

SPECIFICATIONS / DRAWING NOTES:

REGULATIONS:

1. THIS SPECIFICATION SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL SPECIFICATION & UBC PROJECT SPECIFICATION AND THE MOST STRINGENT REQUIREMENTS OF ALL SECTIONS SHALL BE ADHERED TO. SHOULD ANY DISCREPANCY APPEAR BETWEEN THESE SPECIFICATIONS AND THE DRAWINGS TO CAUSE DOUBT AS TO THE TRUE MEANING AND INTENT OF THE DRAWINGS AND SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE CONSULTANT BEFORE SUBMITTING THE TENDER. IF THIS IS NOT DONE IT WILL BE ASSUMED THAT THE MORE EXPENSIVE ALTERNATIVE HAS BEEN INCLUDED IN THE CONTRACT.
2. THE DRAWINGS ACCOMPANYING THIS SPECIFICATION ARE TO BE CONSIDERED AS DIAGRAMMATIC ONLY AND DO NOT SHOW ALL THE STRUCTURAL AND CONSTRUCTION DETAILS. ANY INFORMATION INVOLVING BUILDING DIMENSIONS SHALL BE TAKEN FROM THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SITE MEASUREMENTS.
3. THESE DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED AN INTEGRAL PART OF THE CONTRACT DOCUMENTS. NEITHER THE DRAWINGS NOR THE SPECIFICATIONS SHALL BE USED ALONE. MISINTERPRETATION OF ANY REQUIREMENTS OF EITHER PLANS OR SPECIFICATIONS SHALL NOT CHANGE THE REQUIREMENTS OR INTENT OF THE SPECIFICATIONS FOR PROPER COMPLETION OF THE WORK TO THE FULL ACCEPTANCE OF THE CONSULTANT.
4. THE GENERAL CONTRACTOR HAS SOLE RESPONSIBILITY AS TO DIVISION PROVIDING EQUIPMENT OR MATERIALS. DIFFERENCE IN INTERPRETATION OF THE SPECIFICATIONS AS TO WHICH TRADE PROVIDES CERTAIN EQUIPMENT OR MATERIALS SHALL NOT INITIATE EXTRAS TO THE CONTRACT. ALL TRADESMEN ENGAGED IN INSTALLATION OF WORK COVERED WITHIN SPECIFICATION SHALL BE QUALIFIED IN ACCORDANCE WITH REQUIREMENTS OF TRADESMEN QUALIFICATION ACT AND ALL PERTINENT LICENSING REQUIREMENTS BY THE MINISTRY OF MUNICIPAL AFFAIRS.
5. COMMUNICATION AND INSTRUCTIONS DIRECTED BETWEEN MECHANICAL TRADES AND CONSULTANT SHALL BE THROUGH GENERAL CONTRACTOR.
6. BEFORE SUBMITTING TENDER FOR THIS WORK, EXAMINE THE SITE, LOCAL SERVICES AND LOCAL CONDITIONS, ELECTRICAL DRAWINGS, MECHANICAL DRAWINGS, STRUCTURAL DRAWINGS, ARCHITECTURAL DRAWINGS, CIVIL DRAWINGS AND KITCHEN FOOD SERVICES DRAWINGS (WHERE AVAILABLE) & APPLICABLE TO ASCERTAIN THAT THE WORK CAN BE SATISFACTORILY CARRIED OUT AS SHOWN ON THESE DRAWINGS AND HEREIN SPECIFIED.
7. COORDINATE ALL SYSTEM SHUT DOWNS IN WRITING WITH UBC PLANT OPERATIONS AND FACILITY MANAGER.

GENERAL:

1. MECHANICAL CONTRACTOR SHALL PROVIDE THE CONSULTANT A MATERIALS AND LABOUR BREAKDOWN FOR EACH OF THE MAJOR CATEGORIES WITHIN HIS DISCIPLINE. THIS BREAKDOWN SHALL BE USED FOR ALL PROGRESS DRAWS. SUBMIT BREAKDOWN PRIOR TO FIRST PROGRESS DRAW FOR CONSULTANT REVIEW AND COMMENTS. UNTIL THE BREAKDOWN HAS BEEN ACCEPTED BY THE CONSULTANT, PROGRESS PAYMENTS SHALL NOT BE PROCESSED.
-PROGRESS CLAIMS TO BE BROKEN DOWN BETWEEN BUILDING PLUMBING, SITE SERVICES PLUMBING, SPRINKLERS, HVAC, INSULATION, BALANCING, COMMISSIONING AND START UP.
2. PROVIDE COMPLETE AND FULLY OPERATING MECHANICAL SYSTEM(S) IN COMPLIANCE WITH APPLICABLE CODES. THE MECHANICAL CONTRACTOR SHALL PROVIDE LABOUR, MATERIAL AND EQUIPMENT TO COMPLETE THE MECHANICAL WORK AS SPECIFIED.
3. PROTECT ANY EXISTING SERVICES. AVOID SHUTDOWNS OF EXISTING SERVICES. IF SHUTDOWNS DURING NORMAL WORKING HOURS ARE UN-AVOIDABLE, THE EXACT LENGTH OF SHUTDOWN AND DURATION OF SHUTDOWN TO BE COORDINATED AND APPROVED BY OWNER'S CONSTRUCTION REPRESENTATIVE A MINIMUM OF ONE WEEK IN ADVANCE. EXACT LOCATIONS OF SERVICES ON SITE ARE TO BE VERIFIED PRIOR TO STARTING WORK.
4. ASSUME RESPONSIBILITY FOR DAMAGE CAUSED TO THE OWNER OR OTHERS BY IMPROPER WORK. PROTECT ALL WORK FROM DAMAGE.
5. ANY ERROR, INCONSISTENCY, CONFLICTS OR WORK NOT INDICATED IN THE CONTRACT DRAWINGS OR SPECIFICATIONS NOTED AFTER THE AWARD OF CONTRACT MUST BE REPORTED TO THE ATTENTION OF CONSULTANT BEFORE COMMENCING WORK.
6. CONTRACTOR SHALL NOTIFY CONSULTANT OF SPECIFIED EQUIPMENT, MATERIAL OR INSTALLATION PRACTICES THAT ARE NOT IN COMPLIANCE WITH LOCAL LAWS, ORDINANCES OR REGULATIONS.
7. CONTRACTOR TO PROVIDE CONSULTANT A MATERIALS AND LABOUR BREAKDOWN FOR EACH ITEM LISTED ON CHANGE NOTICES. CONTRACTOR ALSO TO RECEIVE THE SAME FROM ALL AFFECTED SUBTRADES AND INCLUDE IN THE BREAKDOWN SUBMITTED. ADDITIONAL INFORMATION SHALL BE PROVIDED AS PER CONSULTANT REQUEST.
8. THE TERM 'PROVIDE' SHALL MEAN 'SUPPLY AND INSTALL'.
9. DISTRIBUTION SYSTEMS AND EQUIPMENT SHALL BE INSTALLED GENERALLY IN LOCATIONS AND ROUTES SHOWN, CLOSE TO BUILDING STRUCTURE AVOIDING INTERFERENCE WITH OTHER SERVICES OR FREE SPACE.
10. CONNECT MECHANICAL SERVICES, START-UP AND TEST ALL EQUIPMENT FURNISHED BY OWNER.
11. PROVIDE CLEAR ACCESS TO ACCESS PANELS, MOTORS, BELTS, FILTERS AND LUBRICATING POINTS AS REQUIRED. COORDINATE WITH SUPPLIERS FOR ACCESS PANEL LOCATION OPTIONS.
12. THE LAYOUT OF THE MECHANICAL SYSTEMS AND EQUIPMENT IS BASED UPON THE SPECIFIED MANUFACTURER'S PHYSICAL DIMENSIONS. IN SUBSTITUTING ALTERNATE OR EQUAL EQUIPMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EQUIPMENT LAYOUT AND PIPING CONNECTIONS. ANY COSTS TO ACCOMMODATE REVISIONS TO SUIT OTHER THAN THE SPECIFIED EQUIPMENT WILL NOT BE CONSIDERED ADDITIONAL COSTS (THIS INCLUDES STRUCTURAL, ELECTRICAL, ARCHITECTURAL ETC.).
13. INSTALL ALL MECHANICAL EQUIPMENT AND SERVICES IN ORDER THAT MAINTENANCE AND DISASSEMBLY WILL HAVE MINIMUM DISTURBANCE TO CONNECTING PIPING OR DUCT SYSTEMS.
14. COMPLY WITH THE MOST STRINGENT REQUIREMENTS OF CURRENT UBC STANDARDS, BCBC OR THE NATIONAL BUILDING CODES.
15. ACQUIRE AND PAY FOR ALL PERMITS REQUIRED BY THE AUTHORITIES PRIOR TO COMMENCING WORK.
16. PROVIDE 3 COPIES OF COMPLETED MAINTENANCE MANUALS. ONE COPY TO BE SENT TO BYCAR ENGINEERING FOR REVIEW AND APPROVAL PRIOR TO SUBMITTING FINAL COPIES TO OWNER. CONTRACTOR TO INCORPORATE ALL CONSULTANT'S COMMENTS PRIOR TO SUBMITTING FINAL MANUALS TO OWNER. MAINTENANCE MANUALS TO BE LAID OUT TO INDUSTRY STANDARD AND INCLUDE INDEX PAGE, DESCRIPTION OF MECHANICAL SYSTEM, DETAILS OF ALL CONTROLS AND HOW THEY OPERATE, TEST CERTIFICATE, SEISMIC SIGN OFF LETTER, STAMPED APPROVED SHOP DRAWINGS, EQUIPMENT MAINTENANCE, WARRANTIES ETC.
17. PROVIDE BYCAR ENGINEERING WITH EMAILED OR FAXED LIST OF THE MECHANICAL CONTRACTORS OFFICE AND SITE CONTACTS WITH PHONE AND FAX NUMBER FOR CORRESPONDENCE. PROVIDE A LIST OF SUB TRADES WITH OFFICE CONTACT NAME AND PHONE AND FAX NUMBERS PRIOR TO JOB START UP.
18. WORK IS TO MEET OR EXCEED INDUSTRY STANDARD, APPLICABLE CODES, AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
19. ENSURE ALL WHMIS AND OTHER CONSTRUCTION AND SITE SAFETY PROCEDURES ARE FOLLOWED BY ALL TRADES.
20. COORDINATE WITH ALL OTHER SUBTRADES (IE. ELECTRICAL, SPRINKLER, SHEET METAL, PLUMBER, CONTROLS, STEEL STUD FRAMER ETC.) AT THE START AND THROUGHOUT THE PROJECT TO PREVENT AVOIDABLE CONFLICTS, SUCH AS A SPRINKLER MAIN, PLUMBING LINE OR ELECTRICAL CONDUIT BLOCKING THE PATH OF A DUCT OR VISE VERSA. IF THERE IS A CONCERN OF CONFLICTS, COORDINATE THROUGH GENERAL CONTRACTOR. IF CONFLICTS ARE NOT AVOIDABLE, CONTACT ENGINEERS IMMEDIATELY TO ASSIST WITH A SOLUTION. COSTS ASSOCIATED WITH REDDING SERVICES DUE TO LACK OF COORDINATION ON SITE WILL BE RESOLVED AT THE CONTRACTOR'S COST.
21. PROVIDE FIRE STOPPING AT PENETRATIONS OF ALL RATED WALL AND FLOOR ASSEMBLIES. REFER TO ARCHITECTURAL SPECIFICATION SECTION 07800.
22. LACK OF FOLLOWING INDUSTRY PROCEDURES OR CUTTING CORNERS WILL RESULT IN PROGRESS CLAIM HOLD BACK AND OR SCHEDULE C HOLDBACK UNTIL RESOLVED.

23. CO-ORDINATE LOCATION OF OPENINGS REQUIRED FOR WORK WITH RESPECTIVE TRADES AND CONTRACTORS.

24. DO NOT BURN, CUT OR REMOVE STRUCTURAL MEMBERS WITHOUT WRITTEN APPROVAL FROM STRUCTURAL CONSULTANT.

EQUIPMENT:

1. PROVIDE EQUIPMENT AS SPECIFIED ON DRAWINGS, OR EQUALS AS INDICATED ON DRAWING SCHEDULES OR IN THESE SPECIFICATIONS. EQUIPMENT NOT LISTED AS EQUAL WILL BE REJECTED AT SHOP DRAWING REVIEW STAGE UNLESS PREVIOUSLY APPROVED IN WRITING THROUGH A FORMAL REQUEST BY THE SUPPLIER.
2. ALL EQUIPMENT TO MEET THE INDUSTRY TESTING STANDARDS, HAVE CERTIFIED SEISMIC ATTACHMENT POINTS TO MEET THE LOCAL SEISMIC ZONE, AND TO BE COMPLETE WITH A START UP PROCEDURE CHECK LIST WHICH IS TO BE INCLUDED IN THE MAINTENANCE MANUALS.

GENERAL NOTES:

1. WORK AND MATERIAL SHALL COMPLY WITH THE LOCAL & BC CODES.
2. GIVE NOTICES, OBTAIN PERMITS AND PAY FEES SO WORK SPECIFIED MAY BE CARRIED OUT.
3. THE QUALITY OF WORKMANSHIP AND MATERIAL SHALL MATCH OR EXCEED THE BASE BUILDING STANDARD. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE CODES INCLUDING SEISMIC.
4. ADHERE TO UBC SHUT DOWN STANDARDS AND REQUIREMENTS.
5. USE SIEMENS FOR CONTROL WORK.
6. SUBMIT SHOP DRAWINGS BY FAX OR EMAIL (PDF FORM) FOR BYCAR'S AND UBC'S RECORD.
7. COORDINATE ALL SHUT DOWNS, NOISE GENERATING WORK, TIME OF MATERIAL TRANSPORT THROUGH THE BUILDING ETC. WITH UBC PRIOR TO COMMENCING WORK.
8. DISPOSE OF ALL DEMOLITION MATERIAL OFF SITE.
9. SUBMIT MARKED UP AS BUILT DRAWINGS TO ENGINEER WITH ALL CHANGES (FAX ACCEPTABLE).

MECHANICAL LEGEND

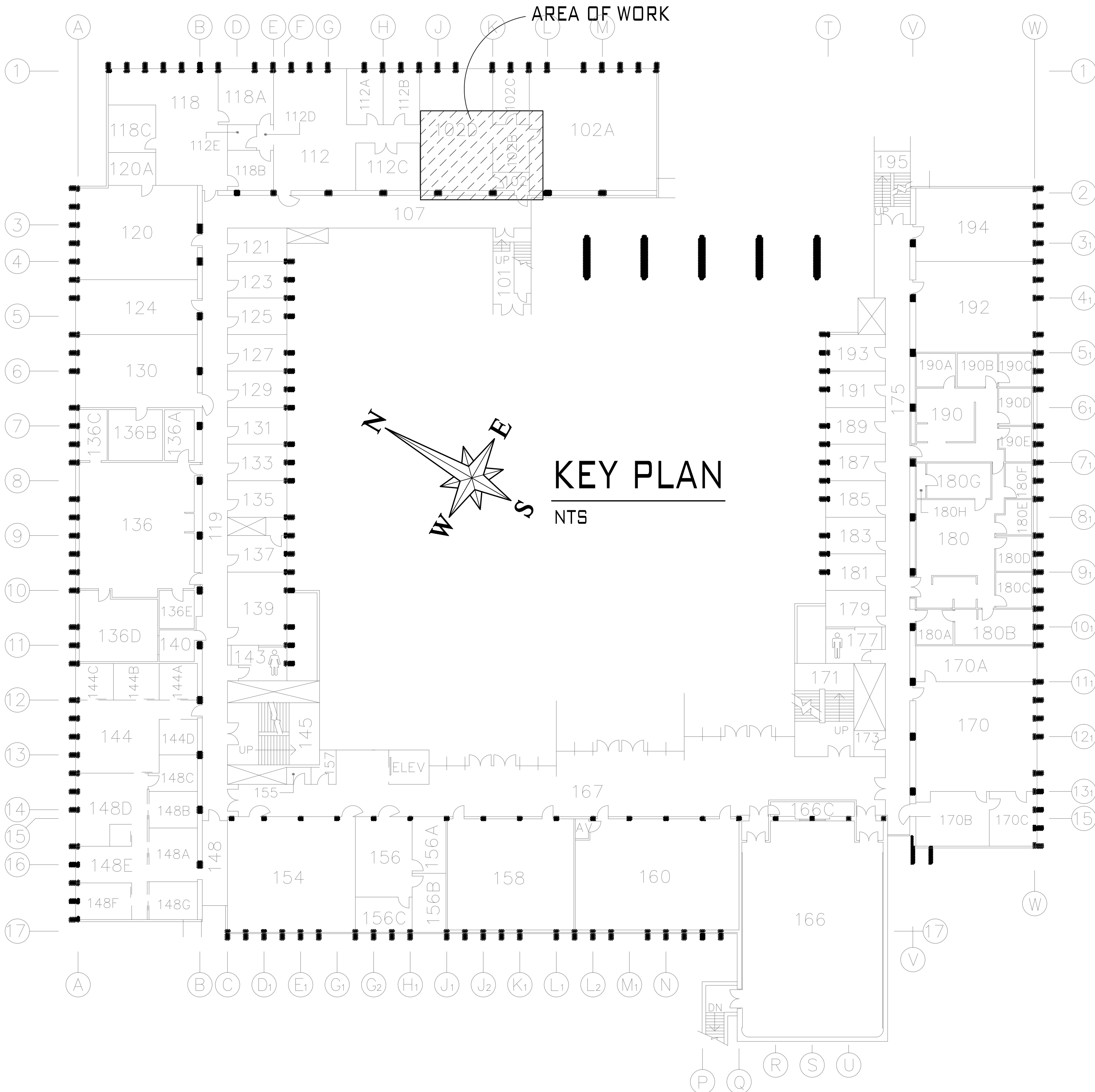
SANITARY DRAIN	SAN
SANITARY DRAIN - BURIED	SAN
VENT PIPE	V
COLD WATER	-
INDIRECT DRAIN	D
EXISTING SANITARY	SAN
EXISTING SANITARY - BURIED	SAN
EXISTING VENT	V
EXISTING COLD WATER	-
EXISTING HOT WATER	=
EXISTING HOT WATER RECIRC.	=
COMPRESSED AIR	CA
CLEANOUT	
FLOOR DRAIN & FD ABOVE	
HUB DRAIN & HD ABOVE	
HOSE BIBB	
PLUMBING FIXTURE TAG	L-1
PIPE RISE, DROP, TEE DROP	
SHUT-OFF VALVE	
NEW PUMP	
P-TRAP	
PIPE BREAK	
FLOW ARROW	
DRAIN	.

DRAWING LIST:

M-1	LEGEND & DETAILS	N.T.S.
M-2	FLOOR PLANS	1/4"=1'
M-3	EXHAUST SYSTEM DETAILS	1/4"=1'
M-4	AIR BALANCE, CONTROL NOTES	NTS
M-5	SPECS AND CHECK SHEET	NTS

ADDRESS :

H.R. MACMILLAN BUILDING
2357 MAIN MALL



SCALE: 1/4"=1'0"

SCALE: 1/4"=1'0"

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PIPING ACRONYMS
AW ACID WASTE
CA COMPRESSED AIR
GAS NATURAL GAS
LCW LAB COLD WATER (NON-POTABLE)
LHW LAB HOT WATER (NON-POTABLE)
DIW DE-IONIZED WATER

NEW 1/2" CA PIPING TO FUME
HOOD C/W BALL SHUT
OFF VALVE.
RUN PIPING THRU
SERVICE CHASE _____

10"Ø S.S. EXHAUST RISER

NEW CUSTOMSINK/COUNTER, SEE SPEC BELOW.
CONNECT TO EXISTING LAB COLD, LAB HOT WATER AND ACID WASTE. REMOVE DE-IONIZED PIPING.

INSTALL FUME HOOD PROVIDED BY
UBC - SEE SPEC BELOW
CONNECT FH-1 SK-2
TO EXISTING LAB COLD WATER AND
ACID WASTE. CAP EXISTING LAB
HOT WATER AND GAS PIPING.
PROVIDE NEW 1 1/2" COMP AIR PIPING
INTO HOOD.

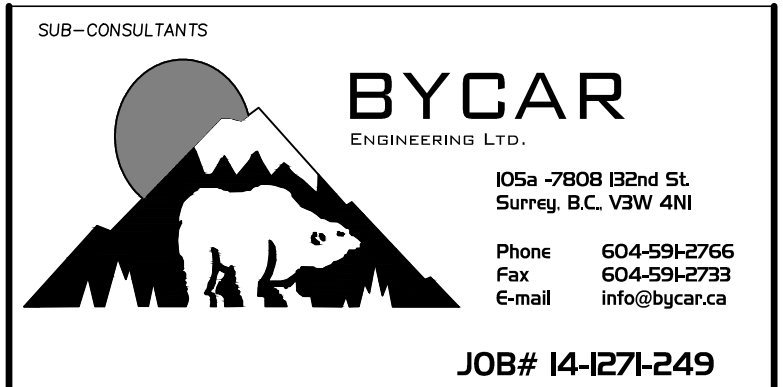
SK-1 CUSTOM COUNTERTOP TOP: FRANK
 60"X28", 3/16" 1.8-9A SS COUNTER TOP,
 6" BACK, LEFT AND RIGHT BACKSPLASH,
 FOR INSTALL ON CABINET BY OTHERS. C/W
 18"X16"X1" DEPTH, 3/16", 1.8-9S SINGLE
 BOWL SINK, 1.5" CENTRE DRAIN AND
 STANDPIPE, SINGLE HOLE COLD FAUCET
 OR 1.5" CENTRED BATH TUB MIXER
 FAUCET; WATERSEAL L4148 DECK
 MOUNTED MIXING FAUCET WITH VACUUM
 BREAKER, 18" FAUCET HEIGHT WITH WALL
 BRACE, CLEAR EPOXY FINISH.
 CONNECT TO EXISTING PIPING WITH NEW
 STOPS, SUPPLIES, ESCUTCHEONS, WASTE
 ARM/TRAP AND SINK CONNECTIONS.

SK-2 INSTALL EXISTING HOOD CUP SINK IN
 HOOD, CONNECT DRAIN AND WATER
 SUPPLY TO EXISTING PIPING WITH NEW
 STOPS, SUPPLIES, ESCUTCHEONS, WASTE
 ARM/TRAP AND SINK CONNECTIONS.

FW1 INSTALL EXISTING FUME HOOD PROVIDED BY UBC (MOT MODEL 742100, SERIAL #21761-02).
CONNECT FUME HOOD EXHAUST TO NEW EXHAUST SYSTEM TROUGH TO ROOF - SEE DWG 144 FOR DETAILS.
PROVIDE NEW SIDE PANELS AND REPLACE NITROGEN GAS SUPPLIES WITH COMPRESSED AIR SUPPLIES IN SAME LOCATION. CONNECT AIR SUPPLY TO BUILDING SERVICE.
PROVIDE REHAB SERVICE OF FUME HOOD BY SELMAR - CONTACT DARRYL SELINGER AT 953-9432.
PROVIDE REHAB SERVICE OF COUNTER WEIGHT AND CABLING.
ROOM AIR BALANCE, CONTROLS UPDATE, HOOD TESTING ALSO REQUIRED - SEE DWG 144 FOR DETAILS. SET FUME HOOD EXHAUST AT 80 CFM (ASH: 62 X15 X90 FPM/144 SQ.IN./SQ.FT.)

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THE UNIVERSITY OF BRITISH COLUMBIA

Land & Building Services /
Project Services

PROJECT TITLE

UBC MACMILLAN BUILDING
ROOM 102D RENOS
UBC PROJECT #
2357 MAIN MALL
VANCOUVER, B.C.

DRAWING TITLE

DATE
AUG.2014

SCALE

NOTED

DRAWN

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REVIEWED

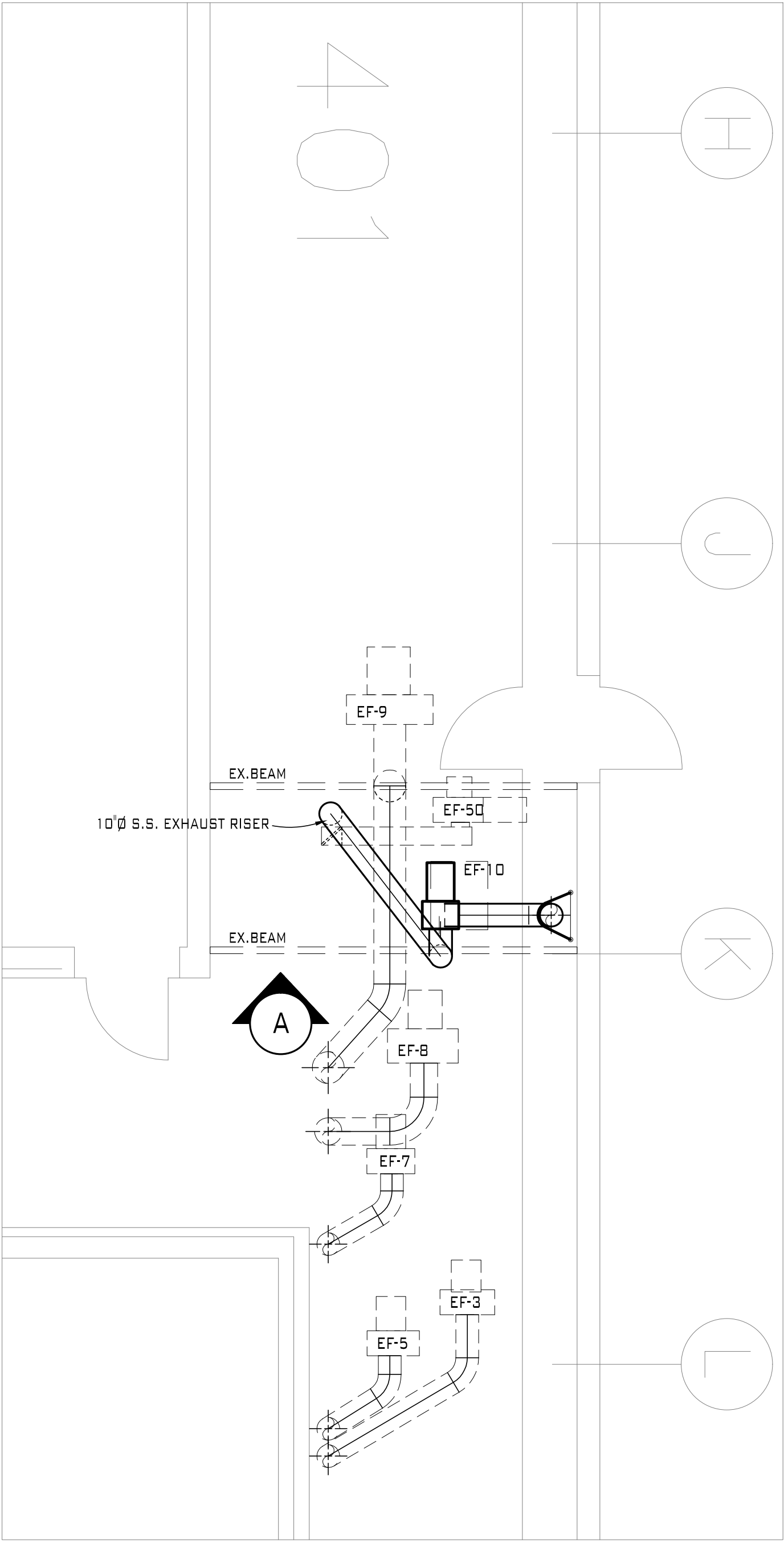
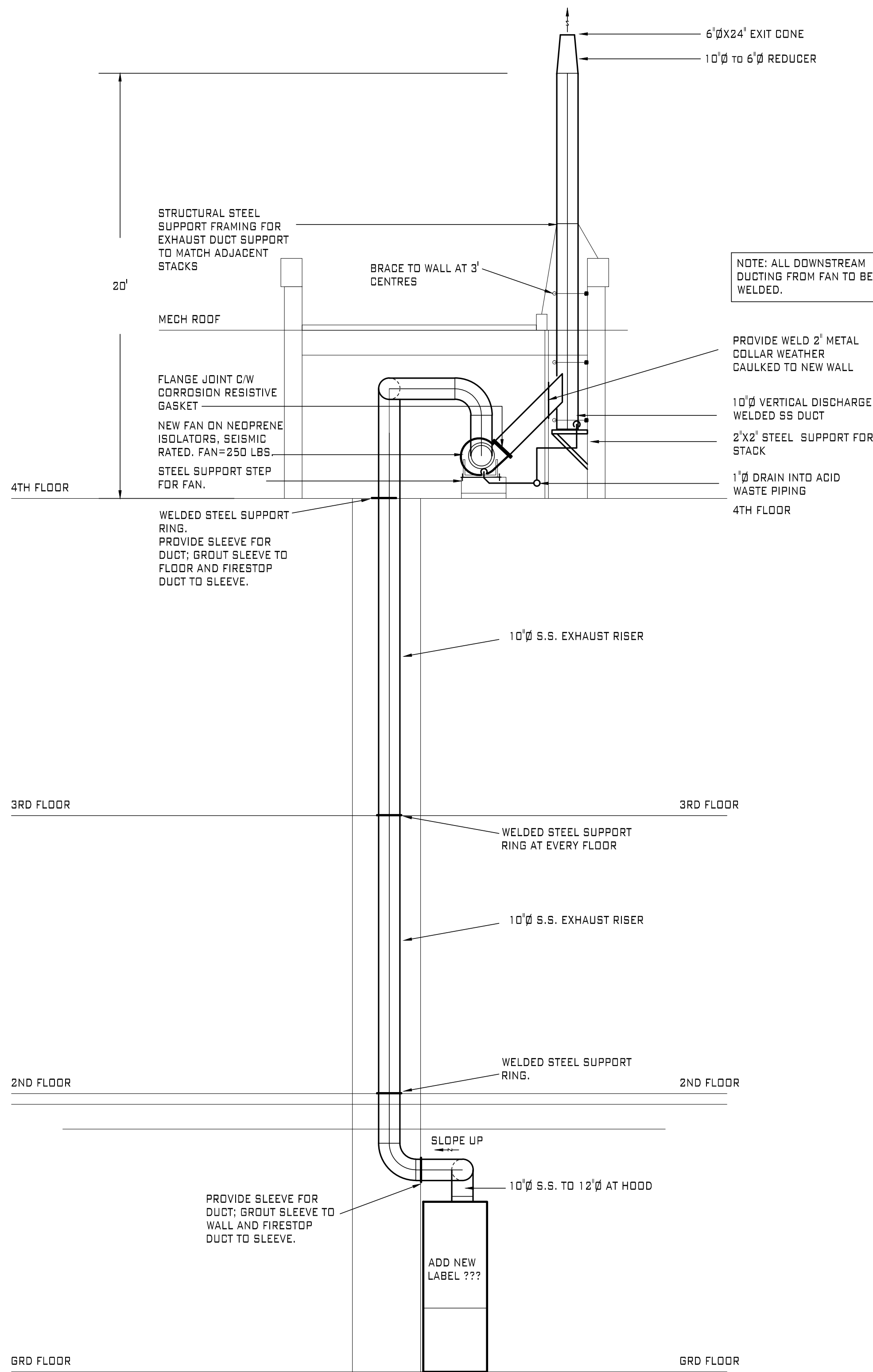
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M2

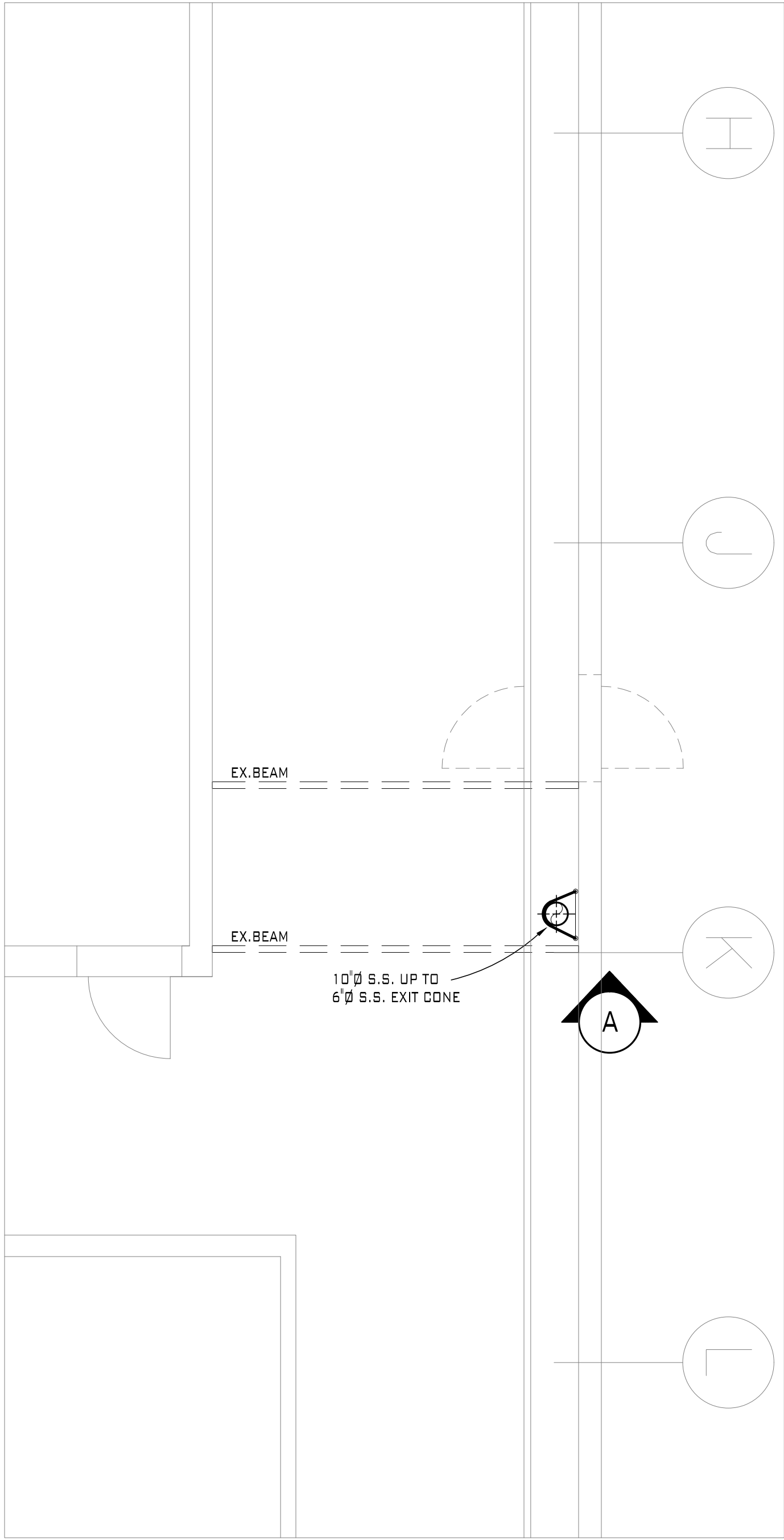
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MECHANICAL (4TH) LEVEL

SCALE: 1/4"=1'0"



MECHANICAL ROOF LEVEL

SCALE: 1/4"=1'0"

FAN SCHEDULE										ELECTRICAL & CONTROLS REQUIREMENTS												
(NOTE: ALL EQUIPMENT TO MEET ASHRAE 90.1 ENERGY STANDARDS)																						
EQUIPMENT NO.	LOCATION	SERVICE	CFM	E.S.P. (IN. W.G.)	DBA IN/OUT	RPM	MANUFACTURER & MODEL	OPTIONS & ACCESSORIES	WEIGHT (LBS)	CONTROLS				STARTER		DISCONNECT		ELECTRICAL		EMERGENCY POWER REQ.	REMARKS	
										CONTROL TYPE	PILOT DEVICE	SUPPLIED BY	INSTALL / WIRED BY	SUPPLIED BY	INSTALL / WIRED BY	SUPPLIED BY	INSTALL / WIRED BY	VOLT/PH/CY	POWER			
FEF-10	ROOF MECH ROOM	FH 102D-2	600	0.75	60/65	1567	COOK 120CPV	VFD, PC, D, SHAFT SEAL, FI, SS SHAFT, CWBAU DISCH	250	A	BAS	M	M	M	E	M	E	208-3-60	1.0HP	N	VFD DRIVE PANEL	
OPTIONS & ACCESSORIES LEGEND:							CONTROL WIRING (LINE VOLTAGE)		<input checked="" type="checkbox"/> BY ELECT.	CONTROL TYPE		PILOT DEVICE						SUPPLIED		INSTALLED / WIRED		
AP - ADJUSTABLE PULLEY							CWB AU - CW BOT ANG UP DISCHARGE		<input type="checkbox"/> BY MECH.	A - AUTOMATIC		WS - WALL SWITCH (C/W COVERPLATE TO MATCH SWITCH PLATES)						DIV. 16		DIV. 16		
BG - BELT GUARD							TE - TOTALLY ENCLOSED MOTOR, MOISTURE SEALED			MA - MANUAL		WSP - WALL SWITCH W/ PILOT LIGHT (C/W LAMACOID LABEL BY DIV. 15)						DIV. 16		DIV. 16		
VI - VIBRATION ISOLATION SPRINGS											SUPPLY / INSTALL BY:		DDC - DIRECT DIGITAL CONTROL						DIV. 15		DIV. 15	
FI - FLANGED INLET & COMPANION FLANGE											M - MECHANICAL CONTRACTOR											
AD - ACCESS DOOR											E - ELECTRICAL CONTRACTOR											
D - SCROLL DRAIN											O - OTHERS											
							CONTROL WIRING (LOW VOLTAGE)		<input checked="" type="checkbox"/> BY ELECT.													
									<input type="checkbox"/> BY MECH.													

A FEF-10 RISER SECTION
SCALE: 1/4"=1'0"

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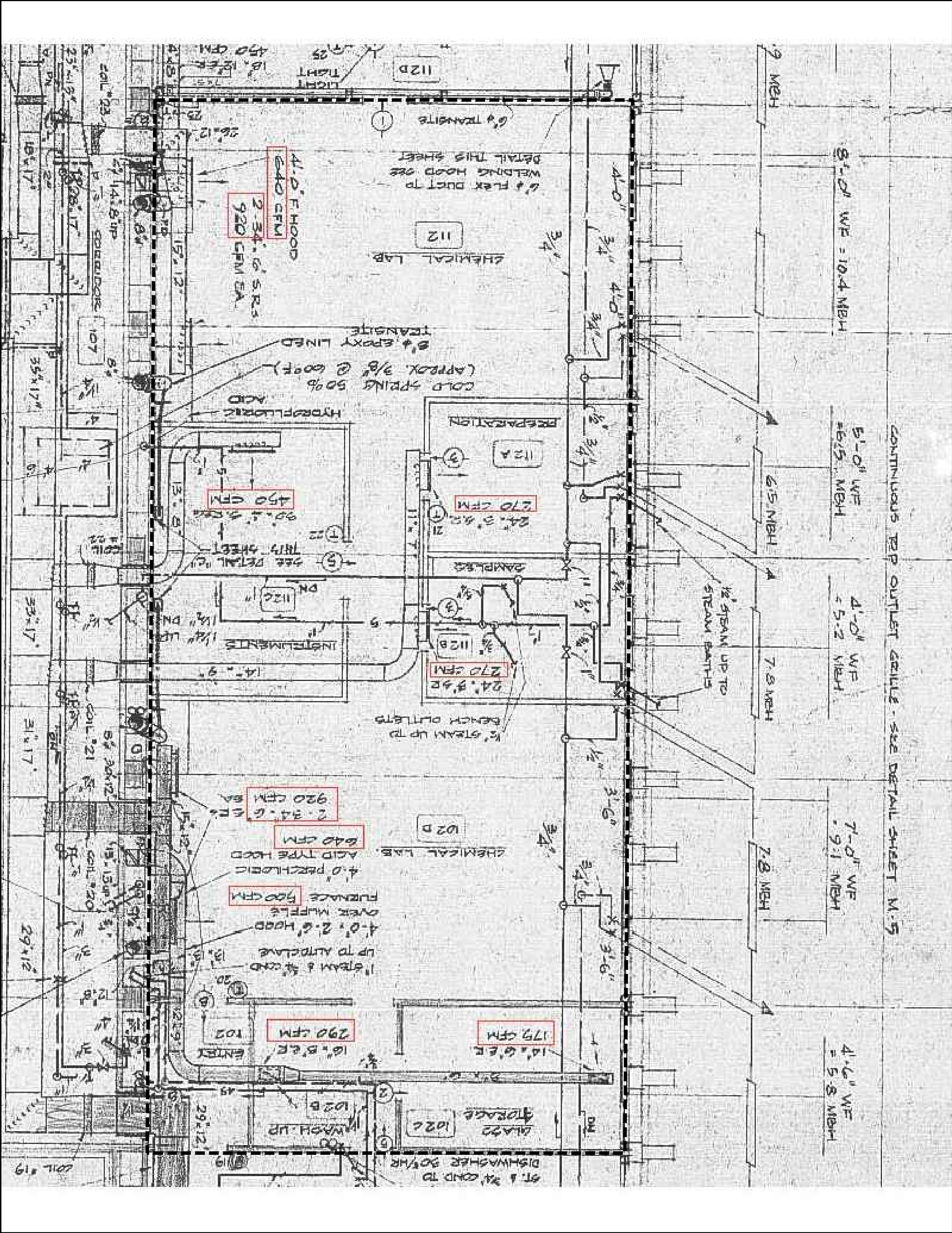
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2	SEP.15.14	PROGRESS ISSUE 1	MM
1	AUG.27.14	PROGRESS ISSUE 1	MM

CLIENT
 THE UNIVERSITY OF BRITISH COLUMBIA
Land & Building Services / Project Services

PROJECT TITLE
UBC MACMILLAN BUILDING
ROOM 102D RENOS
UBC PROJECT #
2357 MAIN MALL
VANCOUVER, B.C.

DRAWING TITLE

DATE AUG.2014 SCALE NOTED DRAWN MM REVIEWED MM CAGP PROJ. NO. ---	SHEET NO. M3 CAD FILENAME R2
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ROOM AIR BALANCE FROM RECORDS

SCALE: NTS

GENERAL NOTES:

1. WORK AND MATERIAL SHALL COMPLY WITH THE LOCAL & BC CODES, UBC TECHNICAL GUIDELINES..
2. GIVE NOTICES, DOO OBTAIN PERMITS AND PAY FEES SO WORK SPECIFIED MAY BE CARRIED OUT.
3. THE QUALITY OF WORKMANSHIP AND MATERIAL SHALL MATCH OR EXCEED THE BASE BUILDING STANDARDS. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE CODES INCLUDING SEISMIC. CONTRACTOR TO BE FAMILIAR WITH AND BE EXPERIENCED IN UBC STANDARDS.
4. BLANK
5. STAINLESS STEEL 316-2B WELDED EXHAUST DUCTWORK SHALL BE IN ACCORDANCE WITH THE MOST RECENT SMADNA AND ASHRAE HANDBOOKS. CONSTRUCTION TO MATCH EXISTING STANDARDS. REFER TO UBC TECHNICAL GUIDELINES 15860 FOR FUME HOOD INSTALLATION - DUCT REQUIREMENTS. REFER TO CSA 316.5 FOR INSTALLATION AND REACTIVATION (MAINTENANCE) OF FUME HOOD EXHAUST.
6. HOOD BALANCING AND COMMISSIONING SHALL BE DONE BY H.H.HAWKINS BY SEPARATE CONTRACT. PROVIDE GENERAL FAN SYSTEM BALANCING BY KD ENGINEERING OR WESTERN MECHANICAL TO INCLUDE :
 - a) ROOM PRESSURIZATION CONTROLS
 - b) HOOD SASH VELOCITY IS MAINTAINED AT REQUIRED LEVELS THROUGH ALL POSITIONS.
 - c) CONTROL INTERLOCKS PREVENT HOOD OPERATION WHEN SPACE OR CLEANROOM AIR HANDLERS ARE NOT OPERATING.
 - d) REVIEW GENERAL CONDITION OF UNIT, SUCH AS BELT, FILTER AND REPORT ANY ANY VISIBLE OR AUDIBLE ODDITIES.
 - e) RECORD ALL AIR FLOWS, FAN SPEEDS AND AMPERAGE DRAWS.
7. SUBMIT SHOP DRAWINGS OF ALL NEW MECHANICAL COMPONENTS EQUIPMENT BY FAX OR EMAIL (PDF FORM) FOR BYCAR'S REVIEW, APPROVAL AND RECORD.
8. COORDINATE ALL SHUT DOWNS, NOISE GENERATING WORK, TIME OF MATERIAL TRANSPORT THROUGH THE BUILDING, ACCESS TO ADJACENT TENANT SPACES ETC. WITH GC/UBC PRIOR TO COMMENCING WORK.
9. PROVIDE CLEAN UP OF SPACE DURING AND AFTER CONSTRUCTION.
10. DISPOSE OF ALL DEMOLITION MATERIAL OFF SITE.
11. HOOD INSTALL TO BE VERIFIED BY BYCAR ENGINEERING AFTER INSTALL TO CHECKLIST NOTED TO LEFT.

SEQUENCE OF OPERATION

A) EXISTING FUME HOOD EXHAUST FAN FEF 10

1) SYSTEM RUNS 24 HOURS A DAY

- EXHAUST FAN, THROUGH SCU/DPU WILL BE ENRIGED.
- SCU WILL MODULATE OUTSIDE INTAKE DAMPER TO MAINTAIN (-) 425 PA STATIC PRESSURE (INITIAL SUGGESTION ONLY).

2) ALARM

- THE FOLLOWING ALARMS WILL BE GENERATED WHEN TRUE -

ALARM	DELAY	SETPOINT
FAN FAIL	120 S #	---
STATIC HI	120 S #	(-) 175 PA #
STATIC LO	120 S #	(-) 725 PA #

ADJUSTMENT THROUGH SCU

NOTE:

FUME EXHAUST DUCTWORK IS RATED FOR (-) 1000 PA. OUTSIDE DAMPER SHOULD BE OPEN AND/OR EXHAUST FAN SHOULD BE SHUT DOWN ON LOW STATIC.

SHEET METAL:

1. SHEET METAL TO BE INSTALLED, HUNG AND SUPPORTED TO THE LATEST SMADNA STANDARDS AND LOCAL SEISMIC ZONE REQUIREMENTS.
- 1.1 STAINLESS STEEL FUME EXHAUST DUCTWORK
- 1.1 PROVIDE DUCTWORK AS INDICATED USING TYPE 316L STAINLESS STEEL SHEETS WITH LONGITUDINAL JOINTS, PASSIVATE AND ANNEAL SS SHEETS BEFORE WELDING. FOR CIRCULAR DUCTS ROLL SHEETS CIRCULAR AND WELD FLUSH. PROVIDE INTEGRAL 2 MM FLANGES ON ABUTTING ENDS OF MANUFACTURED DUCTS.
- 2 CONTINUOUSLY WELD ALL JOINTS USING INERT GAS METAL ARC PROCESS WITHOUT BURNING PARENT METAL, USING FILLER RODS TYPE ER316L AS SPECIFIED IN CSA W48. GRIND SMOOTH AND POLISH ALL JOINTS.
- 3 CONSTRUCTION:
 - 1 CONSTRUCT DUCTWORK FROM FOLLOWING THICKNESSES OF STAINLESS STEEL SHEET
 - 1 RECTANGULAR DUCTS 1.3 MM
 - 2 CIRCULAR DUCTS UP TO 500 MM DIA 0.8 MM
 - 3 CIRCULAR DUCTS OVER 500 MM DIA 1.0 MM
 - 2 REINFORCE RECTANGULAR DUCTS WITH GALVANIZED ANGLE FRAMES AT 1200 MM ON CENTRES 40 MM X 40 MM X 3 MM UP TO 900 MM MAXIMUM DIMENSION AND 50 MM X 50 MM X 6 MM FOR LARGER DUCTS.
- 4 FLEXIBLE CONNECTORS: NEOPRENE COATED GLASS FIBRE, COATED BOTH SIDES, MINIMUM MASS
 - 1 [] KG/M2, SECURED TO DUCTS AND FANS WITH 25 MM X 3 MM SS TYPE 316L FLAT BARS OR BANDS USING TYPE 316L SS SCREWS OR BOLTS AT 100 MM INTERVALS.
- 5 PROVIDE SS INSTRUMENT TEST HOLES OR PITOT TYPE OPENINGS IN HORIZONTAL DUCTS TO PERMIT FULL LENGTH INTERNAL WASHING OF HORIZONTAL DUCTS. 38 MM MINIMUM DIA. MADE FROM TYPE 316L SS COMPRISING SHORT TUBE CLOSED AIR AND WATERTIGHT BY COVER WITH CANE TYPE CLOSING DEVICE AND ATTACHING CHAIN. LOCATE OPENINGS ON 1500 MM CENTRES AND SO THAT NO POCKETS EXIST TO HOLD CONDENSATE OR WATER.
- 6 RUN DUCTS VERTICALLY BETWEEN HOOD OR CANOPY AND DUCT TERMINAL WITH MINIMUM OF HORIZONTAL OFFSET FROM RISERS.

ROOM 102 AND 112 AIR BALANCE

RECORDS SHOW:
VAV-20 FOR 102 D, 1840 CFM, 865 L/S
VAV-?? FOR 112A&B, 540 CFM, 255 L/S
VAV-?? FOR 112C, 450 CFM, 190 L/S
VAV-?? FOR 112, 1840 CFM, 865 L/S
E-10 FOR 102D FUME HOOD
E-11 FOR 102D FUME HOOD
E-12 FOR 112 FUME HOOD
E-13 FOR 112 FUME HOOD
E-60 FOR 102D GENERAL EXHAUST
TOTAL

ORIGINAL
AIR IN/OUT
1840 CFM
540 CFM
450 CFM
1840 CFM
-600 CFM
-600 CFM
-640 CFM
-480 CFM
-965 CFM
+1385 CFM

NEW
AIR IN/OUT
1500 CFM
440 CFM
400 CFM
1500 CFM
-600 CFM
LOCKED OUT
-480 CFM
-965 CFM
+1795

SET ROOM SUPPLY AT B ACH/R

TOTAL SUPPLY AIR 4670 CFM 3840 CFM

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CLIENT

 THE UNIVERSITY OF BRITISH COLUMBIA

Land & Building Services / Project Services

PROJECT TITLE

UBC MACMILLAN BUILDING
ROOM 102D RENOS
UBC PROJECT #
2357 MAIN MALL
VANCOUVER, B.C.

DRAWING TITLE

DUCT SPECIFICATION, CONTROLS,
ROOM BALANCE CHECK LIST

DATE AUG.2014	SHEET NO.
SCALE NOTED	M4
DRAWN MM	
REVIEWED MM	
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