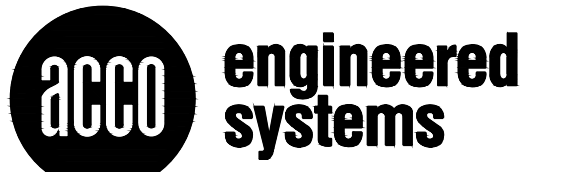


THE SHORES HVAC UPGRADES PILOT PROGRAM



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SEATTLE, WASHINGTON 98108
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THE PLANS AND SPECIFICATIONS HEREIN ARE OWNED BY AND FOR THE SOLE USE OF ACCO ENGINEERED SYSTEMS, INC. ("ACCO"), AND MAY NOT BE REPRODUCED OR USED BY OTHERS FOR ANY PURPOSE UNLESS AUTHORIZED BY ACCO IN WRITING. ACCO CANNOT ACCEPT ANY LIABILITY, WARRANTY, OR OBLIGATION IN THE EVENT OF UNAUTHORIZED USE.



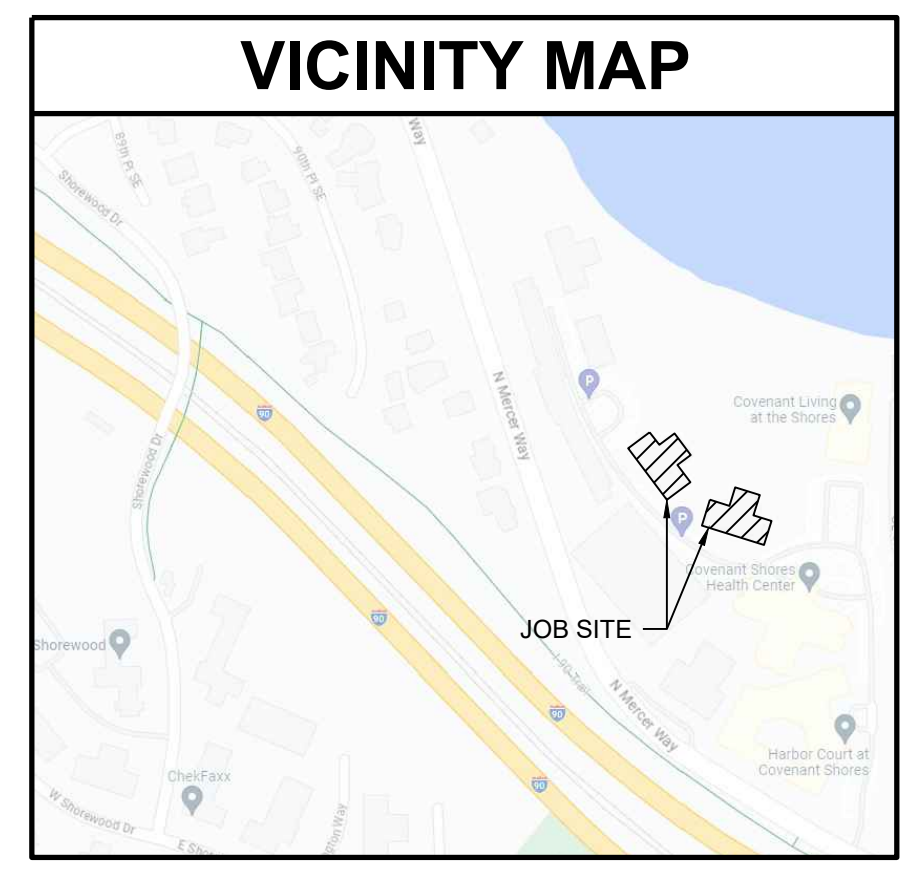
SYMBOL LEGEND			
HVAC		PIPING	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(N) [Symbol] (E)	NEW (N) & EXISTING (E) RECTANGULAR SUPPLY AIR DUCT RISER	[Symbol]	SUPPLY AIR GRILLE
(N) [Symbol] (E)	NEW (N) & EXISTING (E) RECTANGULAR OUTSIDE AIR DUCT RISER	[Symbol]	RETURN AIR GRILLE
(N) [Symbol] (E)	NEW (N) & EXISTING (E) RECTANGULAR RETURN AIR DUCT RISER	[Symbol]	EXHAUST GRILLE
(N) [Symbol] (E)	NEW (N) & EXISTING (E) RECTANGULAR EXHAUST AIR DUCT RISER	[Symbol]	ROUND DIFFUSER
(N) [Symbol] (E)	NEW (N) & EXISTING (E) ROUND AIR DUCT RISER	[Symbol]	LINEAR DIFFUSER
[Symbol]	NEW SINGLE LINE & DOUBLE LINE RECTANGULAR OR ROUND DUCT	[Symbol]	SIDE WALL GRILLE
[Symbol]	EXISTING SINGLE LINE & DOUBLE LINE RECTANGULAR OR ROUND DUCT	[Symbol]	WALL LOUVER
[Symbol]	EXISTING SINGLE LINE DUCTWORK TO BE DEMOLISHED (X OPTION) EXISTING DOUBLE LINE DUCTWORK TO BE DEMOLISHED (X OPTION)	[Symbol]	SPIRAL SIDEWALL (WITH EXTRACTOR & WITHOUT EXTRACTOR)
[Symbol]	EXISTING DUCTWORK TO BE DEMOLISHED (HATCH OPTION)	[Symbol]	FLEXIBLE DUCT
[Symbol]	DUCT WITH WRAP. DIMENSIONS SHOWN ARE I.D. OF DUCT DEFAULT WRAP THICKNESS = 1.5". UNLESS OTHERWISE NOTED ON PLANS	[Symbol]	SECTION NUMBER SECTION CALL OUT SYMBOL SHEET NUMBER
[Symbol]	DUCT WITH LINING. DIMENSIONS SHOWN ARE I.D. OF DUCT DEFAULT LINING THICKNESS = 1". UNLESS OTHERWISE NOTED ON PLANS	[Symbol]	GRILLE/DIFFUSER TAG GRILLE/DIFFUSER TYPE CFM
[Symbol]	SINGLE & DOUBLE LINE DUCTWORK WITH TRANSITIONAL FITTING	[Symbol]	EQUIPMENT LABEL TAG
[Symbol]	DOUBLE LINE SQUARE TO ROUND TRANSITIONAL FITTING	[Symbol]	CEILING OR DUCT ACCESS PANEL BY GENERAL CONTRACTOR
[Symbol]	90° RADIUS ELBOW 90° SQUARE ELBOW WITH TURNING VANES	[Symbol]	FLOW ARROW & FLOW ARROW - CURVED
[Symbol]	ROUND DUCT TURNING VERTICAL RECT. DUCT TURNING VERTICAL	[Symbol]	REVISION CLOUD
[Symbol]	SINGLE LINE MANUAL VOLUME DAMPER DOUBLE LINE MANUAL VOLUME DAMPER	[Symbol]	CONDENSATE LINE WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR
[Symbol]	MOTORIZED DAMPER (ELECTRIC)	[Symbol]	FLOOR SINK WITH TRAP TO APPROVED RECEPTOR BY PLUMBING CONTRACTOR
[Symbol]	MOTORIZED DAMPER (PNEUMATIC)	[Symbol]	GAS STUB-UP BY PLUMBING CONTRACTOR
[Symbol]	FIRE DAMPER (SINGLE LINE AND DOUBLE LINE)	[Symbol]	COLD WATER STUB-UP BY PLUMBING CONTRACTOR
[Symbol]	FIRE-SMOKE DAMPER (SINGLE LINE AND DOUBLE LINE)	[Symbol]	ELECTRICAL EQUIPMENT CONNECTION LOCATION BY ELECTRICAL CONTRACTOR
[Symbol]	SMOKE DETECTOR (DUCT TYPE)	[Symbol]	REVISION DELTA
[Symbol]	STATIC PRESSURE SENSOR	[Symbol]	POINT OF CONNECTION
[Symbol]	SMOKE DETECTOR (AREA TYPE)	[Symbol]	REGULATOR
[Symbol]	THERMOSTAT WITH ZONE NUMBER	[Symbol]	DIAMETER
[Symbol]	CO2 SENSOR	[Symbol]	INSULATION
[Symbol]	NO2 SENSOR	[Symbol]	CIRCUIT SETTER
[Symbol]	CO SENSOR	[Symbol]	BALL VALVE WITH HOSE CONNECTION
[Symbol]	OCCUPANCY SENSOR	[Symbol]	FLOW METER INLINE
[Symbol]	WALL SWITCH	[Symbol]	FLOW METER TURBINE

ABBREVIATIONS			
AFF	ABOVE FINISHED FLOOR	(D)	DEMO
AHJ	AUTHORITY HAVING JURISDICTION	DIA	DIAMETER
AP	ACCESS PANEL	DSD	DUCT SMOKE DETECTOR
ASD	AREA SMOKE DETECTOR	DWG	DRAWING
BDD	BACKDRAFT DAMPER	(E)	EXISTING
BF	BOTTOM FLAT	EA	EXHAUST AIR
BOD	BOTTOM OF DUCT	EG	EXHAUST AIR GRILLE
BOI	BOTTOM OF INSULATION	ELB	ELBOW
BOP	BOTTOM OF PIPE	ELEC	ELECTRICAL
CA	COMPRESSED AIR	EQ	EQUIPMENT
CD	CONDENSATE	EXH	EXHAUST
CE	CEILING EXHAUST	EXT	EXTERIOR
CENTR	CENTRIFUGAL	(F)	FUTURE
CFM	CAP FOR FUTURE	FD	FIRE DAMPER
CHWR	CHILLED WATER RETURN	FLEX	FLEXIBLE
CHWS	CHILLED WATER SUPPLY	FLR	FLOOR
CL	CENTERLINE	FLU	FLUE
CLG	CEILING	FR	FLOOR RETURN
CMU	CONCRETE MASONRY UNIT	FS	FLOOR SUPPLY
CO	COOLING ONLY	FSD	FIRE SMOKE DAMPER
CA	COMBUSTION AIR	GA	GAUGE
CONC	CONCRETE	GALV	GALVANIZED
COND	CONDENSATE	GC	GENERAL CONTRACTOR
CONN	CONNECTION	GEXH	GREASE EXHAUST
CONTR	CONTRACTOR	GPH	GALLONS PER HOUR
CR	CEILING RETURN	GPM	GALLONS PER MINUTE
CS	CEILING SUPPLY	GR	GLYCOL RETURN
CWR	CONDENSER WATER RETURN	GS	GLYCOL SUPPLY
CWS	CONDENSER WATER SUPPLY	GYP	GYPSON BOARD
		HOA	HAND-OFF-AUTO
HT	HEIGHT		
HHWR	HEATING HOT WATER RETURN		
HHWS	HEATING HOT WATER SUPPLY		
HPG	HIGH PRESSURE GAS		
HPS	HIGH PRESSURE STEAM		
HVLS	HIGH VELOCITY LOW SPEED FAN		
ID	INSIDE DIMENSION		
INS	INSULATION		
INT	INTERIOR		
(L)	LINED		
LR	LINEAR RETURN		
LS	LINEAR SUPPLY		
MA	MIXED AIR		
MUA	MAKE UP AIR		
MFG	MECHANICAL		
MFG	MEDIUM PRESSURE GAS		
MFR	MANUFACTURER		
MD	MOTORIZED DAMPER		
MTD	MOUNTED		
MTL	METAL		
MVA	MAKE UP AIR		
MVD	MANUAL VOLUME DAMPER		
NG	NATURAL GAS		
(N)	NEW		
N/A	NOT APPLICABLE		
NC	NORMALLY CLOSED		
NIC	NOT IN CONTRACT		
NO	NORMALLY OPEN		
NTS	NOT TO SCALE		
OBDD	OPPOSED BLADE DAMPER		
OC	ON CENTER		
OD	OUTSIDE DIMENSION		
OPNG	OPENING		
OSA	OUTSIDE AIR		
PLBG	PLUMBING		
POC	POINT OF CONNECTION		
RECIP	RECIPROCATING		
(R)	RELOCATE		
RA	RETURN AIR		
REQ'D	REQUIRED		
REV	REVISION		
RG	RETURN OR TRANSFER GRILLE		
RG	REFRIGERANT GAS		
RHGP	REFRIGERANT GAS-HIGH PRESSURE		
RH	REFRIGERANT LIQUID		
RMA	RAPID MOUNT FRAME		
RND	ROUND NECK ADAPTER		
RR	REFRIGERANT RELIEF		
RS	REFRIGERANT SUCTION		
SA	SUPPLY AIR		
SG	SUPPLY GRILLE		
SM	SHEET METAL		
SS	STAINLESS STEEL		
STD	STANDARD		
TA	TRANSFER AIR		
TD	TOP DOWN		
TF	TOP FLAT		
TOD	TOP OF DUCT		
TOP	TOP OF PIPE		
TSTAT	THERMOSTAT		
TJU	TOP UP		
TYP	TYPICAL		
UBC	UNIFORM BUILDING CODE		
UC	UNDERCUT		
UG	UNDERGROUND		
UMC	UNIFORM MECHANICAL CODE		
UNO	UNLESS NOTED OTHERWISE		
UTR	UP THROUGH ROOF		
V	VENT		
VAV	VARIABLE AIR VOLUME		
VFD	VARIABLE SPEED DRIVE		
VIF	VARIABLE IN FIELD		
VOL	VOLUME		
WMS	WIRE MESH SCREEN		
XFER	TRANSFER		

DRAWING INDEX		ISSUE RECORD			
SHEET NO.	DRAWING TITLE	1. 08/02/2023	2. 08/08/2023	3. 08/10/2023	4. 09/01/2023
M0.00	COVER SHEET	●	○	○	○
M0.01	CONSTRUCTION REQUIREMENTS	●	○	○	○
M0.10	EQUIPMENT SCHEDULES & MECHANICAL DETAILS	●	○	○	○
M1.01	UNIT 3302 & UNIT 4204 HVAC PLAN	●	○	○	○

SCOPE OF WORK

1. INSTALL (6) TOTAL NEW SINGLE-PACKAGE VERTICAL HEAT PUMP UNITS. (3) UNITS WILL BE INSTALLED INTO (2) SINGLE-FAMILY TENANT SPACES, EACH.



APPLICABLE CODES

WASHINGTON MECHANICAL PROJECTS:

ALL WORK SHALL BE IN FULL ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL CODES, LAWS AND REGULATIONS. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH, BUT NOT LIMITED TO:

- 2018 INTERNATIONAL BUILDING CODE WITH WA AMENDMENTS
- 2020 NATIONAL ELECTRICAL CODE WITH WA AMENDMENTS
- 2018 INTERNATIONAL MECHANICAL CODE WITH WA AMENDMENTS
- 2018 UNIFORM PLUMBING CODE WITH WA AMENDMENTS
- 2018 WASHINGTON STATE ENERGY CODE
- 2018 INTERNATIONAL FIRE CODE WITH WA AMENDMENTS

ALL WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING ADDITIONAL GUIDELINES WHERE REQUIRED BY CODE:

- SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA)
- AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS (ASHRAE)
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
- AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
- NATIONAL FIRE PROTECTION AGENCY (NFPA)
- OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

PROPERTY INFORMATION

PARCEL #: 072405-9016

LEGAL DESCRIPTION: POR OF GL 4 & LOTS 24 & 25 SUNNYBANK ADD DAF - BEG 658 FT N & 826 FT W OF SE COR GL 4 TH S 00-10-12 E TO NLY MGN N MERCER WAY & TPOB TH N 00-10-12 W TO SH LN LK WASH TH N 75-16-00 W 103.49 FT TH S 87-36-00 W 100.80 FT TH N 67-33-00 W 111.66 FT TH N 52-10-00 W 100.65 FT TH N 56-26-00 W 100.08 FT TH N 40-43-00 W 107.71 FT TH N 32-08-00 W 66.66 FT TO NW COR LOT 24 SUNNYBANK TH S 41-23-31 W 252.293 FT TO NELY MGN MERCER WAY TH SELY ALG SD NELY MGN TO TPOB TGW SH LKS ADJ AKA POR MILL REVISION 89-03-04 REC #8905119011 "PORTION TAXABLE"

No.	Date	Description	By
4	09/01/2023	PERMIT REVISION SET	AC
3	08/10/2023	UNIT 4204-2 SHIFT	AC
2	08/08/2023	PERMIT SET	AC
1	08/02/2023	ISSUE FOR REVIEW	AC

Project

THE SHORES HVAC UPGRADES PILOT PROGRAM

9150 FORTUNE DR
MERCER ISLAND, WA 98040

Title

COVER SHEET

Designed By A. CEARNIS	Checked By D. BYERS
Drawn By 60940490	Project Manager AS SHOWN
Job Number	Scale

M0.00

SCOPE RESPONSIBILITY MATRIX

MC = MECHANICAL CONTRACTOR | EC = ELECTRICAL CONTRACTOR | PC = PLUMBING CONTRACTOR | CC = CONTROLS CONTRACTOR | GC = GENERAL CONTRACTOR | FAC = FIRE ALARM CONTRACTOR

COORDINATION ITEM	IN SCOPE	FURNISHED BY	INSTALLED BY	POWER WIRING BY	CONTROLS WIRING* BY	NOTES
LINE VOLTAGE THERMOSTATS	NO					
LOW VOLTAGE THERMOSTATS	YES	MC	CC	N/A	CC	-
LOW VOLTAGE CONTROL WIRING	YES	CC	CC	N/A	CC	-
WALL SWITCH	NO					
PRESSURE SENSOR (DIGITAL OR PNEUMATIC)	NO					
EQUIPMENT CONDENSATE DRAIN PIPING AND P-TRAPS	NO					
CONDENSATE DRAIN PUMPS	NO					
FLOOR SINKS AND ROOF RECEPTACLES	NO					
MAKE-UP WATER TO MECHANICAL EQUIPMENT	NO					
MAKE-UP WATER SUB-METER(S) FOR MECHANICAL EQUIPMENT	NO					
NATURAL GAS PIPING & PRESSURE REGULATORS TO EQUIPMENT	NO					
DUCT OR PIPE FOR COMBUSTION AIR - MECHANICAL HHW BOILERS	NO					
FLUE VENTS FOR MECHANICAL HHW BOILERS	NO					
PVC FLUE VENTS / COMBUSTION AIR FOR WATER HEATERS	NO					
DUCTED FLUE VENTS FOR WATER HEATERS	NO					
DISCONNECT AT EQUIPMENT	YES	EC	EC	EC	EC	-
MOTOR STARTERS	NO					
MOTOR VARIABLE FREQUENCY DRIVES (VFD'S)	NO					
AREA SMOKE DETECTORS	NO					
DUCT SMOKE DETECTORS	NO					
FIRE/SMOKE DAMPERS	NO					
FIRE DAMPERS	NO					
MEDICAL GAS ALARMING / MONITORING	NO					
DAMPER ACTUATORS	NO					
CONTROL VALVES	NO					
HEAT TRACING	NO					
EQUIPMENT CRANE PICKS	NO					
GENERATOR FLUE DUCT / RADIATOR DUCT / EXHAUST PIPE	NO					
GENERATOR MUFFLER AND SILENCER	NO					
GENERATOR FUEL TANK WITH CONTROLS AND MONITORING	NO					
GENERATOR FUEL PIPING	NO					
ROOF OPENINGS FOR DUCT AND PIPE PENETRATIONS (INCL. CUTTING & PATCHING)	NO					
FLASHING FOR NON-DUCT ROOF PENETRATIONS	NO					
FACTORY CURBS FOR ROOF MOUNTED EQUIPMENT	NO					
LEVELING OF ROOF CURBS	NO					
LEVEL CONCRETE HOUSEKEEPING PADS & PIERS	NO					
EXTERIOR LOUVERS	YES	MC	GC	N/A	N/A	-
FLOOR AND WALL OPENINGS FOR MECHANICAL PENETRATIONS - CUTTING	YES	GC	GC	N/A	N/A	-
FLOOR AND WALL OPENINGS FOR MECHANICAL PENETRATIONS - CAULKING	YES	MC	MC	N/A	N/A	-
FIRE CAULKING AT MECHANICAL PENETRATIONS	NO					
CEILING AND WALL ACCESS PANELS	NO					
C408 SYSTEM COMMISSIONING	NO					
C409 ENERGY METERS - ELECTRIC	NO					
C409 ENERGY METERS - GAS	NO					

* CONTROLS WIRING INCLUDES LOW VOLTAGE WIRING AND/OR PNEUMATIC TUBING

MINIMUM DUCT INSULATION REQUIREMENTS

(PER 2018 WSEC/SEC REQUIREMENTS SECTION C403.10.1)

SYSTEM	DUCT LOCATION	DUCT USE	MIN. R-VALUE	RECOMMENDED INSTALLED INS. THICKNESS
OSA	CONDITIONED SPACE	• UPSTREAM OF MD • ≥ 2,800 CFM	R-16	--
OSA	CONDITIONED SPACE	• DOWNSTREAM OF MD • ≥ 2,800 CFM	R-8	--
OSA	CONDITIONED SPACE	• < 2,800 CFM	R-7	2" LINER, OR 3" WRAP
SA / RA	OUTSIDE THE BUILDING	• ALL	R-8	2" LINER
SA / RA	UNCONDITIONED SPACE	• DUCT AIR <u>NOT</u> WITHIN 15°F OF SPACE TEMP	R-6	1.5" LINER, OR 1.5" WRAP
SA / RA	UNCONDITIONED SPACE	• DUCT AIR WITHIN 15°F OF SPACE TEMP	R-3.3	1" LINER, OR 1.5" WRAP
SA / RA	WITHIN BUILDING ENVELOPE ASSEMBLY	• ALL	R-16	--
SA	CONDITIONED SPACE	• SAT < 55°F OR > 105°F	R-3.3	1" LINER, OR 1.5" WRAP
SA	CONDITIONED SPACE	• 55°F ≤ SAT ≤ 105°F	NONE	--
SA	CONDITIONED SPACE <u>DIRECTLY SERVED BY DUCT</u>	• ALL	NONE	--
SA (DOAS)	CONDITIONED SPACE	• DOWNSTREAM OF DOAS	NONE	--
RA / EXH (DOAS)	CONDITIONED SPACE	• DOWNSTREAM OF DOAS • UPSTREAM OF MD	R-8	2" LINER, OR 3" WRAP
RELIEF / EXH	CONDITIONED SPACE	• DOWNSTREAM OF MD	R-16	--

NOTES:

- DUCT SHALL BE WRAPPED OR LINED PER PLAN
- DEFAULT LINER THICKNESS = 1", UNLESS OTHERWISE NOTED ON PLANS
- DEFAULT WRAP THICKNESS = 1.5", UNLESS OTHERWISE NOTED ON PLANS

PIPING INSULATION REQUIREMENTS

(PER 2018 WSEC/SEC REQUIREMENTS SECTION C403.10.3)

FLUID OPERATING TEMP RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE SIZE (IN.)				
	CONDUCTIVITY BTU*IN/(H*FT ² *F)	MEAN RATING TEMP. °F	<1	1 TO < 1 1/2	1 1/2 TO < 4	4 TO < 8	> 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.26	75	0.5	1.0	1.0	1.0	1.5

NOTES:

- FOR PIPING SMALLER THAN 1 1/2" AND LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, REDUCTION OF THESE THICKNESSES BY 1" SHALL BE PERMITTED BUT NOT TO A THICKNESS LESS THAN 1".
- INSULATION IS NOT REQUIRED FOR CONDENSATE DRAIN PIPING FROM A DX COOLING COIL PER WSEC/SEC 403.10.3 EXCEPTION 3. IT IS RECOMMENDED THAT IF THE DRAIN PIPING IS LOCATED WITHIN A PLENUM THAT IS NOT USED AS A RETURN AIR PATH, OR OTHER UNCONDITIONED SPACE WITH LIMITED AIRFLOW, THE DRAIN PIPE SHOULD BE INSULATED WITH 0.5" THICK INSULATION TO PREVENT CONDENSATION ON THE OUTSIDE OF THE PIPE.

C406 EFFICIENCY PACKAGE CREDITS

(PER 2018 WSEC/SEC REQUIREMENTS)

CODE SECTION	OCCUPANCY TYPE	CREDITS	RESPONSIBILITY ¹
THIS PROJECT IS NOT REQUIRED TO COMPLY WITH C406	--		
TOTAL PROJECT CREDITS:		0	

NOTES:

- ACCO WILL COMPLY WITH CREDITS AS NOTED IN "RESPONSIBILITY - ACCO".

CREDITS NOTED AS "RESPONSIBILITY - OTHER" ARE NOT WITHIN ACCO'S SCOPE, AND ARE THE RESPONSIBILITY OF OTHER DISCIPLINES. THESE ARE SHOWN FOR REFERENCE ONLY.

DUCT CONSTRUCTION SCHEDULE

(PRESSURE CLASS PER SMACNA TABLE 1-1S)

DUCT SECTION / COMPONENT	DUCT PRESSURE CLASS
LOW SIDE SUPPLY	+2"

HVAC GENERAL NOTES WASHINGTON

- EXCEPT AS MODIFIED BY A WRITTEN CONTRACT SIGNED BY THE DESIGN-BUILDER, THE DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS, INCLUDING THOSE IN ELECTRONIC FORM PREPARED BY OR FOR AND/OR FURNISHED BY DESIGN-BUILDER ARE "INSTRUMENTS OF SERVICE." THE DESIGN-BUILDER, DESIGN-BUILDER'S CONSULTANTS AND OTHER PROVIDERS OF PROFESSIONAL SERVICES INDIVIDUALLY SHALL RETAIN A FULLY PREPAID, UNRESTRICTED, PERPETUAL LICENSE IN THE INSTRUMENTS OF SERVICE AS WELL AS ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING COPYRIGHT IN THOSE INSTRUMENTS OF SERVICE FURNISHED BY THEM.

THE INSTRUMENTS OF SERVICE FURNISHED BY DESIGN-BUILDER ARE FOR SOLE USE BY DESIGN-BUILDER IN CONSTRUCTING THE SUBJECT PROJECT. THE INSTRUMENTS OF SERVICE ARE NOT SUITABLE FOR BIDDING OR CONSTRUCTING BY OTHER CONTRACTORS. THEREFORE, IF DESIGN-BUILDER IS NOT RETAINED AS THE DESIGN-BUILD CONTRACTOR TO PERFORM THE WORK DEPICTED IN THE INSTRUMENTS OF SERVICE, WITHOUT THE PRIOR WRITTEN CONSENT OF THE DESIGN-BUILDER, THE INSTRUMENTS OF SERVICE MAY NOT BE REPRODUCED OR USED FOR ANY PURPOSE EXCEPT FOR GENERAL REFERENCE. DESIGN-BUILDER DISCLAIMS ALL LIABILITY FOR ANY ADAPTATION, MODIFICATION, OR INTERPRETATION OF THE INSTRUMENTS OF SERVICE, OR FOR ANY OTHER UNAUTHORIZED USE OF THESE INSTRUMENTS OF SERVICE.
- THESE DOCUMENTS WERE PREPARED FOR CONSTRUCTION BY DESIGN-BUILDER ONLY. DESIGN-BUILDER DEVELOPED THESE DOCUMENTS WITH ENGINEERING SOLUTIONS AND CONSTRUCTION MEANS AND METHODS UNIQUE TO DESIGN-BUILDER FOR THE CONSTRUCTION OF THE SUBJECT PROJECT AND ARE NOT APPROPRIATE FOR OTHERS TO BID OR BUILD FROM. IN ADDITION, THESE DRAWINGS WERE DEVELOPED FROM INFORMATION MADE KNOWN TO DESIGN-BUILDER AS OF THE DATE OF THE DOCUMENT AND WOULD NOT INCLUDE LATER CHANGES.
- THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING OR EVERY OFFSET WHICH MAY BE REQUIRED. THE HVAC CONTRACTOR IS TO COORDINATE WITH ALL OTHER TRADES AND IS TO VERIFY ALL CLEARANCES BEFORE COMMENCING WORK.
- MATERIALS, METHODS, AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE 2018 EDITIONS OF THE WA MECHANICAL CODE, WA BUILDING CODE, WA FUEL AND GAS CODE, WA FIRE CODE, AND LOCAL CODES AND ORDINANCES.
- EQUIPMENT SIZING AND SELECTION TO COMPLY WITH 2018 WSEC 403.3.1. THE OUTPUT CAPACITY FOR HEATING AND COOLING EQUIPMENT SHALL BE NO GREATER THAN THAT OF THE SMALLEST AVAILABLE EQUIPMENT SIZE THAT EXCEEDS THE CALCULATED LOADS.
- ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A DEADBAND OF 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM PER 2018 WSEC C403.4.1.2.
- AUTOMATIC CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM AS REQUIRED PER 2018 WSEC C403.4.2.
- VENTILATION AND MINIMUM OUTSIDE AIR VALUES CALCULATED PER 2018 WA MC CHAPTER 4.
- AIRSIDE ECONOMIZER TO BE PROVIDED AS NOTED IN EQUIPMENT SCHEDULES AND MEET REQUIREMENTS OF 2018 WSEC C403.5.
- OUTSIDE AIR SUPPLY, EXHAUST OPENINGS, RETURN AIR OPENINGS USED FOR AIRSIDE ECONOMIZER OPERATION, AND STAIRWAY AND SHAFT VENTS SHALL BE PROVIDED WITH CLASS I MOTORIZED DAMPERS PER 2018 WSEC C403.7.8.
- SELECTED FAN MOTORS SHALL BE NO LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE DESIGN BHP PER 2018 WSEC C403.8.2.
- DUCT CONSTRUCTION AND HANGING SHALL COMPLY WITH SECTION 603 OF THE 2018 WA MC AND WITH CURRENT SMACNA STANDARDS. EARTHQUAKE BRACE ALL DUCTS 28" DIA AND LARGER WHICH ARE SUSPENDED MORE THAN 12" BELOW STRUCTURAL SYSTEM.
- JOINTS OF MEDIUM AND HIGH VELOCITY DUCT SYSTEMS SHALL BE SEALED WITH GASKETS OR LISTED MASTIC TYPE DUCT SEALANT.
- DUCTS SHALL BE INSULATED AS INDICATED ON PLANS.
A. DUCT WRAP, WHERE INDICATED, SHALL BE 1.5" 0.75 LB/FT² FIBERGLASS DUCT INSULATION WITH A FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER, UNLESS NOTED OTHERWISE.
B. SOUND LINING, WHERE INDICATED, SHALL BE 1.0" 1.5 LB/FT² FIBERGLASS DUCT LINING COATED TO PREVENT FIBER EROSION AT VELOCITIES UP TO 4,000 FPM, UNLESS NOTED OTHERWISE.
- FLEX DUCTS SHALL CONSIST OF A REINFORCED VAPOR BARRIER, 1.5" FIBERGLASS INSULATION, AND NON-PERFORATED INTERIOR LINER WITH WIRE HELIX. DUCT SHALL BE A UL 181 LISTED CLASS 1 AIR DUCT. FLEX DUCTS SHALL ONLY BE USED WHERE SHOWN AND SHALL NOT EXCEED 12' IN LENGTH UNLESS NOTED OTHERWISE.
- PROVIDE EARTHQUAKE RESTRAINT FOR HVAC EQUIPMENT IN ACCORDANCE WITH SECTION 1613 OF THE 2018 WA BC.
- PROVIDE FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS WHERE INDICATED ON PLANS AND AS REQUIRED BY SECTION 607 OF THE 2015 WA MC. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS, THE TERMS OF THEIR LISTING, AND THE REQUIREMENTS OF THE CODE.
- PIPING PENETRATIONS OF FIRE RATED WALLS OR FLOORS SHALL BE SLEEVED AND FIRE STOPPED WITH LISTED MATERIALS SO AS TO MAINTAIN THE INTEGRITY AND RATING OF THE FLOOR OR WALL.
- PROVIDE RETURN DUCT SMOKE DETECTOR AUTOMATIC SHUT DOWN OF ALL HEATING, COOLING, OR VENTILATION EQUIPMENT DELIVERING IN EXCESS OF 2,000 CFM IN ACCORDANCE WITH SECTION 606 OF THE 2015 WA MC.
- HVAC EQUIPMENT, VALVES, AND DAMPERS SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
- WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION TO BE PROVIDED TO THE BUILDING OWNER. RECORD DRAWINGS SHALL INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR AND WATER DESIGN FLOW RATES.
- OPERATING AND MAINTENANCE MANUALS TO BE PROVIDED TO THE BUILDING OWNER THAT INCLUDE: SUBMITTAL DATA, NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY, HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, AND A COMPLETE OPERATIONAL NARRATIVE FOR EACH SYSTEM.
- A WRITTEN BALANCE REPORT SHALL BE FILED WITH THE OWNER.
- COMMISSIONING: COMMISSIONING FOR THE PROJECT SHALL MEET THE REQUIREMENTS OF THE 2018 WSEC, SECTION C408. SYSTEM SHALL BE TESTED TO ENSURE CONTROL DEVICES, EQUIPMENT, AND SYSTEMS ARE CALIBRATED, ADJUSTED, AND OPERATE IN ACCORDANCE WITH THE PLANS. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO ENSURE THEY OPERATE IN ACCORDANCE WITH THE PLANS. A COMPLETE REPORT OF TEST PROCEDURES AND RESULTS SHALL BE PREPARED AND FILED WITH THE OWNER.
- FOR ALL "SEALED AIR TIGHT" SHAFTS, THE FOLLOWING MUST OCCUR:
A. ALL VERTICAL JOINTS INSIDE THE SHAFT SHOULD BE PROVIDED WITH A CONTINUOUS SEAL FOR THE LENGTH OF THE JOINT, INCLUDING THE SHAFT CORNERS (BY G.C.)
B. TOP AND BOTTOM WALL TRACKS SHOULD BE CAULKED ALONG THEIR ENTIRE LENGTH (BY G.C.)
C. ANY FLOOR DECKING PERPENDICULAR TO THE SHAFT SHOULD BE CAULKED. FILLING WITH ROCK WOOL IS NOT ACCEPTABLE (BY G.C.)
D. ANY PENETRATIONS OF THE SHAFT CONSTRUCTION (DUCT WORK, CONDUIT, PIPING, ...) SHOULD BE SEALED ON BOTH SIDES OF THE PENETRATION
E. USE SECTION 909 OF THE 2018 IBC FOR MAXIMUM ALLOWABLE LEAKAGE AREA, FOLLOWING THE GUIDELINES FOR TIGHT SHAFT CONSTRUCTION

LOAD CRITERIA

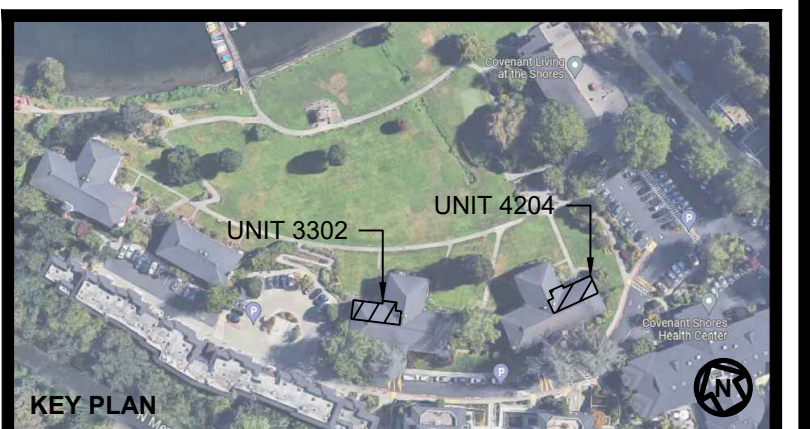
HEATING AND COOLING LOAD CALCULATIONS PERFORMED PER 2018 WSEC/SEC 403.2.1

ENVELOPE VALUES		DESIGN TEMPERATURES	
	U-VALUE (BTUH/FT ² °F)		°F
ROOF	0.05	INDOOR - COOLING	75
WALL	0.1	INDOOR - HEATING	70
FLOOR	N/A	OUTDOOR - COOLING	
GLASS	0.55	OUTDOOR - HEATING	
GLASS (SC)	SC = 0.5		
INTERNAL LOADS			
SPACE TYPE	MISC EQUIPMENT	PEOPLE DENSITY (SEAT COUNT)	LIGHTING (W/SQFT)
LARGE BEDROOM	0.5 W/SQFT	2	0.7 W/SQFT
SMALL BEDROOM	0.5 W/SQFT	1	0.7 W/SQFT
LIVING ROOM/KITCHEN	1 W/SQFT	0	0.7 W/SQFT



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No.	Date	Description	By
4	09/01/2023	PERMIT REVISION SET	AC
3	08/10/2023	UNIT 4204-2 SHIFT	AC
2	08/08/2023	PERMIT SET	AC
1	08/02/2023	ISSUE FOR REVIEW	AC

Project
THE SHORES HVAC UPGRADES PILOT PROGRAM
9150 FORTUNE DR
MERCER ISLAND, WA 98040

CONSTRUCTION REQUIREMENTS

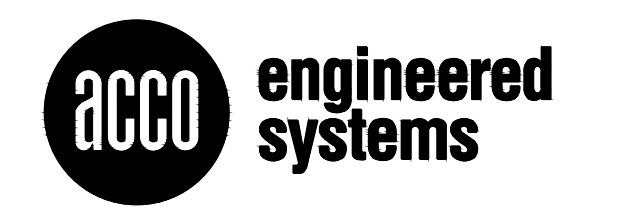
A. CEARNIS
Designed By
A. CEARNIS
Drawn By
60940490
Job Number

T. TOUTONGHI
Checked By
D. BYERS
Project Manager
1/8"=1'-0"
Scale

M0.01

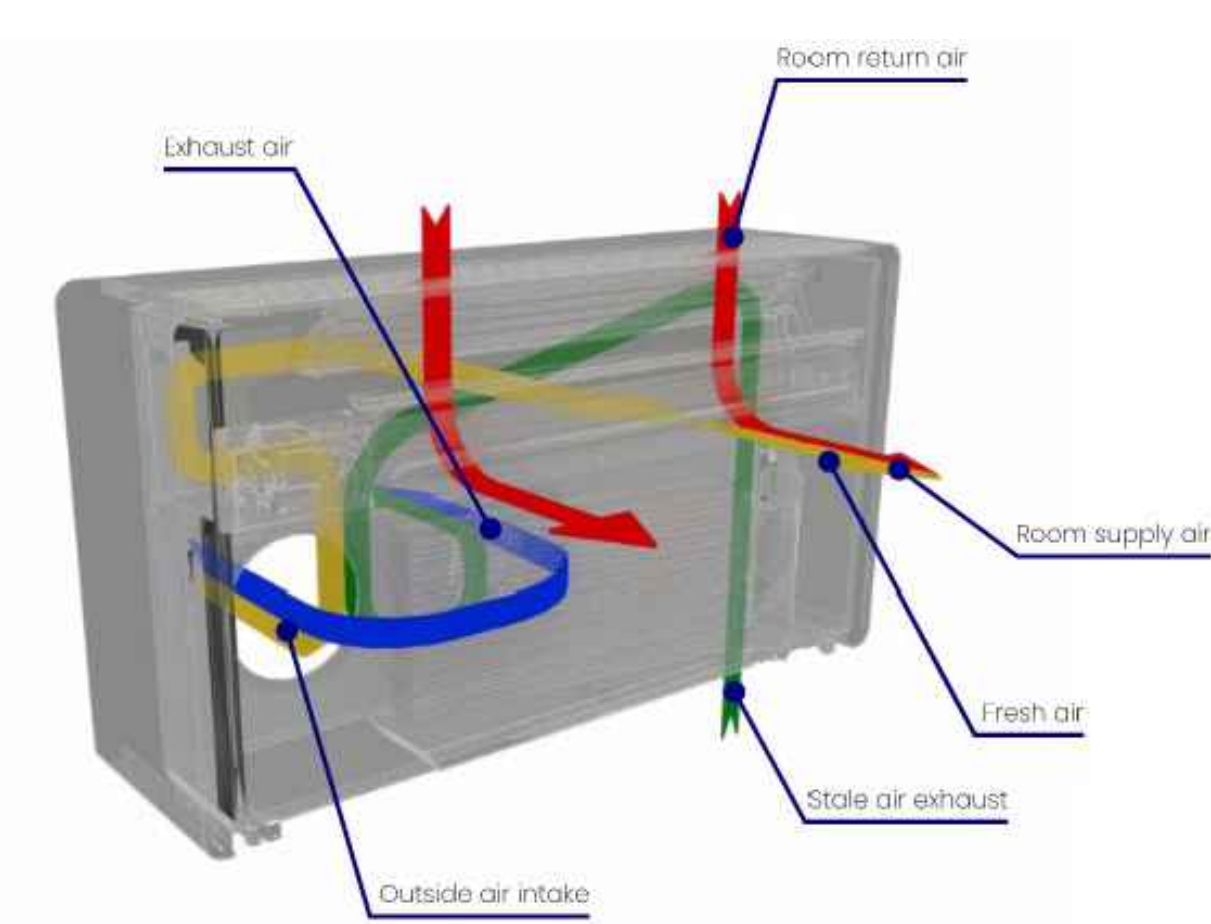
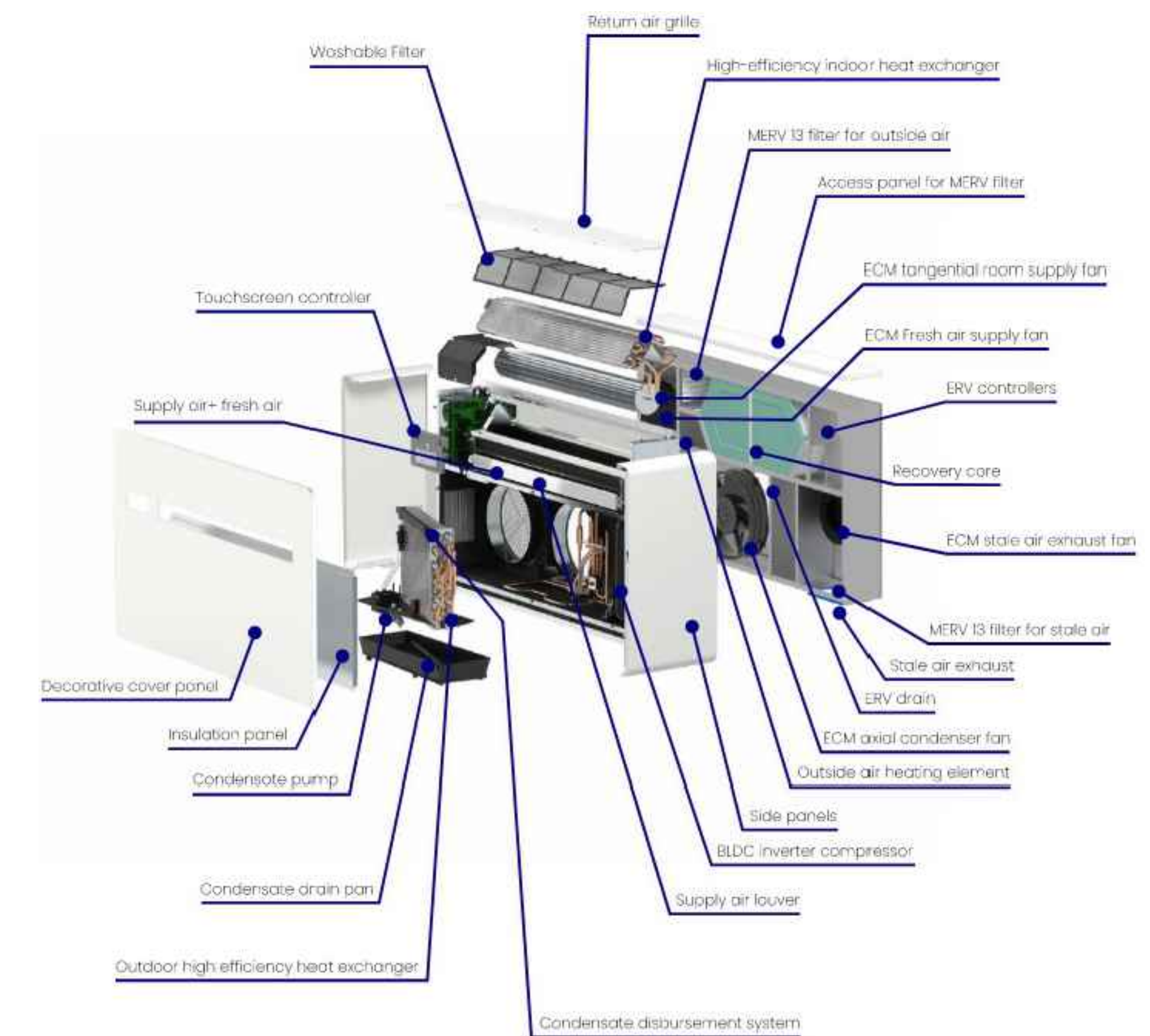
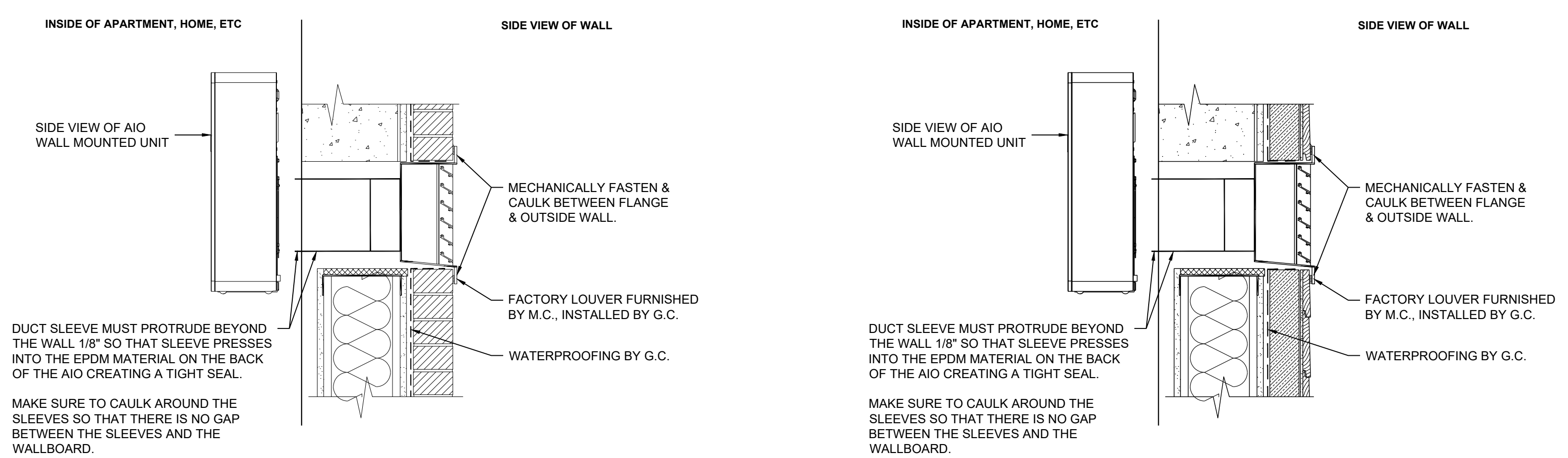
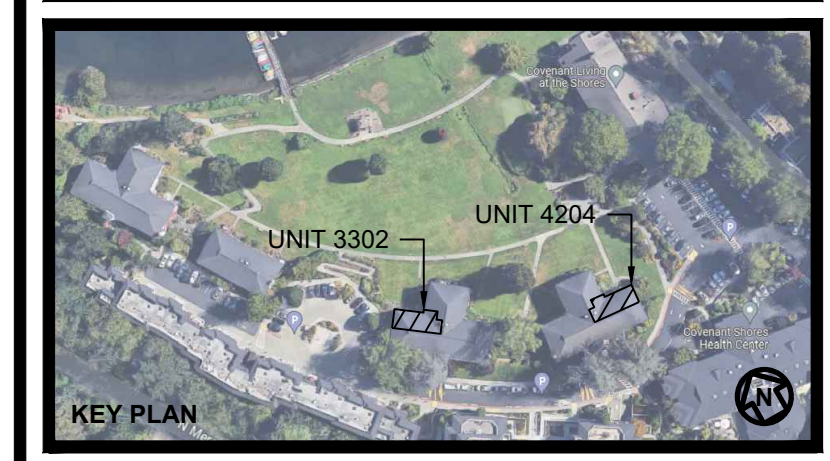
SINGLE PACKAGE VERTICAL HEAT PUMP UNIT																																										
TAG	LOCATION	MANUFACTURER & MODEL NO.	SERVING	MIN. OSA CFM	FANS						DX COOLING						DX HEATING						COMPR	NO. OF CIRCUITS	ERV			SINGLE POINT POWER			RATED EFFICIENCY @ AHRI			VIB. ISO	WEIGHT (lb.)	NOTES						
					SUPPLY CFM	OSA WATTS	CFM	WATTS	RELIEF CFM	WATTS	CONDENSER CFM	WATTS	REF. TYPE	TOTAL MBH	SENS. MBH	EDB/ LWB (°F)	AMB (°F)	TOTAL MBH	EDB	LWB	AMB (°F)	QTY.			FILTER MERV	OSA RA	EA CFM	SENS. EFF. %	MCA	MFA/ MOC/P	SCCR (KA)	VOLTAGE	EMERGENCY POWER				SEER	EER	IEER	HSPF	COP	
HP-3302-1	LIVING ROOM	EPHOCA APP10R4L1	UNIT 3302	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8
HP-3302-2	LARGE BEDROOM	EPHOCA APP10R4L1	UNIT 3302	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8
HP-3302-3	SMALL BEDROOM	EPHOCA APP10R4L1	UNIT 3302	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8
HP-4204-1	LIVING ROOM	EPHOCA APP10R4L1	UNIT 4204	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8
HP-4204-2	LARGE BEDROOM	EPHOCA APP10R4L1	UNIT 4204	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8
HP-4204-3	SMALL BEDROOM	EPHOCA APP10R4L1	UNIT 4204	25	290	50	25	30	25	30	490	150	R410A	8.4	-	80/67	-	95	8.1	70	-	47	1	1	13	13	25	25	77.5	17	35	-	115/1	NO	-	11.7	14.82	-	3.37	-	130	1-8

- NOTES:
1. DISCONNECT BY ELECTRICAL CONTRACTOR.
 2. NO ECONOMIZER REQUIRED PER 2018 WSEC/SEC C403.5 EXCEPTION #1 SYSTEMS WITH DOAS.
 3. UNIT IS EQUIPPED WITH INTEGRAL BACKDRAFT DAMPERS PER 2018 WSEC C403.7.8.1.1.2.
 4. UNIT IS EQUIPPED WITH INTEGRAL THERMOSTAT.
 5. UNIT IS EQUIPPED WITH INTEGRAL ENERGY RECOVERY VENTILATION SYSTEM THAT COMPLIES WITH 2018 WSEC C403.3.5.1 & C403.7.6.
 6. UNIT IS RATED IN ACCORDANCE WITH AHRI 300 SPVU STANDARDS AND IS COMPLIANT WITH 2018 WSEC C403.3.2(3).
 7. SEE M0.101 & 2 FOR INSTAL DETAL.
 8. UNIT IS EQUIPPED WITH INTEGRAL LCDI POWER CORD.



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■ Outside air ■ Recirculate air ■ Fresh air intake ■ Stale air exhaust

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2	08/08/2023	PERMIT SET	AC
1	08/02/2023	ISSUE FOR REVIEW	AC

Revisions

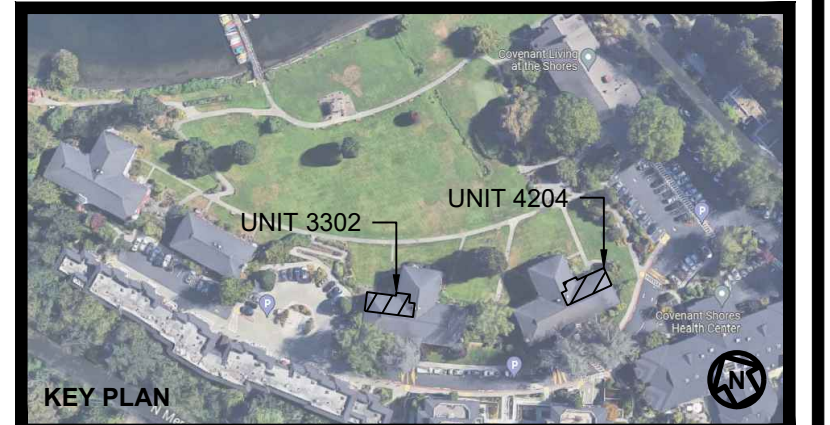
Project
THE SHORES HVAC UPGRADES PILOT PROGRAM
9150 FORTUNE DR
MERCER ISLAND, WA 98040

Title
EQUIPMENT SCHEDULES & MECHANICAL DETAILS

A. CEARNS
Designed By
A. CEARNS
Drawn By
60940490
Job Number

T. TOUTONGHI
Checked By
D. BYERS
Project Manager
AS SHOWN
Scale

M0.10



EXPIRES: 11-28-2024

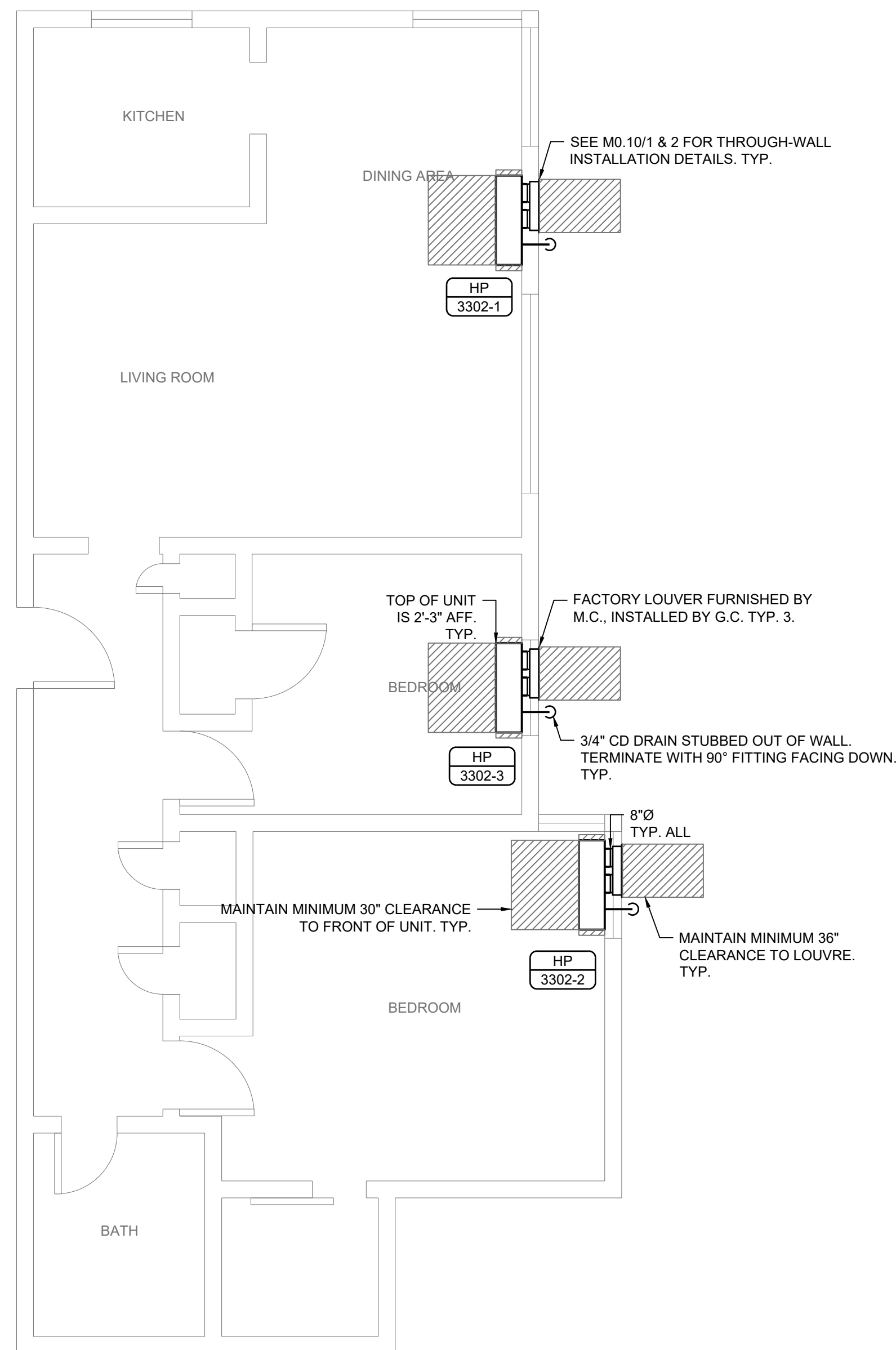
No.	Date	Description	By
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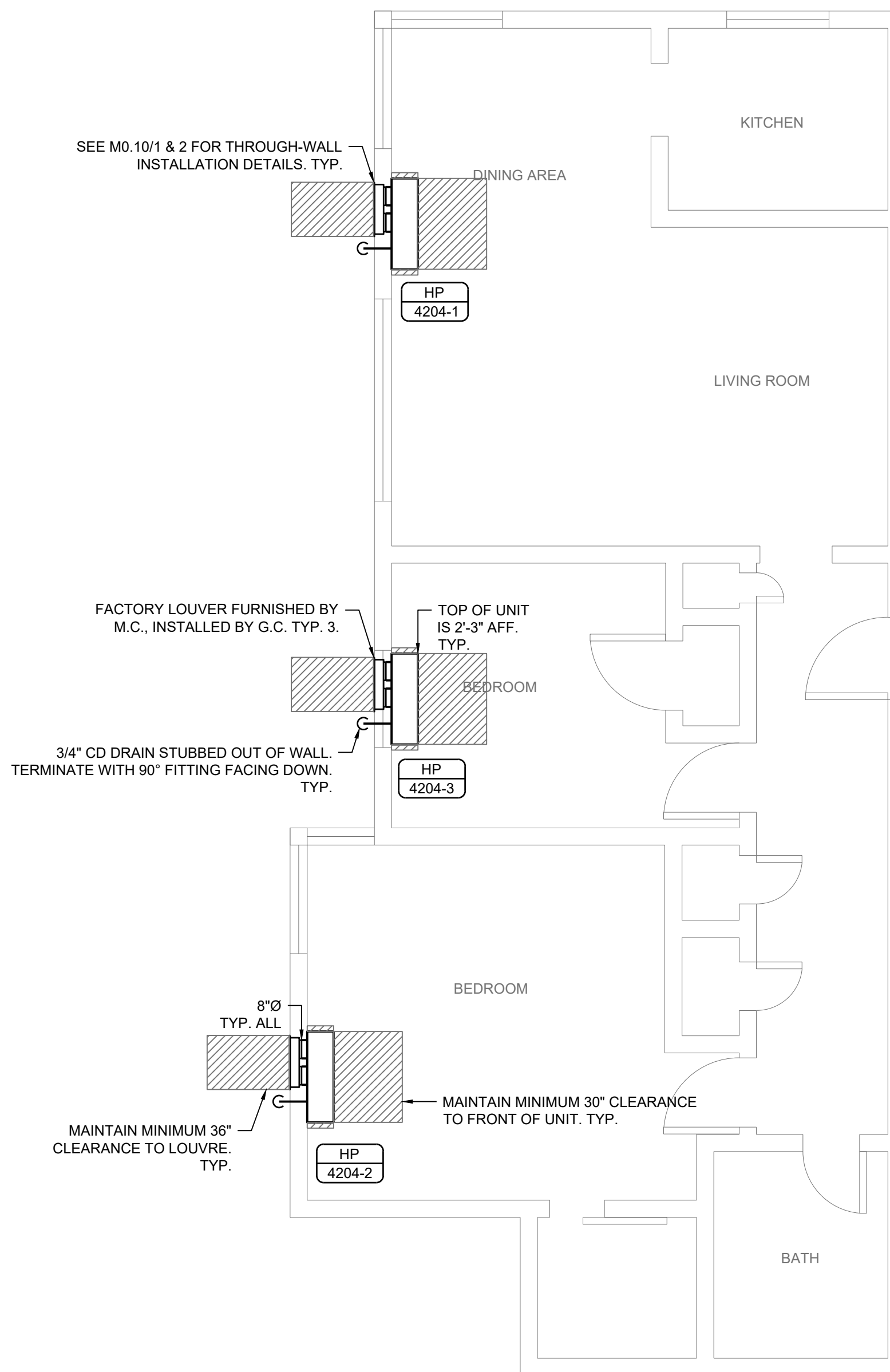
Title
UNIT 3302 & UNIT 4204 HVAC PLAN

Designed By A. CEARNS	Checked By T. TOUTONGHI
Drawn By 60940490	Project Manager AS SHOWN
Job Number	Scale

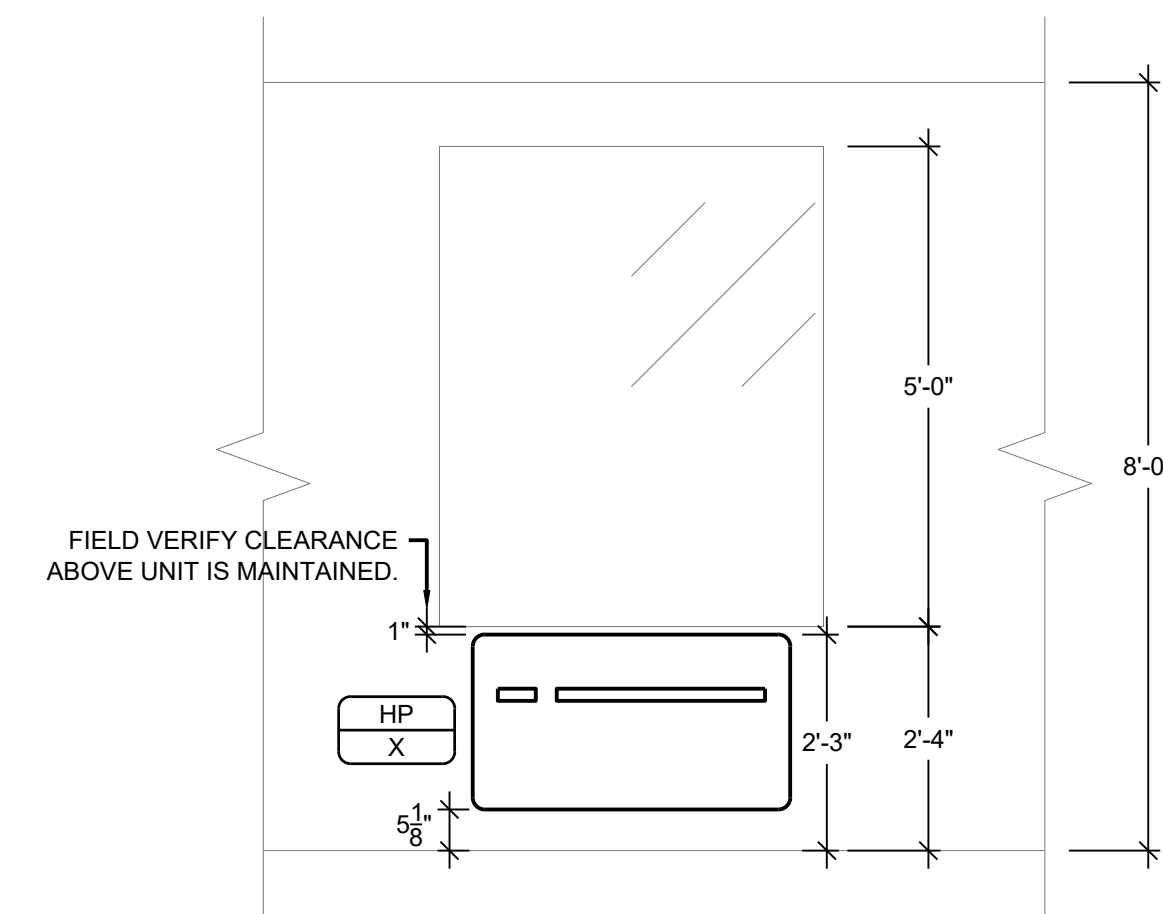
M1.01



UNIT 3302 HVAC PLAN
1/4"=1'-0"



UNIT 4204 HVAC PLAN
1/4"=1'-0"



1 TYPICAL ELEVATION VIEW
1/2"=1'-0"

SHEET NOTES

- ALL UNITS SHALL BE LOCATED IN THE BUILDING INTERIOR. NO SCREENING IS REQUIRED PER MERCER ISLAND MUNICIPAL CODE 19.12.060.
- EXTERIOR LOUVERS SHALL BE PAINTED TO MATCH THE BUILDING EXTERIOR BY OTHERS.