

HVAC REPLACEMENT

HUMBOLDT COUNTY REGIONAL FACILITY

EUREKA, CALIFORNIA

CONSTRUCTION DOCUMENTS

September 20, 2024

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LICENSE STAMP



KEY PLAN

APPLICABLE CODES & STANDARDS

ALL WORK PERFORMED AND MATERIALS FURNISHED SHALL COMPLY WITH THE FOLLOWING CODES.

APPLICABLE CODES, REGULATIONS:
 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)
 PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
 2022 CALIFORNIA BUILDING CODE (CBC)
 PART 2, TITLE 24, CCR, BASED ON THE 2012 INTERNATIONAL BUILDING CODE (IBC)
 2022 CALIFORNIA ELECTRICAL CODE (CEC)
 PART 3, TITLE 24, CCR, BASED ON THE 2011 NATIONAL ELECTRIC CODE (NEC)
 2022 CALIFORNIA MECHANICAL CODE (CMC)
 PART 4, TITLE 24, CCR, BASED ON THE 2012 UNIFORM MECHANICAL CODE (UMC)
 2022 CALIFORNIA PLUMBING CODE (CPC)
 PART 5, TITLE 24, CCR, BASED ON THE 2012 UNIFORM PLUMBING CODE (UPC)
 2022 CALIFORNIA ENERGY CODE (IEC)
 PART 6, TITLE 24, CCR
 2022 CALIFORNIA FIRE CODE (CFC)
 PART 9, TITLE 24, CCR, BASED ON THE 2012 INTERNATIONAL FIRE CODE (IFC)
 2022 CALIFORNIA FIRE CODE (CFC)
 PART 11, TITLE 24, CCR
 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGC)
 PART 12, TITLE 24, CCR
 2022 CALIFORNIA REFERENCED STANDARDS

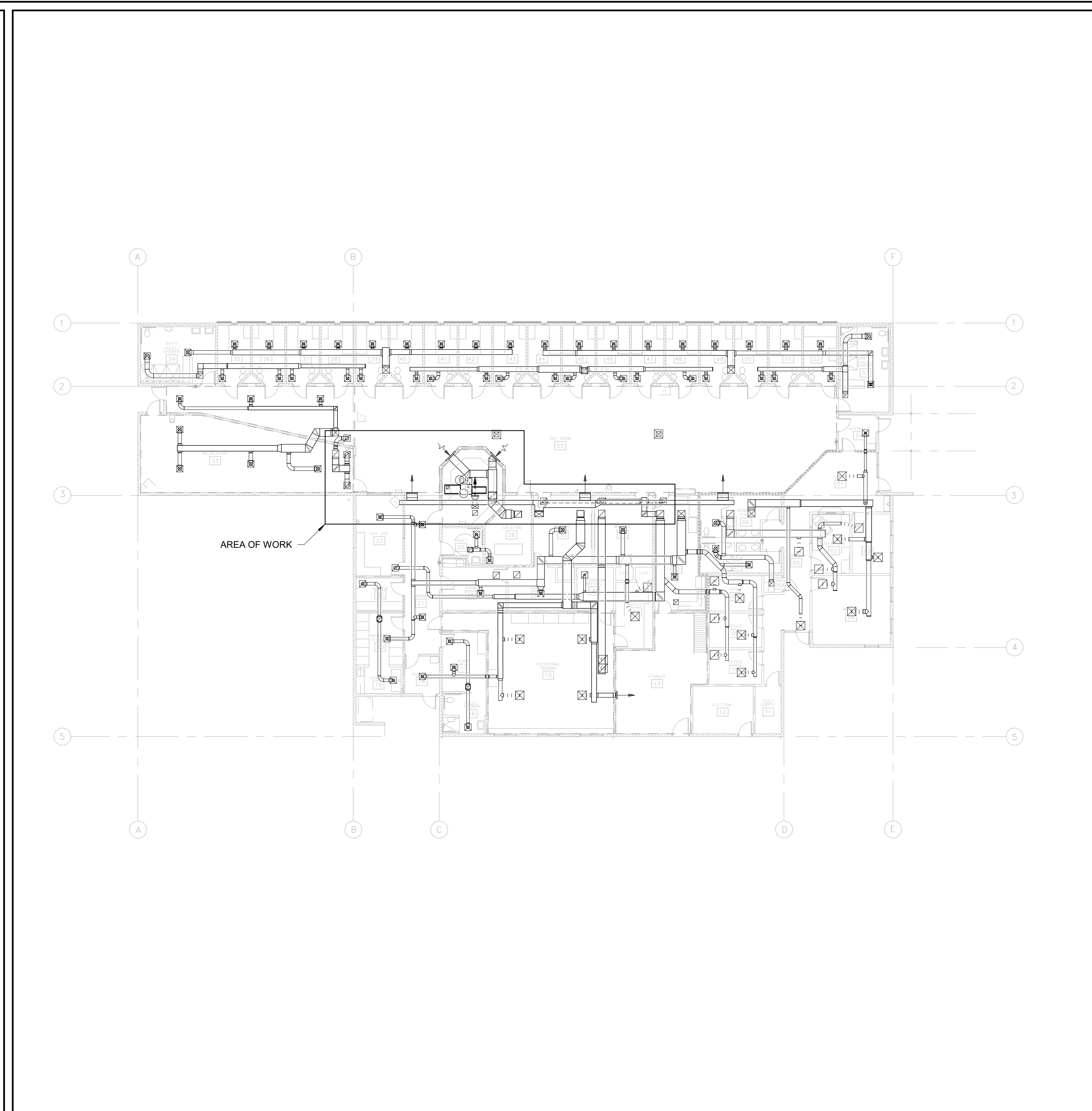
OTHER APPLICABLE CODES AND REGULATIONS
 TITLE 19 - PUBLIC SAFETY, STATE FIRE MARSHAL, CALIFORNIA CODE OF REGULATIONS (CCR)
 ADA REGULATION FOR TITLE III - 2010 - STANDARDS FOR PUBLIC ACCOMMODATIONS AND COMMERCIAL FACILITIES, U.S. DEPT. OF JUSTICE.

APPLICABLE NFPA STANDARDS ADOPTED BY 2019 CBC:
 NFPA NO. 13 - 2016 INSTALLATION OF SPRINKLER SYSTEMS
 NFPA NO. 14 - 2016 INSTALLATION OF STANDPIPE AND HOSE SYSTEM
 NFPA NO. 20 - 2016 INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION
 NFPA NO. 22 - 2013 WATER TANKS FOR PRIVATE FIRE PROTECTION
 NFPA NO. 24 - 2016 PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES
 NFPA NO. 45 - 2015 FIRE PROTECTION FOR LABORATORIES USING CHEMICALS
 NFPA NO. 55 - 2019 COMPRESSED GASES AND CRYOGENIC FLUIDS
 NFPA NO. 70 - 2017 NATIONAL ELECTRICAL CODE
 NFPA NO. 72 - 2016 NATIONAL FIRE ALARM & SIGNALING CODE
 NFPA NO. 80 - 2016 FIRE DOORS AND OTHER OPENING PROTECTIVES
 NFPA NO. 90A - 2009 INSTALLATION OF AIR-CONDITIONING VENTILATING SYSTEMS
 NFPA NO. 99 - 2018 HEALTH CARE FACILITIES
 NFPA NO. 101 - 2018 LIFE SAFETY CODE
 NFPA NO. 220 - 2009 TYPES OF BUILDING CONSTRUCTION

WHERE THERE IS A CONFLICT BETWEEN CALIFORNIA (ADAA) AND FEDERAL (ADA) DISABLED ACCESS REQUIREMENTS, GENERALLY THE MOST STRINGENT WILL APPLY.

- UNIFORM FEDERAL ACCESSIBILITY STANDARD (UFAS)
- CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL OSHA)
- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAZARD COMMUNICATIONS STANDARD

PROJECT LOCATION



SCOPE OF WORK

THE MECHANICAL SCOPE OF WORK FOR THE PROJECT CONSISTS OF THE REPLACEMENT OF ONE ROOFTOP AC UNIT WITH A NEW HIGH EFFICIENCY SPLIT SYSTEM WITH A ROOF MOUNTED CONDENSING UNIT. ADDITIONALLY THREE ROOFTOP GAS-FIRED MAKE-UP AIR UNITS WILL BE REPLACED IN KIND WITH NEW GAS-FIRED MAKE-UP AIR UNITS.

THE ELECTRICAL SCOPE OF WORK INCLUDES THE CONNECTION OF THE NEW EQUIPMENT TO EXISTING ELECTRICAL INFRASTRUCTURE, ADDING A NEW CIRCUIT FOR THE NEW SPLIT SYSTEM AIR HANDLING UNIT, AND CONNECTION OF NEW EQUIPMENT INTO EXISTING FACILITY CONTROL AND FIRE ALARM SYSTEMS.

THE STRUCTURAL SCOPE OF WORK INCLUDES CURB MODIFICATIONS FOR NEW ROOFTOP EQUIPMENT AND SUPPORTS FOR NEW AIR HANDLING UNIT.

PROJECT NOTICE

THE FINAL DESIGN DOCUMENTS ARE INTENDED TO BE USED AS A COMPLETE PACKAGE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FURNISH ANY SUBCONTRACTORS, MATERIAL OR EQUIPMENT SUPPLIERS ACCESS TO THE TOTAL BID PACKAGE OF FINAL DESIGN DOCUMENTS. ALL OF THE DOCUMENTS APPLY TO ALL MEMBERS OF THE GENERAL CONTRACTOR CONSTRUCTION TEAM.

THE ARCHITECT AND ENGINEERS HAVE SHOWN VARIOUS PORTIONS OF THE WORK ON SEPARATE SHEETS OF DRAWINGS OR IN SEPARATE PROJECT SPECIFICATION SECTIONS FOR CLARITY. SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED OF ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND HIS SUB-CONTRACTORS.

THE FINAL PROJECT SHALL REFLECT ALL THE WORK SHOWN ON ALL DOCUMENTS WITHOUT REGARD TO WHO SHALL PROVIDE THE WORK. FOR PURPOSES OF THIS PROJECT THE ARCHITECT / ENGINEER / OWNER SHALL CONSIDER THE GENERAL CONTRACTOR AS THE SOLE PROVIDER OF ALL ITEMS NECESSARY TO COMPLETE THE PROJECT.

ITEMS SHOWN ON ONE DRAWING OR SPECIFICATION SECTION BUT NOT OTHERS SHALL BE FURNISHED IN THEIR ENTIRETY AS IF SHOWN ON ALL DOCUMENTS. THE USE OF THESE DOCUMENTS WITHOUT THE BENEFIT OF REVIEWING THE ENTIRE PACKAGE WILL BE AT THE RISK OF THE USER.

TITLE 24 C.C.R. ADMIN. REQUIREMENTS

- ALL WORK SHALL CONFORM TO THE 2022 EDITION OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
- A COPY OF PARTS 1 THRU 5 & 9, TITLE 24, CCR, SHALL BE KEPT ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
- CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY DSA, AS REQUIRED BY SECTION 4-336, PART 1, TITLE 24, CCR.
- TESTS BY MATERIALS AND TESTING LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335 OF PART 1, TITLE 24, AND THE DISTRICT SHALL EMPLOY AND PAY THE LABORATORY. COSTS OF RE-TEST MAY BE BACK-CHARGED TO THE CONTRACTOR. TESTING LABORATORY SHALL BE AN APPROVED MEMBER OF DSA'S LEA (LABORATORY EVALUATION AND ACCEPTANCE) PROGRAM.
- CONTRACTOR, INSPECTOR, ARCHITECT & ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM 6) IN ACCORDANCE WITH SECTION 4-336 AND 4-343, PART 1, TITLE 24.
- THE ARCHITECT AND THE STRUCTURAL ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-333 (a) AND 4-341, PART 1, TITLE 24.
- CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE WITH SECTION 4-343, PART 1, TITLE 24.
- THE INTENT OF THESE DRAWINGS AND SPECS. IS THAT THE WORK DESCRIBED HEREIN SHALL BE IN ACCORDANCE WITH THE TITLE 24, CCR. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOC'S, WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24, CCR, A CCD DETAILING & SPECIFYING THE REQ'D. WORK SHALL BE SUBMITTED TO & APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.

SHEET INDEX

Sheet Number	Sheet Name
GENERAL	
G100	TITLE SHEET
MECHANICAL	
M100	MECHANICAL LEGEND, SCHEDULES, AND DETAILS
M101	MECHANICAL SPECIFICATIONS
M102	TAB SPECIFICATIONS
M103	CONTROL SPECIFICATIONS
M200	MECHANICAL DEMOLITION PLAN
M210	MECHANICAL DEMOLITION ROOF PLAN
M220	MECHANICAL FLOOR PLAN
M240	MECHANICAL ROOF PLAN
M400	TITLE 24 COMPLIANCE
ELECTRICAL	
E100	ELECTRICAL LEGENDS AND SCHEDULES
E101	ELECTRICAL SPECIFICATIONS
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PLUMBING	
P100	PLUMBING LEGENDS AND DETAILS
P210	PLUMBING DEMOLITION ROOF PLAN
P220	PLUMBING FLOOR PLAN
P240	PLUMBING ROOF PLAN
TOTAL SHEETS: 18	

PROJECT TEAM

OWNER REPRESENTATIVE: JAKE JOHNSON HUMBOLDT COUNTY DEPT. OF PUBLIC WORKS 1106 2ND STREET EUREKA, CA 95501 PHONE: (707) 496-1789	OWNER: BOARD OF SUPERVISORS COUNTRY OF HUMBOLDT 825 5TH STREET EUREKA, CA 95501	ELECTRICAL ENGINEER: NATHANIEL WARNER, PE, E25042 FRONTIER CONSULTING ENGINEERS, INC. 2727 BECHELLI LANE REDDING, CA 96002 PHONE: (530) 232-6160 FAX: (530) 232-2770	MECHANICAL ENGINEER: NATHANIEL WARFIELD, PE, M41898 FRONTIER CONSULTING ENGINEERS, INC. 2727 BECHELLI LANE REDDING, CA 96002 PHONE: (530) 232-6160 FAX: (530) 232-2770
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SHEET TITLE

TITLE SHEET

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
 DRAWN BY: WG
 REVIEWED BY: NW
 SCALE: As indicated
 PROJECT NO: 22007

G100

MECHANICAL SPECIFICATION



Main specification table with columns for section number, description, and revision details. Includes sections for PART 1 - GENERAL, PART 2 - PRODUCTS, and PART 3 - EXECUTION.



KEY PLAN

HVAC REPLACEMENT

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE

SHEET TITLE
MECHANICAL SPECIFICATIONS

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: EG
REVIEWED BY: NW
PROJECT NO: 22007

END OF SECTION

M101

TAB SPECIFICATION

PART 1 GENERAL

1.1 SCOPE

- A. PROVIDE ALL SUPERVISION, PERSONNEL, INSTRUMENTS, CALIBRATION, EQUIPMENT, AND ALL OTHER MATERIALS NECESSARY TO PERFORM BALANCING AND TESTING, AND COMPLETE TEST DATA INCLUDING CALCULATIONS AND SERVICES NECESSARY FOR THE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS FOR THIS PROJECT, ALL IN ACCORDANCE WITH THE PROJECT DRAWINGS AND SPECIFICATIONS AND AS SPECIFIED HEREIN.

1.2 GENERAL

- A. MECHANICAL CONTRACTOR WILL EMPLOY A TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY THAT IS CERTIFIED BY ASSOCIATED AIR BALANCING COUNCIL (AABC), NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR TESTING, ADJUSTING, AND BALANCING BUREAU (TABB).
- B. THE TAB AGENCY MUST ALSO BE AN APPROVED ACCEPTANCE TEST EMPLOYER WITH ACCEPTANCE TEST TECHNICIANS (ATT). THE ATT WILL BE RESPONSIBLE FOR PERFORMING ALL REQUIRED ACCEPTANCE TESTING AND ASSOCIATED FORMS.
- C. THE TAB AGENCY SHALL BE RESPONSIBLE FOR INSPECTING, BALANCING, ADJUSTING, TESTING, AND LOGGING THE DATA OF THE PERFORMANCE OF FANS, ALL DAMPERS IN THE DUCT SYSTEMS, ALL AIR DISTRIBUTION DEVICES, AND THE FLOWS OF WATER THROUGH ALL COILS.
- D. EXISTING EQUIPMENT, UNLESS SPECIFICALLY MENTIONED OTHERWISE, SHALL NOT IN THE SCOPE OF THE TAB WORK.
- E. A COMPLETELY OPERABLE SYSTEM SHALL BE PLACED INTO OPERATION EACH DAY DURING TESTING AND BALANCING.
- F. THE TAB AGENCY SHALL UTILIZE INSTRUMENTATION WHICH MEETS THE REQUIREMENTS OF ASHRAE 111, SECTION 5, "INSTRUMENTATION".
- G. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CERTIFYING IN WRITING THAT THE SYSTEM, AS SCHEDULED FOR BALANCING, IS OPERATIONAL AND COMPLETE. COMPLETENESS SHALL INCLUDE NOT ONLY THE PHYSICAL INSTALLATION, BUT THE MECHANICAL CONTRACTOR'S CERTIFICATION THAT THE PRIME MOVERS ARE INSTALLED IN GOOD WORKING ORDER, AND THAT FULL LOAD PERFORMANCE HAS BEEN PRELIMINARY TESTED UNDER THE CERTIFICATION OF THE MECHANICAL CONTRACTOR. BEFORE ANY TESTING AND BALANCING IS STARTED, A COMPLETE REPORT SHALL BE SENT TO THE TAB AGENCY BY THE MECHANICAL CONTRACTOR.
- H. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL MODIFICATIONS TO RECTIFY DISCREPANCIES REPORTED BY THE TAB CONTRACTOR AS INDICATING NON-COMPLIANCE WITH THE CONTRACT DOCUMENTS. BY COMPLETING THE WORK ON TIME, THE MECHANICAL CONTRACTOR SHALL PROVIDE SUFFICIENT TIME BEFORE THE COMPLETION DATE SO THAT BALANCING CAN BE ACCOMPLISHED.
- I. IF CONSTRUCTION DEFICIENCIES ARE ENCOUNTERED WHICH PRECLUDE OBTAINING OPTIMUM CONDITIONS, THE DEFICIENCIES WILL BE RECORDED AND GIVEN TO THE OWNER'S REPRESENTATIVE. THE TAB AGENCY IS ADVISED THAT DEFICIENCIES IN THE HVAC CONSTRUCTION ARE OFTEN ENCOUNTERED DURING FINAL TAB SERVICES, AND SHOULD INCLUDE IN THE BID AN AMOUNT DEEMED ADVISABLE TO COMPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.

1.3 SERVICES

- A. THE TAB AGENCY WILL BALANCE, TEST, AND ADJUST THE SYSTEMIC COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING. IF CONSTRUCTION DEFICIENCIES ARE ENCOUNTERED WHICH PRECLUDE OBTAINING OPTIMUM CONDITIONS, THE DEFICIENCIES WILL BE RECORDED AND GIVEN TO THE OWNER'S REPRESENTATIVE. THE TAB AGENCY IS ADVISED THAT DEFICIENCIES IN THE HVAC CONSTRUCTION ARE OFTEN ENCOUNTERED DURING FINAL TAB SERVICES, AND SHOULD INCLUDE IN THE BID AN AMOUNT DEEMED ADVISABLE TO COMPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.
- B. THE REPORT SHALL BE COMPLETE WITH LOGS, DATA, AND RECORDS AS REQUIRED HEREIN AND ALL LOGS, DATA, AND RECORDS SHALL BE TYPED, PRODUCED, ON WHITE BOND PAPER, AND BOUND. TRANSMIT FOUR COPIES DIRECTLY TO THE OWNER'S REPRESENTATIVE TO BE DISTRIBUTED TO THE MECHANICAL CONTRACTOR, CONTROLS CONTRACTOR, ENGINEER, AND RECORD FILE.
- C. THE REPORT SHALL CONTAIN THE FOLLOWING GENERAL DATA IN A FORMAT SELECTED BY THE TAB AGENCY FOR CLARITY AND EASE OF REFERENCE.
 1. PROJECT TITLE.
 2. PROJECT LOCATION.
 3. PROJECT ARCHITECT (FIRM NAME AND ADDRESS).
 4. PROJECT MECHANICAL ENGINEER (NAME).
 5. TAB FIELD TEST ENGINEER (NAME).
 6. TAB AGENCY (FIRM NAME AND ADDRESS).
 7. INCLUSIVE DATES TESTS WERE PERFORMED AND DATE OF REPORT.
 8. CALIBRATION CERTIFICATES OF EACH INSTRUMENT USED ALONG WITH SPECIFIC ID NUMBERS (I.E., SERIAL NUMBERS).

1.4 SUBMITTALS

- A. SUBMITTAL NO. 15950 (1) - TAB AGENDA
 1. THE TAB CONTRACTOR SHALL SUBMIT A COMPLETE AGENDA, WHICH SHALL OUTLINE IN FULL THE TESTING METHODS AND LOCATIONS FOR EACH HVAC SYSTEM AND/OR DEVICE THAT IS WITHIN THE SCOPE OF THE TAB WORK. THE AGENDA SHALL REPRESENT THE TOTAL SYSTEM BALANCE REPORT, LESS FIELD TEST DATA. AREAS OF INTENDED FIELD TEST INPUTS SHALL BE REPRESENTED BY FULLY LABELED BLANK SPACES.
 2. THE TAB AGENDA SHALL ALSO INDICATE THE PROPOSED TEST METHODS, INSTRUMENTATION DEVICES AND ALL APPLICABLE CALIBRATION CERTIFICATES.
- B. SUBMITTAL NO 15950 (2) - TAB REPORT
 1. PROVIDE TEST AND BALANCE REPORT AS INDICATED HEREIN.

1.5 AIR SYSTEMS REQUIREMENTS

- A. IN ADDITION TO THE ABOVE DATA IN ITS APPROPRIATE FORMAT, THE TEST AND BALANCE REPORT SHALL INCLUDE THE FOLLOWING DATA:
 1. HEATED VENTILATORS (EXISTING AND NEW)
 - a. MANUFACTURER AND MODEL.
 - b. SIZE.
 - c. MOTOR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS.
 - d. LOCATION AND LOCAL IDENTIFICATION DATA.
 - e. IDENTIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS AND SPECIFICATIONS.
 - f. SUPPLY AIRFLOW (CFM) AND RETURN AIRFLOW (CFM), WHERE APPLICABLE.
 - g. FAN RPM.
 - h. MOTOR CURRENT READINGS AT EACH FAN.
 - i. INLET AND OUTLET STATIC PRESSURE FROM SUPPLY FAN AND RETURN FAN (IF APPLICABLE). THESE READINGS SHALL BE RELATED TO THE FAN CURVE.
 - j. STATIC PRESSURE DIFFERENTIAL ACROSS EACH FILTER SECTION.
 - k. ENTERING AIR AND LEAVING AIR TEMPERATURES (DB) IN 100% HEATING MODE.
 - l. OUTDOOR AIR PERCENTAGE SETTING.
 - m. OUTDOOR AIRFLOW IN ECONOMIZER MODE (IF APPLICABLE).
 - n. OUTDOOR AIRFLOW IN DEMAND CONTROL VENTILATION MODE (IF APPLICABLE).
 2. DUCTED FAN COILS
 - a. MANUFACTURER AND MODEL.
 - b. SIZE.
 - c. MOTOR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS.
 - d. LOCATION AND LOCAL IDENTIFICATION DATA.
 - e. IDENTIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS AND SPECIFICATIONS.
 - f. SUPPLY AIRFLOW (CFM) AND EXHAUST AIRFLOW (CFM), WHERE APPLICABLE.
 - g. FAN RPM.
 - h. MOTOR CURRENT READINGS AT EACH FAN.
 - i. INLET AND OUTLET STATIC PRESSURE FROM SUPPLY FAN (IF APPLICABLE). THESE READINGS SHALL BE RELATED TO THE FAN CURVE.
 - j. STATIC PRESSURE DIFFERENTIAL ACROSS EACH COIL AND FILTER SECTION.
 - k. ENTERING AIR AND LEAVING AIR TEMPERATURES (DB/WB) IN 100% HEATING MODE.
 - l. ENTERING AIR AND LEAVING AIR TEMPERATURES (DB) IN 100% HEATING MODE.
 - m. OUTDOOR AIR PERCENTAGE SETTING.
 - n. OUTDOOR AIRFLOW IN ECONOMIZER MODE (IF APPLICABLE).
 - o. OUTDOOR AIRFLOW IN DEMAND CONTROL VENTILATION MODE (IF APPLICABLE).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL PROCEDURES

- A. DURING THE BALANCING, THE TEMPERATURE REGULATION SHALL BE ADJUSTED FOR PROPER RELATIONSHIP BETWEEN CONTROLLING INSTRUMENTS AND CALIBRATED. THE CORRECTNESS OF THE FINAL SETTINGS SHALL BE PROVED BY TAKING HOURLY READINGS FOR A PERIOD OF ONE SUCCESSIVE 8-HOUR DAY, IN A TYPICAL ROOM ON EACH SEPARATELY CONTROLLED ZONE. AFTER TENANT MOVES IN, THE TOTAL VARIATION SHALL NOT EXCEED 2 DEGREES FROM THE PRESET MEDIUM TEMPERATURE DURING THE TEMPERATURE SURVEY PERIOD. (THIS WILL BE DONE ONLY ON SYSTEMS THAT ARE TOTALLY OPERATIONAL).

3.2 AIR SYSTEMS PROCEDURES

- A. THE TAB AGENCY SHALL PERFORM THE FOLLOWING TESTS AND BALANCE THE AIR SYSTEMS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
 1. TEST AND ADJUST BLOWER AND MOTOR RPM TO DESIGN REQUIREMENTS.
 2. TEST AND RECORD MOTOR FULL LOAD AMPERES AND CORRESPONDING VOLTAGE.
 3. MAKE PITOT TUBE TRAVERSE OF MAIN SUPPLY DUCTS AND OBTAIN DESIGN CFM AT FANS.
 4. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
 5. TEST AND ADJUST SYSTEM FOR DESIGN CFM OF OUTSIDE AIR.
 6. TEST AND RECORD ENTERING AND LEAVING AIR DRY BULB TEMPERATURES OF ALL HEATING AND COOLING COILS.
 7. TEST AND RECORD ENTERING AND LEAVING WET BULB TEMPERATURES OF ALL COOLING COILS.
 8. ADJUST ALL MAIN SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM. SYSTEM SUPPLY AIRFLOW, SYSTEM RETURN AIRFLOW, AND SYSTEM OUTDOOR AIRFLOW SHALL BE BALANCED TO WITHIN 5% OF THE DESIGN REQUIREMENT.
 9. ADJUST ALL ZONES TO PROPER DESIGN CFM, SUPPLY AND RETURN.
 10. TEST AND ADJUST EACH DIFFUSER, GRILLE, AND REGISTER TO WITHIN 10% OF DESIGN REQUIREMENT.
 11. EACH GRILLE, DIFFUSER, AND REGISTER SHALL BE IDENTIFIED AS TO LOCATION AND AREA.

- 12. SIZE, TYPE, AND MANUFACTURER OF DIFFUSERS, GRILLES, REGISTERS, AND ALL TESTED EQUIPMENT SHALL BE IDENTIFIED AND LISTED. MANUFACTURER'S RATINGS ON ALL EQUIPMENT SHALL BE USED TO MAKE REQUIRED CALCULATIONS.
- 13. READINGS AND TEST OF DIFFUSERS, GRILLES, AND REGISTERS SHALL INCLUDE REQUIRED FPM VELOCITY AND TEST RESULTANT VELOCITY, REQUIRED CFM AND TEST RESULTANT CFM AFTER ADJUSTMENTS.
- 14. TAB AGENCY SHALL CHECK ALL CONTROLS TO ENSURE THEY ARE OPERATING AS SPECIFIED. PROVIDE THE CONTROL CONTRACTOR WITH SPECIFIC SET POINTS.

3.3 TEMPERATURE CONTROL SYSTEM

- A. IN THE PROGRESS OF PERFORMING THE TAB WORK, THE TAB AGENCY SHALL:
 1. WORK WITH THE CONTROLS CONTRACTOR TO ENSURE THE MOST EFFECTIVE TOTAL SYSTEM OPERATION WITHIN THE DESIGN LIMITATIONS, AND TO OBTAIN MUTUAL UNDERSTANDING OF INTENDED CONTROL PERFORMANCE.
 2. VERIFY THAT ALL CONTROL DEVICES ARE PROPERLY CONNECTED.
 3. VERIFY THAT ALL DAMPERS, VALVES, AND OTHER CONTROLLED DEVICES ARE OPERATED BY THE INTENDED CONTROLLER.
 4. VERIFY THAT ALL DAMPERS AND VALVES ARE IN THE POSITION INDICATED BY THE CONTROLLER (OPEN, CLOSED, OR MODULATING).
 5. VERIFY THAT THE INTEGRITY OF VALVES AND DAMPERS IN TERMS OF TIGHTNESS OF CLOSE-OFF AND FULL-OPEN POSITION. THIS INCLUDES DAMPERS IN MULTIZONE UNITS.
 6. CHECK THAT ALL VALVES ARE PROPERLY INSTALLED IN THE PIPING SYSTEM IN RELATION TO DIRECTION OF FLOW AND LOCATION.
 7. VERIFY THE CALIBRATION OF ALL CONTROLLERS.
 8. VERIFY THE PROPER APPLICATION OF ALL NORMALLY OPEN AND NORMALLY CLOSED VALVES.
 9. CHECK THE LOCATIONS OF ALL THERMOSTATS AND HUMIDISTATS FOR POTENTIAL ERRATIC OPERATION FROM OUTSIDE INFLUENCES SUCH AS SUNLIGHT, DRAFTS, OR COLD WALLS.
 10. CHECK THE LOCATIONS OF ALL SENSORS TO DETERMINE WHETHER THEIR POSITION WILL ALLOW THEM TO SENSE ONLY THE INTENDED TEMPERATURES OR PRESSURES OF THE MEDIA. CONTROLS CONTRACTOR WILL RELOCATE AS DEEMED NECESSARY BY THE TAB AGENCY.
 11. CHECK THE SEQUENCE OF OPERATION FOR ANY CONTROL. MODE IS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. VERIFY THAT ONLY MINIMUM SIMULTANEOUS HEATING AND COOLING OCCURS. OBSERVE THAT HEATING CANNOT TAKE PLACE UNTIL THE COOLING ZONE OF VALVE IS COMPLETELY CLOSED.
 12. VERIFY THAT ALL CONTROLLER SET POINTS MEET THE DESIGN INTENT.
 13. CHECK ALL DAMPERS FOR FREE TRAVEL.
 14. VERIFY THE OPERATION OF ALL INTERLOCK SYSTEMS.
 15. PERFORM ALL SYSTEM VERIFICATION TO ASSURE THE SAFETY OF THE SYSTEM AND ITS COMPONENTS.
- B. A SYSTEMATIC CHECK OF THE ABOVE REQUIREMENTS SHALL BE INCLUDED IN THE FINAL TAB REPORT.

3.4 DUCT LEAKAGE TEST

- A. ALL SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL BE TESTED FOR LEAKS, USING NECESSARY INSTRUMENTS BEFORE INSULATING ANY DUCTWORK.
- B. DUCTWORK SHALL BE LEAK-TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALING NOT LESS THAN 10 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED, WHERE THE TESTED 10 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 40 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED, WHERE THE TESTED 40 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 100 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED.
- C. THE MAXIMUM PERMITTED LEAKAGE SHALL BE DETERMINED IN ACCORDANCE WITH CMG 803.9.2.
- D. THE TEST AND BALANCE REPORT SHALL INCLUDE THE RESULTS OF THE DUCT LEAKAGE TEST FOR THE ENGINEER'S REVIEW.

3.5 TEST AND BALANCE REPORT

- A. THE REPORT SHALL CONTAIN THE FOLLOWING DATA:
 1. A LISTING OF THE MEASURED AIR QUANTITIES AT EACH OUTLET CORRESPONDING TO THE TEMPERATURE TABULATION SPECIFIED ABOVE.
 2. AIR QUANTITIES AT EACH RETURN AND EXHAUST AIR HANDLING DEVICE (ONLY IF DUCTED RETURN SYSTEMS).
 3. STATIC PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY, RETURN AND EXHAUST FAN, FILTER, AND COIL OF THE SYSTEM. THESE READINGS SHALL BE RELATED TO FAN CURVES IN TERMS OF CFM HANDLED.
 4. MOTOR CURRENT READINGS AT EACH FAN. THE VOLTAGES AT THE TIME OF THE READINGS SHALL BE LISTED.

3.6 FINAL ACCEPTANCE

- A. AT THE TIME OF FINAL INSPECTION, THE BALANCING AGENCY SHALL RECHECK, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, SPECIFIC AND RANDOM SELECTIONS OF DATA, I.E., WATER AND AIR QUANTITIES, RECORDED IN THE CERTIFIED REPORT.
- B. POINTS AND AREAS FOR RECHECK SHALL BE SELECTED BY THE OWNER'S REPRESENTATIVE.
- C. MEASUREMENT AND TEST PROCEDURES SHALL BE THE SAME AS APPROVED FOR WORK FORMING BASIS OF CERTIFIED REPORT.
- D. SELECTIONS FOR RECHECK, SPECIFIC PLUS RANDOM, WILL, NOT NORMALLY EXCEED 25% OF THE TOTAL NUMBER TABULATED IN THE REPORT, EXCEPT THAT SPECIAL AIR SYSTEMS MAY REQUIRE A COMPLETE RECHECK FOR SAFETY REASONS.
- E. IF RANDOM TESTS ELICIT A MEASURED FLOW DEVIATION OF 10% OR MORE FROM THAT RECORDED IN THE CERTIFIED REPORT ON 10% OR MORE OF THE SELECTED RECHECK STATIONS, THE REPORT SHALL BE AUTOMATICALLY REJECTED. IN THE EVENT THE REPORT IS REJECTED, ALL SYSTEMS SHALL BE READJUSTED AND TESTED, NEW DATA RECORDED, NEW CERTIFIED REPORT SUBMITTED, AND NEW INSPECTION TESTS MADE, ALL AT NO ADDITIONAL COST TO THE OWNER.
- F. FOLLOWING FINAL ACCEPTANCE OF THE CERTIFIED REPORT BY THE OWNER'S REPRESENTATIVE, THE SETTINGS OF ALL VALVES, SPLITTER, DAMPERS, AND OTHER ADJUSTMENT DEVICES SHALL BE PERMANENTLY MARKED BY THE TAB AGENCY, SO THAT ADJUSTMENT CAN BE RESTORED IF DISTURBED AT ANY TIME. DEVICES SHALL NOT BE MARKED UNTIL AFTER FINAL ACCEPTANCE.

END OF SECTION



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE

SHEET TITLE

TAB SPECIFICATIONS

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: EG
REVIEWED BY: NW
SCALE:
PROJECT NO: 22007

M102

- KEYED NOTES:**
- ① CONDUCT PRE-CONSTRUCTION AIR BALANCE TESTING FOR EXISTING AIR INLET OR OUTLET. SEE AIR BALANCE PROCEDURES ON M100 FOR ADDITIONAL INFORMATION.
 - ② REMOVE EXISTING DUCT DROPS, DUCTING, AND REGISTERS. PATCH WALL AND CEILING TO MATCH.



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LICENSE STAMP



KEY PLAN

PROJECT NAME

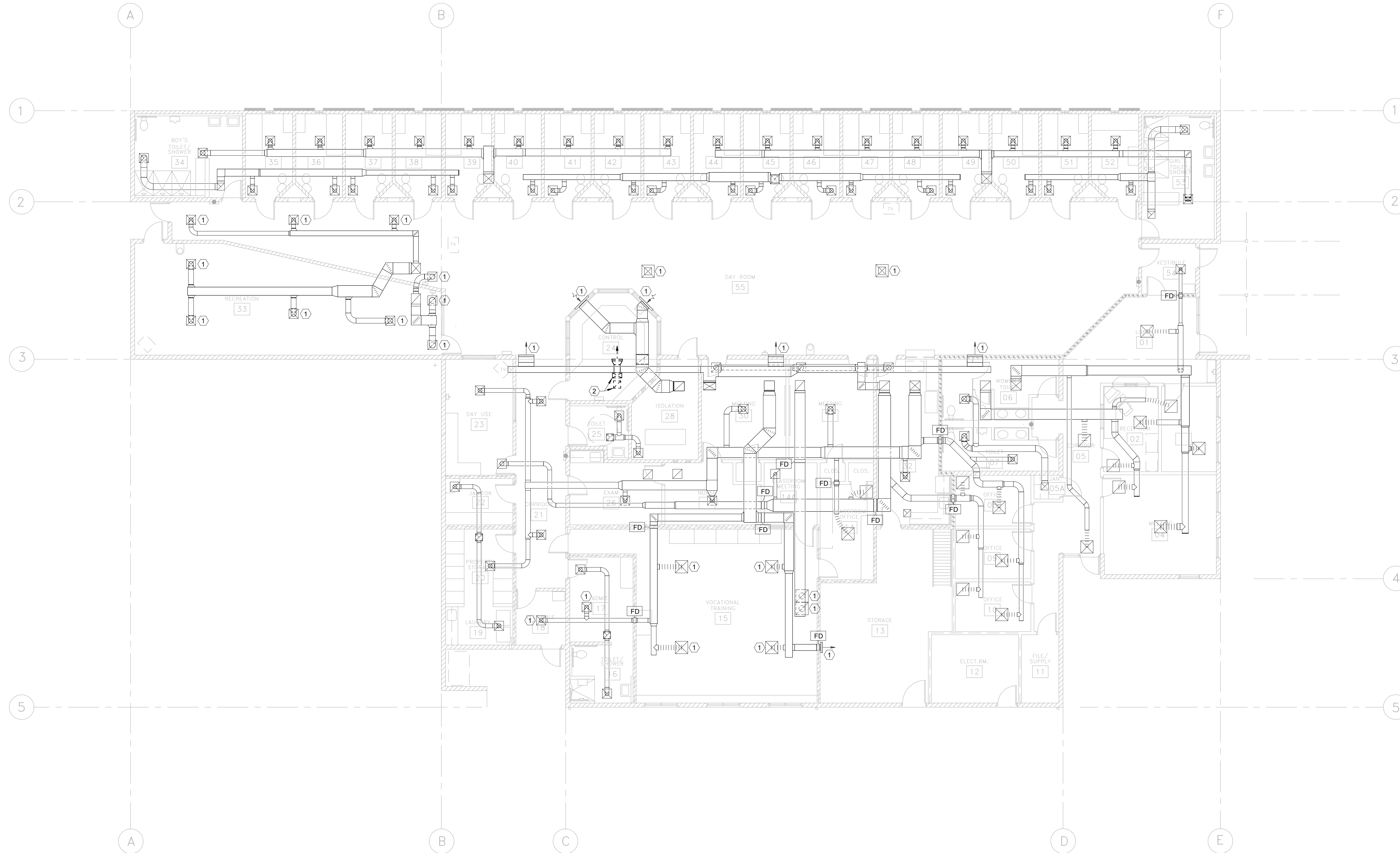
HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY
REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO.	REVISIONS	DATE
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1 MECHANICAL DEMOLITION PLAN
M200 1/8" = 1'-0"

SHEET TITLE

**MECHANICAL
DEMOLITION PLAN**

ISSUED FOR:
**CONSTRUCTION
DOCUMENTS**

DATE:	9/20/2024
DRAWN BY:	EG
REVIEWED BY:	NW
SCALE:	1/8" = 1'-0"
PROJECT NO.:	22007

M200

KEYED NOTES:

- ① REMOVE EXISTING ROOFTOP UNIT AND ASSOCIATED CURB. PREPARE LOCATION FOR INSTALLATION ON NEW CURB.
- ② CONDUCT PRE-CONSTRUCTION AIR BALANCE TESTING FOR EXISTING HEATING VENTILATOR. SEE AIR BALANCE PROCEDURES ON M100 FOR ADDITIONAL INFORMATION.
- ③ REMOVE EXISTING ROOFTOP UNIT AND ASSOCIATED CURB. PATCH ROOF TO MATCH EXISTING.



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REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

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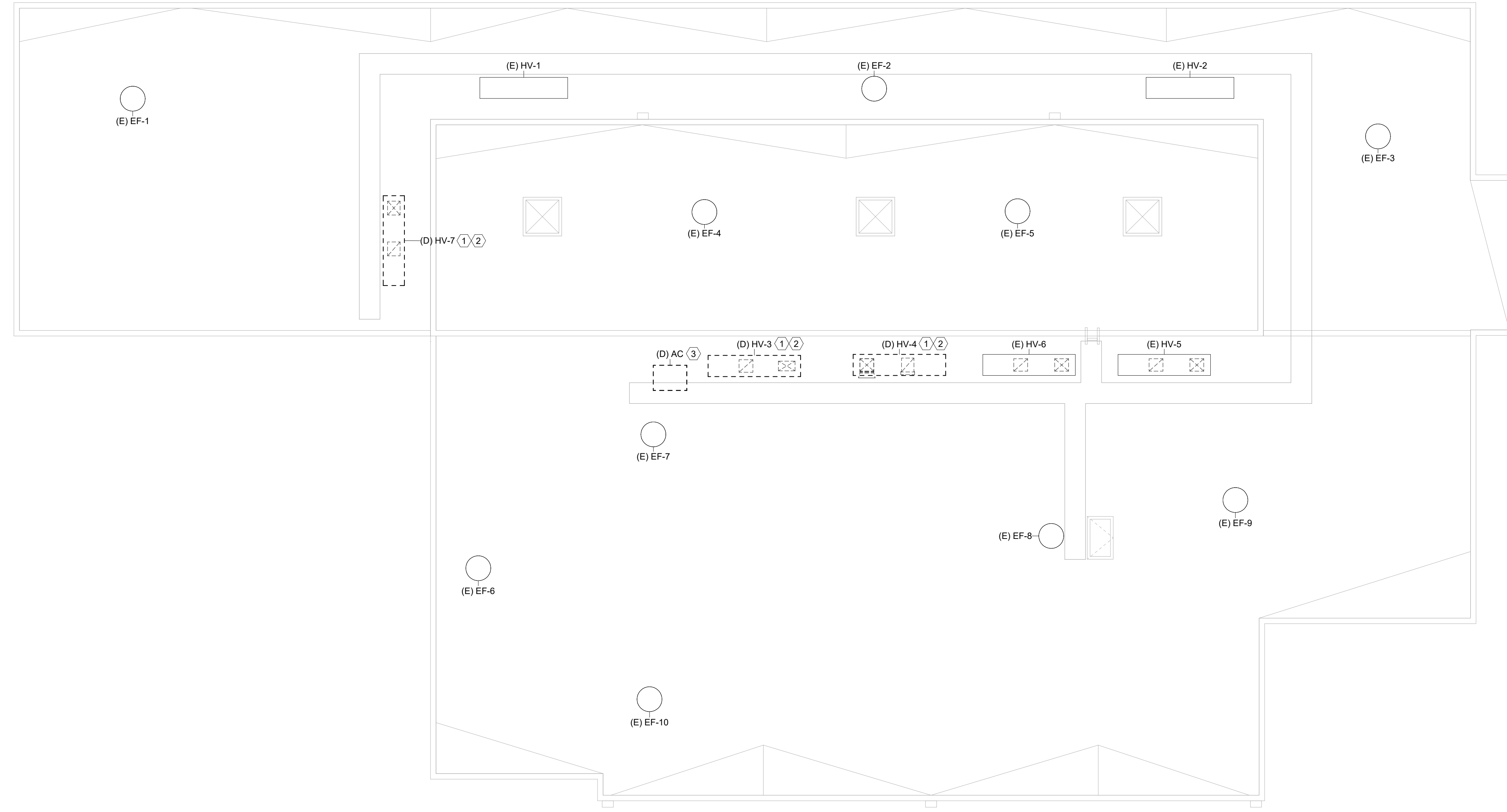
SHEET TITLE

MECHANICAL
DEMOLITION ROOF PLAN

ISSUED FOR:

CONSTRUCTION
DOCUMENTS

DATE: 9/20/2024
DRAWN BY: EG
REVIEWED BY: NW
SCALE: 1/8" = 1'-0"
PROJECT NO: 22007



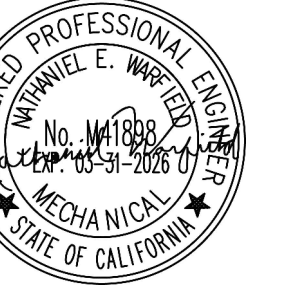
1 MECHANICAL DEMOLITION ROOF PLAN
M210 1/8" = 1'-0"

- KEYED NOTES:**
- MOUNT THERMOSTAT 48" ABOVE FINISHED FLOOR. COORDINATE FINAL LOCATION WITH OWNER.
 - CONDUCT POST-CONSTRUCTION AIR BALANCE TESTING FOR EXISTING AIR INLET OR OUTLET TO VERIFY PRE-CONSTRUCTION AIR FLOWS HAVE BEEN MAINTAINED. SEE AIR BALANCE PROCEDURES ON M100 FOR ADDITIONAL INFORMATION.
 - BALANCE AIR TERMINAL TO ACHIEVE SPECIFIED AIRFLOW.



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE

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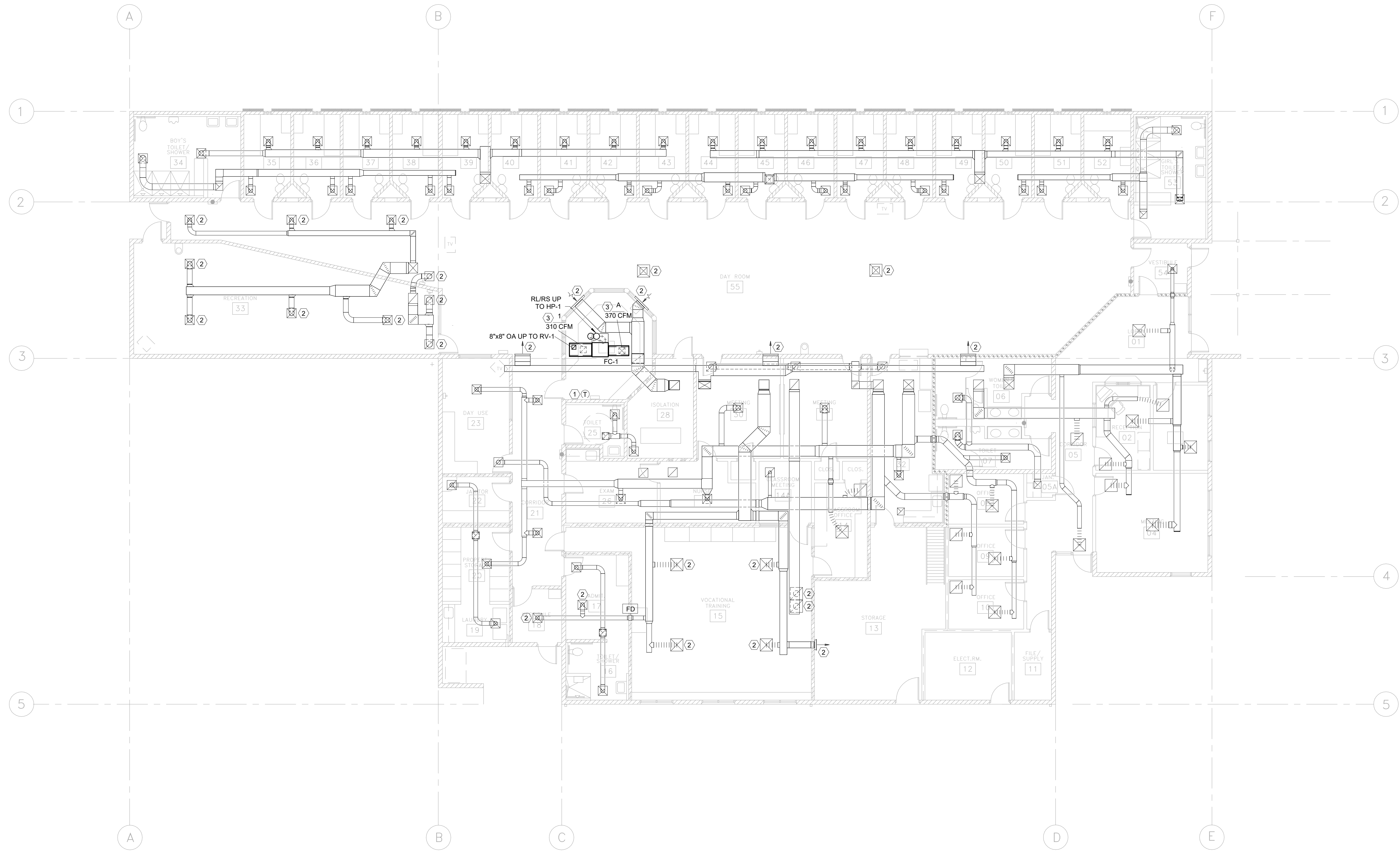
SHEET TITLE

MECHANICAL FLOOR PLAN

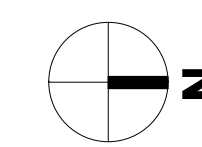
ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: EG
REVIEWED BY: NW
SCALE: 1/8" = 1'-0"
PROJECT NO: 22007

M220



1 MECHANICAL FLOOR PLAN
M220 1/8" = 1'-0"



KEYED NOTES:

- ① DISCONNECT EXISTING GAS PIPING FROM UNIT. PREPARE FOR CONNECTION TO NEW UNIT



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE

NO.	REVISIONS	DATE

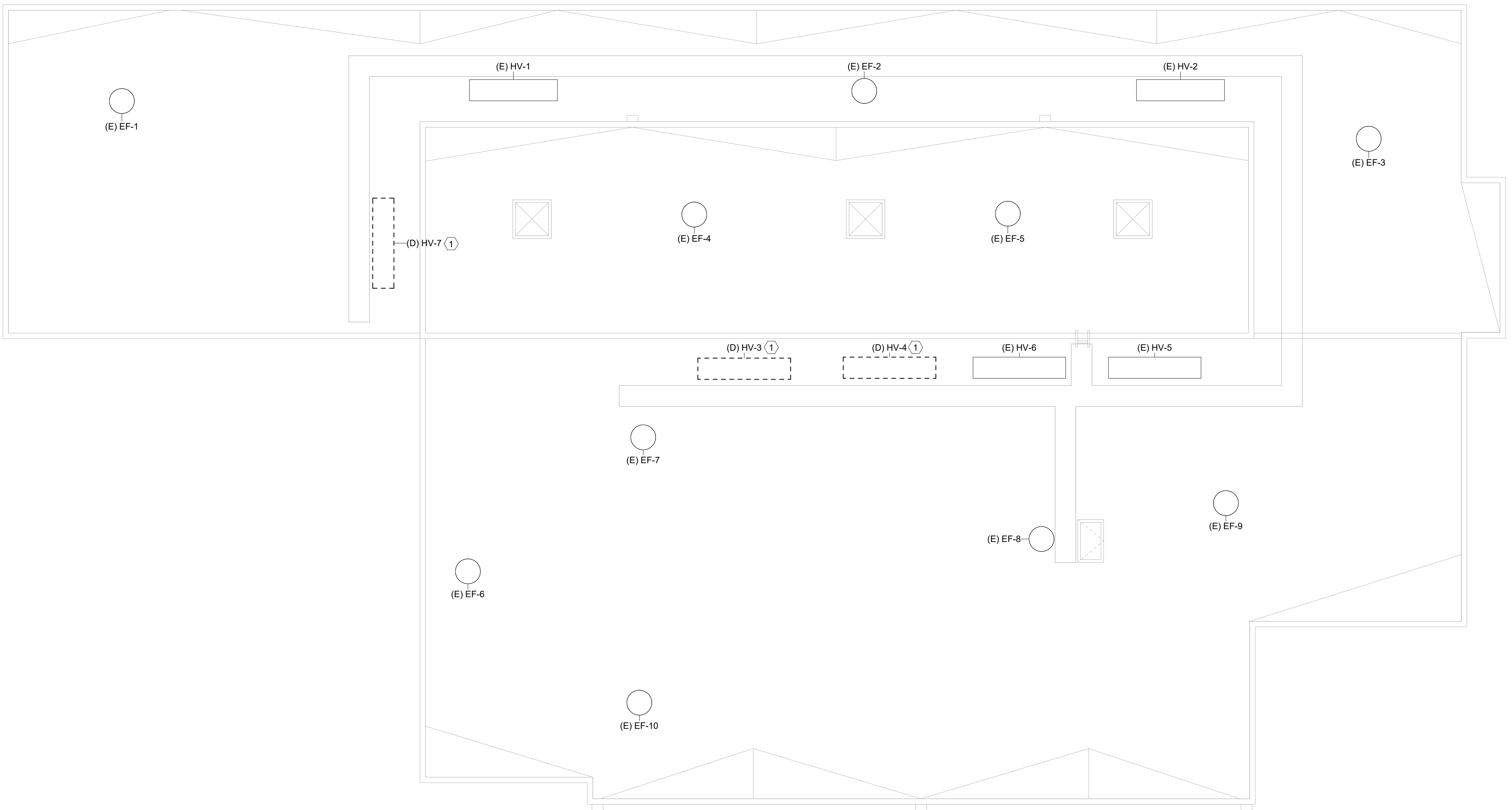
SHEET TITLE

PLUMBING DEMOLITION ROOF PLAN

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: EG
REVIEWED BY: NW
SCALE: 1/8" = 1'-0"
PROJECT NO: 22007



1
P210 PLUMBING DEMOLITION ROOF PLAN
1/8" = 1'-0"

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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY
REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE



1 PLUMBING FLOOR PLAN
P220 1/8" = 1'-0"

SHEET TITLE

PLUMBING FLOOR PLAN

ISSUED FOR:
CONSTRUCTION
DOCUMENTS

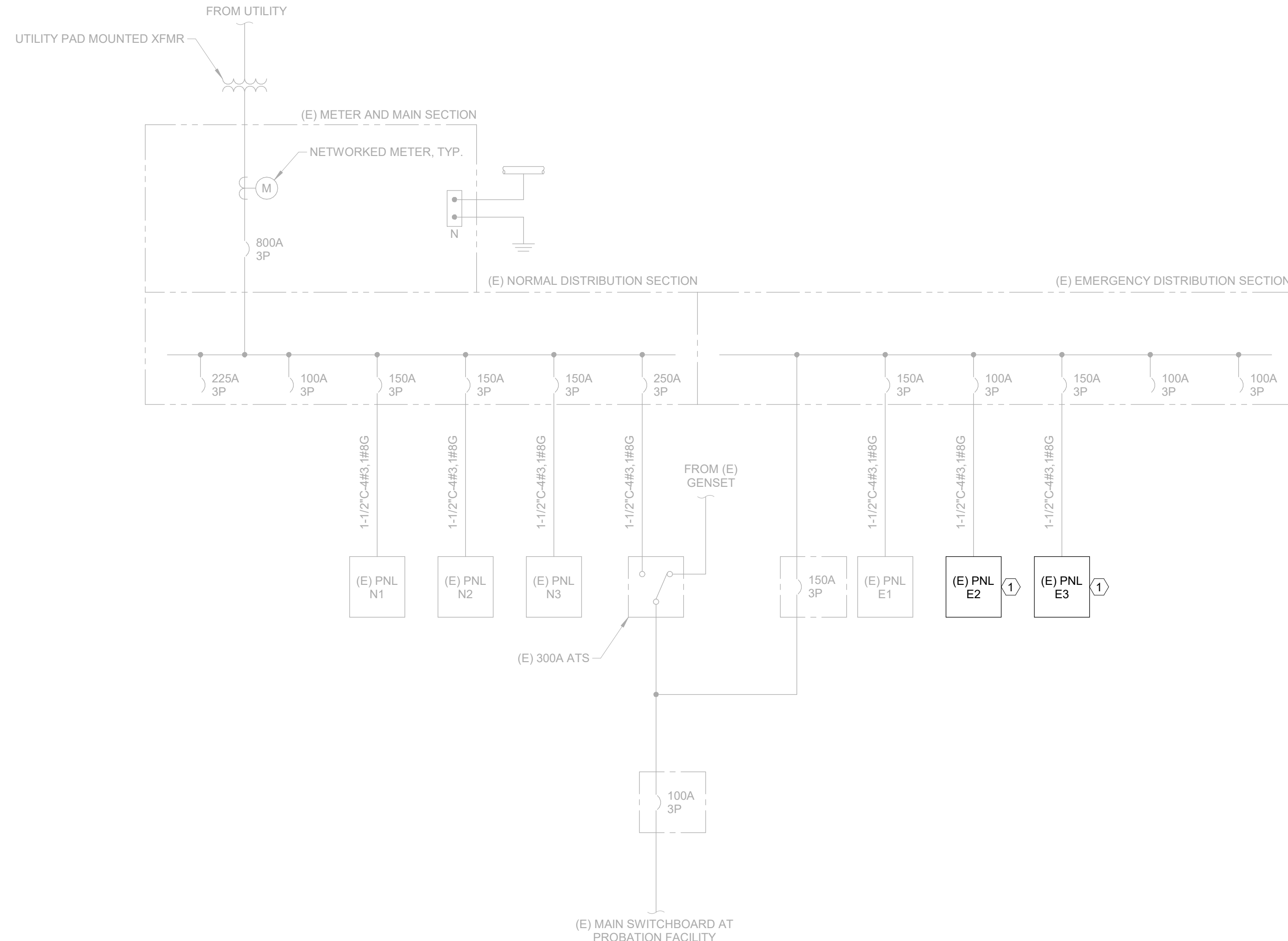
DATE: 9/20/2024
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ELECTRICAL ABBREVIATIONS	
A	-AMMETER, AMPERE
AC	-ALTERNATING CURRENT
ACH	-ABOVE COUNTER HEIGHT
AFCI	-ARC FAULT CIRCUIT INTERRUPT
AFF	-ABOVE FINISHED FLOOR
AIC	-AMPS INTERRUPTING CAPACITY
ATS	-AUTOMATIC TRANSFER SWITCH
BRKR	-BREAKER
BOE	-BOTTOM OF EQUIPMENT
CEC	-CALIFORNIA ELECTRICAL CODE
CCOND	-CONDUIT
CKT	-CIRCUIT
COD	-CENTER OF DEVICE
CT	-CURRENT TRANSFORMER
DC	-DIRECT CURRENT
(E)	-EXISTING
G	-GROUND
GFCI	-GROUND FAULT CIRCUIT INTERRUPT
J	-JUNCTION BOX
LCP	-LIGHTING CONTROL PANEL
LTR	-LIGHTING
MFR	-MANUFACTURER
MSB	-MAIN SWITCH BOARD
MTS	-MANUAL TRANSFER SWITCH
NEC	-NATIONAL ELECTRIC CODE
NEMA	-NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
N	-NEUTRAL
PB	-PULLBOX
PC	-PHOTOCELL
PNL	-PANELBOARD
RECEPT	-RECEPTACLE
SWBD	-SWITCHBOARD
T	-THERMOSTAT OR TELE CONDUIT
TOD	-TOP OF DEVICE
TYP	-TYPICAL
V	-VOLTMETER, VOLT
W	-WATT
WP	-WEATHERPROOF (NEMA 3R)
XFMR	-TRANSFORMER

ELECTRICAL LEGEND	
SYMBOLS	
CONDUIT EXPOSED	
CONDUIT CONCEALED OR BURIED	
CROSS HATCHES W/ BARS INDICATES NUMBER OF #10 CONDUCTORS	
1/2" C - 2# 12.1 #12G	CAT 5e LIGHTING CABLE
LA-2	HOME RUN-DESTINATION SHOWN
	CONDUIT DOWN
	CONDUIT UP
	CONNECTION POINT
TELEPHONE CONNECTION POINT: 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM	
DATA CONNECTION POINT: 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM	
TELE/DATA CONNECTION POINT: 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM	
WALL SWITCH, 46" TO COD AFF UNLESS OTHERWISE NOTED	
INDICATES THREE-POLE WALL SWITCH	
INDICATES WALL SWITCH WITH INTEGRAL DIMMER	
INDICATES WALL SWITCH WITH INTEGRAL OCCUPANCY SENSOR	
INDICATES WALL SWITCHES FOR MULTIPLE LIGHTING GROUPS	
INDICATES LOW VOLTAGE WALL SWITCH	
INDICATES KEY-OPERATED WALL SWITCH	
INDICATES WALL SWITCH WITH INTEGRAL TIMER	
OCCUPANCY SENSOR	
JUNCTION BOX	
CONTACT RELAY	
20A SPECIFICATION GRADE RECEPTACLE, COORDINATE CONFIGURATION W/ SUPPLIED EQUIPMENT	
20A SPECIFICATION GRADE QUADRUPLX RECEPTACLE	
208/240V RECEPTACLE 18" COD UNLESS OTHERWISE NOTED ON PLANS	
SPLITWIRED RECEPTACLES	
FUSED DISCONNECT	
NON-FUSED DISCONNECT	
FUSED SWITCH	
LAY-IN 2 FT X 2 FT.	
SURFACE MOUNTED 2 FT X 4 FT FLUORESCENT LIGHT FIXTURE.	
SURFACE MOUNTED 1 FT X 4 FT FLUORESCENT LIGHT FIXTURE.	
HATCHING INDICATES EMERGENCY LIGHTING.	
RECESSED LIGHT FIXTURE.	
PENDANT MOUNTED LIGHT FIXTURE	
SINGLE FACE ILLUMINATED EXIT SIGN	
DOUBLE FACED ILLUMINATED DIRECTIONAL EXIT SIGN.	
SINGLE FACED ILLUMINATED DIRECTIONAL EXIT SIGN.	
LED STANDARD EMERGENCY LIGHT	

BRANCH PANEL E2		VOLTS: 120/208 Wye		A.I.C. RATING: 10 KAIC									
SUPPLY FROM:		PHASES: 3		BUS RATING: 225 A									
MOUNTING SURFACE		WIRES: 4		MAIN: 225 A									
ENCLOSURE: NEMA 1		CIRCUITS: 42											
CKT	Circuit Description	Rating	Poles	A	B	C	A	B	C	Poles	Rating	Circuit Description	CKT
1	(E) EM LIGHTING - CELLS 35-43	20 A	1	640			700			1	15 A	(E) EF-1	2
3	(E) EM LIGHTING - CELLS 44-52	20 A	1	640			700			1	15 A	(E) EF-4	4
5	(E) EM LIGHTING - 24	20 A	1	180			400			1	15 A	(E) EF-6	6
7	(E) EM LIGHTING - CELLS 33, 34, 55	20 A	1	810			400			3	15 A	(E) HV-1	8
10	(E) EM LIGHTING - 28	20 A	1	60			400			1	15 A	(E) EF-3	10
11	(E) EM LIGHTING - CELLS 15-18, 21 26, 27	20 A	1	300		1020	641			2	15 A	(N) HVAC - HP-1	12
13	(E) CCTV CAMERAS - 7, 9	20 A	1							1	--	(N) SPACE	14
15	(E) CCTV CAMERAS - 6, 10	20 A	1	200			400			1	--	(N) SPACE	16
17	(E) RECEPETS - CONTROL ROOM	20 A	1	400			200			1	15 A	(E) EF-7	18
19	(E) RECEPETS - CONTROL ROOM	20 A	1	400			200			1	15 A	(E) EF-8	20
21	(E) RECEPETS - CONTROL ROOM	20 A	1	400			200			1	15 A	(E) EF-10	22
23	(E) RECEPETS - FIRE ALARM PANEL	20 A	1			200			980	1	15 A	(E) EF-9	24
25	(E) RECEPETS - 26	20 A	1	400			980			3	15 A	(E) HVAC - HV-7	26
27	(E) RECEPETS - 27	20 A	1	400			980			3	15 A	(E) HVAC - HV-7	28
29	(E) CCTV CAMERA - 1	20 A	1			100			1500	1	20 A	(E) INTERCOM CONTROLLER	30
31	(E) SEWER ALARM - E2-31	20 A	1	320			1500			1	20 A	(E) SWITCHER POWER	32
33	(E) LOAD	20 A	1	70			1500			1	20 A	(E) DOOR AND CONTROLLER	34
35	(E) LOAD	20 A	1	70			1500			1	20 A	(E) LOAD	36
37	(E) A/C CLASSROOM	40 A	2	2900			1000			1	20 A	(E) EF-5	38
39	(E) A/C CLASSROOM	40 A	2	2900			900			1	20 A	(E) LOAD	40
41	SPACE	--	1						900	1	20 A	(E) POWER SUPPLY TO LVLC	42
TOTAL LOAD (VOLT-AMPS):				PHASE A	PHASE B	PHASE C							
				11191 VA	9350 VA	8091 VA							
TOTAL LOAD (AMPS):				95 A	80 A	67 A							

BRANCH PANEL E3		VOLTS: 120/208 Wye		A.I.C. RATING: 10 KAIC										
SUPPLY FROM:		PHASES: 3		BUS RATING: 225 A										
MOUNTING SURFACE		WIRES: 4		MAIN: 225 A										
ENCLOSURE: NEMA 1		CIRCUITS: 30												
CKT	Circuit Description	Rating	Poles	A	B	C	A	B	C	Poles	Rating	Circuit Description	CKT	
1	(E) HVAC - EF-2	15 A	1	700			700			1	15 A	(E) HVAC - EF-8	2	
3	(E) HVAC - EF-11	15 A	1	75			700		500	0	15 A	(E) HVAC - EF-9	4	
5	(E) HVAC - EF-3	15 A	1				0		0	1	15 A	(E) SPARE	6	
7	(E) HVAC - HV-2	15 A	3	400			400		0	0	15 A	(E) SPARE	8	
9	(E) HVAC - HV-2	15 A	3	400			400		0	0	15 A	(E) SPARE	10	
11	(E) HVAC - HV-3	25 A	3	1460			1460		400	0	15 A	(E) HVAC - HV-5	12	
13	(E) HVAC - HV-3	25 A	3	1460			1460		400	0	15 A	(E) HVAC - HV-5	14	
15	(E) HVAC - HV-3	25 A	3	1460			1460		400	0	15 A	(E) HVAC - HV-5	16	
17	(E) HVAC - HV-3	25 A	3	1460			1460		400	0	15 A	(E) HVAC - HV-5	18	
19	(E) HVAC - HV-4	15 A	3	980			980		0	200	1	20 A	SPARE	20
21	(E) HVAC - HV-4	15 A	3	980			980		0	200	1	20 A	SPARE	22
23	(E) HVAC - HV-4	15 A	3	980			980		0	200	1	15 A	(E) SOLENOID VALVES	24
25	(E) SPACE	--	1				4200			3	50 A	(E) HVAC - HV-6	26	
27	(E) SPACE	--	1				4200			3	50 A	(E) HVAC - HV-6	28	
29	(E) SPACE	--	1				4200			3	50 A	(E) HVAC - HV-6	30	
TOTAL LOAD (VOLT-AMPS):				PHASE A	PHASE B	PHASE C								
				8840 VA	8015 VA	8340 VA								
TOTAL LOAD (AMPS):				74 A	67 A	70 A								



ONE-LINE DIAGRAM
E100 NOT TO SCALE

- KEYED NOTES**
- (1) REFER TO PANEL SCHEDULE FOR SCOPE OF MODIFICATIONS.
 - (2) REPLACE EXISTING BREAKER(S) WITH NEW BREAKER(S) TO SERVE NEW EQUIPMENT AS SHOWN. MODIFY PANEL AS REQUIRED.
 - (3) REUSE EXISTING BREAKER TO SERVE NEW EQUIPMENT.
 - (4) REPLACE EXISTING BREAKER(S) WITH NEW BREAKER(S) TO SERVE NEW EQUIPMENT AS SHOWN. MODIFY PANEL AS REQUIRED.



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KEY PLAN

PROJECT NAME
HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO.	REVISIONS	DATE

SHEET TITLE
ELECTRICAL LEGENDS AND SCHEDULES

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: NM
REVIEWED BY: NW
SCALE: 1/8" = 1'-0"
PROJECT NO: 22007

ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 GENERAL

- A. ELECTRICAL PLAN DRAWINGS SHOW ONLY GENERAL LOCATIONS OF EQUIPMENT, DEVICES, AND RACEWAY UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER ROUTING OF RACEWAY, SUBJECT TO THE APPROVAL OF THE ENGINEER. MAKE ADJUSTMENTS AS NECESSARY TO WIRING, CONDUIT, DISCONNECTS, BRANCH CIRCUIT PROTECTION, AND OTHER AFFECTED MATERIAL OR EQUIPMENT TO ACCOMMODATE ACTUAL EQUIPMENT SUPPLIED FOR THIS PROJECT.

1.2 CODES, PERMITS, AND REGULATIONS

- A. DO ALL WORK AND INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), APPLICABLE STATE AND LOCAL LAWS AND ORDINANCES, AND THE POWER COMPANY. CONFLICTS, IF ANY, WILL BE RESOLVED AT THE DISCRETION OF THE ENGINEER.

1.3 COORDINATION

- A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.

PART 2 - PRODUCTS

2.1 GENERAL

- A. UNLESS OTHERWISE INDICATED, PROVIDE ALL FIRST-QUALITY NEW MATERIALS, FREE FROM ANY DEFECTS, AND SUITABLE FOR THE INTENDED USE AND THE SPACE PROVIDED. PROVIDE MATERIALS APPROVED BY UL WHEREVER STANDARDS HAVE ITEMS NOT SPECIFICALLY SHOWN OR SPECIFIED WHICH ARE REQUIRED TO PROVIDE THE COMPLETE SYSTEMS SPECIFIED HEREIN. WHERE TWO OR MORE UNITS OF THE SAME CLASS OF MATERIAL OR EQUIPMENT ARE REQUIRED, PROVIDE PRODUCTS OF A SINGLE MANUFACTURER. COMPONENT PARTS OF MATERIALS OR EQUIPMENT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.

2.2 EQUIPMENT FINISH

- A. UNLESS OTHERWISE INDICATED, FINISH FOR ELECTRICAL EQUIPMENT AND ENCLOSURES SHALL BE MANUFACTURER'S STANDARD GRAY OR ANSI 61 GRAY OVER A PRIMER AND RUST INHIBITOR.

2.3 JUNCTION AND PULLBOXES

- A. LARGE SHEET STEEL BOX: NEMA 1.
 1. BOX: CODE-GAUGE, GALVANIZED STEEL.
 2. COVER: FULL ACCESS, SCREW TYPE.
 3. MACHINE SCREWS: CORROSION-RESISTANT.

- B. LARGE WEATHERPROOF: NEMA 3R.
 1. BOX: GALVANIZED STEEL.
 2. COVER: SCREW WITH PROVISIONS FOR PAD LOCKING.
 3. EMBOSSED MOUNTING HOLES ON BACK OF ENCLOSURE.
 4. NO GASKETING.

2.4 CONDUIT AND TUBING

- A. ELECTRIC METALLIC TUBING (EMT):
 1. MEET REQUIREMENTS OF ANSI C80.3 AND UL 797.
 2. MATERIAL: HOT-DIP GALVANIZED, WITH CHROMATED AND LACQUERED PROTECTIVE LAYER.

- B. FLEXIBLE METAL LIQUID-TIGHT CONDUIT:
 1. UL 360 LISTED FOR 105°C INSULATED CONDUCTORS.
 2. MATERIAL: GALVANIZED STEEL, WITH AN EXTRUDED PVC JACKET.

2.5 FITTINGS

- A. ELECTRIC METALLIC TUBING:
 1. MEET REQUIREMENTS OF UL 514B.
 2. TYPE: STEEL BODY AND LOCK NUTS WITH STEEL OR MALLEABLE IRON COMPRESSION NUTS.
 3. TYPE: STEEL BODY WITH SET SCREWS AND INSULATED THROAT.
 C. FLEXIBLE METAL LIQUID-TIGHT CONDUIT: INSULATED THROAT AND SEALING O-RINGS.

2.6 CONDUCTORS

- A. ALL CONDUCTORS SHOWN SHALL BE NEW UNLESS OTHERWISE INDICATED.
- B. CONDUCTOR TYPE:
 1. SOLID COPPER.
- C. INSULATION: TYPE THHN/THWN, 90°C DRY OR 75°C WET.

2.7 CONDUCTOR ACCESSORIES

- A. TAPE:
 1. GENERAL PURPOSE, FLAME RETARDANT: 7 MIL VINYL PLASTIC, RATED FOR 90°C MINIMUM MEETING REQUIREMENTS OF UL 510, FLAME RETARDANT, COLD AND WEATHER RESISTANT. 8.5 MIL VINYL PLASTIC.
 2. FLAME RETARDANT, COLD AND WEATHER RESISTANT. 8.5 MIL VINYL PLASTIC.
- B. CABLE TIES:
 1. NYLON, ADJUSTABLE, AND SELF-LOCKING.

2.8 DISCONNECT SWITCH, INDIVIDUAL, 0 TO 600 VOLTS:

- A. NEMA KS 1.
 B. QUICK-MAKE, QUICK-BREAK, MOTOR RATED, LOAD-BREAK, HEAVY-DUTY (HD) TYPE WITH EXTERNAL MARKINGS CLEARLY INDICATING ON/OFF POSITIONS.
 C. ENCLOSURE: NEMA 12, INDUSTRIAL USE, NEMA 3R, DENOTED BY WP, UNLESS OTHERWISE SHOWN.
 D. INTERLOCK: ENCLOSURE AND SWITCH TO PREVENT OPENING COVER WITH SWITCH IN THE ON POSITION.
 E. LOCKABLE TO THE OPEN POSITION. PROVIDE TAG READING "DO NOT OPEN UNDER LOAD."

PART 3 - EXECUTION

3.1 GENERAL PROCEDURES

- A. COORDINATE ELECTRICAL WORK WITH THE OWNER AND WORK OF OTHER TRADES TO AVOID CONFLICTS, ERRORS, DELAYS, AND UNNECESSARY INTERFERENCE DURING CONSTRUCTION.

3.2 PROTECTION DURING CONSTRUCTION

- A. FOLLOWING INSTALLATION, PROTECT MATERIALS, EQUIPMENT, AND INSULATION FROM CORROSION, PHYSICAL DAMAGE, AND MOISTURE. CAP CONDUIT RUNS DURING CONSTRUCTION WITH MANUFACTURED SEALS. KEEP OPENINGS IN BOXES OR EQUIPMENT CLOSED DURING CONSTRUCTION.

3.3 MATERIAL AND EQUIPMENT INSTALLATION

- A. FOLLOW THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS UNLESS OTHERWISE INDICATED. FOLLOW THE ENGINEER'S DECISION, WHEREVER ANY CONFLICT ARISES. KEEP COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AVAILABLE ON THE JOBSITE FOR REVIEW AT ALL TIMES.

3.4 CUTTING AND PATCHING

- A. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF THE ENGINEER. FOLLOWING SUCH WORK, RESTORE SURFACES NEATLY TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.

3.5 CLEANING AND TOUCH-UP PAINTING

- A. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH. UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS, AND DEBRIS FROM THE PREMISES AND FROM THE INTERIOR AND EXTERIOR OF ALL DEVICES AND EQUIPMENT. REFINISH DAMAGED SURFACES TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.

3.6 RACEWAY SYSTEM

- A. INTERIOR, EXPOSED:
 1. ELECTRIC METALLIC TUBING.
- B. INTERIOR, CONCEALED (NOT EMBEDDED IN CONCRETE):
 1. GALVANIZED RIGID STEEL: WHEN ENTERING THE BUILDING FROM AN OUTSIDE SOURCE WHERE THE CONDUIT RUN MUST BE WATERTIGHT.
 2. GALVANIZED STEEL FLEX: USE ONLY IN INDOOR, DRY LOCATIONS FOR FINAL CONNECTION TO FIXTURES IN LAY IN APPLICATIONS OR OTHER EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT.
 3. ELECTRIC METALLIC TUBING: ALL OTHER LOCATIONS.

- C. FOR EQUIPMENT WHERE FLEXIBLE CONNECTION IS REQUIRED TO MINIMIZE VIBRATION:
 1. FLEXIBLE METAL LIQUID-TIGHT CONDUIT.
 2. LENGTH: 18-INCH MINIMUM, 60-INCH MAXIMUM OF SUFFICIENT LENGTH TO ALLOW MOVEMENT OR ADJUSTMENT OF EQUIPMENT.

- D. BOX TYPE (ALL RACEWAY SYSTEMS)

1. EXTERIOR LOCATIONS: WEATHERPROOF TYPE 3R.
 2. INTERIOR LOCATIONS: INSTALL PULL BOXES WHERE SHOWN AND WHERE NECESSARY TO TERMINATE, TAP-OFF, OR REDIRECT MULTIPLE CONDUIT RUNS. INSTALL PULL BOXES WHERE NECESSARY IN RACEWAY SYSTEM TO FACILITATE CONDUIT INSTALLATION. INSTALL PULL BOXES IN CONDUIT RUNS AT LEAST EVERY 150 FEET OR AFTER THE EQUIVALENT OF THREE RIGHT-ANGLE BENDS. USE OUTLET BOXES AS JUNCTION AND PULL BOXES WHEREVER POSSIBLE AND ALLOWED BY APPLICABLE CODES.

- F. SUPPORT BOXES INDEPENDENTLY OF CONDUIT BY ATTACHMENT TO BUILDING STRUCTURE OR STRUCTURAL MEMBER. INSTALL BAR HANGERS IN FRAME CONSTRUCTION, OR FASTEN BOXES DIRECTLY WITH WOOD SCREWS ON WOOD, BOLTS AND EXPANSION SHIELDS ON CONCRETE OR BRICK. TOGGLE BOLTS ON HOLLOW MASONRY UNITS, AND MACHINE SCREWS OR WELDED THREADED STUDS ON STEELWORK.

3.7 RACEWAY INSTALLATION

- A. CONDUIT AND TUBING SIZES SHOWN ARE BASED ON THE USE OF COPPER CONDUCTORS.
- B. MAINTAIN RACEWAY ENTIRELY FREE OF OBSTRUCTIONS AND MOISTURE.
- C. GROUP RACEWAYS INSTALLED IN SAME AREA.
- D. FOLLOW STRUCTURAL SURFACE CONTOURS WHEN INSTALLING EXPOSED RACEWAYS. AVOID OBSTRUCTION OF PASSAGEWAYS. RUN EXPOSED RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES.

- E. INSTALL WATERTIGHT CONDUIT SEALING IN OUTDOOR, UNDERGROUND, OR WET LOCATIONS.

- F. ALL METAL CONDUIT TO BE REAMED, BURRS REMOVED, AND CLEANED BEFORE INSTALLATION OF CONDUCTORS, WIRES, OR CABLES.

- G. FOR EMPTY CONDUIT INSTALL A NYLON PULL CORD TO BE USED FOR FUTURE INSTALLATION.

3.8 RACEWAY SUPPORT

- A. SUPPORT FROM STRUCTURAL MEMBERS ONLY. AT INTERVALS NOT EXCEEDING NEC REQUIREMENTS, AND IN ANY CASE NOT EXCEEDING 10 FEET. DO NOT SUPPORT FROM PIPING, PIPE SUPPORTS, OR OTHER RACEWAYS.

- B. WALL BRACKETS AND ASSOCIATED HARDWARE IN CONTACT WITH CONCRETE OR MASONRY SHALL BE STAINLESS STEEL. PROVIDE GALVANIZED STEEL AT ALL OTHER LOCATIONS. STRAP HANGERS, AND CEILING TRAPEZE INCLUDING HARDWARE, SHALL BE GALVANIZED STEEL.

- C. PROVIDE AND ATTACH WALL BRACKETS, STRAP HANGERS, OR CEILING TRAPEZE AS FOLLOWS:
 1. WOOD: WOOD SCREWS.
 2. HOLLOW MASONRY UNITS: TOGGLE BOLTS.
 3. CONCRETE OR BRICK: EXPANSION SHIELDS, OR THREADED STUDS DRIVEN IN BY POWDER CHARGE, WITH LOCK WASHERS, AND NUTS.
 4. STEELWORK: MACHINE SCREWS.

- D. NAILS OR WOODEN PLUGS INSERTED IN CONCRETE OR MASONRY FOR ATTACHING RACEWAY NOT PERMITTED. DO NOT WELD RACEWAYS OR PIPE STRAPS TO STEEL STRUCTURES. DO NOT USE WIRE IN LIEU OF STRAPS OR HANGERS.

3.9 RACEWAY BENDS

- A. INSTALL CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE.
- B. AVOID FIELD-MADE BENDS AND OFFSETS, BUT WHERE NECESSARY, MAKE WITH ACCEPTABLE HICKY OR BENDING MACHINE. DO NOT HEAT METAL RACEWAYS TO FACILITATE BENDING.
- C. FLEXIBLE CONDUIT: DO NOT MAKE BENDS THAT EXCEED ALLOWABLE CONDUCTOR BENDING RADIUS OF CABLE TO BE INSTALLED OR THAT SIGNIFICANTLY RESTRICTS CONDUIT FLEXIBILITY.

3.10 EXPANSION/DEFLECTION FITTINGS

- A. PROVIDE ON ALL RACEWAYS AT STRUCTURAL EXPANSION JOINTS.

3.11 TERMINATION AT ENCLOSURES

- A. SHEET METAL BOXES, CABINETS, AND ENCLOSURES:
 1. ELECTRIC METALLIC TUBING: PROVIDE GLAND COMPRESSION, INSULATED CONNECTORS.
 2. FLEXIBLE METAL CONDUIT: PROVIDE TWO SCREW TYPE, INSULATED, MALLEABLE IRON CONNECTORS.

3.12 CONDUCTORS

- A. DO NOT SPLICE INCOMING SERVICE CONDUCTORS AND BRANCH POWER DISTRIBUTION CONDUCTORS NO. 6 AWG AND LARGER UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.
- B. CONNECTIONS AND TERMINATIONS:
 1. INSTALL WIRE NUTS ONLY ON SOLID CONDUCTORS.
 2. INSTALL NYLON SELF-INSULATED CRIMP CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 6 AWG AND SMALLER.
 3. INSTALL UNSULATED CRIMP CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 4 AWG THROUGH NO. 20 AWG.
 4. INSTALL UNSULATED, BOLTED, TWO-WAY CONNECTORS AND TERMINATORS FOR CIRCUIT CONDUCTORS NO. 40 AWG AND LARGER.
 5. TAPE INSULATE ALL UNSULATED CONNECTIONS.
 6. PLACE NO MORE THAN ONE CONDUCTOR IN ANY SINGLE-BARREL PRESSURE CONNECTION.
 7. INSTALL CRIMP CONNECTORS WITH TOOLS APPROVED BY CONNECTOR MANUFACTURER.
 8. COMPRESSION LUGS:
 a. ATTACHED WITH A TOOL SPECIFICALLY DESIGNED FOR PURPOSE.
 b. DO NOT USE PLIERS TYPE CRIMPERS.

- C. DO NOT USE SOLDERED MECHANICAL JOINTS.

3.13 SPICES AND TERMINATIONS:

1. INDOORS: USE GENERAL PURPOSE, FLAME RETARDANT TAPE.
 2. OUTDOORS: USE FLAME RETARDANT, COLD- AND WEATHER-RESISTANT TAPE.
 E. CAP SPARE CONDUIT WITH UL LISTED END CAPS.

3.14 CABINETS AND PANELS:

1. REMOVE SURPLUS WIRE, BRIDLE AND SECURE.
 2. WHERE CONDUCTORS PASS THROUGH OPENINGS OR OVER EDGES IN SHEET METAL, REMOVE BURRS, CHAMFER EDGES, AND INSTALL BUSHINGS AND PROTECTIVE STRIPS OF INSULATING MATERIAL TO PROTECT THE CONDUCTORS.

3.15 GROUNDING

- A. UNLESS OTHERWISE INDICATED, GROUND ALL EXPOSED NONCURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, AND THE NEUTRAL OF ALL WIRING SYSTEMS IN ACCORDANCE WITH THE NEC, STATE, AND OTHER APPLICABLE LAWS AND REGULATIONS.
- 3.14 TESTING, INSPECTION, AND OBSERVATION
 A. INSULATION TESTING PER CEC 110.7 AND 2018 NFPA 99 6.7.4.1.2.2.
 END OF SECTION



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
 EUREKA, CA 95501

NO. REVISIONS DATE

SHEET TITLE

ELECTRICAL SPECIFICATIONS

ISSUED FOR:
 CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
 DRAWN BY: NM
 REVIEWED BY: NW
 SCALE: 1/8" = 1'-0"
 PROJECT NO: 22007

- KEYED NOTES**
- ① EXISTING ROOFTOP HEATING VENTILATOR TO BE REPLACED IN KIND. REFER TO PANEL SCHEDULES FOR NEW ELECTRICAL LOADS. DISCONNECT EXISTING CONDUIT AND CONDUCTORS FROM EXISTING EQUIPMENT. REUSE EXISTING CONDUIT, CONDUCTORS, AND DISCONNECT SWITCH FOR CONNECTIONS TO NEW EQUIPMENT.
 - ② REUSE EXISTING CONDUIT AND CONDUCTORS. REMOVE EXTRA CONDUCTOR PREVIOUSLY USED TO POWER (D) AC-1.



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
EUREKA, CA 95501

NO. REVISIONS DATE

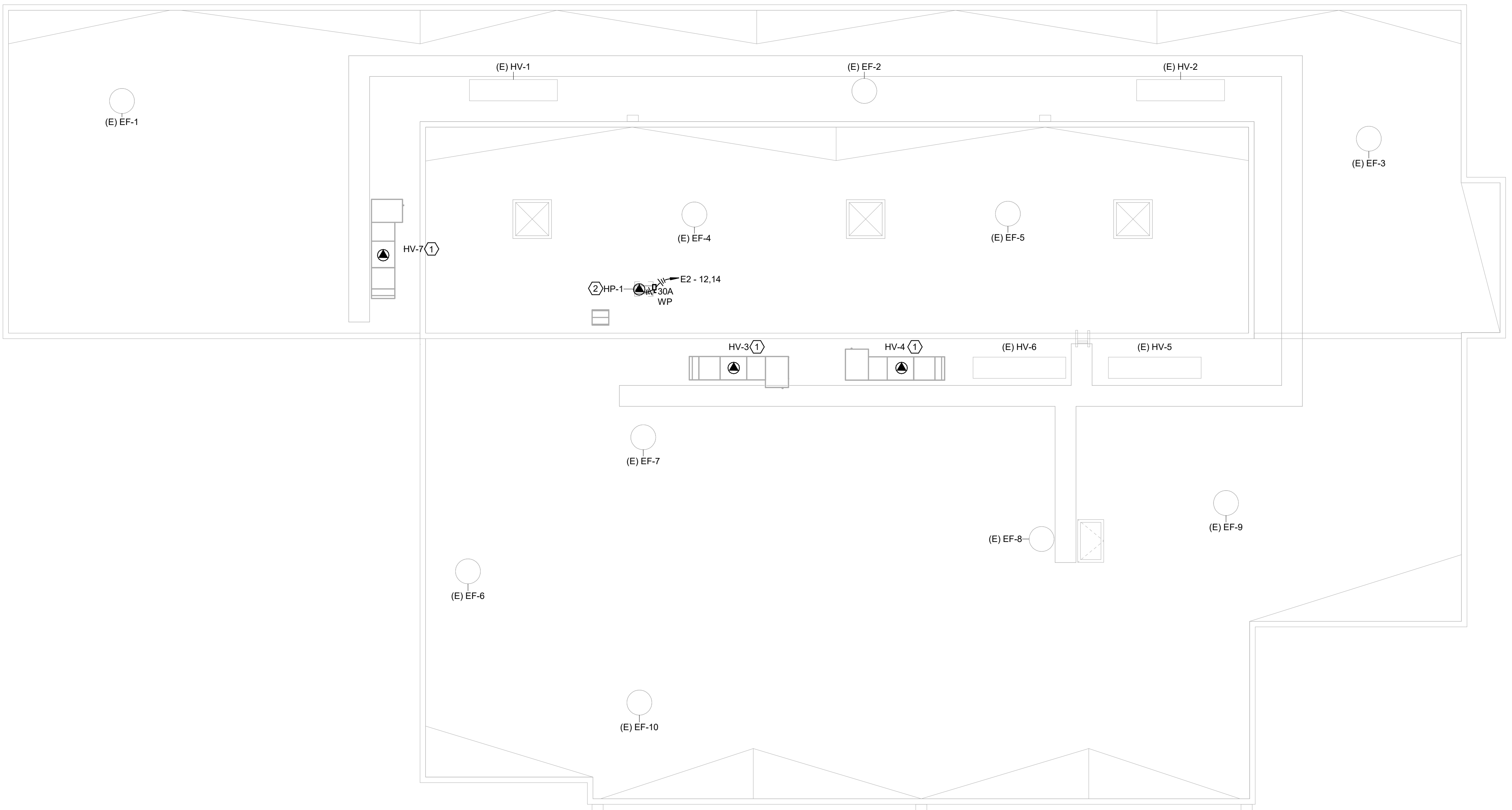
NO.	REVISIONS	DATE

SHEET TITLE

ELECTRICAL ROOF PLAN

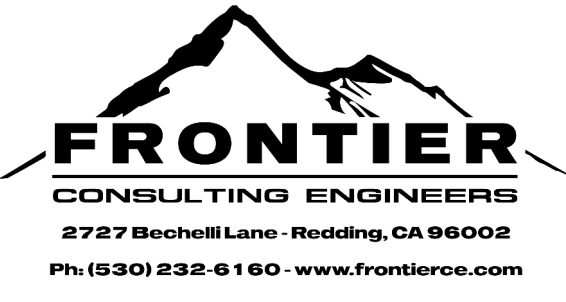
ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
DRAWN BY: NM
REVIEWED BY: NW
SCALE: 1/8" = 1'-0"
PROJECT NO: 22007



1 ELECTRICAL ROOF PLAN
E240 1/8" = 1'-0"

KEYED NOTES:
 ① CONNECT NEW HEATING UNIT TO EXISTING GAS PIPING PER 3/P100.



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LICENSE STAMP



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY REGIONAL FACILITY

2004 HARRISON AVENUE
 EUREKA, CA 95501

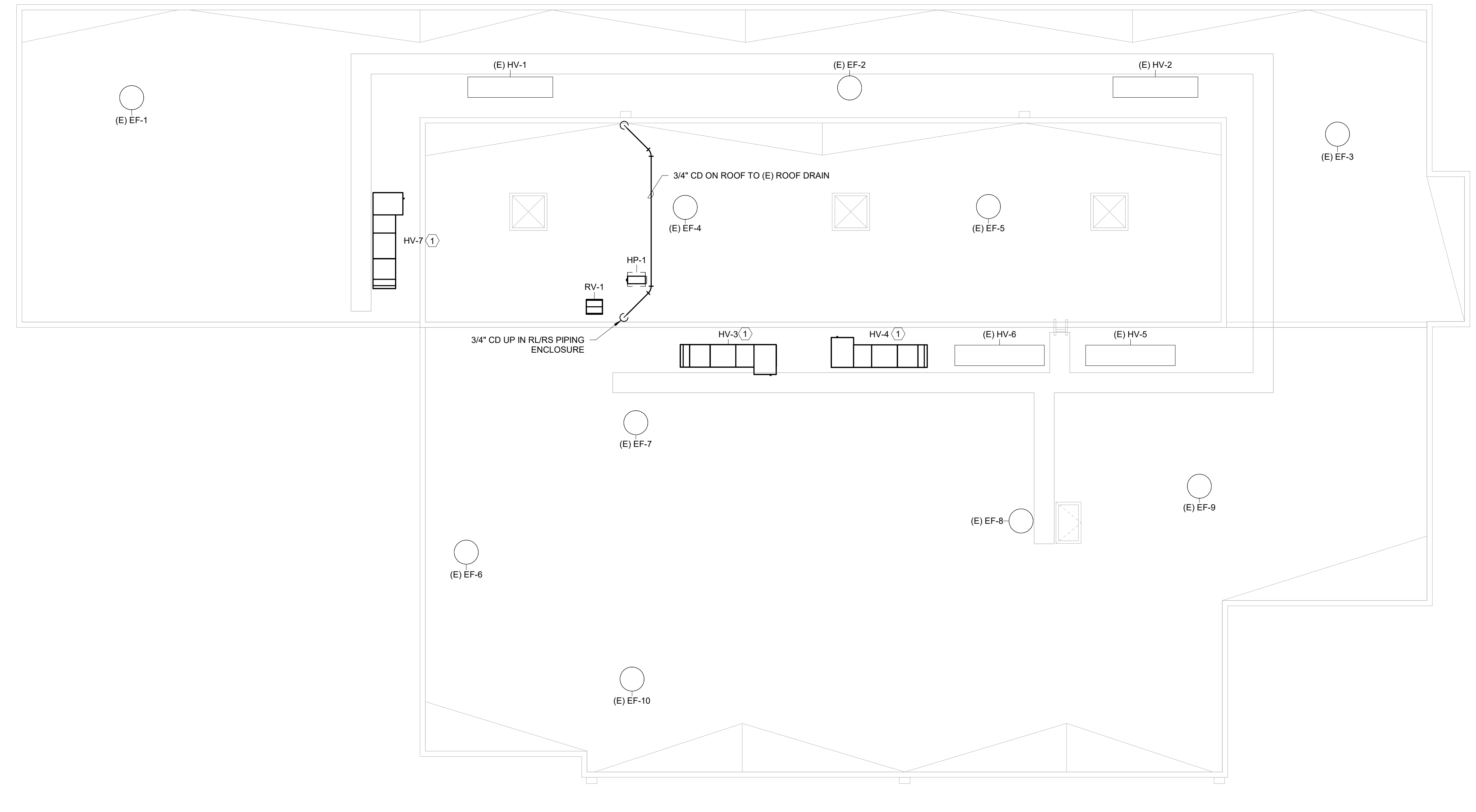
NO.	REVISIONS	DATE

SHEET TITLE

PLUMBING ROOF PLAN

ISSUED FOR:
 CONSTRUCTION DOCUMENTS

DATE: 9/20/2024
 DRAWN BY: EG
 REVIEWED BY: NW
 SCALE: 1/8" = 1'-0"
 PROJECT NO: 22007



① PLUMBING ROOF PLAN
 P240 1/8" = 1'-0"