

HVAC MODIFICATIONS FOR REHEAT SYSTEM

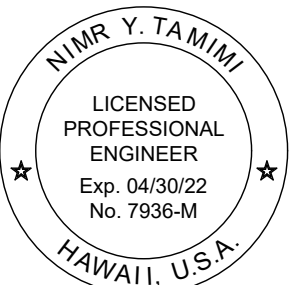
KONA COMMUNITY HOSPITAL

79-1019 HAUKAPILA STREET, KEALAKEKUA, HI 96750

TMK: 7-9-010:081



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SIGNATURE

TITLE SHEET, DRAWING INDEX, PLOT PLAN, ISLAND MAP, VICINITY MAP

DATE: AUGUST 2020
REV. 1
REV. 2
REV. 3

HVAC MODIFICATIONS FOR: REHEAT SYSTEM
KONA COMMUNITY HOSPITAL

79-1019 HAUKAPILA ST, KEALAKEKUA, HI 96750
TMK: (3) 7-9-010:081

DRAWN BY: MS
DESIGNED BY: MS
CHECKED BY: NYT
QC'D BY: DH
JOB NO. 12022-17-01
DWG. NO. T-001
SHEET NO. 01 OF 15

DRAWING INDEX

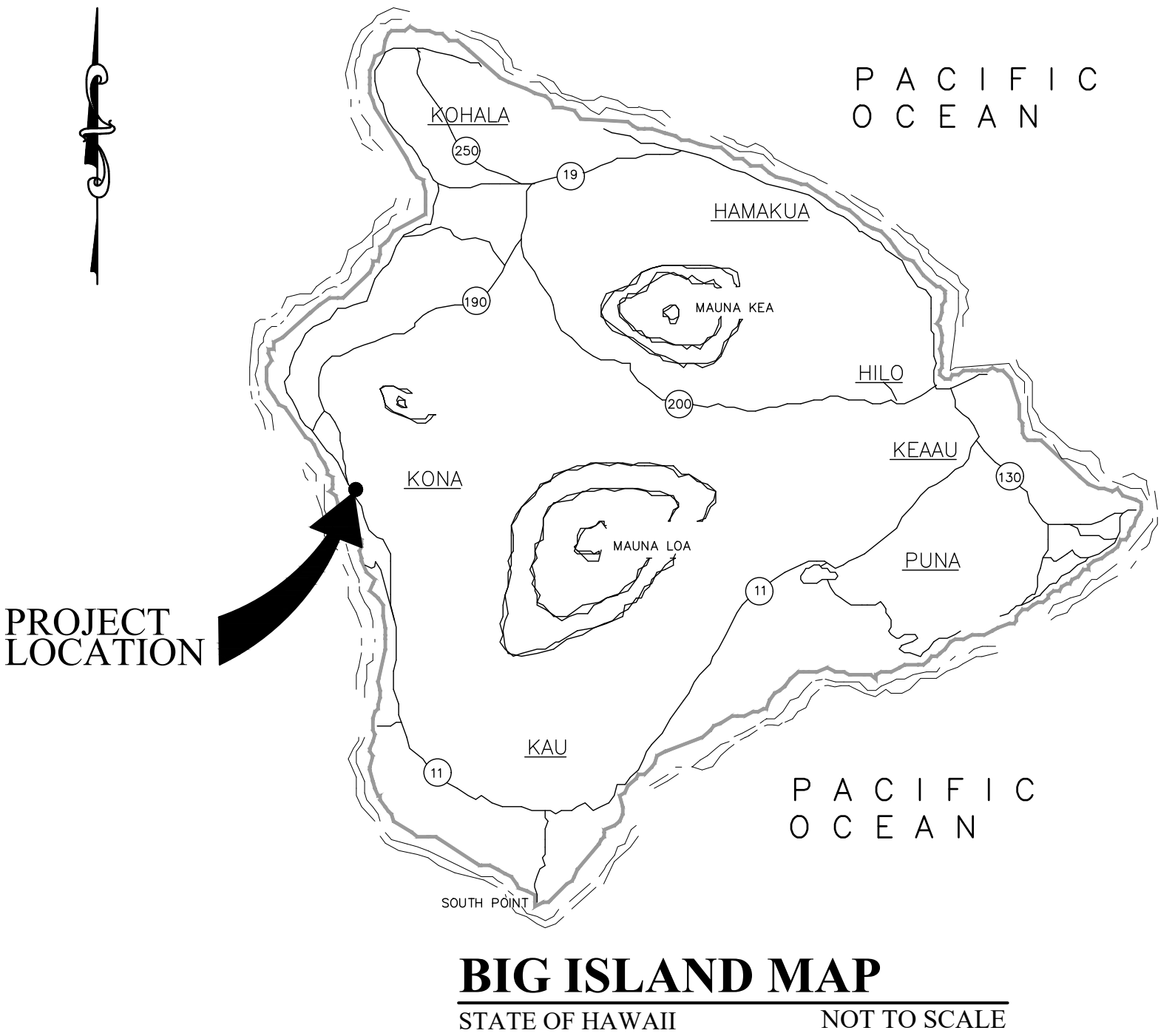
DWG. NO.	DESCRIPTION
T-001	TITLE, DRAWING INDEX, PLOT PLAN, ISLAND MAP, & VICINITY MAP
M-001	MECHANICAL SYMBOLS, ABBREVIATIONS, & SPECS
M-002	MECHANICAL SCHEDULES
M-101	HOT WATER REHEAT - GROUND FLOOR PLAN
M-102	HOT WATER REHEAT - FIRST FLOOR PLAN
M-103	HOT WATER REHEAT - SECOND FLOOR PLAN
M-104	HOT WATER REHEAT - ROOF PLAN
M-106	HOT WATER REHEAT - ROOF PLAN PARTIAL DEMO/NEW
M-201	REHEAT PIPING DIAGRAM AT ROOF
M-301	SEQUENCE OF OPERATIONS AND DDC POINTS LIST
M-401	MECHANICAL DETAILS
E-001	ELECTRICAL SYMBOLS, IECC & ABBREVIATIONS
E-101	OVERALL ELECTRICAL ROOF PLAN
E-201	PARTIAL ELECTRICAL ROOF PLANS
E-301	SINGLE LINE DIAGRAMS

PROJECT TEAM:

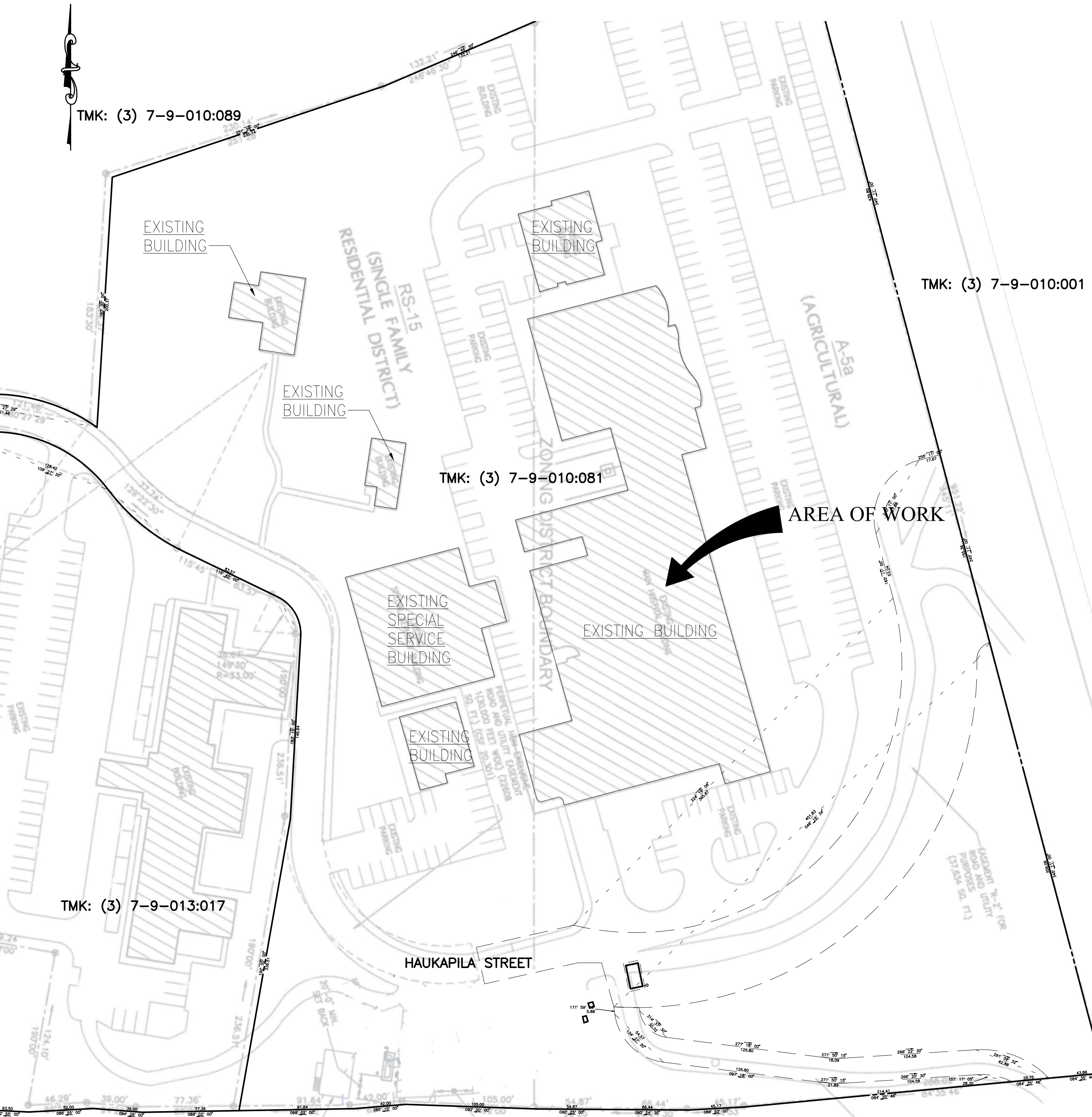
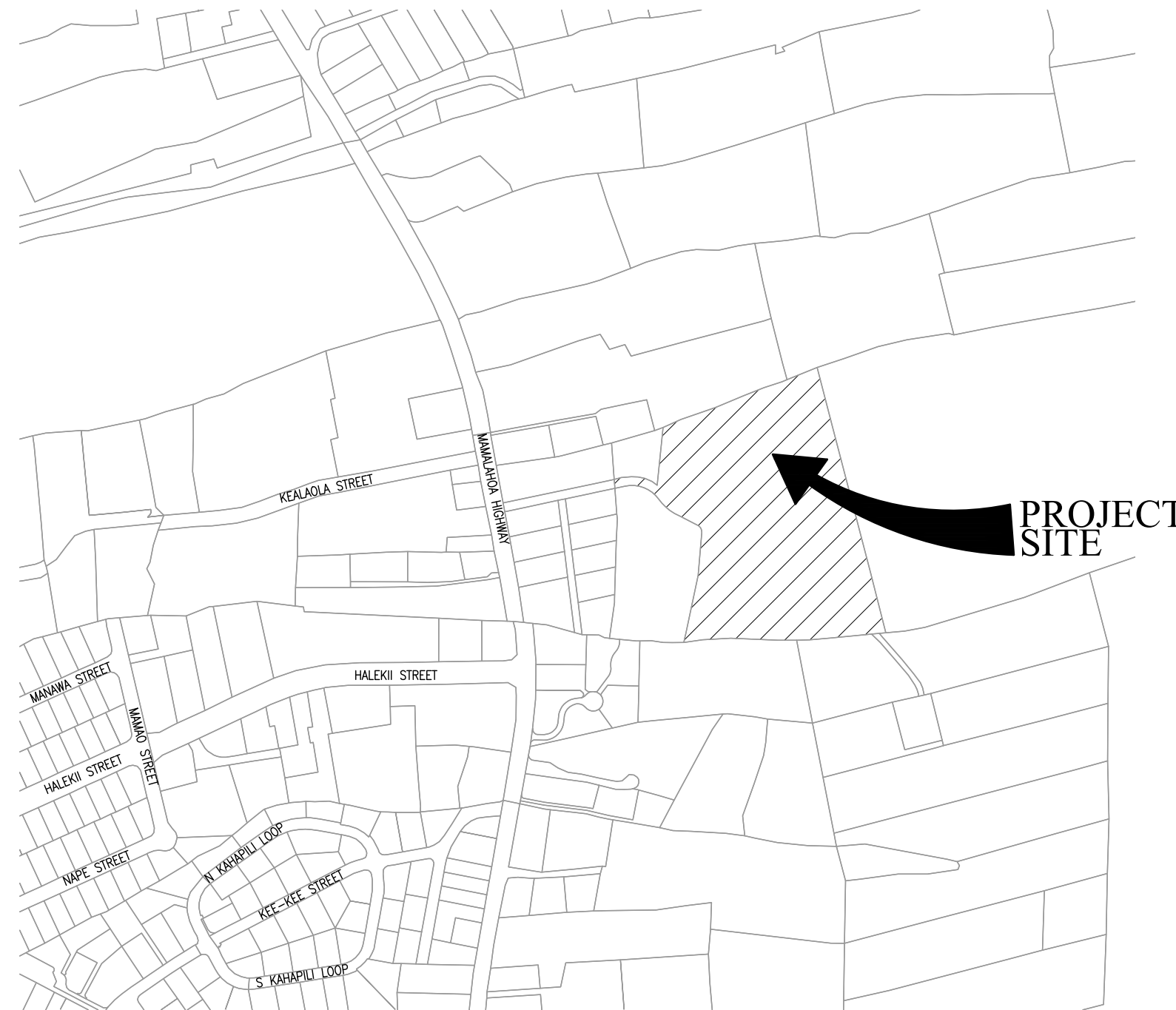
OWNER/DEVELOPER/TENANT:
NAME: HAWAII HEALTH SYSTEMS CORP.
PHONE: (808) 322-6970
MAILING ADDRESS: 3675 KILAUEA AVENUE, HONOLULU, HI 96816
LOCATION ADDRESS: 79-1019 HAUKAPILA STREET
ENGINEERING CONSULTANT
NAME: ENGINEERING PARTNERS, INC
PHONE: (808) 933-7900
ADDRESS: 455 E. LANIKAULA ST., HILO, HAWAII 96720

CODE SEARCH

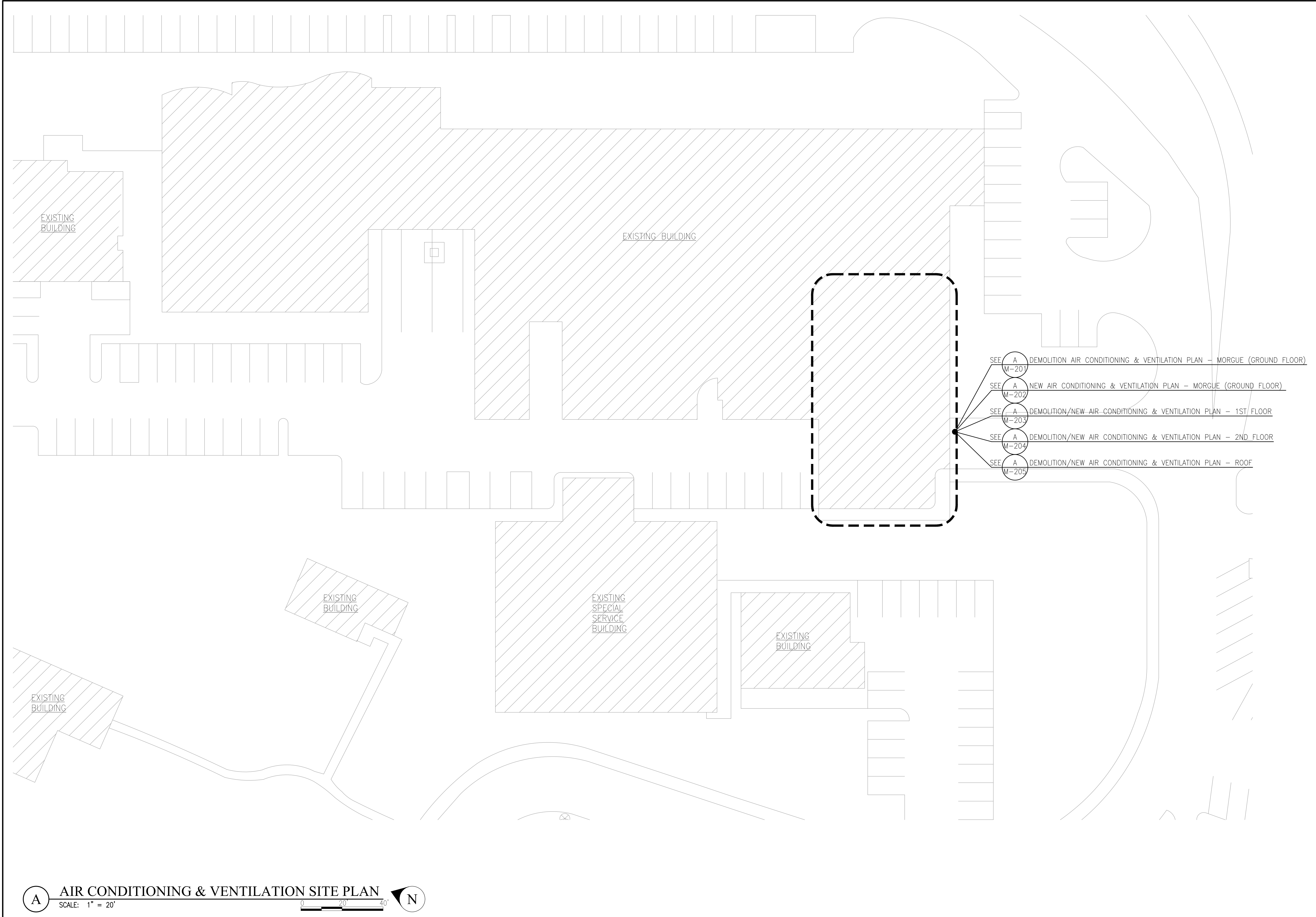
TMK: (3) 7-9-010:081
DESIGN CRITERIA:
BUILDING CODE.....2012 IBC
WIND SPEED - (BASIC/EFFECTIVE).....105 MPH
WIND CATEGORY.....
SEISMIC DESIGN CATEGORY.....F
ROOF LIVE LOAD.....UNCHANGED
FLOOR LIVE LOAD.....UNCHANGED
ZONING.....A-5A; SLU; "U"
PARCEL AREA.....12.075 ACRES
OCCUPANCY CLASSIFICATION.....I-2
OCCUPANT LOAD.....PERSONS
TYPE OF CONSTRUCTION.....I-A
FIRE SPRINKLERS.....YES [TYPE-NFPA 13]
HEIGHT (ALLOWABLE/ACTUAL).....UNCHANGED
STORIES - (ALLOWABLE/ACTUAL).....UNCHANGED
AREA - ALLOWABLE/ACTUAL.....525,987 SQ/FT
NUMBER OF EXITS - ALLOWED/PROVIDED.....UNCHANGED
ROOF COVERING MATERIAL.....UNCHANGED
REQ. FIRE RESISTANCE OF EXT. WALLS.....UNCHANGED
REQ. PROTECTION OF OPENINGS.....UNCHANGED
REQ. FIRE RESISTANCE RATING FOR BUILDING ELEMENTS...UNCHANGED
REQ. FIRE-RESISTANCE-RATED SEPARATIONS.....UNCHANGED
REQ. SEPARATION OF OCCUPANCIES.....UNCHANGED
I.E.C.C. CERTIFICATION.....REFER TO SHEETS-M-001,E-001
SPECIAL INSPECTIONS REQUIRED.....NO



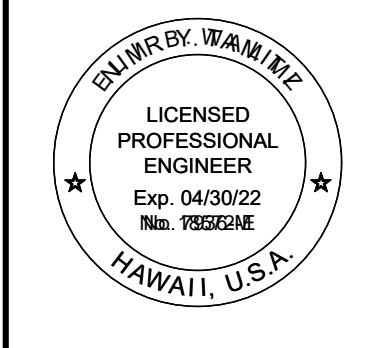
VICINITY MAP
NOT TO SCALE



PLOT PLAN
SCALE: 1"= 60'



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AIR CONDITIONING &
VENTILATION SITE PLAN

DATE:	AUGUST 2020	REV.	△	REV.	△	REV.	△
REV.		REV.		REV.		REV.	

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JOB NO. 12022-17-01	
DWG. NO. M-100	
SHEET NO.	OF 15

MECHANICAL PIPING SYMBOLS

	BALL VALVE
	CHECK VALVE
	SOLENOID VALVE
	TEMPERATURE SENSOR
	FLOW SWITCH
	PRESSURE GAUGE
	TEMPERATURE GAUGE
	PIPE FLEXIBLE CONNECTION
	STRAINER WITH BLOWDOWN
	CHILLED WATER SUPPLY
	CHILLED WATER LINE
	HOT WATER SUPPLY
	HOT WATER RETURN
	PIPE RISER TO UPPER LEVEL
	CAPPED LINE
	PIPE ELBOW UP/DOWN
	PIPE BRANCH TOP CONNECTION
	PIPE BRANCH BOTTOM CONNECTION
	PIPE UNION

MECHANICAL SYMBOLS

	SHEET METAL DUCTWORK		EQUIPMENT TAG
	DUCTWORK TRANSITION		CO2 SENSOR MOUNTED IN DUCT
	DEMOLITION		SMOKE DETECTOR MOUNTED IN DUCT
	SUPPLY OR OA DUCT ELBOW DOWN		DETAIL DESIGNATION
	RETURN OR EXHAUST DUCT ELBOW DOWN		CEILING ACCESS PANEL
	45° BOOT BRANCH TAKEOFF		PIPE RISER TO UPPER LEVEL
	DUCT CONTINUATION		CAPPED LINE
	ELBOW WITH TURNING VANES		PIPE ELBOW UP/DOWN
	SUPPLY OR OA DUCT UP		PIPE BRANCH TOP CONNECTION
	RETURN AIR OR EXHAUST DUCT UP		PIPE BRANCH BOTTOM CONNECTION
	EXHAUST AIR DUCT UP		PIPE UNION
	SUPPLY AIR DIFFUSER		VAV BOX
	RETURN AIR OR EXHAUST REGISTER		VAV TAG ('A' INDICATES CORRESPONDING AHU, 'X' INDICATES NUMBER)
	VOLUME DAMPER		POINT OF CONNECTION
	FIRE DAMPER OR CEILING RADIATION DAMPER		POINT OF DISCONNECTION
	COMBINATION FIRE SMOKE DAMPER		
	MOTORIZED DAMPER		
	THERMOSTAT MOUNTED AT MAX +48" A.F.F. TO THE TOP OF THE CONTROL DEVICE PLATE		

GENERAL MECHANICAL SPECIFICATIONS

- PROVIDE COMPLETE AND OPERATING SYSTEMS AS SPECIFIED AND INDICATED ON DRAWINGS. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL" WHEN USED HEREIN.
- WORK SHALL COMPLY WITH ALL LOCAL CODES AND ORDINANCES INCLUDING: ANSI B9.1/ASHRAE 15 – SAFETY CODE FOR MECHANICAL REFRIGERATION; HAWAII DOH CHAPTER 39, TITLE 11 – AIR CONDITIONING AND VENTILATION; HAWAII COUNTY BUILDING CODE; ASHRAE 62–2016 – VENTILATION STANDARD; SMACNA HVAC DUCT CONSTRUCTION STANDARDS; 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
- CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS AND FEES.
- MATERIALS AND EQUIPMENT SHALL BE NEW AND GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE. MATERIALS AND EQUIPMENT SHALL BE AS SCHEDULED OR EQUAL, MEETING THE REQUIREMENTS OF THE SPECIFICATION. MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO THE WHFD AND/OR PROJECT MANAGER FOR APPROVAL PRIOR TO ORDER RELEASE. WORK SHALL BE GUARANTEED AGAINST DEFECTIVE WORKMANSHIP OR MATERIALS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT. WARRANTY WORK SHALL BE COMPLETED AT NO EXTRA CHARGE TO THE OWNERS. FURNISH MANUFACTURER'S PRODUCT WARRANTY CERTIFICATES IN A BINDER.
- PRIOR TO COMMENCEMENT OF WORK AND ORDERING OF EQUIPMENT, CONTRACTOR SHALL SUBMIT 6 BOUND SETS OF PROPOSED MATERIALS AND EQUIPMENT. RECORD DRAWINGS, OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE SUBMITTED AS REQUIRED BY WHFD AND/OR PROJECT MANAGER UPON COMPLETION.
- DRAWINGS SHALL NOT BE SCALED.
- PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE. PROVIDE FIRE DAMPERS ON ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS AS REQUIRED TO PRESERVE THE FIRE RATING OF THE STRUCTURE.
- MECHANICAL EQUIPMENT SHALL BE SECURED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
- ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT SHALL BE VERIFIED WITH ELECTRICAL DRAWINGS PRIOR TO ORDER RELEASE. ADDITIONAL ELECTRICAL WORK RESULTING FROM EQUIPMENT SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- DUCTWORK, PIPING AND EQUIPMENT SHALL BE PROVIDED WITH SEISMIC RESTRAINTS IN ACCORDANCE WITH THE SMACNA SEISMIC RESTRAINT MANUAL – GUIDELINES FOR MECHANICAL SYSTEMS.
- ELECTRICAL: CONFORM TO THE REQUIREMENTS NATIONAL ELECTRICAL CODE. OBTAIN EQUIPMENT MANUFACTURER'S CONTROL WIRING DIAGRAMS FOR THE EQUIPMENT FURNISHED. ELECTRICAL EQUIPMENT SHALL BE FURNISHED WITH WEATHER PROOF (NEMA 4X WHEN POSSIBLE) ENCLOSURES FOR OUTDOOR INSTALLATIONS AND OTHERWISE INDICATED ON PLANS.
- FIELD INVESTIGATIONS: VISIT THE WORK–SITE AND BECOME FULLY AWARE OF ALL EXISTING CONDITIONS. INVESTIGATE THE CONTRACT DOCUMENTS AND MAKE PROPER PROVISIONS TO AVOID INTERFERENCES OR CONSTRUCTION DELAYS. DETERMINE THE EXACT ROUTE OF EACH DUCT AND PIPE. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE WHFD AND/OR PROJECT MANAGER.
- WORK CONDITIONS: FIELD VERIFY CONDITIONS AND DIMENSIONS FOR INTERFERENCES. INSTALLED WORK SHALL BE PROTECTED DURING CONSTRUCTION AND CLEANED FOR FINAL INSPECTION. TOUCH–UP PAINT ALL RAW EDGES OF METAL EXPOSED TO WEATHER. COORDINATE WITH OTHER TRADES FOR PIPE SLEEVES AND INSTALLATION OF EQUIPMENT SUPPORTS.
- REQUIREMENTS: PERFORM WORK USING PERSONNEL SKILLED IN THE TRADE INVOLVED. PROVIDE COMPETENT SUPERVISION. FURNISH NEW EQUIPMENT, MATERIALS AND ACCESSORIES BEARING THE MANUFACTURER'S IDENTIFICATION AND CONFORMING TO THE RECOGNIZED COMMERCIAL STANDARDS.
- EQUIPMENT INSTALLATION: INSTALL EQUIPMENT IN THE SPACE ALLOTTED WITH SUFFICIENT CLEARANCE FOR PROPER OPERATION AND MAINTENANCE AND WITH SUFFICIENT HEAD CLEARANCE ACCORDING TO THE BUILDING CODE. WHERE EQUIPMENT DIFFERS IN ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, PROVIDE ALL REQUIRED CHANGES IN PIPING, SUPPORTS AND APPURTENANCES. PROVIDE ACCESS PANELS WHERE REQUIRED FOR MAINTENANCE ACCESS TO EQUIPMENT.

MECHANICAL ABBREVIATIONS

(E)	EXISTING	FPM	FEET PER MINUTE
(D)	DEMOLISH	FT	FEET
(N)	NEW	HTR	HEATER
(R)	RELOCATED	HZ	HERTZ
A	AMPERE	KW	KILOWATT
A/C	AIR CONDITIONING	LAT	LEAVING AIR TEMPERATURE
ABV	ABOVE	LBS	POUNDS
ADJ	ADJUSTABLE	MAN	MANUFACTURER
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
ACCU	AIR COOLED CONDENSING UNIT	MCA	MINIMUM CIRCUIT AMPS
AHU	AIR HANDLING UNIT	MECH	MECHANICAL
APPROX	APPROXIMATELY	MIN	MINIMUM
ARCH	ARCHITECT	MOCp	MAXIMUM OVERCURRENT PROTECTION
BLDG	BUILDING	MTD	MOUNTED
BHP	BRAKE HORSEPOWER	NOM	NOMINAL
BV	BALL VALVE	OA	OUTSIDE AIR
CAP	CAPACITY	PH	PHASE
CD	CEILING DIFFUSER	PLMB	PLUMBING
CLG	CEILING	QTY	QUANTITY
CFM	CUBIC FEET PER MINUTE	REQ'D	REQ'D
CONC	CONCRETE	RM	ROOM
CONN	CONNECT	RA	RETURN AIR
CONT	CONTINUATION	RAR	RETURN AIR REGISTER
DB	DRY BULB	RLA	RUNNING LOAD AMPS
DBA	DECIBELS (A–WEIGHTED)	SA	SUPPLY AIR
DN	DOWN	SQ	SQUARE
EA	EXHAUST AIR	SS	STAINLESS STEEL
EAT	ENTERING AIR TEMPERATURE	TDH	TOTAL DISCHARGE HEAD
EF	EXHAUST FAN	TEMP	TEMPERATURE
ELEC	ELECTRICAL	TYP	TYPICAL
ER	EXHAUST REGISTER	V	VOLT
ESP	EXTERNAL STATIC PRESSURE	VAV	VARIABLE AIR VOLUME
EXH	EXHAUST	VD	MANUAL VOLUME DAMPER
EXIST	EXISTING	VTR	VENT TO ROOF
FC	FAN COIL	W	WATT
FD	FIRE DAMPER	W/	WITH
FLA	FULL LOAD AMPS	WB	WET BULB
FLEX	FLEXIBLE	ZD	ZONE DAMPER
FLR	FLOOR		

HAWAII COUNTY ENERGY CODE

2015 IECC, HAWAII REVISED STATUTES HRS 107–24 TO 28 & HAWAII ADMINISTRATIVE RULES CHAPTER HAR 3–181.1

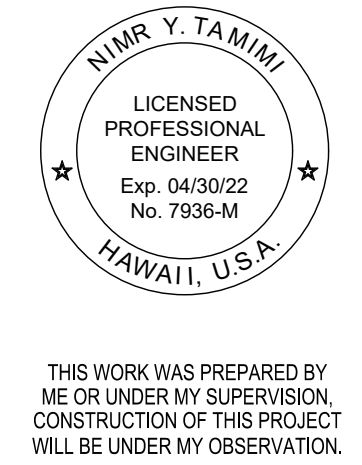
COMMERCIAL BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT, TO THE BEST OF KNOWLEDGE, THIS PROJECTS DESIGN SUBSTANTIALLY CONFORMS TO THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE COMMERCIAL PROVISIONS FOR MECHANICAL SYSTEMS (C403, C404, & C405) OF THE 2015 IECC WITH AMENDMENTS PER HAR 3–181.1:

COMPLIANCE METHOD	
X	2015 IECC AS AMENDED. MANDATORY AND PRESCRIPTIVE
	2015 IECC AS AMENDED. MANDATORY AND TOTAL BUILDING PERFORMANCE
	ASHRAE STANDARD 90.1–2013. MANDATORY AND PRESCRIPTIVE
	ASHRAE STANDARD 90.1–2013. MANDATORY AND ENERGY COST BUDGET
INFORMATION IN CONSTRUCTION DOCUMENTS	
YES	N/A
HVAC SYSTEMS	
EQUIPMENT CAPACITY AND EFFICIENCY.	X
THERMOSTATIC CONTROLS.	X
GUEST ROOM DOOR SWITCHES.	X
VENTILATION RATE.	X
DEMAND CONTROL VENTILATION CONTROLS.	X
ENCLOSED PARKING GARAGE VENTILATION CONTROL.	X
ENERGY RECOVERY VENTILATION SYSTEM.	X
KITCHEN EXHAUST SYSTEM.	X
DUCT AND PLENUM INSULATION THICKNESS/R–VALUE.	X
DUCT AND PLENUM SEALING REQUIREMENTS.	X
PIPE INSULATION THICKNESS/R–VALUE.	X
FAN MOTOR HORSEPOWER.	X
FAN EFFICIENCY.	X
FAN MOTOR EFFICIENCY.	X
PUMP MOTOR EFFICIENCY.	X
VARIABLE–FLOW FAN CONTROL.	X
STATIC PRESSURE SENSOR LOCATION.	X
STATIC PRESSURE RESET CONTROL.	X
CHILLED WATER VARIABLE FLOW CONTROL.	X
CHILLER ISOLATION.	X
COOLING TOWER FAN CONTROL.	X
TERMINAL UNIT MINIMUM AND MAXIMUM AIRFLOW.	X
COMMISSIONING REQUIREMENTS.	X
REFRIGERATION	
REFRIGERATION EQUIPMENT EFFICIENCY.	X
WALK–IN COOLERS AND FREEZERS.	X
REFRIGERATED WAREHOUSES.	X
REFRIGERATED DISPLAY CASES.	X
SERVICE WATER HEATING	
HEAT RECOVERY FOR SERVICE WATER HEATING.	X
EQUIPMENT CAPACITY AND EFFICIENCY.	X
PIPE INSULATION.	X
HOT WATER PIPE LENGTH/VOLUME.	X
HOT WATER CIRCULATION CONTROLS.	X
HEATED POOL AND SPA COVERS.	X
COMMISSIONING REQUIREMENTS.	X
NOTES:	
SIGNATURE: _____ DATE: 08/01/20 _____ TITLE: MECHANICAL ENGINEER	
NAME: NIMR Y. TAMIMI LICENSE NO.:7936–M	



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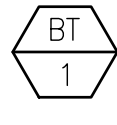
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PUMP SCHEDULE											
UNIT NO.	SERVICE	TYPE	MOTOR TYPE	FLOW (GPM)	HEAD (FT)	MOTOR DATA		PUMP CONSTRUCTION	REMARKS		
						HP	V/PH/HZ				
 1	HOSPITAL AHU REHEAT	IN-LINE PUMP	TEFC	110	100	7.5	460/3/60	STAINLESS STEEL	AURORA PENTAIR PUMP OR APPROVED EQUAL. PROVIDE WITH VFD.		
 2	HOSPITAL AHU REHEAT	IN-LINE PUMP	TEFC	110	100	7.5	460/3/60	STAINLESS STEEL	AURORA PENTAIR PUMP OR APPROVED EQUAL. PROVIDE WITH VFD.		

PROPANE GAS BOILER SCHEDULE																		
UNIT NO.	SERVICE	LOCATION	FUEL	GAS PRESSURE MIN-MAX	MAX OUTPUT (MBH)	MAX INPUT (MBH)	MIN INPUT (MBH)	FLUE (IN.)	THERMO EFF. (%)	EWT/LWT (°F)	V/PH/HZ	AMPS	MAX GPM	MIN GPM	WATER VOLUME (GAL)	WEIGHT (LBS)	dBA	REMARKS
 1	HOSPITAL AHU REHEAT	ROOF (SHELTERED)	PROPANE	4"-14" WC	1,425	1,500	75	3"	99.3	120/140	120/1/60	16	225	25	27	1606	70	AERCO BENCHMARK OR APPROVED EQUAL. REFER TO BOILER NOTES.
 2	HOSPITAL AHU REHEAT	ROOF (SHELTERED)	PROPANE	4"-14" WC	1,425	1,500	75	3"	99.3	120/140	120/1/60	16	225	25	27	1606	70	AERCO BENCHMARK OR APPROVED EQUAL. REFER TO BOILER NOTES.

BUFFER TANK SCHEDULE						
UNIT NO.	TYPE	VOLUME (GAL)	ASME PRESSURE RATING (PSIG)	WEIGHT (LB)	SYSTEM CONN. (IN)	REMARKS
 1	2-PORT TANK	210	125	2160 (FILLED)	3"	AERCO BUFFER TANK OR APPROVED EQUAL. PROVIDE WITH TEMPERATURE/PRESSURE RELIEF VALVE AND AUTOMATIC AIR VENT.

TESTING, ADJUSTING, AND BALANCING NOTES
1. BALANCE, ADJUST, AND TEST: AN INDEPENDENT TEST AND BALANCE FIRM WHICH IS AABC OR NEBB CERTIFIED SHALL BE RETAINED FOR CHECK/TEST-START-UP AND TESTING AND BALANCING OF AIR AND WATER SYSTEMS. THE TEST REPORT SHALL BE IN A FORMAT APPROVED FOR SYSTEMS OF THIS TYPE AND COMPLEXITY. QUALIFICATIONS OF INDEPENDENT TEST AND BALANCE FIRM SHALL BE SUBMITTED FOR REVIEW. TAB WORK SHALL COMPLY WITH THE LATEST PROCEDURAL STANDARDS AND SMACNA'S TAB PROCEDURAL GUIDE. 2. TAB CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR TO PROVIDE THE CFM AND GPM AS SHOWN ON SCHEDULES FOR EACH EQUIPMENT. CONTROLS CONTRACTOR TO COORDINATE WITH WHFD AND/OR PROJECT MANAGER AND TAB CONTRACTOR FOR ANY SHUTDOWNS OR SYSTEM OVERRIDES REQUIRED FOR TAB WORK. 3. CONTRACTOR SHALL BE RESPONSIBLE FOR BALANCING EXISTING SYSTEMS AS MAY BE NECESSARY TO ACHIEVE DESIGN AIRFLOW AND CHILLED WATER FLOW FOR NEW EQUIPMENT SPECIFIED ON THIS PROJECT. THE ADDITIONAL FLOW REQUIRED FOR THIS PROJECT WILL REQUIRE ADDITIONAL GPM IN THE LOOP SERVICING THE PROJECT. THIS SHALL BE ACHIEVED BY ADJUSTING THE EXISTING MAIN BRANCH BALANCING VALVES TO PROVIDE SUFFICIENT FLOW TO THE EQUIPMENT SPECIFIED. 4. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION AND PROPER OPERATION OF ALL EXISTING AND NEW BALANCING VALVES AND VOLUME DAMPERS (1) WEEK MINIMUM PRIOR TO COMMENCEMENT OF TAB WORK, AND REPORT TO THE CONSTRUCTION MANAGER ANY DEFICIENCY WHICH MAY PROHIBIT OR OTHERWISE ADVERSELY AFFECT THE TEST AND BALANCE WORK. SHOULD LACK OF SUCH EXAMINATION RESULT IN ADDITIONAL TEST AND BALANCE WORK, THE COST FOR SUCH WORK SHALL BE BORNE BY THE CONTRACTOR. 5. SEE WRITTEN SPECIFICATIONS FOR ADDITIONAL TAB REQUIREMENTS.

VALVE REPLACEMENT NOTES
1. CONTRACTOR TO FIELD VERIFY LOCATION, SIZE, AND QUANTITY OF REHEAT HOT WATER SHUTOFF AND BALANCING VALVES, PIPING, AND ACCESSORIES. NOTIFY WHFD AND/OR PROJECT MANAGER FOR DISCREPANCIES PRIOR TO START OF WORK. 2. SEE WRITTEN SPECIFICATIONS FOR REQUIREMENTS FOR POST CONSTRUCTION FIELD DOCUMENTATION.

WORK PHASING/SCHEDULING
1. CONTRACTOR COORDINATE WITH WHFD AND/OR PROJECT MANAGER PRIOR TO SCHEDULING ANY WORK WITHIN THE FACILITY. 2. MAXIMUM SHUTDOWN TIME SHALL NOT EXCEED 4 HOURS AT ANY GIVEN TIME. CONSIDERATION SHOULD BE GIVEN TO SCHEDULING WORK THAT WILL CRITICALLY IMPACT THE HOSPITALS FUNCTIONING TO EARLY MORNINGS, EVENING HOURS AND/OR WEEKENDS. 3. WORK PHASING SHALL FOLLOW THE SEQUENCE (VEIFY WITH WHFD AND/OR PROJECT MANAGER): a. INSTALL ALL LOOP VALVES AND ACCESSORIES ON EACH LOOP. b. INSTALL BY-PASS VALVE AND DIFFERENTIAL PRESSURE SENSOR AND PIPING AS SHOWN ON PLAN. c. INSTALL NEW BOILERS, BUFFER TANK AND RELATED PIPING PRIOR TO REMOVAL OF EXISTING RINNAI WATER HEATERS AND STORAGE TANK. d. REPLACE EXISTING COMPRESSION TANK, AIR SEPARATOR AND INTERCONNECTING PIPING. e. REMOVE EXISTING RINNAI WATER HEATERS, HOT WATER STORAGE TANK AND INSTALL NEW PIPING TO CONNECT NEW SYSTEM TO EXISTING REHEAT SYSTEM. f. REPLACE REHEAT HOT WATER PUMP 1, RELATED PIPING, VALVES, VFD & ACCESSORIES. g. REPLACE REHEAT HOT WATER PUMP 2, RELATED PIPING, VALVES, VFD & ACCESSORIES.

NOTES

1. PROVIDE PSX 700 OR APPROVED EQUAL FOR ALL EXTERNAL FAN BLADES AND OUTDOOR EQUIPMENT HOUSINGS (INTERNAL & EXTERNAL).
2. PROVIDE FRANKLIN VFD. PROVIDE AC LINE REACTOR TO REDUCE HARMONICS. PROVIDE DC FILTERS WHEN CABLE LENGTHS ARE GREATER THAN 20'.

DUCT AND PLENUM INSULATION NOTES

1. DUCT INSULATION THICKNESS SHALL BE GREATER THAN OR EQUAL TO R-6 FOR SUPPLY AND RETURN DUCTS AND PLENUMS LOCATED IN UNCONDITIONED SPACES.
2. DUCT INSULATION THICKNESS SHALL BE GREATER THAN OR EQUAL TO R-8 FOR SUPPLY AND RETURN DUCTS AND PLENUMS LOCATED OUTDOORS.
3. DUCTS AND PLENUMS TO BE SEALED PER IMC 2015.

PIPING INSULATION NOTES

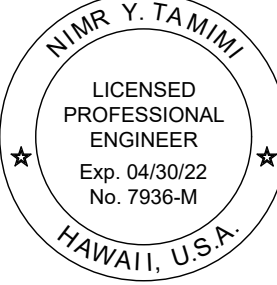
1. PROVIDE PIPE INSULATION THICKNESSES PER IECC 2015 TABLE C403.2.10

BOILER NOTES

1. PROVIDE WITH FACTORY BOILER MANAGEMENT SYSTEM, BMS.
2. PROVIDE WITH AL29-4C STAINLESS STEEL
3. PROVIDE WITH ZERO CLEARANCE KIT. VENTING PER UL1738



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MECHANICAL SCHEDULES			
	DATE: AUGUST 2020	REV. 	REV. 
		REV. 	REV. 
		REV. 	REV. 

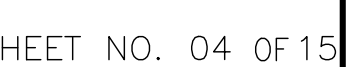
HVAC MODIFICATIONS FOR: REHEAT SYSTEM

KONA COMMUNITY HOSPITAL

79-1019 HAUUKAPILA ST, KEALAKEKUA, HI 96750

TMK: (3) 7-9-010:081

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CHECKED BY: NYT	QC'D BY: DH
JOB NO. 12022-17-01	
DWG. NO. M-002	
SHEET NO. 03 OF 15	



HOT WATER REHEAT FIRST FLOOR PLAN

DATE: AUGUST 2020
REV.

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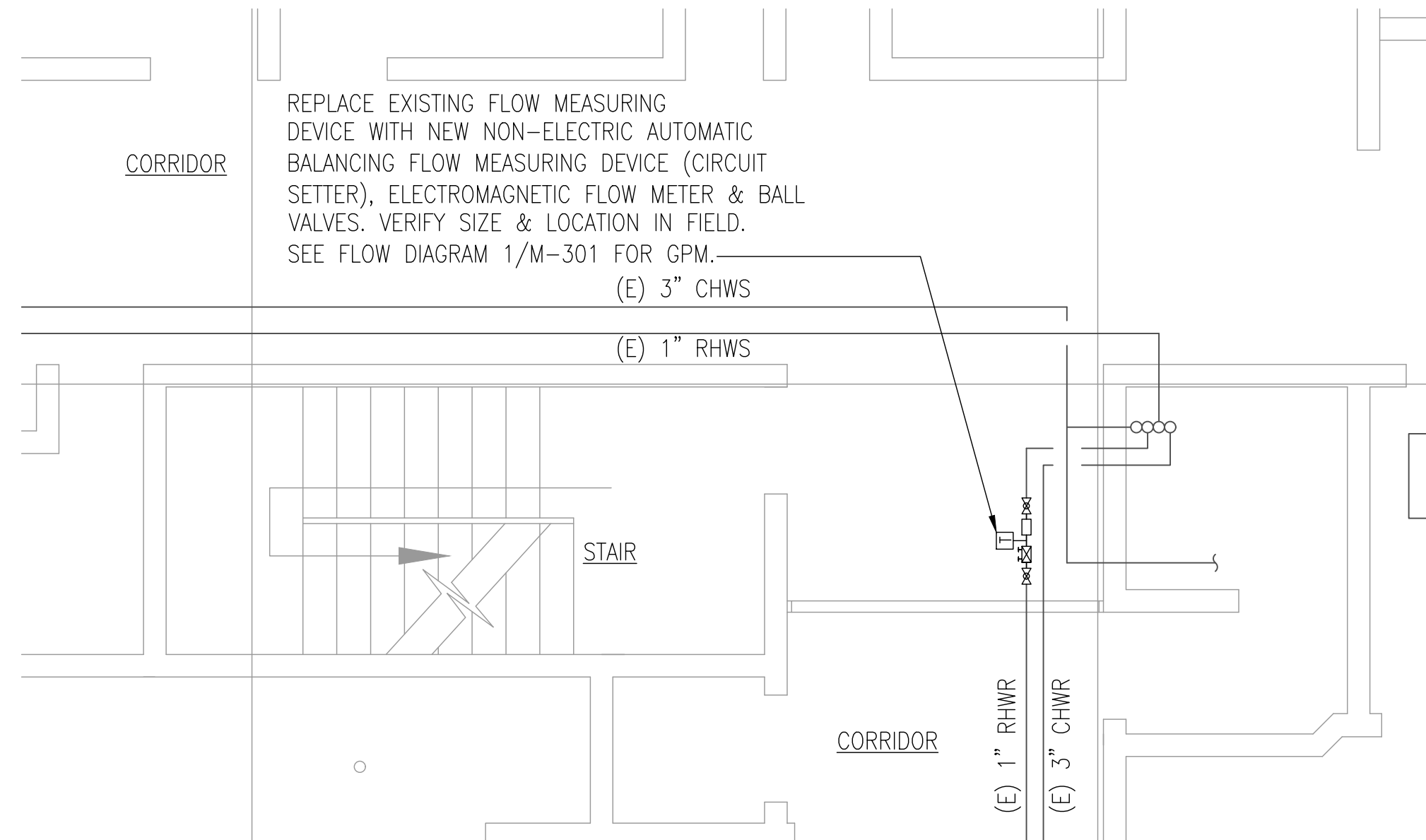
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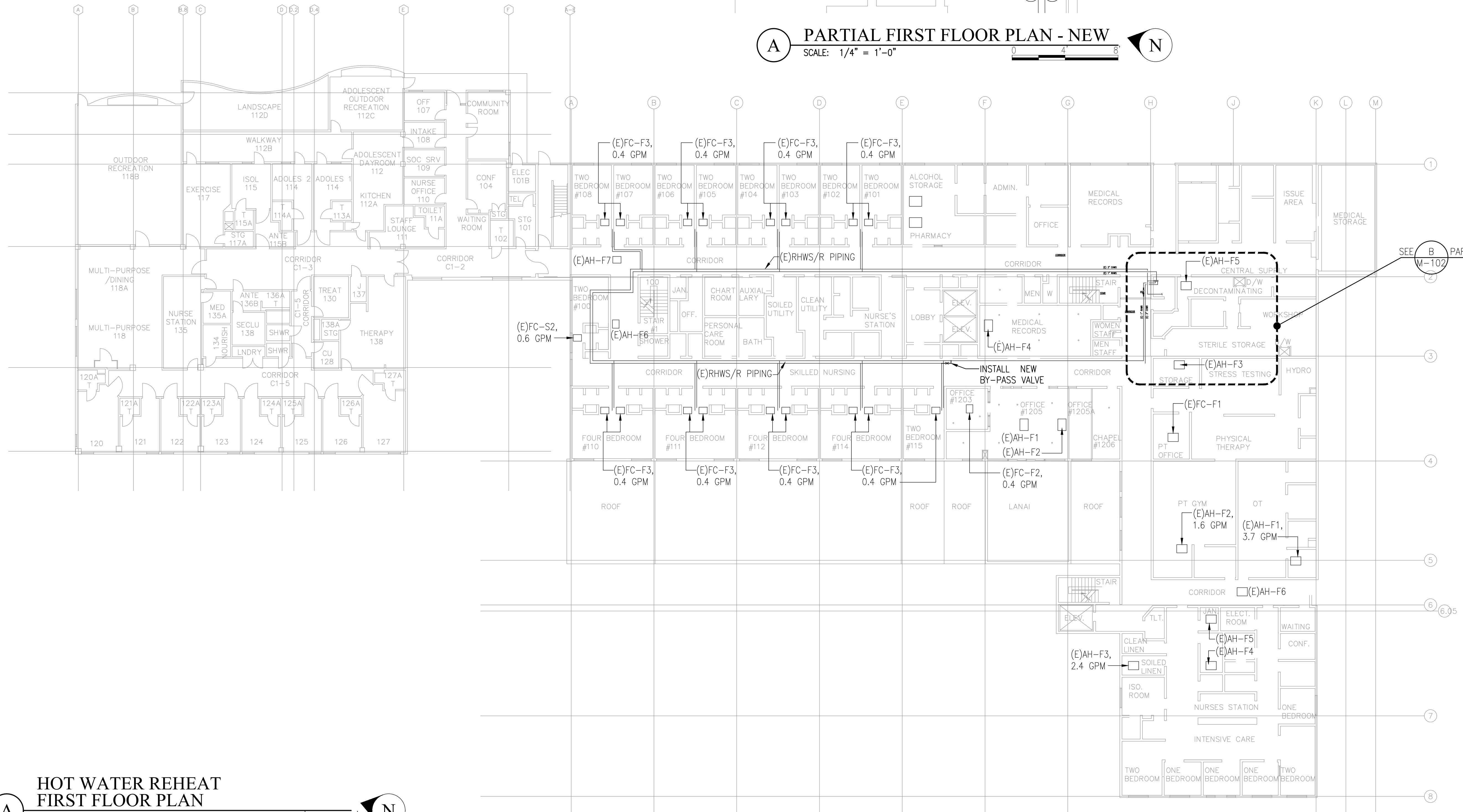
DWG. NO.

M-102

SHEET NO. 05 OF 15



A PARTIAL FIRST FLOOR PLAN - NEW
SCALE: 1/4" = 1'-0"



A HOT WATER REHEAT FIRST FLOOR PLAN
SCALE: 1/16" = 1'-0"



**HOT WATER REHEAT
SECOND FLOOR PLAN**

DATE:	REV.	REV.	REV.
AUGUST 2020			

HVAC MODIFICATIONS FOR: REHEAT SYSTEM
KONA COMMUNITY HOSPITAL

79-1019 HAUUKAPILA ST, KEALAKEKUA, HI 96750
TMK: (3) 7-9-010:081

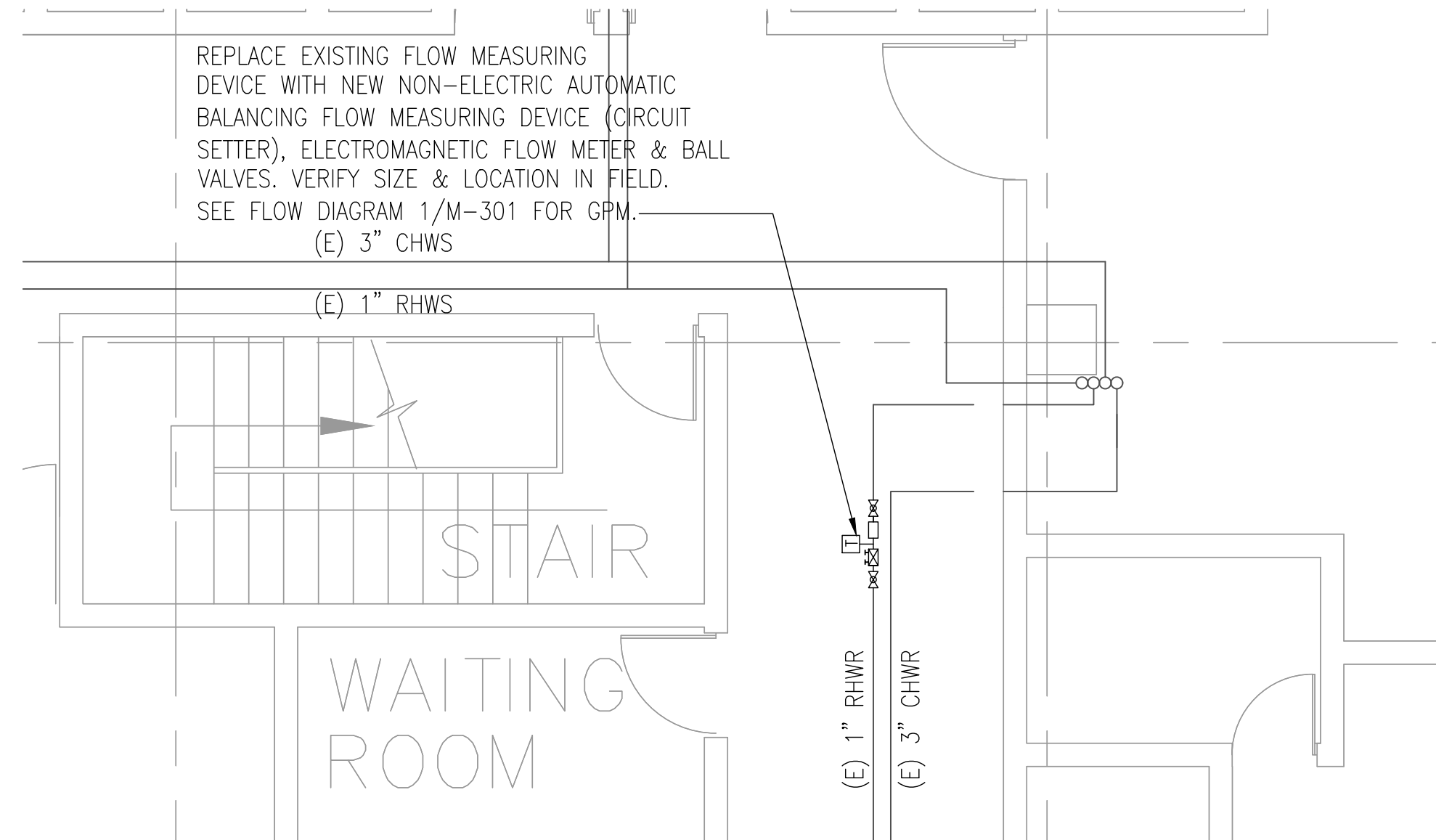
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NYT	DH

JOB NO.
12022-17-01

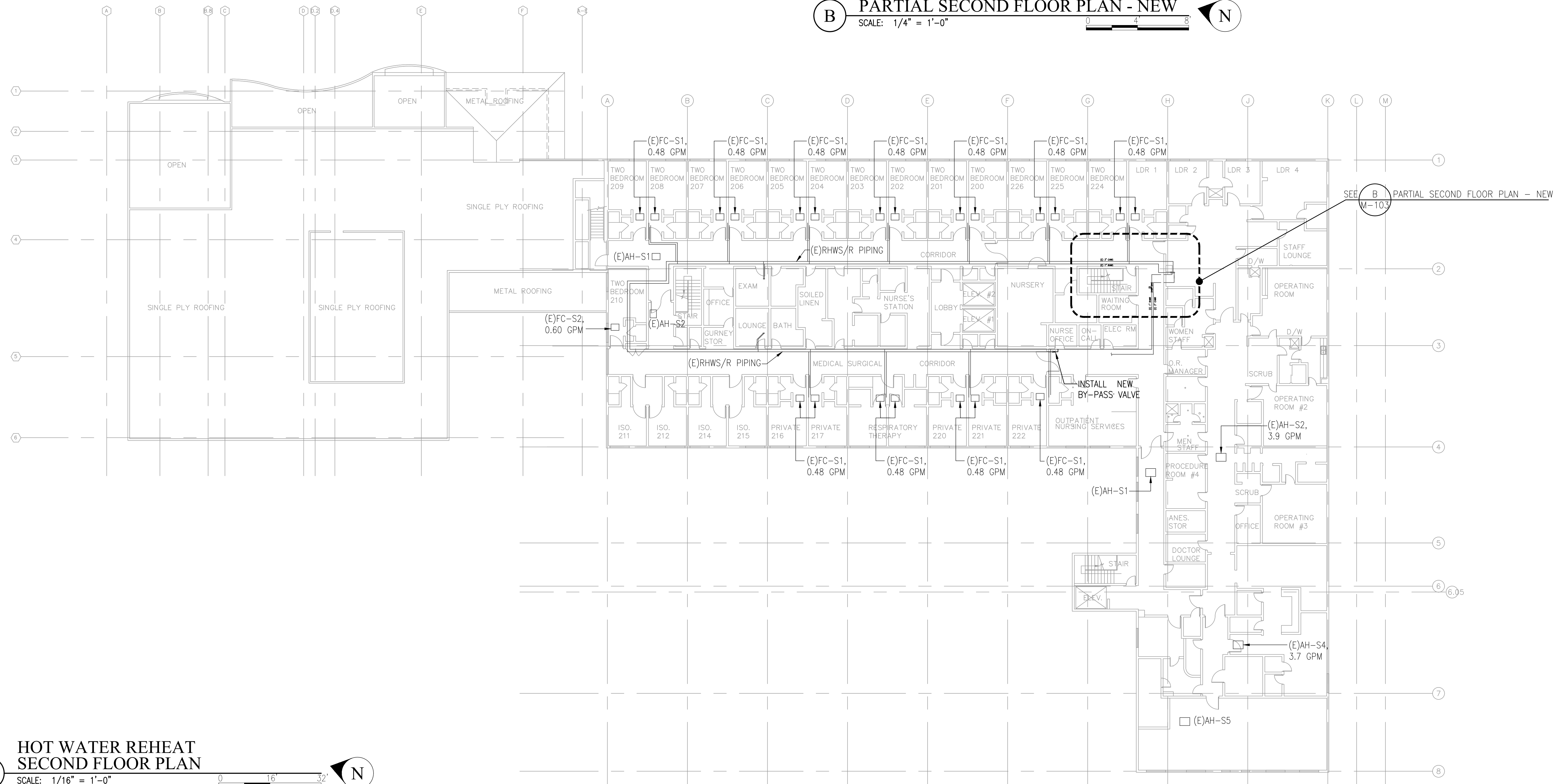
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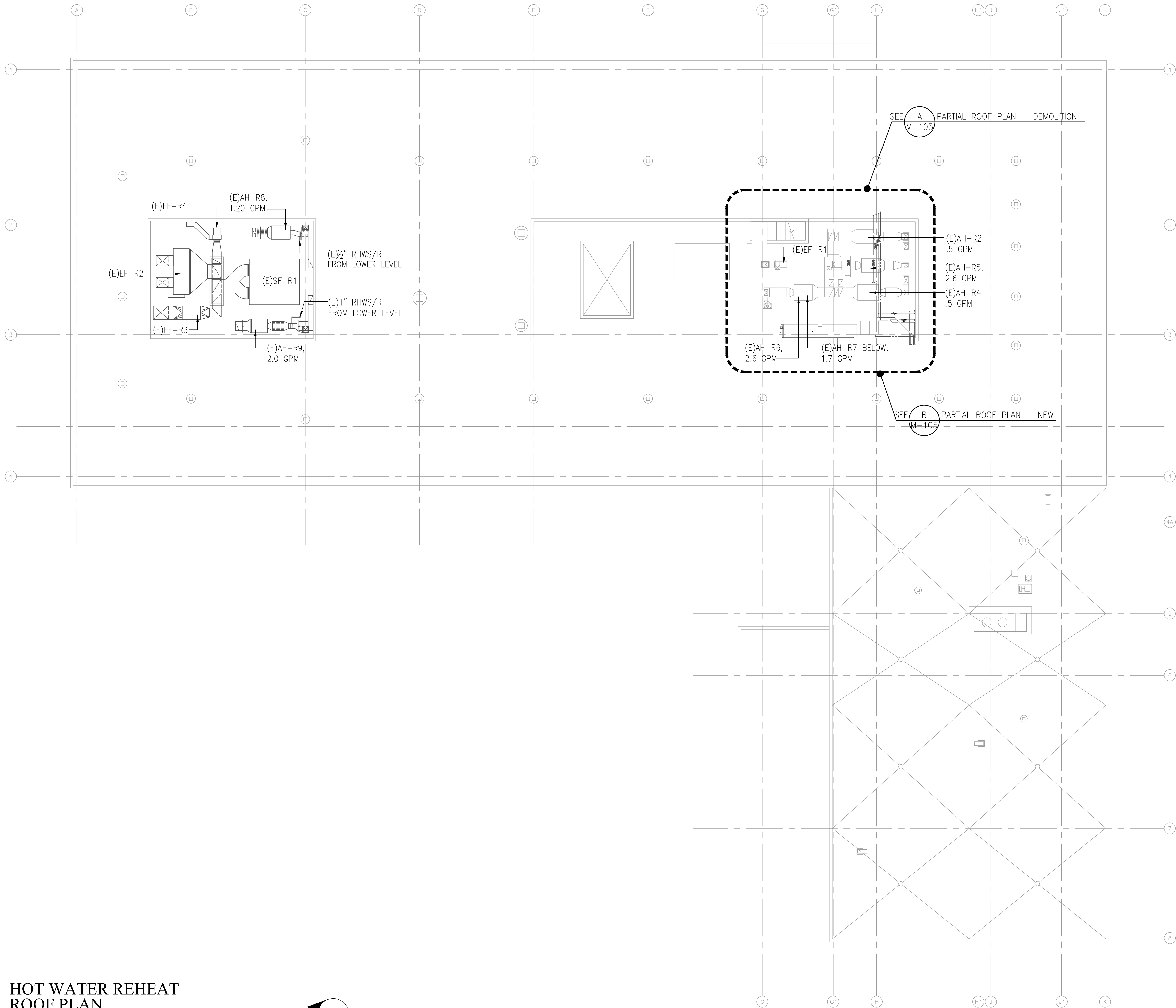
SHEET NO. 06 OF 15



(B) PARTIAL SECOND FLOOR PLAN - NEW
SCALE: 1/4" = 1'-0"



**(A) HOT WATER REHEAT
SECOND FLOOR PLAN**
SCALE: 1/16" = 1'-0"



A

HOT WATER REHEAT
ROOF PLAN

SCALE: 3/32" = 1'-0"

0

8

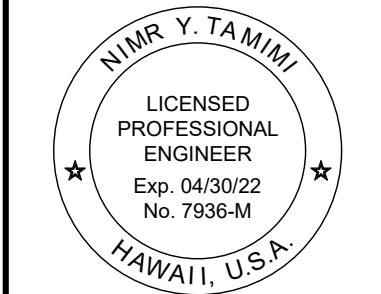
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HOT WATER REHEAT
ROOF PLAN

DATE:	AUGUST 2020	REV.	△	REV.	△	REV.	△
REV.		REV.		REV.		REV.	

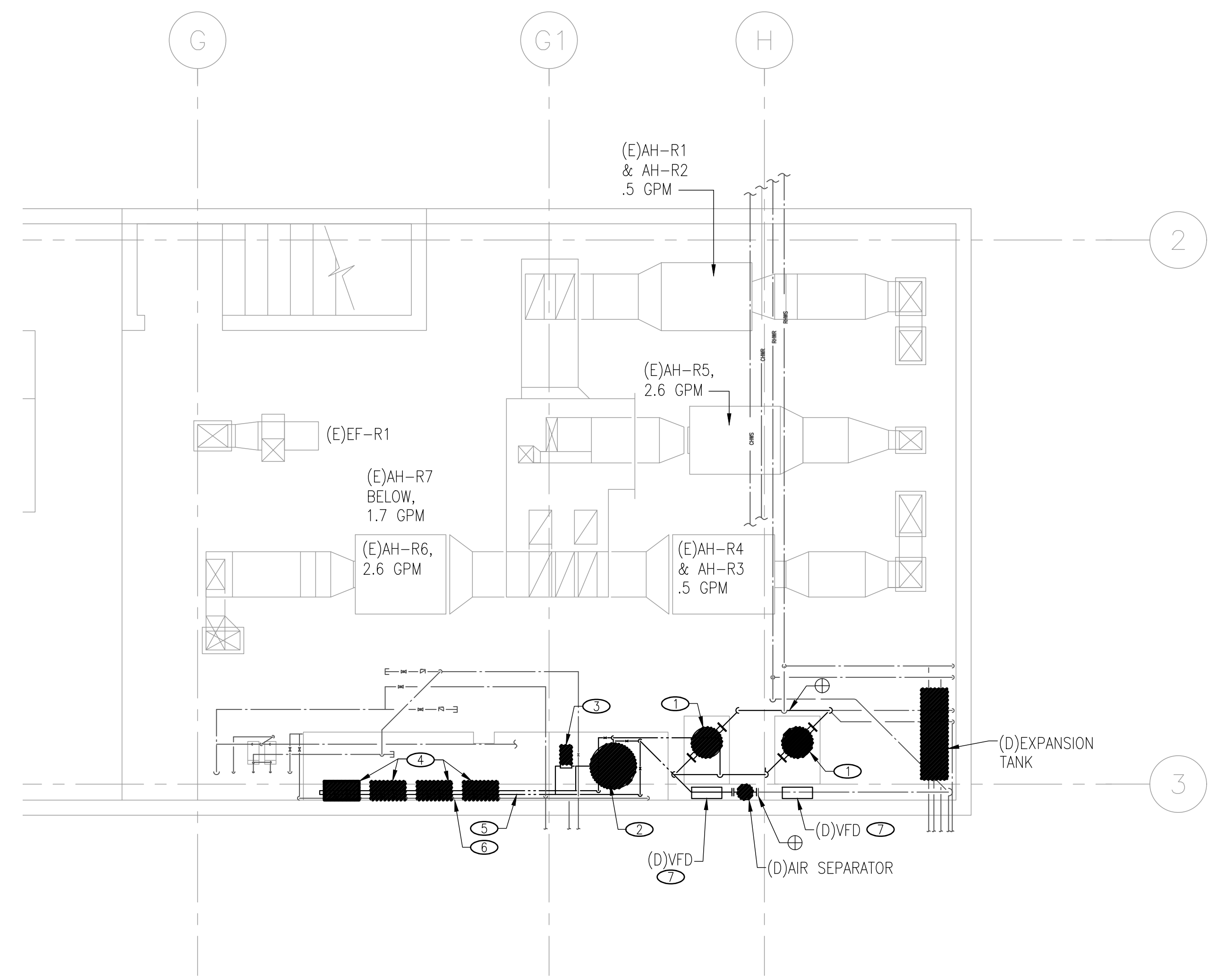
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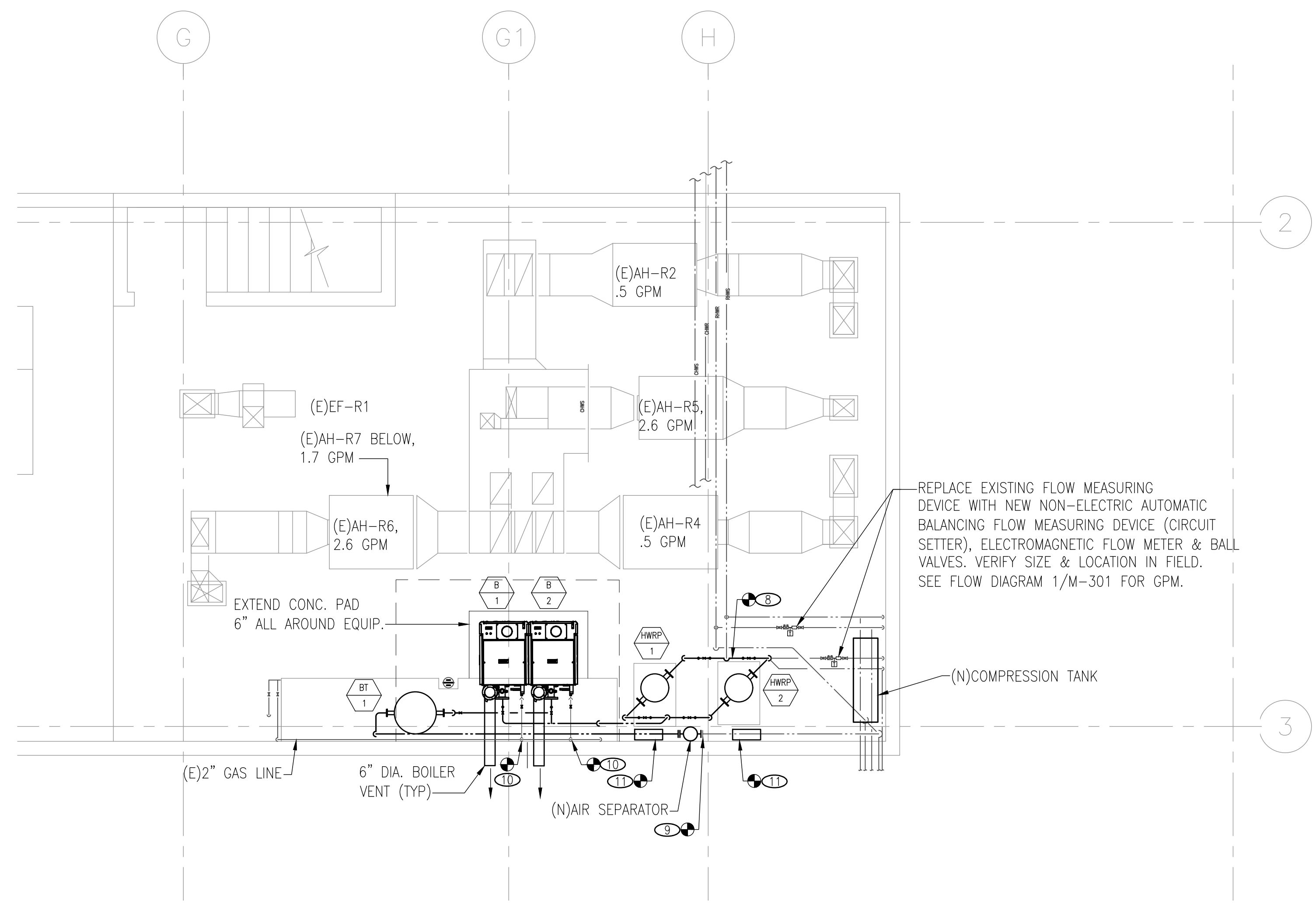
JOB NO.
12022-17-01

DWG. NO.
M-104

SHEET NO. 07 OF 15



A HOT WATER REHEAT
PARTIAL ROOF PLAN - DEMOLITION
SCALE: 1/4" = 1'-0"



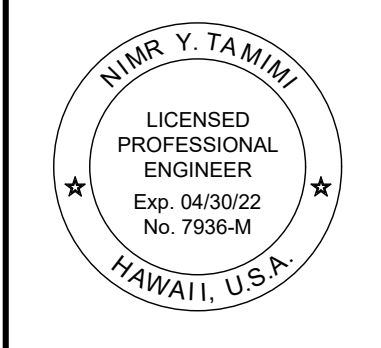
B HOT WATER REHEAT
PARTIAL ROOF PLAN - NEW WORK
SCALE: 1/4" = 1'-0"

NOTES

- 1 REMOVE EXISTING PUMP AND RELATED PIPING AND VALVES SHOWN HATCHED.
- 2 REMOVE EXISTING STORAGE TANK AND RELATED PIPING AND VALVES SHOWN HATCHED.
- 3 REMOVE EXISTING CIRCULATING PUMP AND RELATED PIPING AND VALVES SHOWN HATCHED.
- 4 REMOVE EXISTING WATER HEATERS AND RELATED PIPING AND VALVES AND HEATER FLUE SHOWN HATCHED. PATCH ROOF PENETRATION TO MATCH EXISTING.
- 5 REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPING AND VALVES SHOWN HATCHED.
- 6 REMOVE EXISTING GAS LINES SERVING WATER HEATERS BACK TO HEADER AND CAP PIPING.
- 7 REMOVE EXISTING VFDS.
- 8 CONNECT NEW 2" RHWS PIPING TO EXISTING 2" RHWS PIPING.
- 9 CONNEXT NEW RHWR PIPING TO EXISTING RHWR PIPING AT AIR SEPARATOR.
- 10 CONNECT NEW 2" GAS LINE TO EXISTING 2" GAS LINE.
- 11 PROVIDE NEW FRANKLIN P SERIES OR EATON VFD. PROVIDE 36" MIN. CLEARANCE IN FRONT OF THE VFDS. FRANKLIN Q-LINK SERIES ARE NOT ACCEPTABLE.



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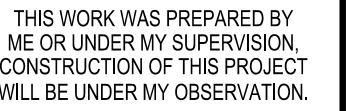
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HOT WATER REHEAT PARTIAL
ROOF PLAN - DEMO/NEW

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KONA COMMUNITY HOSPITAL
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DWG. NO. M-106	
SHEET NO. 08 OF 15	



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REHEAT PIPING DIAGRAM

DATE: _____ REV. ☐ ☐

AUGUST 2020 _____ REV. ☐ ☐

_____ REV. ☐ ☐

_____ REV. ☐ ☐

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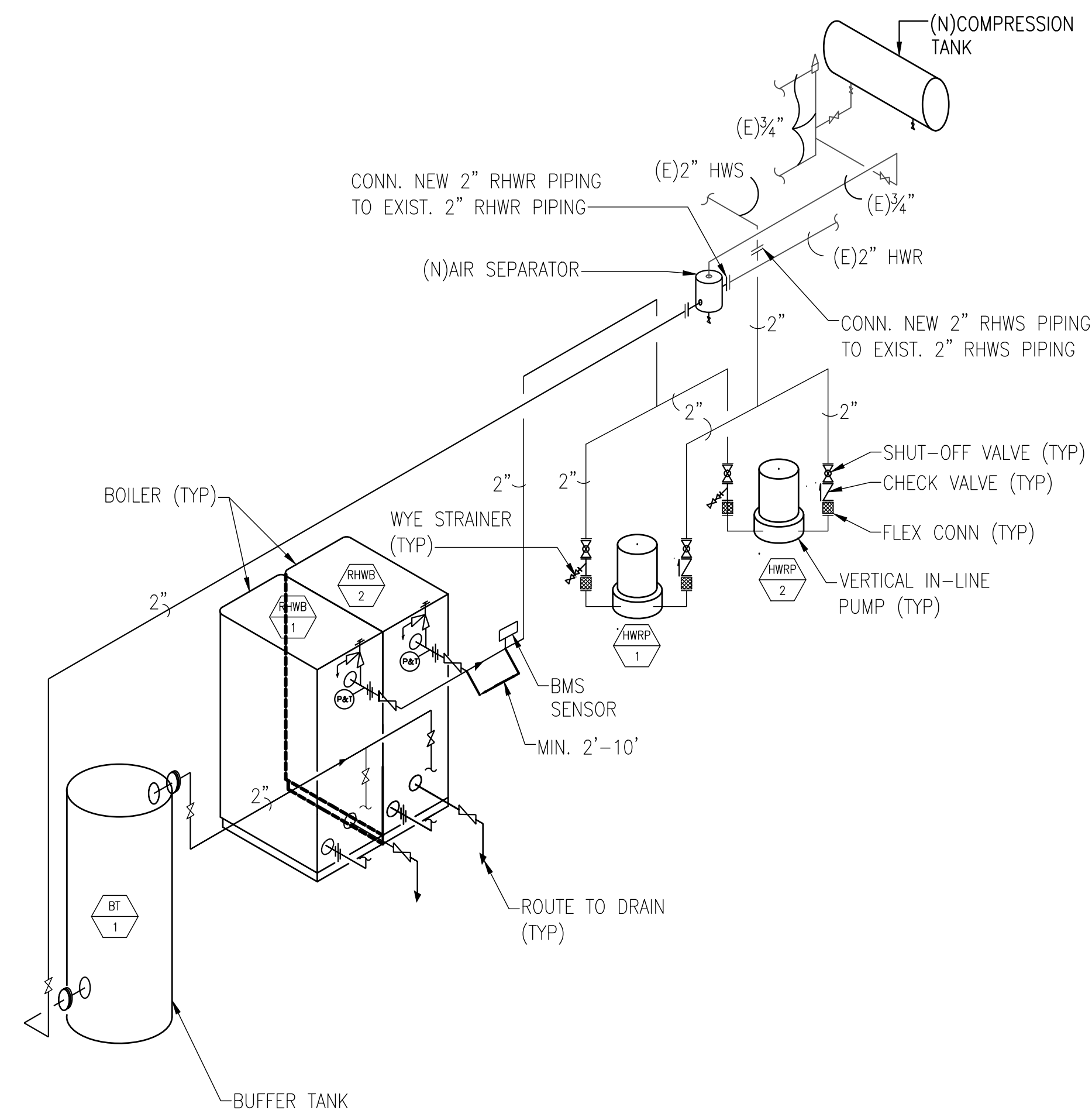
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M-201

SHEET NO. 09 OF 15



1 RH PIPING DIAGRAM AT ROOF
NO SCALE

SEQUENCE OF OPERATION

REHEAT HOT WATER (RHW) SYSTEM

THE REHEAT HOT WATER(RHW) SYSTEM CONSISTS OF TWO GAS BOILERS (ONE BEING REDUNDANT) AND TWO REHEAT HOT WATER PUMPS (ONE BEING REDUNDANT) TO SERVE THE AIR HANDLING UNIT AND VAV REHEAT COILS. THE BOILERS ARE FURNISHED WITH A UNIT CONTROL PANEL (UCP) WITH AN INTEGRAL DISPLAY FOR READOUT AND LOCAL OPERATOR'S OVERRIDE CAPABILITY. THE UCP MONITORS ALL CRITICAL FUNCTIONS, AND CONTROLS THE CAPACITY OF THE SYSTEM OUTPUT. THE UCP IS INTERFACED TO THE EXISTING BUILDING MANAGEMENT SYSTEM (BMS) FOR REMOTE MONITORING & SYSTEM CONTROL. REHEAT HOT WATER PUMPS (ONE BEING REDUNDANT) ARE EQUIPPED WITH A VARIABLE FREQUENCY DRIVE (VFD) TO VARY PUMP SPEED.

START-STOP SEQUENCE: UPON START-UP, ENABLE THE RHW PUMPING SYSTEM AND BOILERS. UPON SHUTDOWN, DISABLE ALL RHW PUMPING SYSTEMS AND DISABLE BOILERS. THIS SEQUENCE SHALL BE FUNCTIONAL FOR ANY REASON THE PUMP STARTS-STOPS IN ANY MODE OF OPERATION (ALL H-O-A MODES, ALL VFD MODES, ALL AUTOMATIC AND SAFETY FUNCTIONS, AND LOCAL MANUAL START-STOP).

PUMP CONTROL (LEAD/STANDBY EACH PUMP SIZED AT 100%):

- ONCE ENABLED THE PUMP SPEED SHALL BE MODULATED TO MAINTAIN THE CALCULATED DIFFERENTIAL PRESSURE SETPOINT.
- SOFTWARE LEAD/STANDBY PUMP CONTROL FUNCTION SHALL ALLOW EITHER OF THE RHW WATER PUMPS TO ACT AS THE LEAD PUMP, WHILE DESIGNATING THE OTHER PUMP AS A STANDBY PUMP.
- DIFFERENTIAL PRESSURE RESET CONTROL: THE BAS SHALL CONTINUOUSLY POLL THE VALVE POSITION OF ALL REHEAT HOT WATER COILS. THE BAS SHALL RESET DIFFERENTIAL PRESSURE SET-POINT UP OR DOWN TO CONTINUALLY RESET THE SYSTEM DIFFERENTIAL PRESSURE SETPOINT FOR OPTIMUM PERFORMANCE. WHEN TWO REMOTE DIFFERENTIAL PRESSURE SENSORS ARE USED, CONTROL TO THE SENSOR THAT IS FARTHEST FROM SETPOINT.
- IN THE EVENT REMOTE DIFFERENTIAL PRESSURE SENSORS BECOME UNRELIABLE, UTILIZE LOCAL DIFFERENTIAL PRESSURE FOR PUMP CONTROL TAKING INTO CONSIDERATION THE ADJUSTED SETPOINT
- ALARM ON PUMP FAILURE DETECTED VIA CURRENT SENSING SWITCH. UPON FAILURE OF THE LEAD PUMP, THE STANDBY PUMP SHALL START AUTOMATICALLY. THE BAS SHALL MAINTAIN A START COMMAND AT THE LEAD PUMP AND RESUME CONTROL WHEN THE LEAD PUMP HAS RETURNED TO NORMAL OPERATION.
- A FAILURE OF ANY PUMP WILL SHUT DOWN THAT PUMP, SUSPEND BOILER OPERATION, START THE ASSOCIATED STAND-BY PUMPS WILL ALARM THE BMS. FAILURE OF BOTH HEATING WATER PUMPS WILL ALARM THE BMS AND SHUT DOWN THE REHEAT HOT WATER SYSTEM.
- LEAD PUMP DESIGNATION SHALL BE ROTATED WEEKLY (ADJ) IN ACCORDANCE WITH THE BAS SCHEDULE.
- IF BYPASS FAILS TO OPEN AND SYSTEM PRESSURE INCREASES BEYOND AN ADJUSTABLE LIMIT, RECIRCULATION PUMPS SHALL SHUT DOWN AND AN ALARM SHALL BE ISSUED TO THE BMS.

PUMP ROTATION: UPON SIGNAL FROM THE BAS TO ROTATE THE PUMPS, EXECUTE THE FOLLOWING SEQUENCE.

- INITIATE ROTATION IN ACCORDANCE WITH A BAS SCHEDULE OR BY MANUAL INITIATION.
- WHILE THE CURRENT LEAD PUMP IS STILL ACTIVE START THE STANDBY PUMP AND DESIGNATE AS THE NEW LEAD PUMP.
- UPON PROOF OF NEW STANDBY PUMP RUNNING STATUS VIA CURRENT SENSING RELAY, COMMAND THE NEWLY DESIGNATED STANDBY PUMP TO OFF AND CLOSE ASSOCIATED ISOLATION VALVES.
- MAINTAIN DIFFERENTIAL PRESSURE CONTROL WITH THE NEW LEAD PUMP.

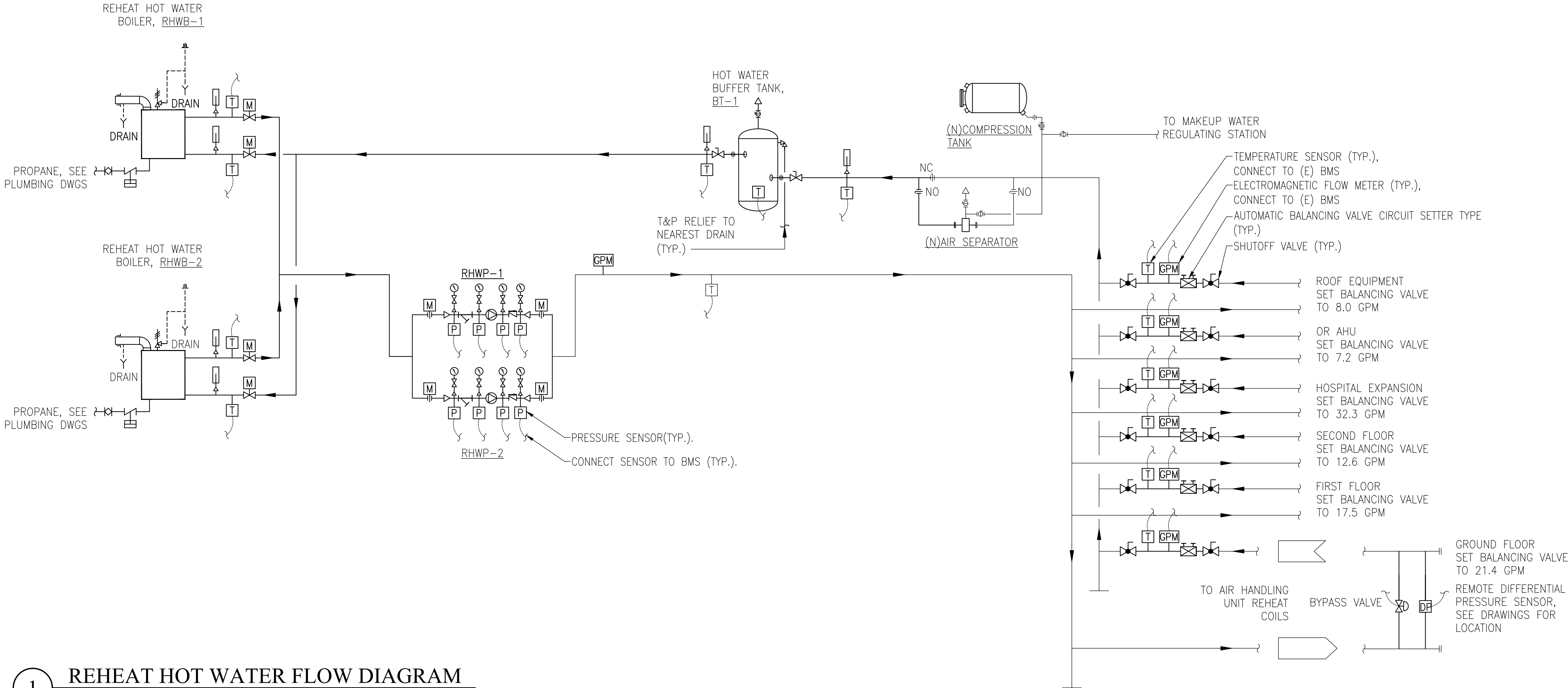
BOILER CONTROL (LEAD/STANDBY EACH PUMP SIZED AT 100%): UPON SIGNAL FROM THE BAS TO RUN THE BOILER SYSTEM SHALL START.

- THE BAS SHALL SEND AN ENABLE COMMAND TO THE BOILER CONTROL SYSTEM.
- THE BOILER CONTROL SYSTEM SHALL DETERMINE THE OPTIMUM RUN CONDITION OF ALL BOILERS AND MAINTAIN THE HEATING HOT WATER SUPPLY TEMPERATURE SETPOINT, 140 DEG F (ADJ.)
- BOILER ISOLATION VALVES SHALL BE INTERLOCKED WITH THE BOILER TO OPEN ONLY WHEN THE BOILER IS ACTIVE.
- THE ACTIVE BOILER SHALL HAVE A MINIMUM RUN TIME OF 15 MINUTES (ADJ.).

DDC POINT LIST																	
	INPUTS										OUTPUTS		SYSTEM FEATURES				
	ANALOG								DIGITAL		ANALOG	DIGITAL					
	4–20mA H2O	4–20mA H2O	°F	GPM	°F	°F	°F	°F	PERCENT OPEN	4–20mA H2O	ON/OFF	ON/OFF	PERCENT	START/STOP			
	INLET PRESSURE	OUTLET PRESSURE	TANK TEMPERATURE	REHEAT WATER FLOW	INLET TEMPERATURE	OUTLET TEMPERATURE	REHEAT WATER SUPPLY TEMP	REHEAT WATER RETURN TEMP	BYPASS VALVE POSITION	DIFFERENTIAL PRESSURE	SHUT OFF VALVE POSITION	RUN STATUS	PUMP SPEED CONTROL	START/STOP	VFD CONTROL	SCHEDULE	TREND
EQUIPMENT LIST:																	
REMOTE DIFFERENTIAL PRESSURE SENSOR									X							X	X
MOTORIZED BYPASS VALVES (TYP.)								X			X					X	X
MOTORIZED ISOLATION VALVES (TYP.)										X	X						X
P–1,2	X	X		X			X	X			X	X		X	X	X	X
B–1,2					X	X	X	X			X			X		X	X
ELECTROMAGNETIC FLOW METERS				X												X	X
REHEAT HOT WATER SUPPLY TEMPERATURE SENSORS							X									X	X
REHEAT HOT WATER RETURN TEMPERATURE SENSORS								X								X	X
BUFFER TANK			X		X	X										X	X

NOTES

- ALL POINTS TO SHOW ON EXISTING DELTA BMS GRAPHICS.
- ALL CONTROL WIRING SHALL BE INSTALLED AS SPECIFIED BY MFR (TYP.).
- ALL CONTROL WIRING SHALL BE INSTALLED IN EMT/FMC (TYP.).



1 REHEAT HOT WATER FLOW DIAGRAM
NO SCALE



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LICENSED

PROFESSIONAL

ENGINEER

Exp. 04/30/22

No. 7936-M

HAWAII, U.S.A.

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SEQUENCE OF OPERATIONS AND
DDC POINTS LIST

DATE: AUGUST 2020
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HVAC MODIFICATIONS FOR: REHEAT SYSTEM
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HOSPITAL

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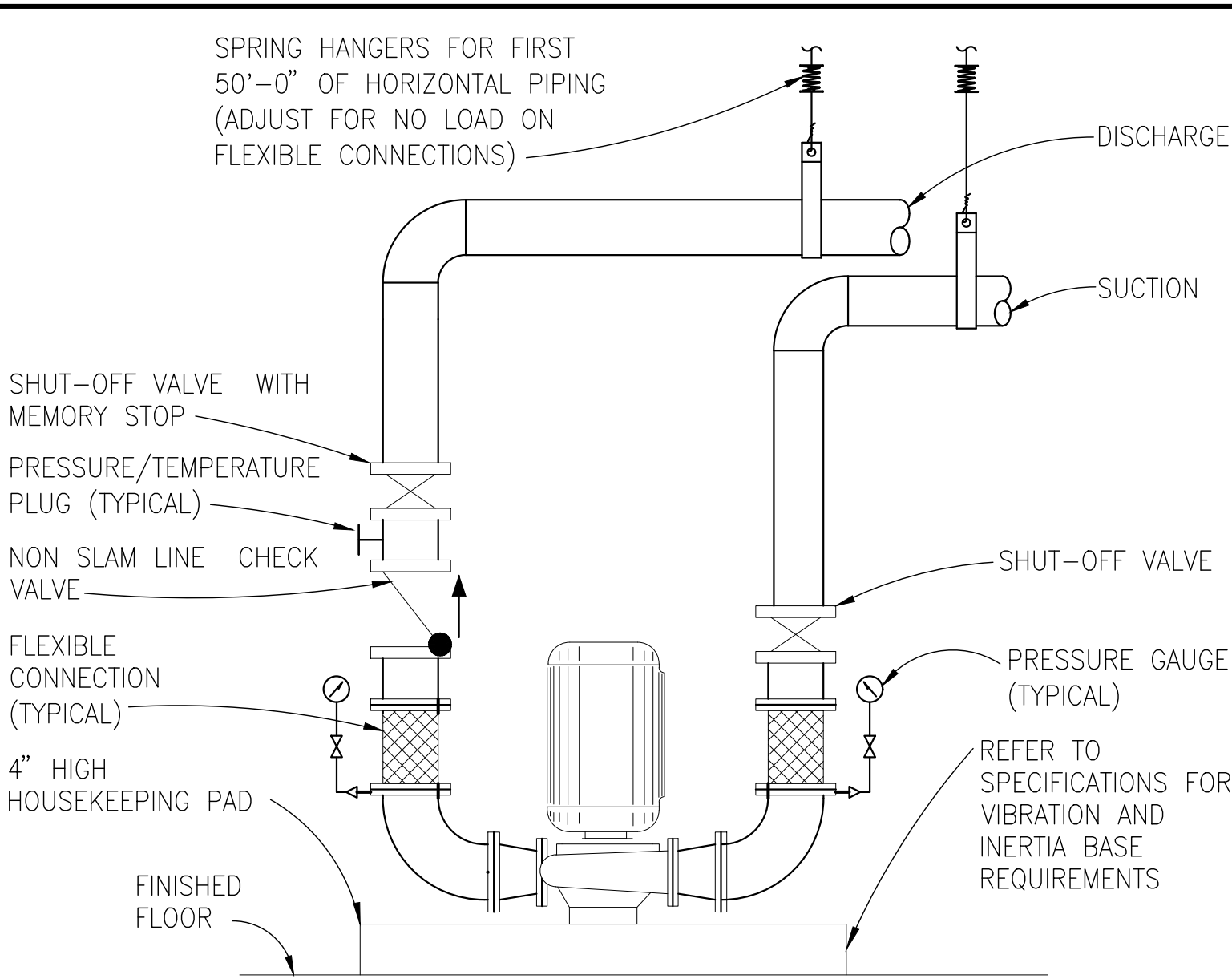
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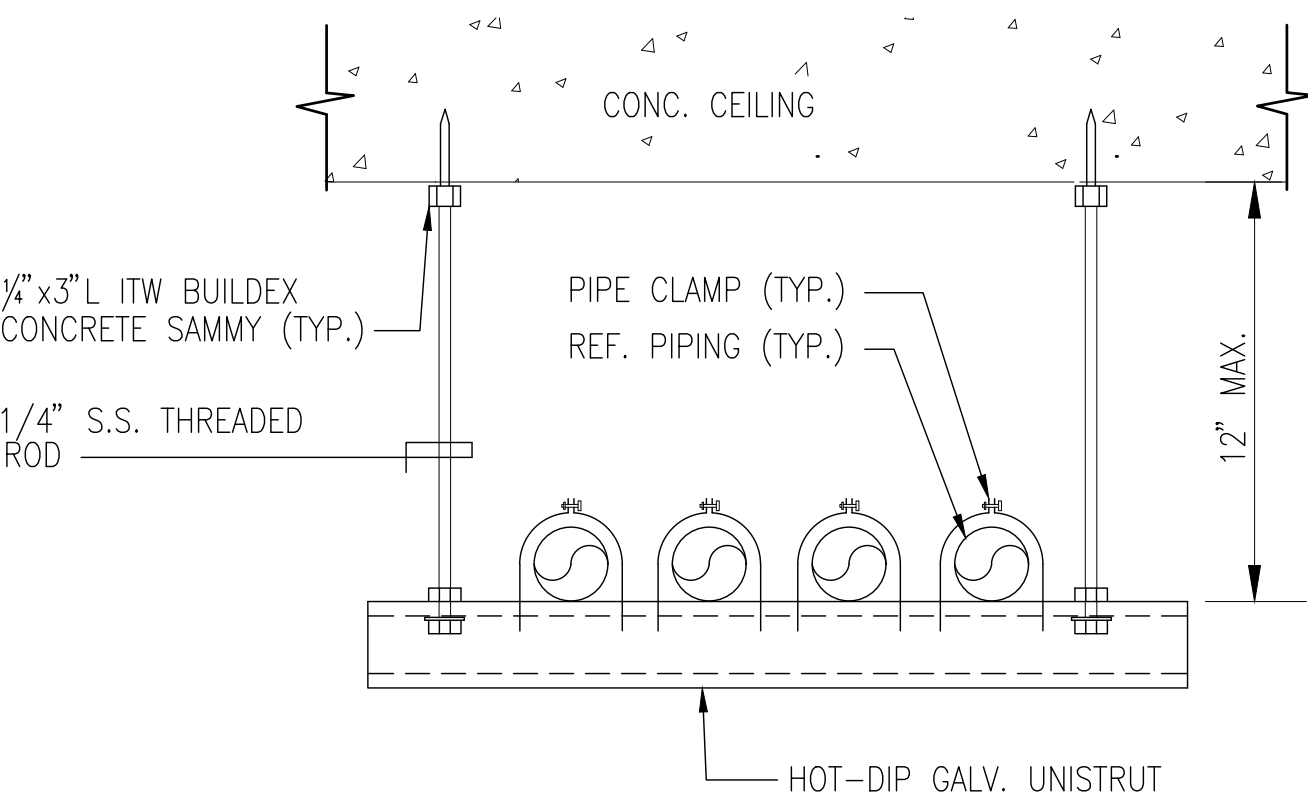
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M-301

SHEET NO. 10 OF 15

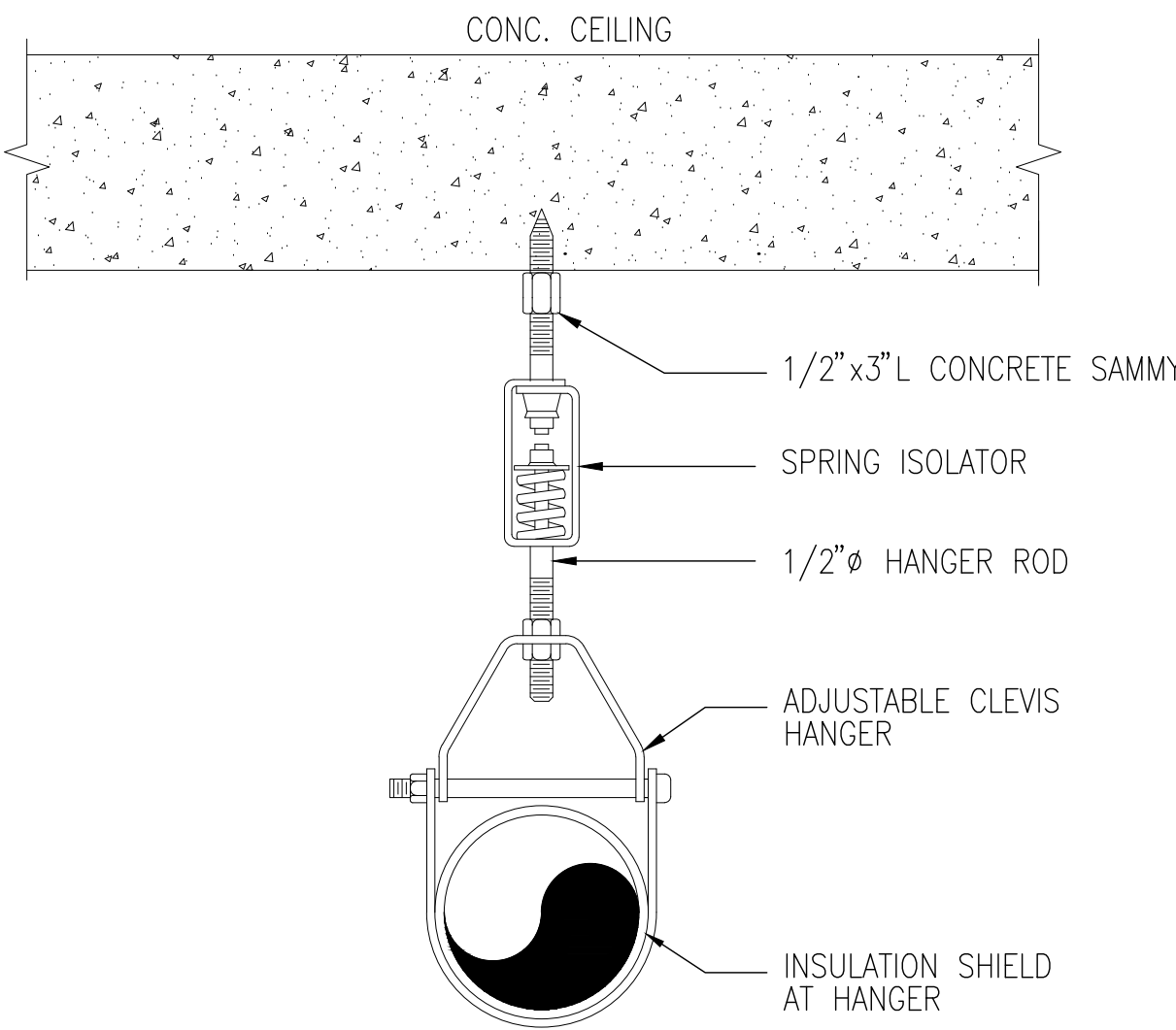
1 VERTICAL IN-LINE PUMP DETAIL
NO SCALE



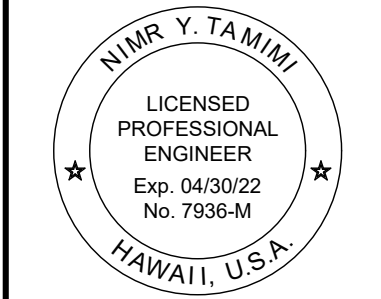
2 PIPING HANGER DETAIL
NO SCALE



3 PIPE HANGER DETAIL
NO SCALE



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MECHANICAL DETAILS

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12022-17-01

DWG. NO.
M-401

SHEET NO. 11 OF 15

GENERAL ELECTRICAL SPECIFICATIONS

1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
2. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. INSTALL CONDUIT RUNS AS SPECIFIED WITH SCHEMATIC REPRESENTATION INDICATED ON THE DRAWINGS AND AS SPECIFIED.
3. WHERE CONDUITS ARE SHOWN AS "HOME RUNS" ON THE CONTRACT DRAWINGS, OR STATED TO BE FURNISHED, BUT NOT EXPLICITLY SHOWN AS PART OF THE SCOPE OF WORK, THE CONTRACTOR SHALL PROVIDE ALL CONDUITS, FITTINGS, BOXES, WIRING, CONDUIT SEALS, ETC., AS REQUIRED FOR COMPLETION OF THE RACEWAY SYSTEM IN COMPLIANCE WITH THE NEC AND THE CONTRACT DOCUMENTS.
4. MODIFY CONDUIT RUNS TO SUIT FIELD CONDITIONS, AS ACCEPTED BY THE OWNER'S REPRESENTATIVE.
5. FINAL CONNECTIONS & ROUGH-IN REQUIREMENTS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
6. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS PRIOR TO BID.
7. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN ITS BID ALL COSTS REQUIRED TO MAKE HIS WORK MEET EXISTING CONDITIONS.
8. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
9. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
10. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
11. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
12. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
13. PROVIDE RECORD DRAWINGS TO THE OWNER'S REPRESENTATIVE. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
14. VERIFY EXACT LOCATION AND ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE FURNISHED BY OTHER DISCIPLINES PRIOR TO ROUGH-IN.
15. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
17. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS OR EQUIPMENT.
18. SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, ETC., SHALL BE CONNECTED AND OPERABLE.
19. PRESENT SUBMITTAL DATA AT ONE TIME BOUND IN PDF FORMAT OR PER THE OWNER'S REQUIREMENTS. SUBMITTALS SHALL BE INDEXED IN A NEAT AND ORDERLY MANNER. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMITTALS SHALL INCLUDE ALL EQUIPMENT SPECIFIED UNDER THIS PROJECT. SHOULD CONTRACTOR FAIL TO PROVIDE SUBMITTALS, CONTRACTOR PROCEEDS AT ITS OWN RISK AND ANY COST FOR CORRECTIVE WORK WILL BE BORNE BY THE CONTRACTOR.
20. PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE. FIRESTOP ALL PENETRATIONS THROUGH FIRE RATED WALLS AS REQUIRED TO PRESERVE THE FIRE RATING OF THE STRUCTURE.

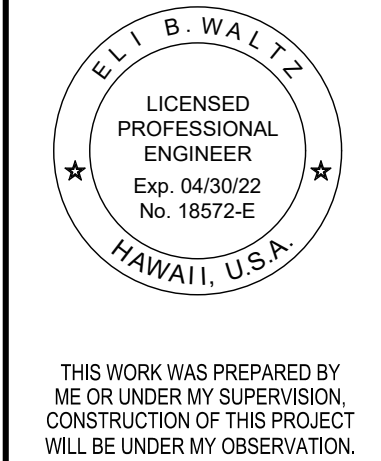
ELECTRICAL SYMBOLS

	ELECTRICAL DEMOLITION. REMOVE EQUIPMENT AND APPURTENANCES IN THEIR ENTIRETY U.N.O. COORDINATE WORK RESTRICTIONS PRIOR TO DEMOLITION.		SURFACE MOUNTED PANELBOARD
			FLUSH MOUNTED PANELBOARD
	HOMERUN CONDUIT - STROKES INDICATE QUANTITY OF CONDUCTORS		MAIN SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD
	CONDUIT/WIRE CONCEALED IN WALL OR ABOVE CEILING EXCEPT IN EXPOSED STRUCTURE AREAS 1/2"-2 #12 & 1 #12 GND THWN U.N.O.		METER
	CONDUIT AND/OR WIRE BELOW FLOOR OR GRADE 3/4"-2 #12 & 1 #12 GND THWN UNLESS NOTED		NON-FUSED DISCONNECT SWITCH
	EXISTING CONDUIT AND/OR CONDUCTORS TO REMAIN (SHOWN LIGHT)		FUSED DISCONNECT SWITCH
	CONDUIT RISER UP/DOWN		COMBINATION METER/MAIN
	CONDUIT STUB OUT		FUSIBLE SWITCH
	WALL MOUNTED DUPLEX RECEPTACLE @ +18" TO CENTER U.N.O. ⊕ = GFCI RECEPTACLE ⊕ = DOUBLE DUPLEX RECEPTACLE ⊕ = 1/2 SWITCHED (BOTTOM HALF) DUPLEX RECEPTACLE		SINGLE METER WITH CT,
	SINGLE POLE SWITCH @ +48" TO TOP UNLESS NOTED α = DEVICE SWITCH IDENTIFICATION (LOWERCASE)		CIRCUIT BREAKER
	JUNCTION BOX, IF α: FS = FIRE/SMOKE DAMPER CONNECTION V = VARIABLE AIR VOLUME BOX CONNECTION		TRANSFORMER
			MOTOR LOAD
			AUTOMATIC TRANSFER SWITCH
			GROUND BUS & GROUND ELECTRODES

ELECTRICAL ABBREVIATIONS

+18"	INDICATES MOUNTING HEIGHTS ARE TO CENTERLINE OF DEVICE AFF OR AFG
AF	AMP FUSE (FOR FUSES), AMP FRAME (FOR CIRCUIT BREAKERS)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	LOCAL AUTHORITY HAVING JURISDICTION
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
MTS	MANUAL TRANSFER SWITCH
C	CONDUIT
CONT	CONTINUATION
CU	COPPER
CW	COLD WATER PIPE
AFCI	INDICATES ARC FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL
GFI	GROUND FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL
GFP	GROUND FAULT PROTECTION
GND	GROUND
HELCO	ELECTRICAL UTILITY COMPANY
IWP	IN-USE WEATHER-PROOF (NEMA 3R)
LO	LUGS ONLY (SEE ALSO MLO)
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE, AS ADOPTED BY THE AHJ
P	POLE
PH	PHASE
PNL	INDICATES PANEL
S/N	SOLID NEUTRAL
TP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SYSTEM
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER
UNO	UNLESS NOTED OTHERWISE
(D)	DEMOLITION
(E)	EXISTING
(N)	NEW
(R)	RELOCATE/RELOCATED

HAWAII COUNTY ENERGY CODE			
2015 IECC, HAWAII REVISED STATUTES HRS 107-24 TO 28 & HAWAII ADMINISTRATIVE RULES CHAPTER HAR 3-181.1			
COMMERCIAL BUILDING ENERGY EFFICIENCY STANDARDS			
I CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, THIS PROJECTS DESIGN SUBSTANTIALLY CONFORMS TO THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE <u>COMMERCIAL PROVISIONS FOR ELECTRICAL & LIGHTING SYSTEMS</u> <u>(C405, & C408)</u> OF THE 2015 IECC WITH AMENDMENTS PER HAR 3-181.1:			
COMPLIANCE METHOD			
X	2015 IECC AS AMENDED. MANDATORY AND PRESCRIPTIVE		
	2015 IECC AS AMENDED. MANDATORY AND TOTAL BUILDING PERFORMANCE		
	ASHRAE STANDARD 90.1-2013. MANDATORY AND PRESCRIPTIVE		
	ASHRAE STANDARD 90.1-2013. MANDATORY AND TOTAL BUILDING PERFORMANCE		
INFORMATION IN CONSTRUCTION DOCUMENTS			YES
INTERIOR LIGHTING			N/A
	OCCUPANT SENSOR CONTROLS	C405.2.1	X
	TIME SWITCH CONTROLS	C405.2.2	X
	DAYLIGHT RESPONSIVE CONTROLS	C405.2.3	X
	DAYLIGHT ZONES ON PLANS	C405.2.3.2 & C405.2.3.3	X
	GUEST ROOM CONTROLS	C405.2.4	X
	INTERIOR LIGHTING FIXTURE SCHEDULE		X
	INPUT POWER FOR INTERIOR LIGHTING FIXTURES	C405.4.1	X
	INTERIOR LIGHTING FIXTURE LOCATIONS	C403.2.8	X
	LIGHTING CONTROL FUNCTIONAL PERFORMANCE		X
	TESTING REQUIREMENT	C408.3	X
EXTERIOR LIGHTING			
	EXTERIOR LIGHTING CONTROLS	C405.2.5	X
	EXTERIOR LIGHTING FIXTURE SCHEDULE		X
	INPUT POWER FOR EXTERIOR LIGHTING FIXTURES		X
	EXTERIOR LIGHTING FIXTURE LOCATIONS		X
ELECTRICAL			
	ELECTRICAL TRANSFORMER EFFICIENCY	C405.7	X
	TENANT SUBMETERING	C405.10	X
NOTES:			
SIGNATURE: _____			
DATE: <u>07/17/2020</u>			
NAME: <u>ELI B. WALTZ</u>			
TITLE: <u>ELECTRICAL ENGINEER</u>			
LICENSE NO.: <u>18572-E</u>			



SIGNATURE

DATE: AUGUST 2020 REV. Δ
REV. Δ REV. Δ
REV. Δ REV. Δ

79-1019 HAUKAPILA ST, KEALAKEKUA, HI 96750
TMK: (3) 7-9-010:081

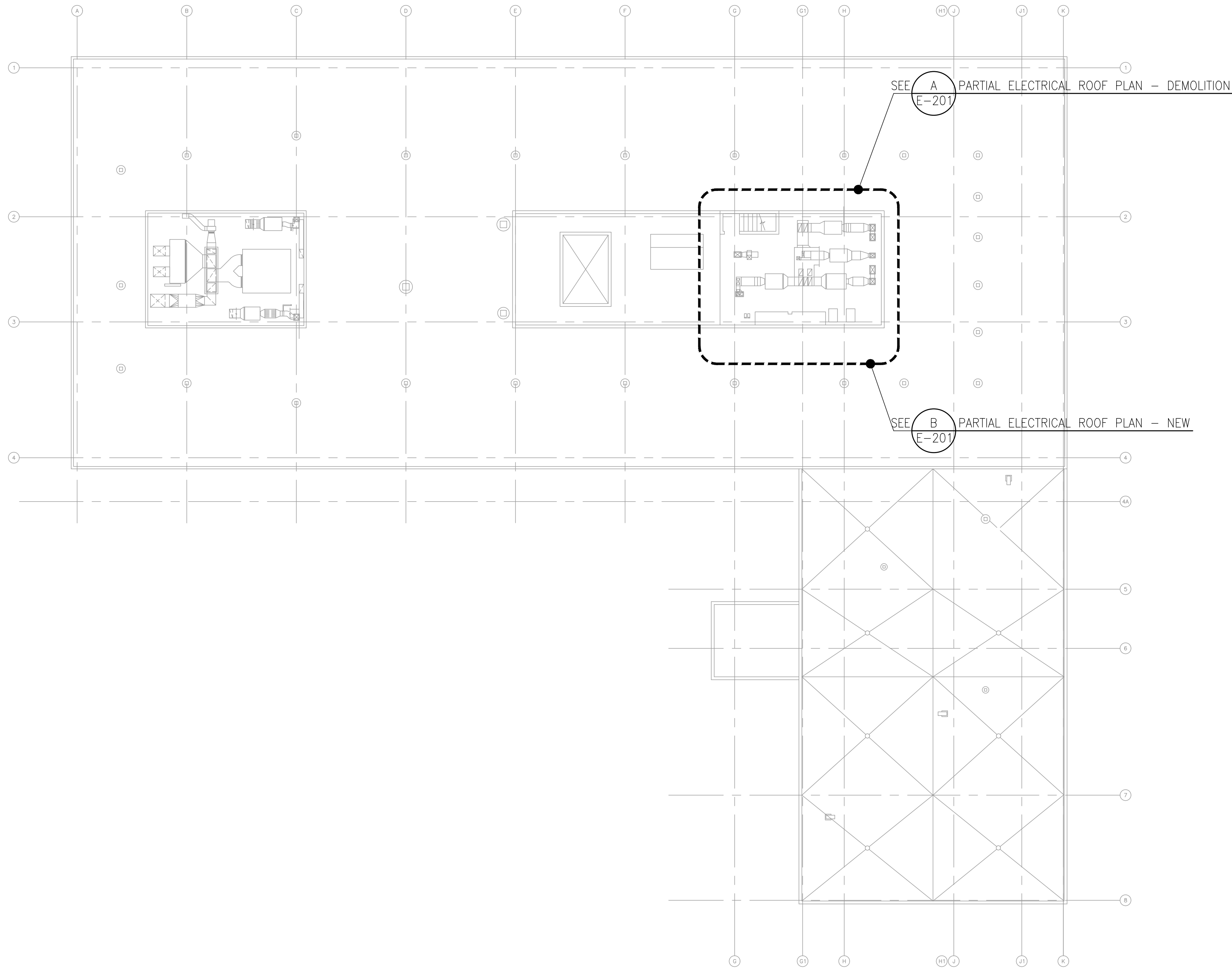
DRAWN BY: KD	DESIGNED BY: KD
CHECKED BY: MS	QC'D BY: EW

JOB NO.
12022-17-01

DWG. NO.

E-001

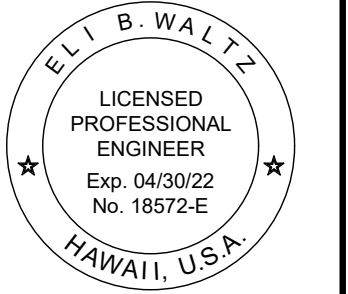
SHEET NO. 12 OF 15



A OVERALL ELECTRICAL ROOF PLAN
SCALE: 1/16" = 1'-0" 0 16 32' N



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THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

SIGNATURE

OVERALL ELECTRICAL ROOF PLAN

DATE:	AUGUST 2020	REV.	△	REV.	△	REV.	△
REV.	△	REV.	△	REV.	△	REV.	△

HVAC MODIFICATIONS FOR: REHEAT SYSTEM
**KONA COMMUNITY
HOSPITAL**
79-1019 HAUUKAPILA ST, KEALAKEKUA, HI 96750
TMK: (3) 7-9-010:081

DRAWN BY:	DESIGNED BY:
KD	KD
CHECKED BY:	QC'D BY:
MS	EW

JOB NO.
12022-17-01

DWG. NO.
E-101
SHEET NO. 13 OF 15

NOTICES

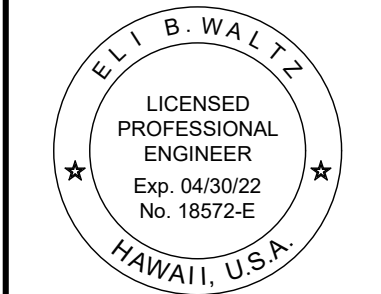
1. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO START OF WORK AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. MINIMUM CONDUIT SIZE FOR ALL BRANCH CIRCUITS SHALL BE 3/4" C.
3. ALL CONDUIT SHALL BE EMT UNLESS OTHERWISE NOTED.
4. MAXIMUM LENGTH FOR FLEXIBLE METALLIC CONDUIT SHALL BE 6'.
5. ALL COVER PLATES, JUNCTION BOXES, EQUIPMENT/ DISCONNECT ENCLOSURES SHALL BE IDENTIFIED WITH PANEL AND CIRCUIT NUMBER ON WHITE STICKER LABEL WITH BLACK LETTERING. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. ALL DDC CONTROL WIRING SHALL BE ROUTED IN EMT CONDUIT, SEE MECHANICAL DRAWINGS.

NOTES

1. REMOVE EXISTING MECHANICAL EQUIPMENT, CONDUIT AND CONDUCTORS BACK TO PANEL SOURCE.
2. DEMOLISH CONNECTION TO MECHANICAL EQUIPMENT, RETAIN CIRCUIT FOR CONNECTION TO NEW EQUIPMENT.
3. VFD FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. LOCATE AS INDICATED ON MECHANICAL DRAWINGS, MAINTAIN CLEARANCE PER NEC.
4. PROVIDE 3/4" C - (3)#12 & (1)#12 GND BACK TO 'MCCB'
5. PUMPS SHALL BE INTERLOCKED VIA BUILDING MANAGEMENT SYSTEM FOR LEAD/ STANDBY OPERATION, SEE MECHANICAL DRAWINGS FOR MORE DETAIL.



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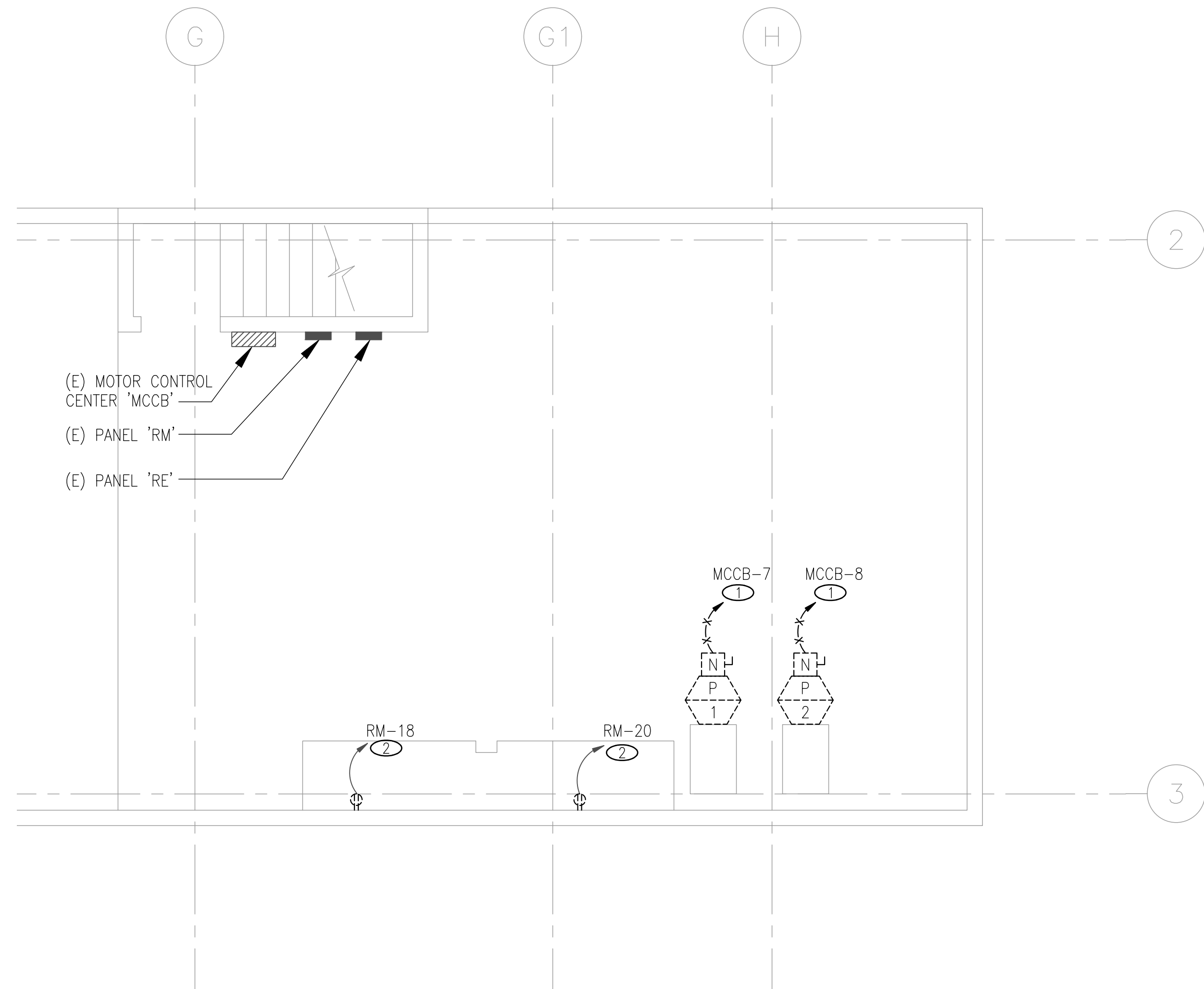
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

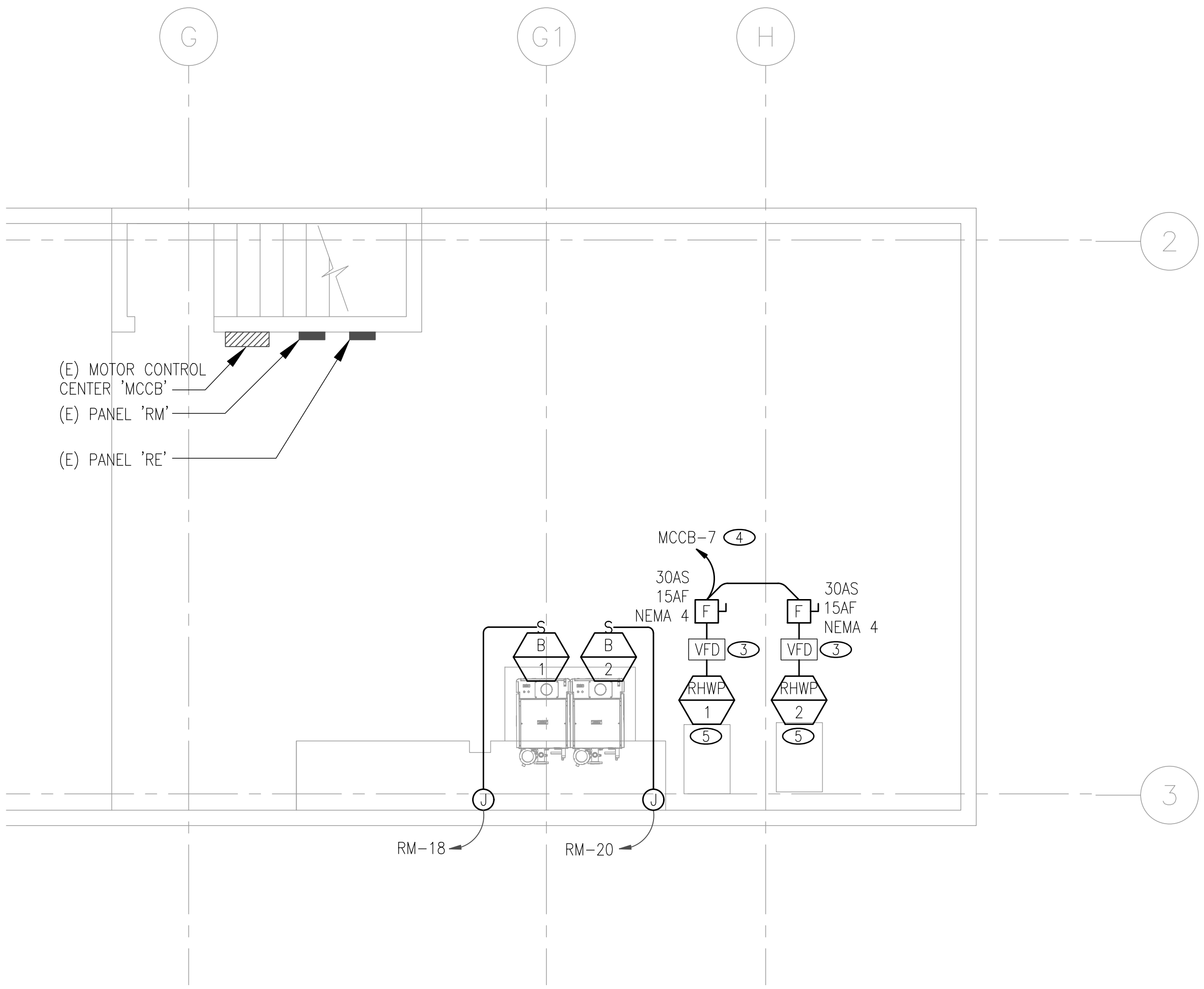
PARTIAL ELECTRICAL ROOF PLANS

HVAC MODIFICATIONS FOR: REHEAT SYSTEM
KONA COMMUNITY HOSPITAL
79-1019 HAUUKAPILA ST, KEALAKEKUA, HI 96750
TMK: (3) 7-9-010:081

DRAWN BY: KD	DESIGNED BY: KD
CHECKED BY: MS	QC'D BY: EW
JOB NO. 12022-17-01	
DWG. NO. E-201	
SHEET NO. 14 OF 15	



A PARTIAL ELECTRICAL ROOF PLAN - DEMOLITION
SCALE: 1/4" = 1'-0"



B PARTIAL ELECTRICAL ROOF PLAN - NEW
SCALE: 1/4" = 1'-0"

EXISTING

PANEL: RM				VOLTAGE: 208 / 120 1Ø 3W				CIRCUIT CODE: blank or				N: NON-CONTINUOUS													
DATE: 8/27/20 1:13 PM				BUS: 100A				L: LONG-CONTINUOUS				R: DEMANDABLE RECEPTACLES													
JOB: 12022-17-01				AIC RATING: EXISTING				LOCATION: ROOF				K: KITCHEN NO. OF EQUIPMENT:													
				MOUNTING: SURFACE																					
CIRCUIT NO	CIRCUIT CODE	TRIP	POLE	LOAD DESIGNATION				CONNECTED VA								LOAD DESIGNATION				TRIP	POLE	CIRCUIT CODE	CIRCUIT NO		
				DESCRIPTION	(NOTE)	M	R	L	ØA	ØB	A	B	ØA	ØB	L	R	M	(NOTE)	DESCRIPTION						
1		20	1	EF-R4							*								PRV 20,21,22	20	1				
3		20	1	PRV 16,17,18							*								PRV 23 EF-R7	20	1				4
5		20	1	PRV 10							*								PRV 2,3	15	1				6
7		15	1	PRV 14,15							*								PRV 24	20	1				8
9		15	1	PRV 9,12							*								PRV 10,27	20	1				10
11		15	1	PRV 7,12,13							*								HW RECIRCULATOR	15	1				12
13		15	1	SPARE							*								EF-R1	15	1				14
15		20	1	PRV 23							*								PRV 28	15	1				16
17		20	1	ROOF LIGHTS							*						1		BOILER1	20	1				18
19		20	1	ROOF RECEPT							*						1		BOILER 2	20	1				20
21		20	1	EF-R5							*								SPACE						22
23				SPACE							*								AIR HANDLER A-R8	20	1				24
25		20	1	NITE LIGHT							*								SPARE	20	1				26
27		40		PANEL "ELR"							*								PRV 24,25,26	20	1				28
29		2		-							*								CHILLER	20	1				30
31											*														32
33											*														34
35											*														36
37											*														38
39											*														40
41											*														42
PANEL NOTES:				PHASE TOTALS				ØA: 0				ØB: 0				TOTAL CONNECTED VA				0					
1. REUSE EXISTING BREAKR FOR NEW LAOD																CONNECTED VA (CODE N)				0					
																CONNECTED VA (CODE L)				0					
																CONNECTED VA (CODE R)				0					
																CONNECTED VA (CODE K)				0					
																PANEL CONNECTED KVA				0.0					
30 CIRCUIT PANEL																PANEL DEMAND KVA				0.0					
																PANEL DEMAND AMPS				0.0					
																HIGH Ø AMPS w/ DEMAND				0.0					

NOTES

① REPLACE EXISTING STARTER/ DISCONNECT WITH NEW CIRCUIT BREAKER AS INDICATED. MATCH EXISTING MANUFACTURER AND AIC RATING.

