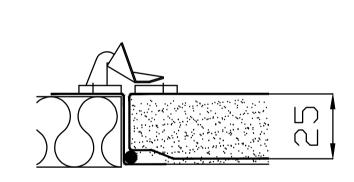
**AUTHORITIES HAVING** JURISDICTION.



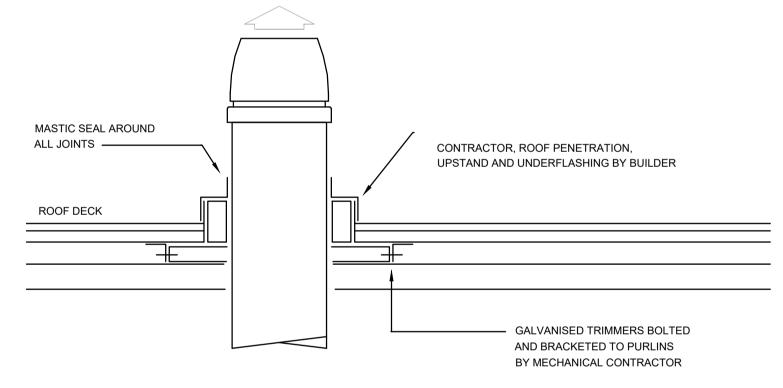
# TYPICAL ACCESS PANEL DETAIL.

# TYPICAL HOOD GUTTER DETAIL.





	AP MODEL	АхВ	No OF CAMLOCKS
•	0	648 x 500	4
	1	500 x 368	4
,	2	375 x 241	2
	3	241 x 149	2



TYPICAL FIRE RATED WALL PIPE PENETRATION DETAIL (NON-INSULATED)

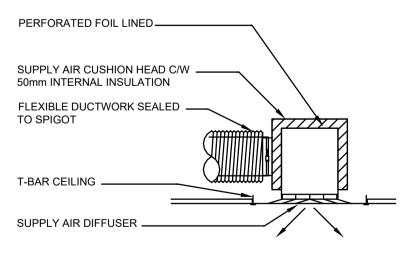
FIRE RATED WALL

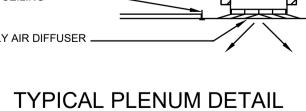
- SHEET METAL

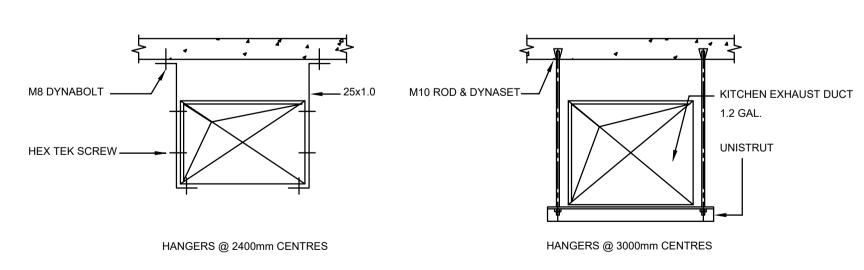
FLASHING ANGLES

INSTALLED EITHER SIDE OF WALL

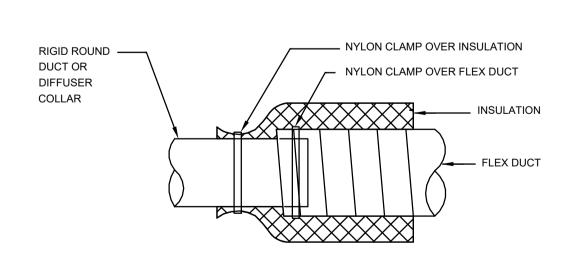
ROOF PENETRATION AND VERTICAL DISCHARGE



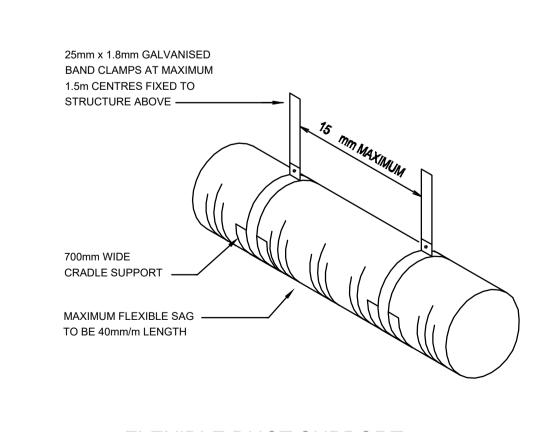




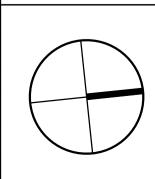
**DUCT HANGER DETAIL** 



FLEXIBLE DUCT CONNECTING DETAIL



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MECHANICAL SERVICES
INSTALLATION DETAILS

Γ	EL JANNAH WARRINGAH MALL
	SHOP 2006/8, CROSS ST,

BROOKVALE, NSW 2100.

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SCALE	DRAWING No.	REVISION	
NTS @ A1	M06	D1	
ISSUE DATE			
AUG 2024			

### **SPECIFICATION NOTES:**

The design drawings show the position of equipment and layouts throughout the building. Consider the drawings as diagrammatic only unless specifically dimensioned relative to other building elements.

### **Extent of Work**

Supply, install, test and commission the Mechanical Services and systems as specified herein including:

- Base Building provide Supply and installation of Two (2) Kitchen Exhaust fans.
- Base Building provide Supply and installation of Two (2) Evap Cooler Units.
- Supply and Installation of One (1) Temperzone AC Unit serving front shop and Dining area.
- Supply and Installation of One (1) DAIKIN AC Unit serving Server Room.
- Base Building provide Supply and installation new ESP filtration for charcoal exhaust system.
- Base Building provide Supply and installation new Toilet room exhaust system.
- Supply and install One (1) Mechanical Services Switch Board.
- Insulated condensate drain piping from equipment to tundishes to be coordinated on site with hydraulics trade and clearly shown on workshop drawings. Condensate pumps shall be utilised where gravity fall is not possible.
- Vibration isolation mounts (springs) shall be installed on all mechanical equipment.
- Install solid steel duct collars to all flexible ducts passing through full height walls and/or wavebar.
- All sheetmetal and ductwork for air conditioning and ventilation systems including all fittings such as volume controls, access panels, flexible connections, plenum boxes, air boots, flashings, gaskets to form a complete air distribution system.
- Wiring of mechanical systems from local isolators
- Air balance and commissioning of the mechanical systems.
- Chasing in walls and floors for cables and the like as required. Core drilling to be carried out to the approval of the building structural engineer.
- Overflashing of all penetrations through the structure.
- Controls and associated equipment for the automatic regulation of the systems.
- All lifting, lowering, handling for all equipment.
- Identification of equipment as specified with traffolyte labels.
- Testing and demonstrating the performance of all mechanical systems.
- Submit coordinated "Working drawings" and "As Installed" drawings, including permanent reduced scale diagrams as specified. Instruction Manuals.
- Coordination of works with all services.

### **Associated Works**

The following works associated with the work covered by this specification will be required.

### **Builders Work**

- The provision and making good around all openings in the building structure for the penetration of pipes, ducts, grilles and conduits and all cutting, patching, framing up, furring in and making good associated with the building structure, including chases.
- The provision of trimmed openings in walls, ceilings and doors for diffusers, louvres and grilles.
- The provision of permanent access openings for adjustment and maintenance of plant.
- Provision of temporary power during construction.
- Provision of undercuts in doors.

### **By Electrical Contractor**

- Provision to run power to w/proof contactors' adjacent mechanical equipment and DBs

### By Hydraulic Contractor

- The provision of tundishes as indicated on the drawings and required by the mechanical plant.
- The provision of water supply to evaporative coolers.
- The provision of drain from evaporative coolers.

### By the Principal

Provision of power and water for testing and commissioning.

### MAINTENANCE:

- Regular maintenance to be carried out in accordance with DA19 (AIRAH) maintenance schedules. These shall be outlined in Mech Contractors handover manual.

### **Shop Drawings:**

Mech Contractor to provide coordinated shop drawings for approval prior commencing work on site.

### Information to be Provided

Provide detailed dimensioned drawings in ample time for accurate positioning of all:

08.08.24

DATE

### Openings.

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- Pipe sleeves & Holding-down bolts.

**PRELIMINARY** 

CLIENT:







MECHANICAL SERVICES

MECHANICAL

SPECIFICATIONS

EL JANNAH WARRINGAH MALL

> SHOP 2006/8, CROSS ST, BROOKVALE, NSW 2100.

# DRAWN BY SK PRELIMINARY CHECKED BY PH SCALE NTS @ A1 ISSUE DATE AUG 2024 TYPE OF ISSUE PRELIMINARY 24059 PREVISION P1

Other anchorage and/or fixings required

Air diffusers and grilles.

Tundishes.

"As Installed" and "Workshop " Drawings

Submit workshop drawings for review. Drawing submissions via electronic PDF and DWG copies. Update drawings to include comments by the consultant and coordinate with other services.

Permanent access openings in roof for adjustment and maintenance of equipment.

Show precise details of all services exactly as installed and record any variations or modifications made during testing and commissioning on the "As Installed" drawings.

Include the following information in the "As-Installed" drawings:

- Duct and Equipment layouts including control element locations.
- Switchboard and Control Panel diagrams.
- Wiring and control diagrams.

Incorporate the "As Installed" drawings in the Building Instruction Manuals.

Provide an electronic media copy of all drawings in AutoCAD 2010 format.

### **Instruction Manuals**

Prior to Practical Completion prepare and issue instructions for operating and maintaining the services.

Supply the manuals in hard backed binders, comprising one (1) set of record drawings and three (3) complete sets of instructions for operation and maintaining the service

### **Codes and Authorities**

Comply in every way with the requirements of any Authority having jurisdiction over the works.

Compliance with an Australian Standard will mean the latest publication from Standards Australia.

Where Standards Australia has not yet issued Specifications or Codes comply with the relevant British of American Standard acceptable by the Authorities.

### Installation to comply with:

- BCA SECTION J (2019)
- AS 1668 Parts 1 and 2
- AS 4254 Part 1 and 2
- AS 3000
- AS 3666
- DA Conditions
- BASIX

### **Compliance Tests**

Provide all certificates showing compliance with the requirements of these documents and of any Authority having jurisdiction over the project

### Operating Tests

Carry out operating tests prior to Practical Completion. Provide a detailed report at completion showing:

- Preliminary readings
- Final balance figures for each circulating system.

OHS standards to WorkCover requirements

- Name plate rating.
- Full load operating current for each motor.
- The settings for each electrical and control element.
- Include all air flows on "As built" drawings.

### Air Systems

Adjust each air terminal to provide an even distribution over the face. Air balance to within +10% -0% of the value shown on the drawings with

volume dampers set to achieve the lowest practical fan speed and power consumption.

### **Commissioning and Instruction**

Provide a competent and experienced commissioning engineer who shall be on site throughout the commissioning period.

Carry out all necessary preparations, tests and other activities including a thorough cleaning of all piping and equipment, cleaning of site, lubrication of equipment and pre-service testing required to achieve the ready for commissioning stage.

### **Noise and Vibration**

Supply and install anti vibration mountings to the air conditioning units, fans, ducts and pipework in accordance with the manufacturer's recommendations and to satisfy the requirements of AS2107

Contractor shall obtain a copy of the project specific acoustic report.

### **Control Description**

### AIR CONDITIONING

Provide a 365 days programmable time clock controller to operate front of house air conditioning system. Only AC-01 will operate with AC-02 to AC-05 Isolated. Temperature set points shall be:

- Cool to 24°C
- Heat to 21°C

Following control functions and features as a minimum:-

- Adjustment ability for temperature, mode, fan speed.
- Scheduled timer functions.
- LCD screen and operation/service installation menus.

Where indicated, supply and install wall mounted temperature sensors. Sensors to be located 1500mm AFFL as shown on the drawings. Position sensors so they are not covered or hidden.

### Air conditioning system Outside Air Systems

Outside air to be provided via existing outside air fan and new water cooler system.

### Misc Ventilation Systems

- Garbage exhaust fan to operate 24/7
- Toilet exhaust fans to operate via programmable time clock 7am 12 am

### - Tollet exhaust fan

Heating (FOH ONLY)
Heating is by reverse cycle operation.

### **General & Charcoal Kitchen Exhaust**

Each Kitchen exhaust system (General & Charcoal) will be independently started and stopped via a wall mounted

"ON/OFF" switch that clearly labelled; Kitchen exhaust will operate at a fixed constant speed until system is

manually turned off.

Provide following note above switches on a traffolyte label: "Warning: This ventilation system shall not be turned off

during a fire."

### **EVAP COOLER/MAKE UP AIR**

2 evaporative coolers will be provided to supply tempered make up air with 24°C set point. EVC-01 will be

interlocked with KEF-01. EVC-02 will be interlocked with KEF-02.

### **ESP**

Per 1668.2 (2012) requirements, the ESP system will operate with KEF-01 ( Charcoal exhaust). Should the ESP go

into fault, the charcoal exhaust system will continue to run in order to remove smoke.

### ELECTRICAL SYSTEMS

### General

Provide all electrical services required for the correct operation of the Mechanical Service installation and as specified herein. Electrical work is to be carried out by licensed electrical sub-contractors, who are experienced in Mechanical Services installation to the requirements of AS 3000.

### Continuity of Supply

Where electrical facilities exist on the site and/or premises, maintain these facilities to suit the convenience of consumers; any interruption to the electricity supply being made only with written consent.

### Plant Wiring Methods

### Wiring Generally

Wiring shall be TPI cables in conduit or cable duct, or TPS or MIMS cables on cable tray with conductors rated to suit the respective load circuit, except where specifically stated otherwise. All wiring and cabling shall comprise copper conductors unless otherwise stated.

### WARRANTY

Make good any defects caused by faulty workmanship and/or materials during the One year Defects Liability Period upon notice.

### Time warranties for workmanship, Equipment and materials

The time warranties for the work commence at the agreed date of practical completion given for the completion of the whole building project.