CONSTRUCTION SET

Cook Inlet Housing Authority
Heat Conversion

3600 Spenard
Anchorage, Alaska 99503

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
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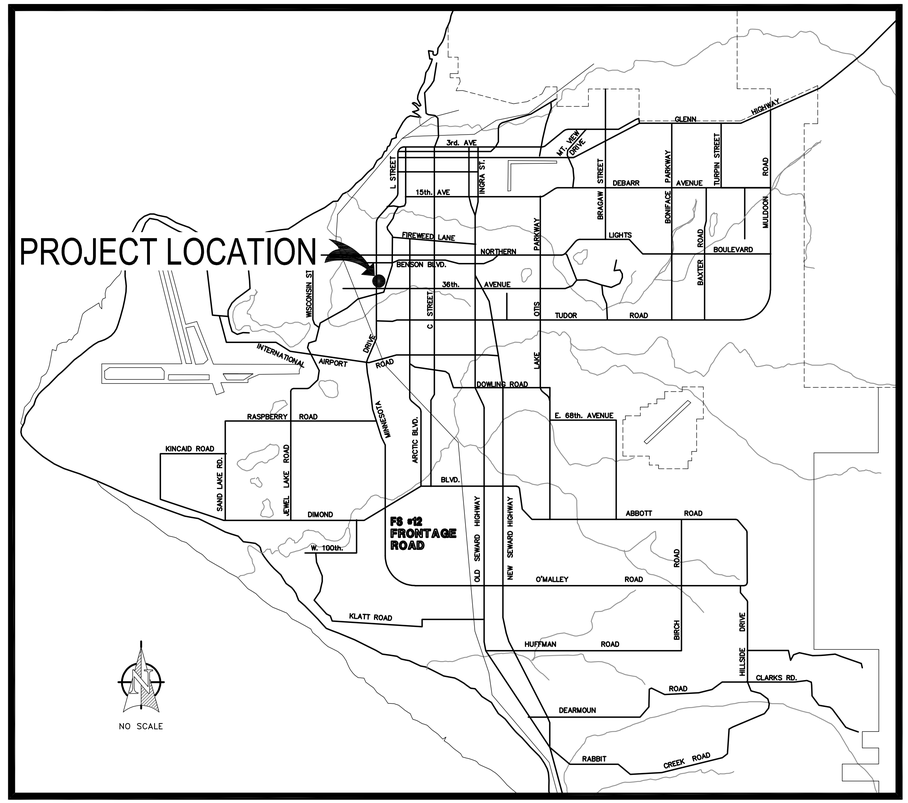

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PIPING LEGEND

- DENOTES DEMOLITION
- WASTE
- VENT PIPING
- COLD WATER
- HOT WATER
- HOT WATER RECIRCULATED
- XXX — SEE ABBREVIATIONS FOR MEDIA
- PIPE UP
- PIPE DOWN
- TEE UP
- TEE DOWN
- CAP
- UNION
- DIRECTION OF FLOW
- BALL/BUTTERFLY VALVE
- GATE VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- CHECK VALVE
- BALANCE/SHUT-OFF VALVE
- FLOW CONTROL VALVE
- PRESSURE REDUCING VALVE
- GAS SHUT-OFF VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- HOSE BIBB
- PUMP
- CLEANOUT
- THERMOMETER
- PRESSURE GAUGE W/ ISOLATION COCK
- STRAINER W/ BLOWDOWN
- FLOOR CLEANOUT
- FLOOR DRAIN
- FLOOR SINK

DUCTWORK LEGEND

- THERMOSTAT
- SENSOR
- SUPPLY AIR UP & DOWN
- RETURN AIR UP & DOWN
- EXHAUST AIR UP & DOWN
- ROUND DUCT UP & DOWN
- VOLUME DAMPER
- MOTORIZED CONTROL DAMPER
- SOUND LINED DUCTWORK
- 12/24 — DUCT SIZE (FIRST FIGURE – SIDE SHOWN) (SECOND FIGURE – SIDE NOT SHOWN)
- INSULATED DUCTWORK
- TURNING VANES
- FLEXIBLE DUCT

LOGIC

- POINT OF CONNECTION
- 5 / M2 — DETAIL NUMBER / SHEET LOCATED ON
- FT-1 / 1.0 / 12" — RADIATION DESIGNATOR / LENGTH / GPM
- 1 — SHEET NOTES
- A / CONNECTION / CFM — NECK SIZE / CFM / DIFFUSER OR GRILLE TYPE

ABBREVIATIONS

ADA	AMERICAN W/ DISABILITIES ACT GUIDELINES
AD	ACCESS DOOR
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHAP	AS HIGH AS POSSIBLE
AMPS	AMPERES
APD	AIR PRESSURE DROP
ARCH	ARCHITECTURAL
AS-X	AIR SEPARATOR
B-X	BOILER DESIGNATOR
BDD	BACKDRAFT DAMPER
BT-X	BUFFER TANK DESIGNATOR
BLDG	BUILDING
BTUH	BRITISH THERMAL UNIT/HOUR
CAP	CAPACITY
CC-X	COOLING COIL DESIGNATOR
C/A	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
CGR	COOLING GLYCOL RETURN
CGS	COOLING GLYCOL SUPPLY
CIRC	CIRCULATING
CLG	CEILING
COND	CONDENSATE
CONT	CONTINUED
CONN	CONNECTION
CP-X	CIRCULATION PUMP DESIGNATOR
CUH-X	CABINET UNIT HEATER DESIGNATOR
CU	COPPER
CW	COLD WATER
DIA	DIAMETER
dB	DECIBLES
DEG	DEGREE
DN	DOWN
DWG	DRAWING
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
EF-X	EXHAUST FAN DESIGNATOR
ET-X	EXPANSION TANK DESIGNATOR
EXH	EXHAUST
EWT	ENTERING WATER TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
EGT	ENTERING GLYCOL TEMPERATURE
EXIST	EXISTING
F	FAHRENHEIT
FC	FORWARD CURVE
FC-X	FAN COIL DESIGNATOR
FD-X	FLOOR DRAIN DESIGNATOR
FPF	FINS PER FOOT
FIN	FINISHED
FLR	FLOOR
FPM	FEET PER MINUTE
FT	FEET
FT-X	FINNED TUBE RADIATION DESIGNATOR
GA	GAUGE
GALV	GALVANIZED
GAL	GALLONS
GPM	GALLONS PER MINUTE
GSGR	GROUND SOURCE GLYCOL RETURN
GSGS	GROUND SOURCE GLYCOL SUPPLY
GT-X	GLYCOL TANK DESIGNATOR
GTD	GLYCOL TEMPERATURE DROP
HB-X	HOSE BIBB DESIGNATOR
HC-X	HEATING COIL DESIGNATOR
HD	HEAD
HGR	HEATING GLYCOL RETURN
HGS	HEATING GLYCOL SUPPLY
HP	HORSEPOWER
HRU	HEAT RECOVERY UNIT DESIGNATOR
HRV-X	HEAT RECOVERY VENTILATOR DESIGNATOR
HW	HOT WATER
HWC	HOT WATER CIRCULATED
HWG-X	HOT WATER GENERATOR DESIGNATOR
HX-X	HEAT EXCHANGER DESIGNATOR
IAU-X	INDOOR AIR UNIT DESIGNATOR
ID	INSIDE DAMPER
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
LF	LINEAL FEET
LGT	LEAVING GLYCOL TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MFGR	MANUFACTURER
M/A	MAKE-UP AIR
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
NC	NOISE CRITERIA
N.C.	NORMALLY CLOSED
NO.	NUMBER
N.O.	NORMALLY OPEN
NT-X	NEUTRALIZING TANK DESIGNATOR
NTS	NOT TO SCALE
OC	ON CENTER
O/A	OUTSIDE AIR
OD	OUTSIDE DAMPER
OD-X	OVERFLOW DRAIN DESIGNATOR
OSV	OIL SAFETY VALVE
P-X	PLUMBING FIXTURE DESIGNATOR
PD	PRESSURE DROP
PG	PROPYLENE GLYCOL
PH	PHASE
PHC-X	PRE-HEAT COIL DESIGNATOR
PSI	POUND PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
R/A	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
RD-X	ROOF DRAIN DESIGNATOR
RL	RAIN LEADER
S/A	SUPPLY AIR
SCFM	STANDARD CUBIC FEET PER MINUTE
SP	STATIC PRESSURE
T/A	TRANSFER AIR
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
T'STAT	THERMOSTAT
TTL	TOTAL
TV-X	TEMPERING VALVE DESIGNATOR
TYP	TYPICAL
UH-X	UNIT HEATER DESIGNATOR
UPC	UNIFORM PLUMBING CODE
V	VENT
VEL	VELOCITY
VTR	VENT THRU ROOF
WC	WATER COLUMN
WG	WATER GAUGE
WCO	WALL CLEAN OUT
W	WASTE
W/	WITH
W/O	WITHOUT
WPD	WATER PRESSURE DROP
WSHP-X	WATER SOURCE HEAT PUMP DESIGNATOR

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COOK INLET HOUSING AUTHORITY
3600 SPENARD HEAT CONVERSION
ANCHORAGE, AK

REVISION SCHEDULE

#	DESCRIPTION	DATE

JOB NO.	L5225.00
DATE	5.9.2025
DRAWN	ARN
REVIEWED	MRF

SHEET NAME
MECHANICAL LEGEND AND ABBREVIATIONS

SHEET NO.
M1

FAN COIL SCHEDULE

SYMBOL	MANUFACTURER	MODEL	AREA SERVED	COIL TAG	O/A INTAKE CFM	FAN CFM	ESP IN. W.C.	FILTERS SQ. FT.	FILTERS MERV	MOTOR DATA MCA/VOLTS/PH	REMARKS
FC-1	DAIKIN	FCHH206	DWELLINGS	HC-1	0	420	0.2500	2.25	4	0.8/208/1	PSC MOTORS
FC-2	DAIKIN	FCHH212	OFFICES	HC-2/CC-2	200	750	0.2500	4.00	4	1.5/208/1	PSC MOTORS
FC-3	DAIKIN	FCHH206	OFFICES	HC-3/CC-3	150	400	0.2500	2.25	4	0.8/208/1	PSC MOTORS

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	FUNCTION	PUMPED MEDIUM	GPM	HEAD FEET	RPM	MOTOR DATA HP	POWER	REMARKS
CP-5(N)	TACO	1915ECM-F	OFFICE COOLING	30% PG	26	46	3400	0.87	208/1	SET FOR MAXIMUM CONSTANT SPEED
CP-6(N)	TACO	VR30H	BUILDING HEAT	50% PG	88	35		2.1	208/1	REPLACE EXISTING PUMP WITH NEW VARIABLE SPEED PUMP

HEATING COIL SCHEDULE

SYMBOL	MANUFACTURER	CFM	ROWS	EAT DEG F	LAT DEG F	GPM	MEDIUM	EGT DEG F	LGT DEG F	WPD FT HD	REMARKS
HC-1	DAIKIN	420	1	70	93	1.0	50% PG	160	132	6	
HC-2	DAIKIN	750	2	70	123	4.0	50% PG	160	134	7	
HC-3	DAIKIN	400	1	70	93	1.0	50% PG	160	132	8	

COOLING COIL SCHEDULE

SYMBOL	MANUFACTURER	LOCATION	CFM	ROWS	EDB DEG F	EWB DEG F	LDB DEG F	LWB DEG F	MEDIUM	GPM	EGT DEG F	LGT DEG F	WPD	REMARKS
CC-2	DAIKIN	OFFICES	750	2	75	62	58	56	30% PG	5	45	51	--	PROVIDE 3-WAY CONTROL VALVE
CC-3	DAIKIN	OFFICES	400	3	75	62	57	55	30% PG	4	45	50	--	

AIR INLET/OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	USE	MATERIAL	FINISH	CFM	FACE SIZE (IN.)	NC	REMARKS
(A)	PRICE	TBD375	2-SLOT	SUPPLY	STEEL	ENAMEL	PER PLANS	48"x6"	<25	LAY-IN LOUVER, PROVIDE W/EARTHQUAKE TABS, SET ONE SLOT FOR DOWN THROW AND ONE SLOT FOR HORIZONTAL
(B)	PRICE	85	GRID	RETURN	ALUMINUM	ENAMEL	PER PLANS	24"x24"	<25	LAY-IN GRILLE, PROVIDE W/EARTHQUAKE TABS.

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REVISION SCHEDULE

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JOB NO.	L5225.00
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SHEET NAME
MECHANICAL SCHEDULES

SHEET NO.
M2

SECTION 22 05 00; 23 05 00 – COMMON WORK RESULTS FOR MECHANICAL

PLANS – THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM. THE DRAWINGS ARE PARTLY DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF PIPING AND DUCTS UNLESS SPECIFICALLY DIMENSIONED. CONTRACTOR IS TO COORDINATE PIPING, DUCTWORK, SPRINKLER HEADS, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL PLANS TO AVOID CONFLICTS. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITY REGULATIONS TO THE ATTENTION OF THE PROJECT MANAGER. CODES, ORDINANCES, REGULATIONS, STANDARDS, OR MANUFACTURER'S INSTRUCTIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS. MAINTAIN CODE MINIMUM MECHANICAL SERVICE TO ALL AREAS IMPACTED BY WORK WHERE STILL OCCUPIED BY THE OWNER.

STANDARDS, CODES, AND REGULATIONS – ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL FIRE CODE (IFC), UNIFORM PLUMBING CODE (UPC), INTERNATIONAL ENERGY CONSERVATION CODE (IECC), INTERNATIONAL FUEL GAS CODE (IFGC), AND NATIONAL ELECTRIC CODE (NEC) AS AMENDED BY THE MUNICIPALITY OF ANCHORAGE. SHEET METAL WORK SHALL BE DONE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS.

SUBMITTALS – SUBMITTALS SHALL BE IN ELECTRONIC FORM. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION. SUBMIT ON ALL SCHEDULED EQUIPMENT AND ALL MATERIALS AND EQUIPMENT AS NOTED IN THE SPECIFICATIONS.

MATERIALS – ALL MATERIALS OTHER THAN OWNER SUPPLIED SHALL BE NEW AND UNUSED, INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND IN THE BEST PRACTICE OF THE CRAFT. OBTAIN OWNER APPROVAL OF ALL PRODUCTS PRIOR TO ORDERING OR INSTALLING ANY PART OF ANY SYSTEM.

EQUIPMENT SUBSTITUTIONS – ALL EQUIPMENT LISTED AND SCHEDULED ARE REPRESENTATIVE OF THE STANDARD OF QUALITY AND PERFORMANCE REQUIRED. "OR EQUAL" SUBSTITUTIONS WILL BE CONSIDERED IF SUBSTITUTE DATA SHEETS ARE SUBMITTED AND ARE SHOWN TO BE OF EQUAL OR BETTER QUALITY, INCLUDING EFFICIENCY OF PERFORMANCE, AND SIZE AND WEIGHT. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL SUBSTITUTIONS.

WORKMANSHIP – INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, AND THIRD PARTY LISTINGS WHERE APPLICABLE.

WARRANTY – ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM PROJECT COMPLETION AND OWNER ACCEPTANCE. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE WARRANTY PERIOD.

EQUIPMENT INSTALLATION AND ACCESS – INSTALL ALL EQUIPMENT WHERE NOTED ON THE DRAWINGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE MISCELLANEOUS APPURTENANCES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS INCLUDING ACCESSORIES, SUPPORTS AND CONTROL CONNECTIONS REQUIRED FOR COMPLETE AND OPERATING SYSTEMS. MAINTAIN MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES AND PROVIDE WORKABLE ACCESS TO ALL SERVICEABLE AND/OR OPERABLE EQUIPMENT.

TEST AND START-UP – TEST ALL PLUMBING AND PIPING SYSTEMS WITH 60 PSIG FOR ONE HOUR BEFORE FILLING AND IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE (UPC). FILL ALL HEATING PIPING WITH TRISODIUM PHOSPHATE SOLUTION AND OPERATE FOR SEVERAL HOURS AT NORMAL OPERATING TEMPERATURE BEFORE FLUSHING AND FILLING WITH HEATING FLUID.

OPERATION AND MAINTENANCE MANUAL – PROVIDE THE OWNER WITH AN OPERATING AND MAINTENANCE MANUAL. TO INCLUDE DATA CUTSHEETS MARKED WITH THE SPECIFIC ITEM USED, MANUFACTURER'S SPECIFICATIONS, OPERATING AND MAINTENANCE INSTRUCTIONS, WARRANTY INFORMATION ON EACH PIECE OF EQUIPMENT, RECORD DRAWINGS WITH INSTALLED LOCATIONS NOTED, SOURCE OF SUPPLY FOR SPARE PARTS AND SERVICE. OPERATION AND MAINTENANCE MANUAL SHALL BE IN ELECTRONIC FORM AND SHALL BE SUBMITTED FOR REVIEW. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION.

RECORD DRAWINGS – PROVIDE ACCURATE PROJECT RECORD DRAWINGS, SHOWN IN RED INK ON A CLEAN SET OF PRINTS. SHOWING ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING INSTALLATION OF THE WORK. SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL MECHANICAL WORK THAT IS PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN. SUBMIT ORIGINAL COPY TO OWNER AT THE COMPLETION OF WORK AND PRIOR TO SUBSTANTIAL COMPLETION INSPECTION.

SEISMIC RESTRAINT – ALL PIPING, DUCTWORK, AND EQUIPMENT INSTALLED UNDER THIS PROJECT SHALL BE SEISMICALLY RATED AND RESTRAINED FOR A SEISMIC EVENT IN ACCORDANCE WITH THE 2021 EDITION OF THE IBC AND ASCE 7 AS AMENDED BY THE MUNICIPALITY OF ANCHORAGE. THE CONTRACTOR SHALL PROVIDE A DEFERRED SUBMITTAL FOR REVIEW TO THE MUNICIPALITY OF ANCHORAGE PLAN REVIEW DEPARTMENT FOR SEISMIC RESTRAINT DESIGN WITH CALCULATIONS AND SHOP DRAWINGS. SEISMIC RESTRAINT CALCULATIONS AND SHOP DRAWINGS SHALL INCLUDE A STRUCTURAL ENGINEERS STAMP AND SIGNATURE PRIOR TO INSTALLATION. SEISMIC CATEGORY D, COMPONENT IMPORTANCE FACTOR IP-1.0

DEMOLITION DRAWINGS ARE BASED ON AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK-THROUGH OF THE FACILITY. REPORT DISCREPANCIES TO OWNER BEFORE DISTURBING THE EXISTING INSTALLATION. DISABLE SYSTEMS ONLY TO MAKE SWITCH OVERS AND CONNECTIONS. COORDINATE WITH PHASING PLAN TO PERFORM WORK IN SEQUENCE WITH OTHER TRADES AND MAINTAIN CODE MINIMUM MECHANICAL SERVICE CLEARANCES TO ALL AREAS IMPACTED BY WORK AND STILL OCCUPIED. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS PRIOR TO PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREAS. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS. REMOVE, RELOCATE, AND/OR EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTIONS. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED PIPING, DUCTWORK, INSULATION, HANGERS AND SUPPORTS, CONTROLS AND CONTROL WIRING, AND ANY OTHER ABANDONED MECHANICAL EQUIPMENT. THIS INCLUDES ABANDONED EQUIPMENT ABOVE ACCESSIBLE CEILING FINISHES. WHERE ABANDONED PIPE ENTERS EXISTING SURFACES TO REMAIN, CUT PIPE FLUSH WITH WALLS, AND FLOORS, CAP/PLUG PIPE AND PATCH SURFACES. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND REMODEL WORK. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS WHICH REMAIN ACTIVE.

SECTION 23 21 13 – HYDRONIC PIPING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.

B. MATERIALS:

1. COPPER TUBING – ASTM B88, TYPE L, HARD DRAWN. FITTINGS: ANSI/ASME B16.18 CAST BRONZE OF ASME B16.22 WROUGHT COPPER. JOINTS: ASTM B32, SOLDER, GRADE 95TA OR ANSI/AWS A5.8, BCUP SILVER BRAZE; FLUX: ASTM B813 OR VIEGA PRO PRESS SYSTEM.
2. CONDENSATE PIPING – CPVC PIPING MEETING ASTM D1785, SCHEDULE 40. FITTINGS: CPVC. JOINTS: ASTM D2466/D2467, SOLVENT WELD WITH ASTM D2855 SOLVENT CEMENT.
3. BALL VALVES:
   - 3.1. SIZES 2" AND SMALLER – BRONZE TWO-PIECE BODY, FULL PORT, FORGED BRASS, CHROME PLATED BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE. SOLDER, THREADED, OR PRESS-FIT ENDS.
   - 3.2. SIZES 2-1/2" AND LARGER – CAST STEEL TWO-PIECE BODY, FULL PORT CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE. FLANGED, SOLDER, THREADED, OR PRESS-FIT ENDS.
4. BUTTERFLY VALVES (ONLY OVER 2"):
   - 4.1. DUCTILE IRON BODY, ALUMINUM BRONZE DISC, EPDM SEAT FOR SERVICE TO 250°F, LUG ENDS.
5. SWING CHECK VALVES:
   - 5.1. SIZES 2" AND SMALLER – BRONZE SWING DISC. SOLDER, SCREWED, OR PRESS FIT ENDS.
   - 5.2. SIZES 2-1/2" AND LARGER – IRON BODY, SWING DISC, RENEWABLE DISC AND SEAT, FLANGED ENDS.
6. SPRING LOADED CHECK VALVES – IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING, RENEWABLE COMPOSITION DISC. SCREWED, WAFER, OR FLANGED ENDS.
7. BALANCE VALVES: BRONZE OR BRASS BODY RATED FOR 300 PISG WORKING PRESSURE, TYPE 304 STAINLESS STEEL BALL. VALVE BODY SHALL INCLUDE TWO PRESSURE AND TEMPERATURE PORTS, A DRAIN PORT, AND A CALIBRATED NAMEPLATE WITH MEMORY STOP.
8. FLOW CONTROL VALVES:
   - 8.1. ASTM B584 BRASS BODY, RATED AT 300 PSIG @ 250°F WITH UNION ON INLET AND TEMPERATURE AND PRESSURE TEST PLUGS ON INLET AND OUTLET.
   - 8.2. CALIBRATION: CONTROL FLOW WITHIN 5 PERCENT OF SELECTED RATING OVER 14 TIMES MINIMUM PRESSURE REQUIRED FOR CONTROL. SELECT 2-32 PSI OPERATING RANGE WITH LESS THAN 2 PSI REQUIRED TO OPERATE THE MECHANISM.
9. FLANGES, UNIONS, AND COUPLINGS – BRONZE UNIONS FOR COPPER PIPE, SOLDERED JOINTS.

C. INSTALLATION:

1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
2. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
4. PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
5. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
6. PROVIDE 3/4" DRAIN VALVES AT EQUIPMENT AND PIPING LOW POINTS FOR DRAINING OF SYSTEM.
7. PRIOR TO FLUSHING SYSTEM, VERIFY SYSTEM IS COMPLETE. THOROUGHLY FLUSH AND CLEAN THE SYSTEM. DRAIN ALL LOW POINTS AND REMOVE AND CLEAN ANY STRAINER BASKETS. UPON COMPLETION OF FLUSHING, FEED HEATING MEDIUM INTO SYSTEM THROUGH MAKE-UP LINE WITH PRESSURE REGULATOR WHILE VENTING HIGH POINTS.

SECTION 23 09 00 – INSTRUMENTATION AND CONTROL FOR HVAC

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. THERMOMETERS:
   - 1.1. SOLAR POWERED, DIGITAL – CAST ALUMINUM CASE; -50/300°F (-45/150°C) SWITCHABLE RANGE; 9/16" LCD DIGITS, WIDE AMBIENT FORMULA DISPLAY; 1% ACCURACY; 10 LUX RATING, 10 SECOND UPDATE, GLASS PASSIVATED THERMISTOR. TRERICE "SX9" OR APPROVED EQUAL.
2. THERMOSTATS:
   - 2.1. NON-PROGRAMMABLE THERMOSTATS – FAHRENHEIT SCALE, HEATING ONLY OR HEATING/COOLING CAPABLE WITH LCD DISPLAY AND ABILITY TO RESTRICT USER SETPOINT INPUTS.
3. PRESSURE GAUGES – 2-1/2" DIAMETER CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURBON TUBE, ROTARY BRONZE MOVEMENT, BRASS SOCKET, SILICONE FLUID DAMPENING BLACK FIGURES ON WHITE BACKGROUND, 1% MID-SCALE ACCURACY, CALIBRATED IN PSI. TRERICE "600CB" OR APPROVED EQUAL.
4. CONTROL VALVES – FOR 2-POSITION OPEN/CLOSE SERVICE, VALVE SHALL BE LINE-SIZED BALL-VALVE STYLE. ACTUATOR TO BE COMPATIBLE WITH SELECTED THERMOSTAT.

C. INSTALLATION:

1. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE W/ MANUFACTURERS INSTRUCTIONS.
2. DEMOLISH EXISTING HEAT PUMP CONTROLS NO LONGER USED. SET UP REMAINING HEAT PUMP AND INDOOR UNIT CONTROLS TO CONTINUE OPERATION.
3. ALL WIRING SHALL BE PER THE NEC. PROVIDE PROPER GROUNDING OF ALL CONTROL WIRING.
4. PROVIDE TWO PRESSURE GAUGES PER PUMP, INSTALLING TAPS BEFORE STRAINERS AND ON SUCTION AND DISCHARGE OF PIPE. PIPE TO GAUGE WITH ISOLATION VALVE TO EACH TAPPING.
5. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SOCKETS WITH SHORT COUPLING. SELECT BULB LENGTH TO REACH CENTERLINE OF PIPE.
6. ALL INSTRUMENTS SHALL BE PROVIDED WITH SCALE RANGES ACCORDING TO LARGEST PRESSURE IN SYSTEM SERVED.
7. INSTALL ALL GAUGES AND THERMOMETERS IN LOCATIONS WHERE THEY ARE EASILY READ.
8. ALL CONTROLLERS, TRANSMITTERS, SWITCHES, THERMOSTATS, GAUGES, AND DEVICES WITH ADJUSTABLE SETPOINTS SHALL BE PERMANENTLY TAGGED WITH IDENTIFICATION.

SECTION 22 07 00; 23 07 00 – INSULATION

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS

1. PIPING INSULATION – GLASS FIBER, RIGID, MOLDED, NON-COMBUSTIBLE INSULATION; ANSI/ASTM C547; 'K' VALUE OF 0.24 AT 75 DEG F, RATED TO 850 DEG F, VAPOR RETARDER JACKET OF KRAFT PAPER BONDED TO ALUMINUM FOIL; JOHNS MANVILLE "MICRO-LOK" OR EQUAL. COMPLETE WITH VAPOR BARRIER JACKET AND PLASTIC COVERS FOR FITTINGS.
2. DUCTWORK INSULATION – FSK DUCT WRAP: FLEXIBLE GLASS FIBER; ANSI/ASTM C553; COMMERCIAL GRADE; 'K' VALUE OF 0.27 AT 75 DEG F. JOHNS MANVILLE "800 SERIES SPIN-GLAS" OR EQUAL

C. INSTALLATION

1. PIPING
   - 1.1. INSULATE ALL HEATING AND CHILLED WATER PIPING WITH PRE-FORMED FIBERGLASS INSULATION, COMPLETE WITH FACTORY VAPOR BARRIER AND PVC JACKETING FOR FITTINGS.
     - 1.1.1. INSULATE ALL HYDRONIC HEATING AND COOLING PIPING SIZE 1-1/4" AND SMALLER WITH 1" INSULATION, SIZE 1-1/2" AND LARGER WITH 1-1/2" INSULATION.
2. PROVIDE 1" INSULATION ON ALL SUPPLY DUCTWORK ON FAN COIL UNITS WITH COOLING COILS.
3. INSTALL ALL INSULATION MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND ALL APPLICABLE BUILDING CODES AND INDUSTRY STANDARDS.

SECTION 23 05 93 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

A. SUBMITTALS: SUBMIT EQUIPMENT CALIBRATIONS, PRELIMINARY AND FINAL BALANCING REPORTS.

B. MATERIALS:

1. BALANCING INSTRUMENTS AS NECESSARY TO COMPLETE WORK TO MEASURE AT LEAST THE FOLLOWING: AIR VELOCITY, STATIC PRESSURE, RPM, TEMPERATURE, AND FLOW.

C. EXECUTION:

1. THE CONTRACTOR SHALL BALANCE AIR AND HYDRONIC SYSTEMS ACCORDING TO NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) RECOMMENDED PROCEDURES AND CONTRACT DOCUMENTS, AND TO THE SATISFACTION OF THE OWNER.
2. FLOWS ARE TO BE BALANCED TO WITHIN 10% OF INDICATED FLOWS, PER AMERICAN AIR BALANCING COUNCIL (AABC) RECOMMENDED METHODS.

SECTION 23 09 93 – SEQUENCE OF OPERATION

A. SUBMITTALS: SUBMIT SHOP DRAWINGS OF DIGITAL CONTROL DRAWINGS.

B. MATERIALS:

1. EXISTING AUTOMATED LOGIC CONTROL SYSTEM WILL BE EXTENDED TO THE NEW MECHANICAL ROOM EQUIPMENT.
2. FAN COIL UNITS WILL BE CONTROLLED BY LOCAL ELECTRIC THERMOSTAT.

C. EXECUTION (PHASE 1):

1. THE EXISTING CONTROLS SHALL OPERATE WITH EXISTING SEQUENCES. RELOCATE EXISTING CP-6 CONTROL POINTS TO NEW CP-6.

D. EXECUTION (PHASE 2):

1. DELETE CONTROL POINTS ASSOCIATED WITH CP-1, CP-2, CP-4, CP-5, HX-1, AND THE 3-WAY CONTROL VALVE FOR THE WELL FIELD.
2. THE NEW CP-5 SHALL OPERATE FOR COOLING WHEN THE OUTSIDE TEMPERATURE IS ABOVE 55°F (ADJ). TURN OFF PUMP WHEN TEMPERATURE DROPS TO 50°F (ADJ). MODULATE NEW SMALLER CONTROL VALVE ON THE WELL FIELD TO MAINTAIN THE COOLING GLYCOL SUPPLY TEMPERATURE AT 45°F (ADJ).
3. UPDATE GRAPHICS WITH NEW CONTROL POINTS.
4. DEMONSTRATE CORRECT OPERATION OF CONTROLS TO THE ENGINEER DURING THE COMPLETION INSPECTION.

SECTION 23 31 00 – HVAC DUCTS AND CASINGS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL

B. MATERIALS:

1. DUCTWORK:
   - 1.1. GALVANIZED STEEL – ASTM A653/A653M GALVANIZED SHEET, LOCK-FORMING QUALITY, ASTM A90/90M G90 ZINC COATING.
   - 1.2. FASTENERS – RIVETS, BOLTS, OR SHEET METAL SCREWS.
2. FLEXIBLE DUCTS:
   - 2.1. INSULATED – UL 181, CLASS 1, COATED FIBERGLASS WOVEN FABRIC SUPPORTED BY COATED HELICAL WOUND SPRING STEEL WIRE, FIBERGLASS INSULATED, ALUMINIZED POLYESTER VAPOR BARRIER FILM, THERMAL RESISTANCE OF R-4.2. 16" W.G. POSITIVE AND 2.0" W.G. NEGATIVE PRESSURE RATING FOR SIZES 3"-10" DIAMETER. 10" W.G. POSITIVE AND 2.0" W.G. NEGATIVE FOR SIZES 12"-16" DIAMETER. THERMFLEX "M-KC" OR APPROVED EQUAL.
3. SINGLE WALL, ROUND SPIRAL DUCT – UL 181, CLASS 1, ROUND SPIRAL LOCKSEAM, GALVANIZED STEEL. DUCT SIZE GAUGES PER SMACNA STANDARDS.

C. INSTALLATION:

1. LOW AND MEDIUM PRESSURE DUCTWORK – FABRICATE, INSTALL, AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND ASHRAE HANDBOOKS, EXCEPT AS INDICATED. SEAL ALL DUCT SEAMS AND JOINTS AIRTIGHT. USE TURNING VANES IN ALL SQUARE ELBOWS AND FLAT OVAL ELBOWS. INSTALL VOLUME DAMPERS AND EXTRACTORS WHERE SHOWN ON THE DRAWINGS. ALL SHEET METAL WORK TO BE CONSTRUCTED, INSTALLED, TESTED AND BALANCED IN ACCORDANCE WITH SMACNA STANDARDS. SUPPORT LOW AND MEDIUM PRESSURE DUCTWORK PER SMACNA GUIDELINES.
2. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH ADHESIVE AND SHEET METAL SCREWS.

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ME-8975
5/9/25
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COOK INLET HOUSING AUTHORITY
3600 SPENARD HEAT CONVERSION
ANCHORAGE, AK

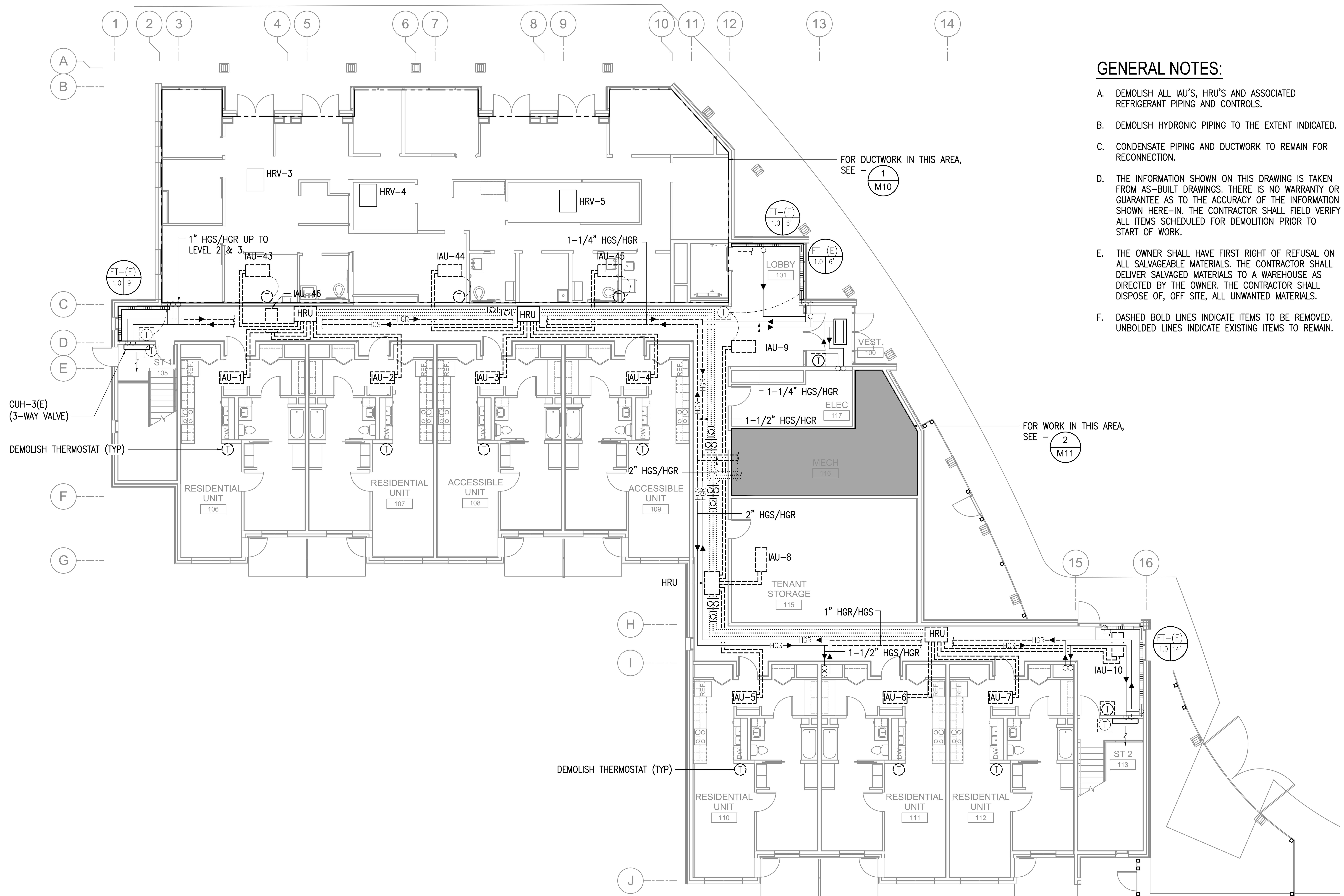
REVISION SCHEDULE

#	DESCRIPTION	DATE

JOB NO.	L5225.00
DATE	5.9.2025
DRAWN	ARN
REVIEWED	MRF

SHEET NAME
MECHANICAL SPECIFICATIONS

SHEET NO.
M3



GENERAL NOTES:

A. DEMOLISH ALL IAU'S, HRU'S AND ASSOCIATED REFRIGERANT PIPING AND CONTROLS.

B. DEMOLISH HYDRONIC PIPING TO THE EXTENT INDICATED.

C. CONDENSATE PIPING AND DUCTWORK TO REMAIN FOR RECONNECTION.

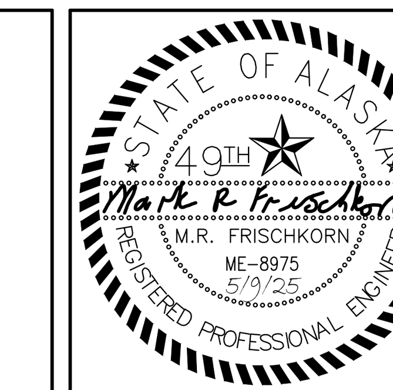
D. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

E. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

F. DASHED BOLD LINES INDICATE ITEMS TO BE REMOVED. UNBOLDED LINES INDICATE EXISTING ITEMS TO REMAIN.

1 MECHANICAL HEATING DEMOLITION PLAN - LEVEL 1 (PHASE 1)

1/8" = 1'-0"



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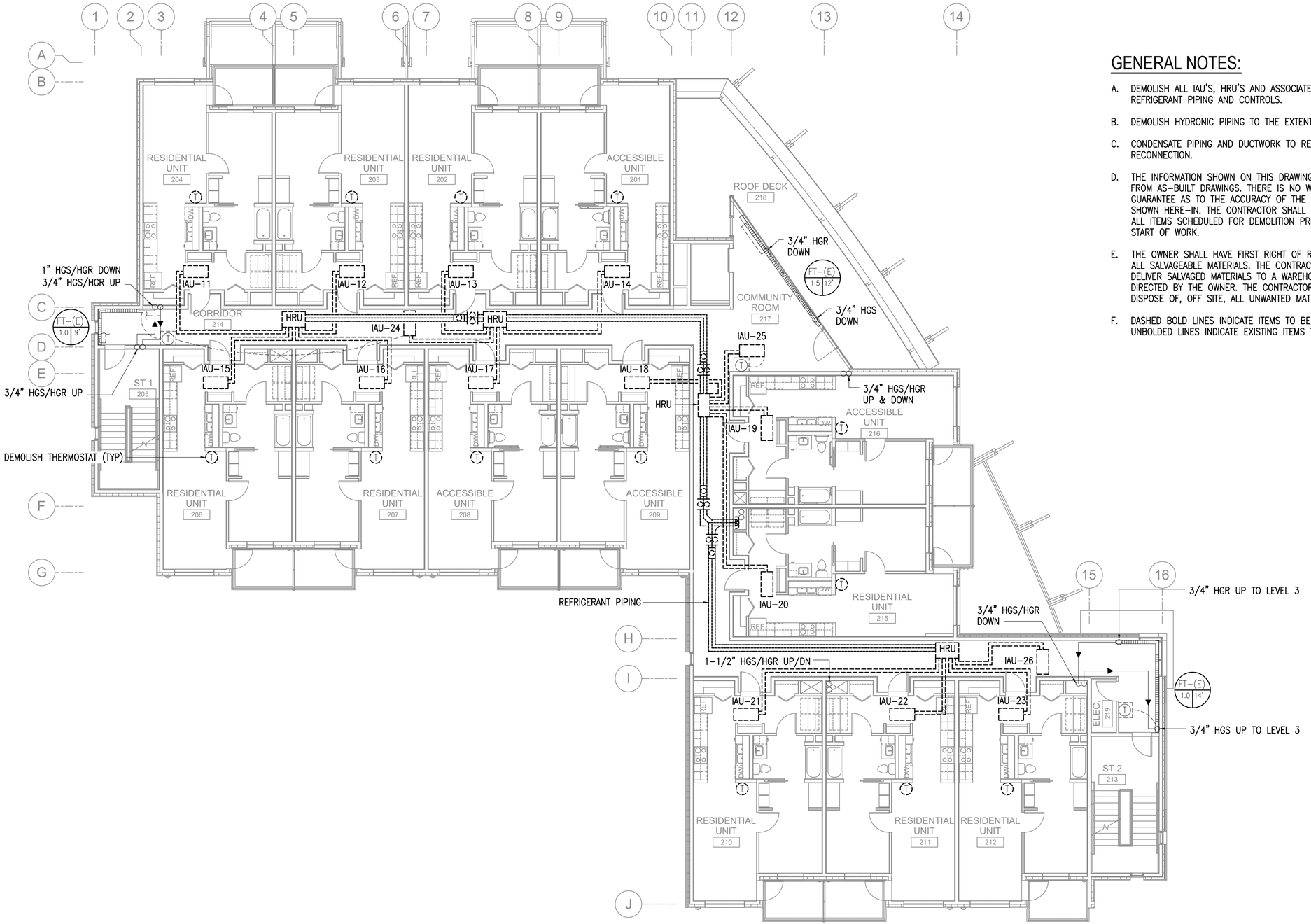
SHEET NAME
LEVEL 1
HEATING DEMOLITION PLAN

SHEET NO.
M4



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F. DASHED BOLD LINES INDICATE ITEMS TO BE REMOVED. UNBOLDED LINES INDICATE EXISTING ITEMS TO REMAIN.

1 MECHANICAL HEATING DEMOLITION PLAN - LEVEL 2 (PHASE 2)
1/8" = 1'-0"

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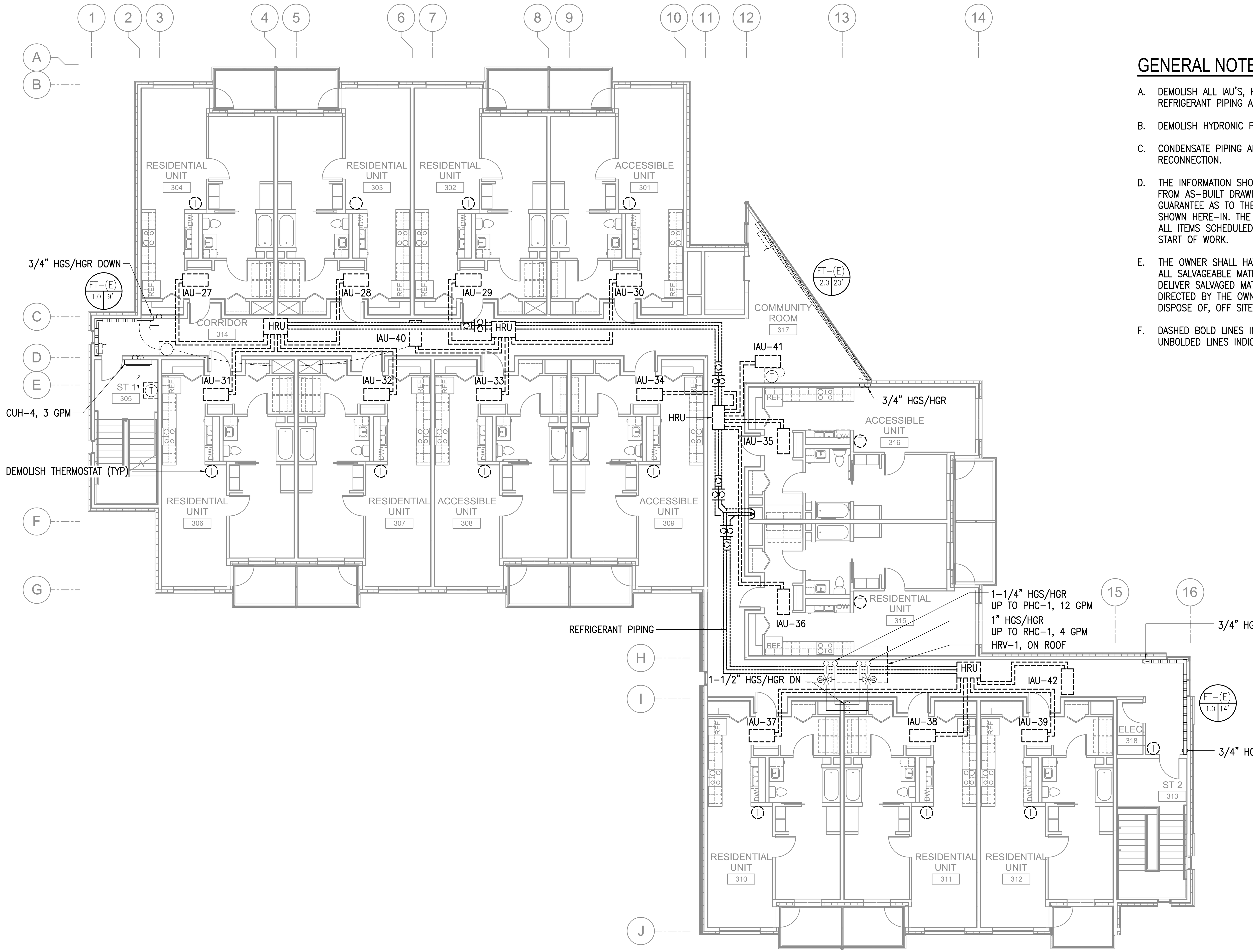
SHEET NAME
LEVEL 2
HEATING DEMOLITION PLAN

SHEET NO.
M5



GENERAL NOTES:

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B. DEMOLISH HYDRONIC PIPING TO THE EXTENT INDICATED.

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F. DASHED BOLD LINES INDICATE ITEMS TO BE REMOVED. UNBOLDED LINES INDICATE EXISTING ITEMS TO REMAIN.

1 MECHANICAL HEATING DEMOLITION PLAN - LEVEL 3 (PHASE 2)
1/8" = 1'-0"

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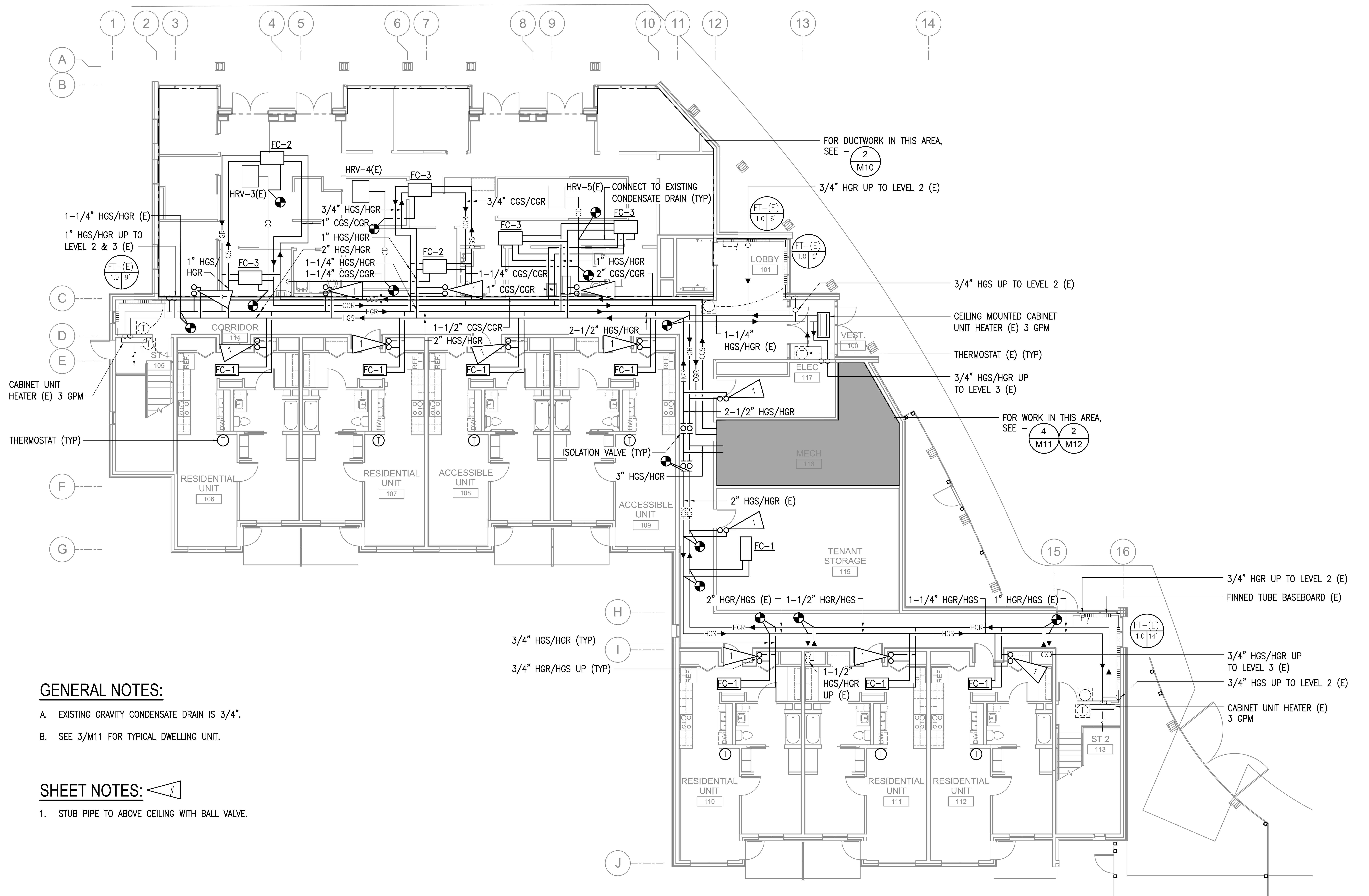
SHEET NAME
LEVEL 3
HEATING DEMOLITION PLAN

SHEET NO.
M6



GENERAL NOTES:

A. EXISTING GRAVITY CONDENSATE DRAIN IS 3/4".

B. SEE 3/M11 FOR TYPICAL DWELLING UNIT.

SHEET NOTES:

1. STUB PIPE TO ABOVE CEILING WITH BALL VALVE.

1 MECHANICAL PIPING PLAN - LEVEL 1 (PHASE 1)
1/8" = 1'-0"

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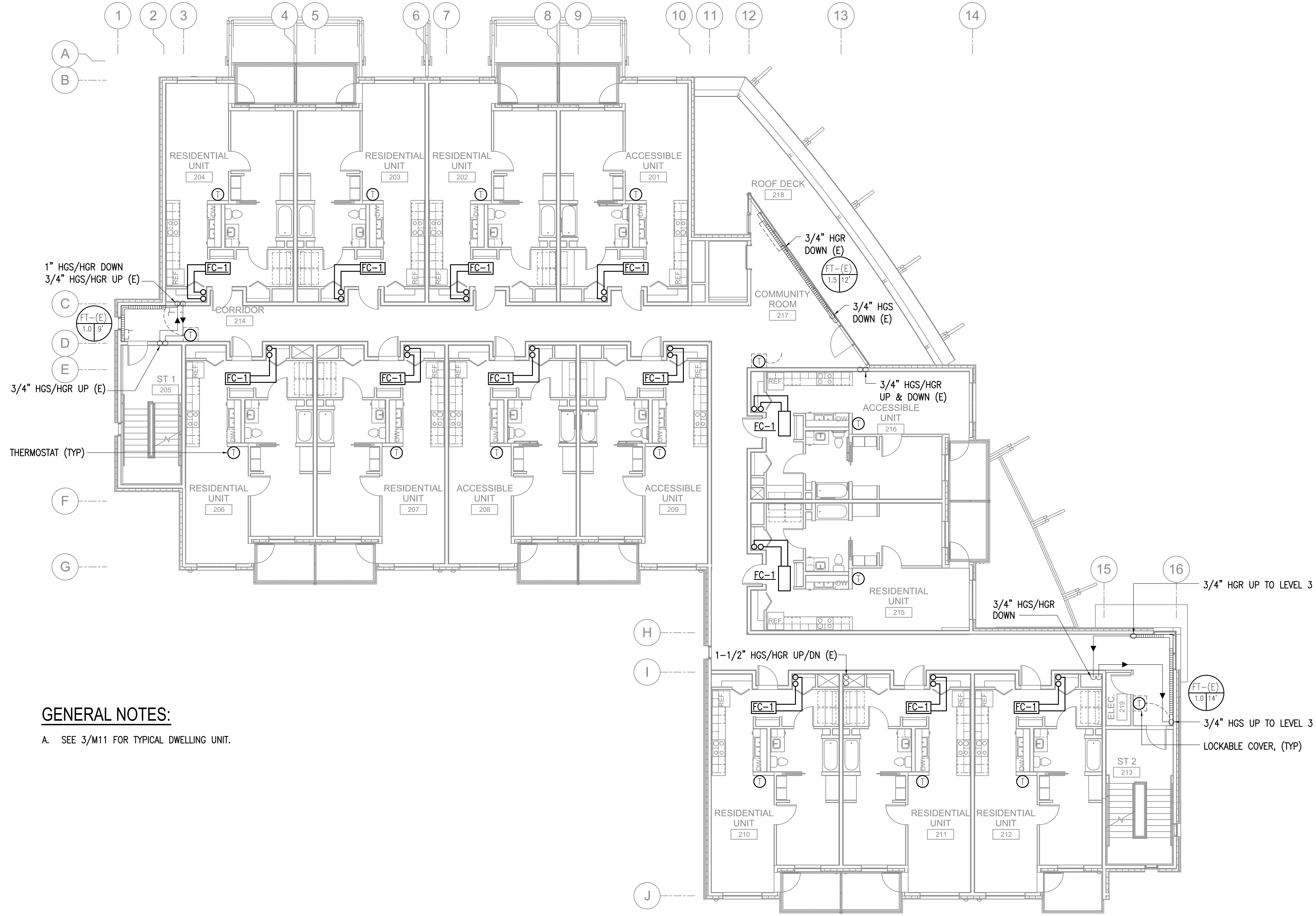
SHEET NAME
LEVEL 1
PIPING PLAN

SHEET NO.
M7



GENERAL NOTES:

A. SEE 3/M11 FOR TYPICAL DWELLING UNIT.

1 MECHANICAL PIPING PLAN - LEVEL 2 (PHASE 2)
1/8" = 1'-0"

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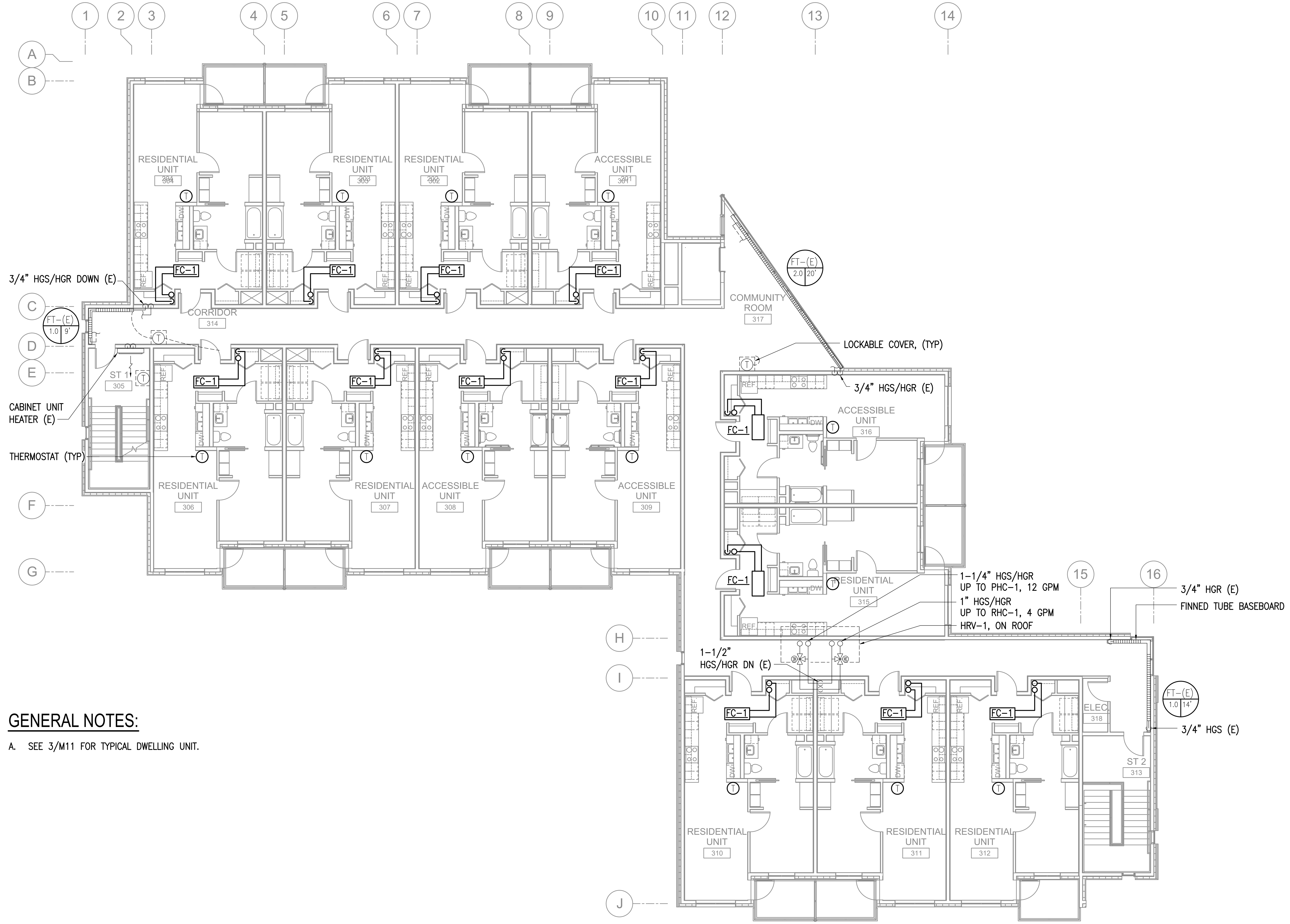
DRAWN	ARN
REVIEWED	MRF

SHEET NAME
LEVEL 2
PIPING PLAN

SHEET NO.
M8



GENERAL NOTES:

A. SEE 3/M11 FOR TYPICAL DWELLING UNIT.

1 MECHANICAL PIPING PLAN - LEVEL 3 (PHASE 2)

1/8" = 1'-0"

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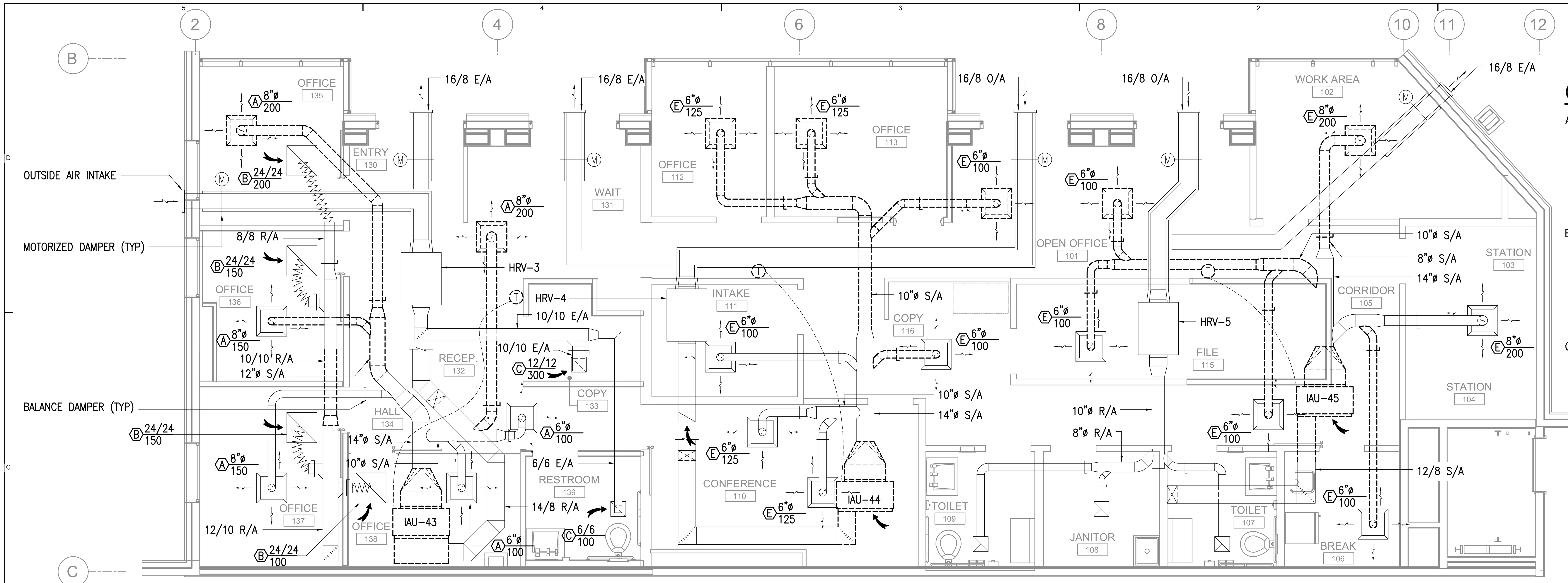
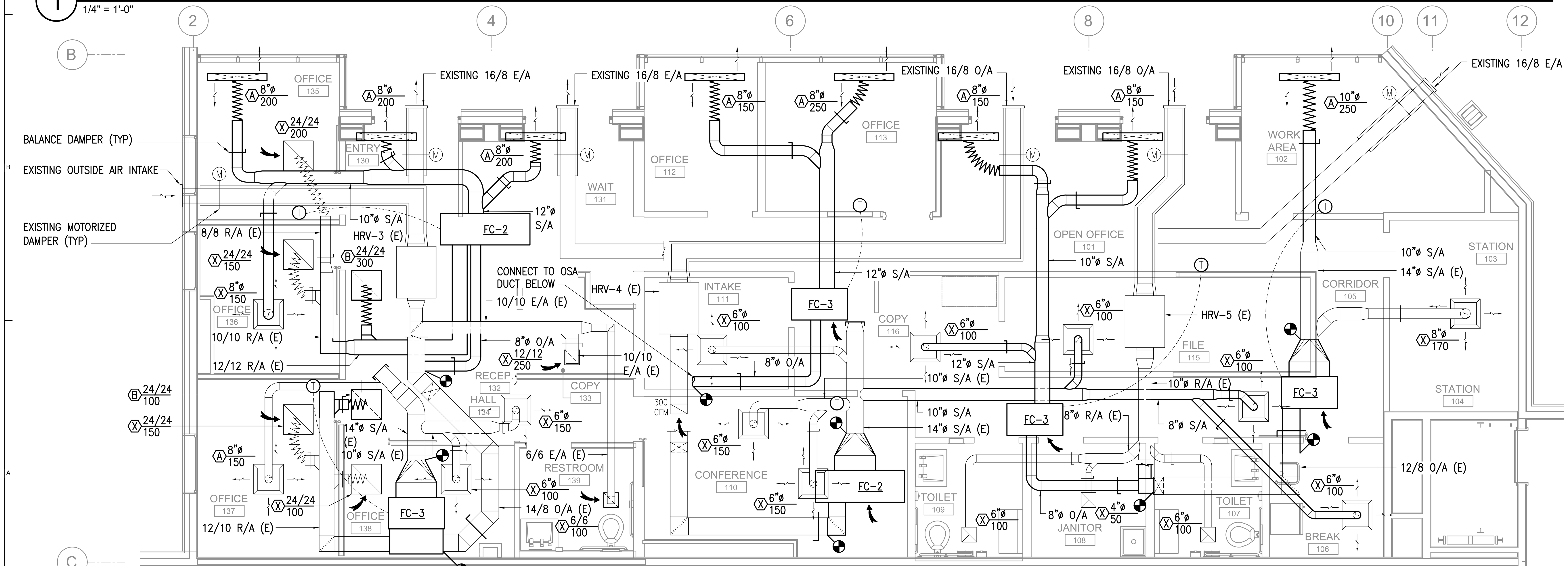
SHEET NAME
LEVEL 3
PIPING PLAN

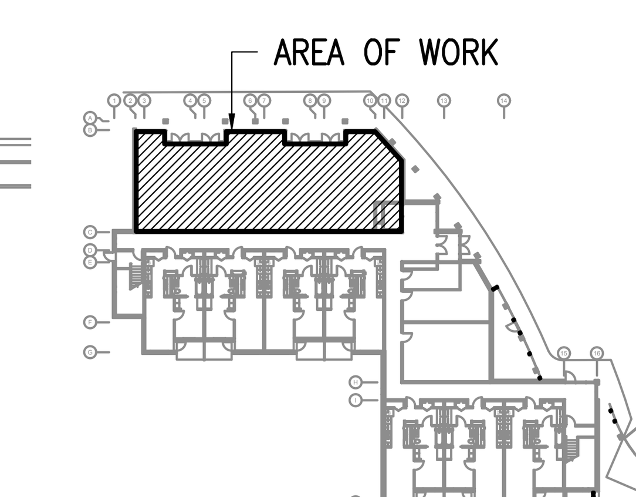
SHEET NO.
M9



1 DUCTWORK DEMOLITION PLAN - CILC AREA (PHASE 1)

1/4" = 1'-0"





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2 DUCTWORK REMODEL PLAN - CILC AREA (PHASE 1)

1/4" = 1'-0"

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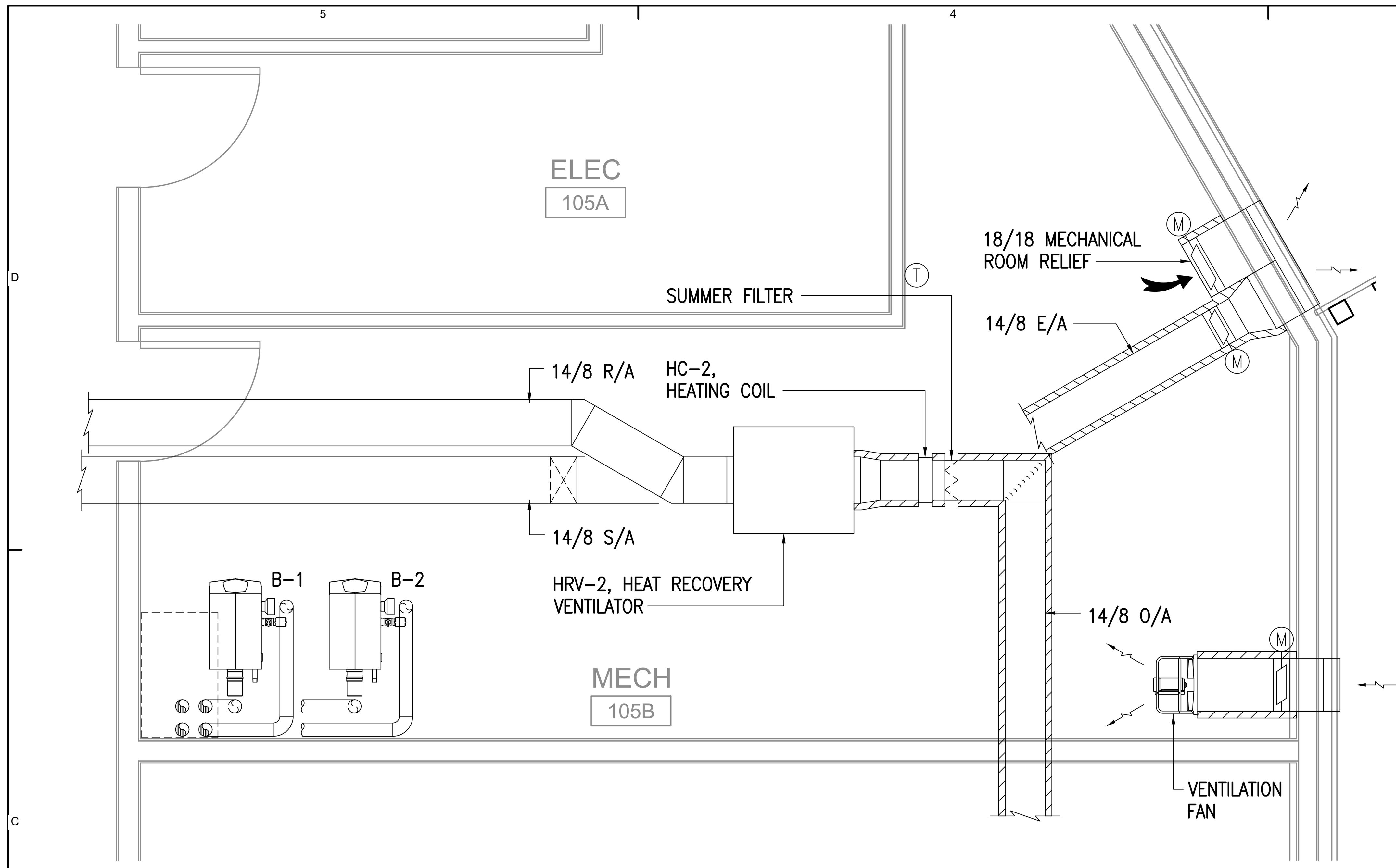
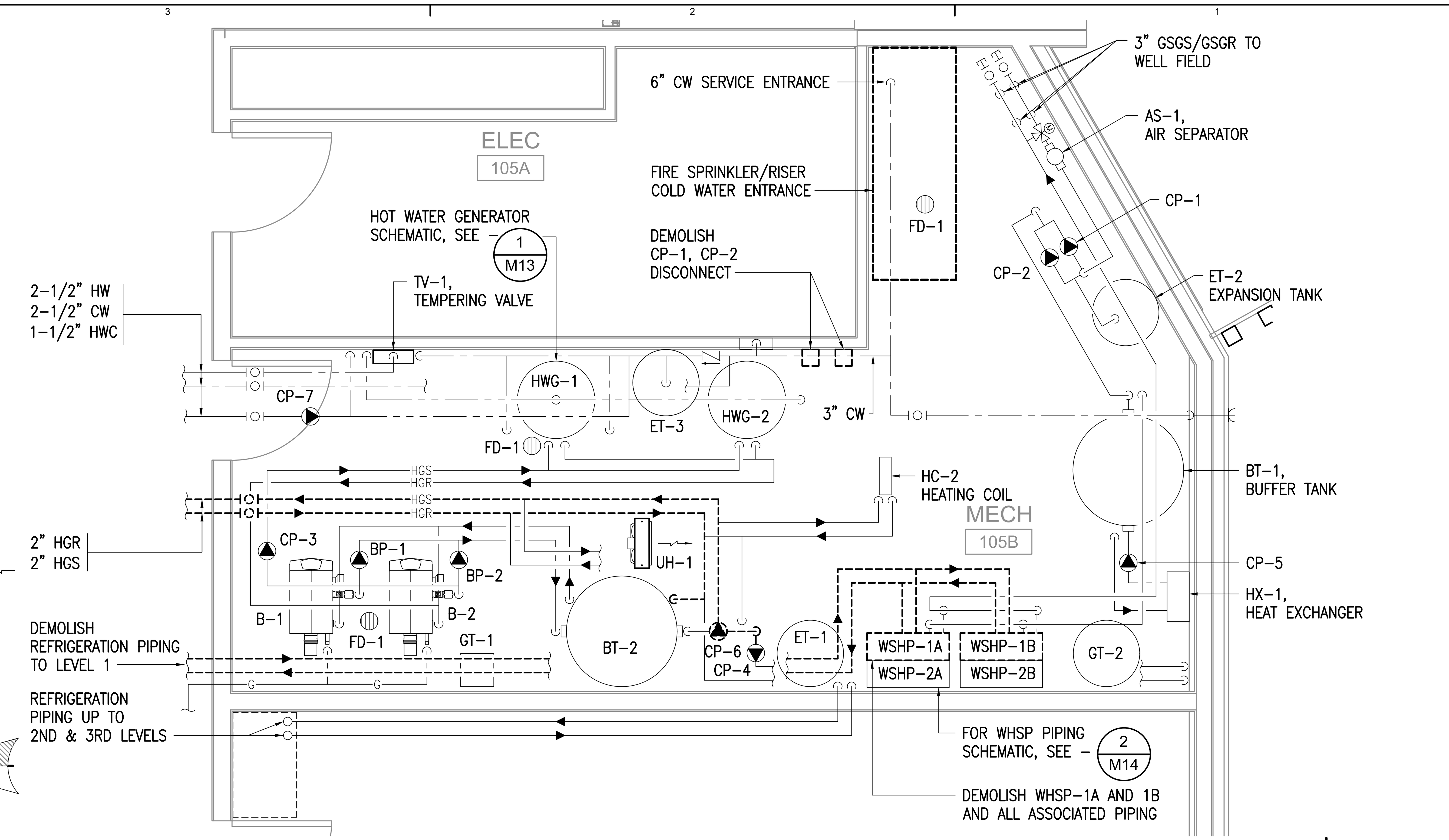
SHEET NAME
CILC AREA VENTILATION PLAN

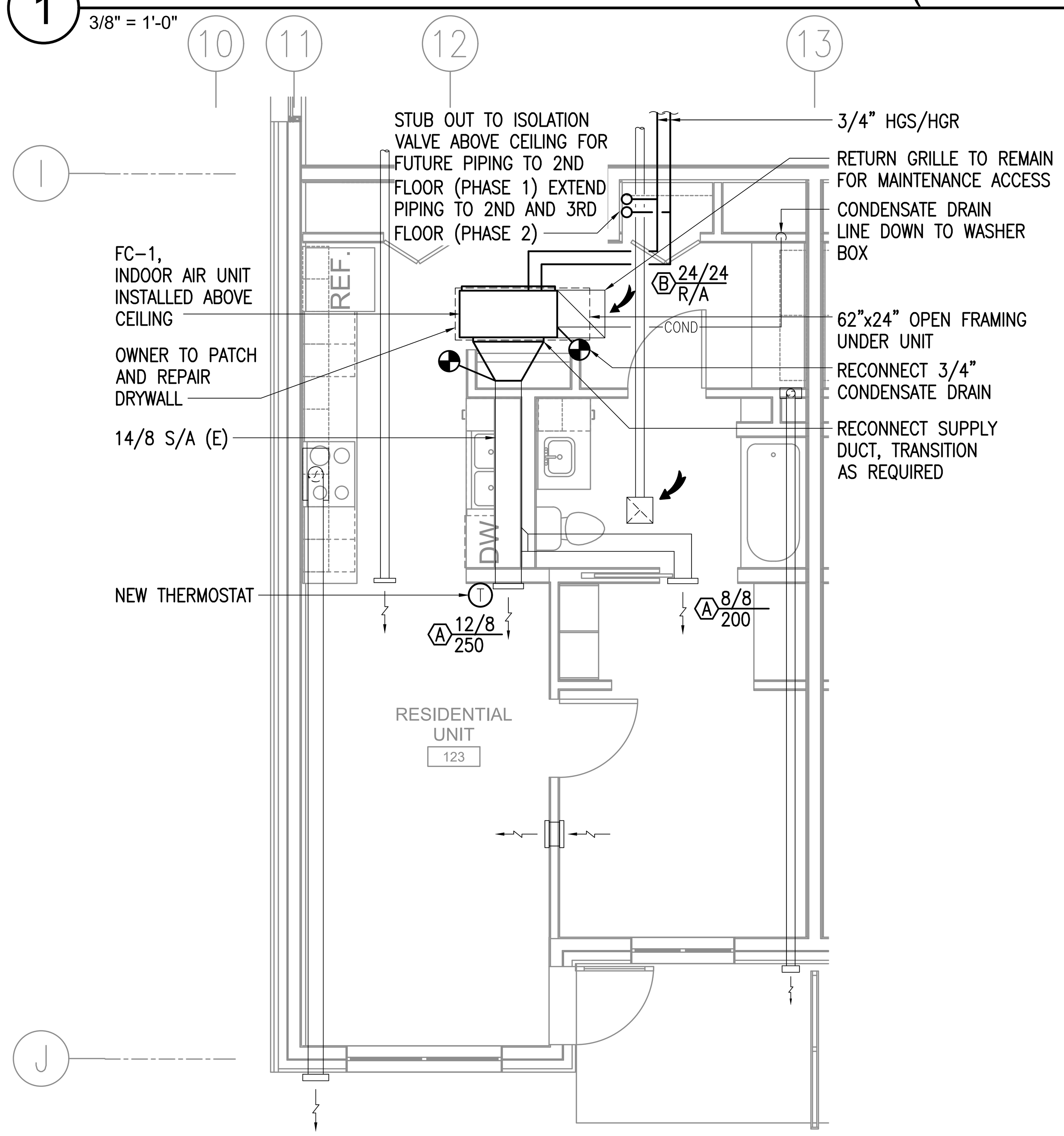
SHEET NO.
M10



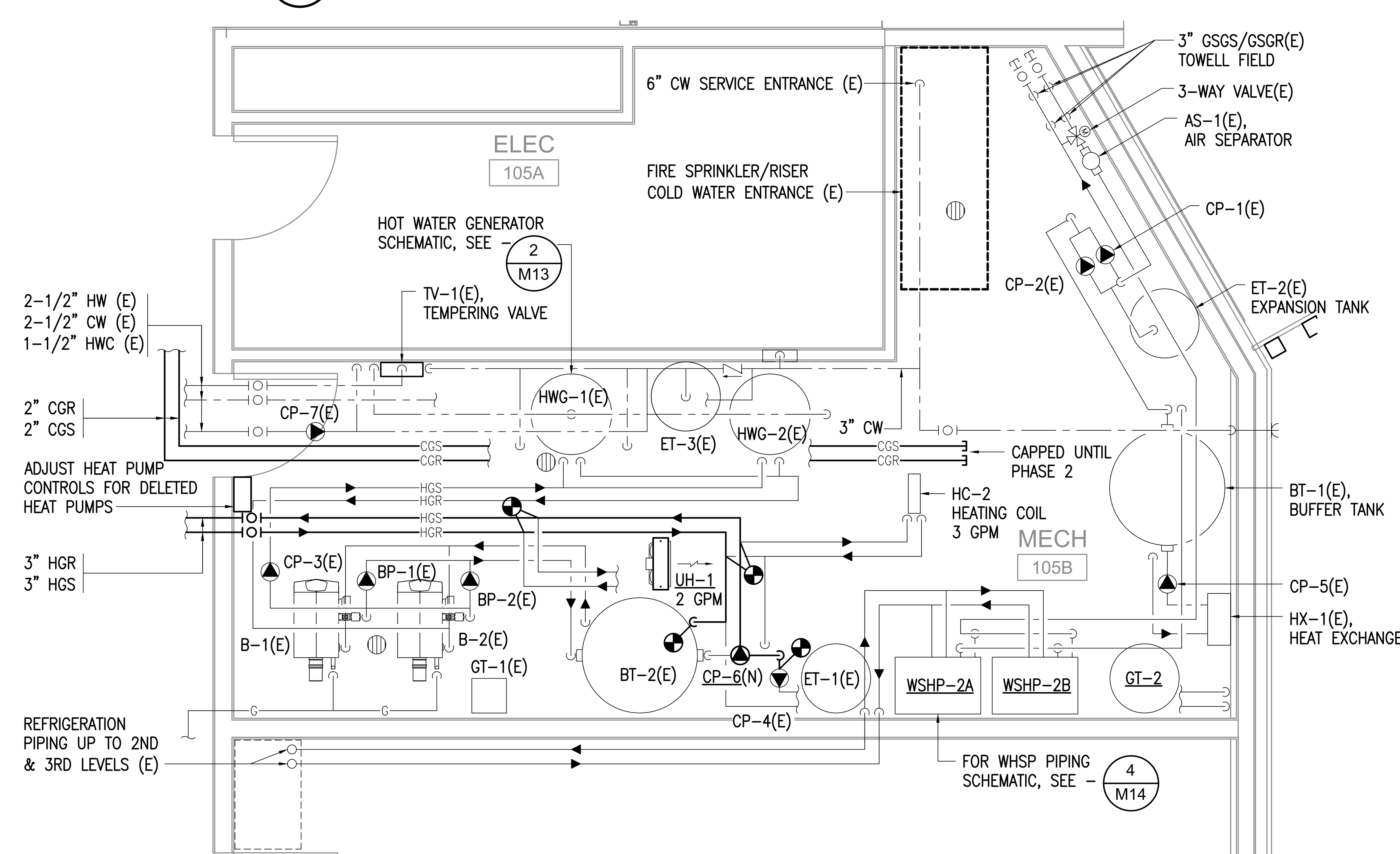
1 ENLARGED DUCT PLAN - MECHANICAL ROOM (EXISTING)
3/8" = 1'-0"



2 ENLARGED PIPING DEMOLITION PLAN - MECHANICAL ROOM (PHASE 1)
3/8" = 1'-0"



3 TYPICAL ENLARGED VENTILATION PLAN
1/4" = 1'-0"



4 ENLARGED PIPING REMODEL PLAN - MECHANICAL ROOM (PHASE 1)
3/8" = 1'-0"

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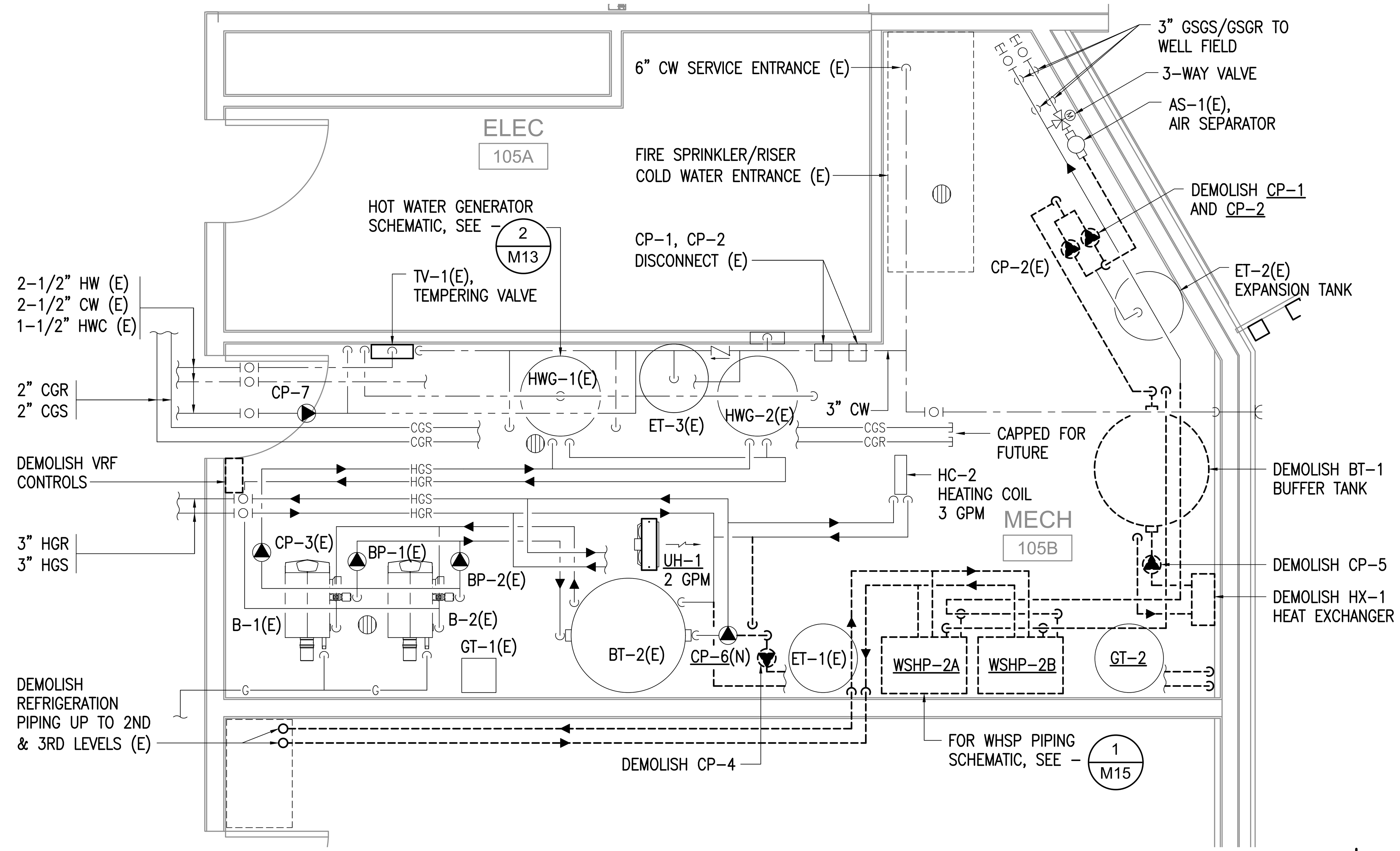
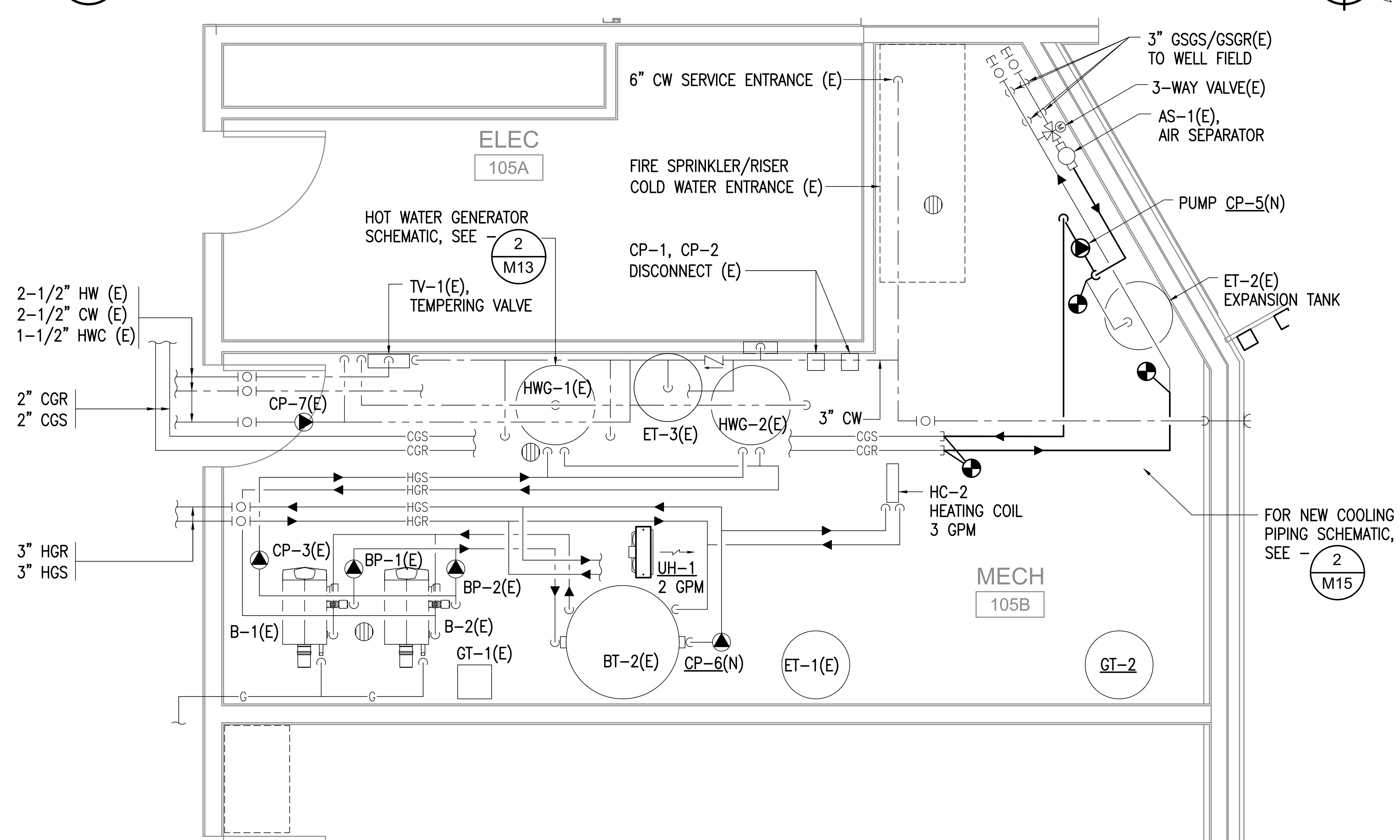
REVIEWED	MRF

SHEET NAME
ENLARGED MECHANICAL ROOM PLANS AND TYPICAL VENTILATION PLAN

SHEET NO.
M11



1 ENLARGED PIPING DEMOLITION PLAN - MECHANICAL ROOM (PHASE 2)
3/8" = 1'-0"



2 ENLARGED PIPING REMODEL PLAN - MECHANICAL ROOM (PHASE 2)
3/8" = 1'-0"

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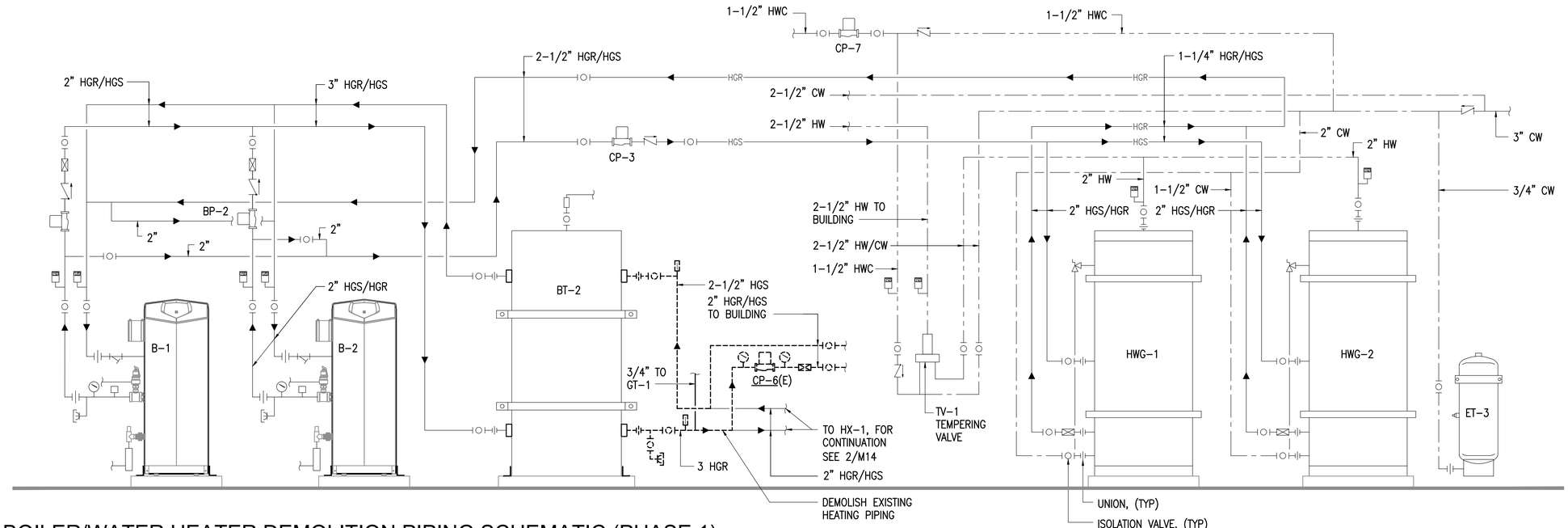
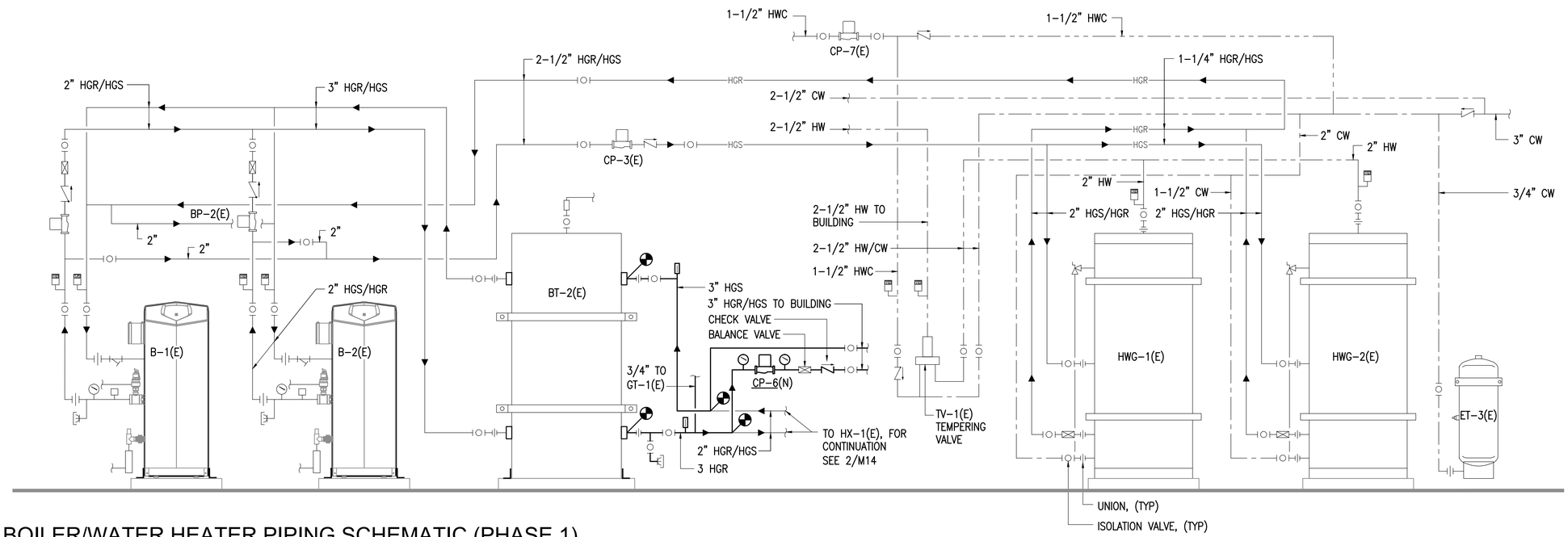
REVIEWED	MRF

SHEET NAME
ENLARGED MECHANICAL ROOM PLANS

SHEET NO.
M12



1 BOILER/WATER HEATER DEMOLITION PIPING SCHEMATIC (PHASE 1)
NO SCALE



2 BOILER/WATER HEATER PIPING SCHEMATIC (PHASE 1)
NO SCALE

STATE OF ALASKA
49TH
Mark R Frischhorn
M.R. FRISCHHORN
ME-8975
6/9/25
REGISTERED PROFESSIONAL ENGINEER

RISA Engineering, Inc.
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COOK INLET HOUSING AUTHORITY
3600 SPENARD HEAT CONVERSION
ANCHORAGE, AK

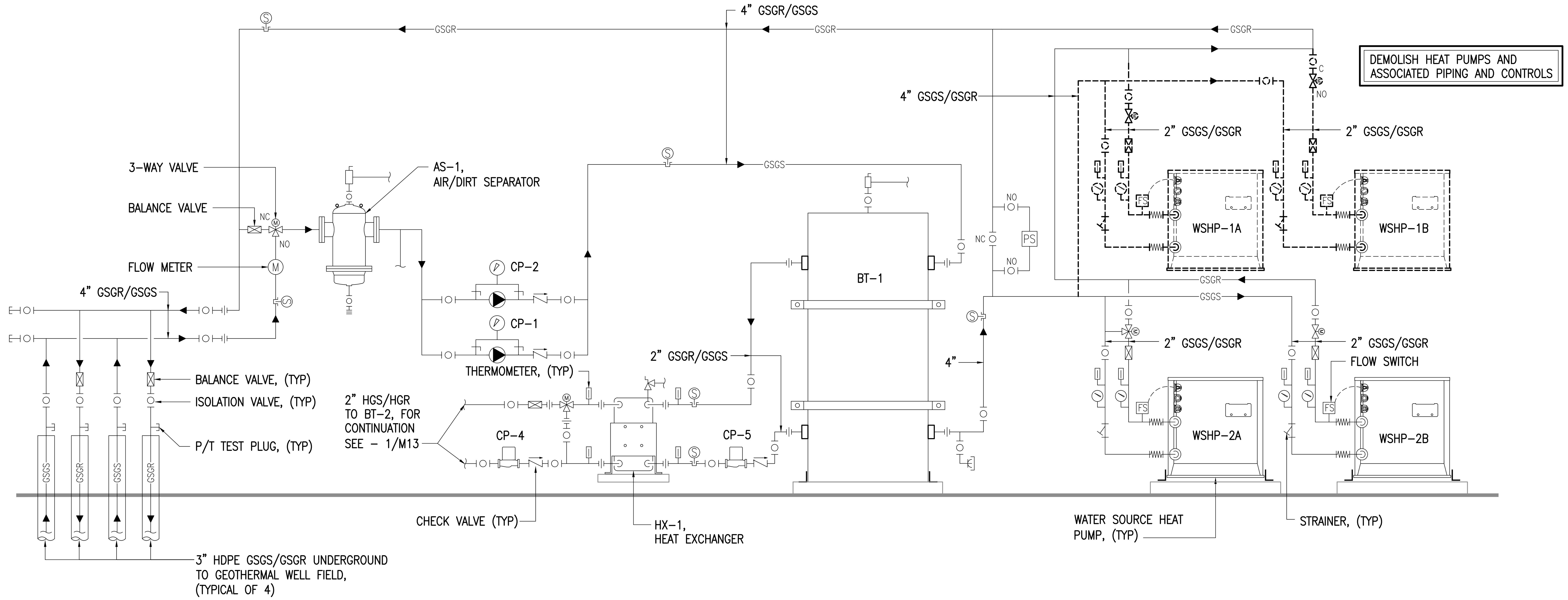
REVISION SCHEDULE

#	DESCRIPTION	DATE

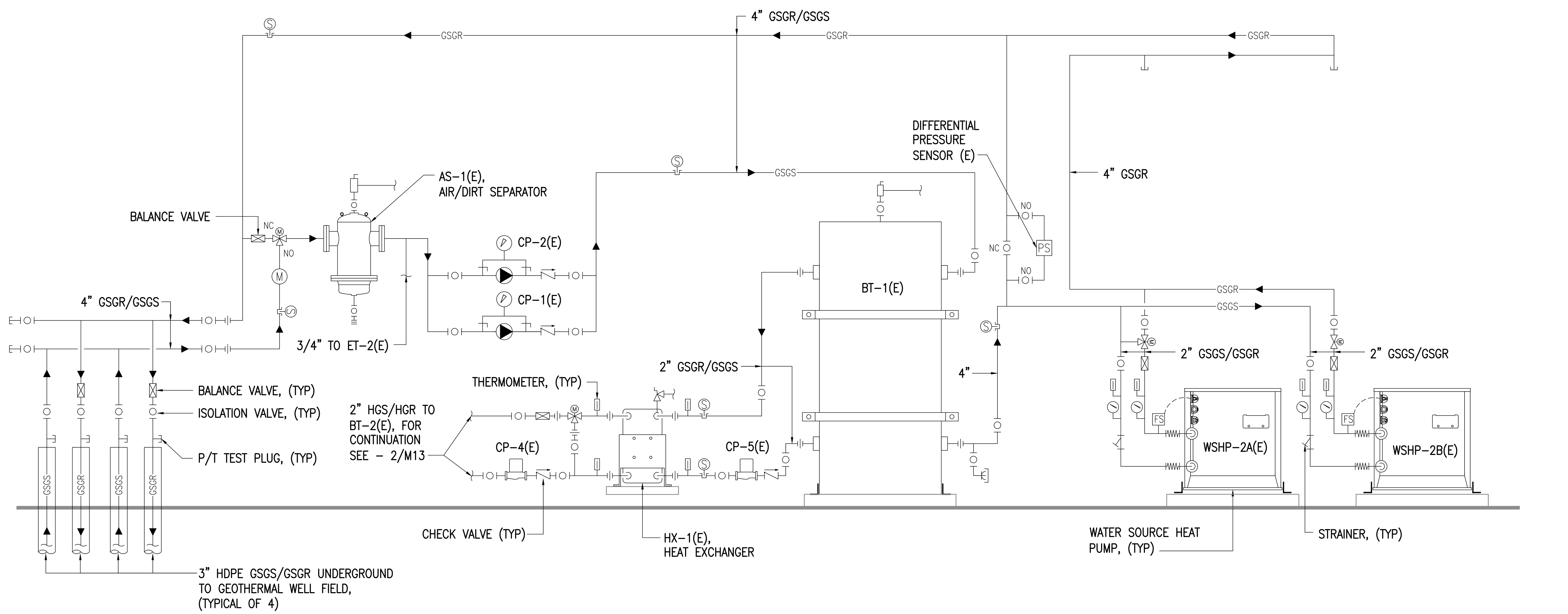
JOB NO.	L5225.00
DATE	5.9.2025
DRAWN	ARN
REVIEWED	MRF

SHEET NAME
BOILER/WATER HEATER PIPING SCHEMATICS

SHEET NO.
M13



1 HEAT PUMP PIPING DEMOLITION SCHEMATIC (PHASE 1)
NO SCALE



2 HEAT PUMP PIPING REMODEL SCHEMATIC (PHASE 1)
NO SCALE

STATE OF ALASKA
49TH
M.R. FRISCHKORN
ME-8975
5/9/25
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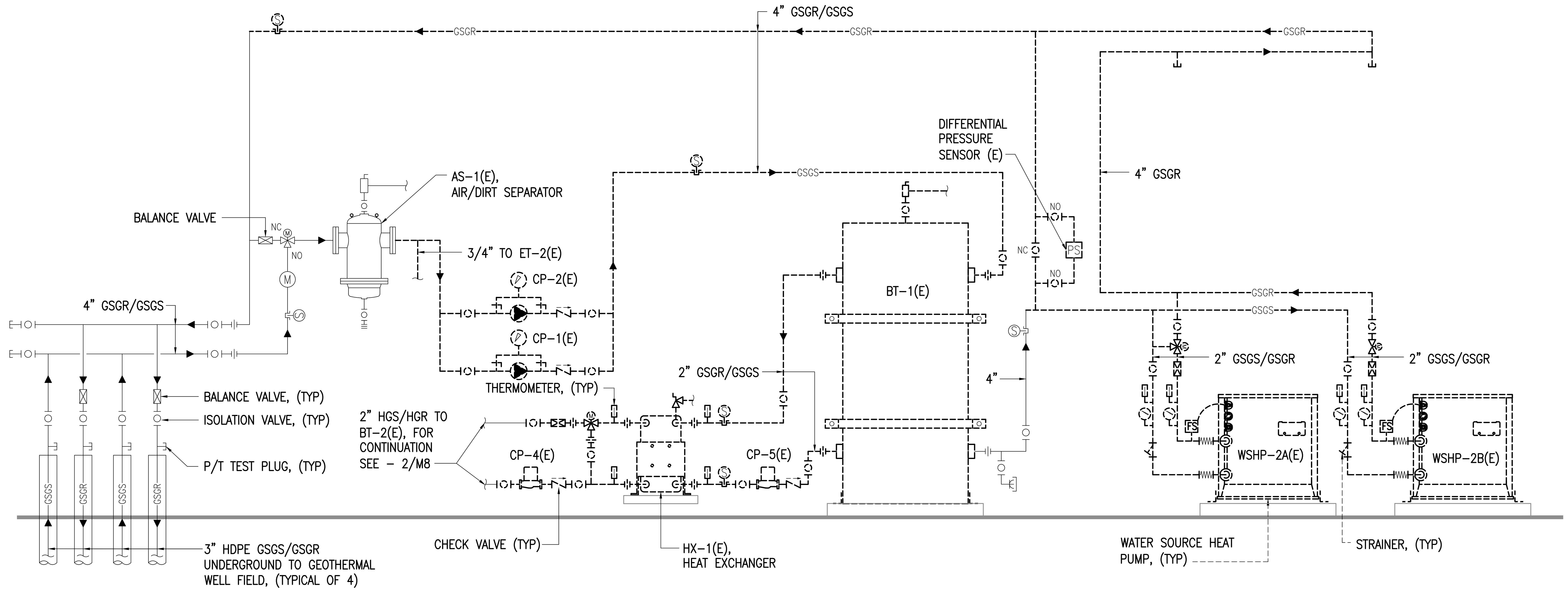
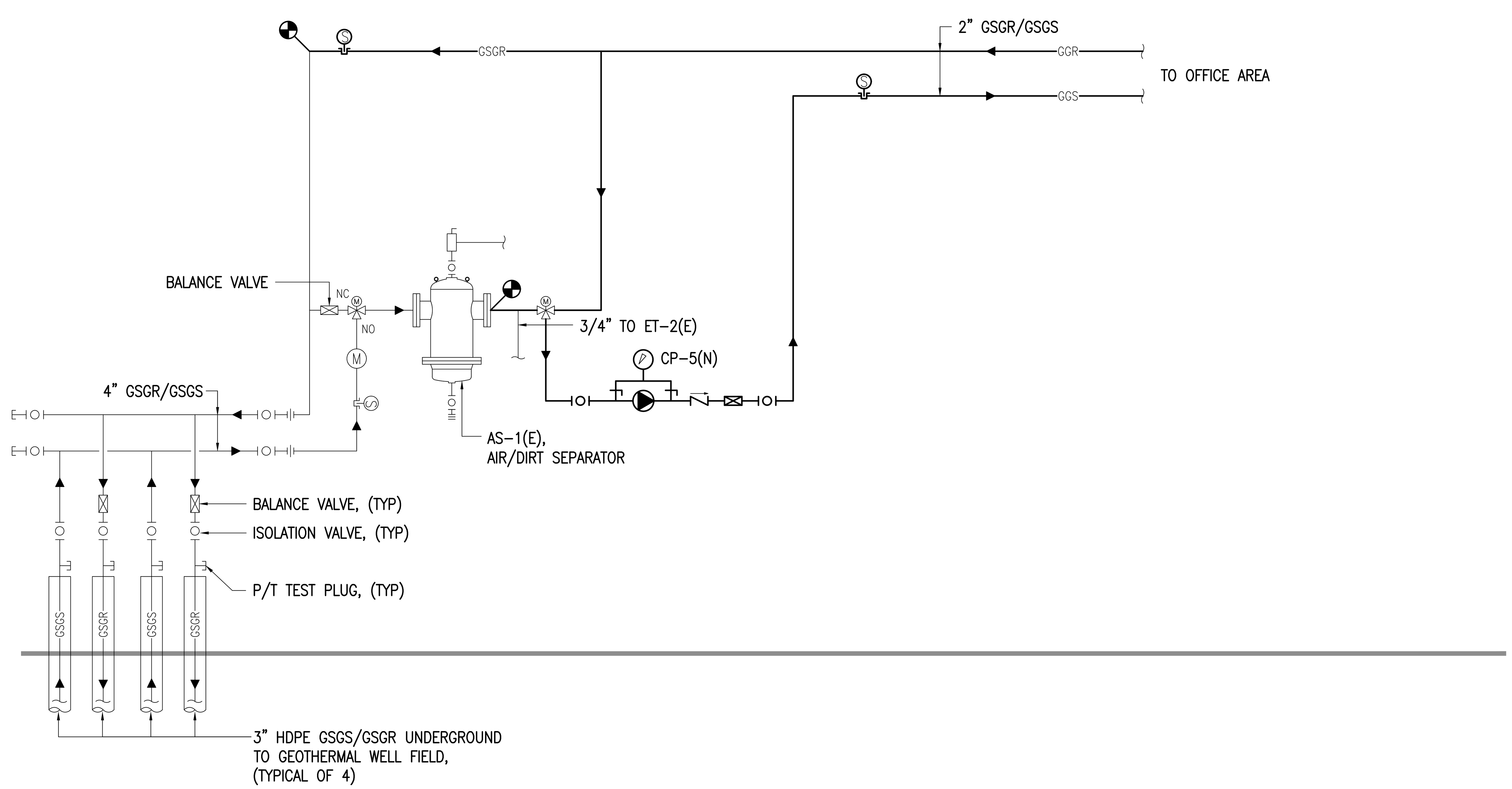
SHEET NAME
HEAT PUMP PIPING SCHEMATICS

SHEET NO.
M14



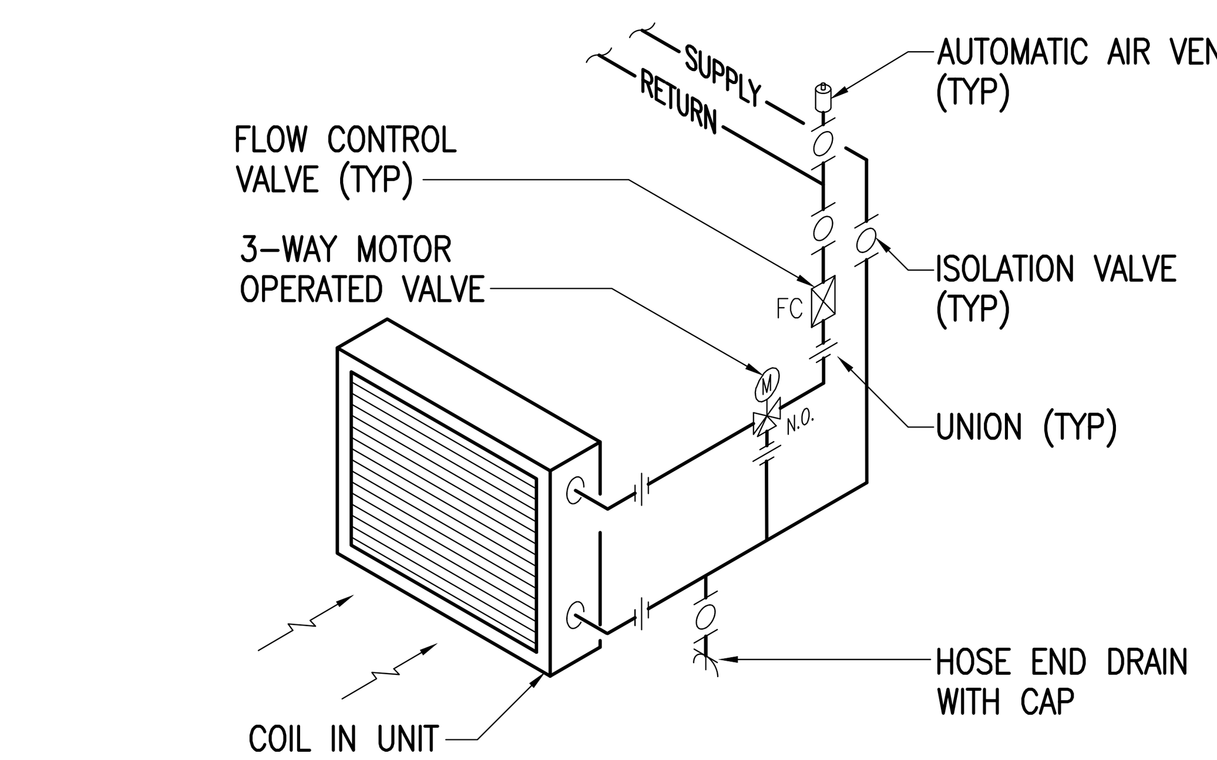
1 HEAT PUMP PIPING DEMOLITION SCHEMATIC (PHASE 2)

NO SCALE



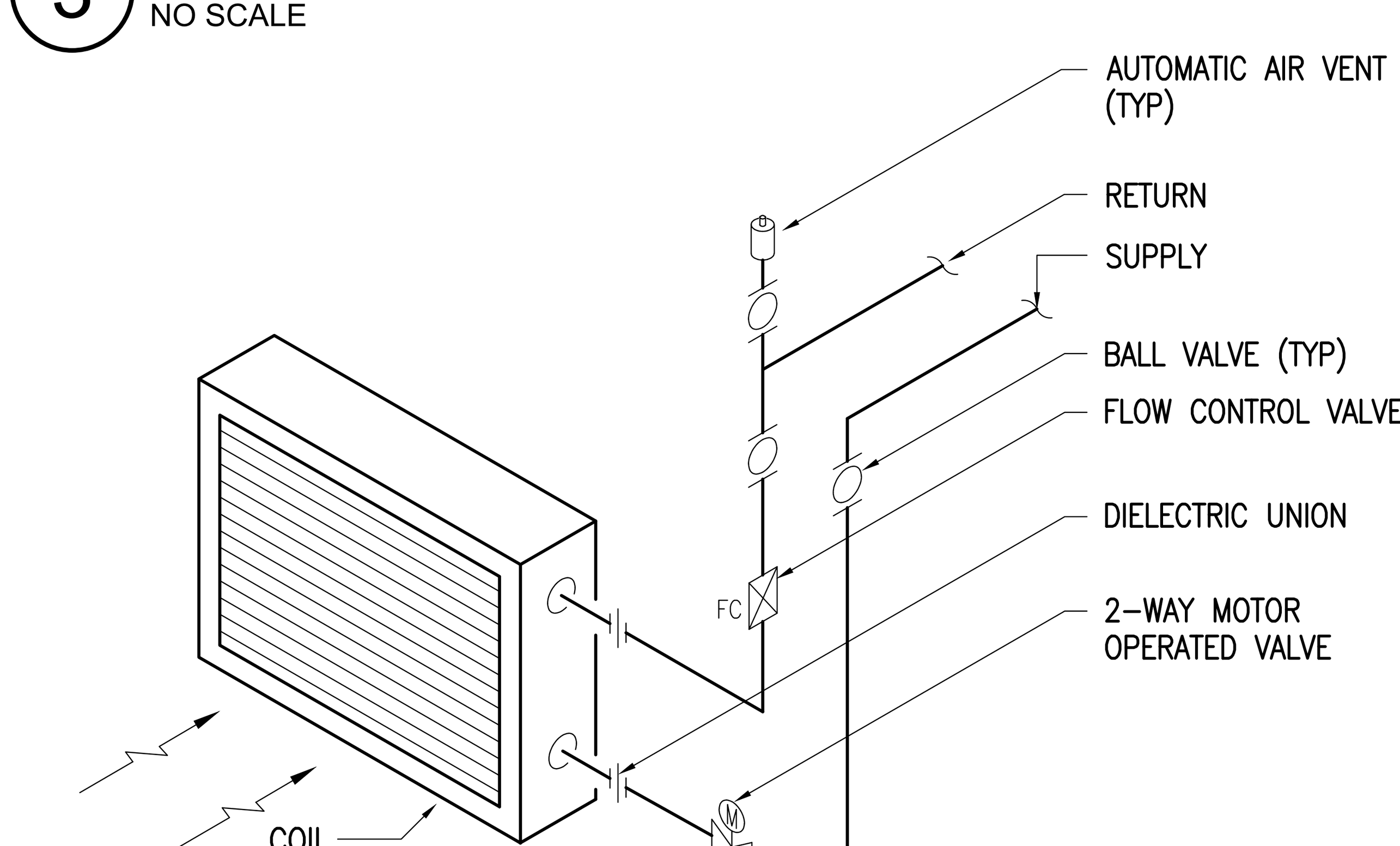
2 HEAT PUMP PIPING REMODEL SCHEMATIC (PHASE 2)

NO SCALE



3 COOLING COIL PIPING DETAIL

NO SCALE



4 HEATING PIPING COIL DETAIL

NO SCALE

STATE OF ALASKA
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SHEET NAME
HEAT PUMP PIPING SCHEMATICS AND DETAILS

SHEET NO.
M15

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

G. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.

H. REFERENCE SYMBOLS: THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON EXISTING RECORD DRAWING. REPORT DISCREPANCIES TO OWNER BEFORE DISTURBING THE EXISTING INSTALLATION.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

26 05 19 – WIRE AND CABLE

A. MATERIALS:

1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG.
2. CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE 18 AWG.
3. TYPE MC CABLE: SOLID COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, RATED 90° C, INSULATED GREEN GROUNDING CONDUCTOR, AND GALVANIZED STEEL ARMOR OVER MYLAR.

B. INSTALLATION:

1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/208V CONDUCTORS BLACK, RED, BLUE, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED. TYPE MC CABLE MAY BE USED FOR BRANCH CIRCUIT WIRING IN DRY, INTERIOR LOCATIONS OTHER THAN HOMERUNS. HOMERUNS SHALL BE BUILDING WIRE IN RACEWAY.

26 05 26 – GROUNDING AND BONDING

A. MATERIAL: REFERENCE 26 05 19.

B. INSTALLATION:

1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL NEW BRANCH CIRCUITS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. BOND TOGETHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, AND GROUNDING CONDUCTOR IN RACEWAYS.

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. MATERIALS

1. INTERMEDIATE METAL CONDUIT (IMC): GALVANIZED STEEL. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; USE FITTINGS AND CONDUIT BODIES SPECIFIED ABOVE FOR RIGID STEEL CONDUIT.
2. ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE. MAXIMUM SIZE SHALL BE 2". PROVIDE FACTORY ELBOWS ON SIZES 1-1/2" AND LARGER.
3. FLEXIBLE METAL CONDUIT: FS WW-C-566; STEEL, FULL WALL OR REDUCED WALL THICKNESS. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
4. PROVIDE GALVANIZED OR CADMIUM PLATED, ONE PIECE PRESSED STEEL OUTLET BOXES 4 INCH SQUARE OR OCTAGONAL, 1-1/2 INCHES DEEP MINIMUM SIZE FOR USE IN INTERIOR AREAS.

B. INSTALLATION:

1. INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE.
2. EXPOSED DRY INTERIOR LOCATIONS SHALL BE INTERMEDIATE METAL CONDUIT. ELECTRICAL METALLIC TUBING MAY BE USED EXPOSED WHEN INSTALLED ON THE CEILING, A MINIMUM OF TEN FEET ABOVE THE FLOOR OR WHERE NOT SUBJECT TO PHYSICAL DAMAGE. EMT MAY ALSO BE USED FOR CONCEALED, DRY, INTERIOR LOCATIONS.
3. MOTOR AND EQUIPMENT CONNECTIONS SHALL BE SHORT EXTENSIONS OF FLEXIBLE METAL CONDUIT OR MC CABLE TO ALLOW FOR VIBRATION.
4. INSTALL RACEWAYS PER THE LATEST NECA (NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION) STANDARDS.
5. PROVIDE RACEWAYS CONCEALED IN CONSTRUCTION UNLESS SPECIFICALLY NOTED OTHERWISE, OR WHERE INSTALLED AT MOTOR AND EQUIPMENT CONNECTIONS. DO NOT ROUTE CONDUITS ALONG THE SURFACE OF INTERIOR FINISHED WALLS UNLESS SPECIFICALLY NOTED ON THE PLANS
6. PAINT ALL EXPOSED CONDUIT IN FINISHED AREAS TO MATCH SURFACE TO WHICH IT IS ATTACHED OR CROSSES. CLEAN GREASY OR DIRTY CONDUIT PRIOR TO PAINTING IN ACCORDANCE WITH PAINT MANUFACTURER'S INSTRUCTIONS.
7. INSTALL RACEWAYS LEVEL AND SQUARE TO A TOLERANCE OF 1/8 INCH PER 10 FEET. ROUTE EXPOSED RACEWAYS AND RACEWAYS ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS, CEILING, STRUCTURAL MEMBERS AND ADJACENT PIPING.
8. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.
9. SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. MATERIALS:

1. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

B. INSTALLATION:

1. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
2. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PULL BOXES, JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

26 24 16 – PANELBOARDS

A. MATERIAL:

1. NEW BREAKERS IN EXISTING PANELS: NEMA AB 1; UL LISTED FOR USE IN THE PANEL, AMPERE RATING AND NUMBER OF POLES AS INDICATED ON PLANS. AIC RATING SHALL MATCH THE LOWEST RATED DEVICE IN THE PANEL.

C. INSTALLATION:

1. INSTALL NEW BREAKER(S) IN EXISTING PANEL(S) AND TEST FOR PROPER OPERATION. UPDATE CIRCUIT DIRECTORY TO REFLECT ALL CHANGES.

26 28 19 – ENCLOSED SWITCHES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. NONFUSIBLE SWITCH ASSEMBLIES: NEMA KS 1; TYPE HD; QUICK-MAKE, QUICK-BREAK, HEAVY-DUTY LOAD INTERRUPTER ENCLOSED KNIFE SWITCH WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION. HANDLE LOCKABLE IN OFF POSITION. ENCLOSURE SHALL BE NEMA KS 1; TYPE 1.

C. INSTALLATION

1. INSTALL DISCONNECT SWITCHES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FIELD LOCATE FINAL LOCATION OF DISCONNECTS TO ALLOW READY ACCESS AND NEC 110.26 WORKING CLEARANCES WHERE APPLICABLE.

LEGEND

Symbol	Description
	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
	EXISTING PANEL TO REMAIN
	MOTOR (SIZED AS NOTED)
$	MOTOR DISCONNECT SWITCH
	DISCONNECT SWITCH
	DISCONNECT SWITCH (FUSED)
	COMBINATION DISCONNECT/MAGNETIC MOTOR STARTER
	MOTOR TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
N	NEW

LOAD CALCULATION

THE NEC DEMAND LOAD ON EACH PANEL AFFECTED BY THIS PROJECT WILL BE DECREASED. ALL PANELS HAVE CAPACITY FOR REDUCED LOADS.

STATE OF ALASKA 49TH FRANK W. SILBERER EE-135475 5/9/25 REGISTERED PROFESSIONAL ENGINEER

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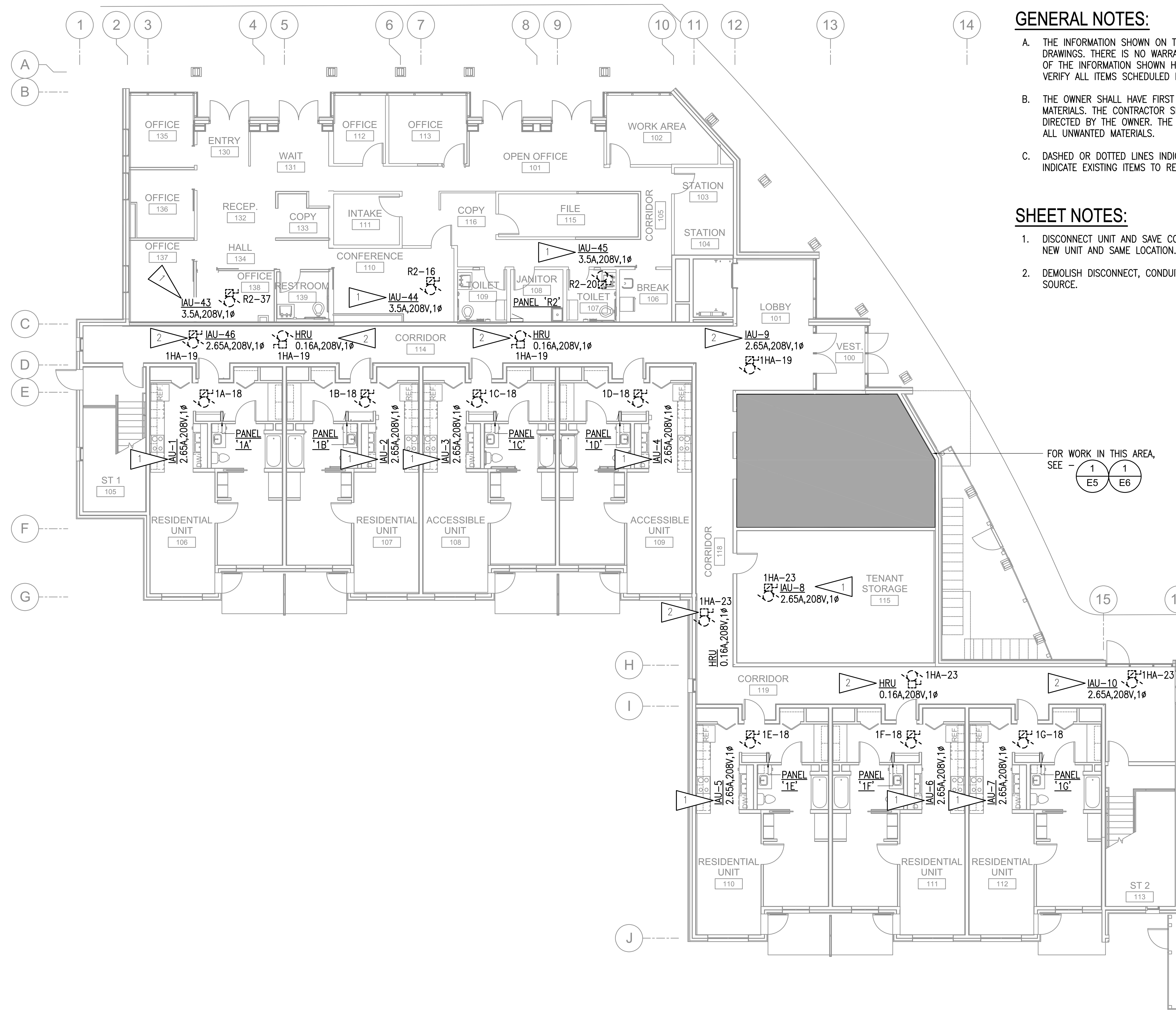
SHEET NAME
ELECTRICAL LEGEND AND SPECIFICATIONS

SHEET NO.
E1



1 ELECTRICAL DEMOLITION PLAN - LEVEL 1 (PHASE 1)

1/8" = 1'-0"

GENERAL NOTES:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM RECORD DRAWINGS. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

SHEET NOTES:

1. DISCONNECT UNIT AND SAVE CONDUIT AND CONDUCTORS FOR RE-USE WITH NEW UNIT AND SAME LOCATION.
2. DEMOLISH DISCONNECT, CONDUIT, BOXES AND CONDUCTORS BACK TO SOURCE.

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — EE-135475 — 5/9/25

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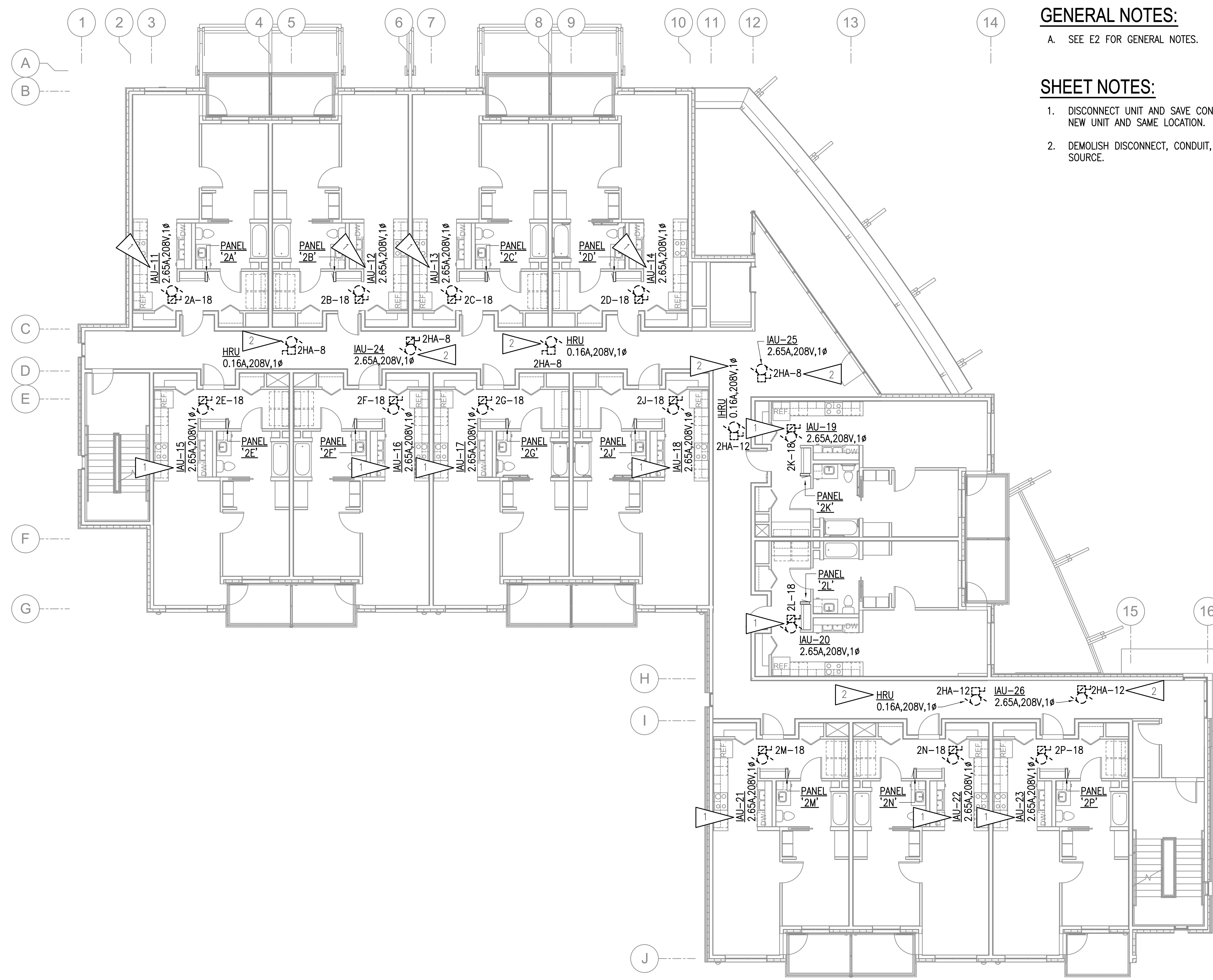
SHEET NAME
ELECTRICAL DEMOLITION PLAN LEVEL 1 (PHASE 1)

SHEET NO.
E2



GENERAL NOTES:

A. SEE E2 FOR GENERAL NOTES.

SHEET NOTES:

1. DISCONNECT UNIT AND SAVE CONDUIT AND CONDUCTORS FOR RE-USE WITH NEW UNIT AND SAME LOCATION.
2. DEMOLISH DISCONNECT, CONDUIT, BOXES AND CONDUCTORS BACK TO SOURCE.

1 ELECTRICAL DEMOLITION PLAN - LEVEL 2 (PHASE 2)
1/8" = 1'-0"

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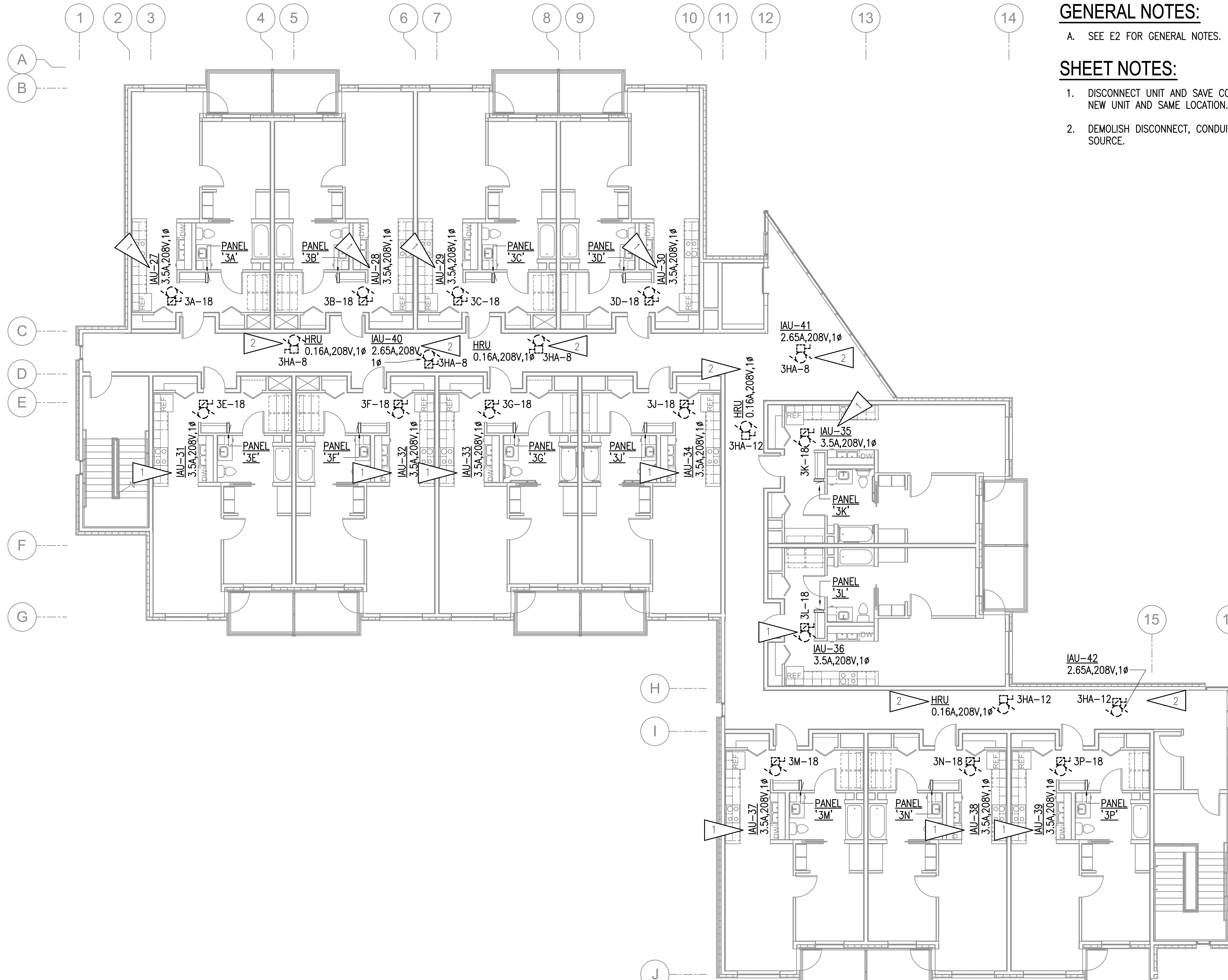
SHEET NAME
ELECTRICAL DEMOLITION PLAN LEVEL 2 (PHASE 2)

SHEET NO.
E3



1 ELECTRICAL DEMOLITION PLAN - LEVEL 3 (PHASE 2)

1/8" = 1'-0"

GENERAL NOTES:

A. SEE E2 FOR GENERAL NOTES.

SHEET NOTES:

1. DISCONNECT UNIT AND SAVE CONDUIT AND CONDUCTORS FOR RE-USE WITH NEW UNIT AND SAME LOCATION.
2. DEMOLISH DISCONNECT, CONDUIT, BOXES AND CONDUCTORS BACK TO SOURCE.

STATE OF ALASKA
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SHEET NAME
ELECTRICAL DEMOLITION PLAN LEVEL 3 (PHASE 2)

SHEET NO.
E4

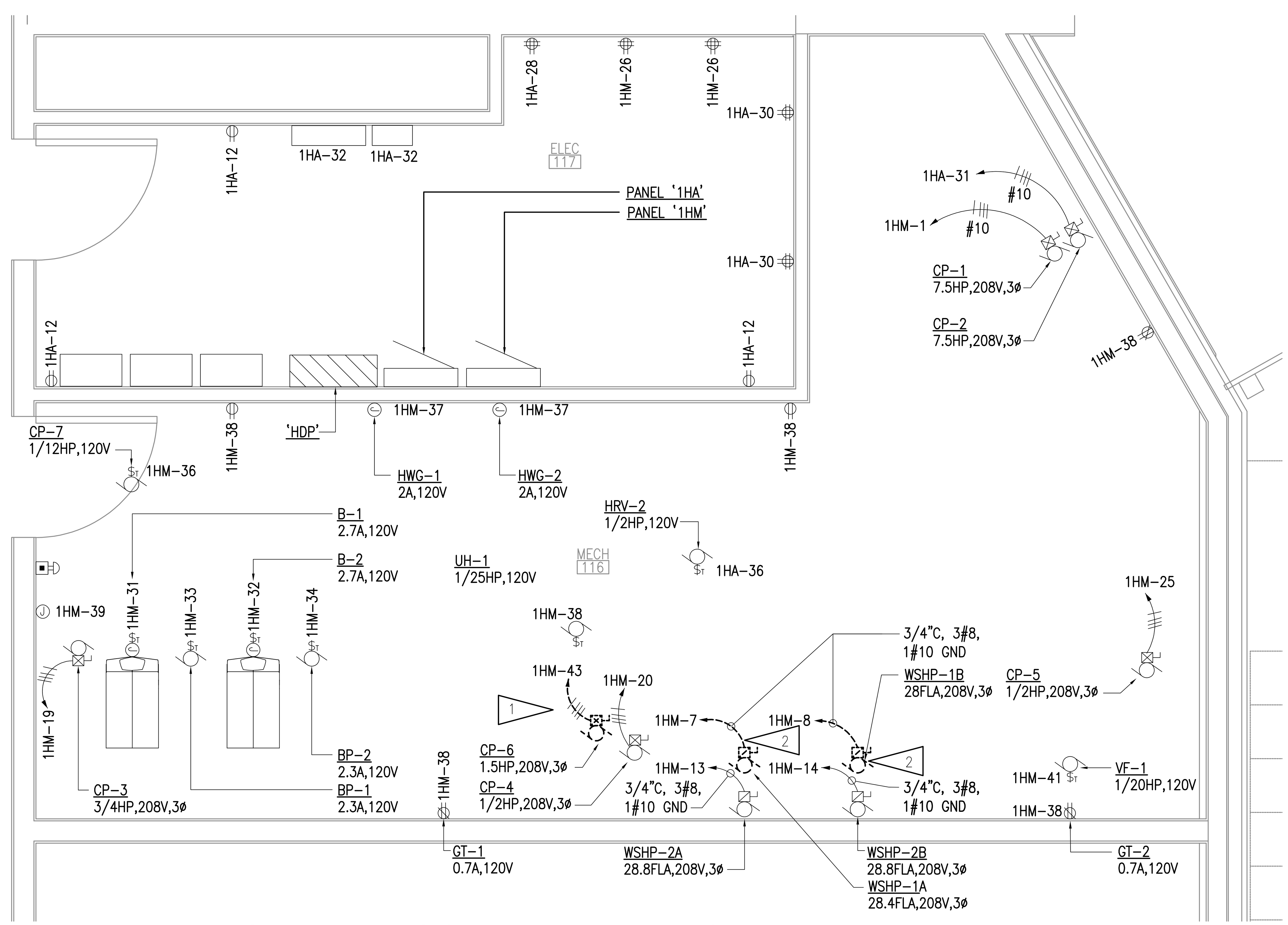
GENERAL NOTES:

A. SEE E2 FOR GENERAL NOTES.

SHEET NOTES:

1. PUMP TO BE REPLACED WITH NEW 208V,1Ø PUMP IN SAME LOCATION. DISCONNECT AND SAVE CONDUIT AND CONDUCTORS FOR RE-USE WITH NEW PUMP. DEMOLISH THIRD CURRENT CARRYING CONDUCTOR BACK TO PANEL.

2. DEMOLISH DISCONNECT, CONDUIT, BOXES AND CONDUCTORS BACK TO SOURCE. UPDATE PANEL DIRECTORY TO INDICATE SPARE.



1 ENLARGED ELECTRICAL DEMOLITION PLAN (PHASE 1)

1/8" = 1'-0"

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SHEET NAME
ENLARGED ELECTRICAL DEMOLITION PLAN (PHASE 1)

SHEET NO.
E5

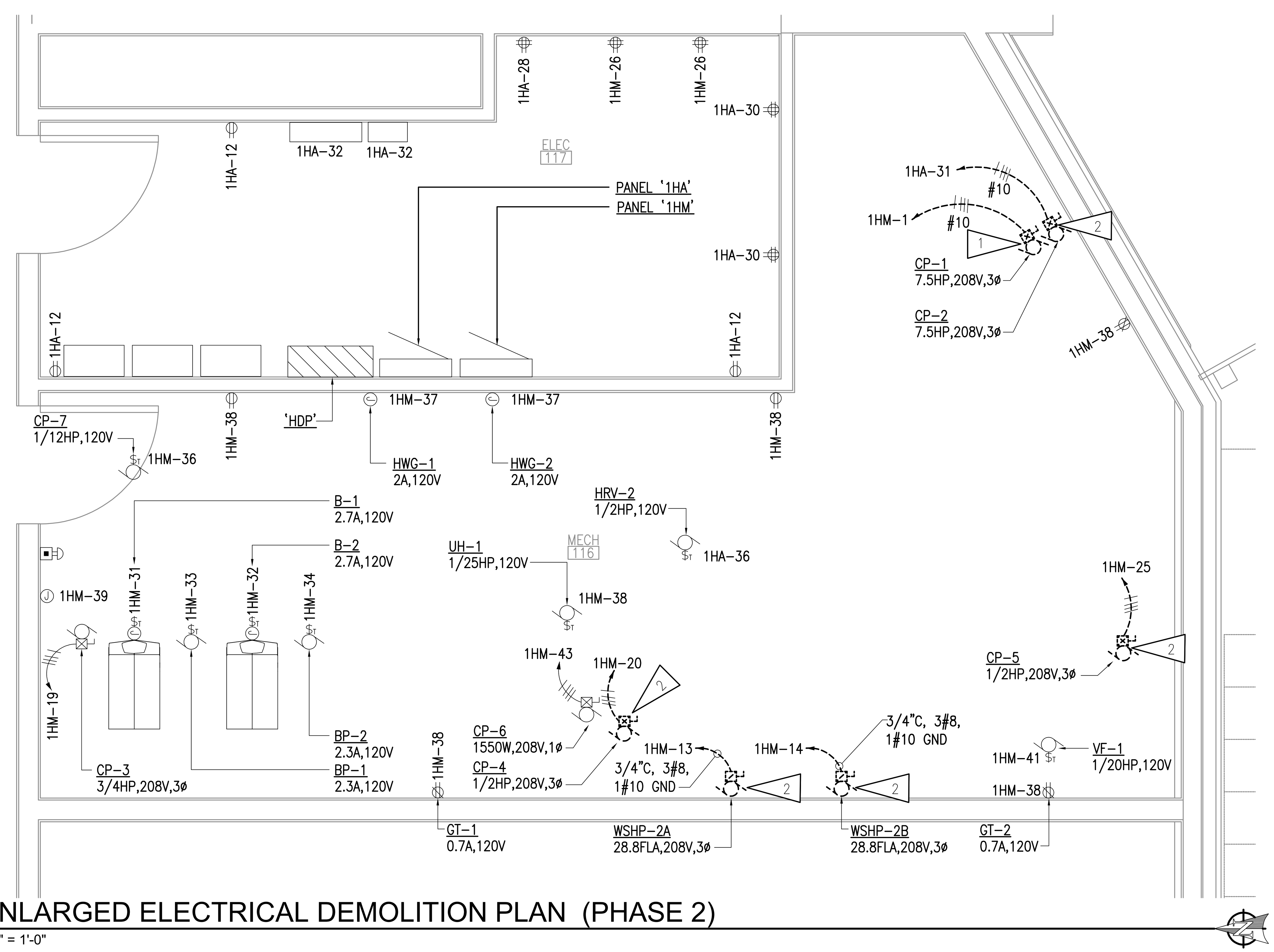
GENERAL NOTES:

A. SEE E2 FOR GENERAL NOTES.

SHEET NOTES:

1. PUMP TO BE REPLACED WITH NEW 208V,1Ø PUMP NEAR SAME LOCATION. DISCONNECT AND SAVE CONDUIT AND CONDUCTORS FOR RE-USE WITH NEW PUMP. DEMOLISH THIRD CURRENT CARRYING CONDUCTOR BACK TO PANEL.

2. DEMOLISH DISCONNECT, CONDUIT, BOXES AND CONDUCTORS BACK TO SOURCE. UPDATE PANEL DIRECTORY TO INDICATE SPARE.



1 ENLARGED ELECTRICAL DEMOLITION PLAN (PHASE 2)

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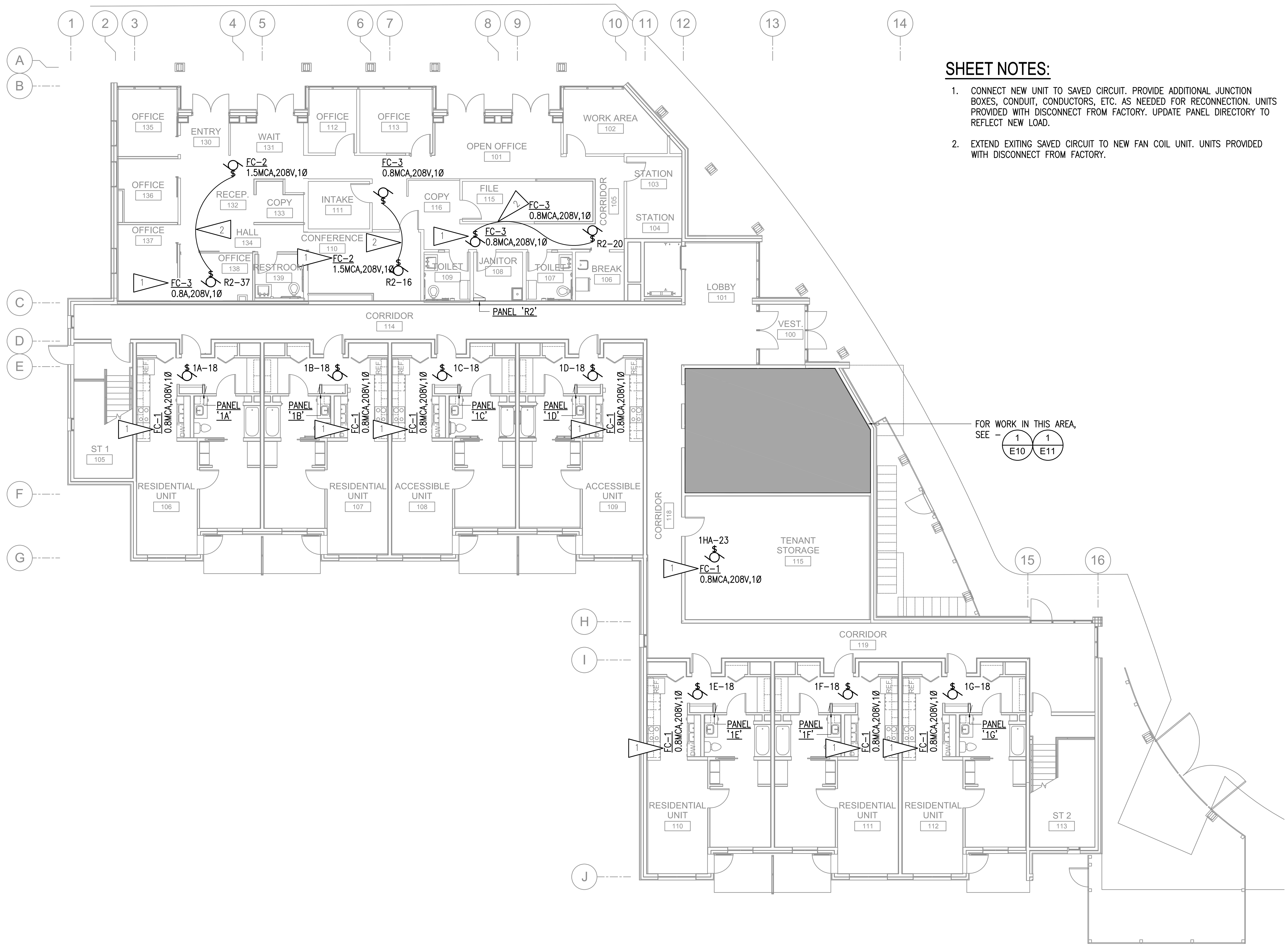
SHEET NAME
ENLARGED ELECTRICAL DEMOLITION PLAN (PHASE 2)

SHEET NO.
E6



SHEET NOTES:

1. CONNECT NEW UNIT TO SAVED CIRCUIT. PROVIDE ADDITIONAL JUNCTION BOXES, CONDUIT, CONDUCTORS, ETC. AS NEEDED FOR RECONNECTION. UNITS PROVIDED WITH DISCONNECT FROM FACTORY. UPDATE PANEL DIRECTORY TO REFLECT NEW LOAD.
2. EXTEND EXITING SAVED CIRCUIT TO NEW FAN COIL UNIT. UNITS PROVIDED WITH DISCONNECT FROM FACTORY.

1 ELECTRICAL REMODEL PLAN - LEVEL 1 (PHASE 1)
1/8" = 1'-0"

STATE OF ALASKA 49TH FRANK W. SILBERER EE-135475 5/9/25 REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
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670 West Fireweed Lane, Suite 200 · Anchorage, AK 99503 · (907) 276-0521
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COOK INLET HOUSING AUTHORITY
3600 SPENARD HEAT CONVERSION
ANCHORAGE, AK

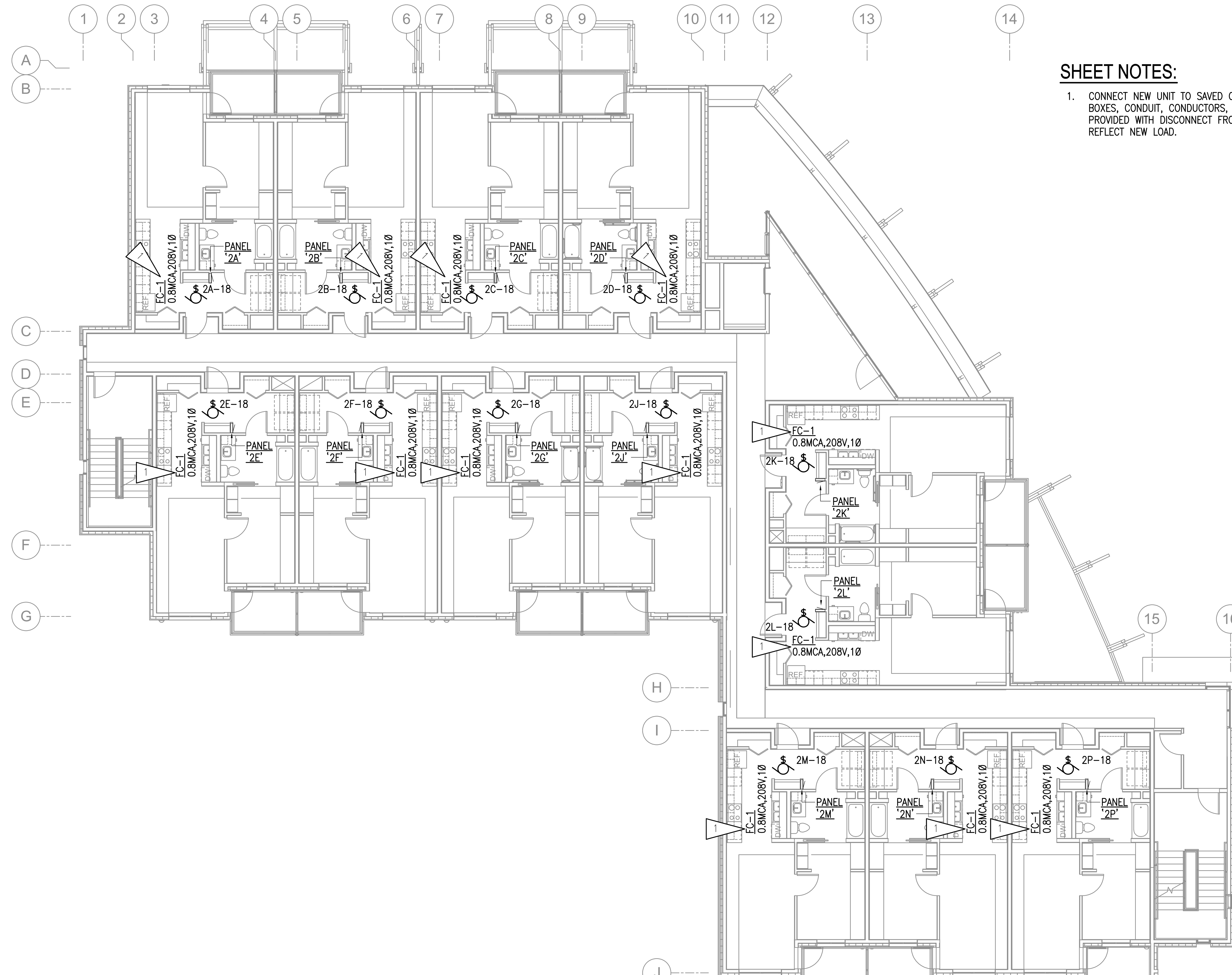
REVISION SCHEDULE

#	DESCRIPTION	DATE

JOB NO.	L5225.00
DATE	5.9.2025
DRAWN	NZ
REVIEWED	FWS,XPT

SHEET NAME
ELECTRICAL REMODEL PLAN
LEVEL 1 (PHASE 1)

SHEET NO.
E7



SHEET NOTES:

1. CONNECT NEW UNIT TO SAVED CIRCUIT. PROVIDE ADDITIONAL JUNCTION BOXES, CONDUIT, CONDUCTORS, ETC. AS NEEDED FOR RECONNECTION. UNITS PROVIDED WITH DISCONNECT FROM FACTORY. UPDATE PANEL DIRECTORY TO REFLECT NEW LOAD.

1 ELECTRICAL REMODEL PLAN - LEVEL 2 (PHASE 2)

1/8" = 1'-0"

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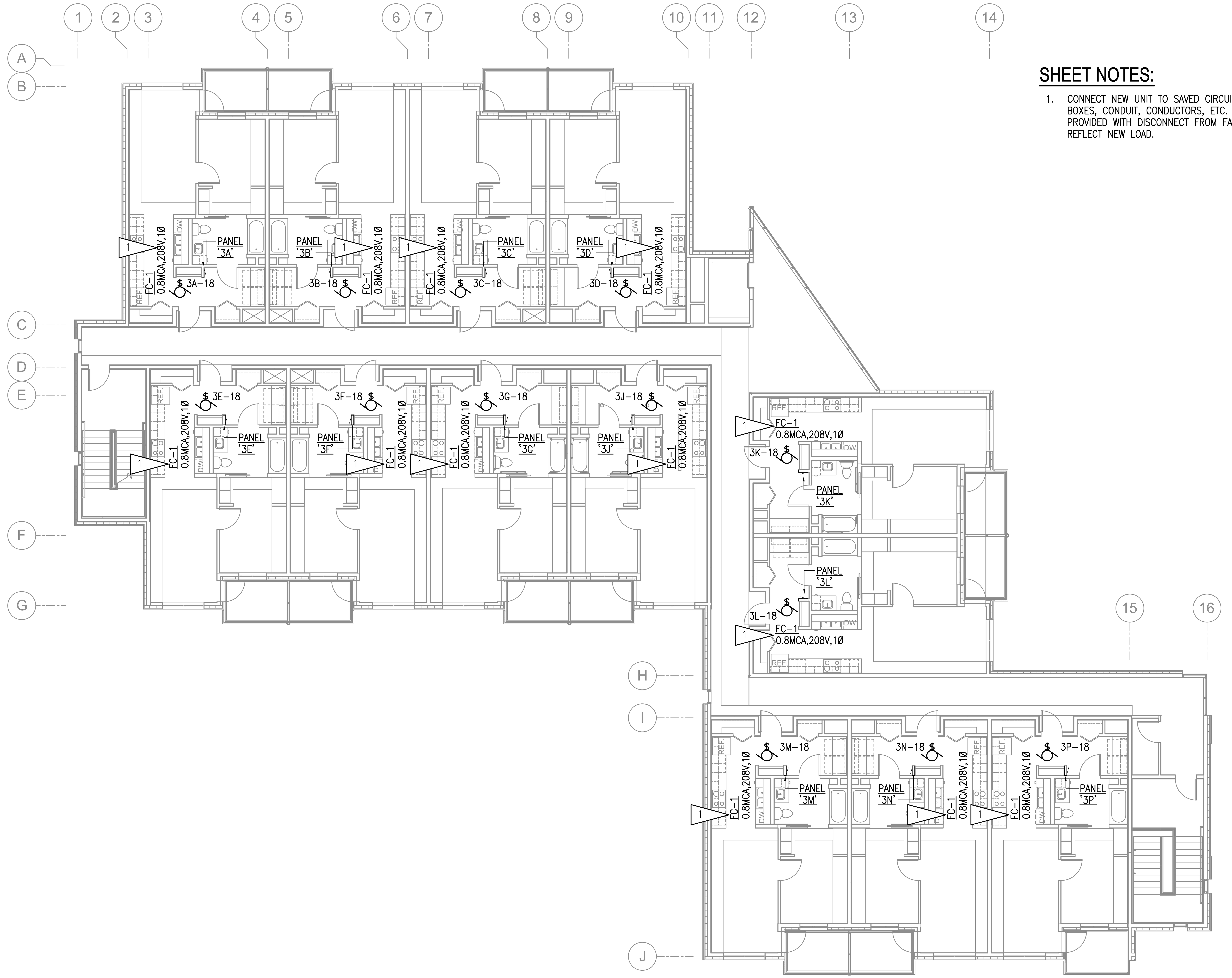
SHEET NAME
ELECTRICAL REMODEL PLAN
LEVEL 2 (PHASE 2)

SHEET NO.
E8



SHEET NOTES:

1. CONNECT NEW UNIT TO SAVED CIRCUIT. PROVIDE ADDITIONAL JUNCTION BOXES, CONDUIT, CONDUCTORS, ETC. AS NEEDED FOR RECONNECTION. UNITS PROVIDED WITH DISCONNECT FROM FACTORY. UPDATE PANEL DIRECTORY TO REFLECT NEW LOAD.

1 ELECTRICAL REMODEL PLAN - LEVEL 3 (PHASE 2)

1/8" = 1'-0"

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SHEET NAME
ELECTRICAL REMODEL PLAN
LEVEL 3 (PHASE 2)

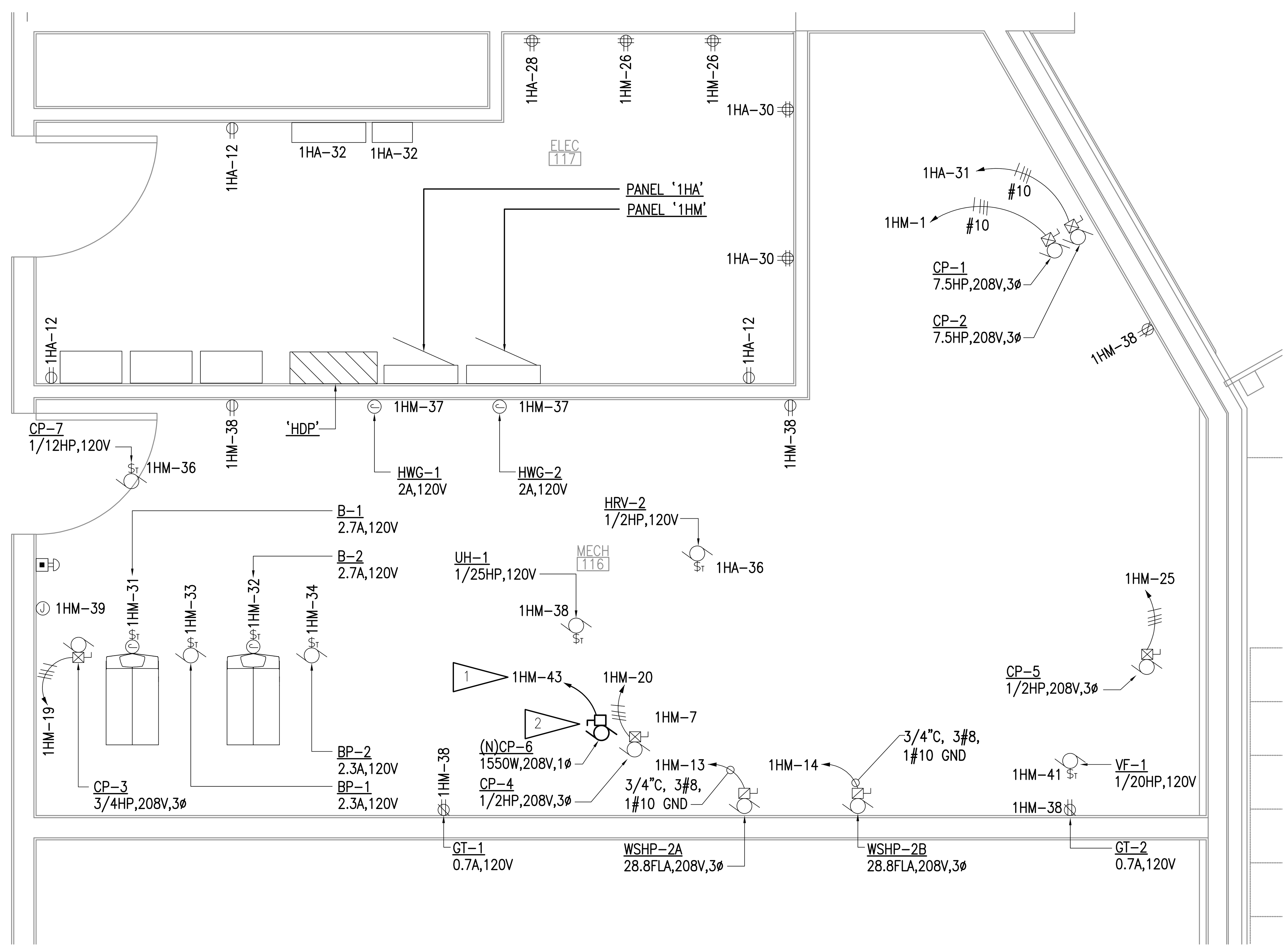
SHEET NO.
E9

GENERAL NOTES:

A. UNLESS OTHERWISE NOTED, ALL DEVICES SHOWN IN THE MECHANICAL ROOM ARE EXISTING.

SHEET NOTES:

1. REMOVE EXISTING 3-POLE CIRCUIT BREAKER AND TURN OVER TO OWNER AS SPARE. INSTALL NEW 20A, 2P, CIRCUIT BREAKER IN THE EXISTING PANEL AND PROVIDE PROVISIONAL BLANK FOR 3RD POLE SPACE. THE EXISTING PANEL IS A SQUARE-D TYPE NQ, 120/208V, 3ø, 4W. THE NEW CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH AND LISTED FOR USE IN THE EXISTING PANEL BOARD AND SHALL HAVE A MINIMUM SHORT CIRCUIT AIC RATING TO MATCH THE LOWEST RATED EXISTING DEVICE IN THE PANEL. UPDATE PANEL DIRECTORY TO REFLECT NEW LOAD.
2. PROVIDE ADDITIONAL JUNCTION BOXES, CONDUIT, CONDUCTORS, ETC. AS NEEDED TO CONNECT NEW UNIT TO SAVED CONDUIT AND CONDUCTORS..



1 ENLARGED ELECTRICAL REMODEL PLAN (PHASE 1)
1/8" = 1'-0"

STATE OF ALASKA
49TH
[illegible] SELBERER
EE-135475
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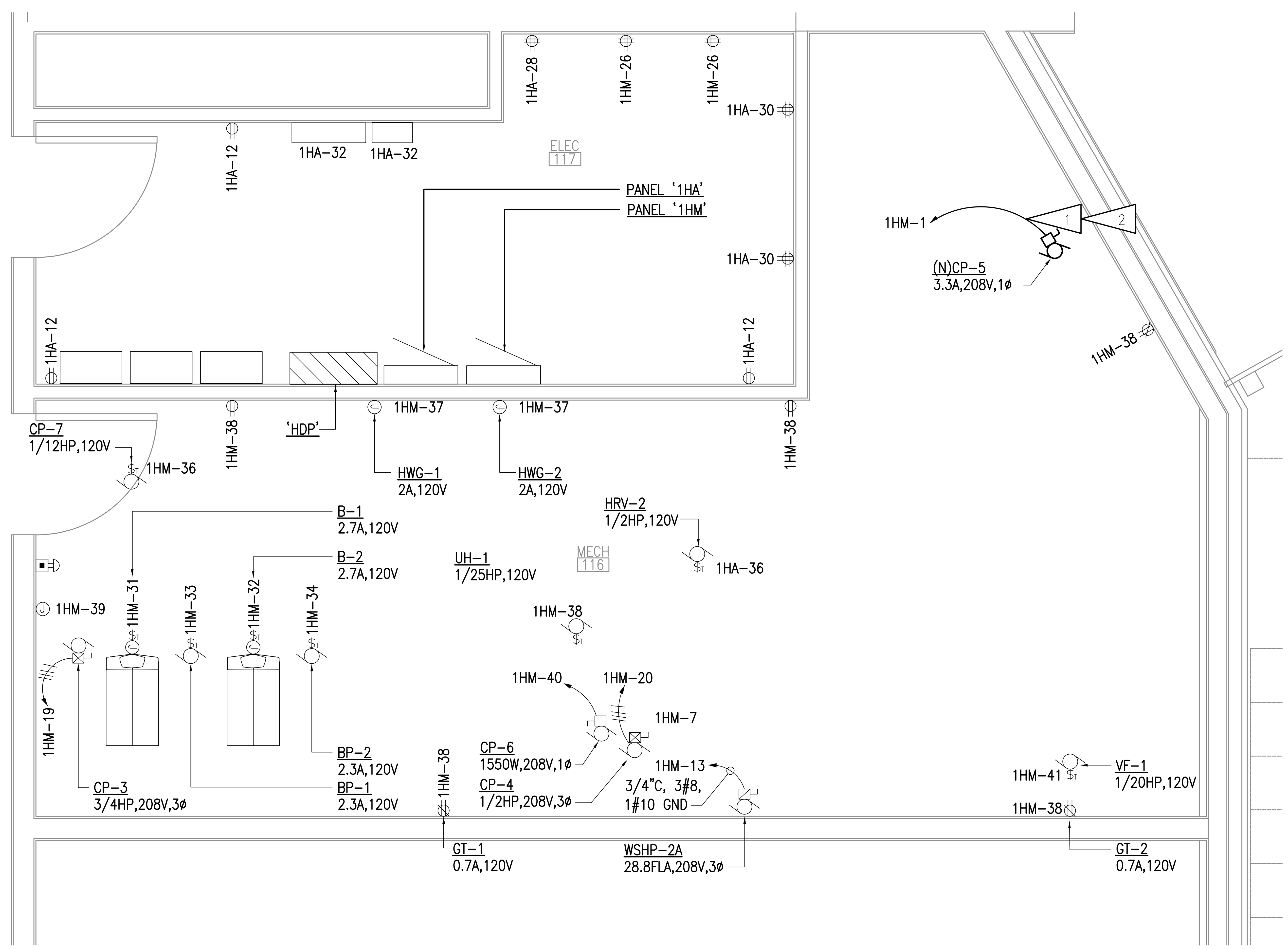
SHEET NAME
ENLARGED ELECTRICAL REMODEL PLAN (PHASE 1)

SHEET NO.
E10

SHEET NOTES:

1. REMOVE EXISTING 3–POLE CIRCUIT BREAKER AND TURN OVER TO OWNER AS SPARE. INSTALL NEW 15A, 2P, CIRCUIT BREAKER IN THE EXISTING PANEL AND PROVIDE PROVISIONAL BLANK FOR 3RD POLE SPACE. THE EXISTING PANEL IS A SQUARE–D TYPE NQ, 120/208V, 3Ø, 4W. THE EXISTING PANEL IS A SQUARE–D TYPE NQ, 120/208V, 3Ø, 4W. THE NEW CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH AND LISTED FOR USE IN THE EXISTING PANEL BOARD AND SHALL HAVE A MINIMUM SHORT CIRCUIT AIC RATING TO MATCH THE LOWEST RATED EXISTING DEVICE IN THE PANEL. UPDATE PANEL DIRECTORY TO REFLECT NEW LOAD
2. PROVIDE ADDITIONAL JUNCTION BOXES, CONDUIT, CONDUCTORS, ETC. AS NEEDED TO CONNECT NEW UNIT TO SAVED CONDUIT AND CONDUCTORS..



1 ELECTRICAL REMODEL PLAN - LEVEL 1 (PHASE 2)
1/8" = 1'-0"

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SHEET NAME
ENLARGED ELECTRICAL REMODEL PLAN (PHASE 2)

SHEET NO.
E11