

VAV EQUIPMENT SCHEDULE						
TAG	CONDITION	BOX SIZE (")	EX. VOLUME L/S (CFM)		NEW VOLUME L/S (CFM)	
			MIN.	MAX.	MIN.	MAX.
VAV-101	EXISTING	8	165 (350)	309 (655)	165 (350)	309 (655)
VAV-102	EXISTING	8	137 (290)	274 (580)	137 (290)	274 (580)
VAV-103	EXISTING	8	143 (303)	292 (619)	143 (303)	292 (619)
VAV-104	EXISTING	8	153 (324)	307 (650)	153 (324)	307 (650)
VAV-105	EXISTING	6	66 (140)	131 (278)	66 (140)	131 (278)
VAV-106	EXISTING	8	163 (345)	287 (608)	163 (345)	287 (608)
VAV-107	EXISTING	9	188 (398)	426 (903)	188 (398)	426 (903)
VAV-108	EXISTING	10	131 (278)	209 (443)	131 (278)	209 (443)
VAV-109	EXISTING	6	45 (95)	73 (155)	45 (95)	73 (155)
VAV-110	EXISTING	9	136 (288)	193 (408)	136 (288)	193 (408)
VAV-111	EXISTING	5	29 (61)	120 (254)	29 (61)	120 (254)
VAV-112	EXISTING	10	147 (311)	206 (436)	147 (311)	295 (624)
VAV-113	EXISTING	5	40 (85)	78 (165)	40 (85)	78 (165)
VAV-114	EXISTING	12	201 (426)	293 (620)	201 (426)	549 (1164)
VAV-115	EXISTING	10	170 (360)	244 (517)	170 (360)	467 (989)
VAV-116	EXISTING	4	21 (45)	45 (95)	21 (45)	45 (95)
VAV-117	EXISTING	8	116 (246)	162 (343)	116 (246)	162 (343)
VAV-118	EXISTING	5	34 (72)	70 (148)	34 (72)	70 (148)
VAV-119	EXISTING	10	125 (265)	210 (445)	125 (265)	278 (589)

HVAC DRAWING NOTES

- ALL NEW SUPPLY DUCT TO BE THERMALLY INSULATED.
- NEW DUCTWORK TO BE INSTALLED AS HIGH AS POSSIBLE TO THE CEILING SLAB AND TO RUN THROUGH OWSJ. CONTRACTOR TO VERIFY THE STRUCTURAL LAYOUT ON SITE PRIOR TO INSTALLATION.
- BRANCH DUCT SIZE TO MATCH THAT OF DIFFUSER NECK SIZE.
- MODIFY THE SIZE AND ROUTING OF NEW DUCTWORK AS REQUIRED TO SUIT THE SITE CONDITIONS WITHOUT EXTRA COST TO THE OWNER. PROVIDE ADEQUATE OFFSETS, AND TRANSITIONS ON NEW DUCTWORK AS REQUIRED TO SUIT SITE CONDITIONS.
- PROVIDE NEW BALANCING DAMPER AS INDICATED ON DRAWING, TO EACH TAKE OFF FROM S/A MAIN TO AIR OUTLETS AND BALANCE AIR FLOW TO DESIGN RATE SHOWN ON DRAWING.
- EXISTING AIR VOLUME OF EXISTING AIR OUTLETS AND VAV BOXES SHALL REMAIN.

HVAC SPECIFIC NOTES

- EXISTING DIFFUSER TO BE BALANCED WITH INDICATED AIR VOLUME (L/S).
- EXISTING VAV BOX TO BE BALANCED.

04	07/05/25	ISSUED FOR TENDER
03	07/07/25	ISSUED FOR BP
02	10/04/25	REV. REV. W
01	12/03/25	PROGRESS SET
No.	DATE	REVISION
	(dd/mm/yr)	

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

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All dimensions on the project must be checked by the contractor.

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cto: date:

APERITA

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

SHEET TITLE
NEW HVAC
PLAN –
MAIN FLOOR

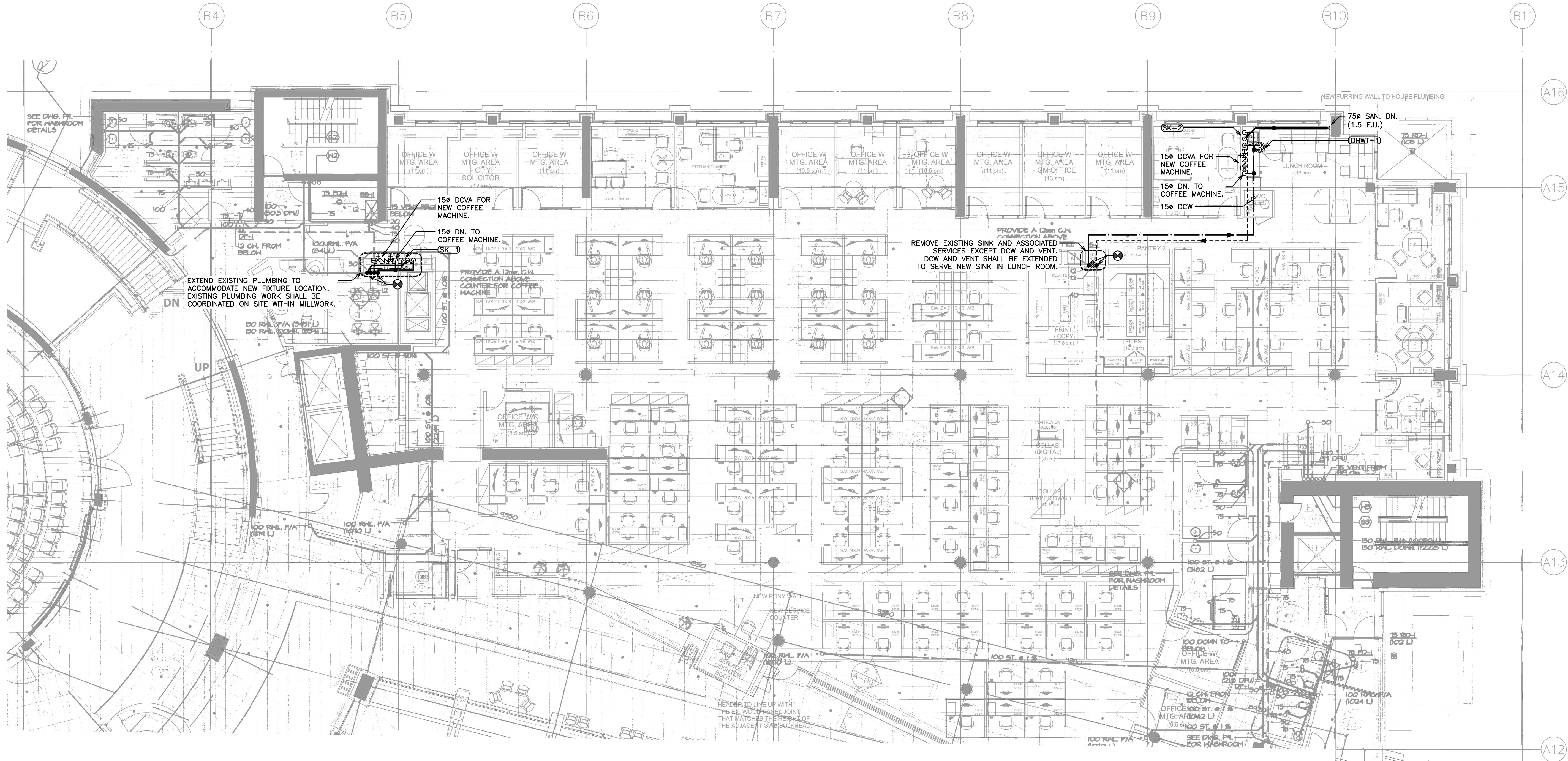
PROJECT No.	20240098
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REVISION No.

M-03

1340-1075 WEST GEORGIA, VANCOUVER, B.C. V6E 3C9
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CHERNOFF THOMPSON ARCHITECTS



PLUMBING FIXTURE UNITS + MINIMUM PIPE CONNECTIONS						
FIXTURE	TAG	COLD WATER		HOT WATER		VENT
		(MM.)	(F.U.)	(MM.)	(F.U.)	(MM.)
KITCHEN SINK	SK-1	15	1.5	15	1.5	38
KITCHEN SINK	SK-2	15	1.5	15	1.5	38
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	-	-	

PLUMBING DRAWING NOTES

- ALL PLUMBING REVISIONS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE BC PLUMBING CODE AND TO THE APPROVAL OF AUTHORITIES HAVING JURISDICTION.
- COORDINATE ALL PLUMBING WORK WITH ALL OTHER TRADES PRIOR TO START OF WORK.
- PROVIDE AND INSTALL NEW PLUMBING FIXTURES AS ARCH. DWGS. PROVIDE NEW PLUMBING SERVICES TO SUIT AND CONNECT TO BASE BUILDING CONNECTIONS.
- COORDINATE PLUMBING FIXTURE ROUGH-IN REQUIREMENTS WITH PLUMBING FIXTURE SHOP DRAWINGS AS REQUIRED PRIOR TO START OF WORK.
- ALL CORE HOLE REQUIREMENTS SHALL BE X-RAYED OR GPR SCANNED PRIOR TO CORING. COORDINATE ALL X-RAY AND CORING REQUIREMENTS WITH BASE BUILDING STRUCTURAL ENGINEER PRIOR TO START OF WORK.
- ALL DOMESTIC HOT AND COLD WATER PIPES SHALL BE PROVIDED WITH INSULATION AND VAPOUR SEAL AS PER MECHANICAL SPECIFICATIONS.
- FIXTURE INSTALLATION SHALL INCLUDE ALL ASSOCIATED FLANGES, BALL VALVES, ANGLE STOPS, BRAIDED FLEX SUPPLIES, ESCUTCHEONS, ETC..
- 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.

04	07/05/25	ISSUED FOR TENDER
05	10/07/25	ISSUED FOR BP
02	15/04/25	REV. REVIEW
01	13/03/25	PROGRESS SET
No.	DATE	REVISION
	(dd/mm/yr)	

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

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PERMIT TO PRACTICE NUMBER: 104560

SHEET TITLE
EXISTING AND
NEW PLUMBING
PLAN -
MAIN FLOOR

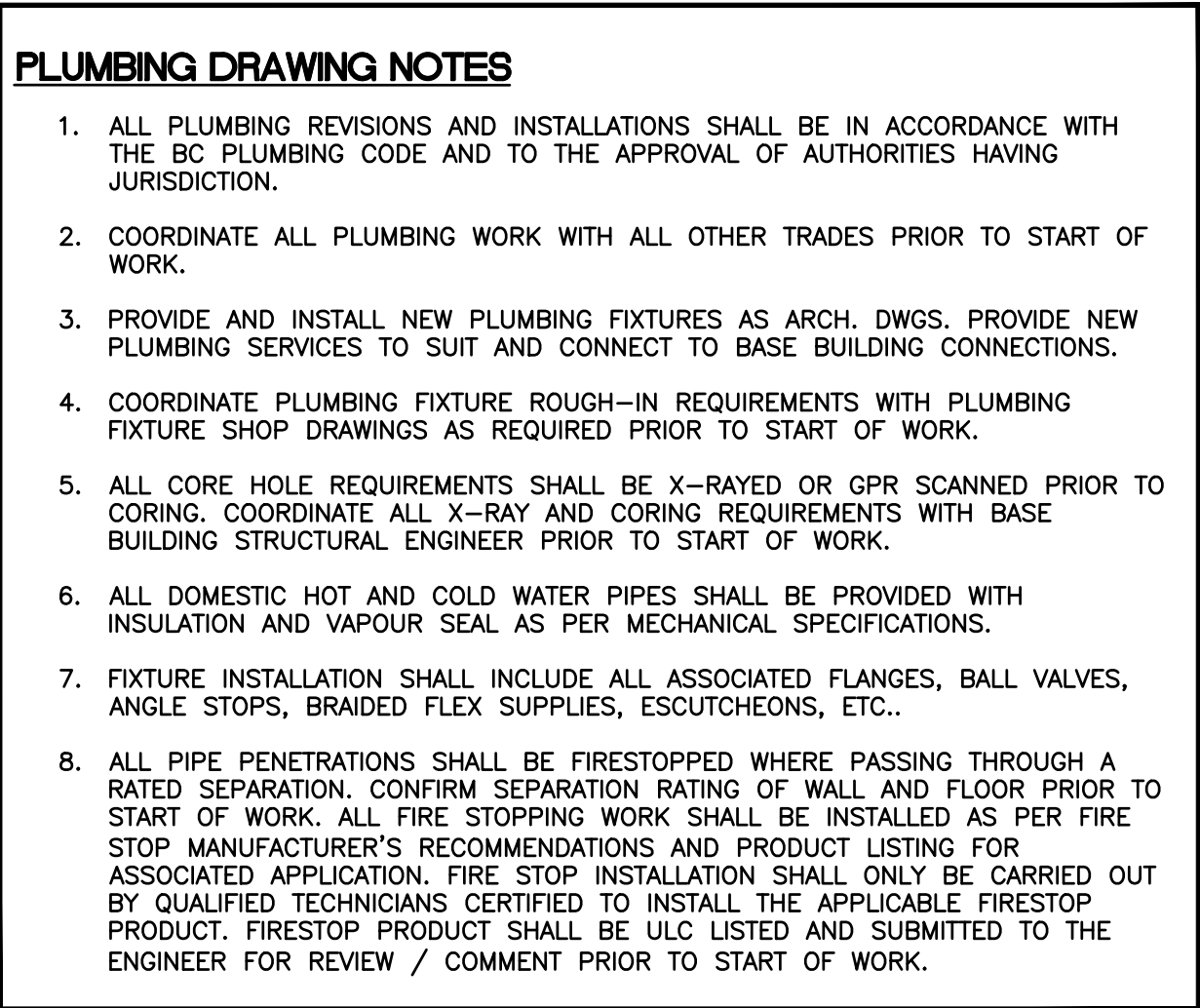
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M-04

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CHERNOFF THOMPSON ARCHITECTS



REVISION No.

M-05



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No.	DATE	REVISION
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PROJECT TITLE
COQUITLAM
CITY HALL
P&D OFFICE
RENOVATION
3000 GUILDFORD WY
COQUITLAM, BC

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APERITA

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PERMIT TO PRACTICE NUMBER: 1004560

SHEET TITLE
NEW FIRE
SUPPRESSION
PLAN

PROJECT No. 20240098
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M-07

CHERNOFF THOMPSON ARCHITECTS

1340-1075 WEST GEORGIA, VANCOUVER, B.C. V6E 3C9
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- 1 GENERAL
- 1.1 INTENT
- 1.1 The intent of this specification and the drawings is to provide a complete and fully operational mechanical system in complete accord with applicable codes. The mechanical contractor shall make provisions for labour, material, and equipment necessary to complete the mechanical work.
- 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 drawings.
- 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.

- 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
- 1.1 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 following:
- 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
- 1 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 Aperto 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, 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.
- 2 Fire resistance rating of installed firestopping assembly shall be determined by 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 core penetrations.
- 5 Firestop materials:
- 1 Firestopping and smoke seal systems: asbestos-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 assembly.
- 3 Acceptable products:
- 1 Dow Corning, FS2000 Silicone.
- 2 Hilti Firestop CS2400.
- 3 Tremco Fyre-Sil.
- 4 3M, CP25WB.

- 1.16 SERVICE PENETRATIONS IN NON-RATED SEPARATIONS
- 1 All piping, tubing, ducts, wiring, conduits, etc., passing through non-rated 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 pipe.
- 2 Provide sleeves for floors and interior walls shall be minimum 0.61 [24 ga] thick galvanized sheet steel with lock seam joints.
- 3 Pipe sleeves shall extend 6 mm [1/4"] above floors in finished areas.

- 1.18 ESCUTCHEONS AND PLATES
- 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, suitably sized to match dimensions of piping/insulation. Secure by pipe or finished surface. For all pipes passing through suspended ceilings and uninsulated piping passing through walls. Outside diameter shall cover opening or sleeve.
- 3 Where pipe sleeve extends above finished floor, escutcheons or plates shall clear sleeve extension. Do not install escutcheons and plates in concealed locations.

- 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 of the work.
- 2 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 outlets.
- 3 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. Balance heating water supply to VAV box reheat coil.
- 6 Allow for any required sleeve 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 payment.
- 8 Balancing shall be performed to the following accuracies:
- 1 Air terminal outlets +/- 10%
- 2 Air central equipment +/- 5%
- 3 Hydraulic terminals +/- 10%

- 2.2 COOPERATE WITH THE BALANCING AGENCY AS FOLLOWS:
- 1 Make corrections as required by the balancing agency.
- 2 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
- 1 Provide and install balancing valves, dampers and other materials requested from the balancing agency and/or necessary to properly adjust or correct the system's 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 performance 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 drawings.

- 2.5 DEFICIENCY HOLDBACKS AND DEFICIENCY INSPECTIONS
- 1 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
- 3.1 SCOPE
- 1 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.
- 2 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.

- 3.2 PRODUCTS
- 1 Mason type SCB (seismic cable brace) slack cable restraints supported by Vibro-ponic control. 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 or exceed all seismic requirements, provide shop drawings of details certified by a BC registered structural consultant.

- 3.3 AIR TERMINALS – SEISMIC RESTRAINT
- 1 Where air terminals are installed in mechanical grid ceilings, provide at least two 12 ASWG galvanized steel wire seismic security bridges per air terminal tied either to the building structure or to ceiling hanger wires.
- 2 Attach security bridges 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 bridges to the air terminals.

- 3.4 EQUIPMENT – SEISMIC RESTRAINT
- 1 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 45° to the slab.

4 VIBRATION ISOLATION

- 4.1 GENERAL
- 1 Provide vibration isolation on all motor driven equipment with motors of ½ 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, include 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.
- 3 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.
- 4 Use ductile materials in all vibration and seismic

- restraint equipment.
- 5 Coordinate with other sections for flexible mounting of piping connected to isolated equipment and for flexible connections of all ductwork connected to isolated fans and plenums.
- 6 Coordinate with Division 16 [26] for the provision of looped flexible conduit connections to isolated motors.
- 4.2 ISOLATORS – TYPE 4, HANGER MOUNTS
- 1 Spring hangers, c/w 6 mm [1/4"] thick solid pads sized for 1.3 mm [.05"] minimum deflection, or neoprene hangers.
- 2 A neoprene element alone, without a hanger box, is acceptable provided no short circuiting occurs.
- 3 Standard of acceptance:
- 1 Mason HD, HS, Vibron series VH.

5 THERMAL AND ACOUSTIC INSULATION

- 5.1 GENERAL
- 1 As applicable, use the latest edition of the "BC Insulation Contractors Association (BCICA) standards manual" as a reference standard if sufficient detail/information is not specified herein.
- 2 Flame spread ratings and smoke developed classifications shall be as required by the 1985 national building code and NFPA 90A-1985. Generally the flame spread rating throughout the material shall not exceed 25 and the smoke developed classification shall not exceed 50.

- 5.2 EXTERNAL FLEXIBLE INSULATION WITH VAPOUR BARRIER
- 1 Duct insulation to be applied to all relocated, revised and new ductwork.
- 2 Provide 38 mm [1½"] external flexible glass fibre insulation with integral vapour barrier as follows: all air supply ducts (downstream from air valves); all air conditioning unit supply ducts (downstream from the ac unit).
- 3 Acceptable Manufacturers: Certainteed STP Ductwrap #75, Fiberglas AF300 (type II) RFFRK, Knouf FSK Ductwrap, Manson Alley-Wrap FSK, Manville Micro Litefsk.

5.3 ACOUSTIC DUCT LINER

- 1 Flexible duct liner
- 1 Internal flexible glass fibre acoustical insulation with sealer coating on one face.
- 2 Minimum density – 24 kg/cu.m. [1.5 lbs/cu. ft.].
- 3 Thermal conductivity at 24 deg.c. – 0.040 w/m/deg.c.
- 4 Acceptable Manufacturers: Certainteed #150, Certainteed Manson (CTM), Akousti-Linear, Knouf Duct Liner, M. Schuler Linacoacust, Schuler Permacote.
- 2 Apply insulation finish sealing of all internally lined ductwork joints, seams and exposed fasteners so that the finished product is uniform, smooth in finish, with longitudinal seams concealed from view. Apply ductwork insulation materials, accessories and finishes in accordance with manufacture's recommendations.

5.4 PREFORMED PIPE COVERING

- 1 Glass fibre preformed pipe insulation (tested ASTM C-411-61) complete with integral reinforced vinyl foil laminated vapour barrier jacket (thermal conductivity at 24oc – 0.040 w/m/deg.c.)
- 2 Acceptable Products: Knouf, ASI, Fibreglas ASI, Manville Micro-Lok AP.
- 3 Insulation shall be installed in accordance with BICA standard.

5.5 ACCESSORIES

- 1 Firestop materials:
- 1 Firestopping and smoke seal systems: asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC CAN-S115-M85, 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 assembly.
- 3 Acceptable Products: Dow Corning FS2000 Silicone, Hilti Firestop CS2400, Tremco Fyre-Sil, 3M CP25WB.
- 4 All fire-stopping is to be installed in accordance to the 2010 National Building Code article 3.1.9.1.
- 2 Adhesives:
- 1 Flexible elastomeric and flexible closed cell insulation finish coating: Armstrong 520, Thermo-Cat 1590, Rubatex-373, Zipcoat 8A.
- 3 Coatings:
- 1 Flexible elastomeric and flexible closed cell insulation finish coating: Armstrong, Bolekete 120-13, Rubatex, Zipcoat.

- 5.6 SCOPE OF PIPING INSULATION
- 1 Domestic cold and hot supply and return piping: Pipe insulation thickness table – mm (in)

PIPING TO BE INSULATED	PIPE SIZE	INSULATION THICKNESS
Domestic Cold Water	Up to 50mm (2")	25mm (1")
Domestic Hot Water and Recirc. and heating water	Up to 50mm (2")	25mm (1")
	Over to 50mm (2")	40mm (1½")

6 PIPING

- 6.1 FIRE PROTECTION: MATERIALS TO NFPA 13 FOR SPRINKLER SYSTEMS
- 1 Sprinkler piping.

- 6.2 PIPE JOINTS – STEEL PIPING
- 1 NPS 2 and under: screwed fittings, except where otherwise noted, with teflon tape or pulverized lead paste.

- 6.3 PIPE FITTINGS, SCREWED, FLANGED OR WELDED:
- 1 Cast iron screwed fittings: class 125 to ANSI B16.3.
- 2 Unions, malleable iron ground joint type: class 150 to ANSI B16.3.

- 6.4 GATE VALVES – 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, Toyo 293.

- 6.5 GATE VALVES – 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, Jenkin 810, Kitz 44, Newman Hattersley 607C, Nibco S-134, Toyo 299.

- 6.6 BALANCE FITTINGS (SCREWED CONNECTIONS) – NPS 1½ AND UNDER:

- 1 Bronze body and bronze trim, rising stem, renewable composition disc, globe type with memory stop, lockshield, male union connection, angle and straight through connections.
- 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, screwed bonnet, or 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, Toyo 293.
- 2 NPS 2 and under, soldered:
- 1 Bronze body, rising stem, solid wedge disc, screwed bonnet, or union or 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 293.

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, 2005.
- 2 SMACNA – HVAC Air Duct Leakage Test Manual, 1985.
- 3 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 associated costs must be considered and included. The construction and installation of ductwork shall 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 G90.

7.3 DUCTWORK PRESSURES

- 1 Provide ductwork fabricated from galvanized steel for the static pressure categories listed below.
- 1 500 pa [2 ¼ w.g.] static pressure: all supply ductwork downstream from air valves to terminal air outlets; all return air ductwork.
- 2 750 pa [3 ¼ w.g.] static pressure: all supply ductwork downstream 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 all surface films with suitable solvent prior to installation.
- 3 Seal all openings at the end of each day and at such other time as site conditions dictate.
- 4 Other openings in ductwork shall be sealed with 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 length.
- 6 Spot checks will be made by the consultant during the cleaning process to verify that the required standard is being achieved. When substantial performance is claimed, final spot checks will be made to verify that the ducts are generally clean. If any ducts are found to be unclean, then they shall be recleaned.

8 DUCT ACCESSORIES

- 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 a larger duct as required for proper air balancing.
- 3 Provide balancing dampers at each run out to a grille.
- 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 open access being used where bridges are used. Bridges on uninsulated round ducts shall be at least 25 mm [1"] high.

8.2 DUCT CONNECTORS – VIBRATION ISOLATION

- 1 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.
- 3 Standard of Acceptance: Duro Dyne "Durlon", Dynair "Hypalon", Ventfabrics "Ventlon".

8.3 DUCT ACCESS

- 1 Provide access panels as follows:
- 1 Every 12 m [40 ft] on all ductwork.
- 2 At or to one side of other equipment in duct, e.g. balance dampers, control valves, multiple outlets/inlets; control sensors.
- 2 Products: Nalor Hart, Ventlok, 25 mm [1"] thick insulation.

8.4 ACCESS DOORS

- 1 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 specified, 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 Acceptable construction: 16 gauge for 400 mm [16"] x 400 mm [16"] and smaller, 14 gauge for 450 mm [18"] x 450 mm [18"] and larger bonderized steel face of wall type with exposed finish. Acceptable Product: Acudor UF-5000.

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

8.5 DUCTWORK – FLEXIBLE – PLAIN

- 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 static pressure.
- 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 thermalex 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. 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 Fob4, Thermalex 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 locations.
- 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.
- 3 Provide concealed baffles, where necessary, to direct air away from walls, columns or other obstructions within the radius of air terminal operation. Provide full perimeter sponge rubber seal.
- 4 Point ductwork behind grilles with matte black point where duct or insulation surfaces are visible.
- 5 Acceptable Manufacturers: E.H. Price, Titus.

10 CONTROLS

10.1 GENERAL

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

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 recirculation systems.
- 3 Interior domestic water piping shall be provided as depicted on the drawings to all plumbing fixtures, appliances and equipment that require domestic water service.
- 4 New interior domestic water piping shall be 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 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 referenced on the drawings.
- 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 fixtures that will discharge sanitary waste and shall be connected to the building main sewer system.
- 9 Chlorination/cleaning for new potable water piping conforming to ANWA Standard CGS1-14:
- 1 Inspect materials to insure their integrity
- 2 Preventing contaminating materials from entering the water main
- 3 Remove, by flushing those materials that may have entered the line
- 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 main
- 8 Determine the bacteriological quality by laboratory test after disinfection
- 9 Final connection of the approved new water main to the active distribution system

- 11.2 EQUIPMENT AND MATERIALS
- 1 All domestic and hot and cold water piping shall be certified type "K" copper, and lead free solder joints.
- 2 All cold water and hot water pipes shall be insulated with 1" thick premoformed 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 copper.
- 4 Provide isolation valves and unions at all equipment.
- 5 All piping compatibility 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 (DCAV) and RBPB, factory assembled in accordance to CSA-864.10.
- 9 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
- 2 Domestic hot water
- 3 Non-potable water
- 4 Sanitary waste and venting

11.3 INTERIOR DRAIN, WASTE AND VENT PIPE AND FITTINGS

- 1 Buried pipe and fittings:
- 1 Class 4000 cast iron mechanical joint pipe and fittings with mechanical joint stainless steel couplings to CSA CAN3-B70
- 2 Acrylonitrile-Butadiene-Styrene (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 6181.2
- 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 up to 151 mm (6")
- 2 DWV copper drainage pipe with cast brass or wrought copper drainage pattern fittings with 50/50 Sn/Pb recessed solder joints

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.

- 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

04	07/05/25	ISSUED FOR TENDER
05	07/07/25	FOR REVIEW BP
06	10/09/25	FOR REVIEW
07	15/03/25	PROGRESS SET

No.	DATE	REVISION
	(dd/mm/yr)	

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

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All dimensions on the project must be checked by the contractor.
This drawing must not be used for construction purposes until here counter-signed.
cto: date:

APERITA
UNIT 205, 3000 ST. JOHN'S STREET,
PORT MOODY, BC V3H 2C4
CHERNOFF THOMPSON ARCHITECTS
PERMIT TO PRACTICE NUMBER: 104050

SHEET TITLE

MECHANICAL SPECIFICATIONS

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