

MECHANICAL SYMBOLS

PIPING

HYDRONIC PIPING

HEATING HOT WATER SUPPLY PIPING

HEATING HOT WATER RETURN PIPING

SNOWMELT WATER SUPPLY PIPING

SNOWMELT WATER RETURN PIPING

CONDENSATE DRAIN PIPING

DIRECT DIGITAL CONTROLS

TEMPERATURE SENSOR WITH THERMOWELL

DUCT MOUNTED TEMPERATURE SENSOR

LOW LIMIT TEMPERATURE SENSOR

DIFFERENTIAL PRESSURE SENSOR

DIFFERENTIAL PRESSURE TRANSMITTER

HI/LO DIFFERENTIAL PRESSURE TRANSMITTER

AIR FLOW STATION

HOT WATER HEATING COIL

DX COOLING COIL

VALVES / SYMBOLS

DIRECTION OF FLOW IN PIPING

TWO WAY CONTROL VALVE

THREE WAY CONTROL VALVE

BUTTERFLY VALVE

GLOBE VALVE

BALANCING VALVE

SOLENOID VALVE

CONTROL VALVE

THERMOSTATIC MIXING VALVE

TRIPLE DUTY VALVE WITH PRESSURE PORTS

CHECK VALVE

STRAINER

STRAINER WITH BLOWOFF

RELIEF/SAFETY VALVE

PRESSURE REDUCING VALVE

SIGHT GLASS

BALL VALVE

3/4" BALL DRAIN VALVE WITH 3/4" HOSE CONNECTION AND CAP ON CHAIN

THERMOSTATIC TRAP

F&T TRAP

GATE VALVE

PRESSURE GAUGE

PRESSURE GAUGE WITH PIGTAIL

THERMOMETER, THERMOMETER W/ TEST WELL

PRESSURE/TEMPERATURE PORT

UNION

FLANGE CONNECTION

PIPING ELBOW UP

PIPING ELBOW DOWN

PIPING TEE UP

PIPING TEE DOWN

PIPING CAP

GAUGE COCK

WATER HAMMER ARRESTOR

PIPING REDUCER

PRESSURE REGULATING VALVE

FLEXIBLE CONNECTOR

AUTOMATIC AIR VENT

PRESSURE SWITCH

TEMPERATURE SENSOR

DIFFERENTIAL PRESSURE SENSOR

NOTE: ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS.

LINEAR SLOT DIFFUSER

INSULATED FLEXIBLE DUCT (MAXIMUM 6'-0" LONG)

BRANCH DUCT WITH 45° TAP AND MANUAL VOLUME DAMPER

BRANCH DUCT WITH CONICAL FITTING AND MANUAL VOLUME DAMPER

ELBOW WITH TURNING VANES

SUPPLY OR OUTSIDE AIR DUCT UP

SUPPLY OR OUTSIDE AIR DUCT DOWN

RETURN OR TRANSFER AIR DUCT UP

RETURN OR TRANSFER AIR DUCT DOWN

EXHAUST AIR DUCT UP

EXHAUST AIR DUCT DOWN

TYPE, DUCT SIZE, CFM AT SUPPLY DIFFUSER OR REGISTER

TYPE, DUCT SIZE, CFM AT RETURN GRILLE OR REGISTER

TYPE, DUCT SIZE, CFM AT EXHAUST GRILLE OR REGISTER

MANUAL VOLUME DAMPER

SQUARE TO ROUND TRANSITION

THERMOSTAT

CARBON DIOXIDE SENSOR

CARBON MONOXIDE SENSOR

TEMPERATURE SENSOR

FIRE DAMPER

FIRE/SMOKE DAMPER

SMOKE DAMPER

MOTORIZED DAMPER

ROUND/OVAL DUCT RISER

RECTANGULAR DUCT (PLAN DIMENSION SHOWN FIRST)

ROUND DUCT

FLEXIBLE DUCT

TRANSITION IN DUCT SIZE

OPPOSED BLADE DAMPER

PARALLEL BLADE DAMPER

ABBREVIATIONS

A/C

AFF

AHU

BOD

BOP

BOS

BTU

CFM

CU

CUH

(D)

DB

DDC

DN

DX

(E)

EAT

EDB

EF

ERV

EWB

EWI

FCU

FD

FSD

GPM

IN WC

LAT

LRA

LWT

MAU

MBH

MCA

MFR

(N)

N/A

NC

NO

OA

PH/Ø

PRV

(R)

RA

RH

RLA

RPM

SA

SD

SF

SP

SS

ST

TA

TD

TDH

TSTAT

TYP

UH

VAV

W

W/O

WB

WC

WPD

AIR CONDITIONING

ABOVE FINISHED FLOOR

AIR HANDLING UNIT

BOTTOM OF DUCT

BOTTOM OF PIPE

BOTTOM OF STRUCTURE

BRITISH THERMAL UNIT

CUBIC FEET PER MINUTE

CONDENSING UNIT

CABINET UNIT HEATER

DEMOLISHED

DRY BULB

DIRECT DIGITAL CONTROL

DOWN

DIRECT EXPANSION

EXISTING TO REMAIN

ENTERING AIR TEMPERATURE

ENTERING DRY BULB

EXHAUST FAN

ENERGY RECOVERY VENTILATOR

ENTERING WET BULB

ENTERING WATER TEMPERATURE

FAN COIL UNIT

FIRE DAMPER

FIRE/SMOKE DAMPER

GALLONS PER MINUTE

INCHES OF WATER COLUMN

LEAVING AIR TEMPERATURE

LOCKED ROTOR AMPS

LEAVING WATER TEMPERATURE

MAKE UP AIR UNIT

1000 BTU PER HOUR

MINIMUM CIRCUIT AMPACITY

MANUFACTURER

NEW

NOT APPLICABLE

NOISE CRITERIA, NORMALLY CLOSED

NORMALLY OPEN

OUTSIDE AIR

PHASE

PRESSURE REDUCING VALVE

RELOCATED EXISTING

RETURN AIR

RELATIVE HUMIDITY

RUNNING LOAD AMPS

REVOLUTIONS PER MINUTE

SUPPLY AIR

SMOKE DAMPER

SQUARE FEET, SUPPLY FAN

STATIC PRESSURE

STAINLESS STEEL

SOUND TRAP

TRANSFER AIR OPENING

TRANSFER DUCT

TOTAL DYNAMIC HEAD

THERMOSTAT

TYPICAL

UNIT HEATER

VARIABLE AIR VOLUME

WITH

WITHOUT

WET BULB

WATER COLUMN

WATER PRESSURE DROP

MECHANICAL GENERAL NOTES

1. THE PLANS ARE, TO A GREAT EXTENT, DIAGRAMMATIC IN NATURE. DRAWING SCALES SHOULD BE VERIFIED FROM DIMENSIONS ON ARCH. PLANS. THE INFORMATION PRESENTED IS AS EXACT AS COULD BE SECURED. THE CONTRACTOR SHALL OBTAIN EXACT LOCATION, MEASUREMENTS LEVELS, ETC., AT THE SITE AND SHALL SATISFACTORILY ADAPT THE WORK TO THE ACTUAL CONDITIONS AT THE PROJECT SITE.

2. CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMITTING A BID TO COVER THE CONDITIONS AT THE SITE INFORMING THEMSELVES OF ALL DETAILS.

3. ALL WORK SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, ACTS AND ORDINANCES, AND ALL AUTHORITIES HAVING JURISDICTION.

4. THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL ENGINEERING REQUIREMENTS, THE OWNER'S DESIGN CRITERIA, UTILITY COMPANY REQUIREMENTS, APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY, AND THE MANUFACTURER'S STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.

5. RECORD DRAWINGS - PREPARE AND SUBMIT TO THE OWNER RECORD DRAWINGS INDICATING THE EXACT LOCATION OF ALL EQUIPMENT INCLUDING THE EQUIPMENT'S "AS INSTALLED" SIZE(S), MANUFACTURER, MODEL NUMBERS, AND PERFORMANCE RATINGS.

6. SUPPORTS - EQUIPMENT, PIPING, DUCTWORK OR ANY OTHER ACCESSORY SHALL NOT BE SUPPORTED FROM OTHER PIPING, DUCTWORK, METAL ROOF DECK, LATERAL BRACING BRIDGING, OR CONDUIT. ITEMS SHALL ONLY BE SUPPORTED FROM BUILDING STRUCTURE.

7. COORDINATE EXACT LOCATION OF ALL DUCTWORK, AIR TERMINAL UNITS, PIPING, ETC., WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, AND OTHER MECHANICAL SYSTEMS.

8. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL MECHANICAL SERVICES AND OVERHEAD EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.

9. ALL DUCTWORK, PIPING, AND TEMPERATURE CONTROL CONDUIT TO VIBRATING EQUIPMENT SHALL HAVE FLEXIBLE CONNECTORS.

10. COORDINATE ALL ROOF AND CHASE PENETRATIONS WITH STRUCTURAL DRAWINGS AND ROOF INSTALLER.

11. THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.

12. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.

13. CONCRETE HOUSEKEEPING PADS TO SUIT MECHANICAL EQUIPMENT SHALL BE SIZED AND LOCATED BY THE MECHANICAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE 4 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6 INCHES ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS WITH GENERAL CONTRACTOR.

14. PROVIDE MINIMUM 36" ACCESS CLEARANCE TO ALL MAINTENANCE PANELS.

15. CONTRACTOR TO COORDINATE DUCTWORK WITH FIRE RATED WALLS AND FLOORS SHOWN ON ARCHITECTURAL DRAWINGS, MAINTAINING NECESSARY RATING OF WALLS. CONTRACTOR IS RESPONSIBLE FOR ALL CONNECTIONS TO SMOKE-FIRE DAMPERS.

16. ALL SA DUCT BRANCH TAKE-OFFS TO DIFFUSER TO BE SAME SIZE AS DIFFUSER NECK UNLESS OTHERWISE NOTED.

17. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS. DUCT SIZING AND DESIGN IN ACCORDANCE WITH ACCA MANUAL D OR EQUIVALENT.

18. PROVIDE MIN. OF 5'-0" OF DUCT FROM ROOM ERV AND/OR HEAT PUMP TO FIRST DIFFUSER TAKE-OFFS.

19. CONTRACTOR SHALL COORDINATE LOCATION OF ALL DIFFUSERS AND GRILLES WITH STRUCTURAL, ELECTRICAL, AND ARCHITECTURAL REFLECTED CEILING PLANS.

20. PROVIDE SIZES AND NUMBER OF REFRIGERANT LINES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

21. BEFORE INSTALLATION, EQUIPMENT CONTRACTOR SHALL VERIFY THAT COILS CAN BE REMOVED WITHOUT INTERFERENCE. CONTRACTOR SHALL PROVIDE ADEQUATE ACCESS AND COIL REMOVAL SPACE FOR ALL EQUIPMENT.

22. ACCESS PANELS ARE REQUIRED (MIN. 18"X18") FOR ACCESS TO EVERY VALVE, DAMPER, AIR TERMINAL UNIT, AND CONTROL SENSOR IF NOT OTHERWISE ACCESSIBLE.

23. PROJECT IS ASSIGNED A DESIGN CRITERIA FOR SEISMIC DESIGN CATEGORY: "C". IN ACCORDANCE WITH 2018 IBC, ROUTT COUNTY AMENDMENTS, AND ASCE 7-16, COMPONENTS POSITIVELY ATTACHED TO THE STRUCTURE, AT AN IMPORTANCE FACTOR OF 1.0 AND WITHIN SEISMIC DESIGN CATEGORY C SHALL BE EXEMPT FROM SEISMIC DESIGN REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION AND FOR EXACT SEISMIC DESIGN AND LOAD INFORMATION.

PIPE INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION MATERIAL	PIPE SIZE	INSULATION THICKNESS	NOTES
HEATING SYSTEM (105° - 200°)	INDOOR ABOVE GROUND	FIBERGLASS ASTM C 547, CLASS 1	≤ 1-1/4 INCHES	1-1/2 INCHES	
HEATING SYSTEM (105° - 200°)	INDOOR ABOVE GROUND	FIBERGLASS ASTM C 547, CLASS 1	≥ 1-1/2 INCHES	2 INCHES	
HEATING SYSTEM (105° - 200°)	OUTDOOR ABOVE GROUND	CELLULAR GLASS ASTM C 552, TYPE II, CLASS 2	≤ 1-1/4 INCHES	2 INCHES	
HEATING SYSTEM (105° - 200°)	OUTDOOR ABOVE GROUND	CELLULAR GLASS ASTM C 552, TYPE II, CLASS 2	≥ 1-1/2 INCHES	2-1/2 INCHES	
CONDENSER SYSTEM (40° - 90°)	INDOOR ABOVE GROUND	NONE REQUIRED	--	--	
CONDENSER SYSTEM (40° - 90°)	OUTDOOR ABOVE GROUND	CELLULAR GLASS ASTM C 552, TYPE II, CLASS 2	≤ 1-1/4 INCHES	1-1/2 INCHES	
CONDENSER SYSTEM (40° - 90°)	OUTDOOR ABOVE GROUND	CELLULAR GLASS ASTM C 552, TYPE II, CLASS 2	≥ 1-1/2 INCHES	2 INCHES	

DUCT INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION MATERIAL	INSULATION THICKNESS	NOMINAL DENSITY	NOTES
SUPPLY-AIR DUCT RECTANGULAR/ROUND	INDOOR: CONCEALED	MINERAL-FIBER BLANKET INSULATION	1-1/2 INCHES	3/4-LB/CU.FT.	
SUPPLY-AIR DUCT RECTANGULAR/ROUND	INDOOR: EXPOSED	MINERAL-FIBER BLANKET INSULATION / INTERNALLY LINED FIBROUS GLASS, TYPE I	1-1/2 INCHES	3-LB/CU.FT.	
RETURN-AIR DUCT RECTANGULAR/ROUND	INDOOR: ALL	-	-	-	1
OUTDOOR-AIR DUCT (LOUVER TO ERV)	INDOOR: ALL	MINERAL-FIBER BOARD	3 INCHES	3-LB/CU.FT.	
EXHAUST-AIR DUCT (LOUVER TO ERV)	INDOOR: ALL	MINERAL-FIBER BOARD	3 INCHES	3-LB/CU.FT.	2
SUPPLY-AIR PLENUM	INDOOR: ALL	MINERAL-FIBER BOARD	1-1/2 INCHES	3-LB/CU.FT.	
RETURN-AIR PLENUM	INDOOR: ALL	NONE	-	-	
OUTDOOR-AIR PLENUM	INDOOR: ALL	MINERAL-FIBER BOARD	3 INCHES	3-LB/CU.FT.	
EXHAUST-AIR PLENUM	INDOOR: ALL	MINERAL-FIBER BOARD	3 INCHES	3-LB/CU.FT.	

1. NOT INSULATED UNLESS NOTED ON CONSTRUCTION DOCUMENTS.  
2. PROVIDE EXHAUST-AIR DUCT INSULATION 5 FEET BEFORE THE ISOLATION DAMPER AND BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR SHALL BE FOR EXHAUST SYSTEMS CONNECTED TO EXHAUST FANS. MINERAL-FIBER BLANKET, 1-1/2 INCHES THICKNESS, AND 3/4-LB/CU.FT. NOMINAL DENSITY.

MOUNTING HEIGHTS U.N.O

THERMOSTATS (USER ADJ.)

CONTROLS (CENTERLINE)

48" (ADA)/ 60"

48" (ADA)/ 60"

MECHANICAL SHEET LIST

SHEET NUMBER	SHEET NAME
M0.01	MECHANICAL LEGEND AND NOTES
M0.02	MECHANICAL SCHEDULES
M0.03	MECHANICAL SCHEDULES
M0.04	MECHANICAL SCHEDULES
M0.05	MECHANICAL SCHEDULES
M0.10	MECHANICAL SITE PLAN
M1.00	MECHANICAL PLAN LEVEL 0
M1.01	MECHANICAL PLAN LEVEL 1
M1.02	MECHANICAL PLAN LEVEL 2
M1.03	MECHANICAL PLAN LEVEL 3
M1.04	MECHANICAL PLAN LEVEL 4
M1.05	MECHANICAL PLAN LEVEL 5
M1.06	MECHANICAL PLAN ROOF
M2.00	ENLARGED MECHANICAL PLAN
M2.01	MECHANICAL UNIT PLANS - 1 BED & 105
M2.02	MECHANICAL UNIT PLANS - 2 BED
M2.03	MECHANICAL UNIT PLANS - 3 BED
M2.04	MECHANICAL UNIT PLANS - 111
M2.05	MECHANICAL UNIT PLANS - 104, 204, 304
M2.06	MECHANICAL UNIT PLANS - 201 & 301
M2.07	MECHANICAL UNIT PLANS - 211 & 311
M2.08	MECHANICAL UNIT PLANS - 401
M2.09	MECHANICAL UNIT PLANS - 404
M2.10	MECHANICAL UNIT PLANS - 406
M2.11	MECHANICAL UNIT PLANS - 407, 409, 410
M2.12	MECHANICAL UNIT PLANS - 408
M2.13	MECHANICAL UNIT PLANS - 411
M5.01	MECHANICAL SCHEMATICS
M5.02	MECHANICAL CONTROLS
M6.00	MECHANICAL DETAILS
M6.01	MECHANICAL DETAILS

REVISIONS

No.	Description	Date
3	IFC UPDATES	03/15/2024
6	RFI #16	04/02/2024
9	RFI #2	04/28/2024
14	RFI #97	06/07/2024

PROJECT NUMBER

20019

ISSUE DATE

09/19/2024

ISSUE

IFC SET

SHEET TITLE

MECHANICAL LEGEND AND NOTES

SHEET NO.

M0.01

TOWN STAMP

359 DESIGN

3000 CHASE STREET  
DENVER, CO 80211  
703.532.0407

DAKE COLLABORATIVE

COLORADO LICENSED  
MECHANICAL ENGINEER  
LOGAN D. DAKE  
51834

DISCIPLINE STAMP

REVIEWED FOR CODE COMPLIANCE 06/24/2025

The Amble Steamboat Springs, CO



FAN SCHEDULE					PROJECT ALTITUDE: 7,200 FEET ABOVE SEA LEVEL									
MARK	MANUFACTURER	MODEL	SERVES	TYPE	FLOWRATE (CFM)	ESP (IN. WC.)	MOTOR SIZE (HP)	SPEED (RPM)	DRIVE	BACKDRAFT DAMPER	WEIGHT (LBS)	POWER (VOLTS/ PHASE/ HZ)	NOTES	
GF-B-01	GREEHECK	SQ-120	GARAGE INTAKE FAN LOW FLOW	INLINE	850	0.25	3/4	815	DIRECT	MOTORIZED	60	208/3/60	2-5, 10	
GF-B-02A	GREEHECK	BSQ-240	GARAGE INTAKE FAN HIGH FLOW	INLINE	6,350	0.25	1	722	BELT	MOTORIZED	227	460/60/3	1-5, 10	
GF-B-02B	GREEHECK	BSQ-240	GARAGE INTAKE FAN HIGH FLOW	INLINE	6,350	0.25	1	722	BELT	MOTORIZED	227	460/60/3	1-5, 10	
GF-B-03	GREEHECK	SQ-120	GARAGE EXHAUST FAN LOW FLOW	INLINE	850	0.25	1/3	860	DIRECT	MOTORIZED	60	208/3/60	2-5, 10	
GF-B-04A	GREEHECK	BSQ-240	GARAGE EXHAUST FAN HIGH FLOW	INLINE	6,350	0.25	1	722	BELT	MOTORIZED	227	460/60/3	1-5, 10	
GF-B-04B	GREEHECK	BSQ-240	GARAGE EXHAUST FAN HIGH FLOW	INLINE	6,350	0.25	1	722	BELT	MOTORIZED	227	460/60/3	1-5, 10	
TF-B-01	GREEHECK	SQ-130	MECHANICAL ROOM	INLINE	1,000	0.10	3/4	830	DIRECT	MOTORIZED	60	208/3/60	2.5,6	
TF-B-02	GREEHECK	SQ-90-VG	TRASH ROOM	INLINE	150	0.10	1/10	767	DIRECT	NONE	49	120/1/60	2.5,6	
TF-B-03	GREEHECK	SQ-120	ELECTRICAL ROOM	INLINE	850	0.10	3/4	868	DIRECT	MOTORIZED	60	208/3/60	2.5,6	
TF-B-04	GREEHECK	SQ-100-VG	STORAGE ROOM	INLINE	400	0.30	1/4	679	DIRECT	MOTORIZED	45	120/1/60	2.5,6	
TF-B-05	GREEHECK	SQ-100-VG	TANK ROOM	INLINE	400	0.10	1/4	679	DIRECT	MOTORIZED	45	120/1/60	2.5,6	
TF-1-01	GREEHECK	CSP-A510-VG	MECH/ELEC ROOM	INLINE	100	0.10	1/10	920	DIRECT	NONE	36	120/1/60	2.5,6	
TF-2-01	GREEHECK	CSP-A510-VG	MECH/ELEC ROOM	INLINE	100	0.10	1/10	920	DIRECT	NONE	36	120/1/60	2.5,6	
TF-3-01	GREEHECK	CSP-A510-VG	MECH/ELEC ROOM	INLINE	100	0.10	1/10	920	DIRECT	NONE	36	120/1/60	2.5,6	
TF-4-01	GREEHECK	CSP-A510-VG	MECH/ELEC ROOM	INLINE	100	0.10	1/10	920	DIRECT	NONE	36	120/1/60	2.5,6	
EF-B-01	GREEHECK	RDU-48-630-VG	ROOF	UPBLAST	28,000	0.30	10	793	DIRECT	MOTORIZED	613	460/3/60	7	
EF-B-02	GREEHECK	RDU-48-630-VG	ROOF	UPBLAST	28,000	0.30	10	793	DIRECT	MOTORIZED	613	460/3/60	7	
EF-B-03	GREEHECK	RDU-48-630-VG	ROOF	UPBLAST	28,000	0.30	10	793	DIRECT	MOTORIZED	613	460/3/60	7	
EF-1-01	PANASONIC	FV-0511VFL1	LEVEL 1 BATHROOM	CEILING	50 / 100	0	-	-	-	NONE	5	120/1/60	-	
NOTES:														
1. INTERLOCK FANS TOGETHER, CONTROL FANS IN TANDEM					5. PROVIDE WITH SPRING ISOLATION					9. INTERLOCK FAN WITH AWWP-3				
2. ALUMINUM CONSTRUCTION					6. PROVIDE WITH INTEGRAL SHUTOFF SWITCH					10. N/A				
3. N/A					7. INTERLOCK FAN WITH AWWP-1									
4. INTERLOCK WITH CARBON MONOXIDE AND NITROUS OXIDE DETECTOR					8. INTERLOCK FAN WITH AWWP-2									

LOUVER SCHEDULE											
MARK	LOCATION	MANUFACTURER	MODEL	SERVES	AIRFLOW (CFM)	MIN. FREE AREA (SQ. FT.)	SIZE WxH (IN)	ACTUAL FREE AREA (SQ. FT.)	MAX FREE AREA (PFM)	CALCULATED FACE VELOCITY (FFM)	NOTES
L-1	GARAGE	GREENHECK	ESD-635	INTAKE HIGH VOLUME AIR	12,700	25.4	120x54	27.0	500	470	1,2
L-2	GARAGE	GREENHECK	ESD-635	EXHAUST HIGH VOLUME AIR	12,700	14.1	90x42	15.0	900	847	1,2
L-3	GENERATOR	GREENHECK	ESD-635	EXHAUST GENERATOR ENCLOSURE	6,360	7.1	96x24	7.6	900	834	1,2
L-4	GENERATOR	GREENHECK	ESD-635	INTAKE GENERATOR ENCLOSURE	6,360	9.1	114x24	9.0	700	706	1,2
L-5	MECH ATTIC	GREENHECK	ESD-635	INTAKE MECHANICAL MEZZANINE	42,000	46.7	84x120	45.8	900	917	1,2
L-6	MECH ATTIC	GREENHECK	ESD-635	INTAKE MECHANICAL MEZZANINE	42,000	46.7	220x54	48.3	900	870	1,2
L-7	MECH ATTIC	GREENHECK	ESD-635	EXHAUST MECHANICAL MEZZANINE	1,400	1.6	24x24	1.8	900	791	1,3
L-8	GARAGE	GREENHECK	ESD-635	INTAKE BASEMENT SKI LOCKERS	750	1.5	36x18	1.7	500	431	1,2
L-9	LIVING UNITS	XVENT	6SEB-5	EXHAUST AT LIVING UNITS	150	0.2	12x10	0.2	900	750	2,3
L-10	LIVING UNITS	GREENHECK	SED-501	INTAKE AT LIVING UNITS	150	0.3	12x12	0.3	500	500	2,3
L-11	LIVING UNITS	GREENHECK	ESD-635	EXHAUST AT GARAGE	1,150	1.3	24x24	1.8	900	650	2,3
NOTES:											
1. FLANGE FRAME, BIRD SCREEN, DRAINABLE BLADES, AND MOTORIZED DAMPER. 2. REFER TO ARCHITECTURAL LOUVER SPECIFICATIONS FOR FINISH 3. PROVIDE WITH BACKDRAFT DAMPER											

DIFFUSER, GRILLE, & REGISTER SCHEDULE								
MARK	MANUFACTURER	MODEL	FACE SIZE	MATERIAL	DESCRIPTION	MOUNTING TYPE	COLOR	NOTES
SD-1	PRICE	SCD	12x12	STEEL	CONE DIFFUSER	CEILING	WHITE	1
SD-2	PRICE	SCD	24x24	STEEL	CONE DIFFUSER	CEILING	NOTE 2	1
SD-3	PRICE	600	SEE PLANS	STEEL	LOUVERED DIFFUSER	FACE	WHITE	1
USD-1	PRICE	LSD	48 IN	STEEL	LINEAR SLOT DIFFUSER	CEILING	NOTE 2	1
USD-2	PRICE	LSD	60 IN	STEEL	LINEAR SLOT DIFFUSER	CEILING	NOTE 2	1
RG-1	PRICE	80	12x12	STEEL	EGG CRATE RETURN GRILLE	CEILING	WHITE	
RG-2	PRICE	80	24x24	STEEL	EGG CRATE RETURN GRILLE	CEILING	WHITE	
RG-3	PRICE	600FF	SEE PLANS	STEEL	LOUVERED RETURN GRILLE	FACE	NOTE 2	1, 3
TG-1	PRICE	600	SEE PLANS	ALUMINUM	LOUVERED TRANSFER GRILLE	FACE	NOTE 2	
EG-1	PRICE	600	SEE PLANS	ALUMINUM	LOUVERED EXHAUST GRILLE	FACE	WHITE	1
NOTES:								
1. PROVIDE WITH BALANCING DAMPER								
2. REFER TO ARCHITECT FOR FINISH COLOR								
3. MODEL INCLUDES FILTER FRAME								

RADIANT HEAT MANIFOLD SCHEDULE																
MARK	LOOP NUMBER	LOCATION	SYSTEM SERVED	GROUND COVERAGE AREA (SF)	HEATING CAPACITY (BTU/SF)	TUBE SIZE - DIAMETER (IN)	TUBE SPACING (IN)	ZONE HEATING LOAD (BTU/H)	ACTIVE LENGTH (FT)	FLUID TYPE	FLUID MIXTURE	FLOWRATE (GPM)	ENTERING WATER TEMPERATURE (°F)	LEAVING WATER TEMPERATURE (°F)	PRESSURE DROP (FT HEAD)	NOTES
RHM-01	1	MECH ROOM	SNOWMELT - POOL DECK WEST	167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	2			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	3			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	4			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	5			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	6			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
RHM-01 SUMMARY				1,002	150			150,300	2,220	PROPYLENE GLYCOL	50%	14.4	135	110	30	
RHM-02	1	MECH ROOM	SNOWMELT - POOL DECK EAST	167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	2			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	3			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	4			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	5			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
	6			167	150	3/4	6	25,050	370	PROPYLENE GLYCOL	50%	2.4	135	110	30	ALL
RHM-02 SUMMARY				1,002	150			150,300	2,220	PROPYLENE GLYCOL	50%	14.4	135	110	30	
RHM-03	1	GARAGE ENTRANCE	SNOWMELT - GARAGE DRIVE	190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	2			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	3			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	4			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	5			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	6			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	7			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
	8			190	150	3/4	6	28,500	370	PROPYLENE GLYCOL	50%	2.7	135	110	30	ALL
RHM-03 SUMMARY				1,520	150			228,000	2,940	PROPYLENE GLYCOL	50%	21.6	135	110	30	
NOTES:																
1. SNOW MELT SYSTEM SHALL BE DESIGNED BY CONTRACTOR USING THESE MECHANICAL DRAWINGS FOR DESIGN INTENT.																

CABINET UNIT HEATER SCHEDULE													
MARK	LOCATION	MANUFACTURER	MODEL	TYPE	MOUNTING TYPE	AIRFLOW (CFM)	HEATING OUTPUT (MBH)	COIL TYPE	COIL SIZE (KW)	MOTOR SIZE	POWER (VOLTS/ PHASE/ HZ)	WEIGHT	NOTES
CUH-B-01	LOCKER ROOM	TRANE	MODEL E	HORIZONTAL	CEILING RECESSED	300	20	ELECTRIC	5.8	120.0	208/1/60	85	ALL
CUH-1-01	LEVEL 1 VESTIBULE	TRANE	MODEL E	HORIZONTAL	CEILING RECESSED	300	20	ELECTRIC	5.8	120.0	208/1/60	85	ALL
CUH-1-02	LOBBY NORTH	TRANE	MODEL E	HORIZONTAL	CEILING RECESSED	300	20	ELECTRIC	5.8	120.0	208/1/60	85	ALL
CUH-1-03	LOBBY WEST	TRANE	MODEL H	VERTICAL	WALL RECESSED	300	20	ELECTRIC	5.8	120.0	208/1/60	85	ALL
CUH-1-04	EAST ENTRANCE	TRANE	MODEL E	HORIZONTAL	CEILING RECESSED	300	20	ELECTRIC	5.8	120.0	208/1/60	85	ALL
NOTES:													
1. PROVIDE FILTERS WITH UNIT													
2. HIGH STATIC MOTOR													
3. COLOR SELECTION BY ARCHITECT													
4. PROVIDE WITH INTERNAL TEMPERATURE SENSOR													
5. PROVIDE WITH MERV 13 FILTER													

UNIT HEATER SCHEDULE											
MARK	MANUFACTURER	MODEL	LOCATION	MOUNTING TYPE	FUEL TYPE	HEATING CAPACITY		ELECTRICAL LOAD (AMPS)	ELECTRICAL (VOLTS/ PHASE/ HZ)	WEIGHT (LBS)	NOTES
						(BTU/H)	(KW)				
UH-1	TRANE	UHEC	GARAGE	CEILING	ELECTRICITY	51,180	15	18	460/3/60	55	ALL
UH-2	TRANE	UHEC	GARAGE	CEILING	ELECTRICITY	51,180	15	18	460/3/60	55	ALL
UH-3	TRANE	UHEC	GARAGE	CEILING	ELECTRICITY	51,180	15	18	460/3/60	55	ALL
UH-4	TRANE	UHEC	ELEC ROOM	CEILING	ELECTRICITY	11,260	3	16	208/1/60	27	ALL
NOTES:											
1. PROVIDE WITH WALL MOUNT TEMPERATURE CONTROL. CONNECT INTO BAS SYSTEM.											

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WATER TO WATER HEAT PUMP SCHEDULE																									
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	TYPE	LOCATION	SOURCE (CONDENSER) WATER TOTAL								LOAD WATER TOTAL				HEATING CAPACITY OUTPUT (KWH)	REFRIGERANT CHARGE	ELECTRICAL (VOLTS/ PHASE/ HZ)	MCA	MOCP	SIZE (LxWxH) (IN)	OPERATING WEIGHT (LBS)	NOTES
						FLUID TYPE	WATER FLOWRATE (GPM)	HEAD PRESSURE (FT.)	SUMMER		WINTER		FLUID TYPE	MAX FLOWRATE (GPM)	EWT	LWT (F)									
									EWT (F)	LWT (F)	EWT	LWT (F)				F	F								
WWHP-1A	COLMAC	CxW-1S	DOMESTIC HOT WATER LOOP	WATER TO WATER HEAT PUMP	BASEMENT MECHANICAL ROOM	WATER	25.0	12.00	90	78	72	60	WATER	12	40	150	155	12.75 (R513A)	460/3/60	42	50	58x31x39	976	1,3,4,5,7	
WWHP-1B	COLMAC	CxW-1S	DOMESTIC HOT WATER LOOP	WATER TO WATER HEAT PUMP	BASEMENT MECHANICAL ROOM	WATER	25.0	12.00	90	78	72	60	WATER	12	40	150	155	12.75 (R513A)	460/3/60	42	50	58x31x39	976	1,3,4,5,7	
WWHP-2	CLIMACCOOL	UCH050	SNOWMELT SYSTEM	WATER TO WATER HEAT PUMP	BASEMENT MECHANICAL ROOM	WATER	110.0	11.80	78	62	72	60	WATER	78	110	135	530	49 (R454B)	460/3/60	96	150	35x69x80	2,800	2,3,6,8	
WWHP-3	CLIMACCOOL	UCH050	POOL	WATER TO WATER HEAT PUMP	BASEMENT MECHANICAL ROOM	WATER	120.0	14.00	78	62	72	60	WATER	88	84	104	768	49 (R454B)	460/3/60	96	150	35x69x80	2,800	2,3,6,8	
WWHP-4	CLIMACCOOL	UWU030AF	SPA	WATER TO WATER HEAT PUMP	BASEMENT MECHANICAL ROOM	WATER	74.0	11.00	78	62	72	60	WATER	75	105	115	308	27 (R454B)	460/3/60	69	100	35x69x80	2,000	2,3,6,8	
NOTES:																									
1. INTERNAL LOAD SIDE HEAT EXCHANGER SHALL BE DOUBLE WALL BRAZED PLATE AND SUITABLE FOR USE WITH POTABLE WATER, SCROLL COMPRESSORS, AND MOUNTING SKID													5. HEAT PUMPS OPERATE IN SINGLE-PASS CONFIGURATION												
2. INTERNAL LOAD SIDE HEAT EXCHANGER SHALL BE TITANIUM AND SUITABLE FOR USE WITH POOL/SPA WATER													6. HEAT PUMPS OPERATE IN MULTI-PASS CONFIGURATION												
3. PROVIDE WITH SCROLL COMPRESSORS													7. PROVIDE WITH MANUFACTURER'S STACKING KIT												
4. UNIT SHALL BE THIRD PARTY NSF-61 CERTIFIED FOR USE WITH POTABLE WATER SYSTEMS.													8. PROVIDE WITH MANUFACTURER PROVIDED RACKING SYSTEM WITH NEOPRENE PAD BELOW BASE AND BETWEEN UNITS												

AIR TO WATER HEAT PUMP SCHEDULE														PROJECT ALTITUDE: 7,200 FEET ABOVE SEA LEVEL													
MARK	MANUFACTURER	MODEL	SERVES	TYPE	HEAT PUMP CAPACITY - HEATING (MBH)				BACKUP HEATER SIZE BOOSTER (KW)	BACKUP HEATER SIZE REDUNDANT (KW)	HEATING INLET TEMP (° F)	HEATING OUTLET TEMP (° F)	WATER MAKEUP	TOTAL COOLING CAPACITY AT 90°F (MBH)	COOLING INLET TEMP (° F)	COOLING OUTLET TEMP (° F)	MAX FLOW RATE (GPM)	REF. TYPE	CHARGE (LBS)	DIMENSIONS			ELECTRICAL MCA	ELECTRICAL MOP	POWER (VOLTS/ PHASE/ HZ)	OPERATING WEIGHT (LBS)	NOTES
					AT AMBIENT TEMP -12°F	AT AMBIENT TEMP 0°F	AT AMBIENT TEMP 10°F	AT AMBIENT TEMP 15°F												LENGTH	WIDTH	HEIGHT					
A <sup>1</sup> WHP-01	QUANTECH	QTH1003S	CONDENSER WATER LOOP	ROOF MOUNTED	195	247	292	370	-	-	75	85	50% PPG	475	75	63	93.0	R454B	51.0	88.2	47.2	99.0	74	100	460/3/60	2,500	ALL
A <sup>2</sup> WHP-02	QUANTECH	QTH1003S	CONDENSER WATER LOOP	ROOF MOUNTED	195	247	292	370	-	-	75	85	50% PPG	475	75	63	93.0	R454B	51.0	88.2	47.2	99.0	74	100	460/3/60	2,500	ALL
A <sup>3</sup> WHP-03	QUANTECH	QTH1003S	CONDENSER WATER LOOP	ROOF MOUNTED	195	247	292	370	-	-	75	85	50% PPG	475	75	63	93.0	R454B	51.0	88.2	47.2	99.0	74	100	460/3/60	2,500	ALL
NOTES:																											
1. 19%-100% TURNDOWN														3. PROVIDE HEAT TRACING FOR WETTED PARTS													
2. PROVIDE WITH ICM 450A LINE VOLTAGE PHASE MONITORING DEVICE														4. PROVIDE WITH BMS COMMUNICATION													
3																											

BUILDING PUMP SCHEDULE											PROJECT ALTITUDE: 7,200 FEET ABOVE SEA LEVEL						
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	TYPE	LOCATION	MINIMUM FLOWRATE (GPM)	FLOWRATE (GPM)	FLUID TYPE	HEAD PRESSURE (FT.)	IMPELLER DIAMETER (IN)	PUMP EFFICIENCY (%)	MOTOR SIZE (HP)	SPEED (RPM)	ELECTRICAL (VOLTS/ PHASE/ HZ)	WEIGHT	NOTES	
P-1	BELL AND GOSSET	e-1510	CONDENSER WATER LOOP	BASE MOUNTED, END SUCTION	MECHANICAL ROOM		650	WATER	40			15.0		460/3/60		ALL	
P-2	BELL AND GOSSET	e-1510	CONDENSER WATER LOOP	BASE MOUNTED, END SUCTION	MECHANICAL ROOM		650	WATER	40			15.0		460/3/60		ALL	
P-3	BELL AND GOSSET	e-1510	UNIT HEAT PUMP LOOP	BASE MOUNTED, END SUCTION	MECHANICAL ROOM		300	WATER	70			10.0		460/3/60		ALL	
P-4	BELL AND GOSSET	e-1510	UNIT HEAT PUMP LOOP	BASE MOUNTED, END SUCTION	MECHANICAL ROOM		300	WATER	70			10.0		460/3/60		ALL	
P-5	BELL AND GOSSET	e-80SC	AWHP LOOP	INLINE	MECHANICAL ROOM		280	50% PPG	90			15.0		460/3/60		ALL	
P-6	BELL AND GOSSET	e-80SC	AWHP LOOP	INLINE	MECHANICAL ROOM		280	50% PPG	90			15.0		460/3/60		ALL	
P-7	BELL AND GOSSET	e-90	BOILER LOOP	INLINE	MECHANICAL ROOM		280	WATER	40			5.0		460/3/60		ALL	
P-8	BELL AND GOSSET	e-90	BOILER LOOP	INLINE	MECHANICAL ROOM		280	WATER	40			5.0		460/3/60		ALL	
P-9	BELL AND GOSSET	e-80SC	POOL LOOP	INLINE	MECHANICAL ROOM		100	WATER	55			3.0		460/3/60		ALL	
P-10	BELL AND GOSSET	e-80SC	POOL LOOP	INLINE	MECHANICAL ROOM		100	WATER	55			3.0		460/3/60		ALL	
P-11	BELL AND GOSSET	e-90	SPA LOOP	INLINE	MECHANICAL ROOM		70	WATER	55			2.0		460/3/60		ALL	
P-12	BELL AND GOSSET	e-90	SPA LOOP	INLINE	MECHANICAL ROOM		70	WATER	55			2.0		460/3/60		ALL	
P-13	BELL AND GOSSET	e-90	SNOWMELT LOOP	INLINE	MECHANICAL ROOM		80	WATER	90			5.0		460/3/60		ALL	
P-14	BELL AND GOSSET	e-90	SNOWMELT LOOP	INLINE	MECHANICAL ROOM		80	WATER	90			5.0		460/3/60		ALL	
P-15	BELL AND GOSSET	e-90	AWHP HX LOOP	INLINE	MECHANICAL ROOM		240	WATER	40			5.0		460/3/60		ALL	
P-16	BELL AND GOSSET	e-90	AWHP HX LOOP	INLINE	MECHANICAL ROOM		240	WATER	40			5.0		460/3/60		ALL	
NOTES:																	
1. PROVIDE WITH VFD WITH INTEGRAL DISCONNECT SWITCH AND BAS CONNECTION																	

BUFFER TANK SCHEDULE								
MARK	LOCATION	SYSTEM SERVED	MANUFACTURER	MODEL	CONNECTION SIZE (IN)	WEIGHT (LBS)	WORKING PRESSURE (PSI)	NOTES
BT-1	MECH ROOM	AIR SOURCE HEAT PUMP	WESSELS	CBT-500-4F	4	5,200	125	ALL
BT-2	MECH ROOM	SNOW MELT	WESSELS	CBT-120-3F	3	1,500	125	ALL
BT-3	MECH ROOM	POOL	WESSELS	CBT-120-3F	3	1,500	125	ALL
BT-4	MECH ROOM	SPA	WESSELS	CBT-60-2.5F	3	700	125	ALL
NOTES: 1. TO BE ASME RATED								

AIR SEPARATOR SCHEDULE								
MARK	LOCATION	SYSTEM SERVED	MANUFACTURER	MODEL	TANK DIAMETER (IN)	WEIGHT (LBS)	WORKING PRESSURE (PSI)	NOTES
AS-3	MECH ROOM	CONDENSER LOOP	AMTROL	6-AS	18	260	125	ALL
NOTES: 1. TO BE ASME RATED								

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER	MODEL	TYPE	MOUNTING ARRANGEMENT	TANK VOLUME (GAL)	SYSTEM VOLUME (GAL)	TANK DIAMETER (IN)	WORKING WEIGHT (LBS)	WORKING PRESSURE (PSI)	NOTES
ET-1	MECH ROOM	SNOWMELT	AMTROL	AX-10-DD	DIAPHRAGM TYPE	VERTICAL	6	256	12	63	125	ALL
ET-2	MECH ROOM	AIR SOURCE HEAT PUMP	AMTROL	AX-80(V)	DIAPHRAGM TYPE	VERTICAL	44	775	24	520	125	ALL
ET-3	MECH ROOM	CONDENSER LOOP	AMTROL	AX-20(V)-DD	DIAPHRAGM TYPE	VERTICAL	17	1,256	15	410	125	ALL
ET-4A	MECH ROOM	SPA	AMTROL	AX-10-DD	DIAPHRAGM TYPE	VERTICAL	6	887	12	63	125	ALL
ET-4B	MECH ROOM	POOL	AMTROL	AX-40-DD	DIAPHRAGM TYPE	VERTICAL	23	1,836	15	256	125	ALL
ET-5	MECH ROOM	DOMESTIC HOT WATER	AMTROL	ST-449C	DIAPHRAGM TYPE	VERTICAL	106	2,168	24	1,205	125	ALL
NOTES: 1. TANK TO BE ASME RATED												

THERMAL STORAGE TANK SCHEDULE (HYDRONIC)												
MARK	MANUFACTURER	MODEL	SERVES	TYPE	STORAGE CAPACITY (GAL)	INLET TEMPERATURE (° F)	OUTLET TEMPERATURE (° F)	HEATING ELEMENT (KW)	DIMENSIONS		OPERATING WEIGHT (LBS)	NOTES
									HEIGHT (IN)	DIAMETER (IN)		
ST-01A	A.O. SMITH	TJWHP-500A	HOT WATER HOLDING TANK	VERTICAL	450	60	90	NONE	100	52	1,180	ALL
NOTES: 1. ASMETANK, INSULATION R-30 MIN 2. PROVIDE A 4" HOUSEKEEPING PAD FOR TANK												

ELECTRIC BOILER SCHEDULE																		11
MARK	LOCATION	MANUFACTURER	MODEL	TYPE	SERVES	FLUID TYPE	KW	HEATING OUTPUT (MBH)	MIN FLOW RATE (GPM)	MAX FLOW RATE (GPM)	WATER PRESSURE DROP (FT. HD)	EWT (°F)	LWT (°F)	WEIGHT	FLA	MOCP	POWER (V/PH/Hz)	NOTES
B-1	MECHANICAL ROOM	AERCO	BMK-432 E	ELECTRIC BOILER	CONDENSER WATER LOOP	WATER	432	1,474	20	150	10.0	60	80	2600	520	650	460/3/60	ALL
B-2	MECHANICAL ROOM	AERCO	BMK-432 E	ELECTRIC BOILER	CONDENSER WATER LOOP	WATER	432	1,474	20	150	10.0	60	80	2600	520	650	460/3/60	ALL
NOTES:																		
1. PROVIDE WITH MCMS SET-POINT CONTROL																		
2. PROVIDE WITH INTERNAL TEMPERATURE SENSOR																		

WATER TO WATER HEAT EXCHANGER SCHEDULE																
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	TYPE	LOCATION	SOURCE WATER					LOAD WATER					NOTES
						FLUID TYPE	WATER FLOWRATE (GPM)	HEAD PRESSURE DROP (FT.)	EWT °F	LWT °F	FLUID TYPE	WATER FLOWRATE (GPM)	HEAD PRESSURE DROP (FT.)	EWT °F	LWT °F	
HX-1	B&G	BPDW	AWHP	BRAZED FLAT PLATE	BASEMENT MECHANICAL ROOM	WATER	36.0		100	85	50% PPG	320.0	65	80	90	1
HX-3	B&G	GPX	POOL	BRAZED FLAT PLATE	BASEMENT MECHANICAL ROOM	WATER	240.0	18.0	100	80	POOL WATER	104.0	3.0	39	85	2
HX-4	B&G	GPX	SPA	BRAZED FLAT PLATE	BASEMENT MECHANICAL ROOM	WATER	60.0	3.0	112	104	SPA WATER	148.0	18	101	104	2
NOTES:																
1. PROVIDE WITH DOUBLE WALL, STAINLESS STEEL HEAT EXCHANGERS																
2. PROVIDE WITH DOUBLE WALL, TITANIUM HEAT EXCHANGERS																



ENERGY RECOVERY VENTILATOR SCHEDULE													
MARK	MANUFACTURER	MODEL	SERVES	MIN AIRFLOW (CFM)	MAX AIRFLOW (CFM)	ESP - MAX - ("WC)	MAX NC	HEAT RECOVERY EFFECTIVENESS	HEATING COIL SIZE (KW)	ELECTRICAL			NOTES
										MCA	MOCp	VOLTS PHASE HZ	
ERV-1-02	ZEHNDER	COMFOAIR 200	1 - W 1 BED	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-03A	ZEHNDER	COMFOAIR 200	1 - SW 3 BED (W)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-03B	ZEHNDER	COMFOAIR 200	1 - SW 3 BED (S)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-04	ZEHNDER	COMFOAIR 200	1 - S 3 BED	105	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-05	ZEHNDER	COMFOAIR 200	1 - S 2 BED M	90	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-06	ZEHNDER	COMFOAIR 200	1 - S 2 BED E	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-07A	ZEHNDER	COMFOAIR 200	1 - E 4 BED (S)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-07B	ZEHNDER	COMFOAIR 200	1 - E 4 BED (N)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-08	ZEHNDER	COMFOAIR 200	1 - N 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-09	ZEHNDER	COMFOAIR 200	1 - N 2 BED M	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-1-10	ZEHNDER	COMFOAIR 200	1 - N 2 BED W	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-02	ZEHNDER	COMFOAIR 200	2 - W 1 BED	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-03A	ZEHNDER	COMFOAIR 200	2 - SW 3 BED (W)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-03B	ZEHNDER	COMFOAIR 200	2 - SW 3 BED (S)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-04	ZEHNDER	COMFOAIR 200	2 - S 3 BED	105	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-05	ZEHNDER	COMFOAIR 200	2 - S 3 BED M	90	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-06	ZEHNDER	COMFOAIR 200	2 - S 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-07A	ZEHNDER	COMFOAIR 200	2 - E 4 BED (N)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-07B	ZEHNDER	COMFOAIR 200	2 - E 4 BED (S)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-08	ZEHNDER	COMFOAIR 200	2 - N 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-09	ZEHNDER	COMFOAIR 200	2 - N 2 BED M	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-10	ZEHNDER	COMFOAIR 200	2 - N 1 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-11	ZEHNDER	COMFOAIR 200	2 - E 2 BED	85	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-12A	ZEHNDER	COMFOAIR 200	2 - N 4 BED (E)	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-2-12B	ZEHNDER	COMFOAIR 200	2 - N 4 BED (W)	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-02	ZEHNDER	COMFOAIR 200	3 - W 1 BED	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-03A	ZEHNDER	COMFOAIR 200	3 - SW 3 BED (W)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-03B	ZEHNDER	COMFOAIR 200	3 - SW 3 BED (S)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-04	ZEHNDER	COMFOAIR 200	3 - S 3 BED	105	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-05	ZEHNDER	COMFOAIR 200	3 - S 3 BED M	90	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-06	ZEHNDER	COMFOAIR 200	3 - S 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-07A	ZEHNDER	COMFOAIR 200	3 - E 4 BED (S)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-07B	ZEHNDER	COMFOAIR 200	3 - E 4 BED (N)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-08	ZEHNDER	COMFOAIR 200	3 - N 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-09	ZEHNDER	COMFOAIR 200	3 - N 2 BED M	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-10	ZEHNDER	COMFOAIR 200	3 - N 2 BED W	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-11	ZEHNDER	COMFOAIR 200	3 - E 2 BED	85	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-12A	ZEHNDER	COMFOAIR 200	3 - N 4 BED (E)	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-3-12B	ZEHNDER	COMFOAIR 200	3 - N 4 BED (W)	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-02	ZEHNDER	COMFOAIR 200	4 - W 1 BED	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-03A	ZEHNDER	COMFOAIR 200	4 - SW 3 BED (W)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-03B	ZEHNDER	COMFOAIR 200	4 - SW 3 BED (S)	55	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-03C	ZEHNDER	COMFOAIR 200	4 - SW 3 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-04A	ZEHNDER	COMFOAIR 200	4 - S 3 BED	105	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-04B	ZEHNDER	COMFOAIR 200	4 - S 3 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-05A	ZEHNDER	COMFOAIR 200	4 - S 3 BED M	90	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-05B	ZEHNDER	COMFOAIR 200	4 - S 3 BED M (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-06A	ZEHNDER	COMFOAIR 200	4 - S 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-06B	ZEHNDER	COMFOAIR 200	4 - S 2 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-07A	ZEHNDER	COMFOAIR 200	4 - E 4 BED (S)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-07B	ZEHNDER	COMFOAIR 200	4 - E 4 BED (N)	70	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-07C	ZEHNDER	COMFOAIR 200	4 - E 4 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-08A	ZEHNDER	COMFOAIR 200	4 - N 2 BED	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-08B	ZEHNDER	COMFOAIR 200	4 - N 2 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-09A	ZEHNDER	COMFOAIR 200	4 - N 2 BED M	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-09B	ZEHNDER	COMFOAIR 200	4 - N 2 BED M (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-10	ZEHNDER	COMFOAIR 200	4 - N 2 BED W	80	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-11	ZEHNDER	COMFOAIR 200	4 - E 2 BED	85	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-12A	ZEHNDER	COMFOAIR 200	4 - N 4 BED	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-12B	ZEHNDER	COMFOAIR 200	4 - N 4 BED	65	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-4-12C	ZEHNDER	COMFOAIR 200	4 - N 4 BED (LOFT)	35	120	0.25	<25	90%	1.35	7.2	15.0	208/1/60	ALL
ERV-8-01	RUSKIN	MV750	8 - SKI LOCKERS	750	750	0.25	<25	84%	0.0	11.1	20.0	208/1/60	ALL
ERV-5-01	GREENHECK	ERV-20-30L	COMMON AREAS ERV	1,400	1,400	2.00	<25	84%	0.0	7.2	15.0	208/1/60	ALL
NOTES: 1. PROVIDE WITH INTEGRAL HEATING ELEMENT 2. LEAVING AIR TEMPERATURE SUMMER: 65°F & WINTER: 63°F 3. PROVIDE WITH MERV 08 FILTER, TYP.													

WATER TO AIR HEAT PUMP SCHEDULE																			
PROJECT ALTITUDE: 7,200 FEET ABOVE SEA LEVEL																			
MARK	MANUFACTURER	MODEL	SIZE	SERVES	HEATING CAPACITY (BTU/H)	TOTAL COOLING CAPACITY (BTU/H)	SENSIBLE COOLING CAPACITY (BTU/H)	MOTOR TYPE	MAX AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN WC)	WATER FLOWRATE (GPM)	WPD (FT)	WATER CONNECTION SIZE (Ø)	REFRIGERANT CHARGE	CABINET SIZE (WxDxH)	ELECTRICAL (V/PH/H)	ELECTRICAL (MCA)	WEIGHT (LBS)	NOTES
HP-1-01	CLIMATEMASTER	SR	15	1 - CORRIDOR	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-02	CLIMATEMASTER	SR	15	1 - W 1 BED	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-03A	CLIMATEMASTER	SR	15	1 - SW 3 BED (W)	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-03B	CLIMATEMASTER	SR	15	1 - SW 3 BED (S)	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-04A	CLIMATEMASTER	SR	15	1 - S 3 BED (W)	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-04B	CLIMATEMASTER	SR	18	1 - S 3 BED (E)	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-05A	CLIMATEMASTER	SR	18	1 - S 2 BED M	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-05B	CLIMATEMASTER	SR	18	1 - S 2 BED M	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-06	CLIMATEMASTER	SR	18	1 - S 2 BED E	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-07A	CLIMATEMASTER	SR	18	1 - E 4 BED (S)	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-07B	CLIMATEMASTER	SR	18	1 - E 4 BED (N)	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15	1/2"	2.3 (R454B)	22.4x48.3x17	208/1/60	11.4	168.0	ALL
HP-1-08	CLIMATEMASTER	SR	15	1 - N 2 BED	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-09	CLIMATEMASTER	SR	15	1 - N 2 BED W	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-10	CLIMATEMASTER	SR	15	1 - N 2 BED M	13,700	11,600	9,000	ECM	500	3.2	3.5	5	1/2"	1.9 (R454B)	22.4x48.3x17	208/1/60	10.9	163.0	ALL
HP-1-11	CLIMATEMASTER	SR	18	1 - FITNESS	18,700	17,100	17,100	ECM	1,000	3.8	4.5	15							



VENTILATION SCHEDULE IMC 2018																		
ROOM NAME	UNIT TAG	SYSTEM TYPE	ROOM TYPE PER TABLE 6-1	AREA (AZ) (SQ.FT.)	OUTDOOR AIRFLOW RATE PER PERSON (RP) CFM / PERSON	OUTDOOR AIRFLOW RATE PER UNIT AREA (RA) CFM / SQ.FT.	ZONE POPULATION PEOPLE/1000 SQ.FT.	ZONE POPULATION CALCULATED	ZONE POPULATION ACTUAL (PZ)	NUMBER OF BEDROOMS	OUTDOOR AIRFLOW RATE (PEOPLE COMPONENT) PZ x RP	OUTDOOR AIRFLOW RATE (AREA COMPONENT) AZ x RA	BEDROOMS COMPONENT	REQUIRED OUTDOOR AIR REQUIRED AT BREATHING ZONE CFM (VBZ)	ZONE AIR DISTRIBUTION EFFECTIVENESS (EZ) TABLE 6-2	ZONE CORRECTED AIRFLOW RATE CFM (VOZ)	Vot SYSTEM/BREATHING ZONE OUTDOOR AIR REQUIREMENT CFM	ACTUAL CFM DELIVERED TO SPACE CFM
1 - OFFICE	ERV	100% Outdoor Air Systems	OFFICE SPACE	71	5	0.06	5	0	1		5	4		9	0.8	12	12	15
1 - CORRIDOR	ERV	100% Outdoor Air Systems	CORRIDORS	1866	0	0.06	0	0			0	112		112	0.8	140	140	150
1 - E 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2206	5	0.03	10	22	8	4	40	66	38	104	0.8	130	130	140
1 - FITNESS	ERV	100% Outdoor Air Systems	HEALTH CLUB/WEIGHT ROOMS	755	20	0.06	10	8			151	45		196	0.8	245	245	260
1 - LOBBY	ERV	100% Outdoor Air Systems	MAIN ENTRY LOBBIES	2385	5	0.06	10	24			119	143		262	0.8	328	328	345
1 - N 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
1 - N 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
1 - N 2 BED W	ERV	100% Outdoor Air Systems	LIVING UNIT	1211	5	0.03	10	12	4	2	20	36	23	59	0.8	74	74	80
1 - S 2 BED E	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
1 - S 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1481	5	0.03	10	15	4	2	20	44	23	67	0.8	84	84	90
1 - S 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1606	5	0.03	10	16	6	3	30	48	30	78	0.8	98	98	105
1 - SW 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1738	5	0.03	10	17	6	3	30	52	30	82	0.8	103	103	110
1 - W 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	872	5	0.03	10	9	2	1	10	26	15	41	0.8	51	51	55
2 - CORR	ERV	100% Outdoor Air Systems	CORRIDORS	2121	0	0.06	0	0			0	127		127	0.8	159	159	170
2 - E 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1369	5	0.03	10	14	4	2	20	41	23	64	0.8	79	79	85
2 - E 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2206	5	0.03	10	22	8	4	40	66	38	104	0.8	130	130	140
2 - N 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1211	5	0.03	10	12	2	1	10	36	15	51	0.8	64	64	70
2 - N 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
2 - N 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
2 - N 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2050	5	0.03	10	21	8	4	40	62	38	99	0.8	124	124	130
2 - S 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
2 - S 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1481	5	0.03	10	15	4	2	20	44	23	67	0.8	84	84	90
2 - S 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1606	5	0.03	10	16	6	3	30	48	30	78	0.8	98	98	105
2 - SW 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1738	5	0.03	10	17	6	3	30	52	30	82	0.8	103	103	110
2 - W 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	872	5	0.03	10	9	2	1	10	26	15	41	0.8	51	51	55
3 - CORR	ERV	100% Outdoor Air Systems	CORRIDORS	2121	0	0.06	0	0			0	127		127	0.8	159	159	170
3 - E 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1369	5	0.03	10	14	4	2	20	41	23	64	0.8	79	79	85
3 - E 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2206	5	0.03	10	22	8	4	40	66	38	104	0.8	130	130	140
3 - N 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1211	5	0.03	10	12	2	1	10	36	15	51	0.8	64	64	70
3 - N 2 BED E	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
3 - N 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
3 - N 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2050	5	0.03	10	21	8	4	40	62	38	99	0.8	124	124	130
3 - S 2 BED E	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
3 - S 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1481	5	0.03	10	15	4	2	20	44	23	67	0.8	84	84	90
3 - S 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1606	5	0.03	10	16	6	3	30	48	30	78	0.8	98	98	105
3 - SW 3 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1738	5	0.03	10	17	6	3	30	52	30	82	0.8	103	103	110
3 - W 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	872	5	0.03	10	9	2	1	10	26	15	41	0.8	51	51	55
4 - CORR	ERV	100% Outdoor Air Systems	CORRIDORS	2121	0	0.06	0	0			0	127		127	0.8	159	159	170
4 - E 2 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1369	5	0.03	10	14	4	2	20	41	23	64	0.8	79	79	85
4 - E 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2262	5	0.03	10	23	8	4	40	68	38	105	0.8	132	132	140
4 - N 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	1211	5	0.03	10	12	2	1	10	36	15	51	0.8	64	64	70
4 - N 2 BED E	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
4 - N 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
4 - N 4 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	2076	5	0.03	10	21	8	4	40	62	38	100	0.8	125	125	135
4 - S 2 BED E	ERV	100% Outdoor Air Systems	LIVING UNIT	1242	5	0.03	10	12	4	2	20	37	23	60	0.8	75	75	80
4 - S 2 BED M	ERV	100% Outdoor Air Systems	LIVING UNIT	1481	5	0.03	10	15	4	2	20	44	23	67	0.8	84	84	90
4 - S 3 BED (WITH LOFT)	ERV	100% Outdoor Air Systems	LIVING UNIT	2134	5	0.03	10	21	6	4	30	64	38	102	0.8	127	127	135
4 - SW 3 BED (WITH LOFT)	ERV	100% Outdoor Air Systems	LIVING UNIT	2309	5	0.03	10	23	6	4	30	69	38	107	0.8	133	133	145
4 - W 1 BED	ERV	100% Outdoor Air Systems	LIVING UNIT	872	5	0.03	10	9	2	1	10	26	15	41	0.8	51	51	55
B - E LOBBY	ERV	100% Outdoor Air Systems	LOBBIES	78	5	0.06	150	12	4		20	5		25	0.8	31	31	35
B - W LOBBY	ERV	100% Outdoor Air Systems	LOBBIES	328	5	0.06	150	49	8		40	20		60	0.8	75	75	80

TOWN STAMP

359  
DESIGN

3001 CHASE STREET  
DENVER, CO 80211  
726.502.2407

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date

PROJECT NUMBER 20019  
ISSUE DATE 09/19/2024

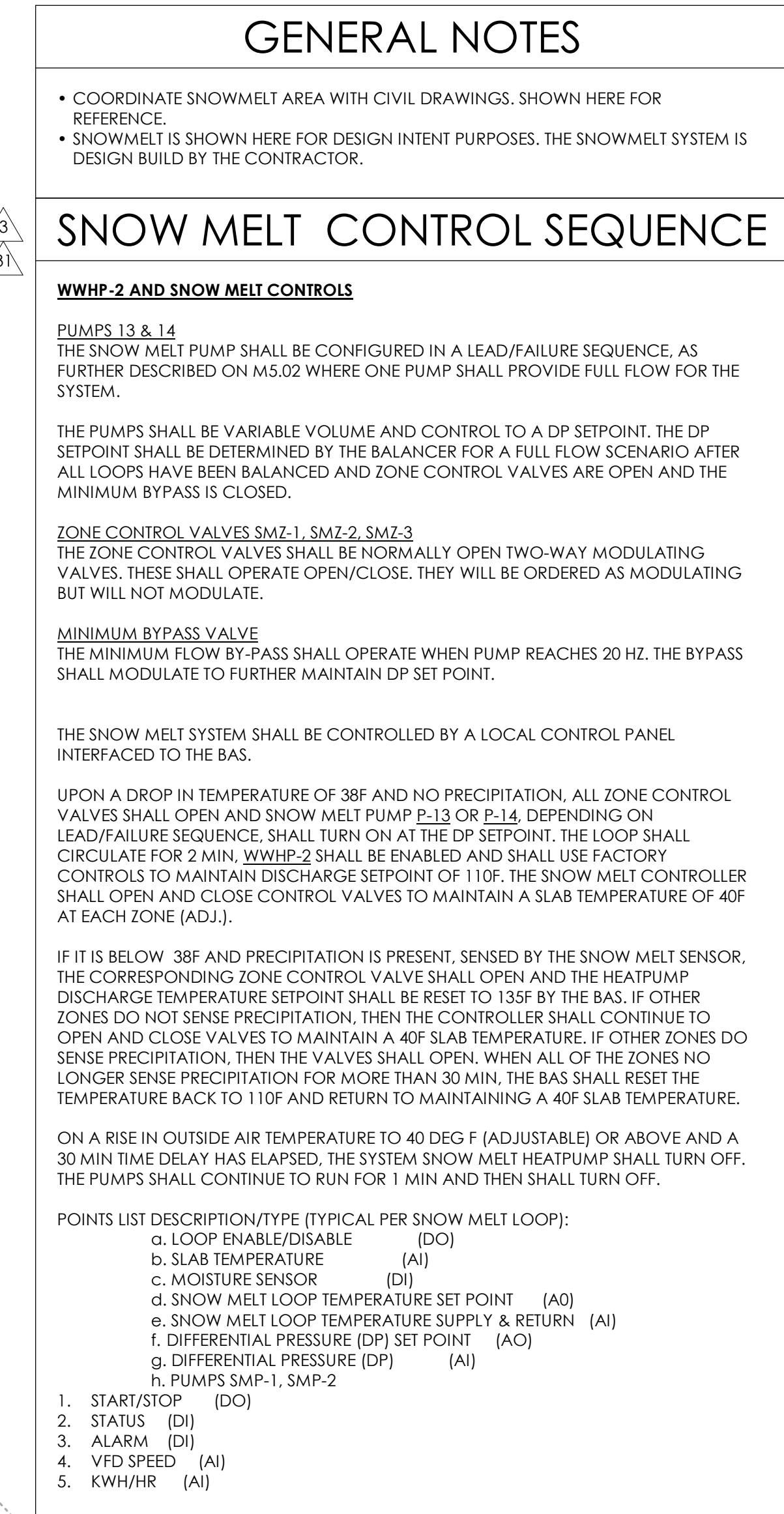
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MECHANICAL  
SCHEDULES

SHEET NO.

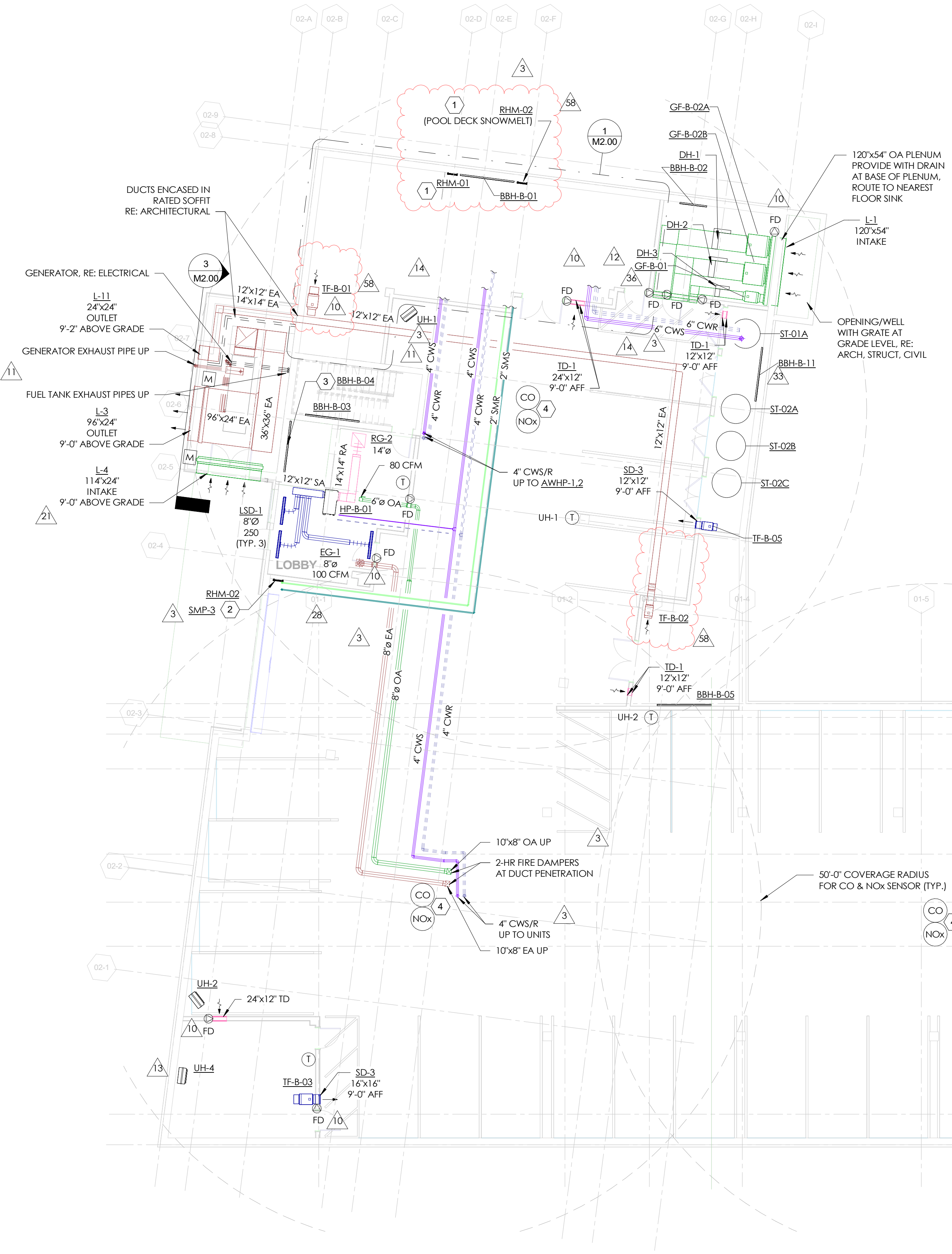
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SHEET NO. \_\_\_\_\_



01/06/2025 8:07:45 AM



1 MECHANICAL PLAN - LEVEL 0  
SCALE: 1" = 10'-0"

## CONTROLS SEQUENCE

CONTROL SEQUENCES: HP-B-01, HP-1-11, HP-1-12, HP-2-01, HP-3-01, HP-4-01, ERV-5-01  
\*UNITS SERVE COMMUNAL SPACES AND SHALL BE CONTROLLED BY BAS. UNOCCUPIED MODE TO BE MANUALLY CONTROLLED AT BAS, PROGRAMMED TO SETPOINTS BELOW.

### SETPOINTS:

- OCCUPIED HEATING SETPOINT: 70°F
- UNOCCUPIED HEATING SETPOINT: 60°F
- OCCUPIED COOLING SETPOINT: 78°F
- UNOCCUPIED COOLING SETPOINT: 88°F

### OCCUPIED MODE:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### ENERGY RECOVERY UNIT (ERV-5-01)

- IF THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDES COOLING MODE.

CONTROL SEQUENCES - HP-B-02, ERV-B-01, DH-B-01

### SETPOINTS:

- OCCUPIED HEATING SETPOINT: 70°F
- UNOCCUPIED HEATING SETPOINT: 60°F
- OCCUPIED COOLING SETPOINT: 78°F
- UNOCCUPIED COOLING SETPOINT: 88°F

### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (REFER TO PLANS) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

### OCCUPIED MODE:

- WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDES COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### UNOCCUPIED MODE:

- WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:
- THE ERV SHALL BE CLOSED AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- THE ERV SHALL BE CLOSED EXCEPT WHEN THE SPACE TEMPERATURE EXCEEDS THE UNOCCUPIED SPACE TEMPERATURE SETPOINT. IN THIS CONDITION, THE ERV SHALL BE CONTROLLED IN THE FOLLOWING MANNER:

1. THE ERV SHALL ACTIVATE.
2. IF THE ERV IS ACTIVATED AND THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

## KEYNOTES

1. RHM SERVING POOL. COORDINATE LOCATION AND ROUTING WITH SNOWMELT CONTRACTOR.
2. RHM SERVING DRIVEWAY. COORDINATE LOCATION AND ROUTING WITH SNOWMELT CONTRACTOR.
3. BBH IN ELEVATOR SHAFT. COORDINATE WITH ELEVATOR MANUFACTURER FOR LOCATION THAT DOES NOT CONFLICT WITH OTHER EQUIPMENT. WALL MOUNT NO LESS THAN 12" ABOVE FINISH FLOOR.
4. MOUNT CO/NO2 SENSOR AT CEILING AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION REQUIREMENTS.

## REFRIGERANT CALCULATIONS

### MEP/MECHANICAL ROOM (BASEMENT)

- AREA IS DESIGNATED AS S-2 OCCUPANCY UNDER IBC 1103.2 CLASSIFICATIONS
- WWHP-1 UTILIZES R-513A AND WWHP-2, WWHP-3, AND WWHP-4 UTILIZE R-454B REFRIGERANT.
- PER IMC TABLE 1103.1, REFRIGERANT PER OCCUPIED SPACE FOR R-513A IS 20 LBS PER 1,000 CUBIC FEET.
- MEP/MECHANICAL ROOM = 732 SF AND 7,686 CUBIC FEET
- 7,686/1000 = 7.686 \* 20 = **153.7 LBS OF R-513A REFRIGERANT MAX**
- ACTUAL REFRIGERANT CHARGE OF CIRCUIT PROPOSED IN SPACE: **12.75 LBS**
- \* **NO MACHINERY ROOM SEPARATION OR EMERGENCY VENTILATION REQUIRED**

- PER IMC TABLE 1103.1, REFRIGERANT PER OCCUPIED SPACE FOR R-454B IS 22 LBS PER 1,000 CUBIC FEET.
- MEP/MECHANICAL ROOM = 732 SF AND 7,686 CUBIC FEET
- 7,686/1000 = 7.686 \* 22 = **169.1 LBS OF R-454B REFRIGERANT MAX**
- ACTUAL REFRIGERANT CHARGE OF HIGHEST CIRCUIT PROPOSED IN SPACE: **49 LBS**
- \* **NO MACHINERY ROOM SEPARATION OR EMERGENCY VENTILATION REQUIRED**

### MEP/MECHANICAL MEZZANINE (5TH FLOOR)

- AREA IS DESIGNATED AS RESIDENTIAL OCCUPANCY UNDER IBC 1103.2 CLASSIFICATIONS
- AWHP-1/2/3 UTILIZE R-454B REFRIGERANT.
- PER IMC TABLE 1103.1, REFRIGERANT PER OCCUPIED SPACE FOR R-454B IS 22 LBS PER 1,000 CUBIC FEET.
- MEP/MECH MEZZANINE = 950 SF AND 8,550 CUBIC FEET
- 8,550/1000 = 8.55 \* 22 = **188.1 LBS OF R-454B REFRIGERANT MAX**
- ACTUAL REFRIGERANT CHARGE OF HIGHEST CIRCUIT PROPOSED IN SPACE: **50 LBS**
- \* **NO MACHINERY ROOM SEPARATION OR EMERGENCY VENTILATION REQUIRED**

### LIVING UNITS

- AREA IS DESIGNATED AS RESIDENTIAL OCCUPANCY UNDER IBC 1103.2 CLASSIFICATIONS
- WATER TO AIR HEAT PUMPS (HP-X-XX) UTILIZE R-454B REFRIGERANT.
- PER IMC TABLE 1103.1, REFRIGERANT PER OCCUPIED SPACE FOR R-454B IS 22 LBS PER 1,000 CUBIC FEET.
- CALCULATION BASED ON LOWEST VOLUME UNIT:  
1 BEDROOM UNIT - 485 SF OPEN LIVING AREA AND 4,365 CUBIC FEET  
4,365/1000 = 4.365 \* 22 = **96.03 LBS OF R-454B REFRIGERANT MAX**
- ACTUAL REFRIGERANT CHARGE PROPOSED IN SPACE: **1.9 LBS**
- \* **NO EMERGENCY VENTILATION REQUIRED**

## GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD

33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

## GARAGE VENTILATION NOTES

### GARAGE VENTILATION SEQUENCE OF OPERATION:

A. A STANDALONE PARKING GARAGE CONTROL PANEL SHALL MONITOR CO AND NO2 FROM MULTIPLE SENSORS SPACED PER MANUFACTURER'S RECOMMENDATIONS TO PROVIDE COMPLETE SENSING COVERAGE. THE CONTROLLER SHALL PROVIDE CONTACTS OR RELAYS TO ACHIEVE THE FOLLOWING SEQUENCE OF OPERATION. THE CONTROL PANEL SHALL HAVE LED INDICATING LIGHTS FOR POWER, LOW ALARM, HIGH ALARM, AND FAULT CONDITION.

a. CONTROL PANEL: MACURCO MODEL DVP-120B.  
b. CO SENSOR: MACURCO MODEL CM-6  
c. NO2 SENSOR: MACURCO MODEL TX-6-ND

B. THE LOW FLOW EXHAUST AND SUPPLY FANS SHALL OPERATE CONTINUOUSLY.

C. THE HIGH FLOW EXHAUST AND SUPPLY FANS SHALL OPERATE AS FOLLOWS:  
a. AT 50% FLOW WHEN ANY CO/NO2 SENSOR DETECTS A CO CONCENTRATION ABOVE 25 PPM OR A NO2 CONCENTRATION ABOVE 1.0 PPM.

b. AT 100% FLOW WHEN ANY CO/NO2 SENSOR DETECTS A CO CONCENTRATION ABOVE 50 PPM OR A NO2 CONCENTRATION ABOVE 1.5 PPM.

c. THE HIGH FLOW FANS SHALL CONTINUE TO RUN AT MAXIMUM FLOW UNTIL THE CO CONCENTRATION FALLS BELOW 15 PPM AND THE NO2 CONCENTRATION IS BELOW 0.7 PPM. WHEN THE SENSORS DROP BELOW THE LOW LIMIT THE FANS SHALL TURN OFF.

d. A 5 MINUTE MINIMUM RUN TIME SHALL BE INITIATED ANYTIME THE HIGH FLOW FANS ARE TURNED ON.

e. THE HIGH FLOW INTAKE AND EXHAUST DAMPERS SHALL FULLY OPEN WHEN THE HIGH FLOW FANS ARE ACTIVATED. THE HIGH FLOW FANS SHALL NOT BE ENERGIZED UNTIL THE DAMPERS ARE FULLY OPEN AS INDICATED BY THE DAMPER END SWITCHES. THE DAMPERS SHALL CLOSE WHEN THE HIGH FLOW FANS ARE TURNED OFF.

D. IF THE CO CONCENTRATION EXCEEDS 100 PPM OR THE NO2 CONCENTRATION EXCEEDS 1.5 PPM AN AUDIBLE ALARM SHALL BE ACTIVATED AND AN ALARM SHALL BE SENT TO THE BAS.

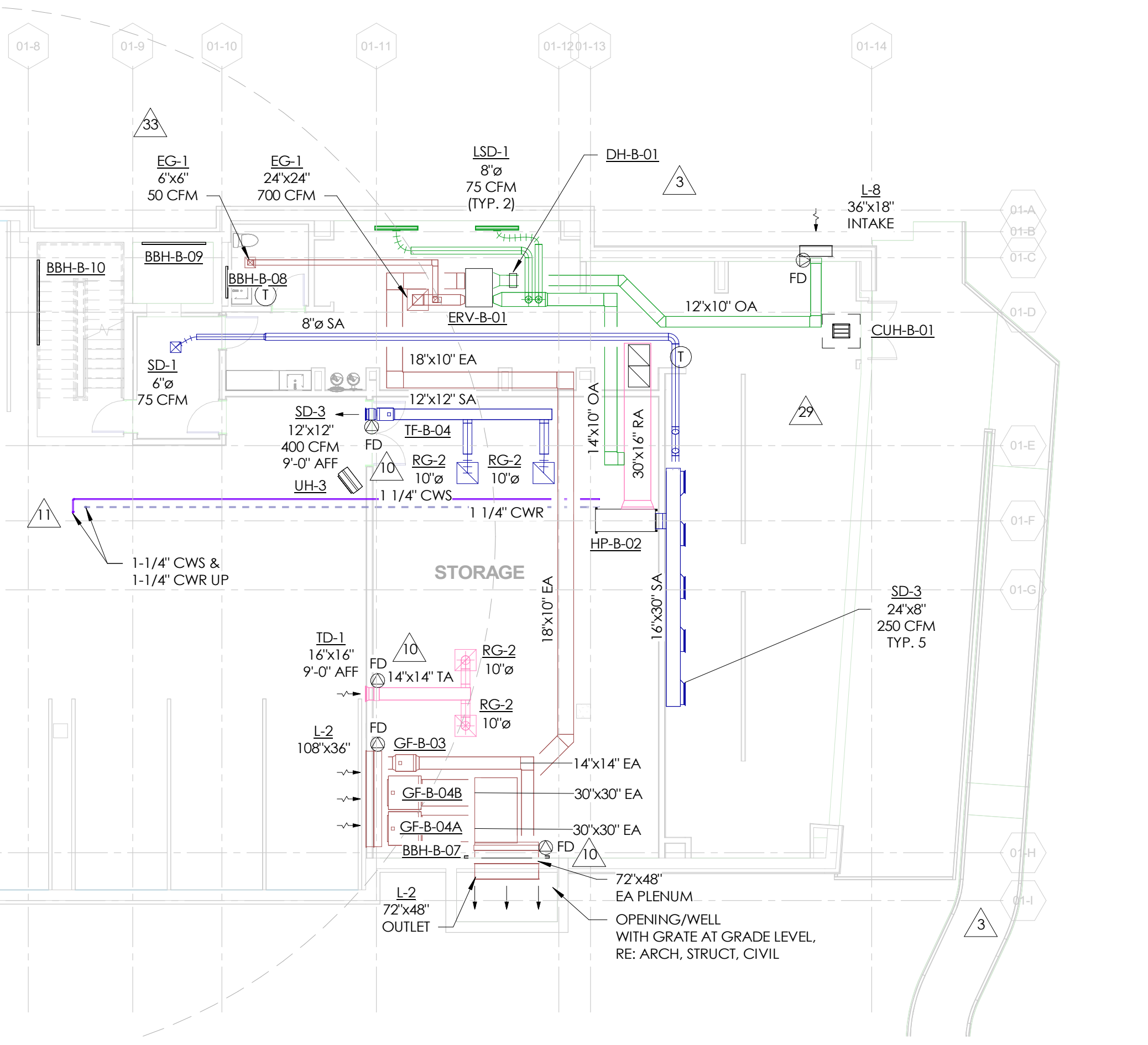
E. A GARAGE LOW TEMPERATURE SENSORS SHALL BE PROVIDED AND SHALL ALARM AT THE BAS WHEN THE GARAGE TEMPERATURE DROPS TO BELOW 35 DEG F (ADJ.)

F. PROVIDE WITH HORN/STROBE (MACURCO MODEL HS).

G. FIRE ALARM PANEL INTERFACE SHALL BE PROVIDED AS COORDINATED WITH THE FIRE ALARM DESIGNER.

H. POINTS LIST DESCRIPTION/TYPE (TYPICAL FOR ALL GARAGE FANS, SENSORS AND DAMPERS):

- a. CO SENSOR (AI)
- b. NO2 SENSOR (AI)
- c. FAN START/STOP (DO)
- d. FAN STATUS (DI)
- e. FAN SPEED COMMAND (AO)
- f. FAN SPEED STATUS (AI)
- g. FAN VFD ALARM (DI)
- h. INTAKE/EXHAUST DAMPER (DO)
- i. INTAKE/EXHAUST END SWITCH (DI)



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The Amble  
Steamboat Springs, CO

No.	Description	Date
3	IFC UPDATES	03/15/2024
10	RFI #63	04/29/2024
11	IFC UPDATES II	05/17/2024
12	RFI #65	05/28/2024
13	RFI #62	06/07/2024
14	RFI #67	06/07/2024
21	RFI #136	06/25/2024
28	RFI #189	07/24/2024
29	RFI #193	07/24/2024
30	RFI #192	07/30/2024
33	ASI 003	08/02/2024
36	RFI #195	08/06/2024
38	ASI 007	01/08/2025

PROJECT NUMBER: 20019  
ISSUE DATE: 09/19/2024

ISSUE

IFC SET

SHEET TITLE  
MECHANICAL PLAN  
LEVEL 0

SHEET NO.

M1.00



GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD.
- 33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

KEYNOTES #

1. INSTALL OUTSIDE AIR AND RETURN AIR CONNECTIONS WITH MANUAL VOLUME DAMPERS. BALANCE TO HEAT EQUIPMENT SCHEDULE, TYP. ROUTE 14"Ø RETURN DUCT TO 24x24 RG-2 AT HALLWAY AND 6"Ø RETURN DUCT TO RG-1 AT MECH ROOM.
2. TWO (2) 24x24 RG-2 RETURN GRILLES AT CEILING DUCTED TO HP-1-12 RETURN

TOWN STAMP

359  
DESIGN

3601 OSAGE STREET  
DENVER, CO 80211  
303.552.2877

DAKE  
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No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
25	ASI 001	07.28.2024
33	ASI 003	08.02.2024
48	RFI #349	11.05.2024

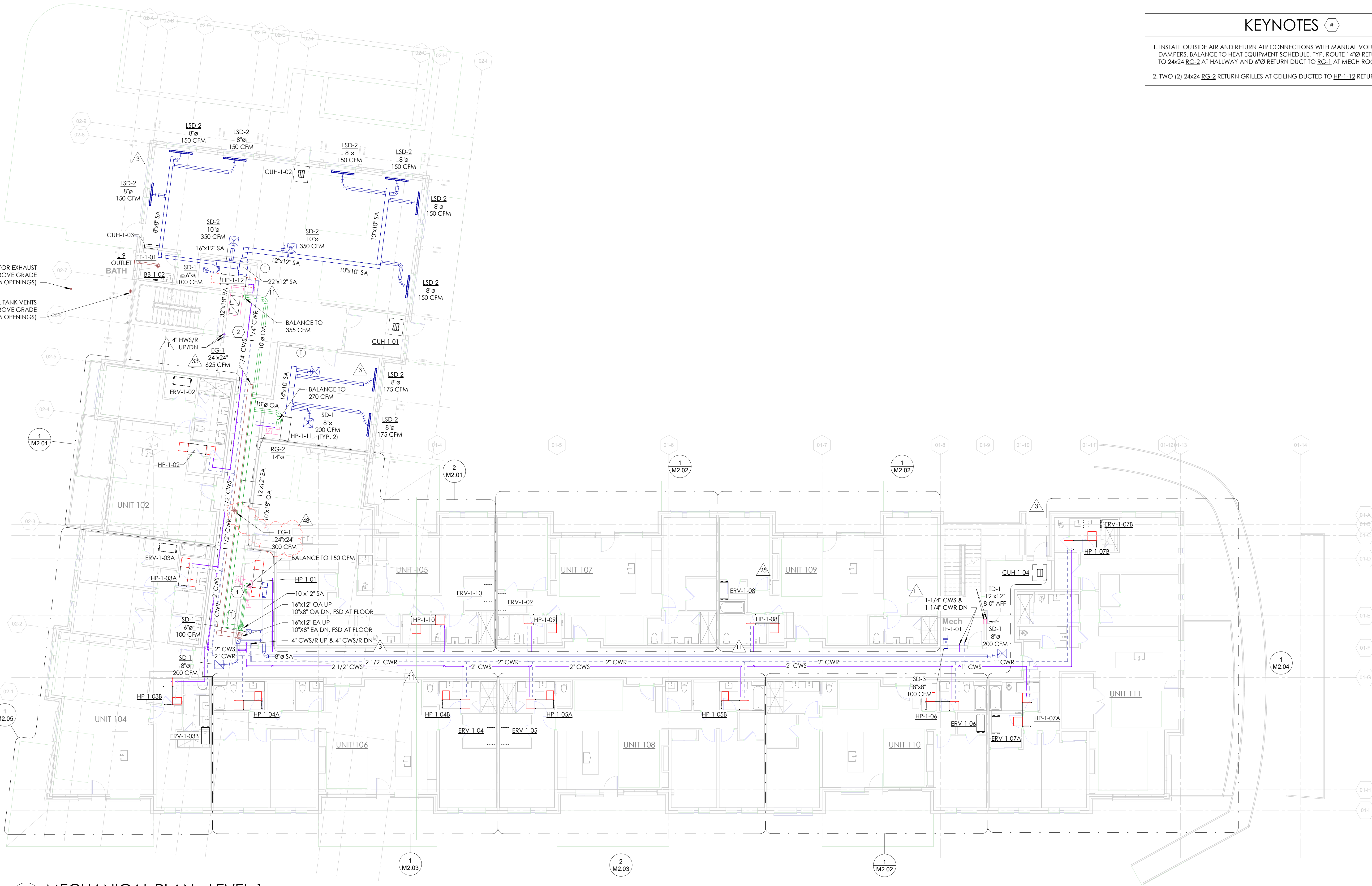
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ISSUE DATE 09/19/2024

ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL PLAN  
LEVEL 1

SHEET NO.

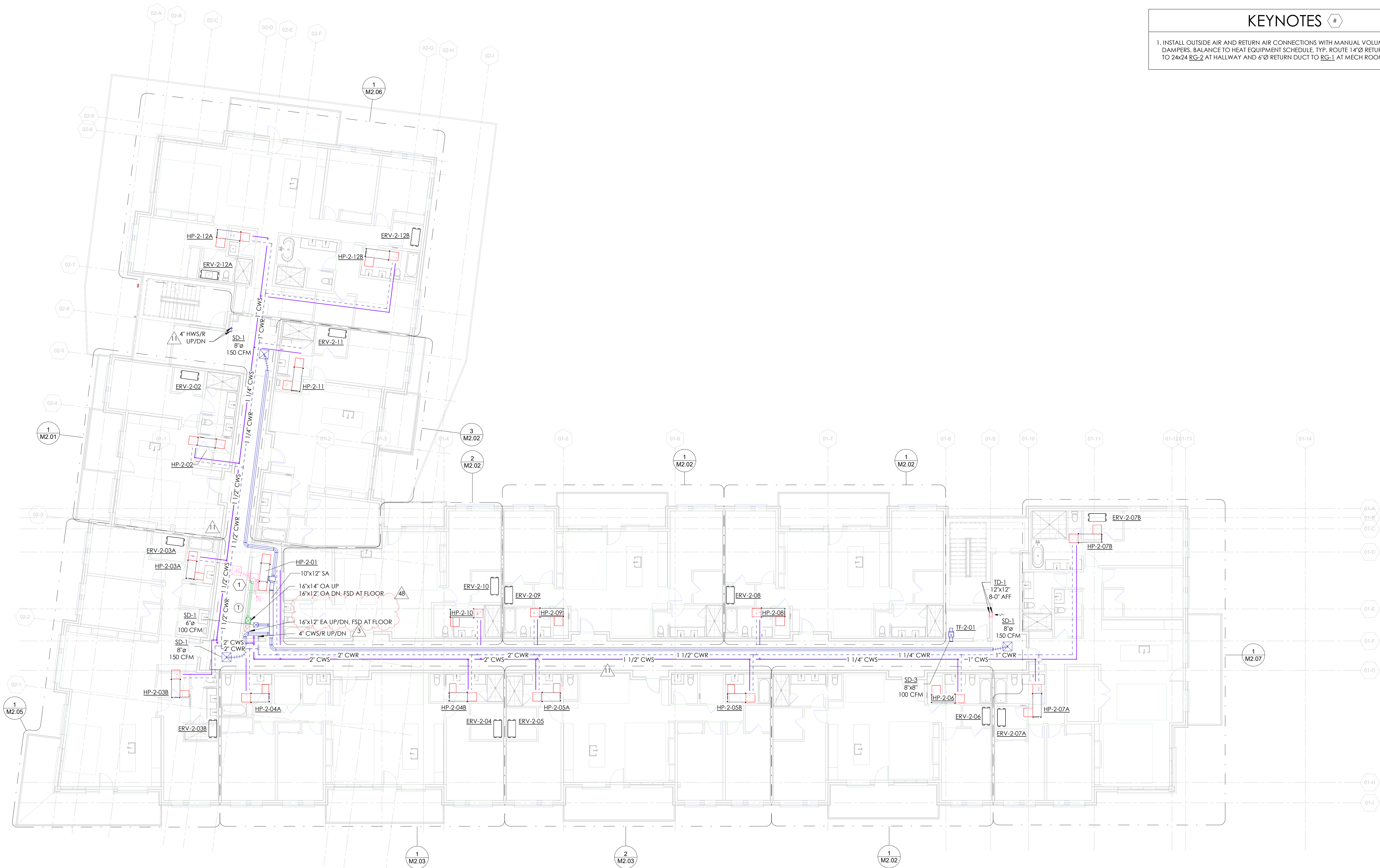
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1 MECHANICAL PLAN - LEVEL 1

SCALE: 1" = 10'-0"





GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD.
- 33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

KEYNOTES #

1. INSTALL OUTSIDE AIR AND RETURN AIR CONNECTIONS WITH MANUAL VOLUME DAMPERS. BALANCE TO HEAT EQUIPMENT SCHEDULE, TYP. ROUTE 14"Ø RETURN DUCT TO 24x24 RG-2 AT HALLWAY AND 6"Ø RETURN DUCT TO RG-1 AT MECH ROOM.

1 MECHANICAL PLAN - LEVEL 2  
SCALE: 1" = 10'-0"

TOWN STAMP

**359**  
DESIGN

3601 OSAGE STREET  
DENVER, CO 80211  
303.552.2877

**DAKE**  
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PROFESSIONAL ENGINEER  
51834

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No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
33	ASI 003	08.02.2024
45	RPI #349	11.05.2024

PROJECT NUMBER 30019  
ISSUE DATE 09/19/2024

ISSUE

**IFC SET**

SHEET TITLE

**MECHANICAL PLAN  
LEVEL 2**

SHEET NO.

**M1.02**



## GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD.

33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

## KEYNOTES #

1. INSTALL OUTSIDE AIR AND RETURN AIR CONNECTIONS WITH MANUAL VOLUME DAMPERS. BALANCE TO HEAT EQUIPMENT SCHEDULE, TYP. ROUTE 14"Ø RETURN DUCT TO 24x24 RG-2 AT HALLWAY AND 6"Ø RETURN DUCT TO RG-1 AT MECH ROOM.

TOWN STAMP

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3000 OSAGE STREET  
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No.	Description	Date
11	IPC UPDATES II	05/17/2024
33	ASR 003	08/02/2024

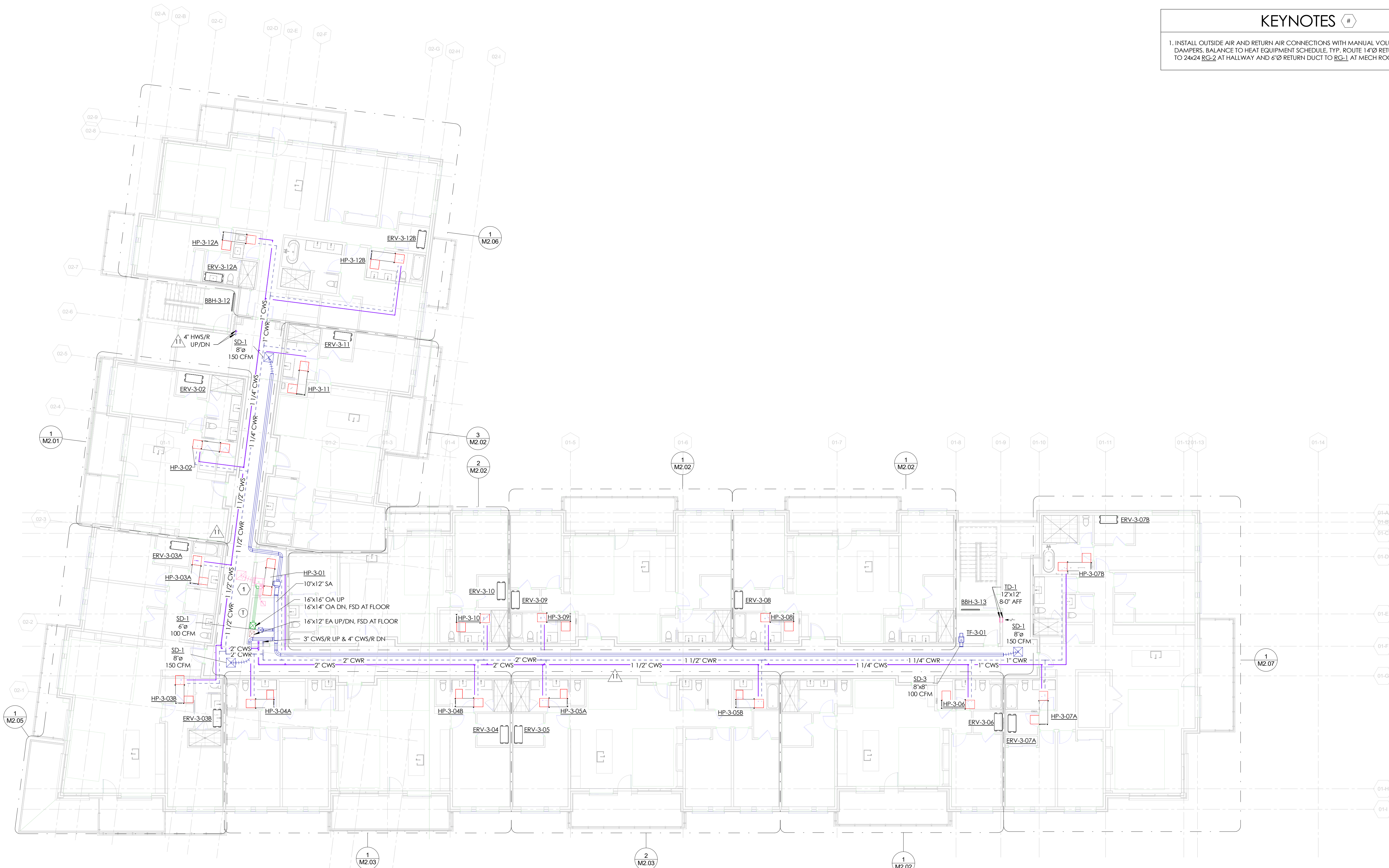
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ISSUE DATE: 09/19/2024

ISSUE:  
**IFC SET**

SHEET TITLE:  
**MECHANICAL PLAN  
LEVEL 3**

SHEET NO.

**M1.03**



## 1 MECHANICAL PLAN - LEVEL 3

SCALE: 1" = 10'-0"

08/02/2024 4:27:00 PM



## GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD.

33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

## KEYNOTES #

1. INSTALL OUTSIDE AIR AND RETURN AIR CONNECTIONS WITH MANUAL VOLUME DAMPERS. BALANCE TO HEAT EQUIPMENT SCHEDULE, TYP. ROUTE 14"Ø RETURN DUCT TO 24x24 EG-2 AT HALLWAY AND 6"Ø RETURN DUCT TO EG-1 AT MECH ROOM.

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3601 OSAGE STREET  
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303.552.2857

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No.	Description	Date
11	IPC UPDATES II	05/17/2024
28	RPI #1589	07/24/2024
33	ASI 003	08/02/2024
45	RPI #349	11/05/2024

PROJECT NUMBER: 30019  
ISSUE DATE: 09/19/2024

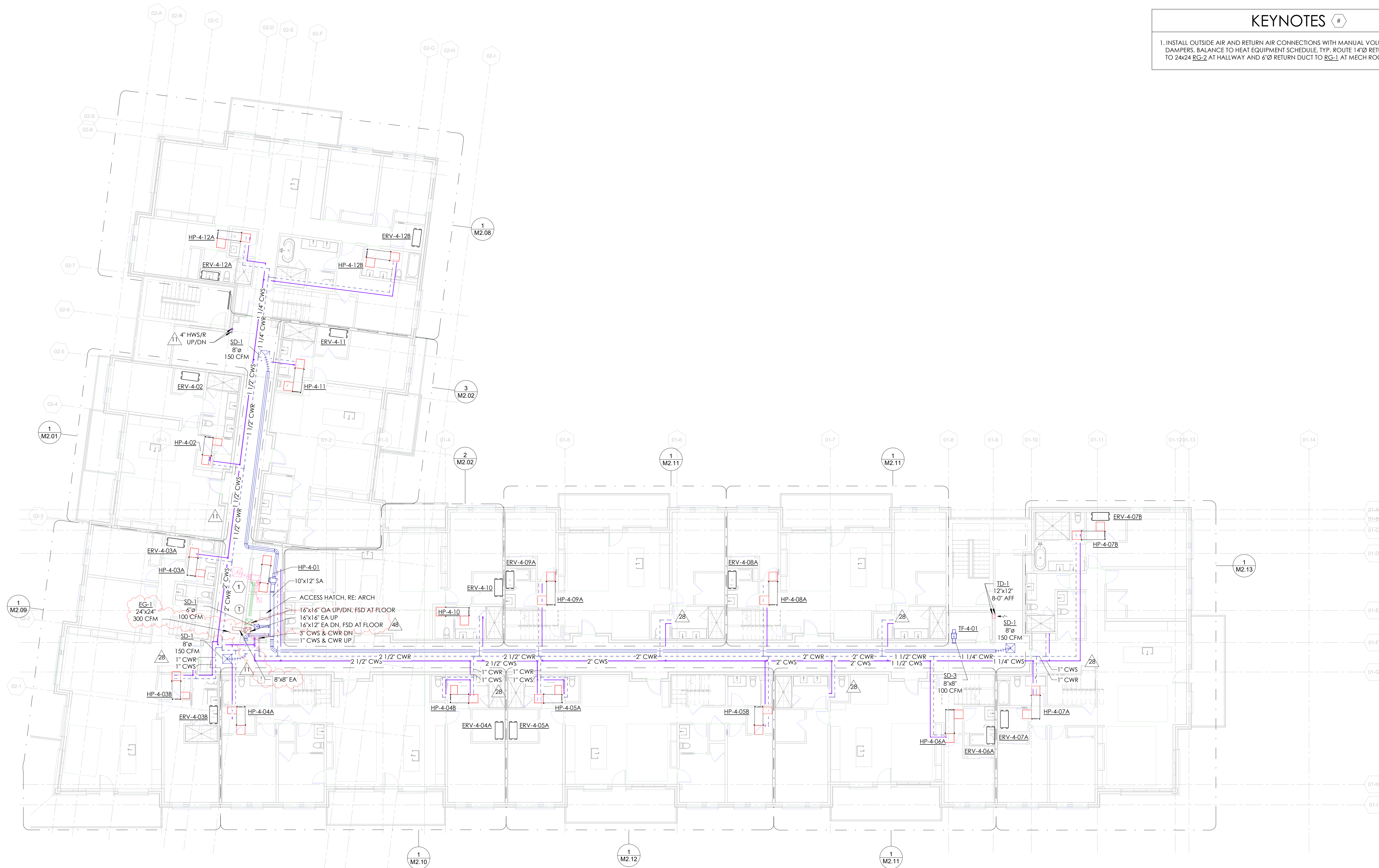
ISSUE

**IPC SET**

SHEET TITLE  
**MECHANICAL PLAN  
LEVEL 4**

SHEET NO.

**M1.04**



## 1 MECHANICAL PLAN - LEVEL 4

SCALE: 1" = 10'-0"



GENERAL NOTES

- PROVIDE CEILING ACCESS TO ERV AND HEAT PUMP UNITS LOCATED ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT IN FIELD.
- 33. PROVIDE ALL HEAT PUMPS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE

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359  
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3001 OSAGE STREET  
DENVER, CO 80211  
720.532.2407

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No.	Description	Date
2	CMPP SET REVISIONS	02/08/2024
3	IFC UPDATES	03/15/2024
11	IFC UPDATES II	05/17/2024
33	ADD 003	08/02/2024
37	RFP #197	08/07/2024

PROJECT NUMBER: 20019  
ISSUE DATE: 09/19/2024

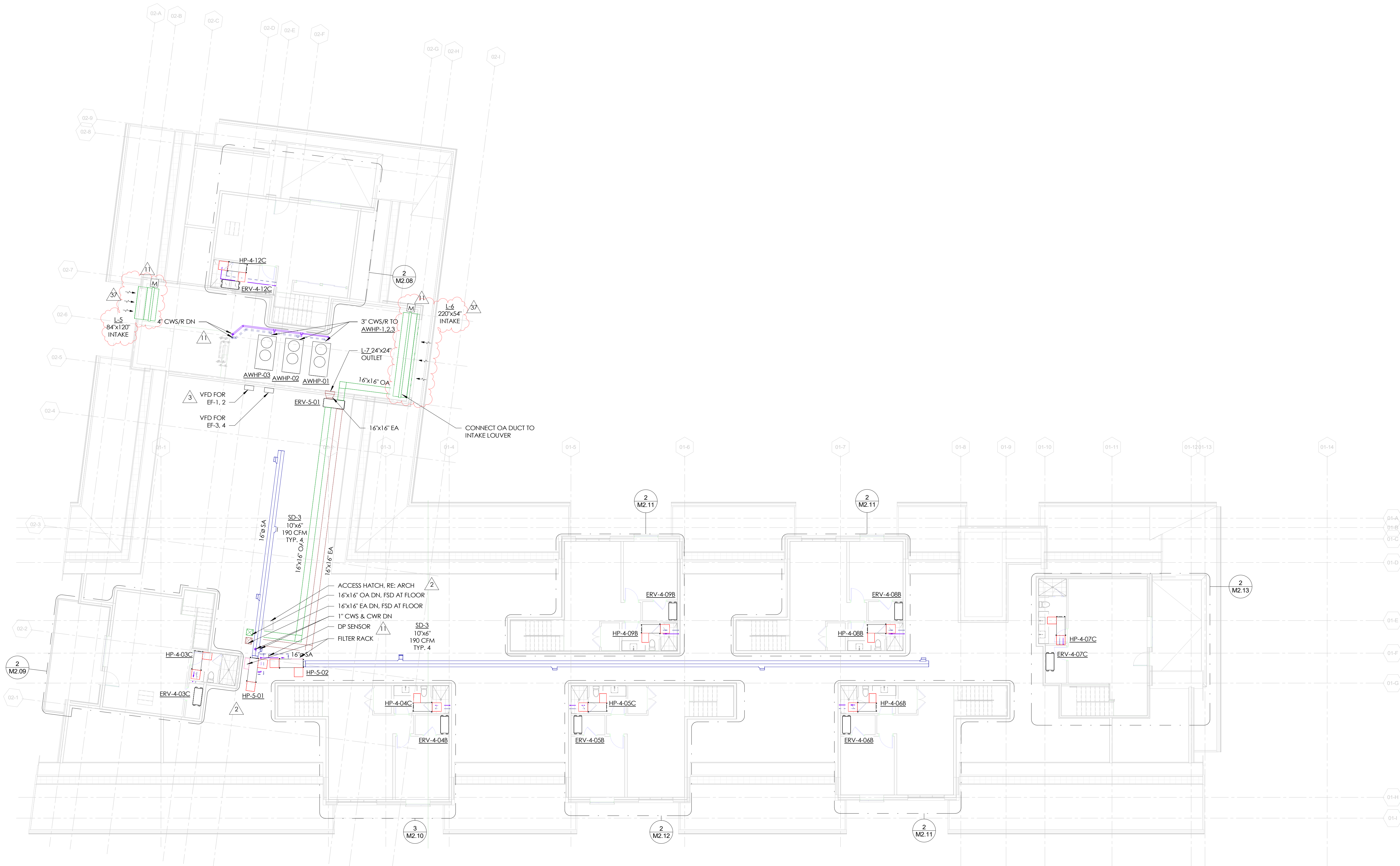
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IFC SET

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MECHANICAL PLAN  
LEVEL 5

SHEET NO.

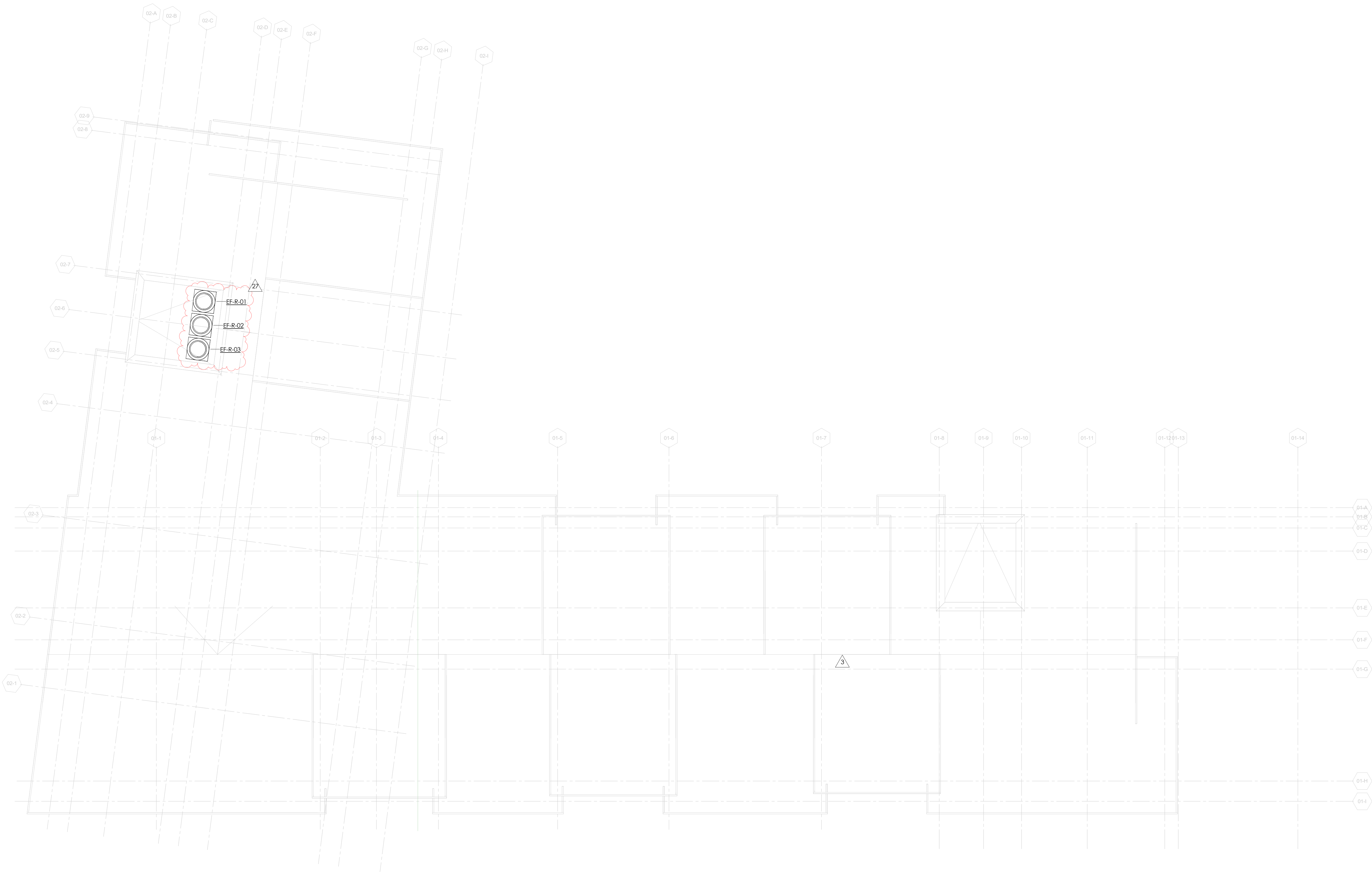
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1 MECHANICAL PLAN - LEVEL 5

SCALE: 1" = 10'-0"





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303.555.1400

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No.	Description	Date
3	IFC UPDATES	03/15/2024
27	REV #168	07/25/2024

PROJECT NUMBER: 30013  
ISSUE DATE: 09/19/2024

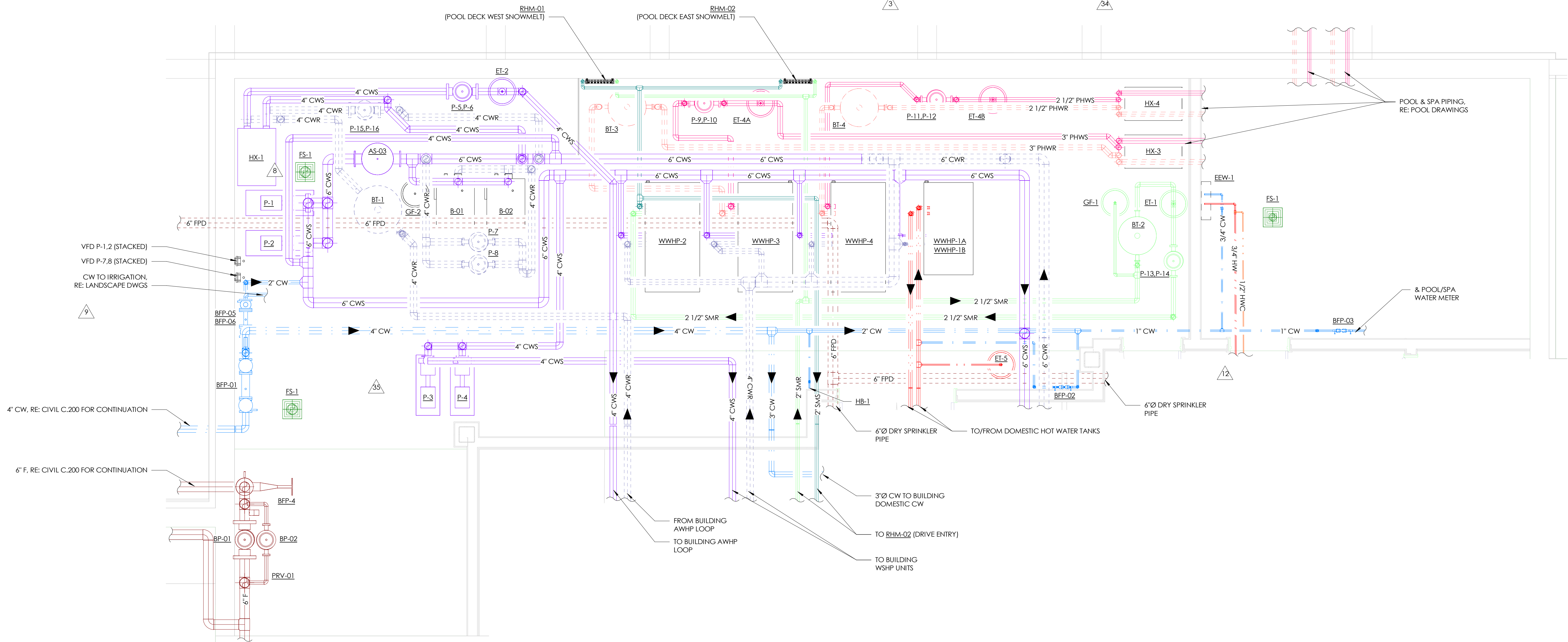
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SHEET TITLE  
MECHANICAL PLAN  
ROOF

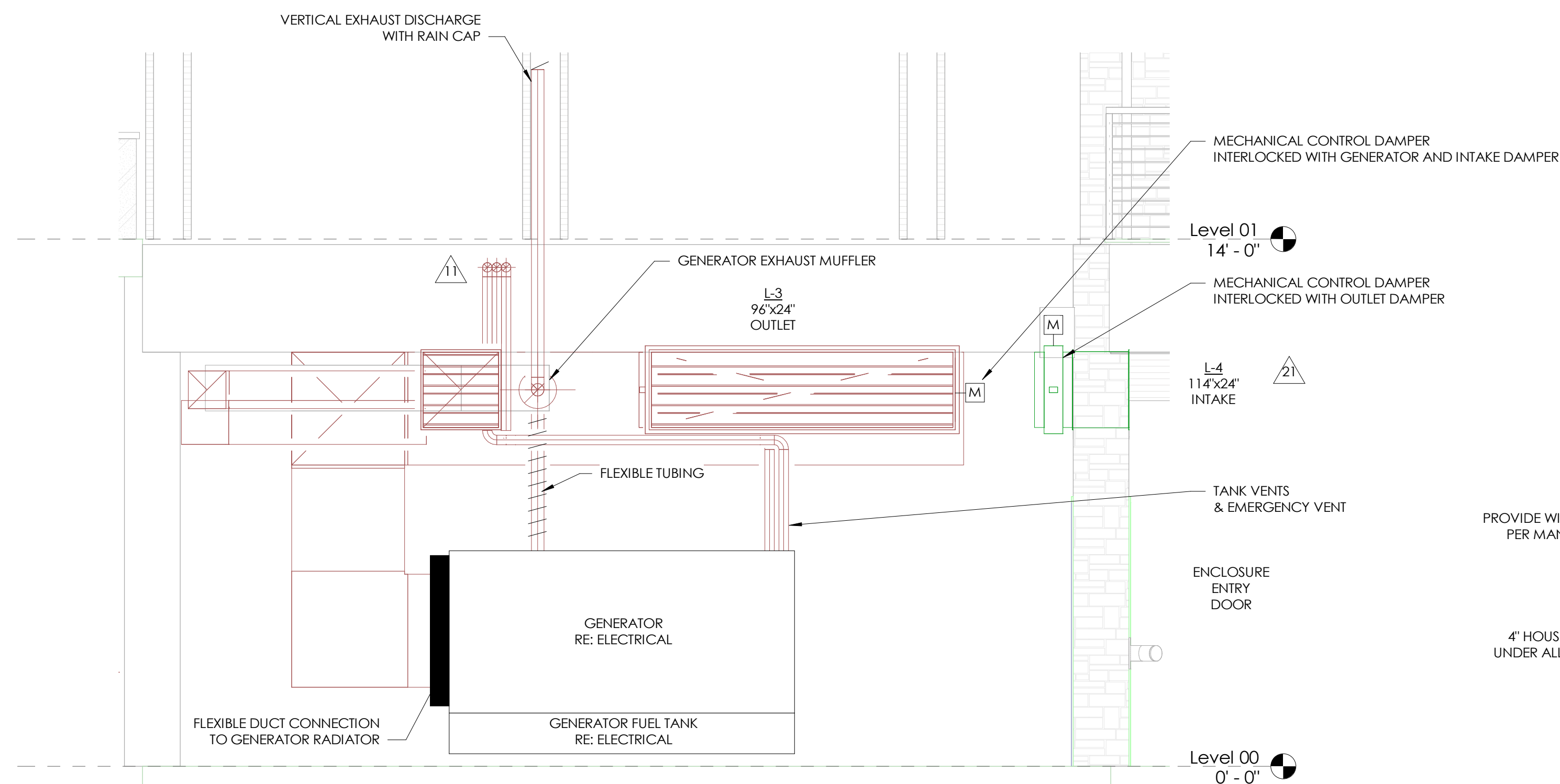
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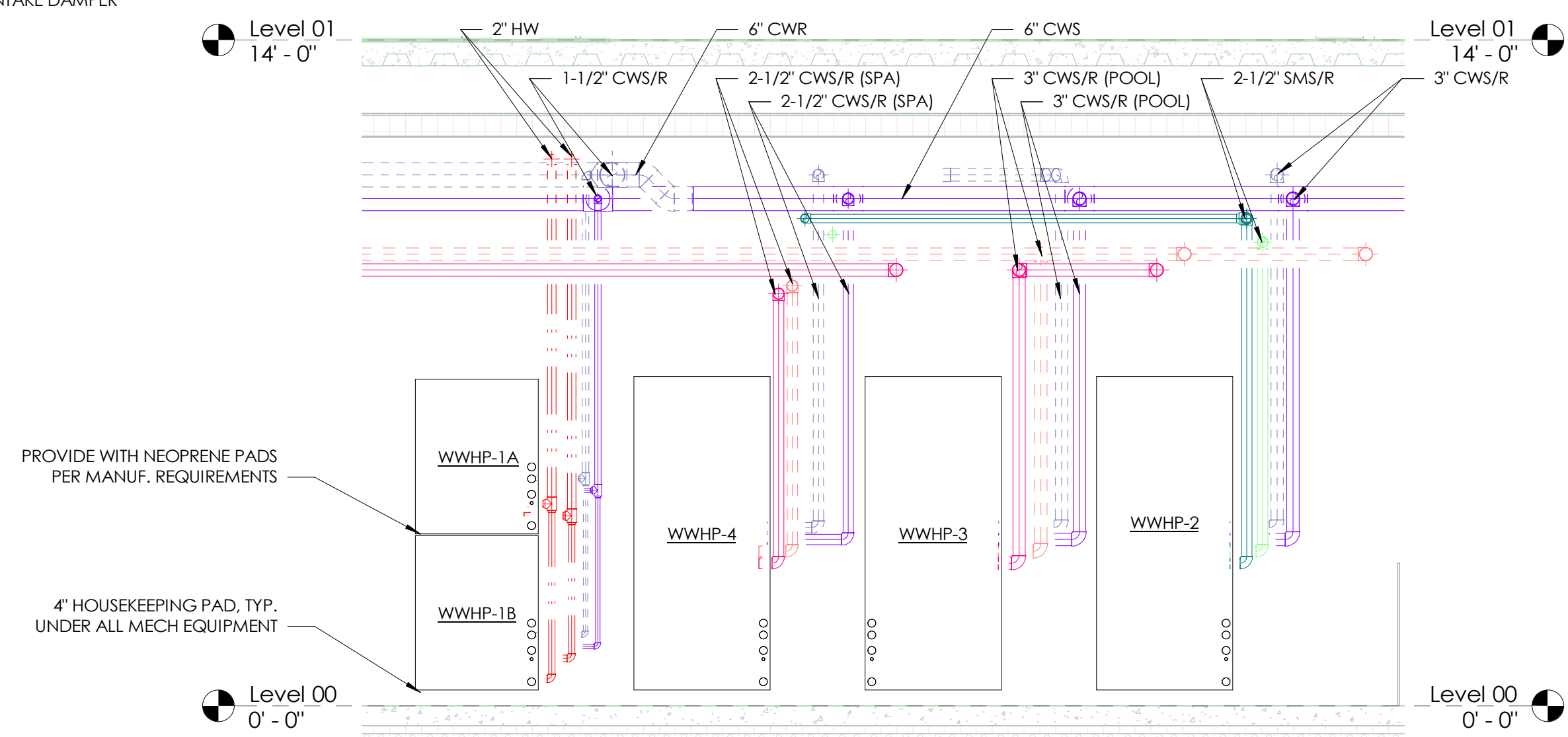




1 ENLARGED MECHANICAL & PLUMBING PLAN - MECH ROOM  
SCALE: 3/8" = 1'-0"



3 GENERATOR SECTION  
SCALE: 3/8" = 1'-0"



2 WATER TO WATER HEAT PUMP PIPING SCHEMATIC  
SCALE: 3/8" = 1'-0"

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
8	RFI #25	04.22.2024
9	ASI #2	04.28.2024
11	IFC UPDATES II	05.17.2024
12	RFI #55.1	05.28.2024
14	RFI #57	06.07.2024
21	RFI #138	06.25.2024
34	RFI #207	08.02.2024
35	RFI #206	08.06.2024
38	ASI #07	01.08.2025

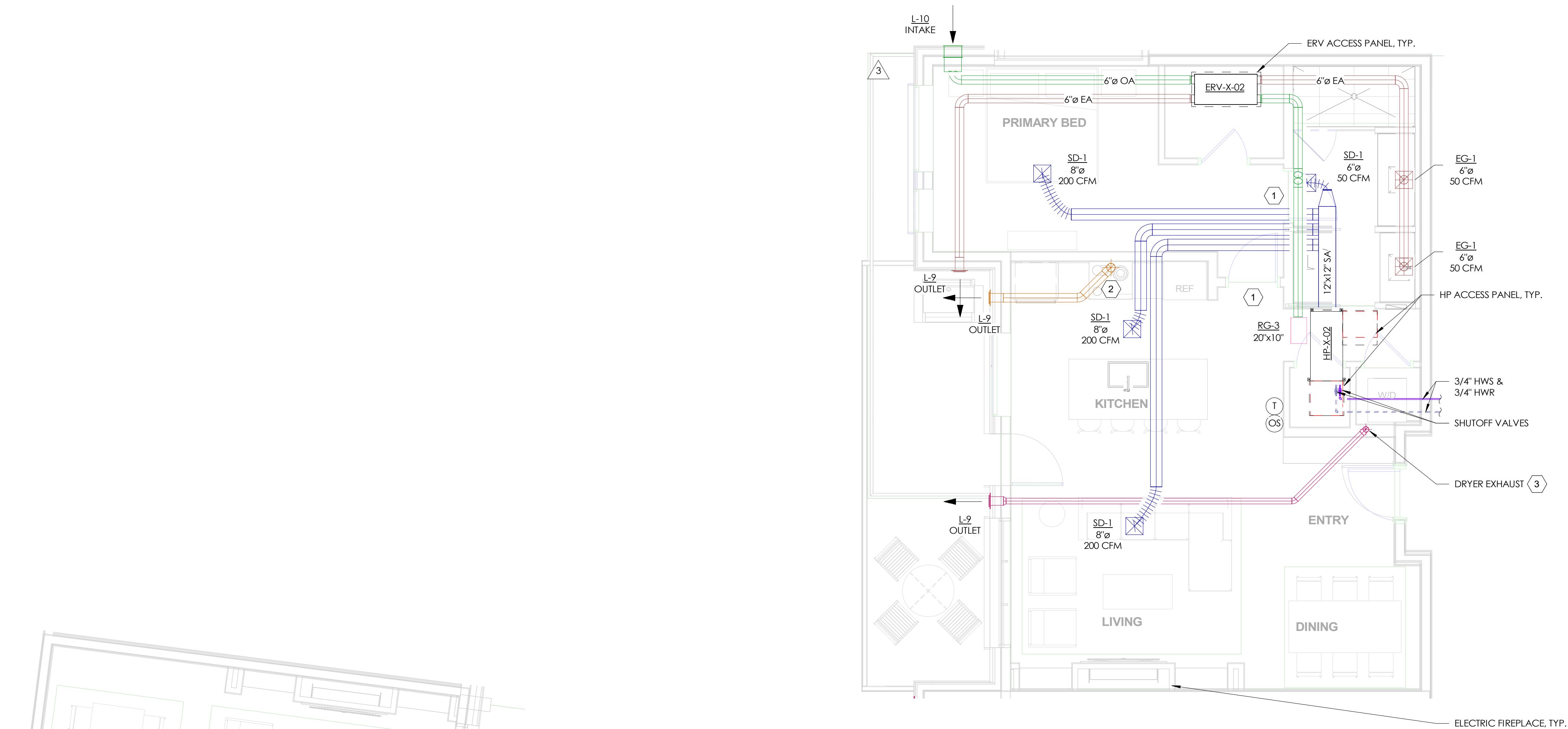
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ISSUE DATE 09/19/2024

ISSUE  
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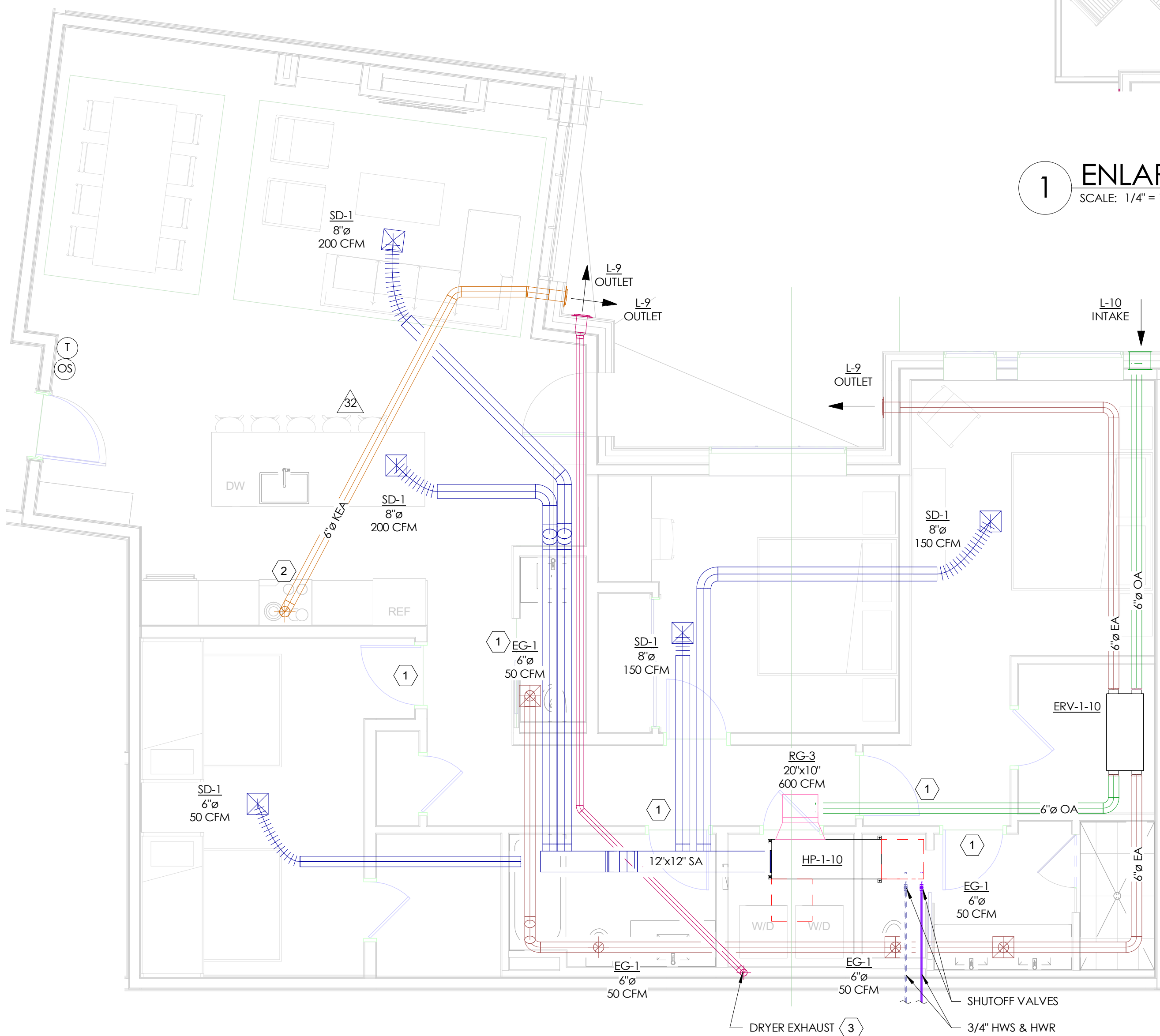
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**ENLARGED  
MECHANICAL PLAN**

SHEET NO.  
**M2.00**





1 ENLARGED MECHANICAL PLAN - 1 BEDROOM TYP  
SCALE: 1/4" = 1'-0"



2 ENLARGED MECHANICAL PLAN - UNIT 105  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL #07.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYP: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.552.0477

DAKE  
COLLABORATIVE



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COMPLIANCE  
06/24/2025

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Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RPT #192	07.30.2024
32	RPT #171	08.01.2024
47	RPT #300	10.23.2024

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ISSUE DATE: 09/19/2024

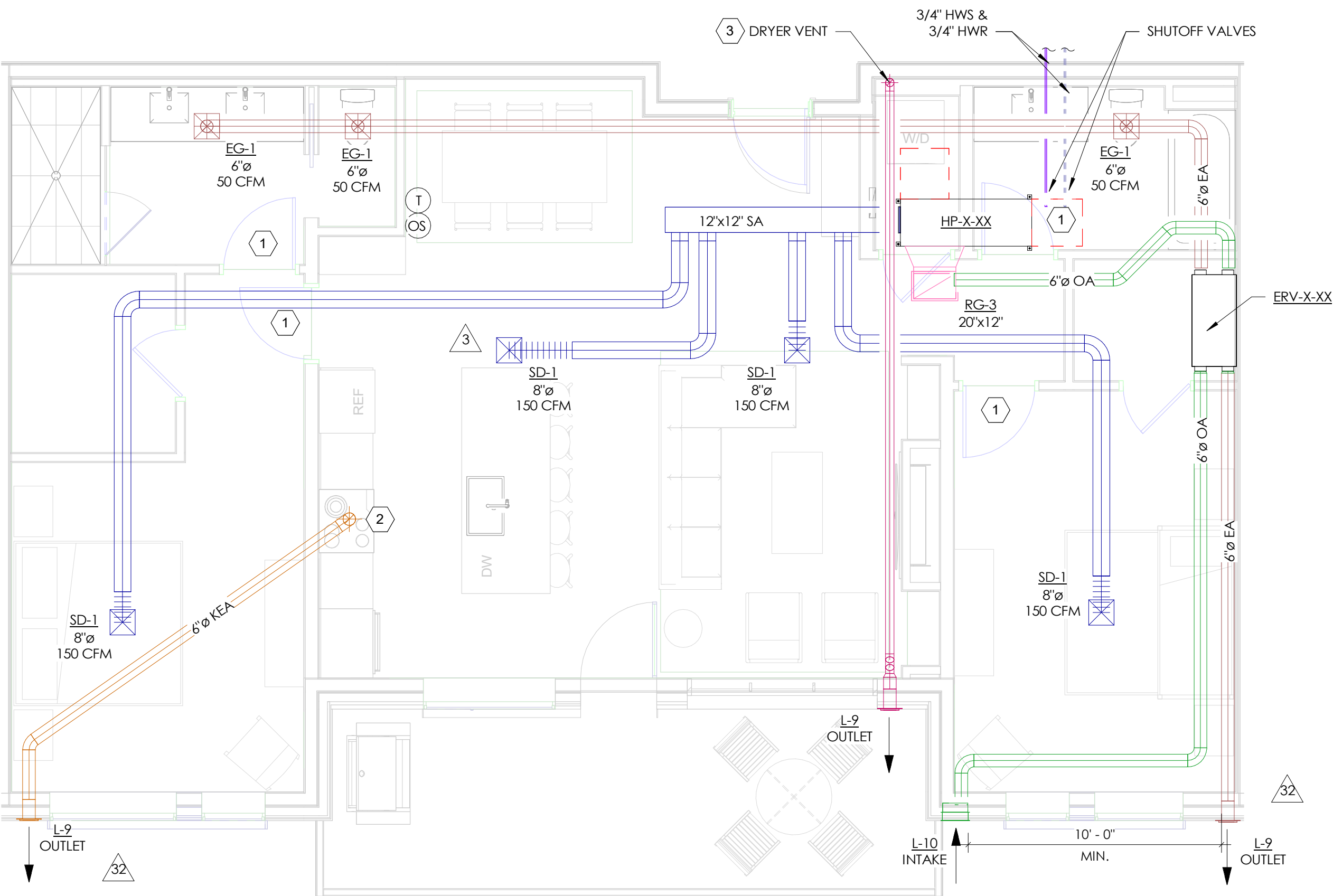
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IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 1 BED & 105

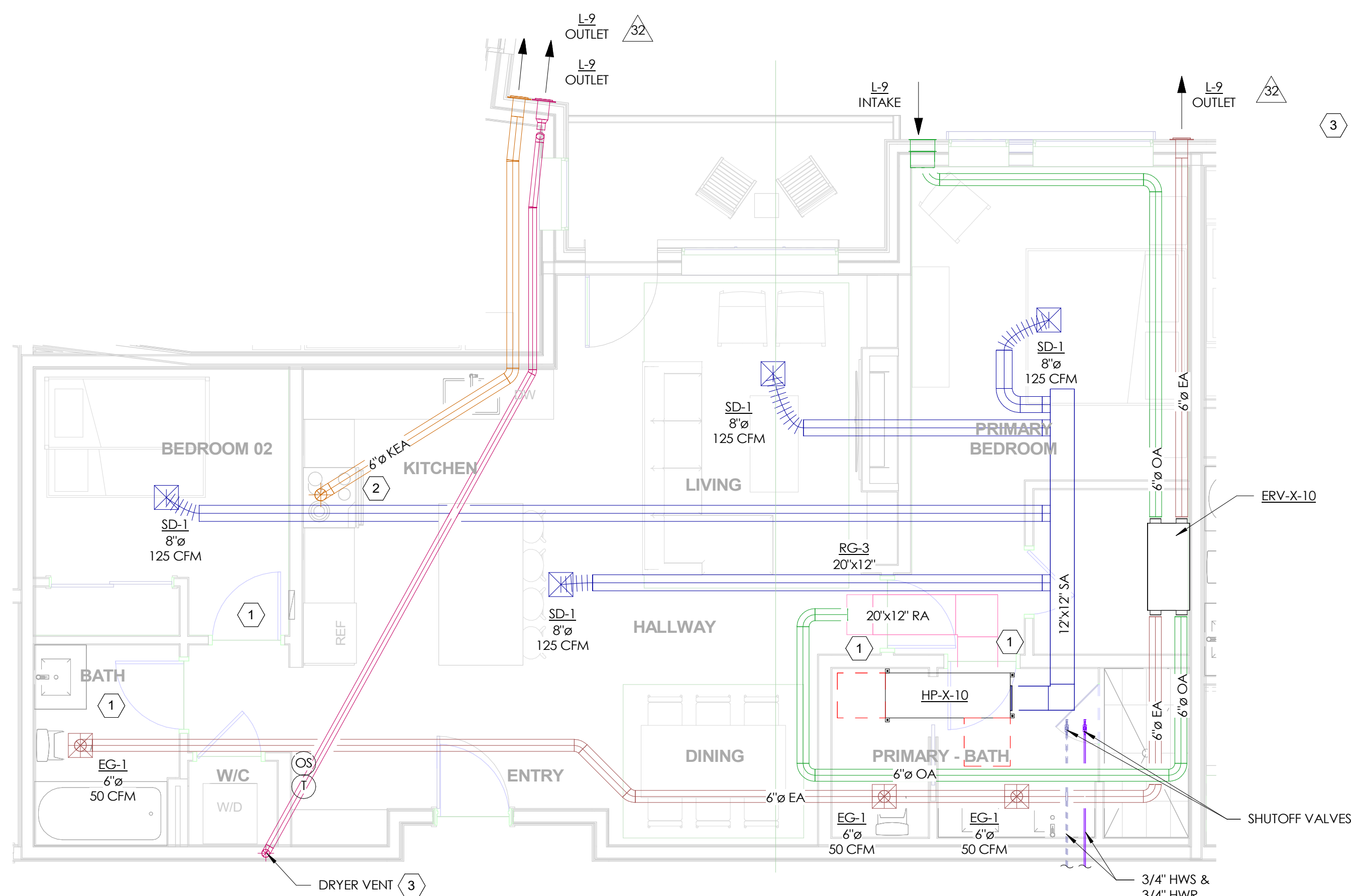
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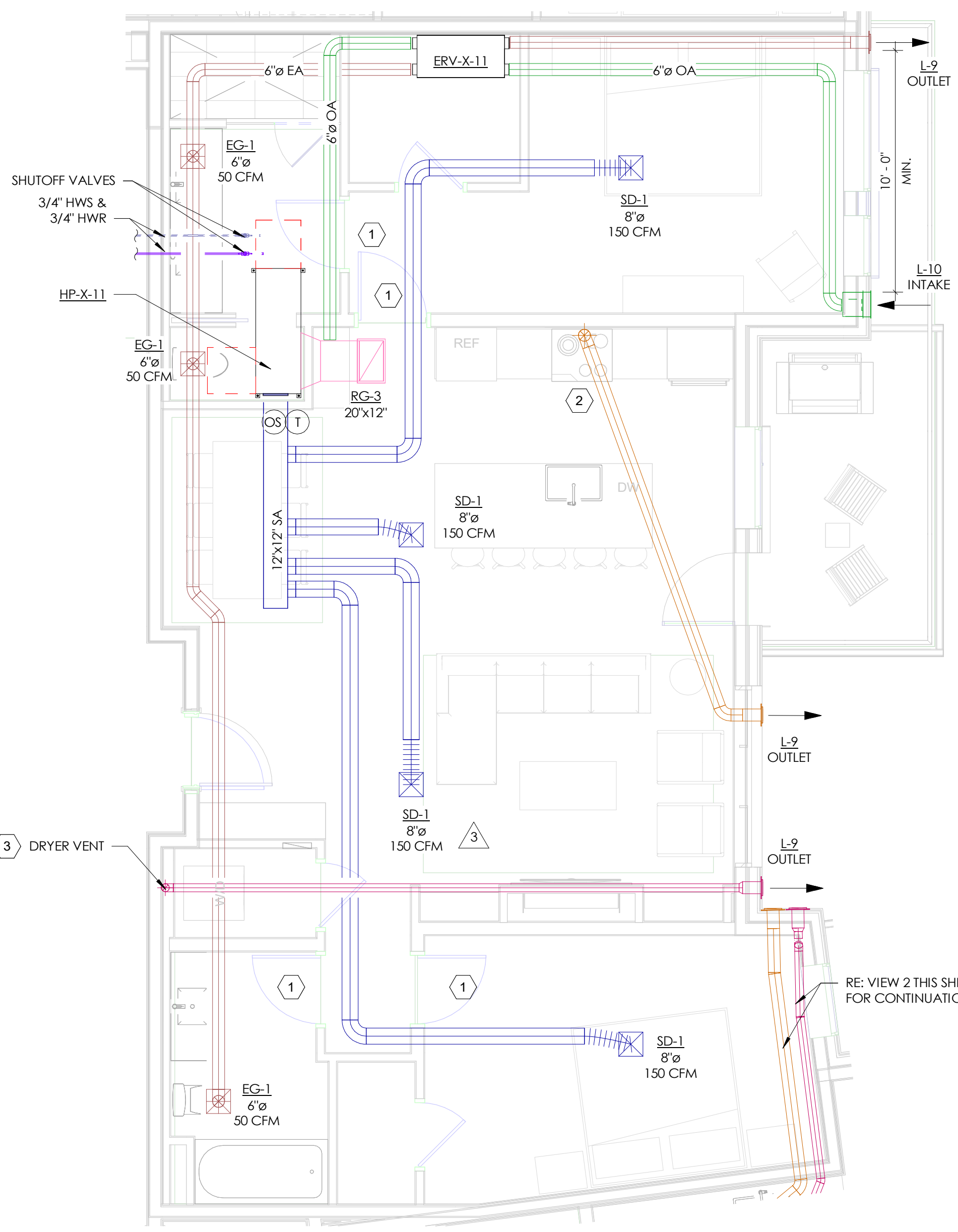




1 ENLARGED MECHANICAL PLAN - 2 BEDROOM TYP.  
SCALE: 1/4" = 1'-0"



2 ENLARGED MECHANICAL PLAN - 2 BEDROOM FLEX TYP  
SCALE: 1/4" = 1'-0"



3 ENLARGED MECHANICAL PLAN - 2 BEDROOM KNUCKLE TYP  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10), MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10), DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-X-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYP: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.531.2472

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RPT #192	07.30.2024
32	RPT #171	08.01.2024
47	RPT #300	10.23.2024

PROJECT NUMBER 30019  
ISSUE DATE 09/19/2024

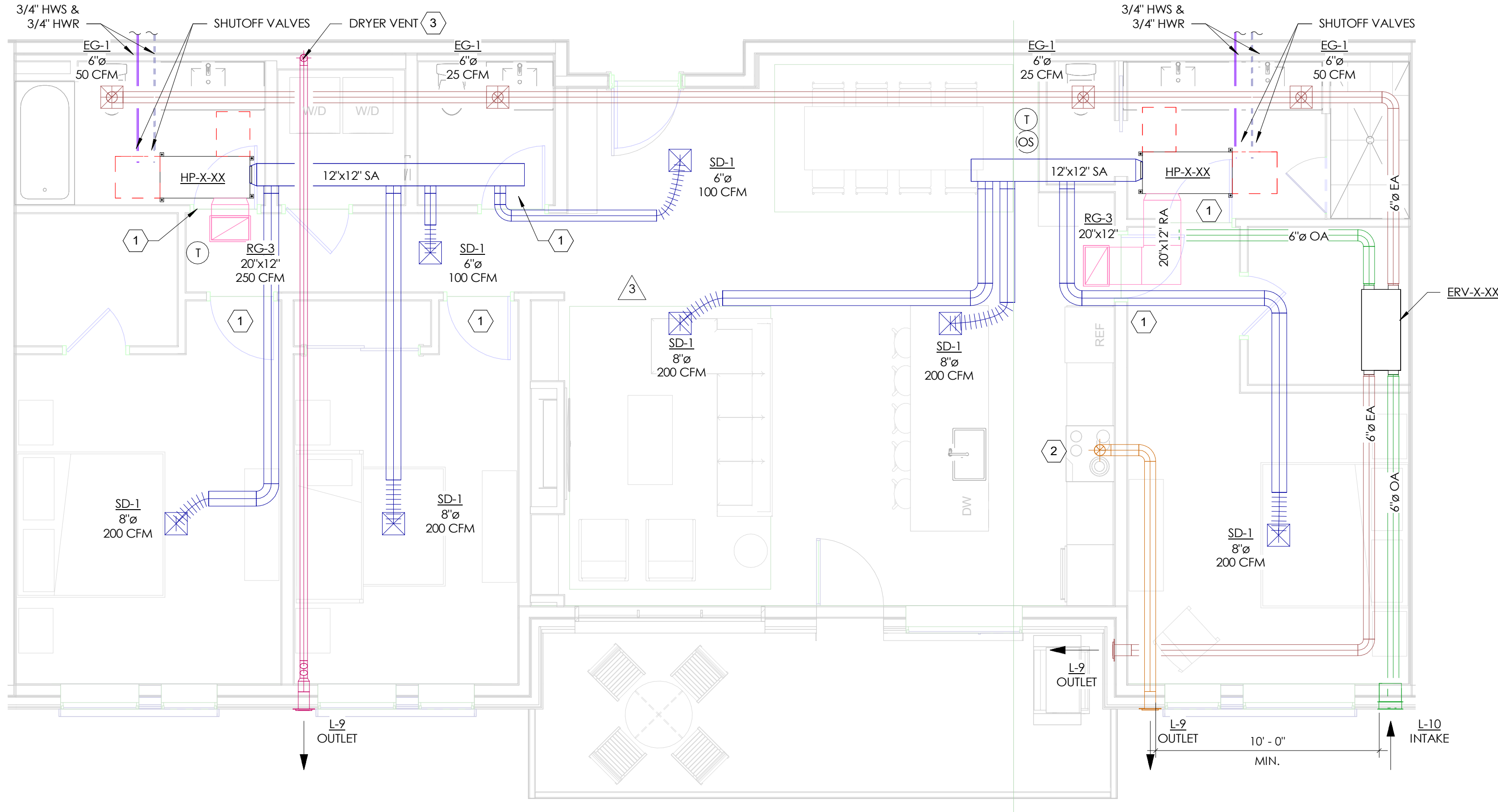
ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 2 BED

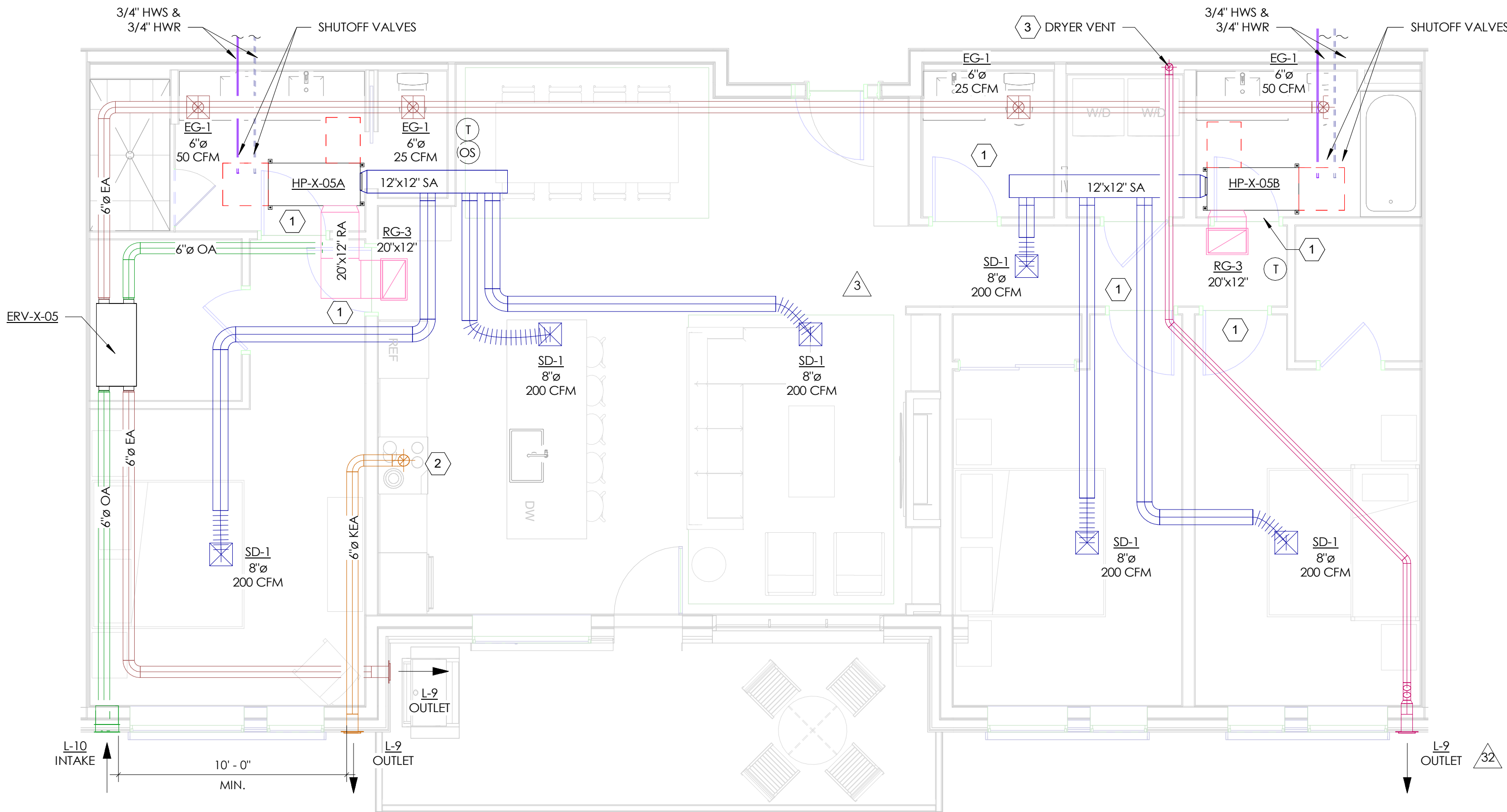
SHEET NO.

M2.02





1 ENLARGED MECHANICAL PLAN - 3 BEDROOM TYP.  
SCALE: 1/4" = 1'-0"



2 ENLARGED MECHANICAL PLAN - 3 BEDROOM FLEX - TYP.  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

- SETPOINTS:
- UNIT OCCUPIED HEATING SETPOINT: 70°F
  - UNIT UNOCCUPIED HEATING SETPOINT: 60°F
  - UNIT OCCUPIED COOLING SETPOINT: 78°F
  - UNIT UNOCCUPIED COOLING SETPOINT: 88°F

### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### ENERGY RECOVERY UNITS (ERV-X-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.2427

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

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FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
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32	RPT #171	08.01.2024
47	RPT #300	10.23.2024

PROJECT NUMBER 30019  
ISSUE DATE 09/19/2024

ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 3 BED

SHEET NO.

M2.03



- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS. CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

1 UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS

2 KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.

3 CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

CONTROL SEQUENCES - UNITS

SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR [LOCATED IN THE MAIN ROOM OF THE LIVING SPACE] WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

UNOCCUPIED MODE:

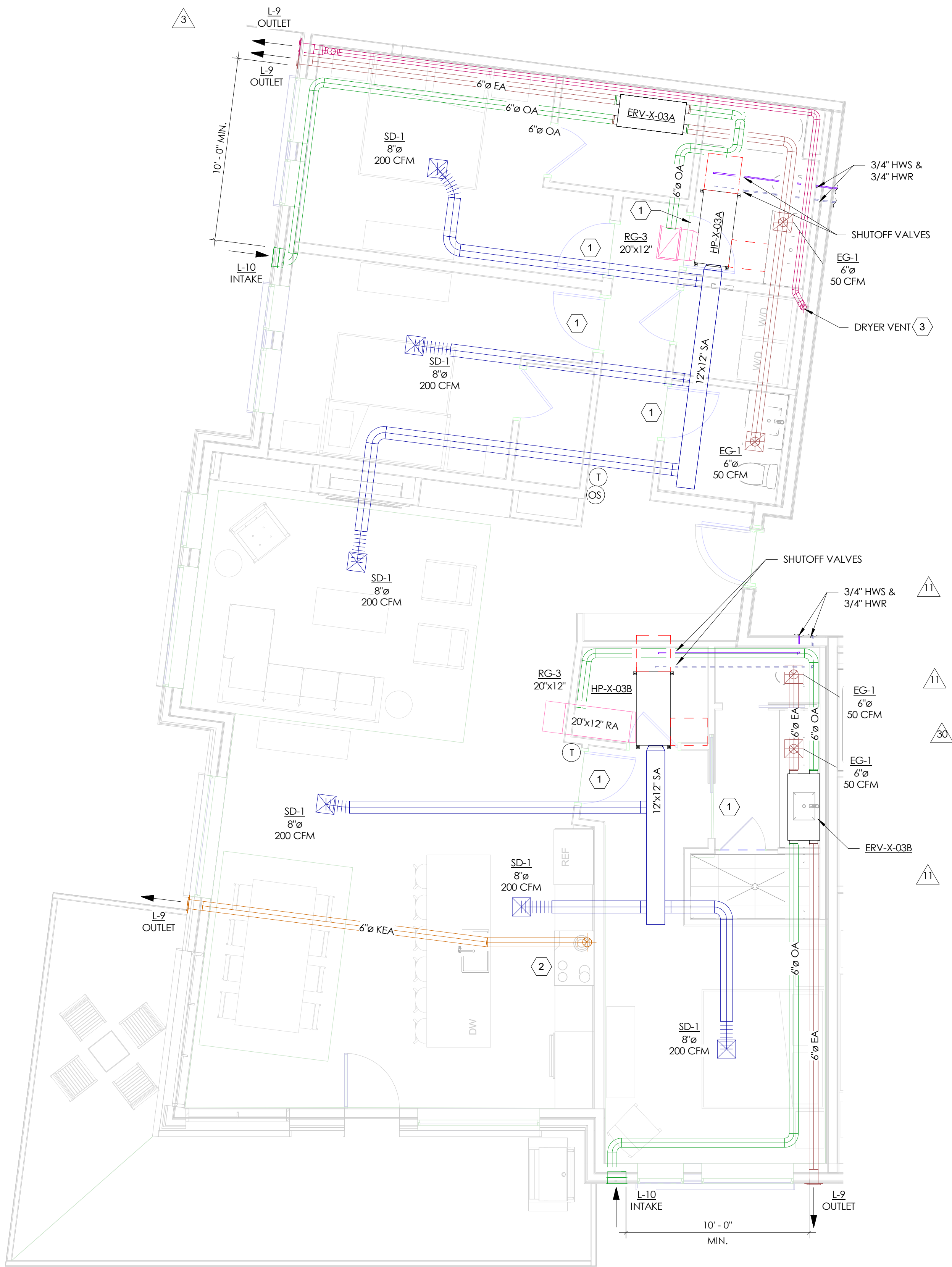
WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

CEILING FANS (CF-\*)  
THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS.  
POINTS LIST DESCRIPTION/TYPER: NONE







1 ENLARGED MECHANICAL PLAN - UNITS 104, 204, 304  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

- SETPOINTS:**
- UNIT OCCUPIED HEATING SETPOINT: 70°F
  - UNIT UNOCCUPIED HEATING SETPOINT: 60°F
  - UNIT OCCUPIED COOLING SETPOINT: 78°F
  - UNIT UNOCCUPIED COOLING SETPOINT: 88°F

### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### ENERGY RECOVERY UNITS (ERV-X-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.552.2471

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

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FOR  
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COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RFP #182	07.30.2024
47	RFP #300	10.23.2024

PROJECT NUMBER: 30019  
ISSUE DATE: 09/19/2024

ISSUE  
IFC SET

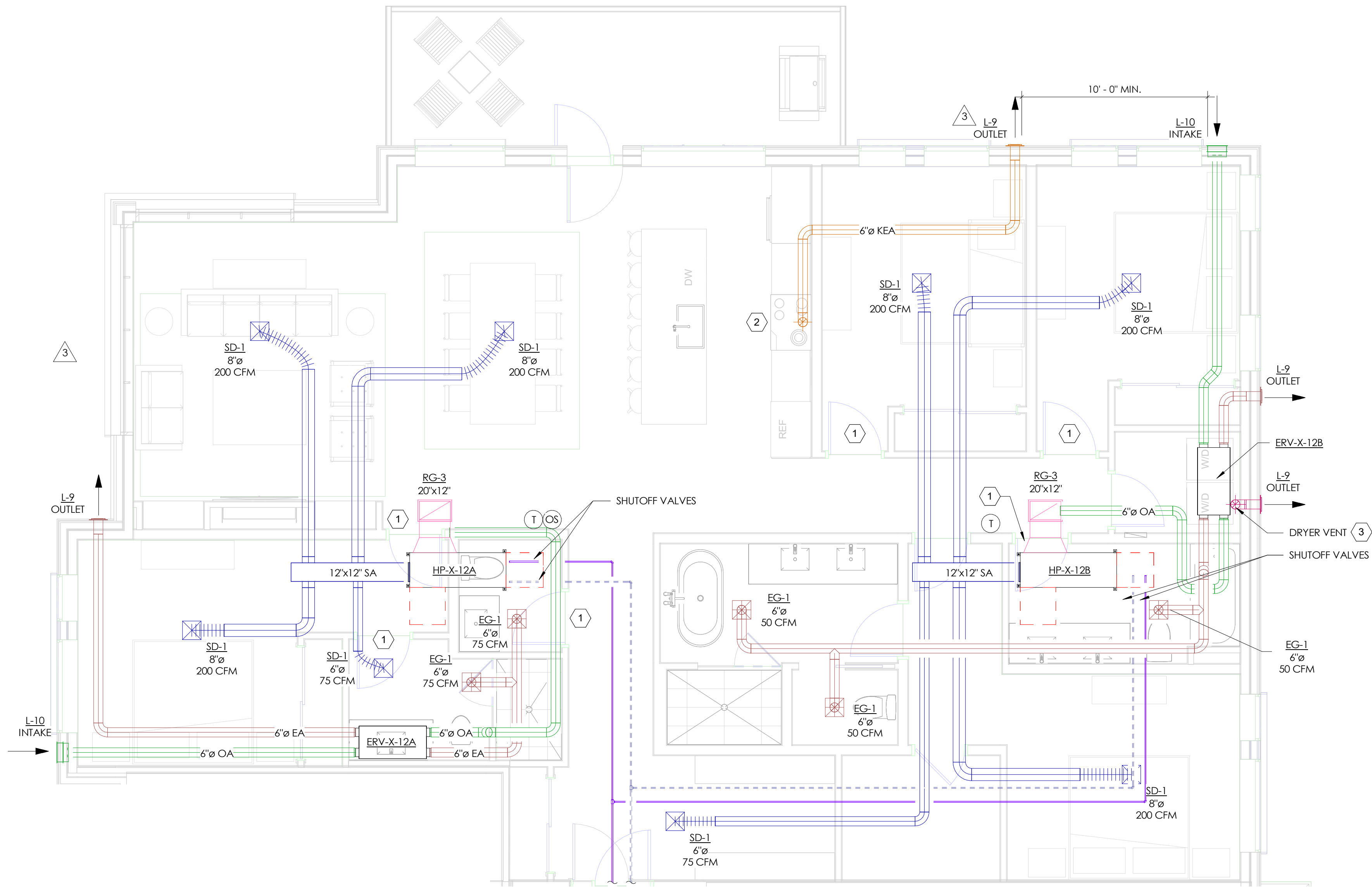
SHEET TITLE  
MECHANICAL UNIT  
PLANS - 104, 204, 304

SHEET NO.

M2.05



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1 ENLARGED MECHANICAL PLAN - UNITS 201 & 301  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-X-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPED: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.552.2407

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

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FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RFP #182	07.30.2024
47	RFP #300	10.23.2024

PROJECT NUMBER: 20019  
ISSUE DATE: 09/19/2024

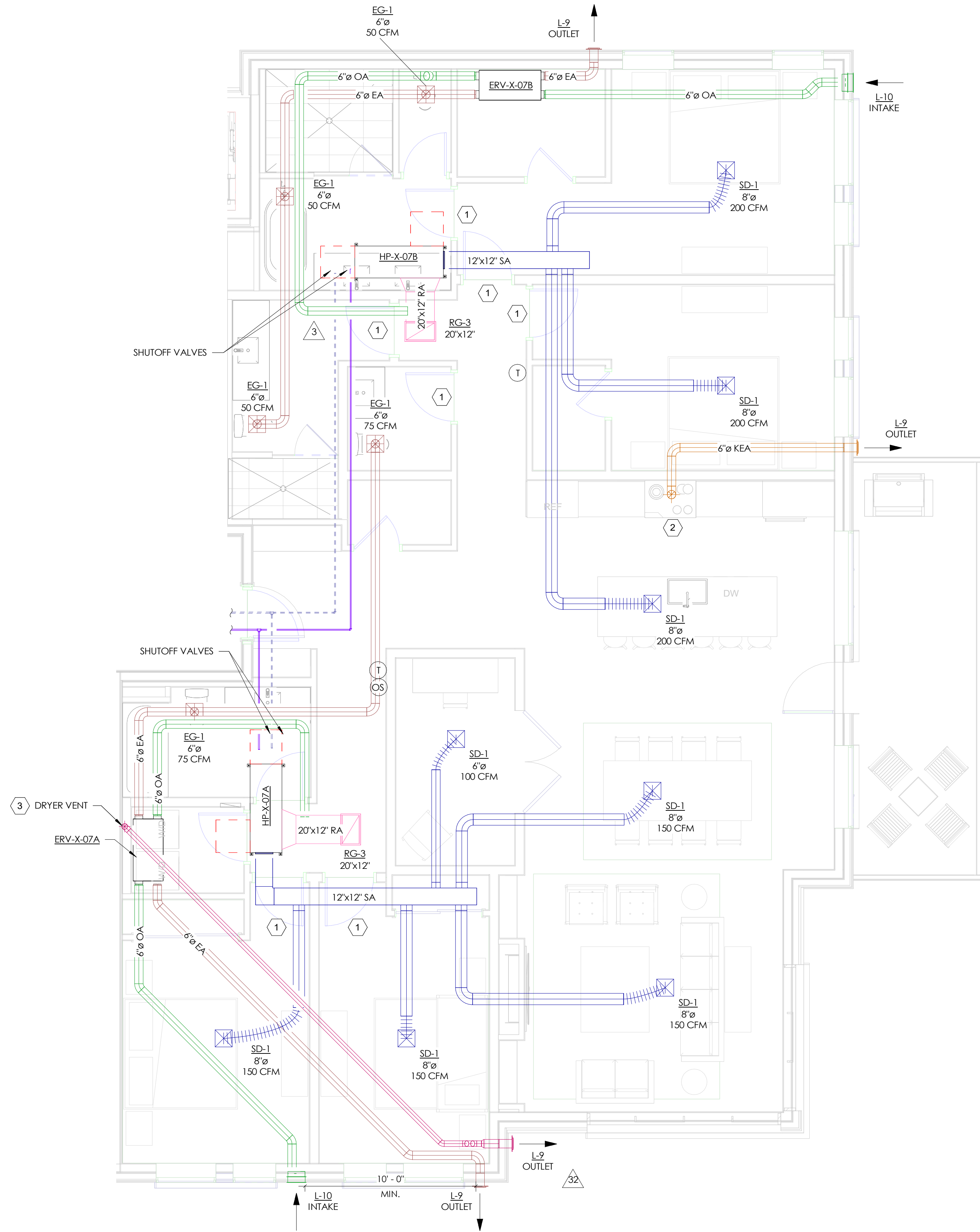
ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 201 & 301

SHEET NO.

M2.06





1 ENLARGED MECHANICAL PLAN - UNITS 211 & 311  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10), MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL #07.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10), DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.2407

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

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47	RFP #300	10.23.2024

PROJECT NUMBER: 30019  
ISSUE DATE: 09/19/2024

ISSUE

IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 211 & 311

SHEET NO.

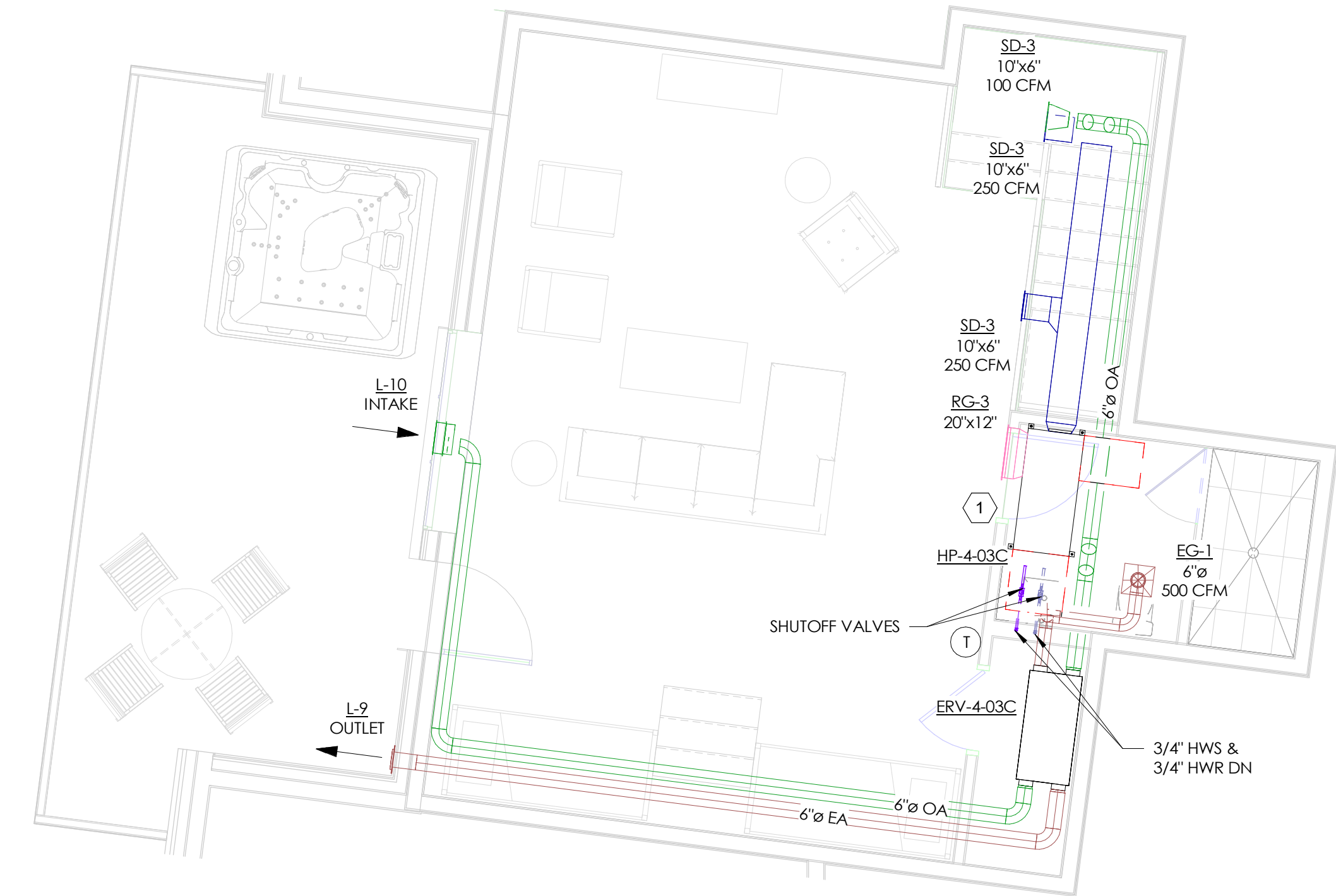
M2.07



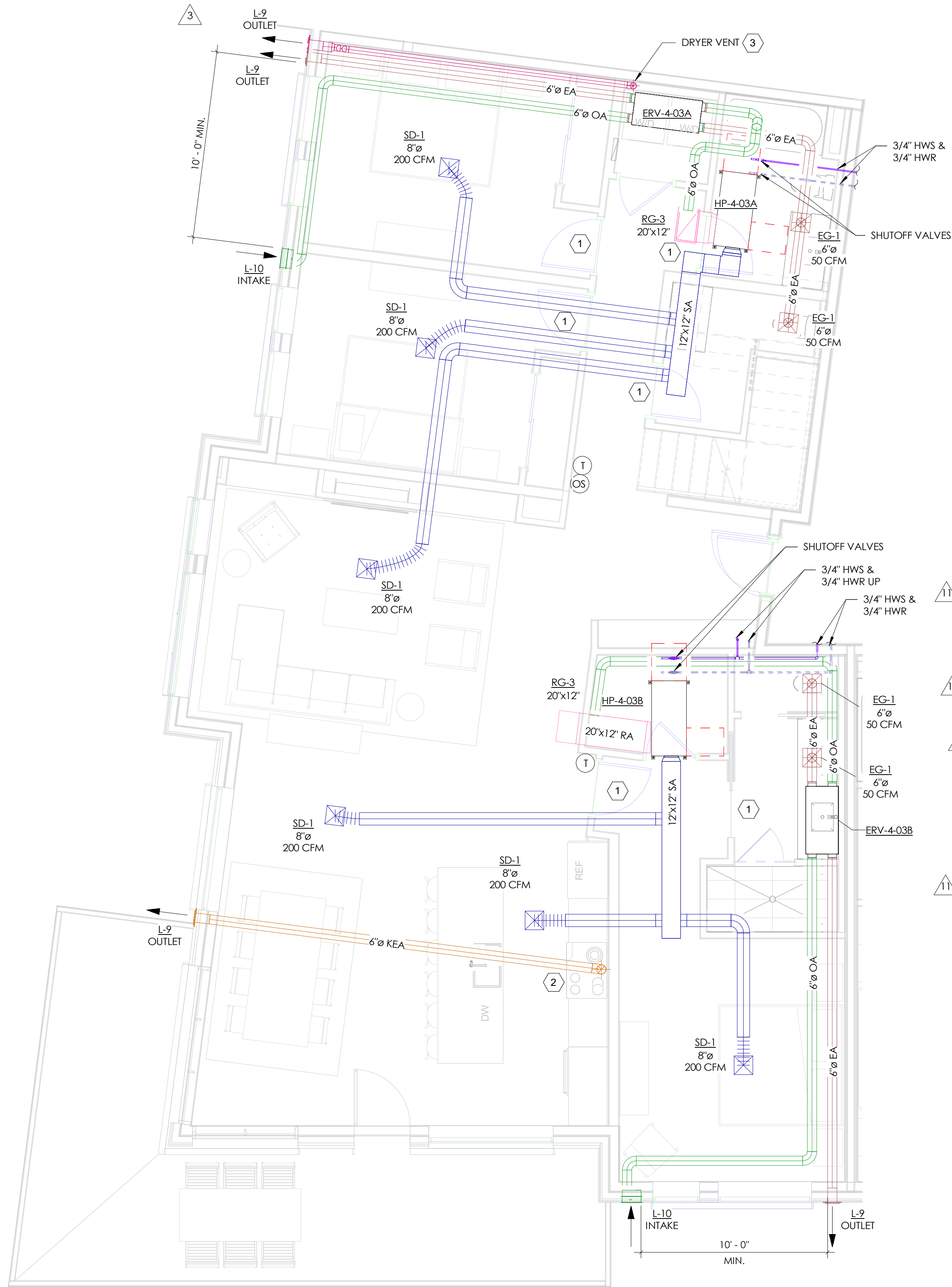


## M2.08





2 ENLARGED MECHANICAL PLAN - UNIT 404 - LOFT  
SCALE: 1/4" = 1'-0"



1 ENLARGED MECHANICAL PLAN - UNIT 404 - MAIN LEVEL  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.2427

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RFP #182	07.30.2024
47	RFP #300	10.23.2024

PROJECT NUMBER: 20019  
ISSUE DATE: 09/19/2024

ISSUE

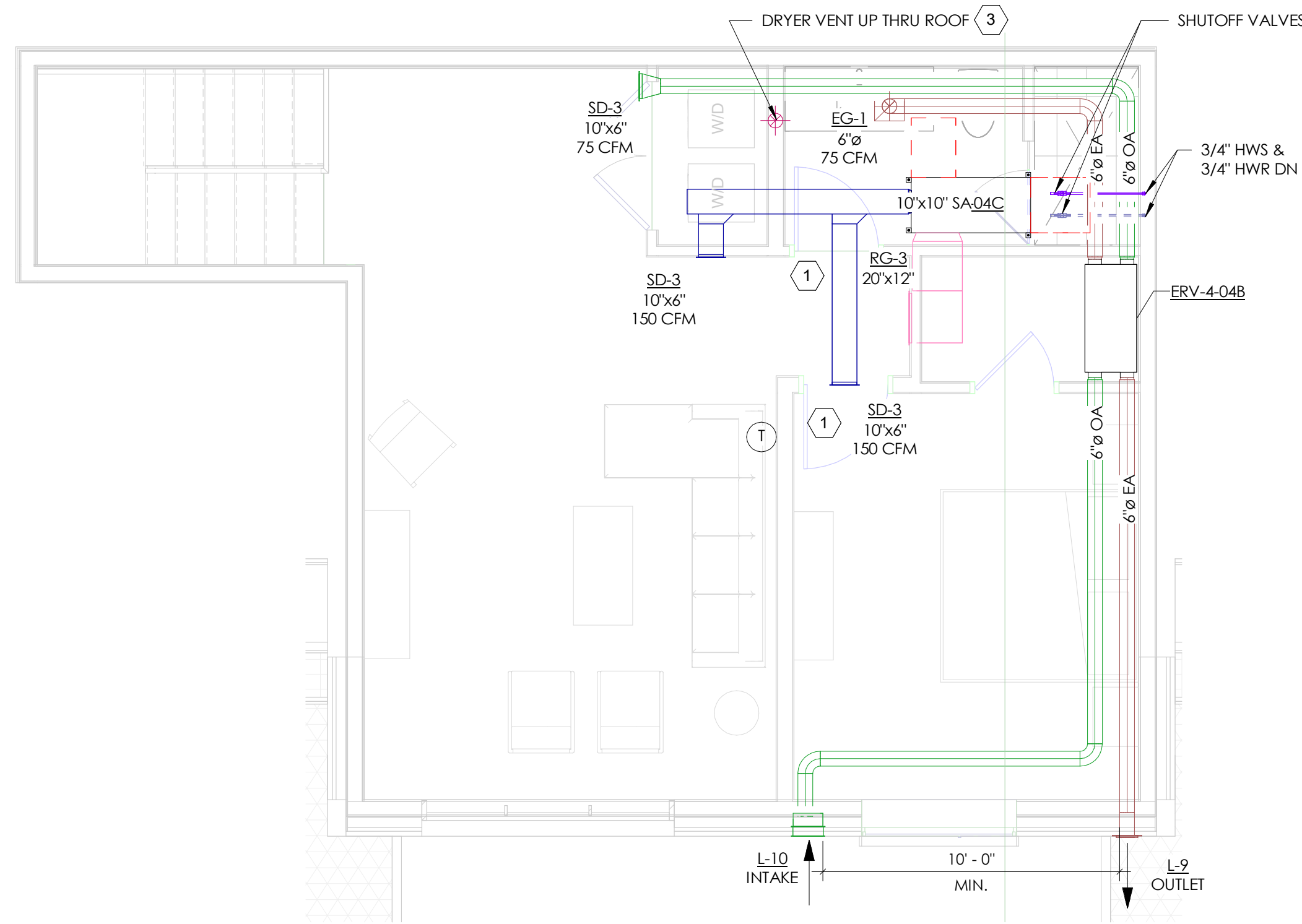
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 404

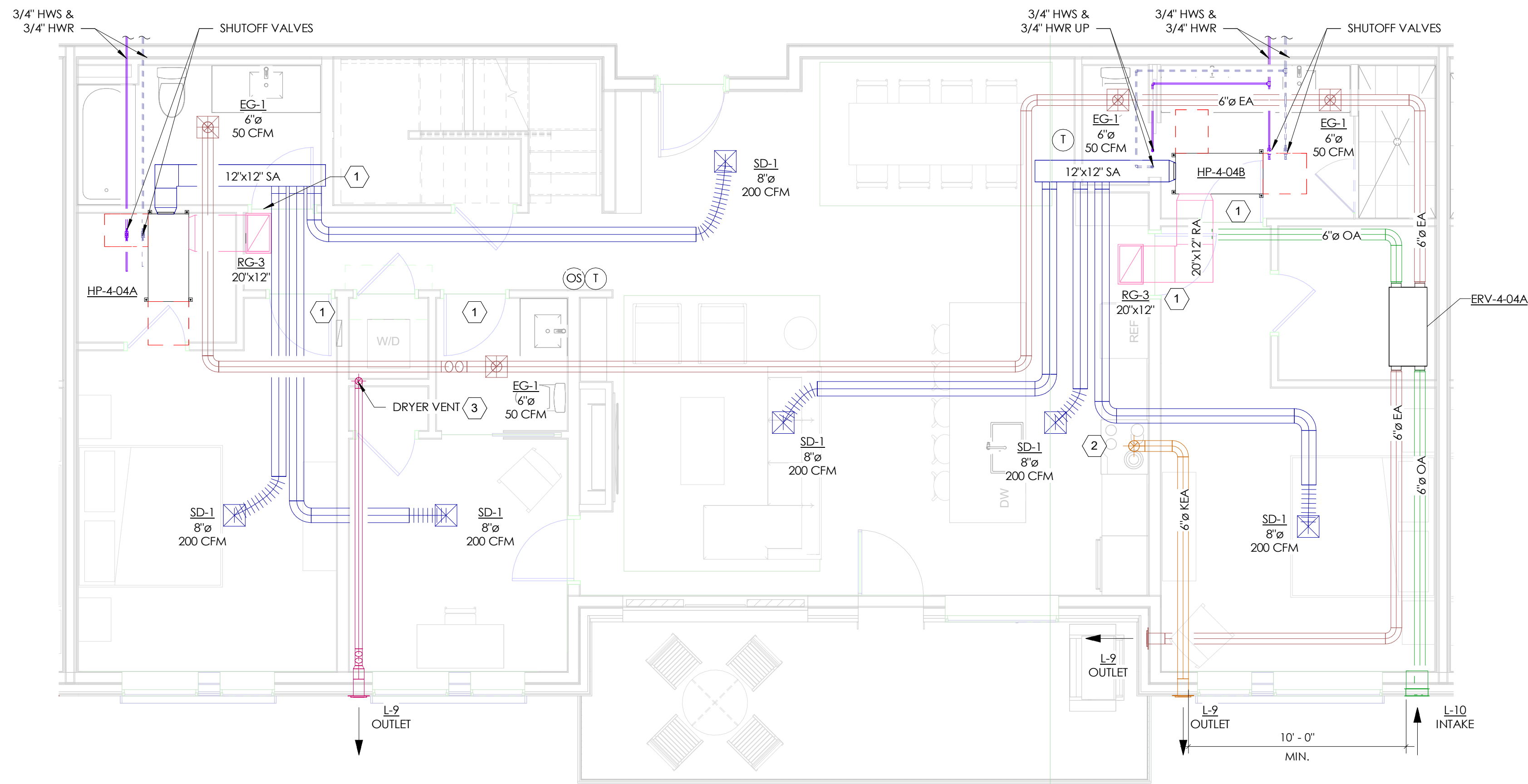
SHEET NO.

M2.09





3 ENLARGED MECHANICAL PLAN - UNIT 406 - LOFT  
SCALE: 1/4" = 1'-0"



1 ENLARGED MECHANICAL PLAN - UNIT 406 - MAIN LEVEL  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPED: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.1400

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble

Steamboat Springs, CO

REVISIONS		
No.	Description	Date
30	RPI #162	07.30.2024
47	RPI #200	10.23.2024

PROJECT NUMBER: 30019  
ISSUE DATE: 09/19/2024

ISSUE

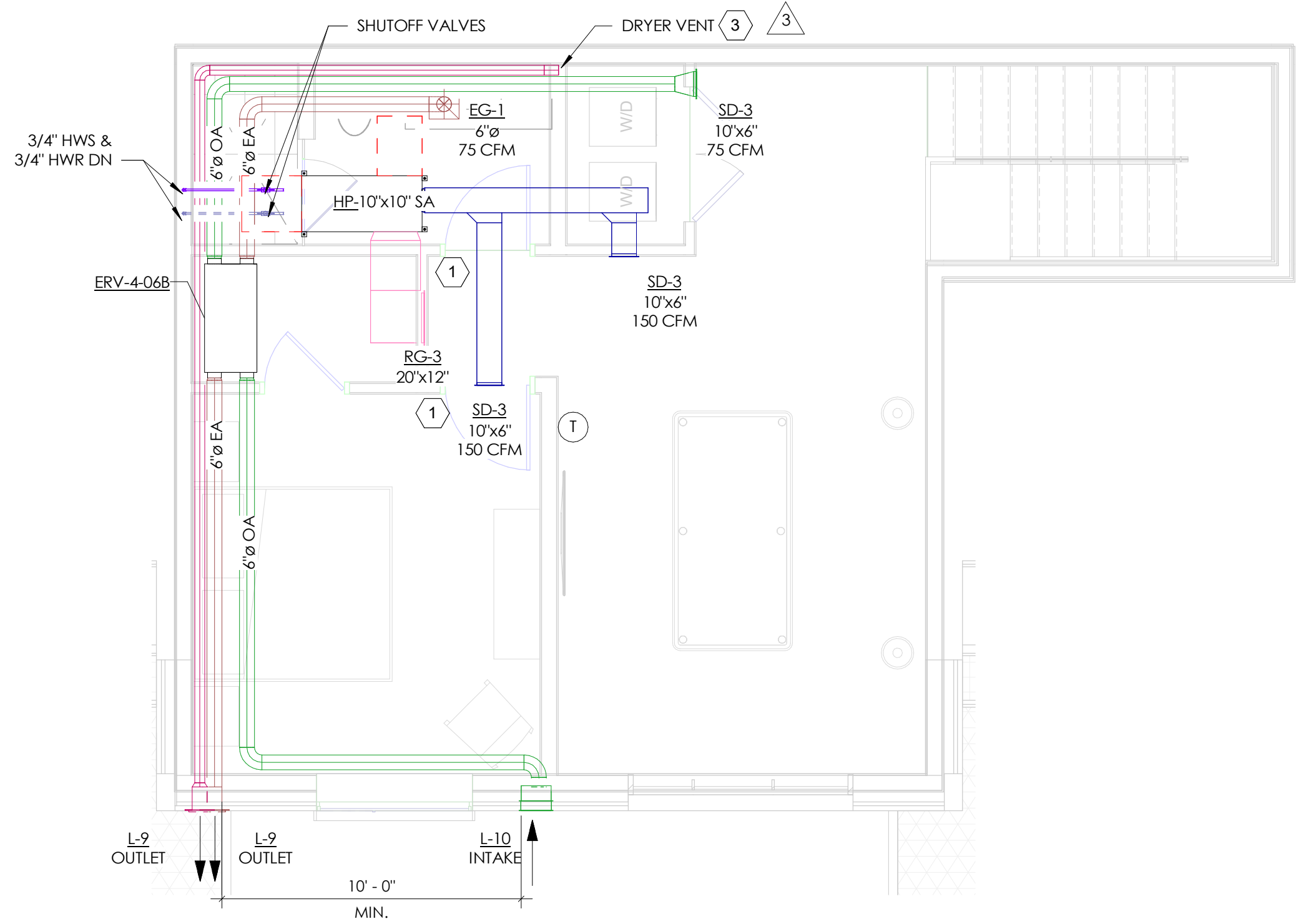
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 406

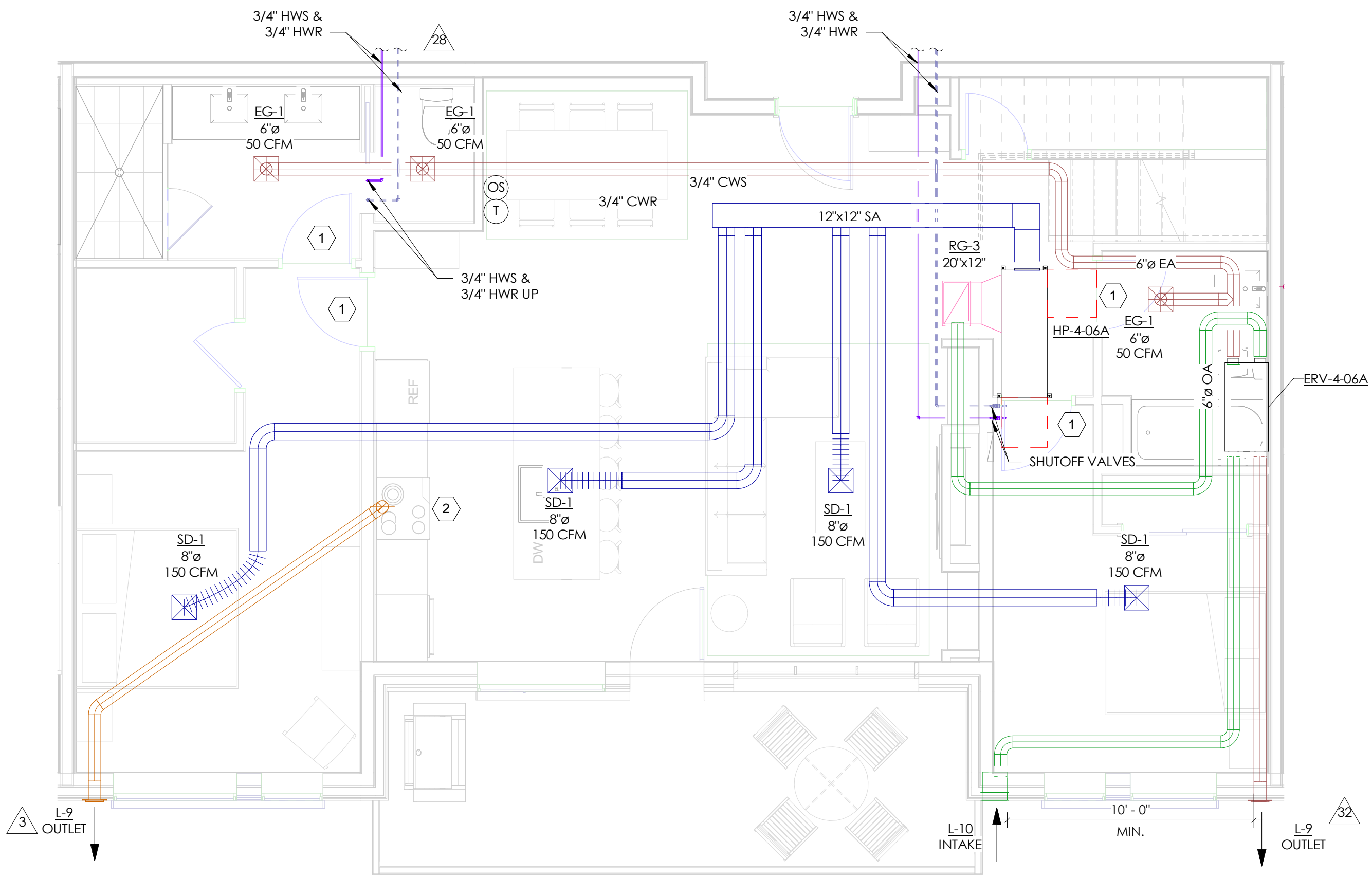
SHEET NO.

M2.10





2 ENLARGED MECHANICAL PLAN - UNITS 407, 409, 410 - LOFT  
SCALE: 1/4" = 1'-0"



1 ENLARGED MECHANICAL PLAN - UNITS 407, 409, 410 - MAIN LEVEL  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

#### SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

#### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

#### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

#### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

#### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.552.2407

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble

Steamboat Springs, CO

No.	IFC UPDATES	Description	Date
3	IFC UPDATES	03.15.2024	
11	IFC UPDATES II	05.17.2024	
28	RPT #189	07.24.2024	
30	RPT #192	07.30.2024	
32	RPT #171	08.01.2024	
47	RPT #300	10.23.2024	

PROJECT NUMBER 30019  
ISSUE DATE 09/19/2024

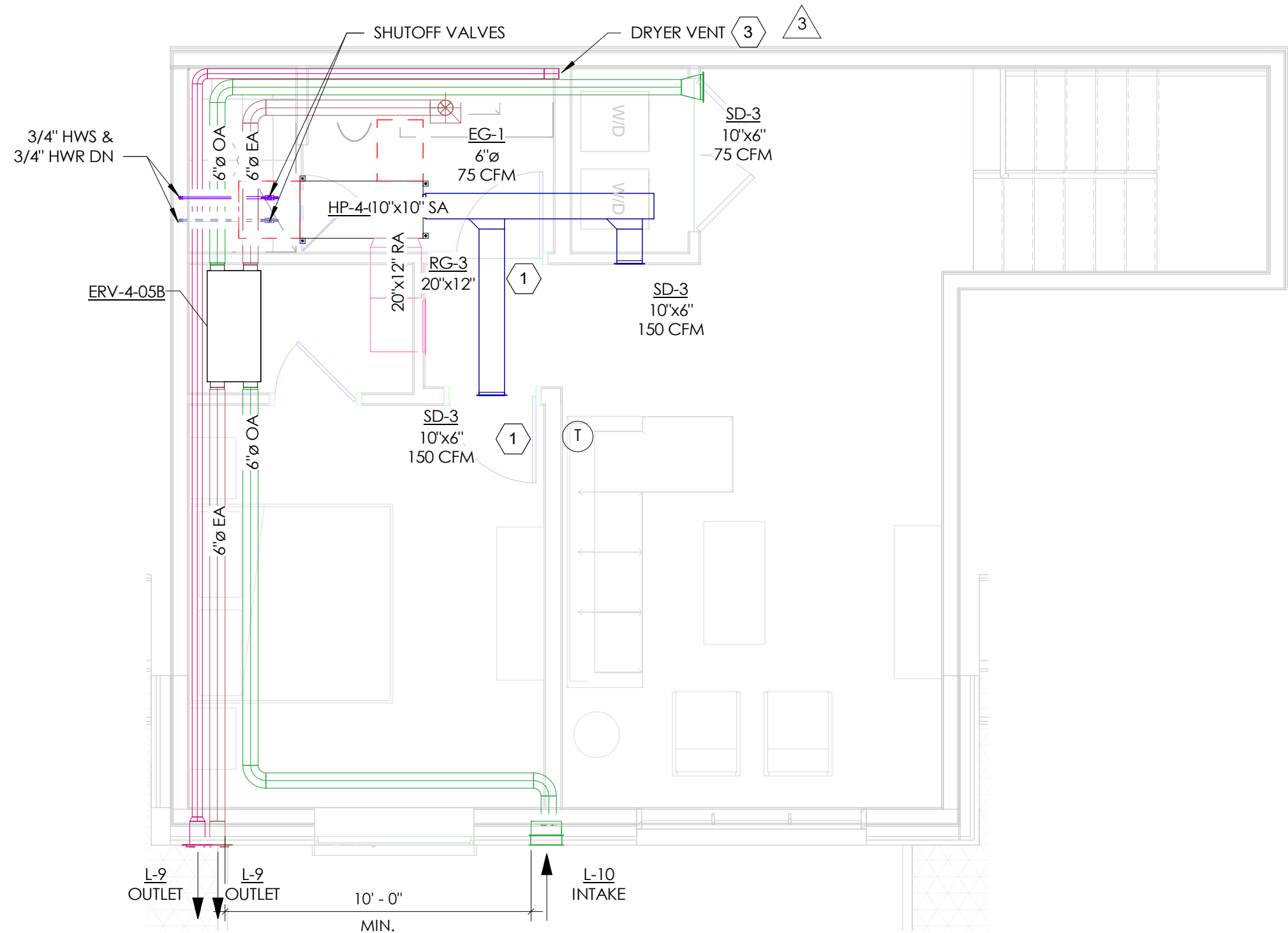
ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 407, 409, 410

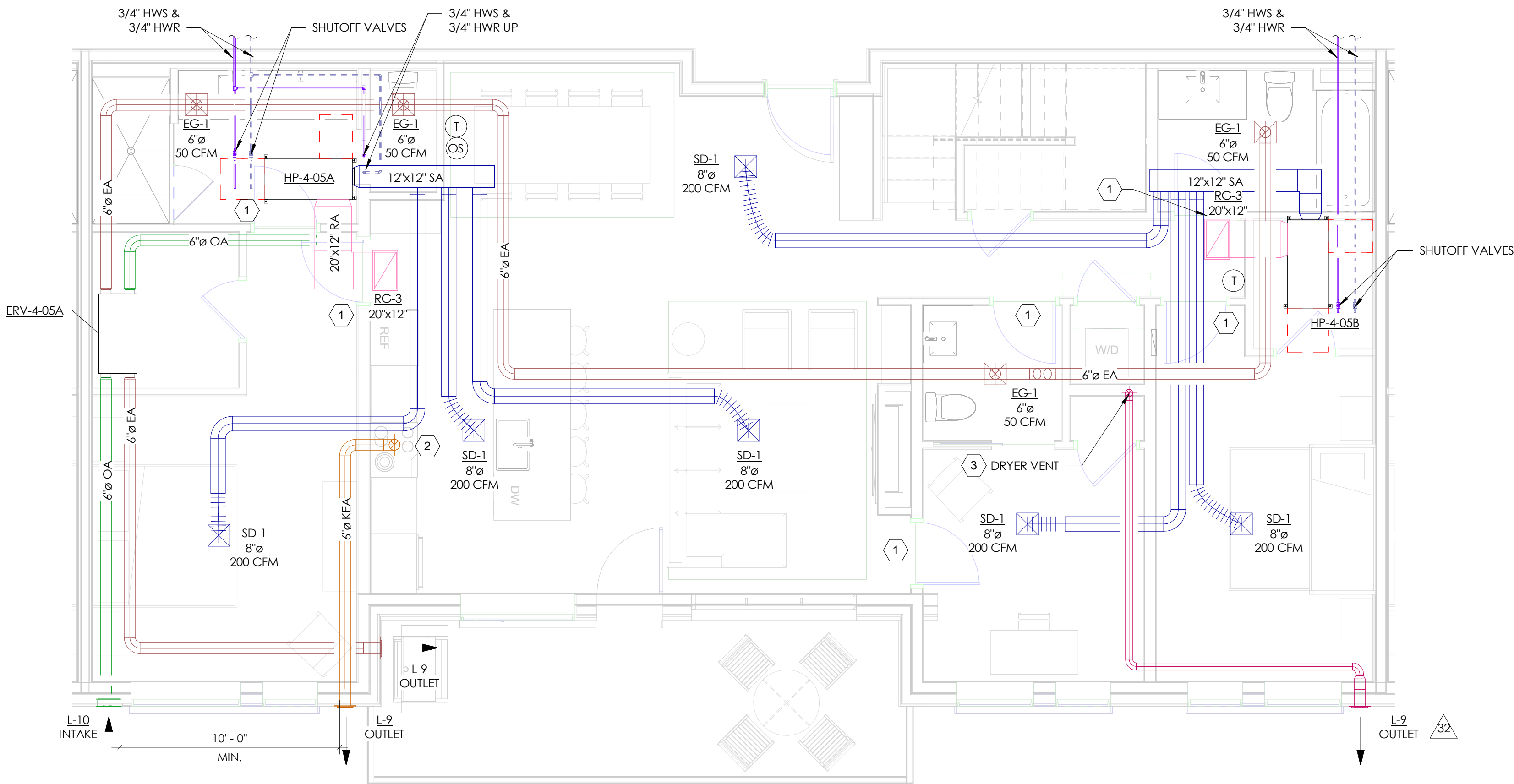
SHEET NO.

M2.11





2 ENLARGED MECHANICAL PLAN - UNIT 408 - LOFT  
SCALE: 1/4" = 1'-0"



1 ENLARGED MECHANICAL PLAN - UNIT 408 - MAIN LEVEL  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4" CONDENSATE PIPING TO THE NEAREST DRAIN OR SINK TAILPIECE
- ALL EXHAUST OUTLETS TO EXTERIOR SHALL BE INSTALLED MINIMUM 3'-0" AWAY FROM OPERABLE WINDOWS, CONTRACTOR TO CONFIRM PRIOR TO INSTALLATION

## KEY NOTES

- UNDERCUT DOOR 3/4" TO MAINTAIN RETURN/EXHAUST AIR PATHS
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL #07.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

## CONTROLS SEQUENCE UNITS

### CONTROL SEQUENCES - UNITS

- SETPOINTS:**
- UNIT OCCUPIED HEATING SETPOINT: 70°F
  - UNIT UNOCCUPIED HEATING SETPOINT: 60°F
  - UNIT OCCUPIED COOLING SETPOINT: 78°F
  - UNIT UNOCCUPIED COOLING SETPOINT: 88°F

### OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

### OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

### ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

### CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.2400

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024
11	IFC UPDATES II	05.17.2024
30	RPT #182	07.30.2024
32	RPT #171	08.01.2024
47	RPT #300	10.23.2024

PROJECT NUMBER: 20019  
ISSUE DATE: 09/19/2024

ISSUE  
IFC SET

SHEET TITLE  
MECHANICAL UNIT  
PLANS - 408

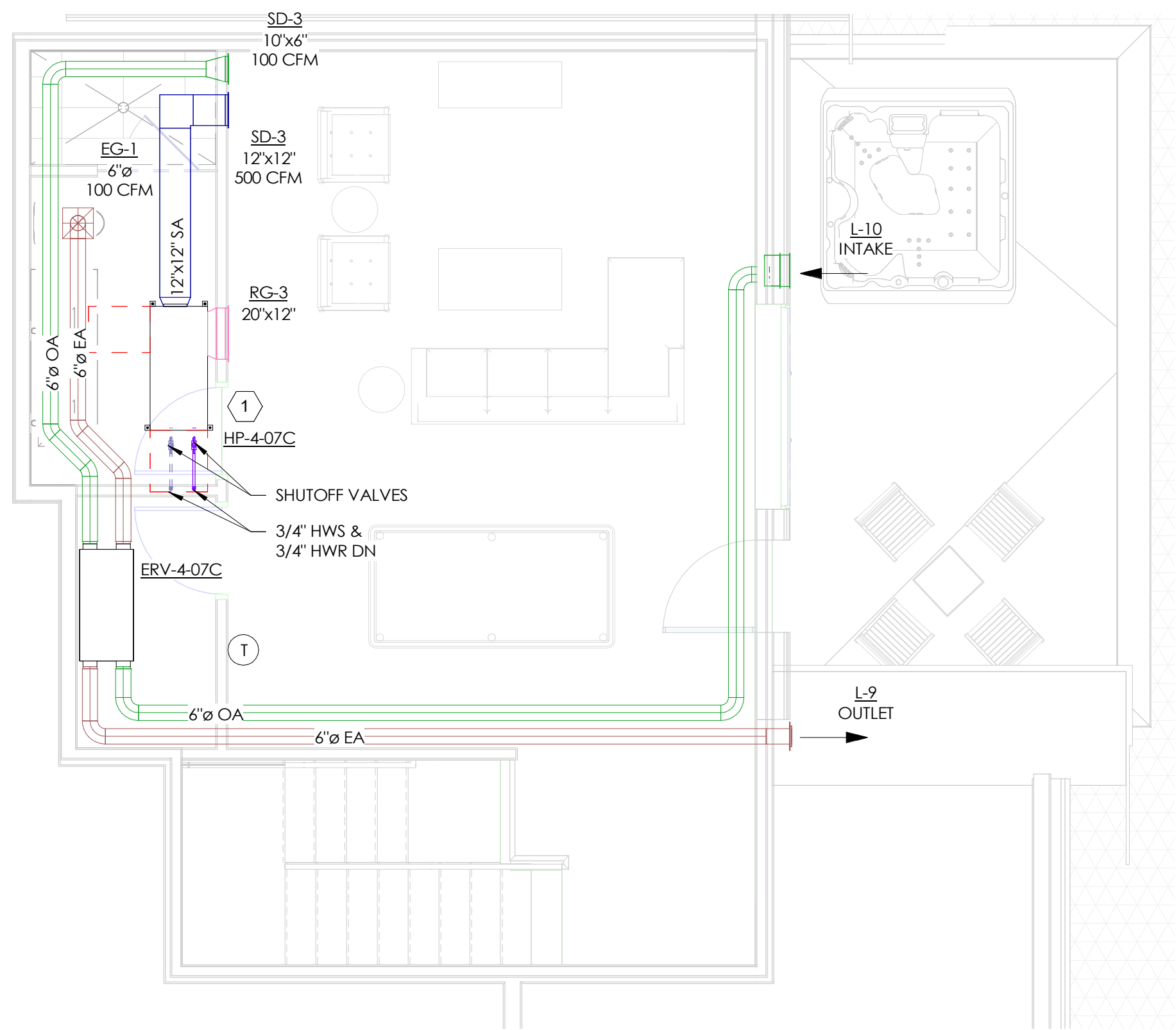
SHEET NO.

M2.12



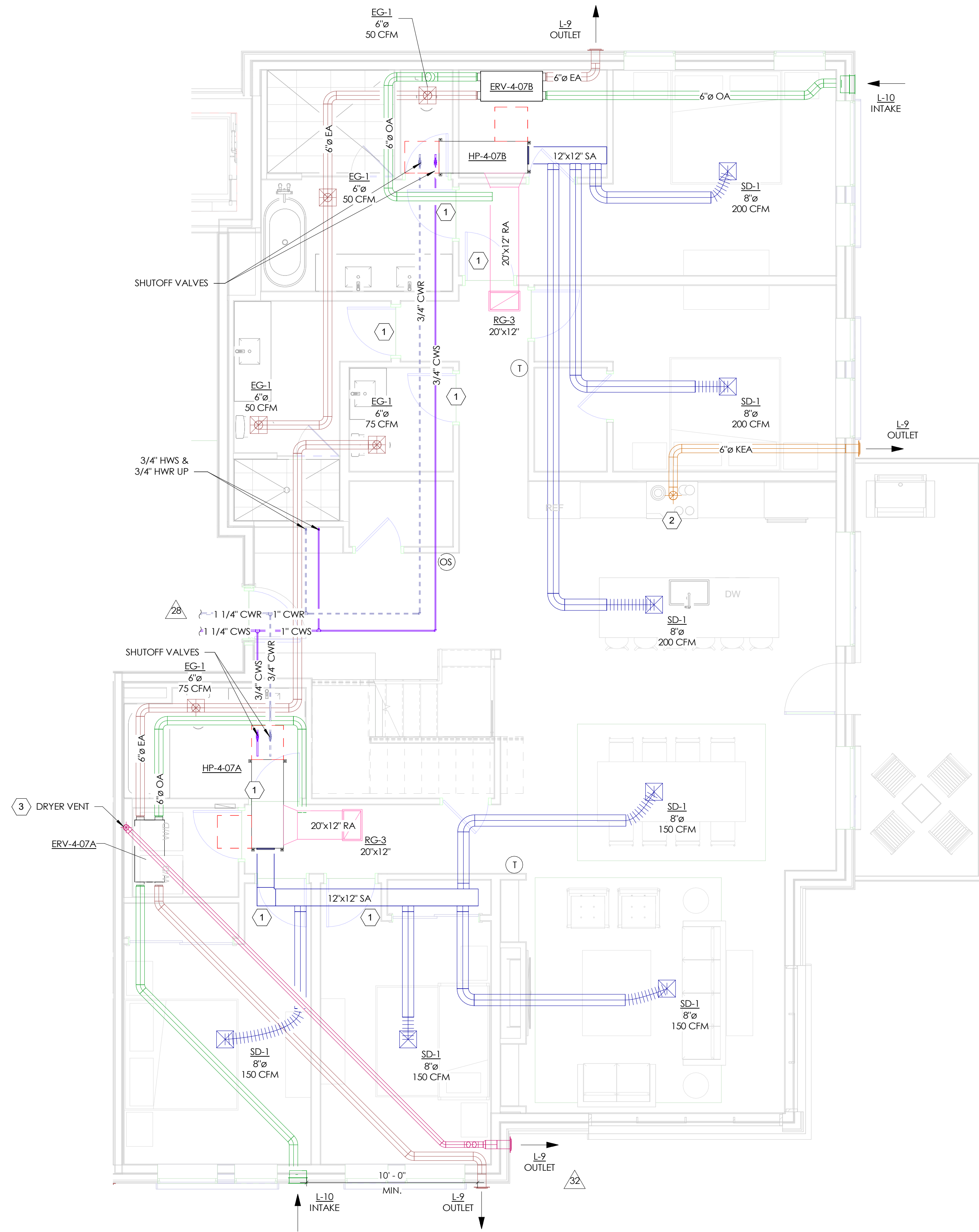
2 ENLARGED MECHANICAL PLAN - UNIT 411 - LOFT

SCALE: 1/4" = 1'-0"



1 ENLARGED MECHANICAL PLAN - UNIT 411 - MAIN LEVEL

SCALE: 1/4" = 1'-0"



GENERAL NOTES

- REFER TO FULL FLOOR MECHANICAL PLANS FOR ADDITIONAL EQUIPMENT LOCATIONS AND CALLOUTS
- PROVIDE A CEILING FAN IN EACH ROOM: BEDROOM, LIVING ROOM (SPECIFIED BY ARCHITECT)
- PROVIDE ALL HEAT PUMPS AND ERVS WITH 3/4\"/>

KEY NOTES

- UNDERCUT DOOR 3/4\"/>
- KITCHEN EXHAUST HOOD SPECIFIED BY ARCHITECT (RE: SHEET A6.10). MIN/MAX FLOW 100 CFM CONNECTED TO SWITCH. EXHAUST HOOD MAX SHALL NOT EXCEED 400 CFM OF EXHAUST. HOOD SHALL COMPLY WITH UL 507.
- CLOTHES DRYER IS SPECIFIED BY ARCHITECT (RE: SHEET A6.10). DUCT EQUIVALENT LENGTH SHALL ADHERE TO IMC 504 AND MANUFACTURER'S REQUIREMENTS. WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL WITHIN 6 FEET OF THE DUCT CONNECTION PER IMC 504.8.5.

CONTROLS SEQUENCE UNITS

CONTROL SEQUENCES - UNITS

SETPOINTS:

- UNIT OCCUPIED HEATING SETPOINT: 70°F
- UNIT UNOCCUPIED HEATING SETPOINT: 60°F
- UNIT OCCUPIED COOLING SETPOINT: 78°F
- UNIT UNOCCUPIED COOLING SETPOINT: 88°F

OCCUPANCY IDENTIFICATION:

- THE OCCUPANCY SENSOR (LOCATED IN THE MAIN ROOM OF THE LIVING SPACE) WILL IDENTIFY WHETHER THE ROOM IS IN OCCUPIED MODE.
- IF THE SENSOR DOES NOT SENSE MOVEMENT IN THE ROOM FOR MORE THAN 12 HOURS, THE UNIT WILL BE IN UNOCCUPIED MODE.

OCCUPIED MODE:

WHEN THE SYSTEM IS IN OCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- IF THE TEMPERATURE SENSOR READS THAT THE SPACE IS OCCUPIED, THE ERV WILL BE ENGAGED TO OPERATE UNDER ITS FACTORY SETTING WHICH INCLUDED COOLING MODE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS LOWER THAN THE HEATING SETPOINT, THE HEAT PUMP WILL ACTIVATE TO SUPPLY HEAT TO THE SPACE.
- IF THE TEMPERATURE SENSOR READS THAT THE SPACE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

UNOCCUPIED MODE:

WHEN THE SYSTEM IS IN UNOCCUPIED MODE THE FOLLOWING SHALL OCCUR:

- THE ERV SHALL BE OFF AND THE HEAT PUMP SHALL ENGAGE TO MAINTAIN SPACE TEMPERATURES ABOVE UNOCCUPIED HEATING SETPOINT TEMPERATURE.
- IF THE SPACE TEMPERATURE INDICATES THAT THE UNIT SPACE TEMPERATURE IS GREATER THAN THE UNIT SETPOINT, THEN THE HEAT PUMP SHALL MODULATE THE SUPPLY AIR TEMPERATURE FROM 78°F TO 55°F.

ENERGY RECOVERY UNITS (ERV-\*)

REFER TO SEQUENCE REQUIREMENTS OUTLINED ABOVE FOR THIS DEVICE.

CEILING FANS (CF-\*)

THE CEILING FANS SHALL BE ENABLED BY WALL MOUNTED CONTROLLERS. POINTS LIST DESCRIPTION/TYPE: NONE

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble

Steamboat Springs, CO

No.	Description	Date
11	IPC UPDATES II	05/17/2024
28	RPT #1589	07/24/2024
30	RPT #1592	07/30/2024
32	RPT #1711	08/01/2024
47	RPT #300	10/23/2024

PROJECT NUMBER 30019  
ISSUE DATE 09/19/2024

ISSUE  
IFC SET

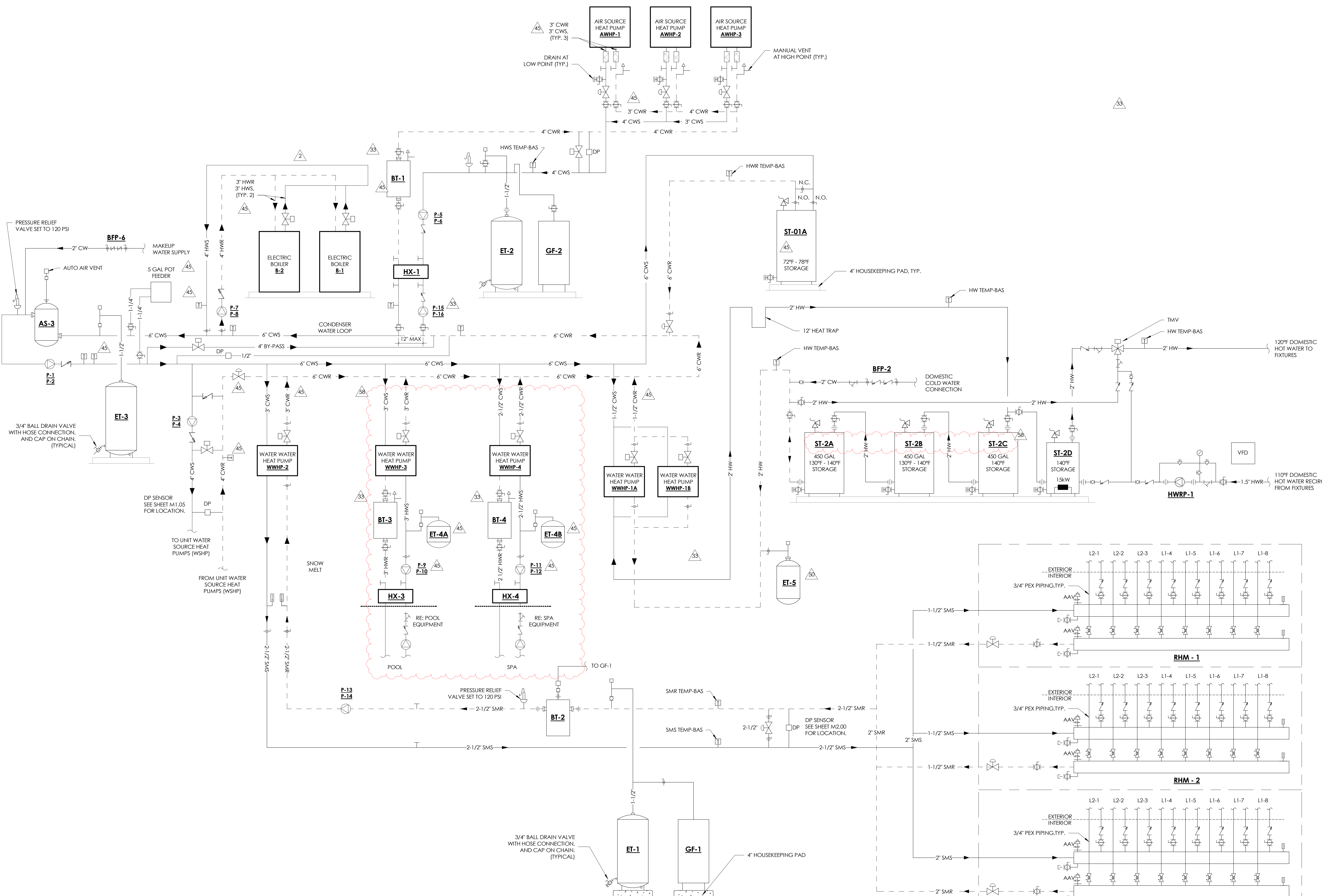
SHEET TITLE  
MECHANICAL UNIT  
PLANS - 411

SHEET NO.

M2.13



01/08/2025 8:07:49 AM



1

MECHANICAL HYDRONIC PLANT SCHEMATIC

SCALE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.552.2407

DAKE  
COLLABORATIVE

COLORADO LICENSED  
LOGAN DAKE  
51834  
PROFESSIONAL ENGINEER

DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS

No.	Description	Date
2	GMP SET REVISIONS	02.08.2024
11	IFC UPDATES II	05.17.2024
33	ASI 003	08.02.2024
44	RPT #280	10.03.2024
50	RPT #324	11.12.2024
58	ASI 007	01.08.2025

PROJECT NUMBER: 20019  
ISSUE DATE: 03/15/2024

ISSUE

IFC SET

SHEET TITLE  
MECHANICAL  
SCHEMATICS

SHEET NO.

M5.01



SEQUENCE OF OPERATIONS (SOO)

GENERAL

1. PROVIDE ALL NECESSARY HARDWARE, SOFTWARE, RELAYS, CONTACTS, WIRING AND CONDUITS TO ACCOMPLISH THE CONTROL SEQUENCES FOR THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND PLUMBING SYSTEMS.

2. PROVIDE CONTROLS FOR VALVES, DAMPERS AND TERMINAL CONTROLLERS SHALL BE ELECTRIC/ELECTRONIC CONTROL.

3. PROVIDE ANY ADDITIONAL POINTS NOT REFERENCED AND/OR LISTED IN THE POINTS LIST, BUT REQUIRED TO MEET THE SEQUENCES OF OPERATION, AT NO ADDITIONAL COST TO THE OWNER. ALL ANALOG INPUTS SHALL BE 4-20MA, 0-10VDC, OR 0-20VDC UNLESS OTHERWISE INDICATED.

a. AO = ANALOG OUTPUT

b. AI = ANALOG INPUT

c. DO = DIGITAL (BINARY) OUTPUT

d. DI = DIGITAL (BINARY) INPUT

4. ALL SET POINTS SHALL BE ADJUSTABLE.

5. CONDENSER WATER VALVES SHALL BE TWO-WAY, MODULATING UNLESS AS FOLLOWS:

- UNIT WATER SOURCE HEAT PUMP CONDENSER VALVES SHALL BE 3-WAY AT THE UNITS NOTED ON THE HEAT PUMP EQUIPMENT SCHEDULE.

CONDENSER WATER LOOP CONTROL SEQUENCES (P-1, P-2):

THE CONDENSER WATER (CW) LOOP SHALL OPERATE WITHIN THE RANGE OF 40 DEG F TO 90 DEG F.

THE BAS SHALL MONITOR THE CONDENSER WATER LOOP TEMPERATURE, THE UNIT HEAT PUMP LOOP (HP) TEMPERATURES (SUPPLY AND RETURN), THE BOILER LOOP (BL) TEMPERATURES (SUPPLY AND RETURN), AND EACH OF THE WATER-TO-WATER HEAT PUMP (WWHP-1, P-2, 3, 4) SUPPLY AND RETURN WATER TEMPERATURES.

CONDENSER WATER LOOP PUMP (P-1, P-2) CONTROL:

a. THE DDC SYSTEM SHALL OPERATE THE PUMPS (P-1, P-2) ON A LEAD/LAG SEQUENCE, USING THE LEAD/LAG SCHEDULE SHALL REVERSE BETWEEN PUMPS EVERY FOUR WEEKS.

b. ONCE THE LEAD PUMP HAS PROVEN FLOW, THE CONDENSER WATER SYSTEM WILL GO UNDER CONTROL.

c. IF THE LEAD PUMP DOES NOT PROVE FLOW, AN ALARM SHALL BE SENT TO THE BAS AND THE LAG PUMP SHALL BE STARTED AND CONTROLLED AS STATED ABOVE.

ON A CALL FOR HEATING OR COOLING IN ANY OF THE HEAT PUMP LOOPS, HP, WWHP-1, WWHP-2, WWHP-3, WWHP-4, THE VFD FOR CONDENSER WATER LOOP PUMP (P-1 OR P-2) SHALL MODULATE THE PUMP SPEED UP TO THE REQUIRED OPERATING SPEED TO MAINTAIN THE REQUIRED FLOW IN THE LOOP AS SENSED BY THE DIFFERENTIAL PRESSURE SENSOR. THE DIFFERENTIAL PRESSURE SENSOR SET POINT SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT.

THE PUMP SHALL MODULATE ITS SPEED TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE (DP). THE PUMP SHALL UTILIZE INTERNAL LOGIC TO SENSE AND RESPOND TO THE SYSTEM DP AS MEASURED AT THE REMOTE DP TRANSDUCER. THE DP TRANSDUCER SHALL BE SIZED TO MATCH THE SYSTEM AND PUMP OPERATING CHARACTERISTICS.

MODULATE THE MINIMUM FLOW VALVE FROM FULL FLOW THROUGH THE STORAGE TANKS AT FULL OPERATION TO FULL BYPASS FLOW WHEN THE STORAGE TANKS ARE DOWN FOR MAINTENANCE.

WHEN THE CW LOOP TEMPERATURE FALLS BELOW THE LOW TEMPERATURE SET POINT OF 45 DEG F, THE BOILERS (B-1, B-2) SHALL BE ENABLED AND SHALL OPERATE IN ACCORDANCE WITH THEIR SEQUENCE OF OPERATIONS TO PROVIDE HEATING WATER TO THE CW LOOP. THE BOILERS SHALL BE DISABLED ONCE THE CW LOOP TEMPERATURE REACHES THE SET POINT 60 DEG F.

WHEN THE CW LOOP TEMPERATURE RISES ABOVE THE HIGH TEMPERATURE SET POINT OF 85 DEG F, AHWHP-1 & 2 SHALL BE ENABLED AND SHALL OPERATE IN ACCORDANCE WITH THEIR SEQUENCE OF OPERATIONS TO PROVIDE CHILLED WATER TO THE CW LOOP. AHWHP-1 & 2 SHALL BE DISABLED ONCE THE CW LOOP TEMPERATURE REACHES THE SET POINT 75 DEG F.

POINTS LIST DESCRIPTION/TYPE:

a. STORAGE TANK ST-01A TEMPERATURE (AI)

b. STORAGE TANK ST-01B TEMPERATURE (AI)

c. STORAGE TANK ST-01C TEMPERATURE (AI)

d. CONDENSER WATER LOOP (CW) TEMPERATURE SET POINT (AO)

e. CONDENSER WATER LOOP (CW) TEMPERATURE (AI)

f. DIFFERENTIAL PRESSURE (DP) SET POINT (AO)

g. DIFFERENTIAL PRESSURE (DP) (AI)

h. MINIMUM FLOW VALVE (3-WAY) (DO)

i. PUMPS P-1, P-2

1. START/STOP (DO)

2. STATUS (DI)

3. ALARM (DI)

4. VFD SPEED (AI)

5. KWH/HR (AI)

HEAT EXCHANGER (HX-1, AWHP-1,2; HX-2, WWHP-2; HX-3, WWHP-3, HX, WWHP-4)

THE HEAT EXCHANGERS SHALL BE ENABLED BY THE OPERATION OF THE ASSOCIATED HEAT PUMP LOOP.

MODULATE OPEN ANY NORMALLY CLOSED VALVES AT THE HEAT EXCHANGER.

MONITOR SUPPLY RETURN TEMPERATURES AT THE SOURCE AND LOAD SIDE OF EACH HEAT EXCHANGER.

POINTS LIST DESCRIPTION/TYPE:

a. HEAT EXCHANGER ENABLE/DISABLE (DO)

b. HX SOURCE WATER SUPPLY TEMPERATURE (AI)

c. HX SOURCE WATER RETURN TEMPERATURE (AI)

d. HX LOAD WATER SUPPLY TEMPERATURE (AI)

e. HX LOAD WATER RETURN TEMPERATURE (AI)

f. HX SHUTOFF VALVES HXV-1, HXV-2 (DO)

BOILERS (B-1, P-7 B-2, P-8)

THE BOILERS SHALL OPERATE BY THEIR FACTORY PROVIDED CONTROLS. THE BOILER CONTROLLER SHALL USE INTERNAL LOGIC TO STAGE AND OPERATE THE BOILER PLANT AT IT'S MOST EFFICIENT OPERATING POINT. THE BOILER CONTROLLER SHALL OPEN THE BOILER VALVE, BV-1 AND OR BV-2 TO MATCH THE LEAD/LAG BOILER SEQUENCE. THE BOILER PLANT SHALL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE IS 30 DEG F OR LOWER. THE BOILER PLANT SHALL BE DISABLED WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40 DEG F.

THE BOILERS SHALL OPERATE IN A LEAD/LAG SEQUENCE PER FACTORY CONTROLS. BOILER B-1 SHALL BE THE LEAD BOILER. IF BOILER B-1 FAILS THE CONTROLLER SHALL ENABLE THE LAG BOILER B-2 AND AN AUDIBLE ALARM SHALL BE ACTIVATED.

THE CONTROLLER SHALL ROTATE THE LEAD/LAG BOILERS ON A WEEKLY SCHEDULE.

POINTS LIST DESCRIPTION/TYPE:

a. BOILER ENABLE/DISABLE (DO)

b. BOILER STATUS (DI)

c. BOILER WATER SUPPLY TEMPERATURE SET POINT (AO)

d. BOILER WATER SUPPLY TEMPERATURE (AI)

e. BOILER WATER RETURN TEMPERATURE (AI)

f. BOILER SHUTOFF VALVE BV-1, BV-2 (DO)

UNIT WATER SOURCE HEAT PUMPS (HP-\*\*, P-3, P-4)

REFER TO MECHANICAL UNIT PLANS FOR SPECIFIC SEQUENCES OF OPERATION FOR THE HP-\*\*-\*\* UNITS.

THE HEAT PUMP UNITS SHALL BE PROVIDED WITH A FACTORY INSTALLED PROGRAMMABLE MICROPROCESSOR CONTROLLER AND A WALL MOUNTED TEMPERATURE SENSOR WITH DISPLAY.

THE UNIT WATER SOURCE HEAT PUMP LOOP PUMPS SHALL BE ENABLED AND SHALL OPERATE IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS FOR THESE PUMPS; P-3 AND P-4.

OPEN THE LOOP SHUTOFF VALVE WHEN THE HEAT PUMP LOOP PUMPS ARE ENABLED.

THE PUMP SHALL MODULATE ITS SPEED TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE (DP). THE PUMP SHALL UTILIZE INTERNAL LOGIC TO SENSE AND RESPOND TO THE SYSTEM DP AS MEASURED AT THE REMOTE DP TRANSDUCER. THE DP TRANSDUCER SHALL BE SIZED TO MATCH THE SYSTEM AND PUMP OPERATING CHARACTERISTICS. THE DIFFERENTIAL PRESSURE SENSOR SET POINT SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT.

THE HEAT PUMP LOOP SHALL HAVE A MODULATING VALVE THAT WILL ALLOW THE PUMPS TO OPERATE AT MINIMUM FLOW RATE WHEN AT LEAST ONE HEAT PUMP IS CALLING FOR CONDENSER WATER. REFER TO SCHEMATIC ON M5.00 FOR LOCATION.

THE DDC SYSTEM SHALL OPERATE THE PUMPS ON A LEAD/LAG SEQUENCE, USING THE LEAD/LAG SCHEDULE SHALL REVERSE BETWEEN PUMPS EVERY FOUR WEEKS.

ONCE THE LEAD PUMP HAS PROVEN FLOW, THE HP LOOP WATER SYSTEM WILL GO UNDER CONTROL.

IF THE LEAD PUMP DOES NOT PROVE FLOW, AN ALARM SHALL BE SENT TO THE BAS AND THE LAG PUMP SHALL BE STARTED AND CONTROLLED AS STATED ABOVE.

POINTS LIST DESCRIPTION/TYPE:

a. HP LOOP ENABLE/DISABLE (DO)

b. HP LOOP STATUS (DI)

c. HP LOOP (CW) TEMPERATURE SET POINT (AO)

d. HP LOOP TEMPERATURE SUPPLY & RETURN (AI)

e. DIFFERENTIAL PRESSURE (DP) SET POINT (AO)

f. DIFFERENTIAL PRESSURE (DP) (AI)

g. HP LOOP SHUTOFF VALVE (2-WAY) (DO)

h. PUMPS P-3, P-4

1. START/STOP (DO)

2. STATUS (DI)

3. ALARM (DI)

4. VFD SPEED (AI)

5. KWH/HR (AI)

AIR SOURCE HEAT PUMPS (AWHP-01, AWHP-02, P-5, P-6, P-17, P-18)

THE HEAT PUMPS SHALL OPERATE BY THEIR FACTORY PROVIDED PROGRAMMABLE MICROPROCESSOR CONTROLLERS. THE CONTROLLER SHALL USE INTERNAL LOGIC TO STAGE AND OPERATE THE UNITS AT THEIR MOST EFFICIENT OPERATING POINT. THE CONTROLLER SHALL INCLUDE A DEFROST CYCLE AND CONTROL OF THE REVERSING VALVE TO SWITCH FROM COOLING AND HEATING AND VICE VERSA AS NEEDED.

THE CONTROLLER SHALL ENABLE AND DISABLE THE DEDICATED LOOP PUMPS P-5 AND P-6. THE PUMP SHALL MODULATE ITS SPEED TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE (DP). THE DIFFERENTIAL PRESSURE SENSOR SET POINT SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT. THE PUMP SHALL UTILIZE INTERNAL LOGIC TO SENSE AND RESPOND TO THE SYSTEM DP AS MEASURED AT THE REMOTE DP TRANSDUCER. THE DP TRANSDUCER SHALL BE SIZED TO MATCH THE SYSTEM AND PUMP OPERATING CHARACTERISTICS.

WHEN PUMPS P-5 AND P-6 ARE ACTIVATED THE AWHP LOOP SHALL FLOW THROUGH HX-1.

THE DDC SYSTEM SHALL OPERATE THE PUMPS ON A LEAD/LAG SEQUENCE, USING THE LEAD/LAG SCHEDULE SHALL REVERSE BETWEEN PUMPS EVERY FOUR WEEKS.

ONCE THE LEAD PUMP HAS PROVEN FLOW, THE LOOP WILL GO UNDER CONTROL.

IF THE LEAD PUMP DOES NOT PROVE FLOW, AN ALARM SHALL BE SENT TO THE BAS AND THE LAG PUMP SHALL BE STARTED AND CONTROLLED AS STATED ABOVE.

POINTS LIST DESCRIPTION/TYPE:

a. AWHP LOOP TEMPERATURE SET POINT (AO)

b. AWHP LOOP TEMPERATURE SUPPLY & RETURN (AI)

c. DIFFERENTIAL PRESSURE (DP) SET POINT (AO)

d. DIFFERENTIAL PRESSURE (DP) (AI)

e. PUMPS P-5, P-6, P-17, P-18

1. START/STOP (DO)

2. STATUS (DI)

3. ALARM (DI)

4. VFD SPEED (AI)

5. KWH/HR (AI)

SMOKE CONTROL SYSTEM

UPON SENSING SMOKE FROM A DUCT SMOKE DETECTOR, OR DURING ANY FIRE ALARM ACTIVATION, ANY FANS AT 2,000 CFM AND ABOVE SHALL BE DISABLED.

HOISTWAY VENT DAMPER

THE DAMPER SHALL REMAIN CLOSED DURING NORMAL OPERATION.

THE DAMPER SHALL OPEN UPON LOSS OF POWER FROM A SIGNAL FROM THE SMOKE DETECTOR LOCATED AT THE TOP OF THE HOISTWAY. COORDINATE THE NUMBER OF CONTACTS WITH THE ELECTRICAL AND FIRE PROTECTION DESIGNS.

REMOTE ALARM SHALL BE ACTIVATED WHEN THE HOISTWAY SMOKE DETECTOR DETECTS SMOKE.

EMERGENCY GENERATOR (EG)/LOUVER/DAMPER INTERLOCK

LOUVER DAMPERS L-3 AND L-4 SHALL BE ENABLED TO THE OPEN POSITION WHEN THE EG IS ENABLED. AN END SWITCH SHALL CONFIRM THAT THE LOUVER/DAMPERS ARE FULLY OPENED.

THE LOUVER DAMPERS SHALL CLOSE WHEN THE EG IS DISABLED.

POINTS LIST DESCRIPTION/TYPE:

a. DAMPER OPEN/CLOSE (DO)

b. DAMPER END SWITCH (DI)

MISCELLANEOUS

OUTSIDE AIR TEMPERATURE (AI)

OUTSIDE AIR HUMIDITY (AI)

OUTSIDE AIR CO2 (AI)

BASEMENT WATER ALARM (DI)

BUILDING KW DEMAND (DI)

GENERATOR SET STATUS (DI)

POWER LOSS ALARM (DI)

BUILDING WATER METER (AI)

LIGHTING SYSTEM INTERFACE (COORDINATE WITH LIGHTING SYSTEM CONTRACTOR)

SECURITY SYSTEM INTERFACE (COORDINATE WITH SECURITY SYSTEM CONTRACTOR)

FIRE ALARM INTERFACE (COORDINATE WITH FIRE ALARM SYSTEM CONTRACTOR)

WATER-WATER HEAT PUMPS (WWHP-1, P-15, P-16; WWHP-2, P-13, P-14; WWHP-3, P-9, P-10; WWHP-4, P-11, P-12)

THE HEAT PUMPS SHALL OPERATE BY THEIR FACTORY PROVIDED PROGRAMMABLE MICROPROCESSOR CONTROLLERS. THE CONTROLLER SHALL USE INTERNAL LOGIC TO OPERATE THE UNITS AT THEIR MOST EFFICIENT OPERATING POINT. COORDINATE WITH THE POOL AND SPA EQUIPMENT CONTRACTOR/INSTALLER FOR OPERATION OF WWHP-3 AND WWHP-4.

THE CONTROLLER SHALL ENABLE AND DISABLE THE DEDICATED LOOP PUMPS (P-1). THE PUMP SHALL MODULATE ITS SPEED TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE (DP). THE DIFFERENTIAL PRESSURE SENSOR SET POINT SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT. THE PUMP SHALL UTILIZE INTERNAL LOGIC TO SENSE AND RESPOND TO THE SYSTEM DP AS MEASURED AT THE REMOTE DP TRANSDUCER. THE DP TRANSDUCER SHALL BE SIZED TO MATCH THE SYSTEM AND PUMP OPERATING CHARACTERISTICS.

OPEN THE ASSOCIATED LOOP SHUTOFF VALVE WHEN THE LOOP PUMPS ARE ENABLED.

THE DDC SYSTEM SHALL OPERATE THE PUMPS ON A LEAD/LAG SEQUENCE, USING THE LEAD/LAG SCHEDULE SHALL REVERSE BETWEEN PUMPS EVERY FOUR WEEKS.

ONCE THE LEAD PUMP HAS PROVEN FLOW, THE LOOP WILL GO UNDER CONTROL.

IF THE LEAD PUMP DOES NOT PROVE FLOW, AN ALARM SHALL BE SENT TO THE BAS AND THE LAG PUMP SHALL BE STARTED AND CONTROLLED AS STATED ABOVE.

POINTS LIST DESCRIPTION/TYPE (TYPICAL FOR EACH OF THE FOUR LOOPS):

a. LOOP TEMPERATURE SET POINT (AO)

b. LOOP TEMPERATURE SUPPLY & RETURN (AI)

c. LOOP DIFFERENTIAL PRESSURE (DP) SET POINT (AO)

d. LOOP DIFFERENTIAL PRESSURE (DP) (AI)

e. LOOP SHUTOFF VALVE (2-WAY) (DO)

f. PUMPS (8 TOTAL PUMPS)

1. START/STOP (DO)

2. STATUS (DI)

3. ALARM (DI)

4. VFD SPEED (AI)

5. KWH/HR (AI)

GLYCOL FEEDER CONTROLS (SNOWMELT LOOP, AWHP LOOP)

THE GLYCOL FEEDER INTEGRAL CONTROLS SHALL START AND STOP THE GLYCOL MIXTURE PUMP TO MAINTAIN SYSTEM PRESSURE IN THE HYDRONIC PIPING. THE DIFFERENTIAL PRESSURE SENSOR SET POINT SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT.

THE CONTROLS SHALL MONITOR THE LOW-LEVEL SWITCH. AN ALARM SHALL BE SENT TO THE BAS IF THE FEED TANK IS LOW AND NEEDS TO BE REFILLED WITH THE GLYCOL MIXTURE.

THE CONTROLS SHALL MONITOR THE SYSTEM PRESSURE TRANSMITTER. AN ALARM SHALL BE SENT TO THE BAS IF PRESSURE IS HIGH OR LOW INDICATING THE GLYCOL MIXTURE FEED SYSTEM AND/OR CONTROLS ARE MALFUNCTIONING.

POINTS LIST DESCRIPTION/TYPE:

a. LOW LEVEL SWITCH STATUS (DI)

b. SYSTEM PRESSURE (AI)

c. PUMP

1. START/STOP (DO)

2. STATUS (DI)

3. ALARM (DI)

ELECTRIC DUCT HEATERS (DH-\*)

THE DUCT HEATERS SHALL BE ENABLED BY WALL MOUNTED SPACE TEMPERATURE SENSORS.

AN AIRFLOW SWITCH SHALL PROVE AIRFLOW PRIOR TO ENABLING THE DUCT HEATER. IF AIRFLOW IS NOT PROVEN THE DUCT HEATER SHALL NOT BE ENABLED AND AN ALARM SHALL BE SENT TO THE BAS.

THE DH SHALL CYCLE TO MAINTAIN THE SPACE TEMPERATURE AT THE SET POINT OF 45 DEG F.

IF THE SPACE TEMPERATURE FALLS 5 DEGREES BELOW THE SET POINT, AN ALARM SHALL BE SENT TO THE BAS.

POINTS LIST DESCRIPTION/TYPE:

a. HEATER ENABLE/DISABLE (DO)

b. HEATER STATUS (DI)

c. AIRFLOW STATUS (DI)

d. ZONE TEMPERATURE (AI)

ELECTRIC CABINET UNIT HEATER (CUH-\*)

THE CABINET UNIT HEATERS SHALL BE ENABLED BY THE WALL MOUNTED SPACE TEMPERATURE SENSOR. THE CUH SHALL CYCLE THE ELECTRIC HEATING ELEMENT AND FAN MOTOR ON/OFF TO MAINTAIN THE SPACE TEMPERATURE AT THE SET POINT OF 65 DEG F. BAS SYSTEM WILL RELAY TO LOCK OUT CUH OPERATION BASED ON OA TEMPERATURE TO MEET IECC.

POINTS LIST DESCRIPTION/TYPE:

a. HEATER ENABLE/DISABLE (DO)

b. HEATER STATUS (DI)

c. ZONE TEMPERATURE (AI)

ELECTRIC BASEBOARD HEATERS (BBH-\*)

THE HEATERS SHALL BE CONTROLLED BY A UNIT MOUNTED SPACE TEMPERATURE THERMOSTAT. THE SPACE TEMPERATURE SET POINT SHALL BE 65 DEG F.

POINTS LIST DESCRIPTION/TYPE: NONE

ELECTRIC UNIT HEATER (EUH-\*)

THE HEATERS SHALL BE ENABLED BY THE A WALL MOUNTED SPACE TEMPERATURE SENSOR. THE SPACE TEMPERATURE SET POINT SHALL BE 45 DEG F.

IF THE SPACE TEMPERATURE FALLS 5 DEGREES BELOW THE SET POINT, AN ALARM SHALL BE SENT TO THE BAS.

POINTS LIST DESCRIPTION/TYPE:

a. HEATER ENABLE/DISABLE (DO)

b. HEATER STATUS (DI)

c. ZONE TEMPERATURE (AI)

TRANSFER FANS AT MAIN MECH RM, TRASH RM, MAIN ELEC RM, STORAGE RM, TANK ROOM (TF-B-01/02/03/04/05)

THE TRANSFER FAN SHALL BE ENABLED WHEN THE ROOM TEMPERATURE RISES ABOVE 78 DEG F. THE FAN SHALL BE DISABLED WHEN THE TEMPERATURE DROPS 5 DEG F BELOW THE SET POINT.

IF THE SPACE TEMPERATURE RISES 10 DEGREES ABOVE THE SET POINT, AN ALARM SHALL BE SENT TO THE BAS.

POINTS LIST DESCRIPTION/TYPE:

a. FAN START/STOP (DO)

b. FAN STATUS (DI)

c. ZONE TEMPERATURE SET POINT (AO)

d. ZONE TEMPERATURE (AI)

TRANSFER FANS AT MECH/ELEC ROOMS (TF-1-01/2-01/3-01/4-01)

THE TRANSFER FAN SHALL BE ENABLED WHEN THE ROOM TEMPERATURE RISES ABOVE 80 DEG F. THE FAN SHALL BE DISABLED WHEN THE TEMPERATURE DROPS 10 DEG F BELOW THE SET POINT.

IF THE SPACE TEMPERATURE RISES 10 DEGREES ABOVE THE SET POINT, AN ALARM SHALL BE SENT TO THE BAS.

POINTS LIST DESCRIPTION/TYPE:

a. FAN START/STOP (DO)

b. FAN STATUS (DI)

c. ZONE TEMPERATURE SET POINT (AO)

d. ZONE TEMPERATURE (AI)

EXHAUST FAN (EF-R-01/02/03/04)

EXHAUST FANS EF-R-1 SHALL BE ENABLED WHEN AWHP-1, 2 ARE ENABLED. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SENT TO THE BAS IF THE FAN FAILS TO OPERATE.

EF-R-01, 02 SHALL BE INTERLOCKED WITH AWHP-1 AND EF-R-03, 04 SHALL BE INTERLOCKED WITH AWHP-2.

THE FAN SPEED SHALL OPERATE AT THE MINIMUM FAN SPEED WHEN THE MECHANICAL ROOM TEMPERATURE IS AT 75 DEG F OR BELOW. THE FAN SPEED SHALL BE ADJUSTED BASED ON THE SPACE TEMPERATURE AND MODULATE BETWEEN THE MINIMUM FAN SPEED AND MAXIMUM FAN SPEED.

THE FANS SHALL BE DISABLED WHEN THE TEMPERATURE DROPS 10 DEG F BELOW THE TEMPERATURE SET POINT.

IF THE SPACE TEMPERATURE RISES 10 DEGREES ABOVE THE SET POINT, AN ALARM SHALL BE SENT TO THE BAS.

THE MINIMUM AND MAXIMUM FAN SPEED SHALL BE CONFIRMED AT SYSTEM START-UP DURING THE COMMISSIONING/BALANCING PHASE OF THE PROJECT.

POINTS LIST DESCRIPTION/TYPE (TYPICAL OF 4 FANS):

a. SPACE TEMPERATURE SET POINT (I) (AO)

b. SPACE TEMPERATURE (I) (AI)

c. EXHAUST FANS (4)

vi. START/STOP (DO)

vii. STATUS (DI)

viii. ALARM (DI)

ix. VFD SPEED (AI)

x. KWH/HR (AI)

SMOKE CONTROL SYSTEM

UPON SENSING SMOKE FROM A DUCT SMOKE DETECTOR, OR DURING ANY FIRE ALARM ACTIVATION, ANY FANS AT 2,000 CFM AND ABOVE SHALL BE DISABLED.

HOISTWAY VENT DAMPER

THE DAMPER SHALL REMAIN CLOSED DURING NORMAL OPERATION.

THE DAMPER SHALL OPEN UPON LOSS OF POWER FROM A SIGNAL FROM THE SMOKE DETECTOR LOCATED AT THE TOP OF THE HOISTWAY. COORDINATE THE NUMBER OF CONTACTS WITH THE ELECTRICAL AND FIRE PROTECTION DESIGNS.

REMOTE ALARM SHALL BE ACTIVATED WHEN THE HOISTWAY SMOKE DETECTOR DETECTS SMOKE.

EMERGENCY GENERATOR (EG)/LOUVER/DAMPER INTERLOCK

LOUVER DAMPERS L-3 AND L-4 SHALL BE ENABLED TO THE OPEN POSITION WHEN THE EG IS ENABLED. AN END SWITCH SHALL CONFIRM THAT THE LOUVER/DAMPERS ARE FULLY OPENED.

THE LOUVER DAMPERS SHALL CLOSE WHEN THE EG IS DISABLED.

POINTS LIST DESCRIPTION/TYPE:

a. DAMPER OPEN/CLOSE (DO)

b. DAMPER END SWITCH (DI)

MISCELLANEOUS

OUTSIDE AIR TEMPERATURE (AI)

OUTSIDE AIR HUMIDITY (AI)

OUTSIDE AIR CO2 (AI)

BASEMENT WATER ALARM (DI)

BUILDING KW DEMAND (DI)

GENERATOR SET STATUS (DI)

POWER LOSS ALARM (DI)

BUILDING WATER METER (AI)

LIGHTING SYSTEM INTERFACE (COORDINATE WITH LIGHTING SYSTEM CONTRACTOR)

SECURITY SYSTEM INTERFACE (COORDINATE WITH SECURITY SYSTEM CONTRACTOR)

FIRE ALARM INTERFACE (COORDINATE WITH FIRE ALARM SYSTEM CONTRACTOR)

TOWN STAMP

359  
DESIGN

3000 CHASKE STREET  
DENVER, CO 80211  
703.546.1400

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024

PROJECT NUMBER: 20019  
ISSUE DATE: 03/15/2024

ISSUE

IFC SET

SHEET TITLE  
MECHANICAL  
CONTROLS

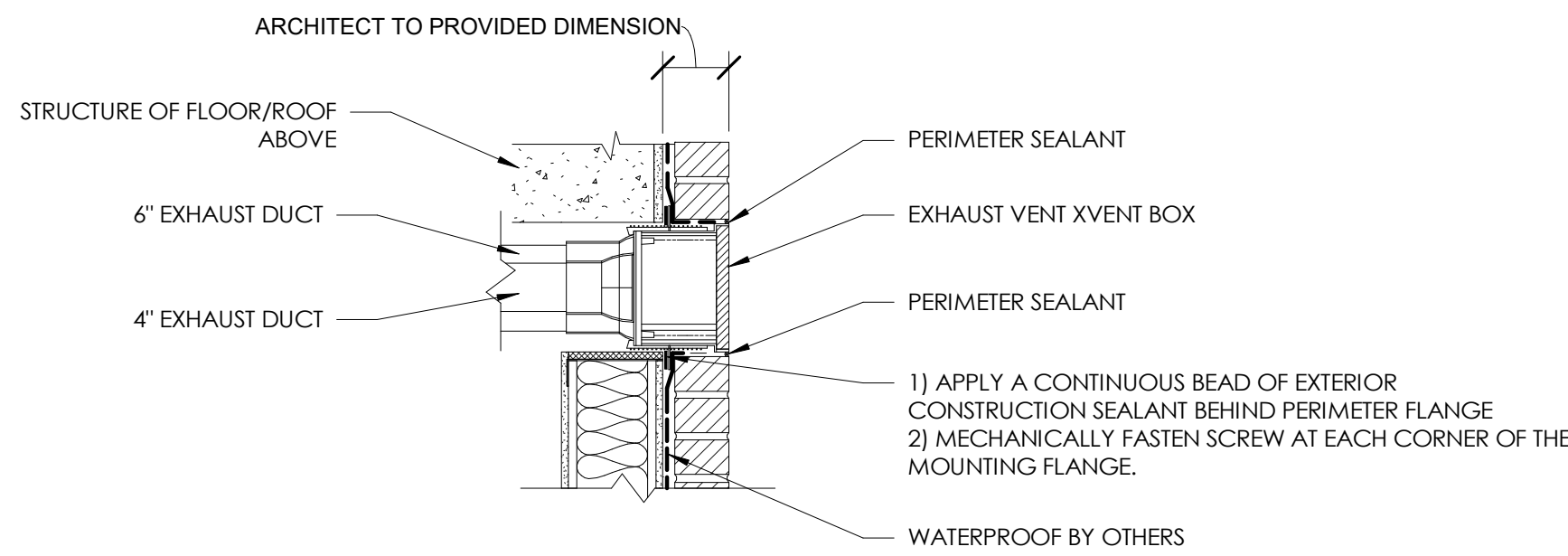
SHEET NO.

M5.02



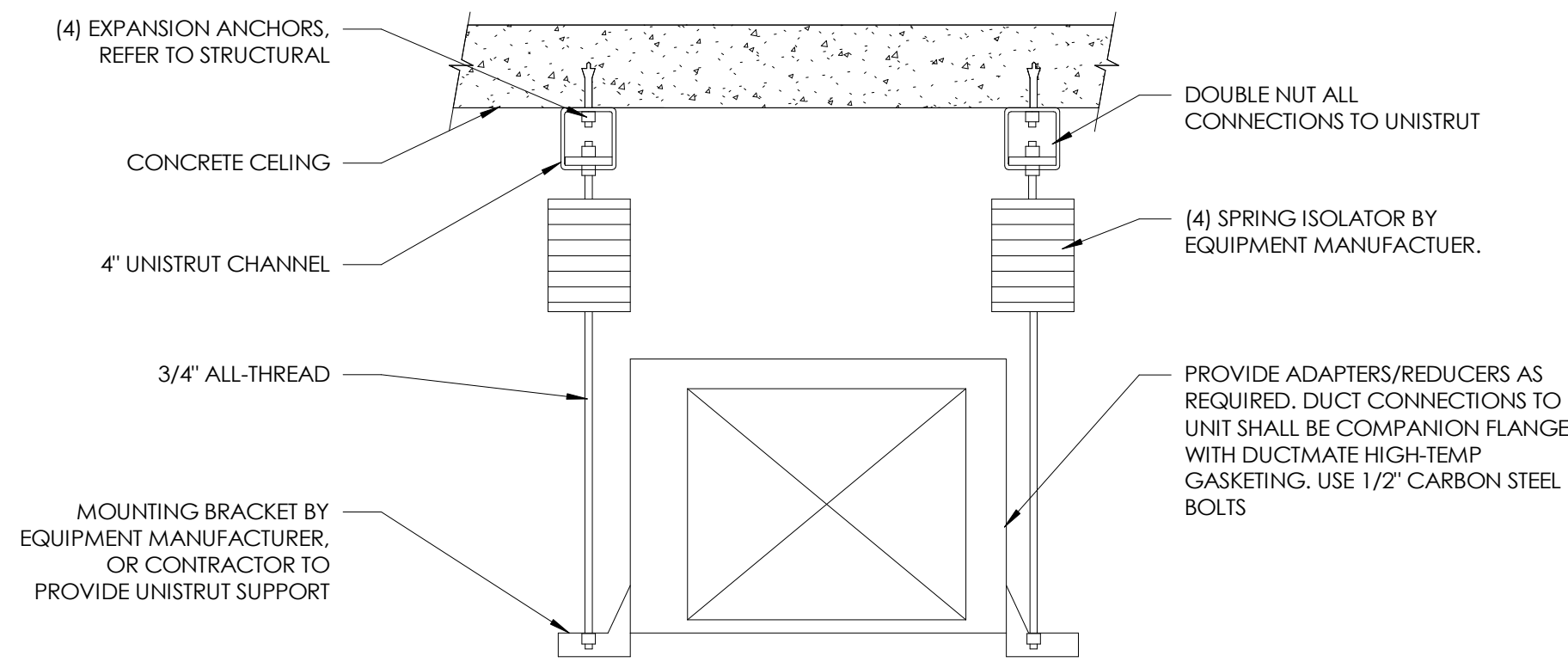
**M6.00**





3 TYPICAL XVENT THRU WALL DETAIL

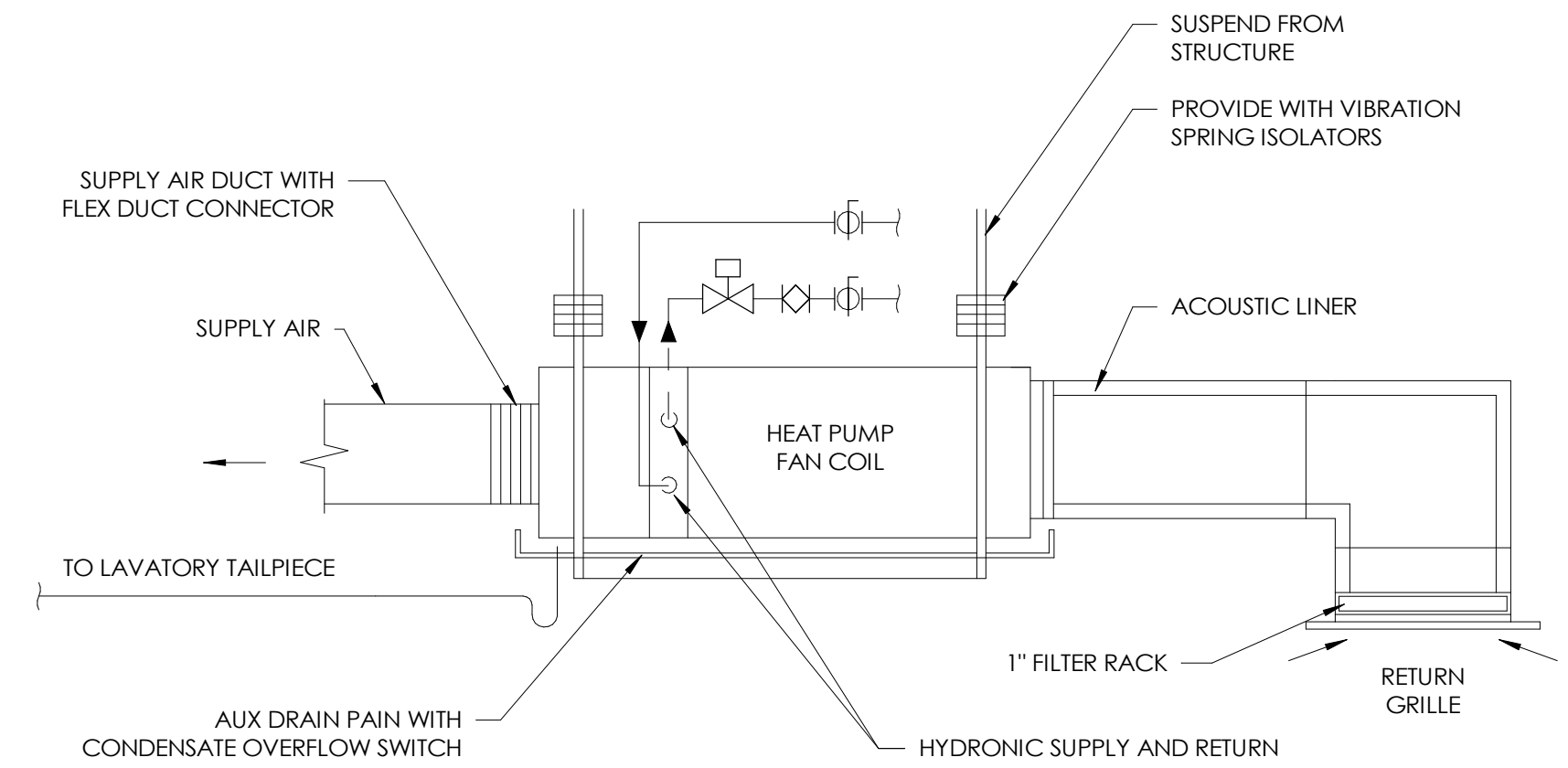
SCALE: NONE



NOTE:  
1. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS FOR ATTACHMENT TO BUILDING STRUCTURE. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL.  
2. ALL MATERIALS FOR ATTACHMENT SHALL BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS.

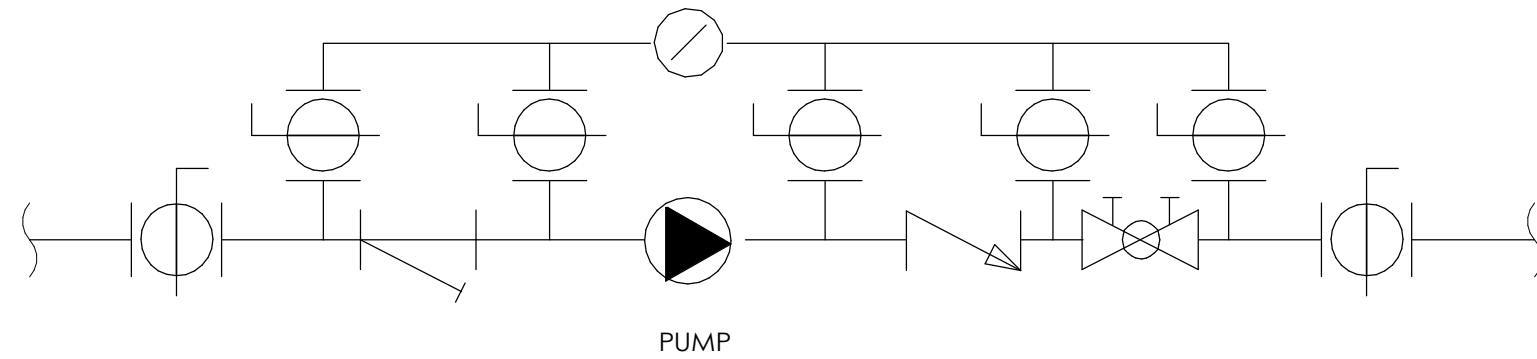
2 TYPICAL EQUIPMENT MOUNTING DETAIL

SCALE: NONE



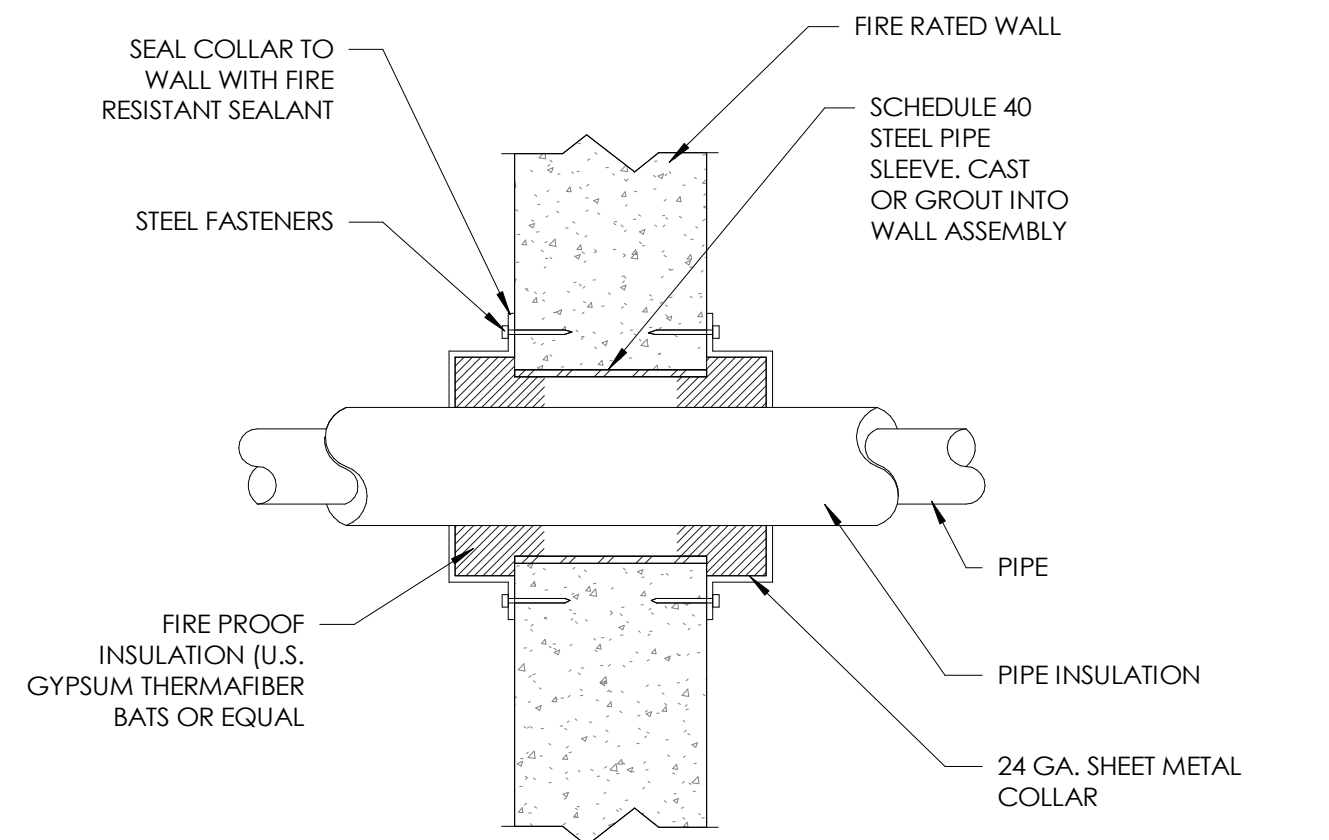
1 TYPICAL HEAT PUMP DETAIL

SCALE: NONE



8 TYPICAL PUMP DETAIL

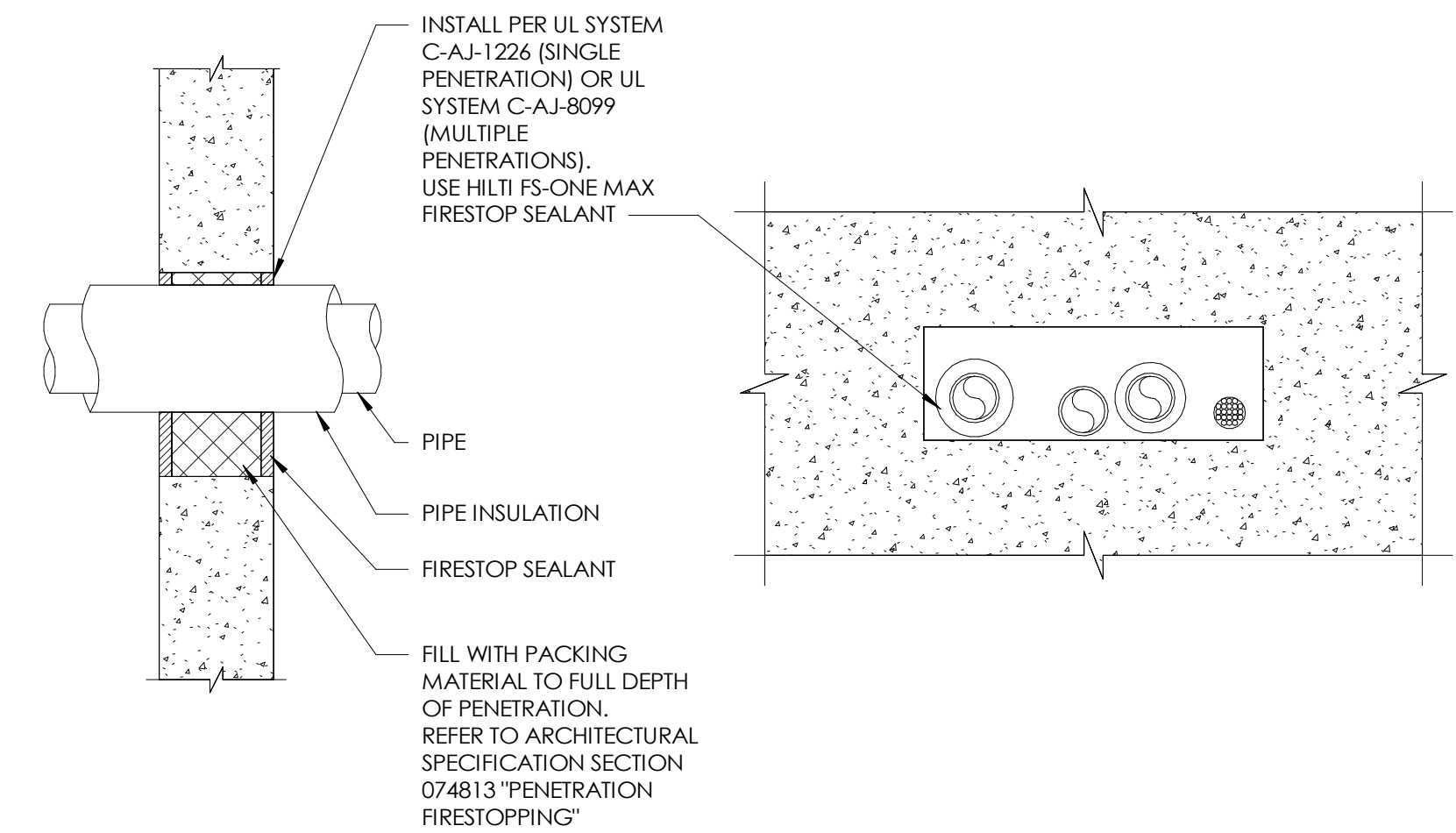
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NOTE: REFER TO UL SYSTEM NO. W-J-5003 FOR FURTHER COLLAR AND MATERIALS REQUIREMENTS

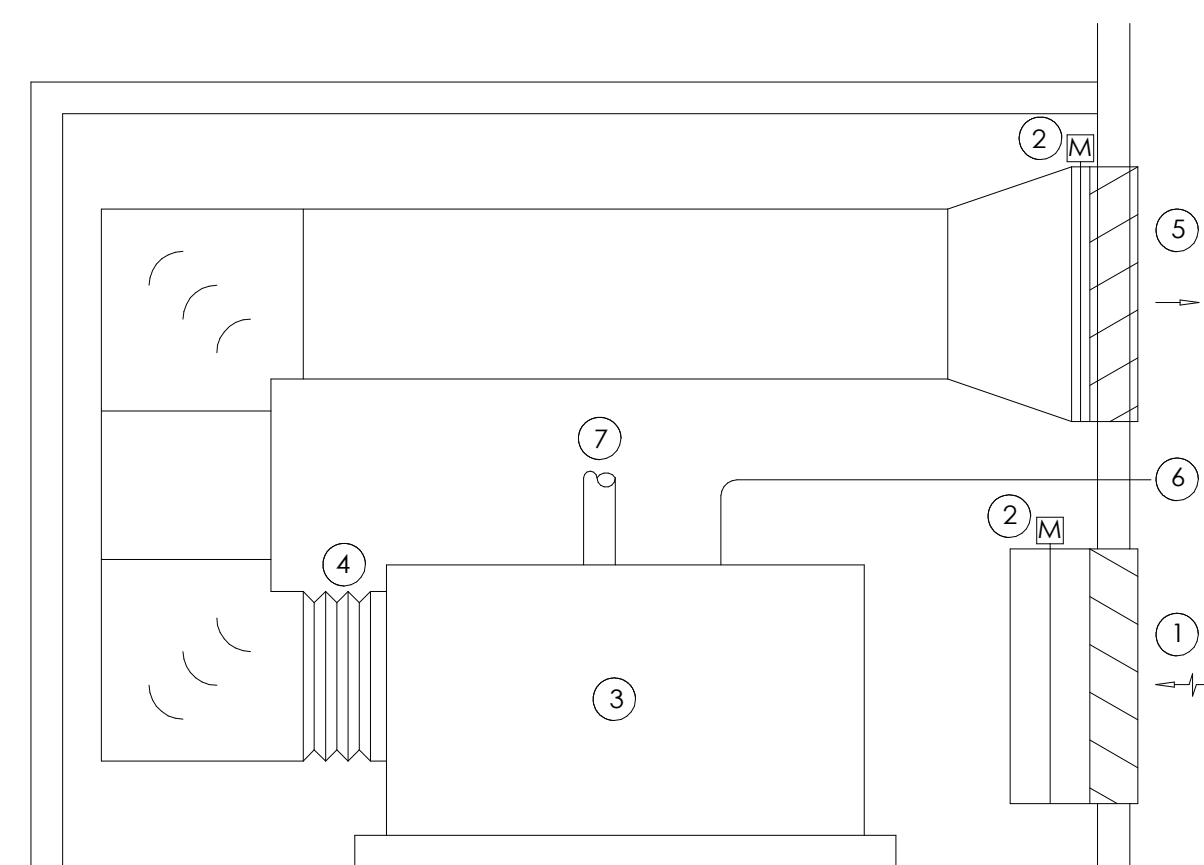
5 TYPICAL INSULATED PIPE SLEEVE THROUGH FIREWALL DETAIL

SCALE: NONE



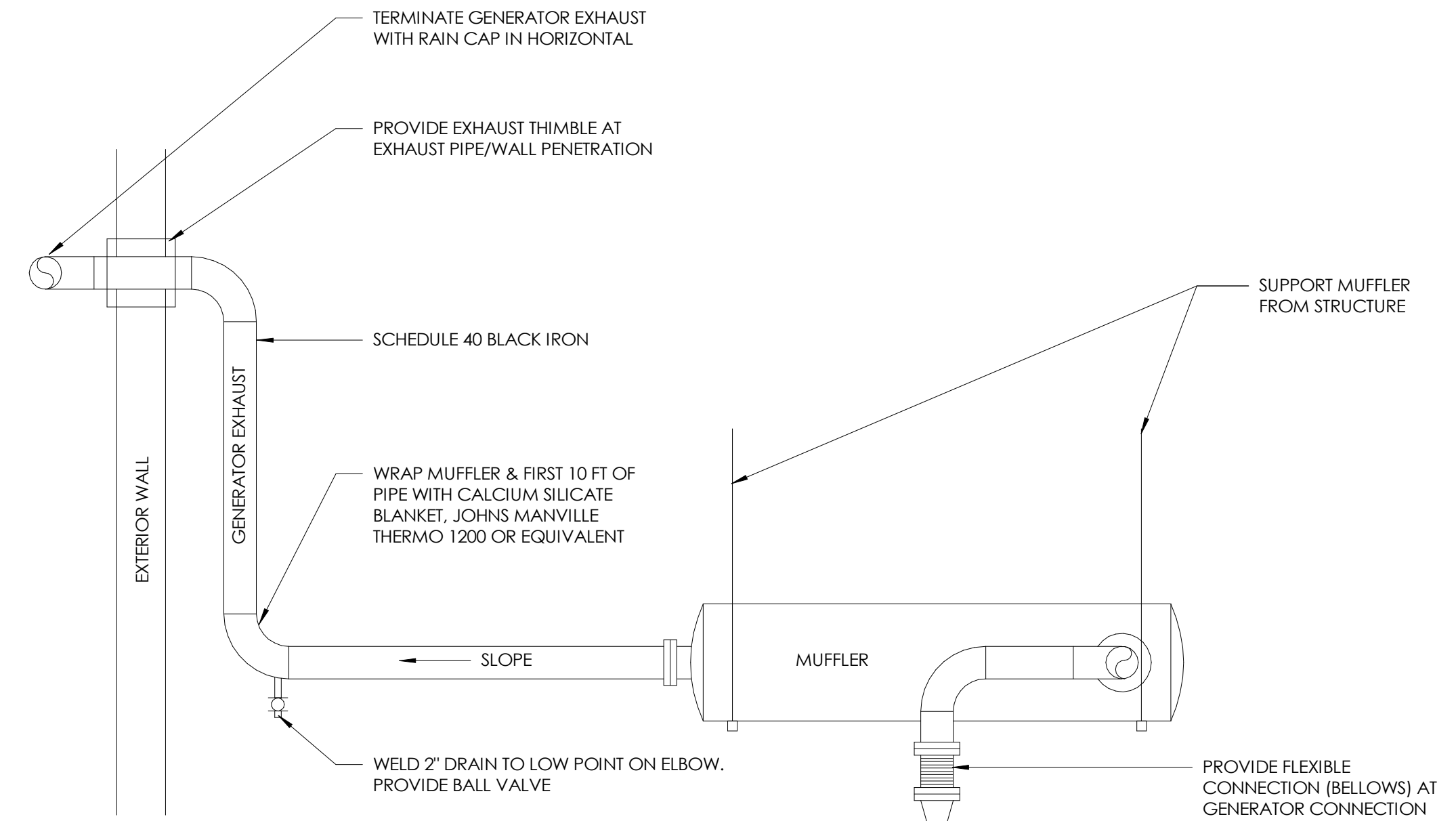
4 TYPICAL CONCRETE OR BLOCK PIPE PENETRATION DETAIL

SCALE: NONE



7 GENERATOR EQUIPMENT DETAIL

SCALE: NONE



6 GENERATOR EXHAUST DETAIL

SCALE: NONE

TOWN STAMP

359  
DESIGN

3000 OSAGE STREET  
DENVER, CO 80211  
720.532.2807

DAKE  
COLLABORATIVE



DISCIPLINE STAMP

REVIEWED  
FOR  
CODE  
COMPLIANCE  
06/24/2025

The Amble  
Steamboat Springs, CO

REVISIONS		
No.	Description	Date
3	IFC UPDATES	03.15.2024

PROJECT NUMBER: 30019  
ISSUE DATE: 03/15/2024

ISSUE

IFC SET

SHEET TITLE

MECHANICAL DETAILS

SHEET NO.

M6.01

3