



2. ISSUED FOR TENDER 08.16.2018
1. ISSUED FOR 90% REVIEW 07.27.2018

Revision/Revision	Description/Description	Date/Date
Client/client		

**FISHERIES AND OCEANS,
REAL PROPERTY,
SAFETY AND SECURITY**

**VANCOUVER, BC
200-401 BURRARD ST.**

Project title/Titre du projet

**CENTER FOR
AQUACULTURE &
ENVIRONMENTAL
RESEARCH**

NEW & RENOVATED LABS
4160 Marine Dr. West Vancouver

Consultant Signature Box Only

Designed by/Concept par
PDT

Drawn by/Dessiné par
HCP

PWGSC Project Manager/Administrateur de Projets TPSGC
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PWGSC Regional Manager, Architectural and Engineering Services/
Gestionnaire régionale, Services d'architecture et de génie, TPSGC
PREETIPAL PAUL

Drawing title/Titre du dessin

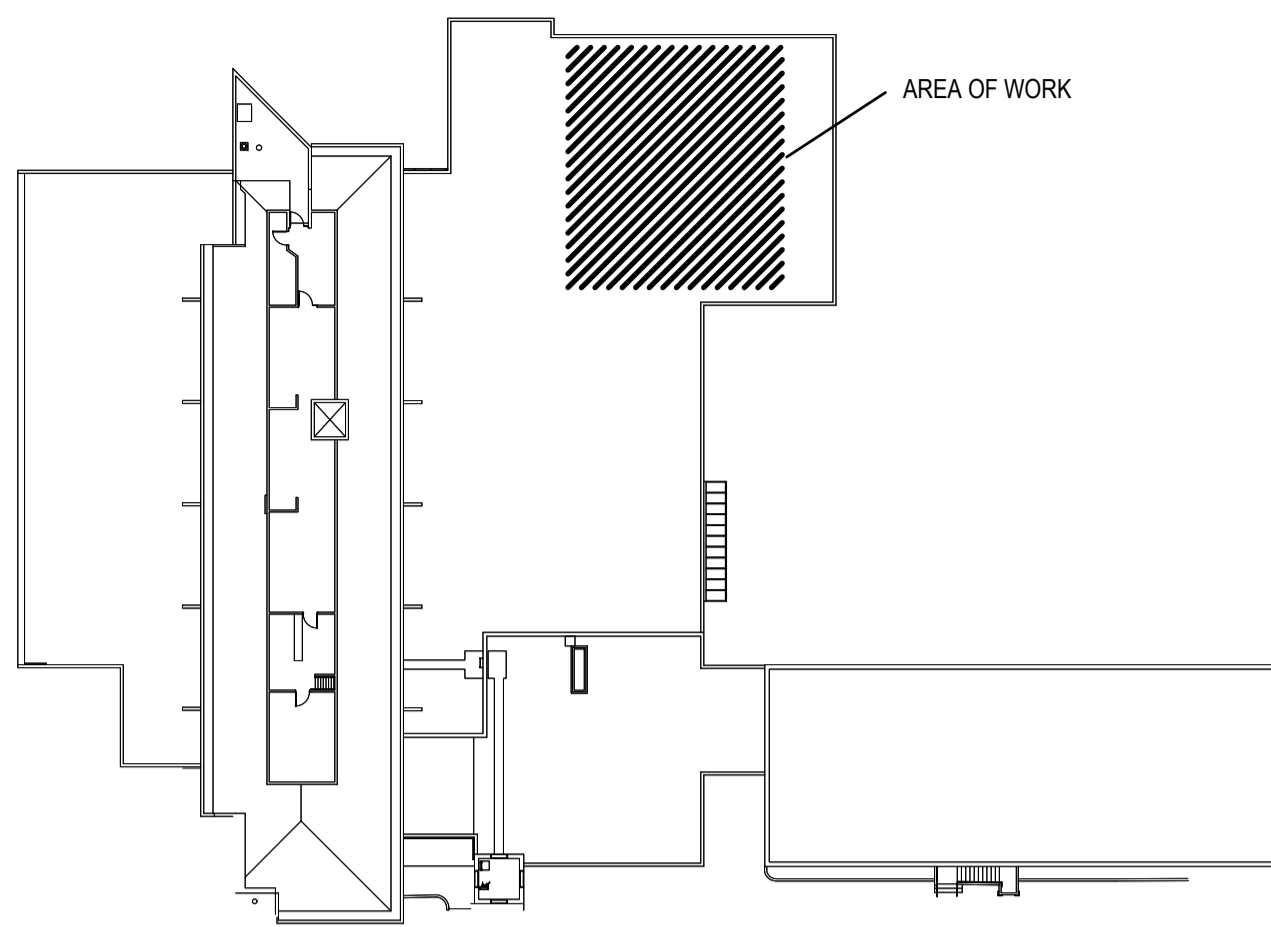
**SCHEDULES, LEGEND
AND DRAWING LIST**

Project No./No. du projet

Sheet/ Feuille

Revision no./
La Révision
no.

- **M0.01** 0



KEY PLAN 1:500

HEATING UNIT SCHEDULE									
TAG	BUILDING	TYPE	DUCT SIZE (WxH) mm	AIR FLOW l/s / cfm	ELECT DATA			NOTES	
					kW	VOLTS	PHASE		
EHC-100	FEED LAB	ELEC HEATING COIL	250x250	155 / 330	4.5	208	3	1	

NOTE:
1. COMPLETE WITH AIR PROVING SWITCH, SCR CONTROL, ROOM THERMOSTAT

HEAT RECOVERY VENTILATOR SCHEDULE																
TAG	LOCATION	SERVICE	AIR FLOW l/s / cfm	EXT. STATIC PRESS. Pa / in	SONES	EFFICIENCY							ELECT DATA			NOTES
						WINTER	O/A EAT °C / °F	E/A EAT °C / °F	S/A LAT °C / °F	SENSIBLE	TOTAL	MOTOR HP	VOLTS	PHASE		
HRV-100	FEED LAB CEILING	OUTDOOR AIR EXHAUST AIR	155 / 330 155 / 330	80 / 0.33 80 / 0.33	1.5	WINTER	-6.7 / 20	22.2 / 72	14.7 / 58.5	70.0%	74.0%	330 W	208	1	1	

NOTE:
1. INTERNAL UNIT COMPLETE WITH VIBRATION ISOLATION, FLEXIBLE CONNECTIONS, FILTERS, CROSSFLOW CORE, MOTORIZED DAMPERS INCLUDING BYPASS DAMPERS FOR FREE COOLING.

TANK SCHEDULE													
TAG	SERVICE	TYPE	ORIENTATION	VOLUME L / Usgal	RECOVERY LPH / GPH	DIMENSIONS mm	TOP TAPPINGS # - mm	FRONT TAPPINGS # - mm	MAX. WORKING PRESSURE kPa / psi	ELECT DATA			
										kW	VOLTS	PHASE	NOTES
T-DHW	FEED LAB DOMESTIC HOT WATER	ELECTRIC	VERTICAL, CEILING MOUNTED	72 / 19	42 / 11	OL: 600mm DIA: 450mm	2 - 20 IN, 20 OUT	TOP: T & P MID: NONE BOTTOM: DRAIN	1035 / 150	2.5	120	1	1, 2, 3

NOTE:
1. TAPPINGS ARE FOR PIPE CONNECTIONS. PROVIDE ADDITIONAL TAPPINGS AS REQUIRED FOR SENSORS AND SAFETY VALVES.
2. RECOVERY AT 50°C (90°F) TEMPERATURE RISE.
3. REFER TO SPECIFICATIONS.

EVAPORATOR AND CONDENSING UNIT SCHEDULE													
TAG	SERVICE	COOLING		EVAPORATOR (INDOOR) UNIT					CONDENSER (OUTDOOR) UNIT				
		SENSIBLE kW / MBH	TYPE	AIR FLOW L/s / cfm	NO. OF FANS	MOTOR HP	VOLTS	PHASE	TYPE	MOTOR HP	VOLTS	PHASE	NOTES
E-100 CU-100	FEED LAB COOLER	1.3 / 4.5	LOW PROFILE	450 / 950	1	1/15	120	1	AIR COOLED	1/2	208	1	1, 2

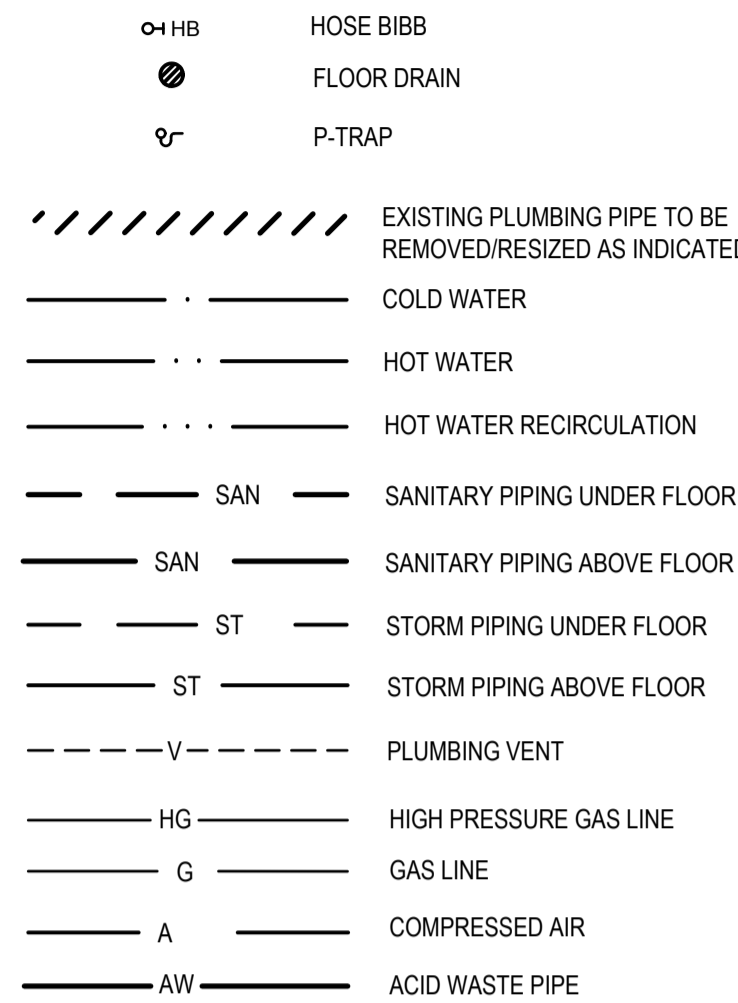
NOTE:
1. R-404a REFRIGERANT (HCFC REFRIGERANTS SHALL NOT BE USED).
2. COOLER UNITS SHALL BE RATED AT:
EVAPORATOR: EVAP TEMP: -4°C (25°F), BOX TEMP: 15°C (59°F)
CONDENSER: EVAP TEMP: -4°C (25°F), AMBIENT TEMP: 32°C (90°F).

GRILLE, REGISTER AND DIFFUSER SCHEDULE								
TAG	TYPE	BORDER	MATERIAL	CORE STYLE	LOUVRE ORIENT.	VOLUME DAMPER	FASTENING	FINISH
LF1	LAMINAR FLOW DIFFUSER	NOTE 1	ALUMINIUM	PERFORATED WITH INTERNAL BAFFLES	-	NO	SCREW TO DUCT	T-BAR WHITE
SD1	SQUARE SUPPLY DIFFUSER	NOTE 1	STEEL	SQUARE PLAQUE	-	NO	SCREW TO DUCT	T-BAR WHITE
SR1	SUPPLY GRILLE/ REGISTER	NOTE 1	ALUMINIUM	AIRFOIL DOUBLE DEFLECTION	L	YES	SCREW	BAKED ENAMEL, ALUMINIUM
RG1 / RR1	RETURN GRILLE / REGISTER	NOTE 1	ALUMINIUM	12 x 12 x 12 mm EGGRATE	-	AG-15 ON ER	EG-CONCEALED ER-SCREW	BAKED ENAMEL, ALUMINIUM
EG1 / ER1	EXHAUST GRILLE / REGISTER	NOTE 1	ALUMINIUM	12 x 12 x 12 mm EGGRATE	-	AG-15 ON ER	EG-CONCEALED ER-SCREW	BAKED ENAMEL, ALUMINIUM
TG1	TRANSFER GRILLE	NOTE 2	ALUMINIUM	AIRFOIL LOUVRED FIXED GRILLE	L, 45°, 20mm	NO	CONCEALED	BAKED ENAMEL, ALUMINIUM

NOTE:
1. BORDER/MOUNTING FRAME: ALUMINIUM CURVED FOR EXPOSED MOUNTING.
2. BORDER/MOUNTING FRAME: ALUMINIUM CURVED FOR SURFACE MOUNT TO SUIT APPLICATION.

PLUMBING LEGEND

DRAWING SYMBOLS:

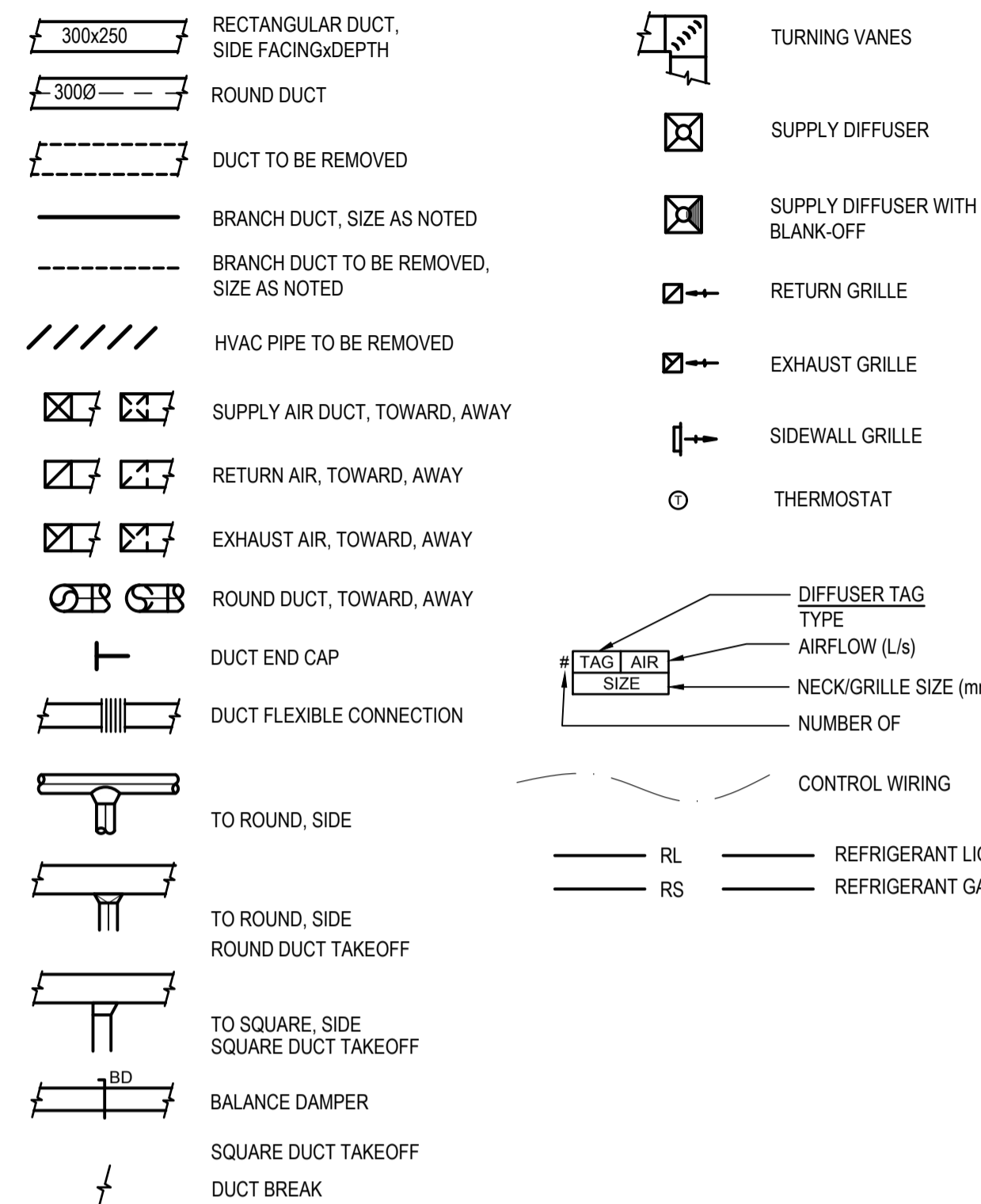


ABBREVIATIONS:

AW	ACID WASTE
C	COLD WATER
CA	COMPRESSED AIR
CO	CLEANOUT
DW	DISTILLED WATER
EW	EMERGENCY EYEWASH
ES	EMERGENCY EYEWASH/ SHOWER
FD	FLOOR DRAIN
H	HOT WATER
HB	HOSE BIBB
HD	HUB DRAIN
S	SINK
R	HOT WATER RECIRCULATION
Re	REMOVE EXISTING
RWL	RAIN WATER LEADER
S	SINK
SAN	SANITARY PIPING
SH	SHOWER
S.S	STAINLESS STEEL
VTR	VENT TO ROOF

HVAC LEGEND

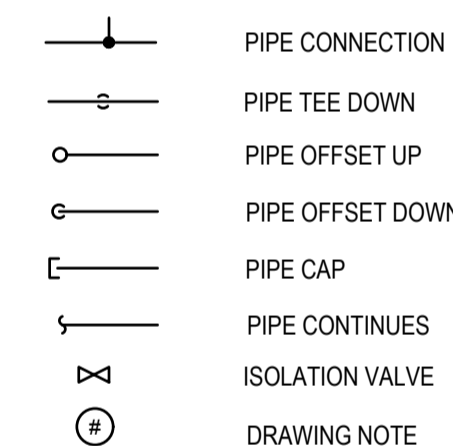
DRAWING SYMBOLS:



ABBREVIATIONS:

E/A	EXHAUST AIR
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
FH	FUME HOOD
L/s	LITRES PER SECOND
O/A	OUTDOOR AIR
R/A	RETURN AIR
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID
RR	RETURN REGISTER
S/A	SUPPLY AIR
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE
S.S	STAINLESS STEEL
T/A	TRANSFER AIR
TG	TRANSFER GRILLE

GENERAL SYMBOLS:



GENERAL ABBREVIATIONS:

CTE	CONNECT TO EXISTING
EX	EXISTING ITEM
NTS	NOT TO SCALE
Re	REMOVE EXISTING
R	RELOCATED ITEM
T.R.	TO REMAIN

MECHANICAL DRAWING LIST		
DRAWING NO.	DRAWING NAME	SCALE
M0.01	SCHEDULES, LEGEND & DRAWING LIST	N/A
M1.01	PLUMBING - LABS 129A, 129C, 131 DEMO AND NEW PLANS	1:100
M1.02	PLUMBING - FEED LAB PLAN AND DETAILS	1:50
M2.01	MECHANICAL - LABS 129A, 129C, 131 DEMO AND NEW PLANS	1:100
M2.02	MECHANICAL - FEED LAB PLAN AND DETAILS	1:50
M3.01	FIRE PROTECTION - LABS 129A, 129C, 131 AND FEED LAB	1:50

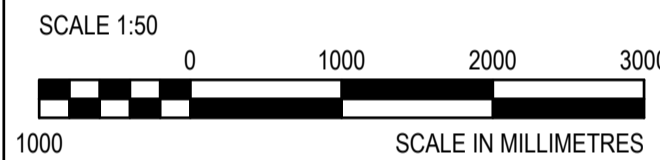
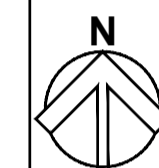
FUME HOOD SCHEDULE							
ROOM NO.	NAME	FUME HOOD NUMBER	SASH VELOCITY m/s / fpm	SASH HEIGHT mm / in	VENTED STORAGE	APPROX. AIR FLOW l/s / cfm	HOOD CONNECTION mm / in
131	LAB	FH-131	0.51 / 100	405 / 16	YES	315 / 670	305 / 12

SPLIT HEAT PUMP UNIT SCHEDULE								
TAG	SERVICE	TYPE	HEATING		COOLING SENSIBLE		ELECT DATA	
			kW / MBH	COOLING SENSIBLE kW / MBH	VOLTS	PHASE	NOTES	
HP-129c CU-129c	ACOUSTIC LAB HEAT PUMP	WALL HUNG	5.6 / 19.0	5.3 / 18.0	208	1	1, 2, 3	

NOTE:
1. SPLIT AIR CONDITIONING UNIT WITH DOUBLE CIRCUITED COIL SUITABLE FOR LOW AMBIENT OPERATION -17.8°C [0°F]. REFER TO SPECIFICATIONS.
2. RATED AT - OAT: 35°C DB, IAT: 23.9°C DB, 16.9°C WB.
3. CONTROLS SUBTRADE SHALL PROVIDE WIRING BETWEEN OUTDOOR UNIT AND INDOOR UNIT.

FAN SCHEDULE											
TAG	SERVICE	TYPE	AIR FLOW l/s / cfm	STATIC PRESSURE Pa / in	SONES	RPM	MOTOR HP	ELECT DATA			
								VOLTS	PHASE	NOTES	
EF-131	FUME HOOD EXHAUST	TUBULAR CENTRIFUGAL INLINE, BELT DRIVE	315 / 670	185 / 0.75	9.8	1884	1/3	120	1	1	

NOTE:
1. OUTDOOR MOUNTED FAN COMPLETE WITH VIBRATION ISOLATION, STAINLESS STEEL SHAFT, SS HARDWARE, SS FASTENERS.



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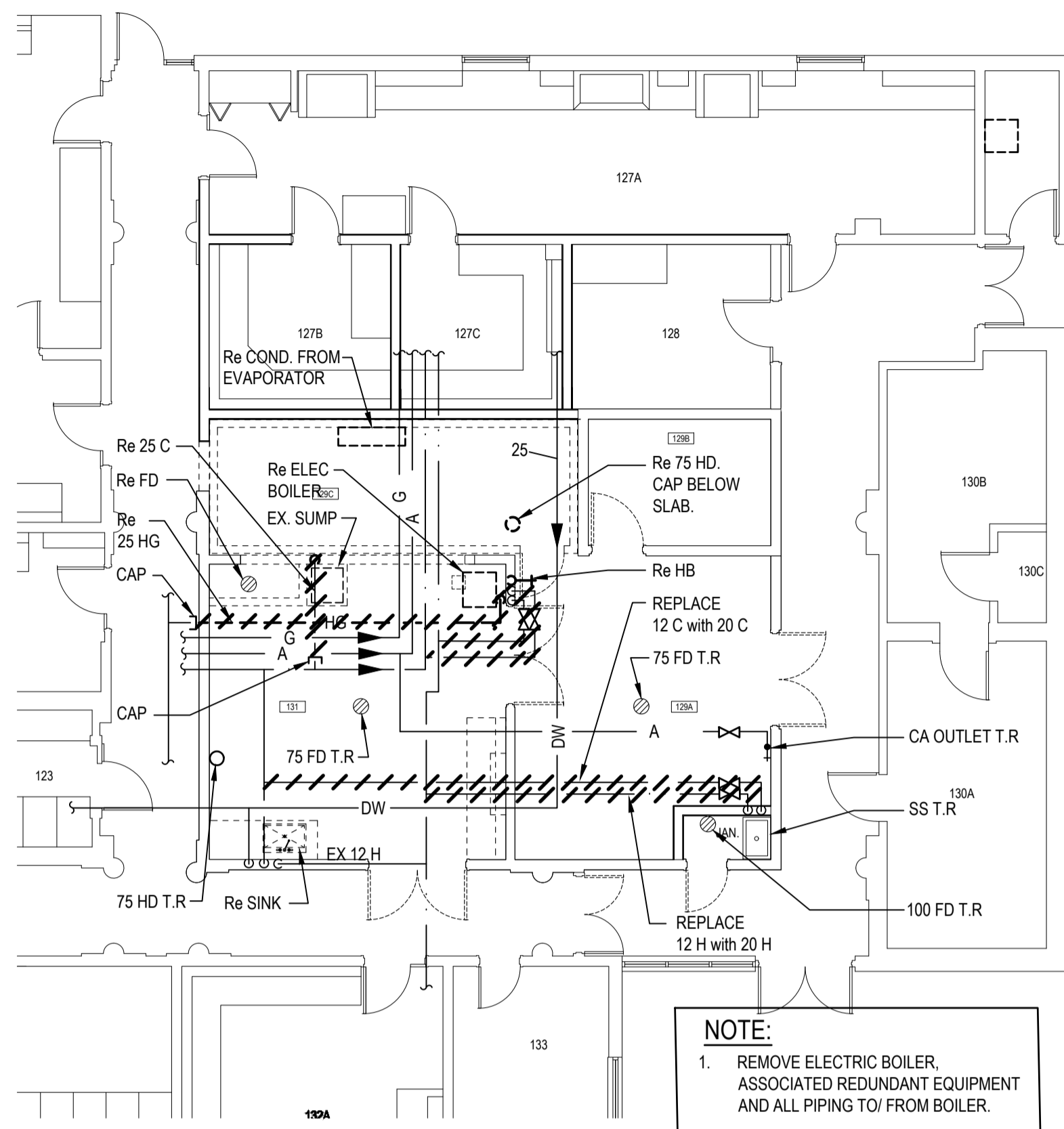
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 VANCOUVER, BC
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 4160 Marine Dr. West Vancouver

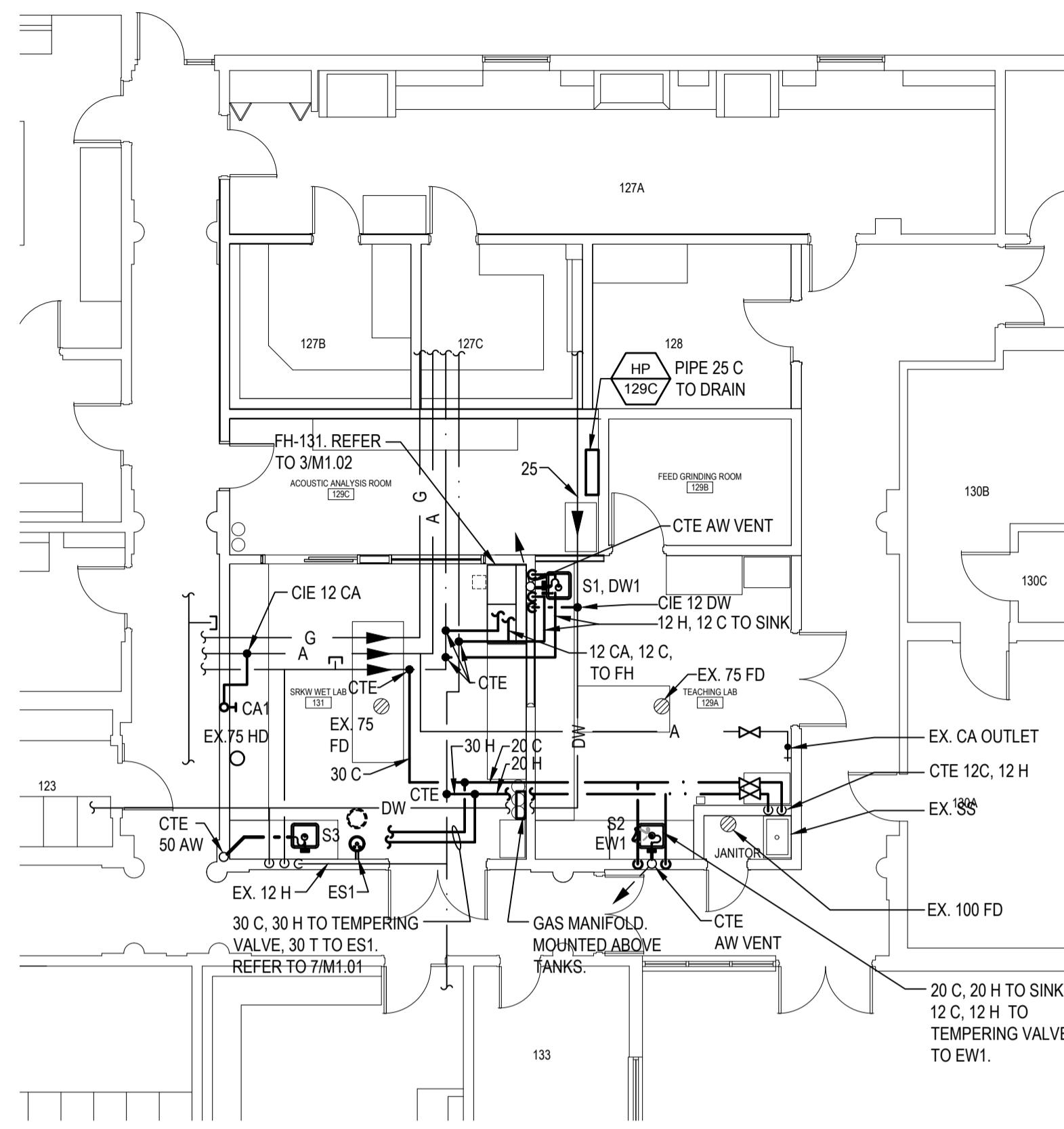
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PREETIPAL PAUL

Drawing title/Titre du dessin
PLUMBING LABS 129A, 129C, 131 DEMO & NEW PLANS

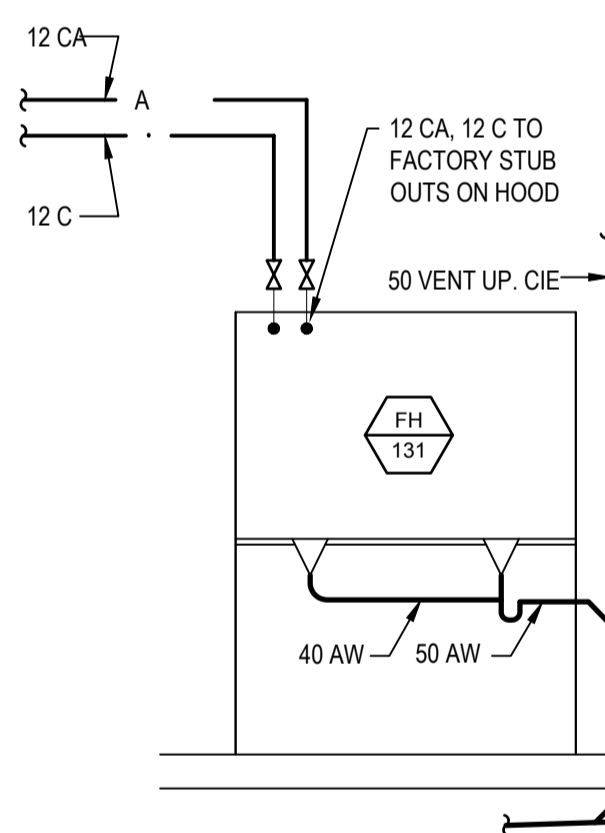
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-	M1.01	0



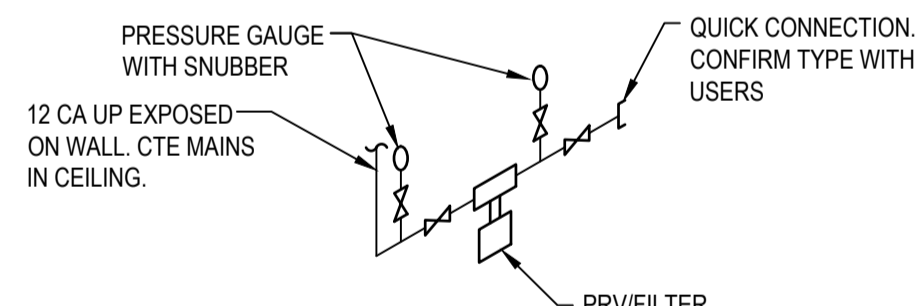
1 FLOOR PLAN - DEMO
 M1.01 SCALE: 1:100



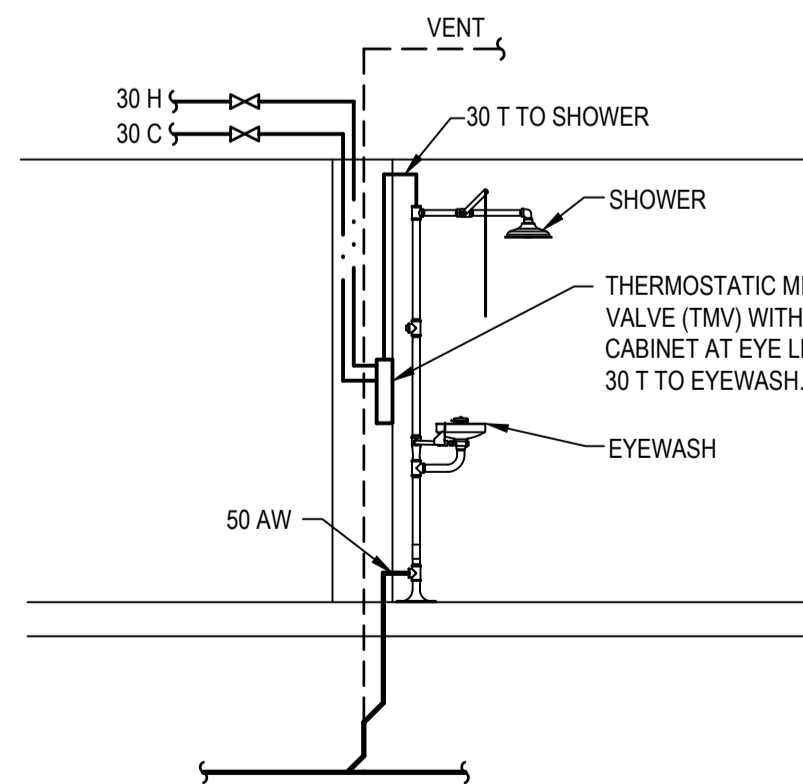
2 FLOOR PLAN - NEW
 M1.01 SCALE: 1:100



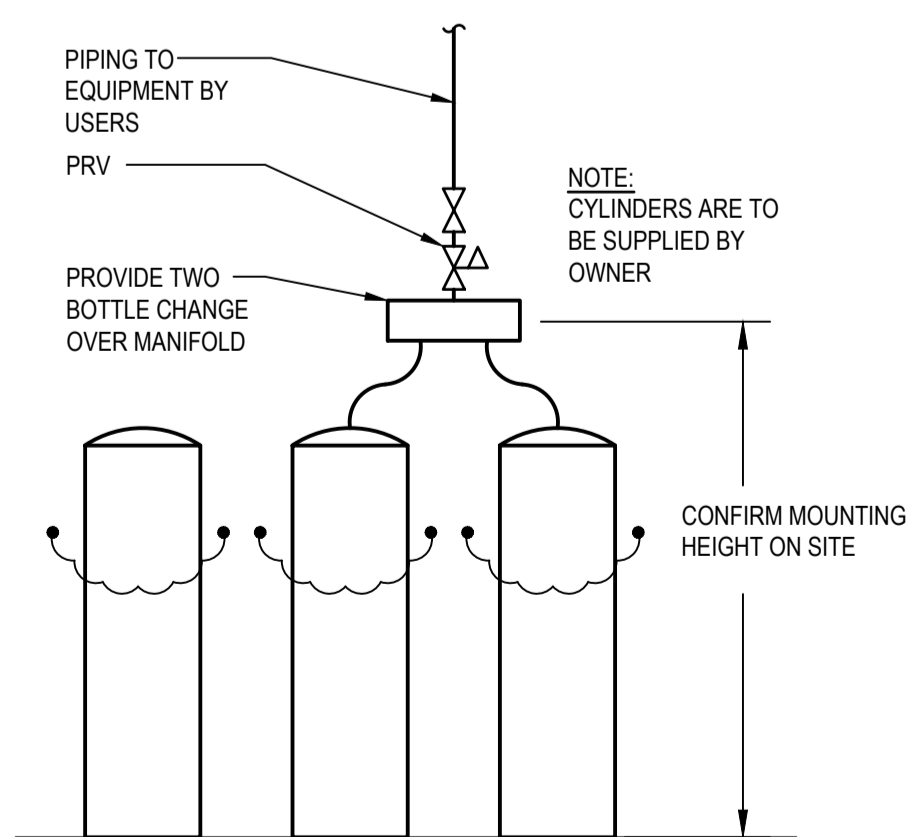
4 FUME HOOD SERVICES
 M1.01 SCALE: N.T.S.



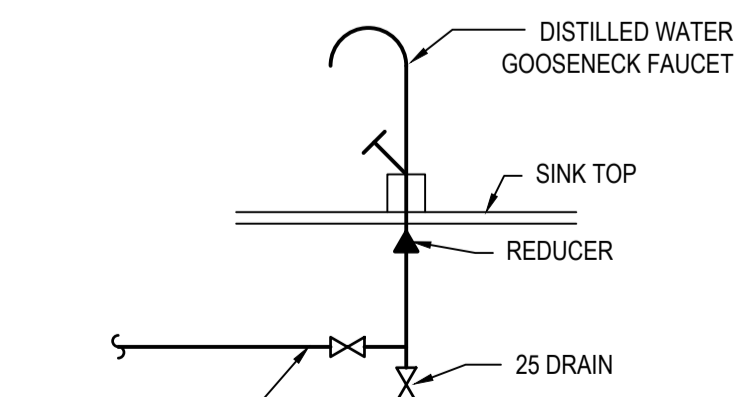
5 COMPRESSED AIR OUTLET (CA1)
 M1.01 SCALE: N.T.S.



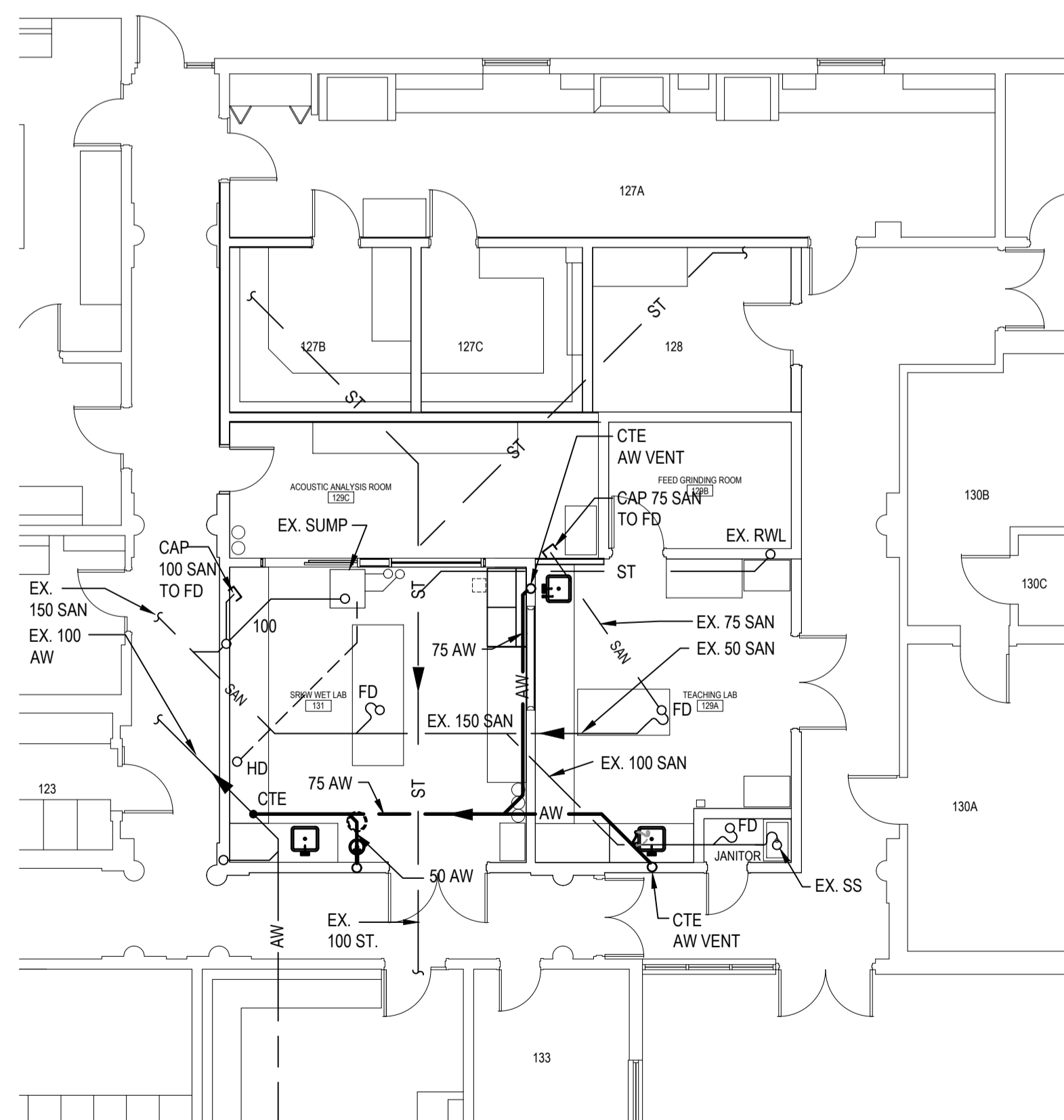
7 EMERGENCY SHOWER PIPING - ES1
 M1.01 SCALE: N.T.S.



6 GAS MANIFOLD
 M1.01 SCALE: N.T.S.

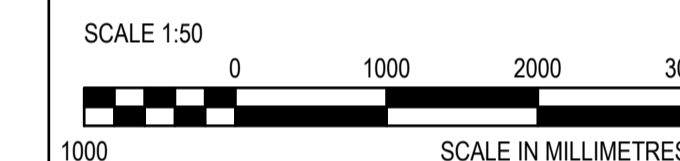
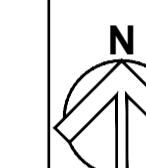
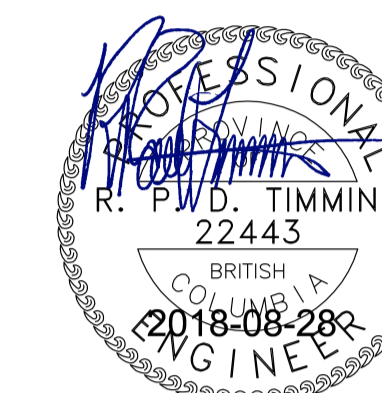


8 DISTILLED WATER PIPE SCHEMATIC
 M1.01 SCALE: N.T.S.



3 UNDER FLOOR PLUMBING PLAN
 M1.01 SCALE: 1:100





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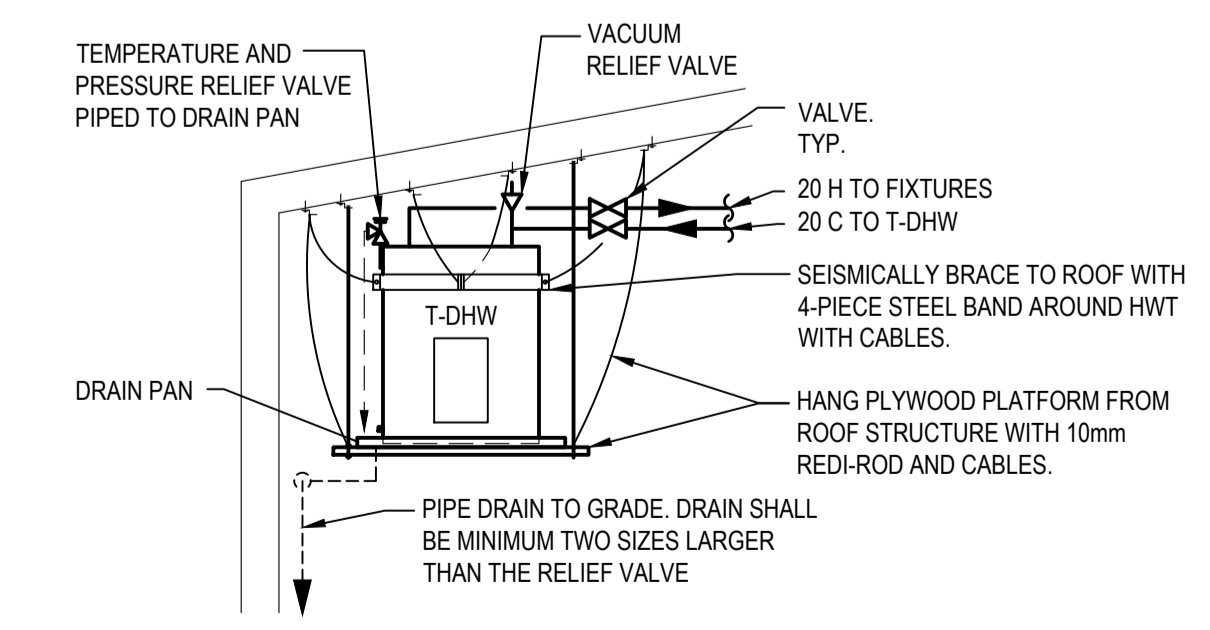
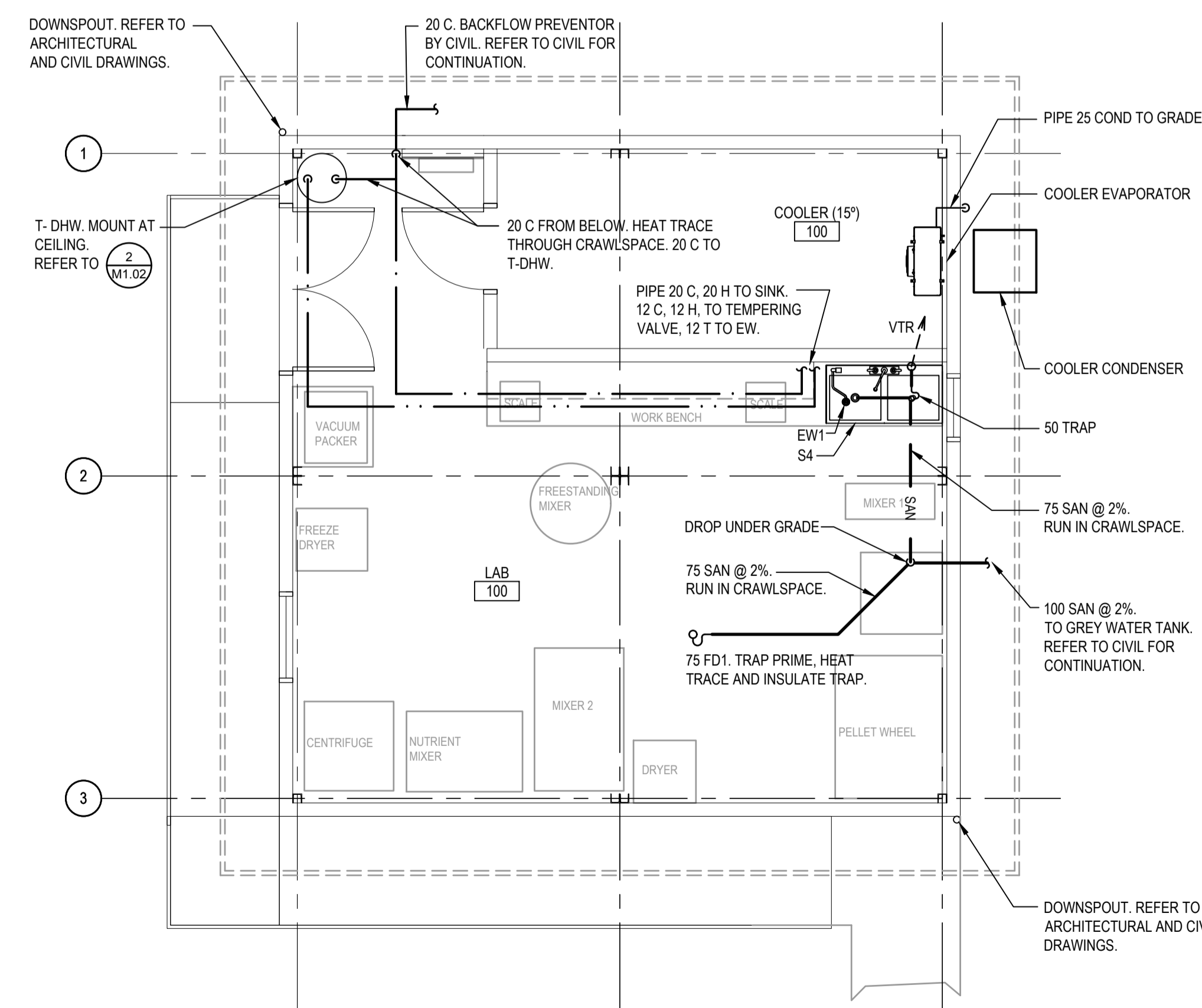
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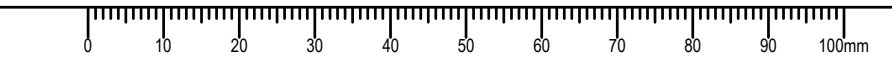
**PLUMBING
FEED LAB PLAN
AND DETAILS**

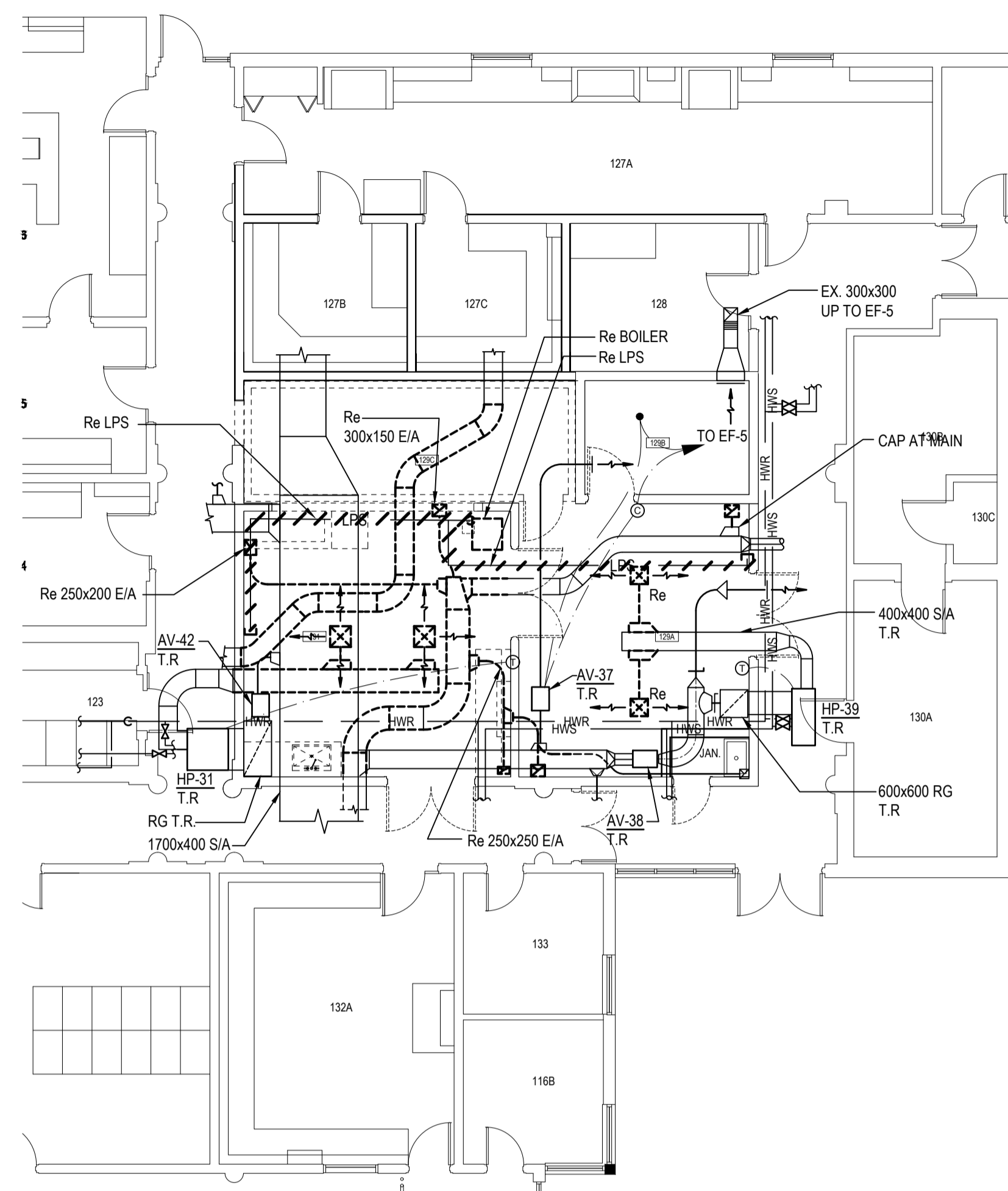
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-	M1.02	0



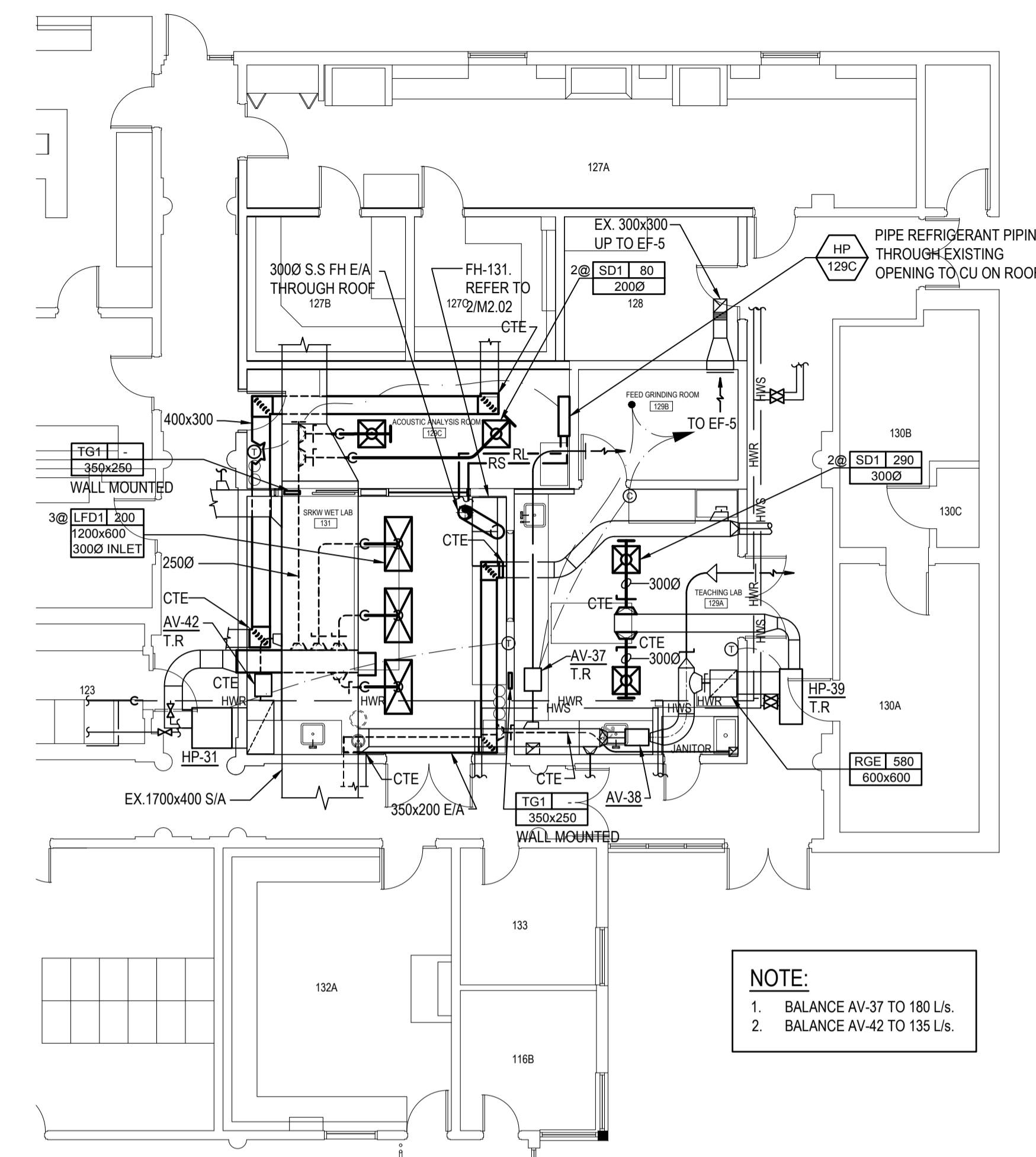
2 T-DHW SCHEMATIC
SCALE: N.T.S.

1 FEED LAB
SCALE: 1:50



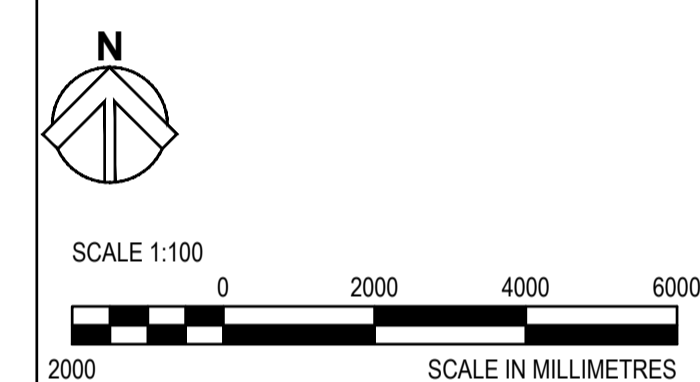


1 DEMO FLOOR PLAN
M2.01 SCALE: 1:00



2 NEW FLOOR PLAN
M2.01 SCALE: 1:100

NOTE:
1. BALANCE AV-37 TO 180 L/s.
2. BALANCE AV-42 TO 135 L/s.



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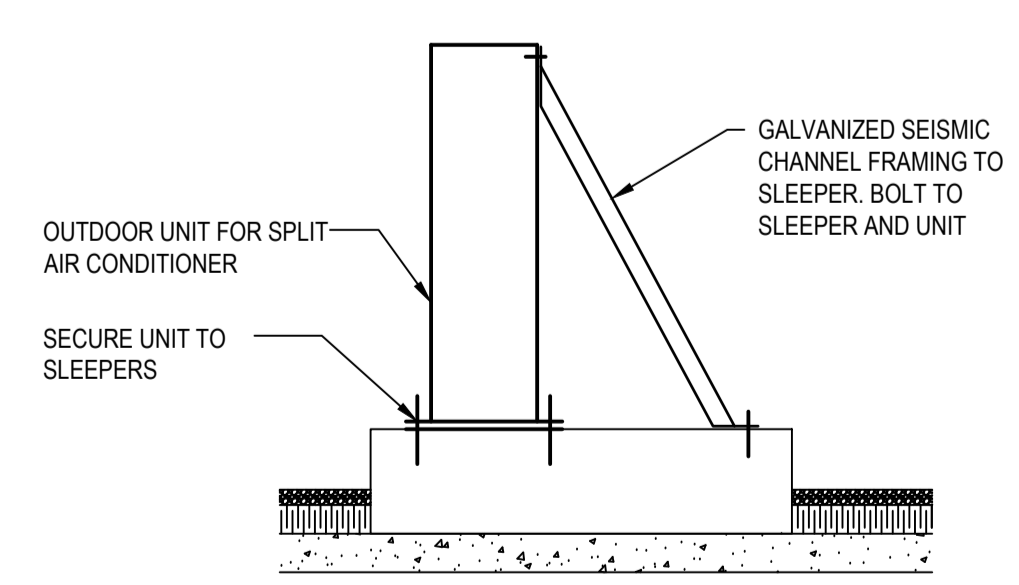
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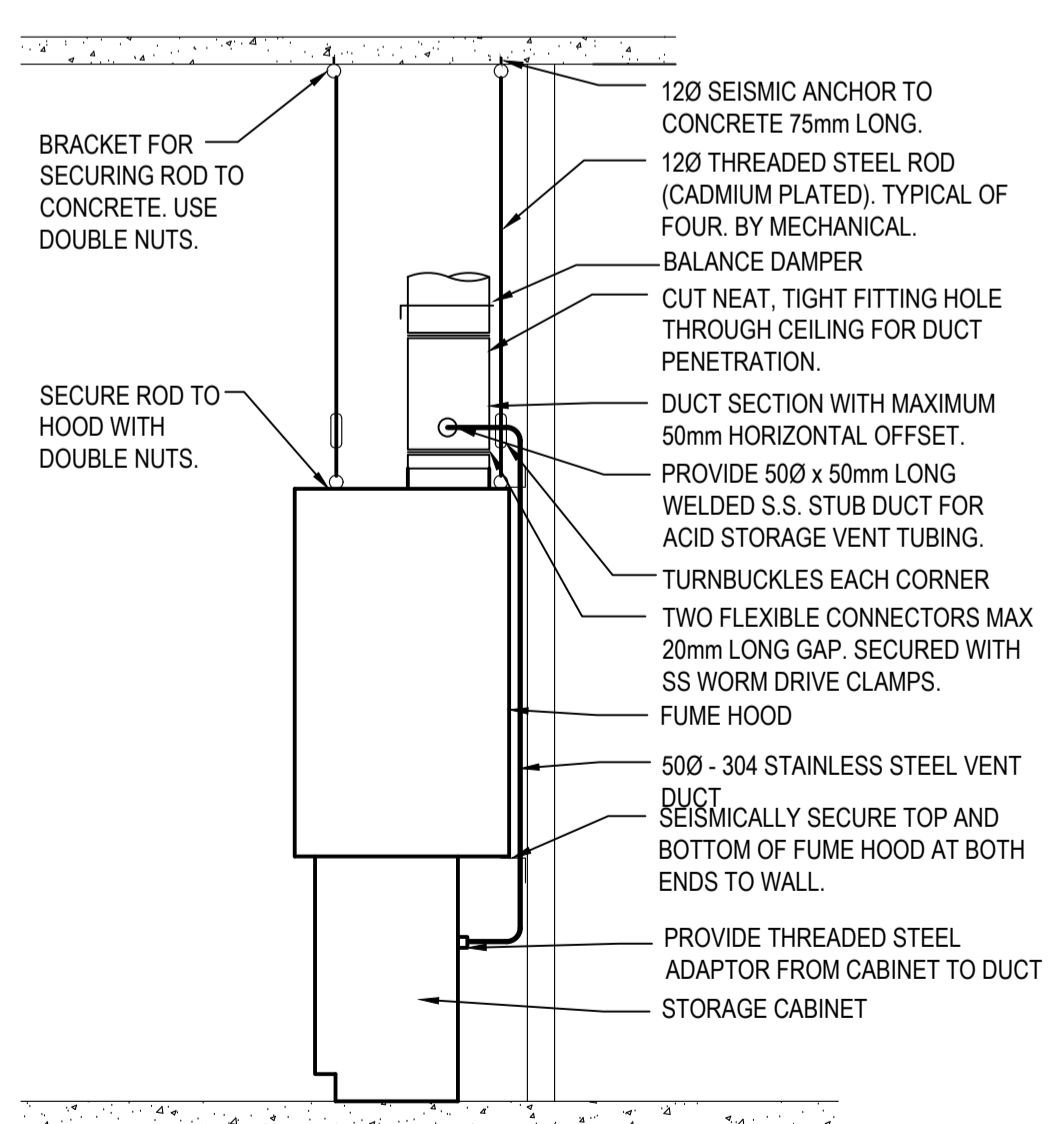
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**MECHANICAL
LABS 129A, 129C, 131
DEMO & NEW PLANS**

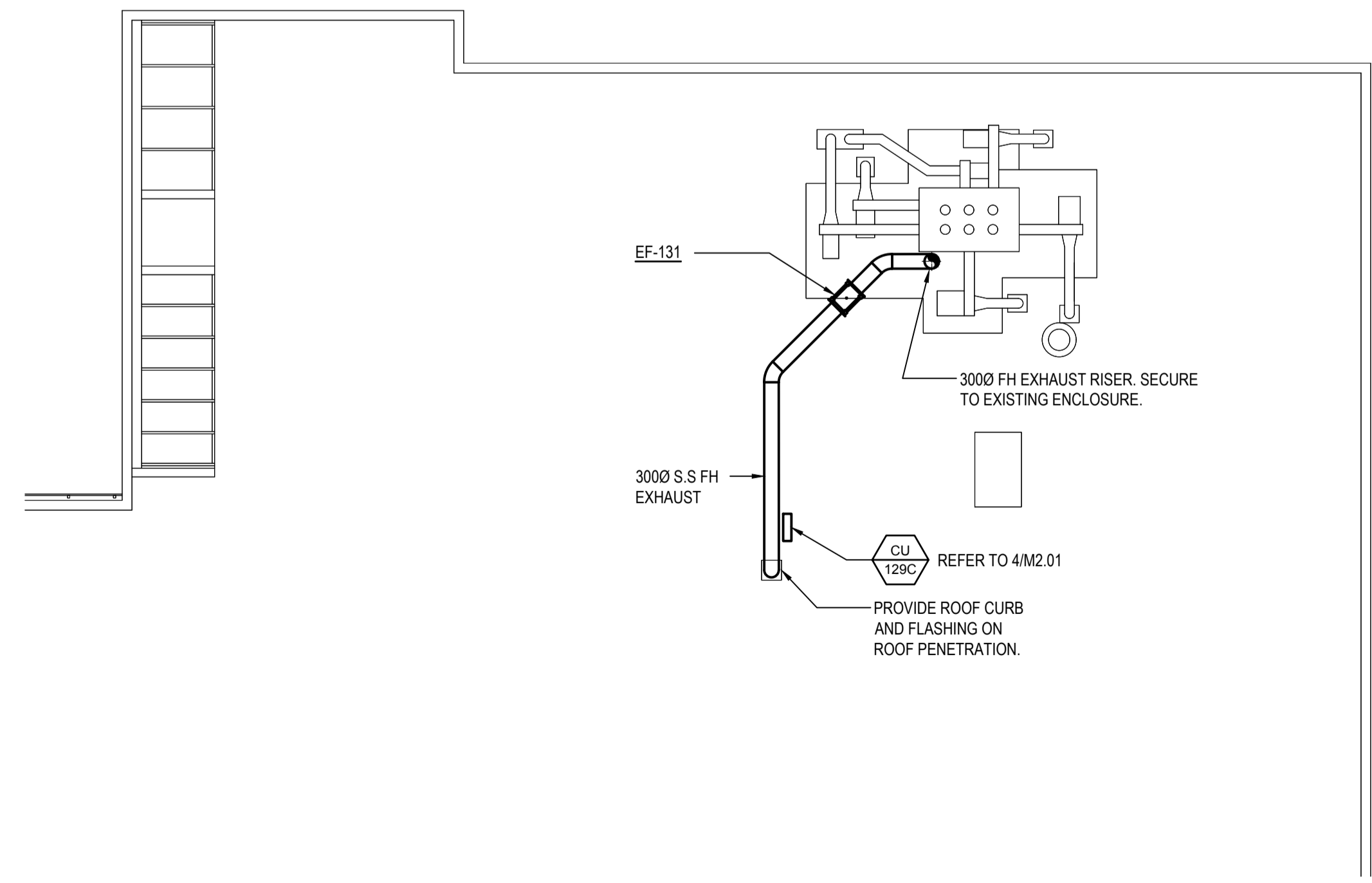
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4 OUTDOOR UNIT MOUNTING
ELEVATION
M2.01 SCALE: N.T.S.

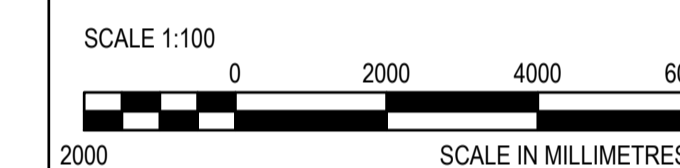
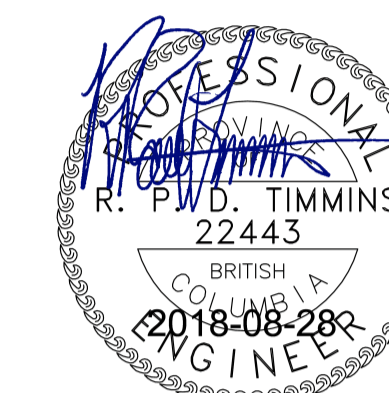


5 FUME HOOD INSTALLATION DETAIL
M2.01 SCALE: N.T.S.



3 ROOF PLAN
M2.01 SCALE: 1:100





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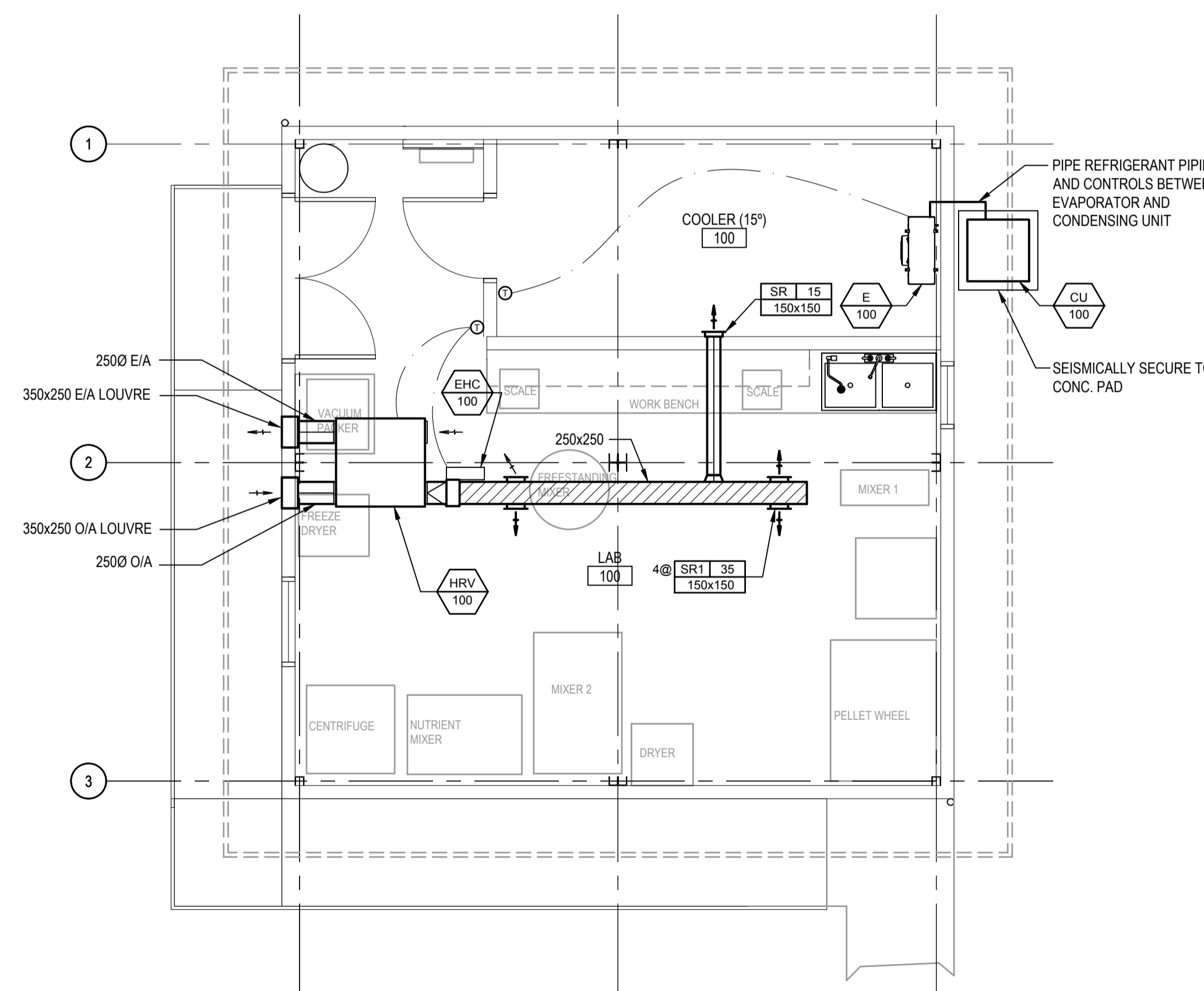
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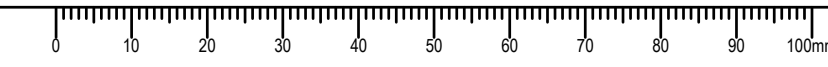
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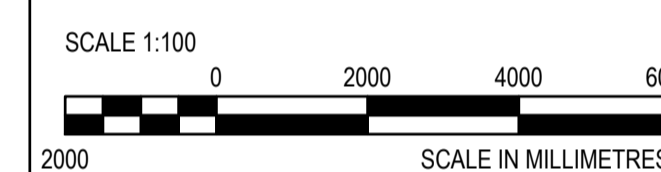
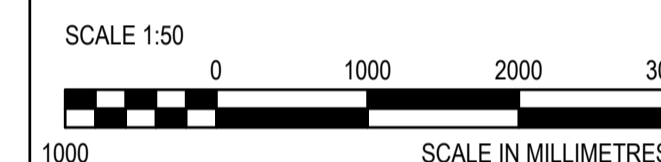
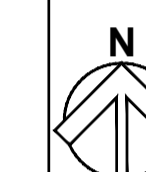
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-	M2.02	0



1 FEED LAB
M2.02 SCALE 1:50





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**FIRE PROTECTION
LABS 129A, 129C, 131
AND FEED LAB**

Project No./No. du projet

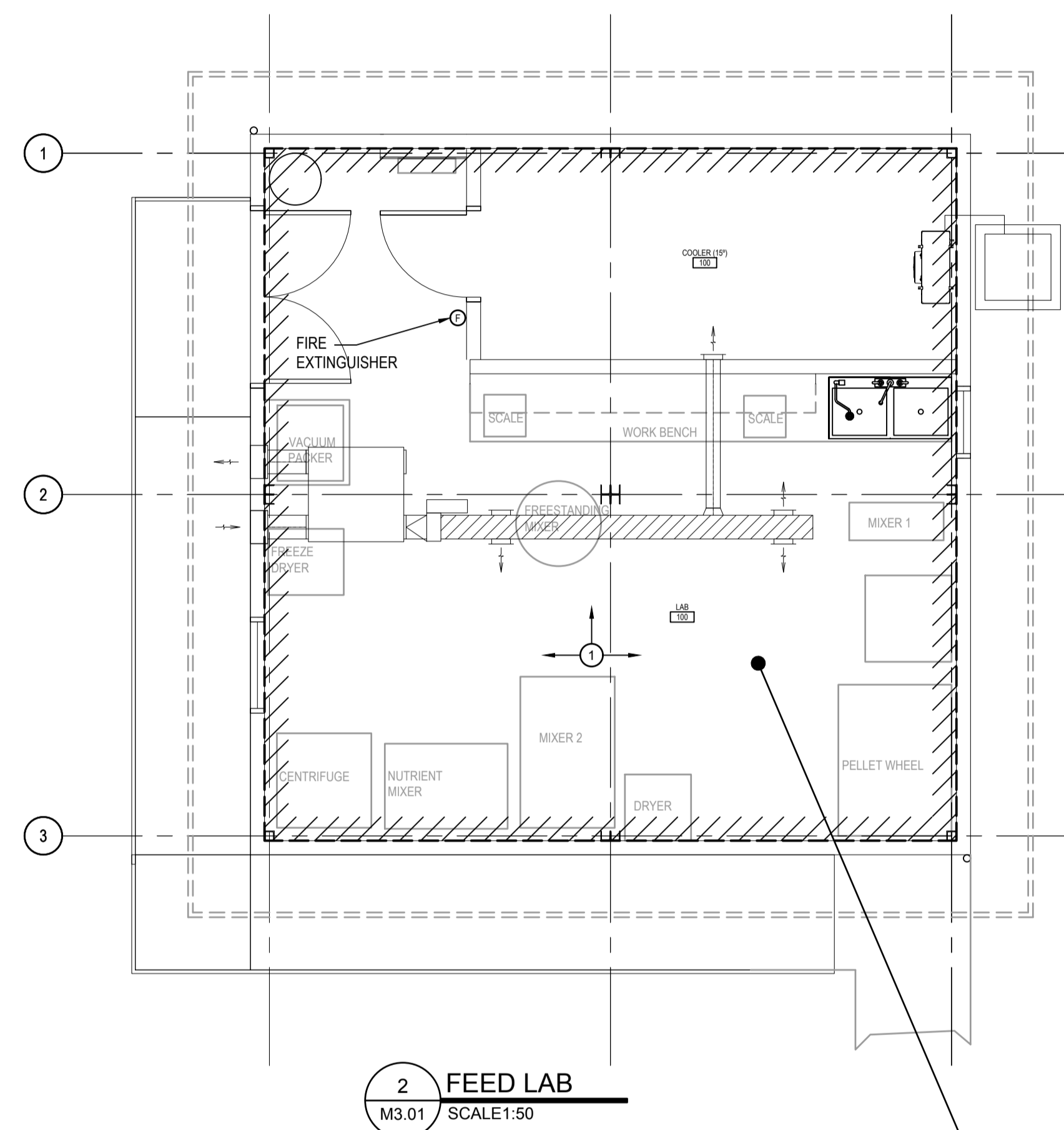
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Sheet/ Feuille

M3.01

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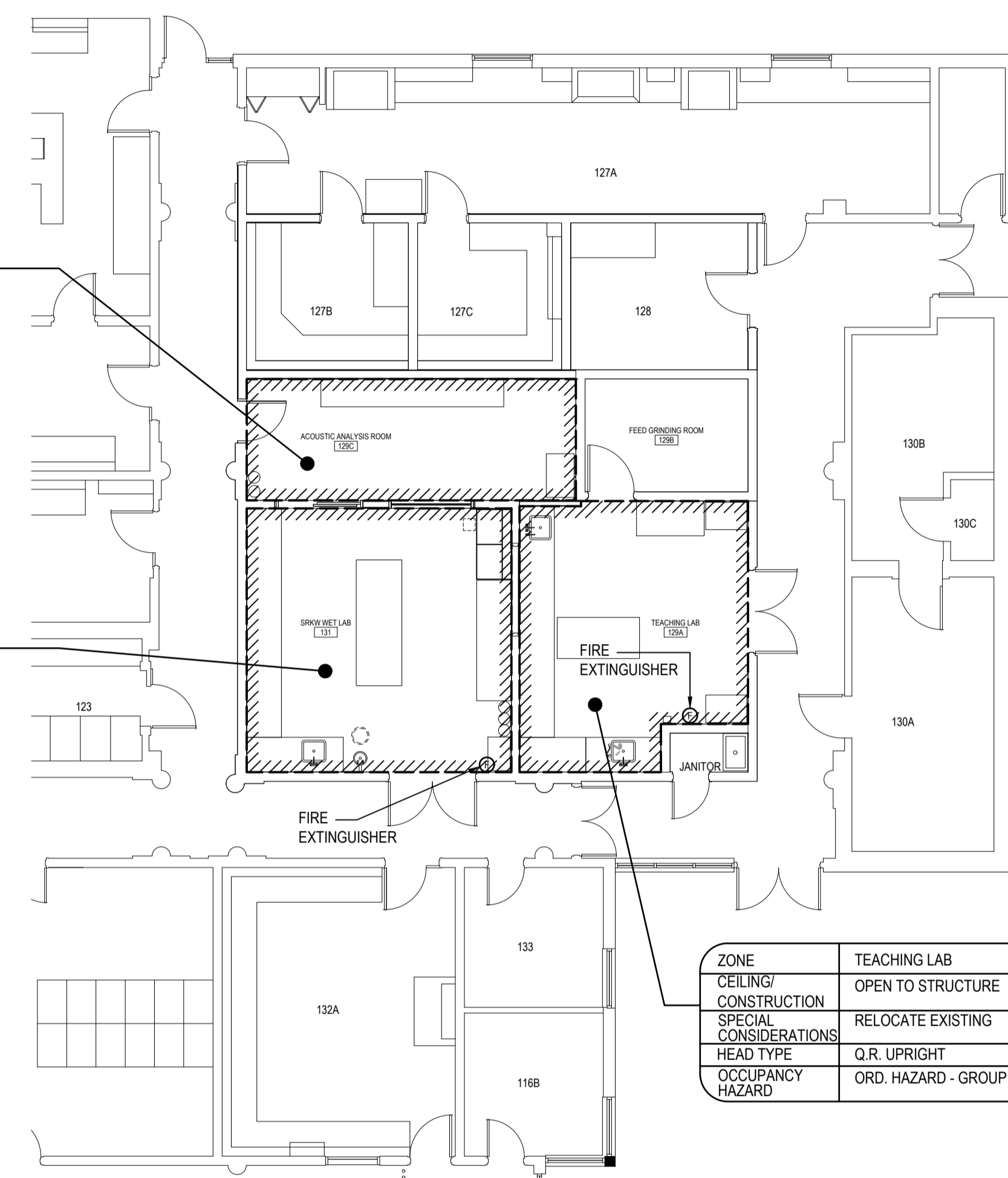
2 FEED LAB
M3.01 SCALE 1:50

NOTE:
① REVISE EXISTING SPRINKLER LAYOUT TO ACCOMMODATE NEW HVAC INSTALLATION AND OBSTRUCTIONS. INCLUDE PROTECTION UNDER HRV C/W WIRE GUARD. MAINTAIN EXISTING SPRINKLER SYSTEM DENSITIES IN THIS AREA.

ZONE	FEED LAB
CEILING/ CONSTRUCTION	OPEN TO STRUCTURE
SPECIAL CONSIDERATIONS	RELOCATE EXISTING
HEAD TYPE	Q.R. UPRIGHT
OCCUPANCY HAZARD	ORD. HAZARD - GROUP 2

ZONE	ACOUSTICS LAB
CEILING/ CONSTRUCTION	OPEN TO STRUCTURE
SPECIAL CONSIDERATIONS	RELOCATE EXISTING
HEAD TYPE	Q.R. UPRIGHT
OCCUPANCY HAZARD	ORD. HAZARD - GROUP 2

ZONE	WET LAB
CEILING/ CONSTRUCTION	OPEN TO STRUCTURE
SPECIAL CONSIDERATIONS	RELOCATE EXISTING
HEAD TYPE	Q.R. UPRIGHT
OCCUPANCY HAZARD	LIGHT HAZARD



1 NEW FLOOR PLAN
M3.01 SCALE: 1:100

ZONE	TEACHING LAB
CEILING/ CONSTRUCTION	OPEN TO STRUCTURE
SPECIAL CONSIDERATIONS	RELOCATE EXISTING
HEAD TYPE	Q.R. UPRIGHT
OCCUPANCY HAZARD	ORD. HAZARD - GROUP 2

GENERAL NOTES

- THESE FIRE PROTECTION DRAWINGS FORM PART OF A PERFORMANCE SPECIFICATION AS DESCRIBED HERE AND IN THE PROJECT SPECIFICATIONS TO ESTABLISH A MINIMUM STANDARD OF EQUIPMENT, DESIGN AND INSTALLATION ONLY.
- THE SYSTEM DESIGN SHALL MEET THE REQUIREMENTS OF THE BUILDING, BASED ON THE CONTRACT DRAWINGS AND SPECIFICATIONS.
- PROVIDE AND INSTALL A FULLY OPERATIONAL WET FIRE PROTECTION SPRINKLER SYSTEM DESIGNED TO NFPA 13.
- THIS TRADE SHALL HAVE THE EXPERIENCE TO DESIGN THE SPRINKLER SYSTEM. MATERIALS AND WORK NECESSARY TO ACHIEVE THE SPECIFICATION REQUIREMENTS WILL NOT BE CONSIDERED AN EXTRA TO THE CONTRACT.
- SEISMICALLY RESTRAIN AND BRACE FIRE PROTECTION SYSTEM COMPONENTS TO PROTECT FROM DAMAGE, AS PER NFPA 13 FOR INSTALLATION IN A SEISMICALLY ACTIVE EARTHQUAKE ZONE.
- SPRINKLER CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF SPRINKLER HEADS WITH TEMPERATURE CHARACTERISTICS IN ACCORDANCE WITH NFPA 13 8.3.2 TEMPERATURE RATINGS.
- MODIFY EXISTING SPRINKLER PIPING AND PROVIDE NEW HEADS AS REQUIRED TO SUIT NEW LAYOUTS.
- PROVIDE NEW SPRINKLERS AND REQUIRED ARMOVERS TO INSTALL NEW HEADS WITHIN DESIGNATED AREAS. CONNECT INTO EXISTING SYSTEM AND MAINTAIN EXISTING PIPE SIZING WHERE APPLICABLE. COORDINATE WITH DEMOLITION. CONFIRM EXISTING DENSITIES ARE AS REQUIRED FOR EACH OCCUPANCY.
- ALL RELOCATED HEADS ARE TO BE REPLACED WITH NEW.

