### PROJECT NAME

COQUITLAM CITY HALL OFFICE RENOVATION

CIVIC ADDRESS: 3000 GUILDFORD WY, COQUITLAM, BC V3B 7N2

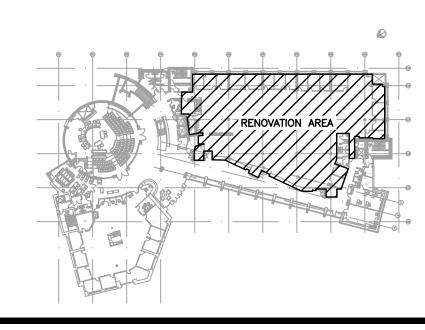
SCOPE OF WORK: MECHANICAL AND PLUMBING

### **CODE STANDARD REFERENCES**

ALL NEW WORK SHALL BE ACCORDANCE WITH THE

- BRITISH COLUMBIA BUILDING CODE 2024 NATIONAL PLUMBING CODE OF CANADA 2020
- ASHRAE 90.1 2019
- NFPA 13 2019 • NFPA 96 - 2014

### KEY PLAN



DRAWING LIST							
DWG #	DRAWING NAME	SCALE					
M-01	KEY PLAN, LEGENDS AND GENERAL NOTES	N.T.S.					
M-02	EXISTING/DEMO HVAC PLAN - MAIN FLOOR	1:100					
M-03	NEW HVAC PLAN - MAIN FLOOR	1:100					
M-04	EXISTING AND NEW PLUMBING PLAN — MAIN FLOOR	1:100					
M-05	NEW PLUMBING PLAN - GROUND FLOOR	1:100					
M-06	NEW PLUMBING PLAN — PARKING FLOOR	1:100					
M-07	NEW FIRE SUPPRESSION PLAN	1:100					
M-08	MECHANICAL SPECIFICATIONS	N.T.S.					

THE FOLLOWING REQUIREMENTS SHALL BE PROVIDED TO THE ENGINEER FOR COMPLETION OF

1.1. THE FOLLOWING ITEMS ARE MANDATORY REQUIREMENTS PRIOR TO ISSUANCE OF THE

1.1.2. DOMESTIC WATÉR, SANITARY AND VENT PRESSURE TEST REPORTS FOR NEW PIPING. 1.1.3. SEISMIC SCHEDULE SB AND SC FOR NEW MECHANICAL AND PLUMBING ITEMS.

1.2.2. CONTRACTOR SIGNED MECHANICAL AND PLUMBING (RED LINE) AS-BUILT DRAWINGS.

1.1.1. FINAL (PASSED) CITY INSPECTION CARD FOR PLUMBING.

1.2.3. CONTRACTOR'S LETTER OF GUARANTEE AND WARRANTY.

1.1.6. ANY DEFICIENCY ITEMS NOTED IN THE MECHANICAL FIELD REPORTS.

1.2. THE FOLLOWING ITEMS SHALL BE PROVIDED AT THE END OF THE PROJECT:

1.1.4. NEW EQUIPMENT COMMISSIONING REPORT.

1.2.1. OPERATION AND MAINTENANCE MANUALS.

**CLOSE-OUT DOCUMENT LIST** 

SCHEDULE LETTER CB:

1.1.5. AIR BALANCING REPORT.

### MECHANICAL EQUIPMENT SCHEDULES

. GRAVITY BACK DRAFT DAMPER

	FAN SCHEDULE										
TAG	SERVICE	LOCATION	MANITEACTURED I MODEL I		AIRFLOW (L/S)	ESP (PA)	MOTOR	ELEC	SHIPPING WEIGHT	ACCESSORIES	
EF-1	EXHAUST	LUNCH ROOM	GREENHECK	EENHECK CSP-A410-QD		0.4	_	115/1/60		ALL LISTED	
1. CS	ACCESSORIES: 1. CSA OR ULC LISTED 2. CEILING VIBRATION ISOLATORS						CONNECT	HOUSING SWITCH TROL (FOR	BALANCING)		

			•	AIR OUTLET SCI	HEDULE	
TAG	SERVICE	MAKE	MODEL	FINISH	SIZE	NOTES
E-1	RETURN & EXHAUST AIR GRILLE	E.H. PRICE	80/F/A	BLACK POWER COAT	REFER TO DRAWING	REFER TO THE DRAWINGS FOR THE MOUNTING TYPE

_											
	DOMESTIC HOT WATER TANK SCHEDULE										
	TAG	SERVICE	LOCATION	MANUFACTURER	MODEL	FUEL TYPE	INPUT (KW)	CAPACITY (GAL.)	ELEC	SHIPPING WEIGHT (LBS)	ACCESSORIES
Ī	DHWT-1	DOMESTIC HOT WATER HEATER	OVER LUNCH ROOM	A.O. SMITH	DEL-6	ELEC	1.5	6	208/1/60	_	ALL LISTED

3. DRAIN PAN

. DOMESTIC HOT WATER TANKS TO BE CSA OR ULC LISTED. 1. TEMPERATURE & PRESSURE RELIEF VALVE MOUNTED IN CEILING PLENUM. REFER TO SUSPENDED HOT WATER TANK DETAIL.

2. SEISMIC RESTRAINTS

## PLUMBING SIZING CHART

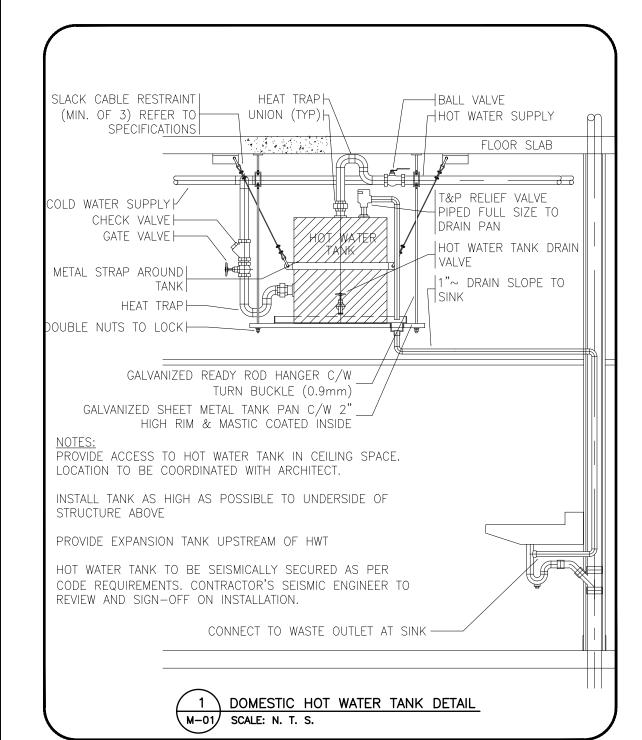
NOTES:
- PEX PIPES PERMITTED TO ONLY

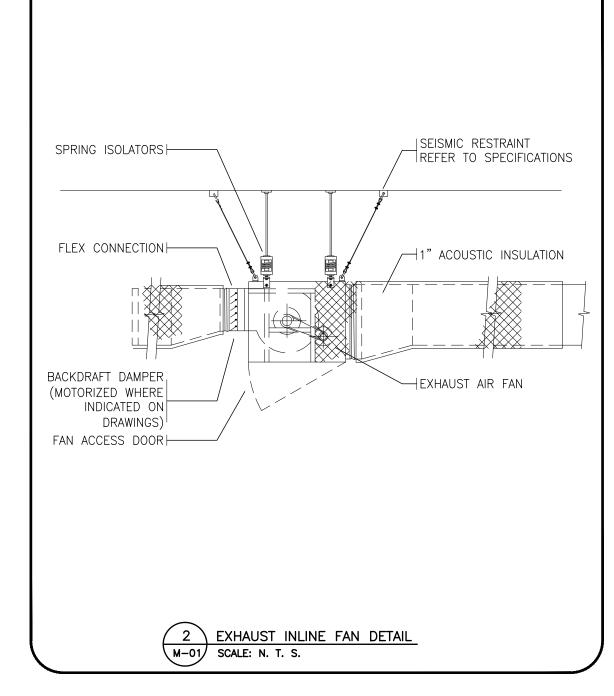
BE USED ON PIPES 50mm AND SMALLER.

	PLUMBING SIZING CHART (COPPER)							
PIPE SIZE	DCW (MAX. 5 FT/S)	DHW (MAX. 4 FT/S)	DHWR (MAX. 4 FT/S)					
15mm	3.5 FU	2.5 FU	3 GPM					
20mm	9.0 FU	7.5 FU	6.5 GPM					
25mm	18.0 FU	14.0 FU	12 GPM					
32mm	29.0 FU	22.0 FU	17.5 GPM					
40mm	46.0 FU	34.0 FU	25 GPM					
50mm	120.0 FU	81.0 FU	42 GPM					
65mm	245.0 FU	170.0 FU	_					
75mm	400.0 FU	295.0 FU	_					
			·					

- PIPE SIZES 75mm AND BELOW TO BE COPPER TYPE K - PIPE SIZE 50mm AND BELOW TO BE PEX-A.

PLUMBING SIZING CHART (PEX)									
PIPE SIZE	DCW (MAX. 8 FT/S)	DHW (MAX. 8 FT/S)	DHWR (MAX. 2 FT/S)						
15mm	3.5 FU	3.5 FU	1.1 GPM						
20mm	9.0 FU	9.0 FU	2.2 GPM						
25mm	18.0 FU	18.0 FU	3.6 GPM						
32mm	29.0 FU	29.0 FU	5.4 GPM						
40mm	46.0 FU	46.0 FU	7.6 GPM						
50mm	120.0 FU	120.0 FU	13.0 GPM						





	HVAC S	YMBOLS			PLUMBING	SYMBOL	.S		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	NEW	EXISTING	DEMOLITION	
SIZE	NEW DUCT	W	90° RADIUS ELBOW	c <u>;</u> o	FITTINGS (DOWN, TEE, & UP)	<u> </u>	\$\$	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	┢
EX. SIZE	EXISTING DUCT TO REMAIN (HAVE (EX.) PREFIX)		30 IVADIOS ELDOW	€	P-TRAP HOSE BIBB	<u> </u>	\$\$	\(\forall + \forall \)	┝
	EXISTING DUCT TO BE REMOVED	CCC Y	90° RECTANGULAR ELBOW	IH HO	CLEANOUT FLOOR CLEANOUT FLOOR DRAIN (ROUND)	55	55	¥++*	÷
K/-/-/-/-/-/-/-/-/-/-/-/-/-/-/-/-/-/-/-	(HAVE (D.) PREFIX)	, T	(WITH TURNING VANES)	Ø ☑ ●	FLOOR DRAIN (SQUARE) ROOF DRAIN	<del></del>	\ <u>\</u>	¥++*	
F. SIZE	FUTURE DUCT (HAVE (F.) PREFIX)	R D		<b>\( \rightarrow\)</b>	FUNNEL FLOOR DRAIN HUB FLOOR DRAIN	<u> </u>	<u> </u>	\// <del>\</del>	1
212x122 212¢	DUCT SIZE (RECTANGULAR/ROUND)	R D	DUCT INCLINED RISE OR DROP IN DIRECTION OF FLOW	<b>├</b>	METERS	۶ <i>خ</i>	55	<del>\//</del>	
24x12ø	DUCT SIZE	R D		·	РИМР	_			
	(OVAL WIDTH×DEPTH)  RECTANGULAR	**************************************	FLEXIBLE DUCT	<b>├</b>	ISOLATION VALVE	NEW	EXISTING	PRESSION DEMOLITION	
	SUPPLY AIR DUCT ELBOW UP & DOWN			· · · · · · · · · · · · · · · · · · ·	CHECK VALVE	N●	0	<b>'∅</b> ,	Ľ
	RECTANGULAR RETURN AIR DUCT ELBOW UP & DOWN		BRANCH CONNECTION (RECTANGULAR DUCT)	<del>→</del>	STRAINERS (WITH & WITHOUT BLOWDOWN VALVES)			EMOLITIC	 10
	RECTANGULAR EXHAUST AIR DUCT ELBOW UP & DOWN		BRANCH WITH	<b>├</b>	PRESSURE REDUCING REGULATING VALVE	- K	SYMBOL B	T	
	ROUND DUCT ELBOW UP & DOWN		RECTANGULAR TO ROUND CONNECTION	<b>├───────────────</b>	SOLENOID VALVE (2-WAY & 3-WAY)	*	q q	1	C(
$\boxtimes$	SUPPLY AIR DIFFUSER		ROUND DUCT SHOE TAP	<b>₩</b>	CONTROL VALVE (2-WAY & 3-WAY)				_
	RETURN AIR GRILLE		TAKEOFF CONNECTION	<i>у</i> ——	BUTTERFLY VALVE				E
	EXHAUST AIR GRILLE		CONICAL SPIN-IN BRANCH WITH	<b>У———</b> ∳———	BALANCING VALVE				
	S-SHAPE, L-SHAPE, AND U-SHAPE		RECTANGULAR TO ROUND CONNECTION	<b>├──फ्रफ</b>	BACKFLOW PREVENTER				
	ACOUSTICALLY LINED AIR TRANSFER DUCT		ROUND DUCT WITH		REDUCED PRESSURE BLACKFLOW PREVENTER				
Z AR Z	ACCESS PANEL / DOOR		CONICAL SPIN-IN CONNECTION	<u> </u>	ELECTRIC HEAT TRACING				
·	FLEXIBLE CONNECTION		ACOUSTICALLY LINED DUCT	Q===Q	WATER MANIFOLD				
——————————————————————————————————————		<del>\</del>	LINED DOO!	ୂର	LAUNDRY BOX				
	MOTORIZED DAMPER		EQUIPMENT/FIXTURE TAG						
BD ,	BALANCING DAMPER	NO. TAG NECK FLOW	AIR OUTLET TAG						

AIR FLOW (L/S)

CHILLED WATER SUPPLY

← -- CHWR -- -- | CHILLED WATER RETURN|

HEATING WATER SUPPLY

л	<b>,</b>	<b>\$</b>	¥++*	SANITARY (ABOVE GRADE/FLOOR)
JND) JARE)	5	<b>\$</b>	¥++*	STORM (ABOVE GRADE/FLOOR)
RAIN	<b>;</b>	<b>⊱</b> ——→	<del>\//</del>	SANITARY (BELOW GRADE/FLOOR)
MN	<b></b>	<u> </u>	<del>\//</del>	STORM (BELOW GRADE/FLOOR)
	5	5	<del>\//</del>	SANITARY VENT
	FI	RE SUPP	PRESSION	SYMBOLS
E	NEW	EXISTING	DEMOLITION	DESCRIPTION
	N●	•	<b>Ø</b> ,	PENDANT SPRINKLER
JT ES)		D	EMOLITIC	ON
ING		SYMBOL		DESCRIPTION
VE	<b>4</b>	B (	D	RELOCATE EXISTING TO NEW LOCATION
E (AY)	<b>⊗</b>	، ل	٦	CONNECT TO EXISTING, LIMIT TO DEMOLITION, DISCONNECT FROM EXISTING
E AY) /E				EXISTING TO BE REMOVED
/E				
NTER				
JRE NTER				
ACING				
D				

DESCRIPTION

DOMESTIC COLD WATER

DOMESTIC HOT WATER

DOMESTIC HOT WATER

RECIRCULATION

SANITARY

## **GENERAL NOTES**

**-∅→ -**∅**→** 

PROVIDE OPENINGS IN NEW FULL-HEIGHT WALLS FOR EXISTING DUCTWORK, PIPES AND CONDUIT TO PASS THROUGH. SEAL AROUND PENETRATIONS FOR SOUND ATTENUATION AND SMOKE SEPARATION AS REQUIRED.

← CHWS ←

- 2. LOCATION OF EXISTING EQUIPMENT SHOWN ON THIS DRAWING IS FOR INFORMATION ONLY. CONTRACTOR SHALL REVIEW AND CHECK THE EXACT LOCATION, SIZE, ELEVATION AND INVERT OF ALL EXISTING EQUIPMENT ON SITE PRIOR TO COMMENCING WITH WORK.
- 3. LIGHTING LOCATION TAKE PRECEDENCE OVER MECHANICAL SERVICES OR PIPES/DUCTS. ALLOW TO RELOCATE NEW OR EXISTING TO SUIT.
- 4. PATCH AND MAKE GOOD FINISH ON ANY DAMAGED CEILING/WALL FOR NEW MECHANICAL WORK.
- 5. BRANCH DUCT SIZE TO MATCH THAT OF DIFFUSER NECK SIZE.
- 6. BALANCE DIFFUSERS TO INDICATED AIR VOLUME (L/S).

FIRE DAMPER, SMOKE DAMPER.

IRE & SMOKE DAMPER

DOOR GRILLE

DOOR UNDERCUT

THERMOSTAT, HUMIDISTA<sup>-</sup>

VARIABLE SPEED SWITCI

OCCUPANCY SENSOR

SWITCH

CONTROL WIRING

- 7. MODIFY THE SIZE AND ROUTING OF NEW DUCTWORK AS REQUIRED TO SUIT THE SITE CONDITION WITHOUT EXTRA COST TO THE OWNER. PROVIDE ADEQUATE OFFSETS, AND TRANSITIONS ON NEW DUCTWORK AS REQUIRED TO SUIT SITE CONDITIONS.
- 8. PROVIDE NEW BALANCING DAMPER TO EACH TAKE OFF FROM S/A MAIN TO AIR OUTLETS AND BALANCE AIR FLOW TO DESIGN RATE SHOWN ON DRAWING. PROVIDE NEW BALANCING DAMPERS TO EXISTING TAKE-OFFS AS REQUIRED.
- 9. EXISTING MECHANICAL UNIT TO BE TESTED BY QUALIFIED HVAC TECHNICIANS FOR PROPER CONTROLLED OPERATION. DEFICIENCIES TO BE REPORTED IN WRITING TO LANDLORD.
- 10. CONTRACTOR TO CO-ORDINATE THERMOSTAT LOCATION WITH INTERIOR DESIGNER TO AVOID INSTALLATION OVER DIMMER SWITCHES OR HEAT EMITTING DEVICES PRIOR TO INSTALLATION.
- 11. CONTRACTOR SHALL REVIEW THE MECHANICAL DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL AND ELECTRICAL DRAWINGS AND VERIFY SITE CONDITIONS BEFORE SUBMITTING A BID. REPORT ANY DISCREPANCY TO CONSULTANT DURING PRICING.
- 12. FLEXIBLE DUCT SHALL BE NO MORE THAN 5 FEET IN LENGTH.
- 13. CONTRACTOR TO PROVIDE FLEX CONNECTIONS TO ALL EQUIPMENT AT CONNECTIONS TO DUCTS AND PIPES.
- 14. PROVIDE COMPLETE AIR BALANCING OF THE HVAC SYSTEM. THIS INCLUDES ALL AIR OUTLETS, TERMINAL UNITS AND FANS. BALANCING SHALL BE PROVIDED BY BASE BUILDING BALANCING CONTRACTOR.

- 15. NOTIFY THE BUILDING ENGINEER OF ANY ACTIVITY THAT MAY AFFECT THE FIRE ALARM SYSTEM (EG. WELDING, GRINDING OR SOLDERING) 48 HOURS IN ADVANCE.
- 16. INSULATE ALL NEW DUCTWORK C/W VAPOR BARRIER. REFER TO SPECIFICATION FOR MORE INFO ON PIPING AND DUCTWORK INSULATION REQUIREMENTS.
- 17. PROVIDE X-RAY OF ALL REQUIRED PENETRATION OF THE FLOOR TO AVOID DAMAGING IN-SLAB SERVICES AS WELL AS REINFORCING STEEL. COORDINATE X-RAYS WITH THE BUILDING OPERATING ENGINEER WITH 48 HOURS NOTICE. ALL SLAB PENETRATIONS MUST BE FIRE STOPPED AND WATER SEALED TO MAINTAIN THE INTEGRITY OF THE SLAB.
- 18. CONTRACTOR TO INFORM CONSULTANT 24 HOURS PRIOR TO INITIAL PRESSURE TEST, AND CONFIRM TYPE OF TEST AND PRESSURE BEING APPLIED FOR PLUMBING WORK. CONTRACTOR TO USE THE PRESSURE GAUGE FROM BUILDING ENGINEERING STAFF. COORDINATE WITH BASE BUILDING CONSTRUCTION MANAGER AND FOLLOW THE BUILDING GUIDELINES FOR MORE
- 19. ALL WORK SHALL ALSO CONFORM TO THE REQUIREMENTS SET OUT IN THE BASE BUILDING TENANT CONSTRUCTION GUIDELINES.
- 20. SEISMICALLY RESTRAIN ALL DIFFUSERS AND ANY OTHER CEILING EQUIPMENT. CONTRACTOR IS TO HIRE A SEISMIC ENGINEER AND PROVIDE SCHEDULE SB & SC FROM ENGINEER.
- 21. ALL WORK SHALL CONFORM TO CURRENT EDITION OF BC BUILDING CODE AND OTHER LEGAL REGULATIONS AND BYLAWS APPLICABLE TO THE WORK AND WILL MEET THE AUTHORITIES HAVING
- 22. ALL WORK IN THE SCOPE OF THIS PROJECT SHALL BE COMPLIANT WITH ASHRAE 90.1 ENERGY STANDARD AND LOCAL ENERGY STANDARD.
- 23. ALL WATER PIPING SHALL BE INSULATED AS PER THE MECHANICAL SPECIFICATIONS.
- 24. ENSURE COMPLIANCE WITH ALL CLEARANCE REQUIREMENTS FOR BACKFLOW PREVENTION SERVICE AND TESTING. ALL NEW BACKFLOW PREVENTION DEVICES MUST BE TESTED, INSPECTED, AND TAGGED BY A CERTIFIED TECHNICIAN. SUBMIT TESTING DOCUMENTATION TO THE CITY PLUMBING AUTHORITY AS REQUIRED TO SATISFY PERMITTING REQUIREMENTS.
- 25. CONTRACTOR SHALL VERIFY THE EXISTING SITE CONDITIONS AND INVESTIGATE THE FEASIBILITY OF THE NEW WORK DURING THE TENDER. NOTIFY THE CONSULTANT TEAM IF ANY DISCREPANCIES FOUND PRIOR TO TENDER CLOSING.

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3000 GUILDFORD WY

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COQUITLAM, BC

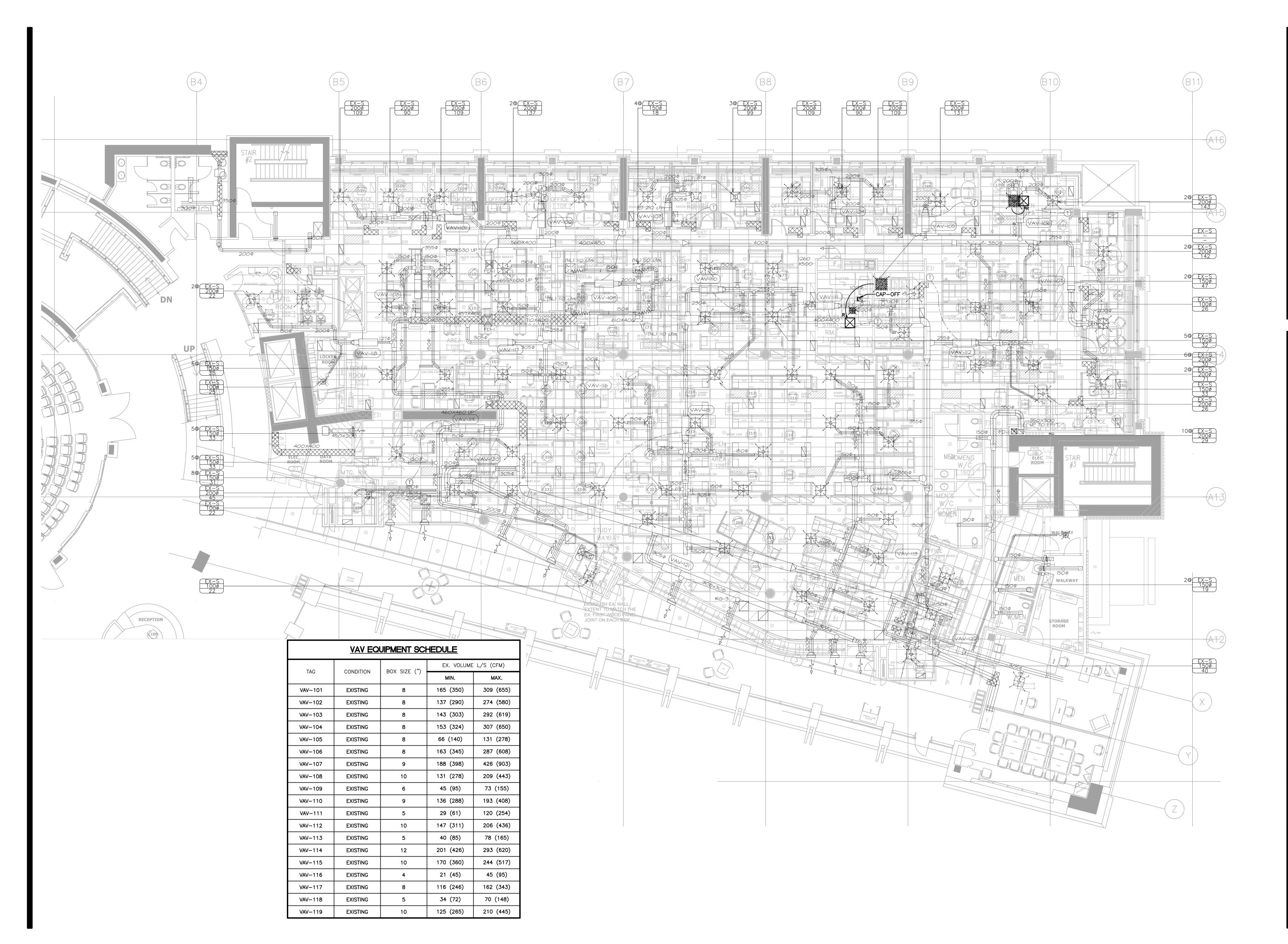
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UNIT 205, 3003 ST. JOHNS STREET PORT MOODY, BC V3H 2C4 E: INFO@APERTA.CONSULTING PERMIT TO PRACTICE NUMBER: 1004560

KEY PLAN, EGENDS ANI **GENERAL** 

PROJECT No. 20240098 DRAWN YT/DL CHECKED SCALE N.T.S. 2025/05/07 PRINTED 2025/05/07

REVISION No.



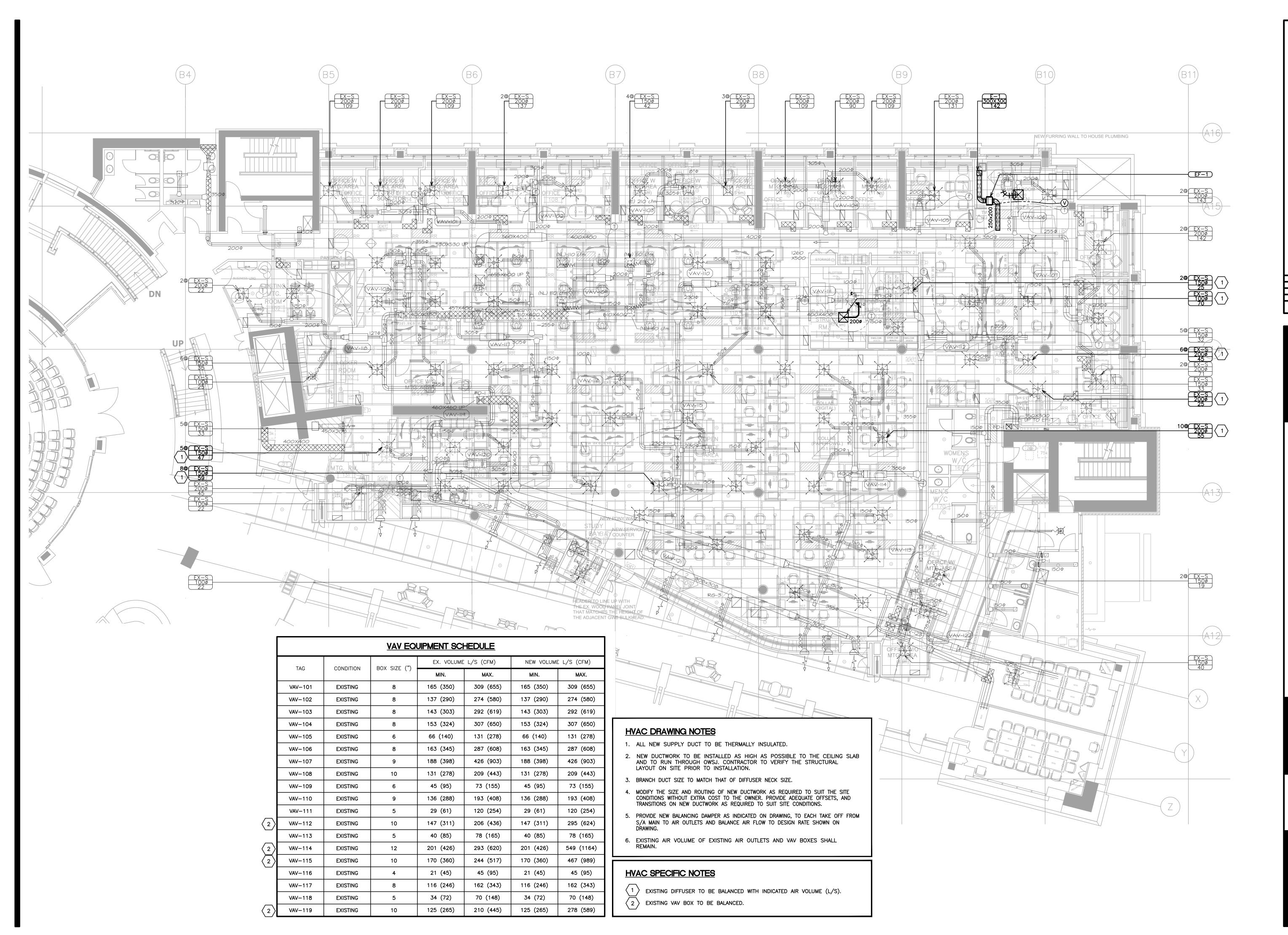
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UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4 E: INFO@APERTA.CONSULTING PERMIT TO PRACTICE NUMBER: 1004560

HVAC PLAN MAIN FLOOR

PROJECT No. 20240098 DRAWN CHECKED SCALE 1:100 2025/05/07 2025/05/07



1340-1075 WEST GEORGIA, VANCOUVER, B.C. V6E

PROJECT TITLE

COQUITLAM

CITY HALL

P&D OFFICE

RENOVATION

3000 GUILDFORD WY

COQUITLAM, BC

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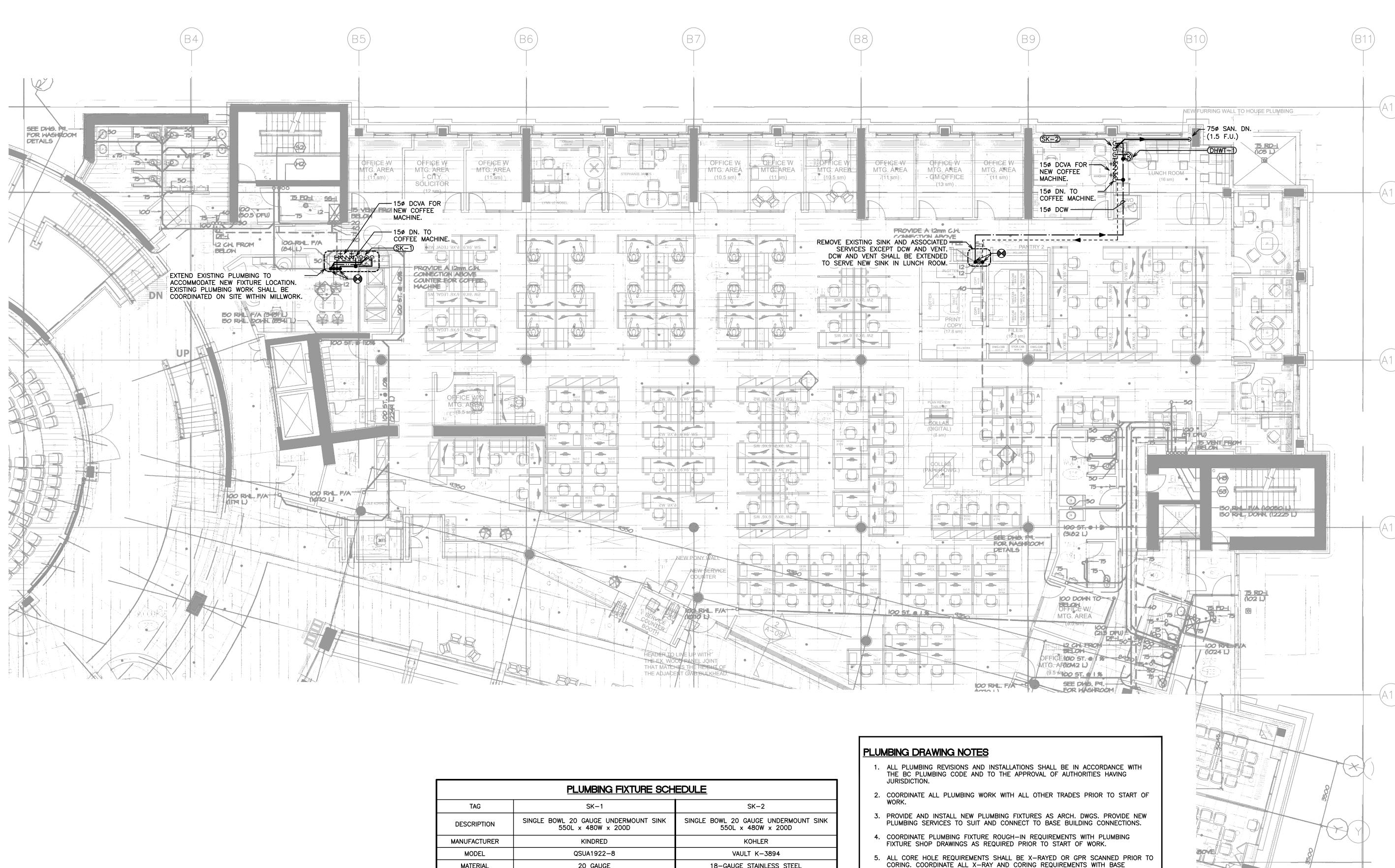
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NEW HVAC PLAN — MAIN FLOOR

JECT No.	20240098
AWN	YT/DL
CKED	JL
<b>ALE</b>	1:100
E	2025/05/07
NTED	2025/05/07

REVISION No.

1-03



PLUMBING FIXTURE UNITS + MINIMUM PIPE CONNECTIONS									
FIVTUDE	TAG	COLD	WATER	HOT \	HOT WATER		SANI	TARY	VENT
FIXTURE	TAG	(MM.)	(F.U.)	(MM.)	(F.U.)	(F.U.)	(MM.)	(F.U.)	(MM.)
KITCHEN SINK	SK-1	15	1.5	15	1.5	2.0	50	1.5	38
KITCHEN SINK	SK-2	15	1.5	15	1.5	2.0	50	1.5	38
TOTAL	TOTAL 3.0 3.0 4.0 3.0 -								
PLUMBING LINES ARE DESIGNED BASED ON A DETAILED ENGINEERING DESIGN METHOD AS PER NATIONAL PLUMBING CODE OF CANADA 2020									

PLUMBING FIXTURE SCHEDULE							
TAG	SK-1	SK-2					
DESCRIPTION	SINGLE BOWL 20 GAUGE UNDERMOUNT SINK 550L x 480W x 200D	SINGLE BOWL 20 GAUGE UNDERMOUNT SINK 550L x 480W x 200D					
MANUFACTURER	KINDRED	KOHLER					
MODEL	QSUA1922-8	VAULT K-3894					
MATERIAL	20 GAUGE	18-GAUGE STAINLESS STEEL					
FLUSH VALVE OR FAUCET SET	AMERICAN STANDARD ONE—HANDLE KITCHEN FAUCET, SINGLE HOLE MOUNT W/O COVER PLATE MODEL: 7671300.075	AMERICAN STANDARD ONE—HANDLE KITCHEN FAUCET, SINGLE HOLE MOUNT W/O COVER PLATE MODEL: 7671300.075					
FLOW RATE (GPM)	1.8	1.8					
FLOW RATE (GPF)	_	-					
DRAINS	_	K-8801 SINK DRAIN AND STRAINER WITH TAILPIECE					
P-TRAP	MCGUIRE 8872C	MCGUIRE 8872C					
REMARKS	REAR OFF-SET DRAIN SINK.  MCGUIRE SUPPLY-LFBV170 W/ 125MM EXTENSION.	REAR OFF—SET DRAIN SINK. MCGUIRE SUPPLY—LFBV170 W/ 125MM EXTENSION.					
APPROVED EQUAL	_	-					

- BUILDING STRUCTURAL ENGINEER PRIOR TO START OF WORK.
- 6. ALL DOMESTIC HOT AND COLD WATER PIPES SHALL BE PROVIDED WITH INSULATION AND VAPOUR SEAL AS PER MECHANICAL SPECIFICATIONS.
- 7. FIXTURE INSTALLATION SHALL INCLUDE ALL ASSOCIATED FLANGES, BALL VALVES, ANGLE STOPS, BRAIDED FLEX SUPPLIES, ESCUTCHEONS, ETC..
- 8. ALL PIPE PENETRATIONS SHALL BE FIRESTOPPED WHERE PASSING THROUGH A RATED SEPARATION. CONFIRM SEPARATION RATING OF WALL AND FLOOR PRIOR TO START OF WORK. ALL FIRE STOPPING WORK SHALL BE INSTALLED AS PER FIRE STOP MANUFACTURER'S RECOMMENDATIONS AND PRODUCT LISTING FOR ASSOCIATED APPLICATION. FIRE STOP INSTALLATION SHALL ONLY BE CARRIED OUT BY QUALIFIED TECHNICIANS CERTIFIED TO INSTALL THE APPLICABLE FIRESTOP PRODUCT. FIRESTOP PRODUCT SHALL BE ULC LISTED AND SUBMITTED TO THE ENGINEER FOR REVIEW / COMMENT PRIOR TO START OF WORK.

P&D OFFICE RENOVATION 3000 GUILDFORD WY COQUITLAM, BC

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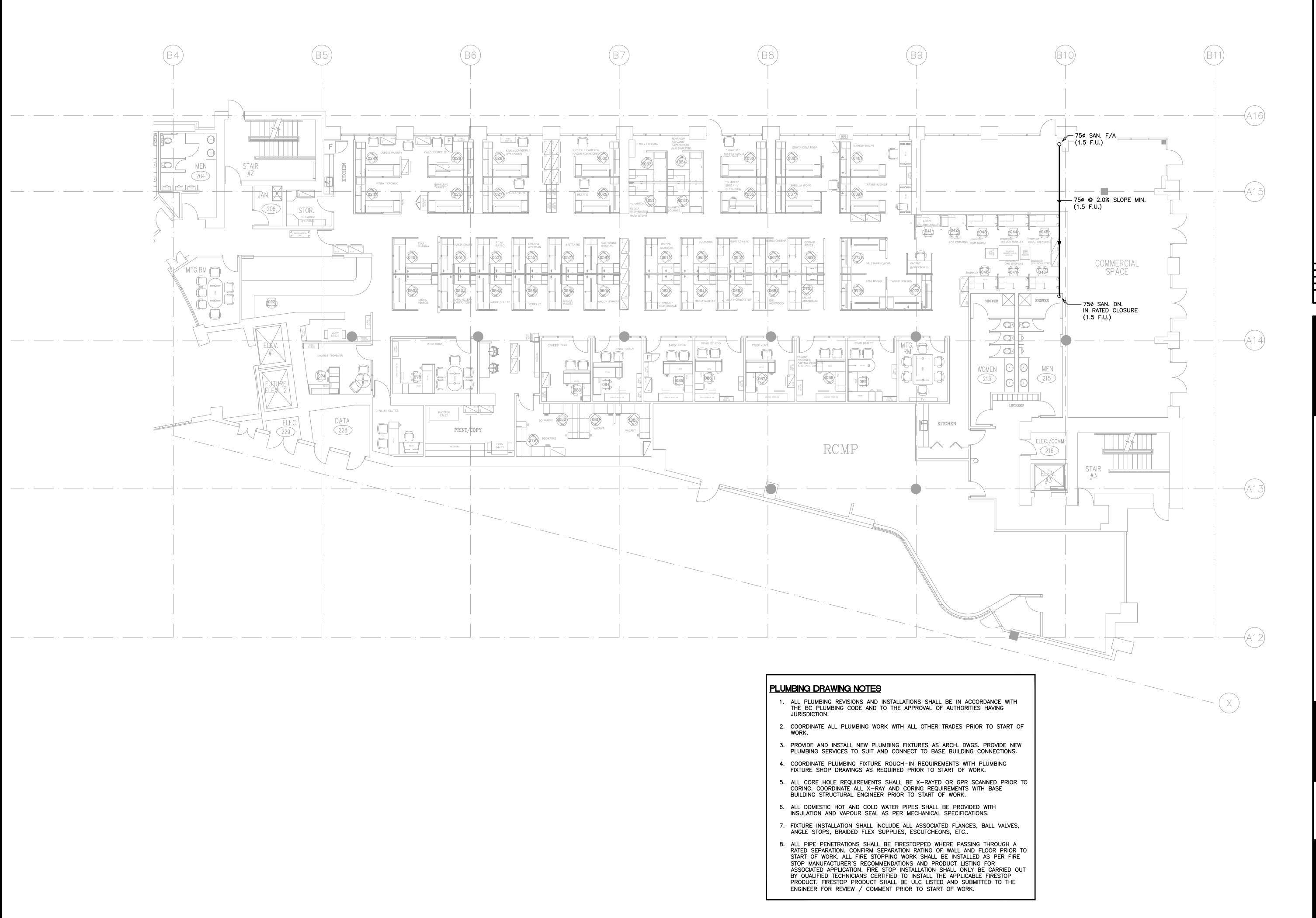
UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4 E: INFO@APERTA.CONSULTING PERMIT TO PRACTICE NUMBER: 1004560

EXSITING AND NEW PLUMBING

MAIN FLOOR 20240098 PROJECT No.

DRAWN YT/DL CHECKED 1:100 SCALE 2025/05/07 PRINTED 2025/05/07

REVISION No.



-0-1075 WEST GEORGIA, VANCOUVER, B. EPHONE (604) 669-9460 FAX. (604)

.C. V6E 3C9 ) 683-7684

COQUITLAM
CITY HALL
P&D OFFICE
RENOVATION
3000 GUILDFORD WY
COQUITLAM, BC

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## **YSES.LY**

UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4
E: INFO@APERTA.CONSULTING
PERMIT TO PRACTICE NUMBER: 1004560

SHEET TITLE

NEW PLUMBIT

PLAN

- GROUND FLOOR

 PROJECT No.
 20240098

 DRAWN
 YT/DL

 CHECKED
 JL

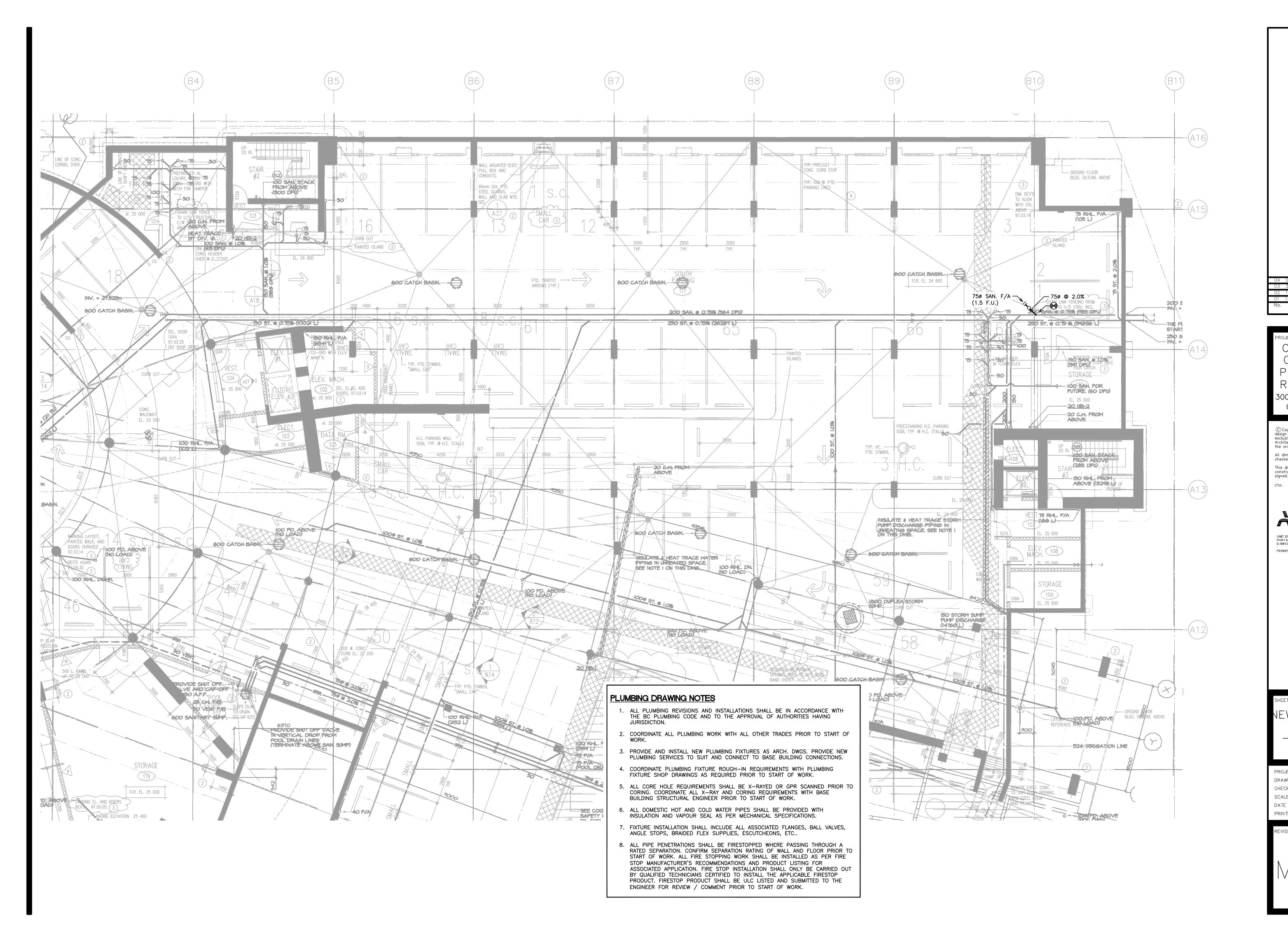
 SCALE
 1:100

 DATE
 2025/05/07

 PRINTED
 2025/05/07

REVISION No.

M - 05



1340-1075 WEST GEORGIA, VANCOUVER, B.C. V6E

PROJECT TITLE

COQUITLAM

CITY HALL

P&D OFFICE

RENOVATION

3000 GUILDFORD WY

COQUITLAM, BC

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UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4
E: INFO@APERTA.CONSULTING
PERMIT TO PRACTICE NUMBER: 1004560

SHEET TITLE NEW PLUMBING PLAN

- PARKING FLOOR

 DRAWN
 YT/DL

 CHECKED
 JL

 SCALE
 1:100

 DATE
 2025/05/07

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 2025/05/07

REVISION No.

1-06



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DATE REVISION
(dd/mm/yr)

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CITY HALL
P&D OFFICE
RENOVATION
3000 GUILDFORD WY
COQUITLAM, BC

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UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4
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PERMIT TO PRACTICE NUMBER: 1004560

NEW FIRE
SUPPRESSION
PLAN

PROJECT No. 20240098

DRAWN YT/DL

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REVISION No.

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.2 The word "provide" shall mean "supply and install" the products and services specified. "as indicated" means that the item(s) specified are shown on the

.3 Drawings and specifications are complementary to each other and what is called for in one is binding as if called for in both. Should any discrepancy appear between drawings and specifications which leaves doubt as to the true intent and meaning, obtain a ruling from the engineer ten (10) days before submitting tender. Failing this, allow for most expensive alternative.

.4 Contract documents are diagrammatic only. They are to establish scope, material and quality. They are not detailed installation drawings. Minor details usually not shown or specified and any incidental accessories required for proper installation of the system are to be included in the work.

.5 Contractor is to ensure that all intended equipment will fit within given spaces. Make reference to the electrical, mechanical, architectural and structural drawings, when setting out work and before ordering equipment

.6 The contractor shall visit the site before tendering Examine all local and existing conditions on which the work is dependent. No consideration will be granted for any misunderstanding, of work to be done, resulting from failure to visit the site. New piping, ductwork and insulation standards shall at least match the existing installation or be higher if specified herein.

1.2 CODES, REGULATIONS AND STANDARDS .1 All work shall conform to current edition of national, provincial and municipal codes, standards and other legal regulations and bylaws applicable to

authorities having jurisdiction .2 Documents and work shall reference the latest, local By-law and BC Building Code.

the work and will meet the requirements of

1.3 RESPONSIBILITIES

.1 Assume responsibility for layout of work; and for any damage caused to the owner or other tenants by improper execution of work.

Protect all new and existing work from damage. Take responsibility for condition of materials and equipment supplied and protect until work is completed and accepted. Coordinate deliveries with

the general contractor .4 Coordinate work with all trades and make changes to facilitate a satisfactory installation. Make no deviations to the design intent involving extra cost to the owner, without the consultant's written approval.

1.4 CERTIFICATES

.1 Give notices, obtain all required permits and approvals, and pay all fees so work specified may be carried out. Furnish certificates if requested. as evidence that work conforms with laws and regulations of the authorities having jurisdiction.

1.5 STANDARD OF MATERIALS AND WORKMANSHIP .1 Workmanship shall be in accordance with well established practice and standards accepted and recognized by the consultant and the trade. .2 The consultant shall have the right to reject any item of work that does not conform to the contract documents and accepted standards of performance, quietness of operation, finish and

.3 Employ only tradesmen holding valid provincial trade qualification certificates. Tradesmen shall perform only work that their certificate permits. .4 Make and quality of materials used are subject to materials and install suitable materials in their

.5 Materials shall be new and of uniform pattern throughout, unless noted otherwise.

1.6 CORE DRILLING AND CUTTING

.1 All work shall be co-coordinated with other trades especially that related to cutting and patching of required openings; and locations and installation of sleeves, inserts, support, and access doors. .2 All openings through existing concrete structure shall be core drilled. Lay out requirements for review and approval by the owner and structural

engineer prior to coring. .3 Provide x-ray of all required penetrations of the floor and walls. X-ray use for locating in floor rebar and conduit to be done after normal working hours. Take necessary precautions to protect computer equipment when x—raying floors. Co-ordinate with owner. Repairs to existing services damaged as a result of core drilling is

included in this section of the work. .4 If the slab is post tensioned, penetration up to 3/4" in the slab is permitted. Any penetration in the slab over 3/4" must be x-rayed with the x-rays signed off by the structural consultant and the construction manager before coring.

1.7 ALTERNATIVE MATERIALS AND EQUIPMENT .1 Contract price shall be based on materials and equipment specified. Approval by engineer of equipment submitted by the mechanical trade as equal to that specified does not relieve the mechanical trade of any responsibility Material/products considered to satisfy the specification, but of a manufacturer other than those named, may be submitted to the consultant for consideration not later than five (5) working

days prior to closing of tender. .2 Revisions required to adapt accepted equals and alternatives shall be included in the contract price. No increase in the contract price will be considered to accommodate equipment other than that

.3 Certain items of equipment and items of work may not have an approved equal due to the need to have a consistent type or source of maintenance. Refer to specific clauses in this specification.

1.8 COMPLIANCE WITH ENERGY BY-LAW .1 All equipment installed on this project shall comply with the performance recommendations of ASHRAE standard 90.1 as to comply with the National Energy Code of Canada for Buildings (NECB).

1.9 GUARANTEE

.1 Provide the owner with a written guarantee that the equipment installed and the work performed shall remain in a serviceable condition for a period of one (1) year from the date of final acceptance by the owner. The warranty shall cover material as well as labor.

1.10 BUILDING OPERATION DURING CONSTRUCTION

.1 In order to minimize operational difficulties for the building staff, the various trades must cooperate with the owner throughout the entire construction

period and particularly ensure that noise is minimized. Include for the cost of all work that may be required out of regular hours.

.2 Before interrupting major services (such as main supply/exhaust air fans or heating water supply), notify the owner well in advance and arrange an acceptable schedule for the interruptions. Complete all preparatory work as far as reasonably possible and have all necessary materials on site and prefabricated (where practical). Work continuously to keep the length of interruption to a minimum. Shutdowns, to permit connections, will be carried out by maintenance staff.

1.11 SHOP DRAWINGS/PRODUCT DATA .1 Submit three (3) sets of detailed equipment shop drawings for review prior to ordering. Do not order equipment or materials until engineer has

reviewed shop drawings. .2 Shop drawings shall be specific and reflect all specified and scheduled requirements.

1.12 OPERATION AND MAINTENANCE MANUALS

.1 Provide two (2) copies of manuals prepared by qualified and experienced personnel for use by the owner. Manuals form part of the contract and must be delivered to the engineer before work will be considered complete. Each manual shall provide the followina:

.1 Layman's description of all mechanical systems including operating, maintenance and lubrication instructions. .2 Certification of all equipment where required

by local codes and authorities, .3 Shop drawings and maintenance bulletins, .4 List addresses and telephone numbers of all

equipment suppliers and contractors. .5 Performance details for all equipment including curves for fans and pumps with actual operating points noted.

1 13 RECORD DRAWINGS

Maintain one set of contract drawing white prints, including all supplementary and revision drawings on site, solely for the purpose of recording, in red, any change and / or deviation from the contract drawings as it occurs. Include elevations and detailed locations of buried services. Include all details from revision drawings, addenda, and change orders. Label each drawing in the lower right corner in letters of at least 12mm [1/2"] high as follows: "AS BUILT DRAWINGS", Contractors name and date.

.2 Provide one set of check prints for review by Consultant.

.3 Upon acceptance by the Consultant, provide computer CAD files and one set of plots. .4 The Contractor will be required to sign a standard Aperta Consulting Ltd. / Contractor agreement entitled "Authorization to Use CAD drawing files" The agreement restricts the use of the CAD files to the purpose of "as-built" only and determines the

editing procedures. .5 The cost per drawing sheet for transferring information to the record drawings by the Consultant is \$150.00/ drawing or minimum of \$500.00 per project.

1.14 COORDINATION WITH ELECTRICAL DIVISION .1 Contractor shall review all equipment requiring electrical hook—up with electrical contractor and electrical drawings prior to ordering equipment Ensure proper electrical characteristics are determined for all affected and related work.

1.15 SERVICE PENETRATIONS IN RATED FIRE SEPARATIONS .1 All piping, tubing, ducts, wiring, conduits, etc. passing through rated fire separations shall be smoke and fire proofed with ULC approved materials in accordance with can4-s115-m85 and ASTM E814 standards and which meet the requirements of the building code in effect. Fire resistance rating of installed firestopping assembly shall not be less than fire resistance

rating of surrounding assembly indicated on architectural drawings. .3 All smoke and fire stopping shall be installed by a qualified contractor who shall submit a letter certifying that all work is complete and in

accordance with this specification .4 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions in formed, sleeved or cored penetrations.

> .1 Firestopping and smoke seal systems: ashestos—free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN/ULC S115-11, or ULI 1479 and ASTM 814 and not to exceed

opening sizes for which they are intended. .2 Fire resistance rating of installed firestopping assembly shall be not less than the fire resistance rating of surrounding floor and wall

.3 Acceptable products: Dow Corning, FS2000 Silicone. Hilti Firestop CS2400. Tremco Evre-Sil. .4 3M, CP25WB.

1.16 SERVICE PENETRATIONS IN NON-RATED SEPARATIONS 1 All piping, tubing, ducts, wiring, conduits, etc. passing through <u>non-rated</u> fire separations and non-rated walls and floors shall be tightly fitted and sealed on both sides of the separation with silicon sealant to prevent the passage of smoke and/or transmission of sound. Refer to "pipe sleeve" clause in this section for packing and sealing of pipe sleeves.

1.17 PIPE SLEEVES .1 Provide pipe sleeves for all piping passing through

walls and floors. Sleeves to be concentric with .2 Pipe sleeves for floors and interior walls shall be minimum 0.61 [24 ga] thick galvanized sheet steel with lock seam ioints

.3 Pipe sleeves shall extend 6 mm [1/4"] above

floors in finished areas. 1.18 ESCUTCHEONS AND PLATES

.5 Firestop materials:

1 Provide on pipes passing through finished walls, partitions, floors and ceilings. .2 Plates shall be stamped steel, split type, chrome plated, or stainless steel, concealed hinge, complete with springs, suitable for external dimensions of pipina/insulation. Secure to pipe or finished surface. For all pipes passing through suspended

walls. Outside diameter shall cover opening or .3 Where pipe sleeve extends above finished floor. escutcheons or plates shall clear sleeve extension. Do not install escutcheons and plates in concealed

ceilings and uninsulated piping passing through

2 TESTING BALANCING & COMMISSIONING

2.1 BALANCING - AIR & WATER SYSTEMS .1 Prior to demolition, take airflow measurements of the existing air system which is affected by this renovation. Ensure air quantities in unaltered areas are maintained and / or re—instated at conclusion

restraint equipment.

isolated fans and plenums

4.2 ISOLATORS - TYPE 4, HANGER MOUNTS

or neoprene hangers.

.3 Standard of acceptance:

5 THERMAL AND ACOUSTIC INSULATION

.6 Coordinate with Division 16 [26] for the provision

.1 Spring hangers, c/w 6 mm [1/4"] thick sound

of looped flexible conduit connections to isolated

pads sized for 1.3 mm [.05"] minimum deflection,

2 A neoprene element alone, without a hanger box, is

acceptable provided no short circuiting occurs.

.1 As applicable, use the latest edition of the "BC

manual" as a reference standard if sufficient

classifications shall be as required by the 1985

Generally the flame spread rating throughout the

national building code and NFPA 90A-1985.

material shall not exceed 25 and the smoke

developed classification shall not exceed 50.

.2 Provide 38 mm  $[1-\frac{1}{2}]$  external flexible glass fibre

.3 Acceptable Manufacturers: Certainteed STP Ductwrap

with sealer coating on one face.

insulation with integral vapour barrier as follows:

all air supply ducts (downstream from air valves);

all air conditioning unit supply ducts (downstream

#75, Fiberglas AF300 (type II) RFFRK, Knauf FSK

Ductwrap, Manson Alley-Wrap FSK, Manville Micro

.1 Internal flexible glass fibre acoustical insulation

.2 Minimum density — 24 kg/cu.m. [1.5 lbs/cu

.3 Thermal conductivity at 24 deg.c. - 0.040

.4 Acceptable Manufacturers: Certainteed #150,

.2 Apply insulation finish sealing of all internally lined

finishes in accordance with manufacture's

.1 Glass fibre preformed pipe insulation:

Manville Micro-Lok AP.

Fyre-Sil, 3M CP25WB.

article 3.1.9.1.

5.6 SCOPE OF PIPING INSULATION

SPRINKLER SYSTEMS

.1 Sprinkler piping.

6.2 PIPE JOINTS - STEEL PIPING

to ANSI B16.3.

or screwed bonnet.

6 PIPING

ductwork joints, seams and exposed fasteners so

finish, with longitudinal seams concealed from view.

Apply ductwork insulation materials, accessories and

that the finished product is uniform, smooth in

.1 Glass fibre preformed pipe insulation (tested

ASTM C-411-61) complete with integral

.2 Acceptable Products: Knauf, ASI, Fibreglas ASI,

.1 Firestopping and smoke seal systems:

reinforced vinyl foil laminated vapour barrier

jacket (thermal conductivity at 24oc — 0.040

Insulation shall be installed in accordance with

asbestos—free materials and systems capable

requirements of ULC CAN-S115-M85, or ULI

resistance rating of surrounding floor and wall

accordance to the 2010 National Building Code

Therma—Cel 1590, Rubatexr—373, Zipcoat 8A.

insulation finish coating: Armstrong, Bakelite

Flexible elastomeric and flexible closed cell

of maintaining an effective barrier against

1479 and ASTM 814, and not to exceed

opening sizes for which they are intended.

.2 Fire resistance rating of installed firestopping

assembly shall be not less than the fire

.3 Acceptable Products: Dow Corning FS2000

.4 All fire-stopping is to be installed in

insulation adhesive: Armstrong 520,

.1 Domestic cold and hot supply and return piping:

Pipe insulation thickness table - mm (in)

PIPING TO BE INSULATED PIPE SIZE INSULATION THICKNESS

NPS 2 and under: screwed fittings, except where

Cast iron screwed fittings: class 125 to ANSI

.1 Bronze body, rising stem, solid wedge disc, union

Crane 428, Grinnell 3010, Jenkins 810, Kitz 24,

.1 Bronze body, rising stem, solid wedge disc, screwed

.2 Acceptable Products: Class 200 w.o.g. [1380 kpa]

- Crane 1334, Grinnell 3080SJ, Jenkins 813, Kitz

44, Newman Hattersley 607C, Nibco S-134, Toyo

Newman Hattersley 607, Nibco T-111, Toyo 293.

.2 Acceptable Products: Class 125 [860 kpa] -

.2 Unions, malleable iron ground joint type: class 150

otherwise noted, with teflon tape or pulverized lead

120-13, Rubatex, Zipcoat.

Domestic Cold Water | Up to 50mm (2") | 25mm (1")

Domestic Hot Water and Up to 50mm (2") 25mm (1")

6.1 FIRE PROTECTION: MATERIALS TO NFPA 13 FOR

6.3 PIPE FITTINGS, SCREWED, FLANGED OR WELDED:

6.4 GATE VALVES - NPS 2 AND UNDER, SCREWED:

6.5 GATE VALVES — NPS 2 AND UNDER, SOLDERED:

Recirc. and heating water | Over to 50mm (2") | 40mm (1—1/2")

.1 Flexible elastomeric and flexible closed cell

Silicone, Hilti Firestop CS2400, Tremco

Duct Liner M, Schuller Linacoustic, Schuller

Certainteed Manson (CTM), Akousti-Liner, Knauf

detail/information is not specified herein.

.2 Flame spread ratings and smoke developed

5.2 EXTERNAL FLEXIBLE INSULATION WITH VAPOUR BARRIER

revised and new ductwork.

from the ac unit)

5.3 ACOUSTIC DUCT LINER

.1 Flexible duct liner

w/m/deg.c.

recommendations.

w/m/deg.c.)

BCICA standard.

Firestop materials:

5.4 PREFORMED PIPE COVERING

5.5 ACCESSORIES

.1 Duct insulation to be applied to all relocated,

Insulation Contractors Association (BCICA) standards

.1 Mason HD, HS, Vibron series VH.

of the work. Adjust all new and existing terminal boxes and air outlets to air quantities indicated on the drawings and in this specification. Where outlet quantities are not indicated, divide capacity equally among all

Adjust air terminals to obtain the optimum air distribution pattern. .4 Permanently mark the final balance position on all

balance dampers and adjustable air turning devices. .5 Balance heating water supply to VAV box reheat

.6 Allow for any required sheave changes to obtain design volume. .7 Submit two (2) copies of the balancing report to the engineer within two (2) weeks after substantial completion. Failure to submit the report within the specified time will result in the work being done by the owner and the costs deducted from the final

.8 Balancing shall be performed to the following accuracies: .1 Air terminal outlets +/- 10%

.2 Air central equipment +/- 5%

.3 Hvdrolic terminals +/- 10% 2.2 COOPERATE WITH THE BALANCING AGENCY AS FOLLOWS: Make corrections as required by the balancing

Allow balancing agency free access to site during construction phase. Inform balancing agency of any major changes made to systems during construction and provide a complete set of record drawings for their use.

.3 Operate automatic control system and verify setpoints during balancing. .4 Provide balancing agency a complete set of mechanical drawings and specifications.

2.3 BALANCING VALVES AND DAMPERS Provide and install balancing valves, dampers and other materials requested from the balancing agency and/or necessary to properly adjust or correct the systems to design flows, without additional cost to the owner.

2.4 COMMISSIONING AND DEMONSTRATION

.1 Be responsible for the performance and commissioning of all equipment supplied and re-used under the HVAC sections of Division 15. .2 Confirm operation and review condition of all existing air valves and associated control devices in the renovated area. Submit report noting any

remedial work required. .3 At the conclusion of commissioning, demonstrate the operation of the systems to the consultant and then to the owner's operating staff.

.4 At the completion of the commissioning, testing, balancing and demonstration submit to the consultant a letter certifying that all work specified under this contract is complete, clean and operational in accordance with the specification and

2.5 DEFICIENCY HOLDBACKS AND DEFICIENCY INSPECTIONS Work under this division which is still outstanding when substantial performance is certified will be considered deficient and a sum equal to at least twice the estimated cost of completing that work will be held back.

.2 It is expected that outstanding work will be completed in an expeditious manner and the entire holdback sum will be retained until the requirements for total performance of Division 15 work have been met and verified.

3 SEISMIC RESTRAINTS

Provide seismic restraints on all piping, ducts and equipment. Restraints shall be in accordance with the latest edition of the seismic restraint manual mechanical systems produced by SMACNA (seismic hazard level b) and the ASHRAE handbook applications chapter 49 seismic restraint design. Prior to occupancy seismic supplier's engineer shall submit Letter of Assurance C to indicate the installation has been reviewed and accepted by the professional.

.1 Mason type SCB (seismic cable brace) slack cable restraints supplied by Vibra-sonic cont .2 Restraint systems as indicated in 1991 SMACNA "seismic restraint manual guidelines for mechanical systems", seismic hazard level SHL A. If lesser restraint than recommended by SMACNA SHL A is proposed to meet local code seismic requirements, provide shop drawings of details certified by a BC registered structural consultant.

3.3 AIR TERMINALS - SEISMIC RESTRAINT Where air terminals are installed in mechanical grid ceilings, provide at least two 12 ASWG galvanized

steel wire seismic security bridles per air terminal tied either to the building structure or to ceiling hanaer wires. .2 Attach security bridles at opposite corners of each

air terminal and in such a manner that the air terminal cannot fall. .3 Provide all necessary brackets for attachment of security bridles to the air terminals.

3.4 EQUIPMENT - SEISMIC RESTRAINT Provide seismic restraints in accordance with details in SMACNA guidelines or alternatively slack cables may be used. Orient restraint cables at approximately 90° to each other (in plan), and tie back to the ceiling slab at an angle not exceeding

4 VIBRATION ISOLATION

45° to the slab.

.1 Provide vibration isolation on all motor driven equipment with motors of  $\frac{1}{2}$  hp and greater power output (as indicated on the motor nameplate) and on piping and ductwork, as specified herein. For equipment less than ½ hp, provide neoprene grommets at the support points.

.2 Provide a balanced set of isolators for each piece of equipment. Select isolators in accordance with equipment weight distribution to allow for no less than 80% of the static deflection specified. A minimum of four isolators are required, unless specified otherwise. Number and colour code each isolator to show location. Mark code number and colour on shop drawings, on each isolator and on each base to ensure proper placement. Clearly mark all isolators to show undeflected height, and static deflection.

Ensure isolation systems have a vertical natural frequency no higher than one third of the lowest forcing frequency, unless otherwise specified. Use dynamic stiffness for elastomers and do not exceed 60 durometer.

6.6 BALANCE FITTINGS (SCREWED CONNECTIONS) - NPS 11/4 .4 Use ductile materials in all vibration and seismic AND UNDER:

.1 Bronze body and bronze trim, rising stem, renewable composition disc, globe type with memory 8.5 DUCTWORK - FLEXIBLE - PLAIN .5 Coordinate with other sections for flexible mounting of piping connected to isolated equipment and for stop, lockshield, male union connection, angle and flexible connections of all ductwork connected to

straight type. .2 Acceptable Products: Class 100 [690 kpa] — Dahl 13000-M series, Toyo 250 or 251.

6.7 GLOBE VALVES .1 NPS 2 and under, screwed: .1 Bronze body, rising stem, solid wedge disc,

> union or screwed bonnet .2 Acceptable Products: Class 125 [860 kpa] -Crane 428, Grinnell 3010, Jenkins 810, Kitz 24, Newman Hattersley 607, Nibco T-111,

.2 NPS 2 and under, soldered: .1 Bronze body, rising stem, solid wedge disc, screwed bonnet. .2 Acceptable Products: class 200 w.o.g. [1380

kpa] — Crane 1334, Grinnell 3080SJ, Jenkins 813, Kitz 44, Newman Hattersley 607C, Nibco S-134, Toyo 299.

7 DUCTWORK

7.1 GENERAL .1 The construction and installation of ductwork shall be in accordance with the following referenced SMACNA manuals and ASHRAE handbooks. .1 SMACNA - HVAC Duct Construction Standards,

.2 SMACNA - HVAC Air Duct Leakage Test Manual,

ASHRAE — handbook — equipment volume. .2 The project drawings are diagrammatic and although efforts have been made to provide information regarding the number of offsets and transitions, not all are necessarily shown. Changes may be required in duct routings, elevation and duct shape to eliminate interference with structure and other services. All required adjustments shall be established when coordinating and field measuring the work prior to fabrication and must be provided as part of the contract and all associated costs must be considered and included.

include identification and labeling of ductwork. 7.2 GALVANIZED STEEL

.1 Galvanized steel shall have a 380 g/sq.m. [1-1/4]oz/sq.ft] galvanizing coat both sides to ASTM A525

.3 The construction and installation of ductwork shall

7.3 DUCTWORK PRESSURES

.1 Provide ductwork fabricated from galvanized steel for the static pressure categories listed below. .1 500 pa [2" w.g.] static pressure: all supply ductwork downstream from air valves to terminal air outlets; all return air ductwork. .2 750 pa [3" w.g.] static pressure: all supply

ductwork upstream of air valves. .2 Ductwork shall be constructed, reinforced, sealed and installed to withstand 1½ times the working static pressure.

7.4 DUCTWORK CLEANING .1 This contractor shall be responsible for and ensure that all ductwork, installed under this contract is internally clean, when handed over to the owner.

.2 All ductwork shall be wiped clean of all oil and other surface films with suitable solvent prior to .3 Seal all openings at the end of each day and at

such other time as site conditions dictate. .4 Other openings to be covered with 0.15 mm [6 mils] thick poly sheet taped so as to be air tight. .5 Where connecting to existing ductwork, clean

re-used ductwork upstream for minimum 900 mm .6 Spot checks will be made by the consultant during the cleaning process to verify that the required standard is being met. When substantial performance is claimed, final spot checks will be made to verify that the ducts are generally clear If any ducts are found to be unclean, then they

8 DUCT ACCESSORIES

shall be recleaned.

8.1 BALANCING DAMPERS .1 Construction in accordance with SMACNA duct standards - figs. 2-14 and 2-15.2 Provide balancing dampers at points on low

pressure supply, return and exhaust systems where branches are taken from larger duct as required for proper air balancing. .3 Provide balancing dampers at each run out to a .4 On all round ductwork and on externally insulated

rectangular ductwork, provide sheet metal bridge to raise quadrant type operators above the insulation thickness. Provide an open end bearing where bridges are used. Bridges on uninsulated round ducts shall be at least 25 mm [1"] high. 8.2 DUCT CONNECTORS - VIBRATION ISOLATION

Provide flexible duct connections to provide vibration isolation at all duct and plenum connections to fan and air handling units. See figure 2—19 SMACNA duct standards. .2 Minimum requirements:

.1 Pre-assembled 75 mm [3"] minimum long flexible connection with 75 mm [3"] long 0.62 mm [24 ga] galvanized steel duct connectors on each side of the flexible connection. Flexible connector — fiber glass fabric with elastomer coating.

.2 At or to one side of other equipment in duct,

.3 Standard of Acceptance: Duro Dyne "Durolon", Dynair "Hypalon", Ventfabrics "Ventlon".

8.3 DUCT ACCESS .1 Provide access panels as follows: Every 12 m [40 ft] on all ductwork.

e.g. balance dampers serving multiple outlets/inlets; control sensors. .2 Products: Nailor Hart, Ventlok, 25 mm [1"] thick insulation.

8.4 ACCESS DOORS

Supply flush mounted access doors, for installation by building trades in furred ceilings and walls, to permit servicing of mechanical equipment and accessories, inspection of life safety or operating devices, and where specifically indicated. .2 Unless otherwise noted, access doors shall be

minimum: 450mmx450mm [18"X18"] .3 Minimum requirements: .1 180 degree door swing, mitred rounded safety corners flush welded, concealed hinges, screwdriver latches, and anchor straps or lugs to suit construction, all steel prime coated. .2 Drywall construction: 16 gauge for 400 mm

[16"] x 400 mm [16"] and smaller, 14 gauge

larger bonderized steel face of wall type with

for 450 mm [18"] x 450 mm [18"] and

exposed flange. Acceptable Product: Acudor .4 Standard of Acceptance : Zurn, Wade, Acudor, Can-Aqua, Milcor, Maxam, Van-Met.

.1 Provide factory fabricated plain, flexible air ductwork for connections to air terminals, and connections to downstream side of air valves. (all connections upstream of air valves to be rigid

construction). .2 Suitable for up to 2500 pa [10" w.g.] positive static pressure and 250 pa [1" w.g.] negative

.3 UL or ULC labelled, class 1, duct connector.

Flame spread rating not to exceed 25. Smoke developed rating not to exceed 50. .4 Installed lengths shall be limited to 6 times duct

diameter but not longer than 900 mm [3 ft]. .5 Connect to ductwork and diffusers with stainless steel worm drive clamps or panduit adjustable clamps or thermaflex duct strap applied over two wraps of duct tape.

.6 Minimum centreline radius of flexible ductwork bends shall be 1.5 times the duct diameter. alternatively, sheet metal elbows may be used at branch takeoffs and boot/diffuser connections. .7 Support clear of ceiling assembly, light fixtures and

hot surfaces with 25 mm x 0.76 mm [1"x22 ga] galvanized steel straps at a maximum of 1.5 m [5'-0"]. Straps shall completely encircle duct. .8 Standard of Acceptance: Flexmaster Fab4, Thermaflex SLP10,

9 AIR DISTRIBUTION EQUIPMENT

9.1 AIR TERMINALS .1 All air terminals must be site checked for compatibility with ceiling types prior to ordering. Submit shop drawings. Refer to architectural reflected ceiling plans for exact air terminal

.2 All ceiling mounted air terminals shall be provided with means for attachment of two (2) 12 ASWG seismic security wires at opposite corners of each air terminal.

direct air away from walls, columns or other

obstructions within the radius of air terminal

operation. Provide full perimeter sponge rubber .4 Paint ductwork behind grilles with matte black paint where duct or insulation surfaces are visible.

.5 Acceptable Manufacturers: E.H. Price, Titus.

.3 Provide concealed baffles, where necessary, to

10 CONTROLS

.1 Control valves and actuators to be compatible with base building standard unless noted otherwise. New control valve operation to be compatible with

.2 Report any existing control device which need replacement. Replacement will be by building management or via change order, at the discretion of the owner.

.3 Supply all necessary equipment to provide the following sequence of operation. .4 All new temperature sensors shall be identical to

.5 Controls Contractor shall check operation of all

new and existing thermostats and refurbish or replace as required. .6 Controls Contractor shall check operation of all air distribution equipment to ensure proper operation. Repair dampers, operators and valves as required. .7 Locate and connect all thermostats at 1500 mm

(60") A.F.F. or at same level as existing unless otherwise noted on drawings. .8 Controls Contractor shall include the following work to base building Building Management System (If required by project; see drawings for project specifics.): Revise graphics to include new and relocated equipment. Trend logs to match all

existing logs.

10.2 ROOM THERMOSTATS .1 Minimum requirements .1 Adjustable sensitivity and set point. .2 New thermostats to meet minimum base

building standard. 11 PLUMBING

water service.

11.1 GENERAL

.1 All plumbing shall conform to the National Plumbing Code of Canada (latest edition) and total approval of local authorities having jurisdiction.

.2 Domestic water systems include domestic cold water, domestic hot water, domestic tempered water and domestic water re-circulation systems. .3 Interior domestic water piping shall be provided as depicted on the drawings to all plumbing fixtures, appliances and equipment that require domestic

connected to receive domestic water supply from the existing domestic water piping as depicted on the drawings. .5 New interior domestic water piping shall be connected to receive domestic water supply from

.4 New interior domestic water piping shall be

referenced on the drawings.

have entered the line

the exterior cold water building service as depicted on the drawings. .6 Non-functioning existing interior domestic water piping shall be removed where access is readily available or capped off and abandoned in place as

.7 Mechanical makeup water piping systems and forcemain or pressure waste water piping systems shall be constructed of materials, installed and tested as specified in this section of the work. .8 Interior sanitary waste and vent piping shall be provided as depicted on the drawings to plumbing

be connected to the building main sewer system. .9 Chlorination/cleaning for new potable water piping conforming to AWWA Standard C651-14: .1 Inspect materials to insure their integrity

fixtures that will discharge sanitary waste and shall

.2 Preventing contaminating materials from entering the water main .3 Remove, by flushing those materials that may

.4 Pressure test new installation .5 Chlorinating the new installation .6 Document that an adequate level of chlorine

contacted each pipe .7 Flushing the highly chlorinated water from the

.8 Determine the bacteriological quality by

.9 Final connection of the approved new water

main to the active distribution system

laboratory test after disinfection

.1 All domestic and hot and cold water piping shall be certified type "K" copper, and lead free solder

11.2 EQUIPMENT AND MATERIALS

.2 All old water and hot water pipes shall be insulated with 1" thick premoulded insulation Cold water pipes c/.w foil wrap and vapour sealed. Do not

use staples. .3 All drain lines larger than 2" diameter shall be cast iron. Drain lines 2" diameter and smaller DWV

.4 Provide isolation valves and unions at all

equipment. .5 All piping compability copper pipe/hangers to be

hung with rod and clevis hangers. .6 Control valves for new mechanical equipment shall be provided by Controls Contractor for installation by Mechanical Contractor.

.7 All equipment shall be in accordance with ASHRAE 90.1 and energy utilization requirements. .8 Double check valve assembly (DCVA) and RPBP,

factory assembled station to CSA— B64.10. .1 Acceptable products Watts Series 007, 009; Ames; Beeco; Conbraco; Hersey; Febco; Wilkins.

.9 Provide identification on all plumbing piping, valves and equipment including the following: .1 Domestic cold water

11.3 INTERIOR DRAIN, WASTE AND VENT PIPE AND FITTINGS

.2 Domestic hot water

.1 Buried pipe and fittings:

.3 Non-potable water .4 Sanitary waste and venting

.2 Above ground pipe and fittings:

.1 Class 4000 cast iron mechanical joint pipe and fittings with mechanical joint stainless steel couplings to CSA CAN3-B70 .2 Arcylonitrile-Butadiene-Strene (ABS) Drain

Waste and Vent Pipe Fittings conforming to CSA CAN 3-B181.1-M85 .3 Polyvinyl Chloride (PVC) Drain Waste and Vent Pipe and Pipe Fittings conforming to CSA

stainless steel couplings to CSA CAN3-B70 up to 200 mm (8") .2 DWV copper drainage pipe with cast brass or wrought copper drainage pattern fittings with

50/50 Sn/Pb recessed solder joints

and fittings with mechanical joint

.1 Class 4000 cast iron mechanical joint pipe

12 ACCEPTABLE SUB CONTRACTORS

12.1 GENERAL

.1 Balancing / commissioning: Base building's approved contractor.

.2 Control: Base building's approved contractor.

.3 Sprinkler: Base building's approved contractor. COQUITLAM, BC

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CITY HALL

P&D OFFICE

RENOVATION

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date:

UNIT 205, 3003 ST. JOHNS STREET, PORT MOODY, BC V3H 2C4 E: INFO@APERTA.CONSULTING

PERMIT TO PRACTICE NUMBER: 1004560

MECHANICAL SPECIFICATION

20240098 PROJECT No. DRAWN YT/DL CHECKED SCALE N.T.S. DATE

REVISION No.

PRINTED

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