

SCOPE OF WORK

- Project Scope of Work
- Laney College: Base Bid, Replace two (2) 350-ton centrifugal chillers as shown on the drawings;
 - Laney College: Alternate Bid, Replace two (2) 350-ton centrifugal chillers at with three (3) 200-ton high efficiency chillers with adjustable frequency drives (work not shown on the drawings). Remote mounted starters will be permitted. Work shall be complete including structural and electrical modifications required due to change in machine size, weight and starter location. Note that manufacturers have different requirements for equipment connection (both mechanical piping and electrical) and bid shall complete with this respect.
 - Laney College: Install primary-secondary chilled water pumping system, raising the existing chilled water pumps as variable flow secondary pumps;
 - Laney College: Replace cooling towers, condenser water pumps and water treatment;
 - Laney College: Relocate air compressors and controls at receiver tank. Provide new refrigerant air dryer;
 - Laney College: Install new gauge glass on existing hot water and chilled water expansion tanks located on roof at Admin Building;
 - Laney College: Replace three (3) 300 HP steam boilers with (3) 215 HP hot water boilers with required piping and pumping modifications. Note that owner has asbestos project currently being implemented which is not work of this project. Two steam boilers and asbestos ore to be removed from pipe elbows and breaching prior to this contractors access to the space. Third steam boiler is to be removed by owner's asbestos contractor (which is not work of this contract) after this contractor installs two hot water boilers and makes conversion of existing steam system to hot water. Coordinate this work accordingly;
 - Laney College: Remove one (1) domestic hot water heat exchanger and install new gas fired domestic hot water heater;
 - Laney College: Remove two (2) 20 HP electric steam boilers and install one (1) 40 HP gas fired steam boiler with appurtenances, piping and water treatment;
 - Laney College: Insulate sections of hot water piping systems abated for asbestos;
 - Laney College: Install Campus Wide direct digital control system, provide alternate bid deduct indicated;
 - Laney College: Replace existing pneumatic space thermostats with new and renovate existing pneumatic controls, provide alternate bid deduct indicated;
 - Laney College: Maintenance service pneumatic valves, actuators and dampers;
 - Merritt College: Remove one (1) domestic hot water heat exchanger and install new gas fired domestic hot water heater;
 - Merritt College: Install three new electric domestic hot water heaters;
 - Merritt College: Install Campus Wide direct digital control system, provide alternate bid deduct indicated;
 - Merritt College: Replace existing 5 hp duplex controls air compressor located in boiler room including receiver, refrigerant dryer, water and oil separator, automatic blow down and pressure regulator;
 - Merritt College: Replace existing pneumatic space thermostats with new and renovate existing pneumatic controls, provide alternate bid deduct indicated;
 - Merritt College: Maintenance service pneumatic valves, actuators and dampers;
 - College of Alameda: Remove one (1) domestic hot water heat exchanger and install new gas fired domestic hot water heater;
 - College of Alameda: Install three new electric domestic hot water heaters;
 - College of Alameda: Install Campus Wide direct digital control system, provide alternate bid deduct indicated;
 - College of Alameda: Replace existing 10 hp duplex controls air compressor (less receiver) located in boiler room including refrigerant dryer, water and oil separator, automatic blow down and pressure regulator;
 - College of Alameda: Replace existing pneumatic space thermostats with new and renovate existing pneumatic controls, provide alternate bid deduct indicated;
 - College of Alameda: Maintenance service pneumatic valves, actuators and dampers;
 - The contractor shall also provide all documentation and break-out pricing necessary as required by the State and Electric Utility Companies' documentation, to meet the submission standards for State Deferred Maintenance Funds and utility energy rebates. Work with engineer to provide this cost breakdown. Submittal for rebates will be by the Owner.

GENERAL NOTES AND CONDITIONS

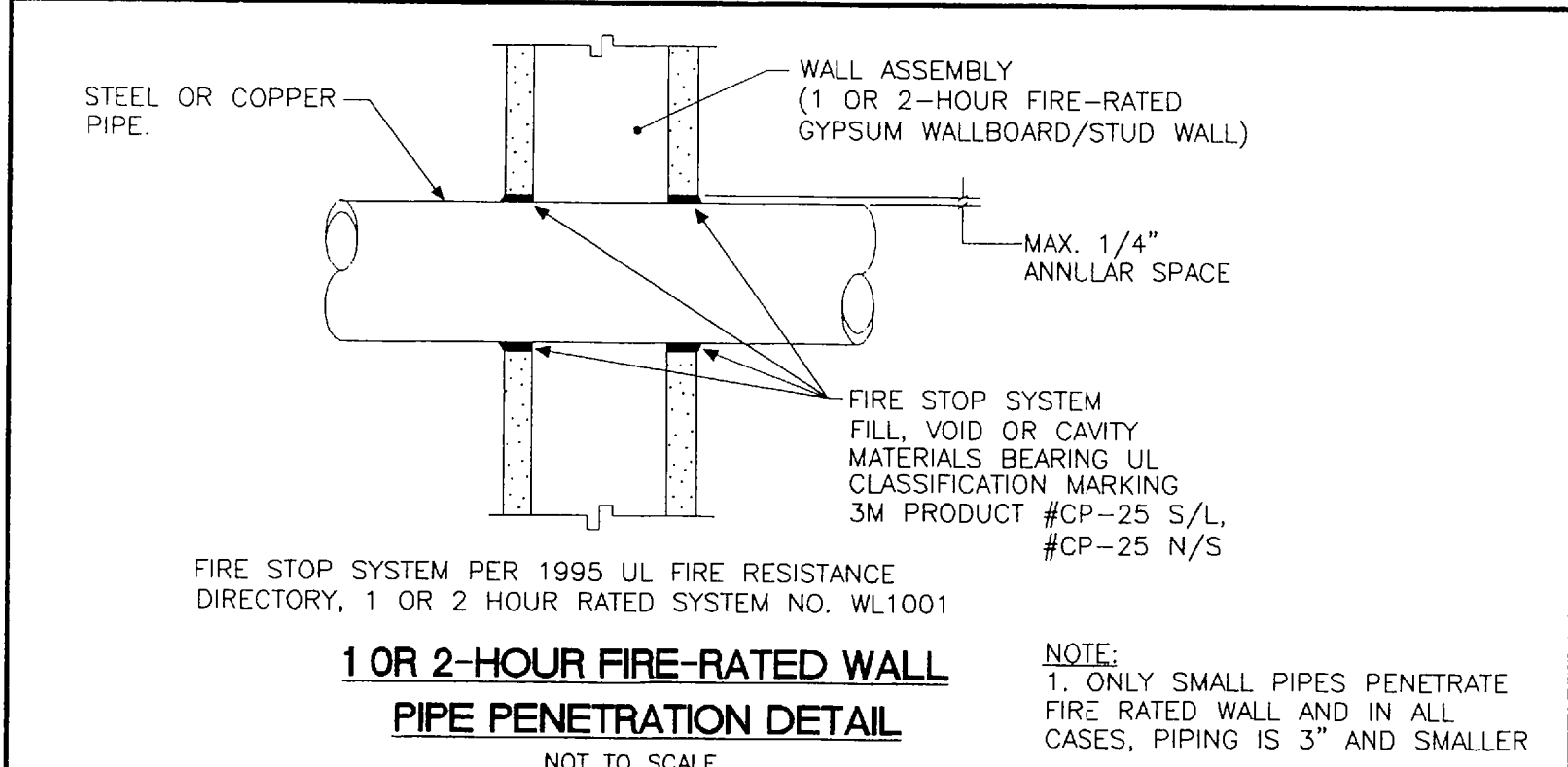
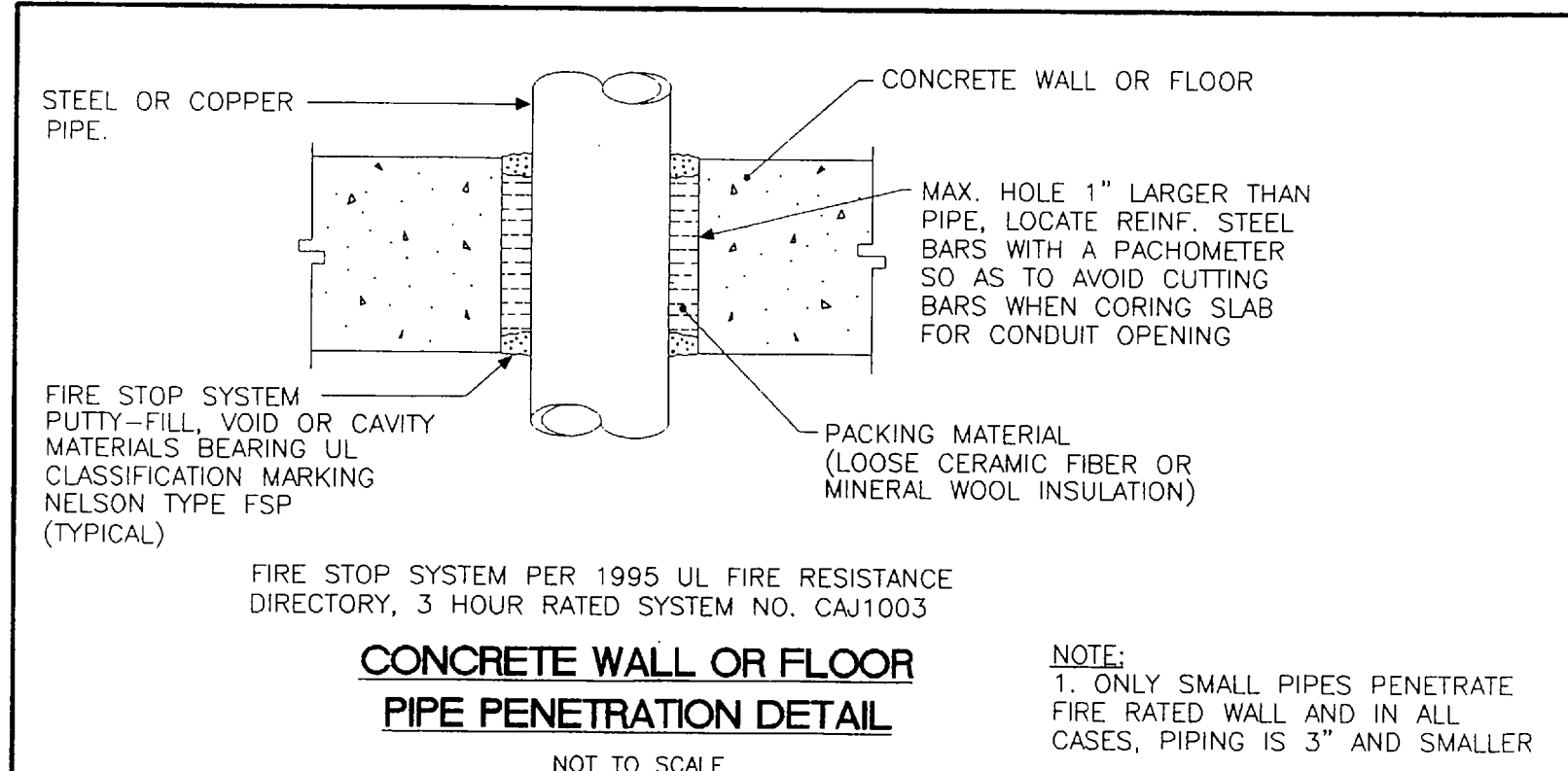
- THE ENTIRE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, AND SPECIAL CONDITIONS ARE A PART OF THESE CONSTRUCTION DOCUMENTS TO THE SAME EXTENT AS THOUGH THEY WERE CONTAINED HEREIN.
- ALL WORK SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF GOVERNING LOCAL, FIRE AND BUILDING CODES.
 - PRIOR TO SUBMISSION OF ANY BID, THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD SURVEY OF THE EXISTING SITE CONDITIONS. ANY SITE CONDITIONS THAT DEVIATE SIGNIFICANTLY FROM THE DESIGN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR CLARIFICATION PRIOR TO SUBMISSION OF THE CONTRACTOR'S BID. VERIFY DIMENSIONS OF BUILDING AND EQUIPMENT TO ESTABLISH REQUIREMENTS FOR THE CONSTRUCTION OF THIS PROJECT AND PREPARATION OF SHOP DRAWINGS.
 - SCHEDULE ALL WORK WITH OWNER AND ON SITE FACILITY ENGINEERING INCLUDING CONSTRUCTION, RIGGING, BUILDING ACCESS, SHUTDOWNS AND STORAGE. SUBMIT A CONSTRUCTION SCHEDULE WHICH SHALL BE APPROVED BY THE ENGINEER AND FACILITY OPERATORS PRIOR TO THE START OF CONSTRUCTION.
 - ALL UTILITIES REQUIRED FOR THE CONTINUOUS OPERATION OF ALL EXISTING FACILITIES MUST BE MAINTAINED IN SERVICE. SHUTDOWNS ARE REQUIRED FOR NEW SYSTEMS CONNECTIONS. COORDINATE ALL SHUTDOWNS WITH OWNER. SHUTDOWNS SHALL BE MINIMIZED WITH RESPECT TO QUANTITIES AND DURATION.
 - CONTRACTOR SHALL PROVIDE DUST PROTECTION AS REQUIRED TO CONTAIN DUST AND DEBRIS WITHIN CONSTRUCTION AREA. BROOD CLEAN ALL AREAS EACH DAY.
 - WHERE EXISTING CONSTRUCTION IS CUT, DAMAGED, OR REMODELED, PATCH WITH MATERIALS TO MATCH EXISTING, QUALITY AND PERFORMANCE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PROVIDING ALL RIGGING, SCAFFOLDING AND TEMPORARY CONNECTIONS.
 - WORK SHALL BE EXECUTED IN A MANNER THAT WILL CAUSE THE LEAST POSSIBLE DISTURBANCE TO THE OPERATION OF THE EXISTING FACILITIES.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS ON OR ABOUT THE CONSTRUCTION SITE AND ASSOCIATED WORK, IN ACCORDANCE WITH APPLICABLE LAWS AND CODES. GUARD ALL HAZARDS IN ACCORDANCE WITH THE SAFETY PROVISIONS OF THE LATEST MANUAL OF ACCIDENT PREVENTION PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA AND OSHA.
 - CLEAN ALL EXPOSED METAL SURFACES AFTER COMPLETION. PAINT ALL EXPOSED METAL SURFACES AND PAINTED SURFACES OF NEW EQUIPMENT DAMAGED DURING CONSTRUCTION. AFTER COMPLETION OF CHILLER INSTALLATION.
 - IF ANY PART OF THIS CONTRACTOR'S WORK DEPENDS UPON THE WORK OF A SEPARATE CONTRACTOR, THIS CONTRACTOR SHALL INSPECT SUCH OTHER WORK AND PROMPTLY REPORT IN WRITING TO THE OWNER ANY DEFECTS IN SUCH OTHER WORK THAT RENDERS IT UNSUITABLE TO RECEIVE THE WORK OF THIS CONTRACTOR. FAILURE OF THIS CONTRACTOR TO SO INSPECT AND REPORT SHALL CONSTITUTE THE CONTRACTOR'S ACCEPTANCE OF THE OTHER CONTRACTOR'S WORK, EXCEPT AS TO DEFECTS WHICH MAY DEVELOP IN OTHER CONTRACTOR'S WORK AFTER EXECUTION OF THIS CONTRACTOR'S WORK.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CURRENT REQUIREMENTS WITH THE MANUFACTURERS OF THE PRODUCTS USED IN THE PROJECT AND NOTIFY THE ENGINEER OF RECORD IF ANY DISCREPANCIES ARE FOUND BEFORE PURCHASE OR ACCEPTANCE OF THE PRODUCT.
 - WHEREVER MORE THAN ONE (1) MANUFACTURER'S PRODUCT IS SPECIFIED, THE FIRST-NAMED PRODUCT IS THE BASIS FOR THE PROJECT DESIGN AND THE USE OF ALTERNATE-NAMED MANUFACTURER'S PRODUCTS OR SUBSTITUTES MAY REQUIRE MODIFICATIONS IN THE PROJECT DESIGN AND CONSTRUCTION. IF SUCH ALTERNATIVES ARE PROPOSED BY CONTRACTOR AND ARE FAVORABLY REVIEWED BY THE ENGINEER OF RECORD, THE CONTRACTOR SHALL ASSUME THE COSTS REQUIRED TO MAKE THE NECESSARY REVISIONS, MODIFICATIONS AND "AS-BUILTS". SUBSTITUTED ITEMS THAT REQUIRE CALCULATIONS SHALL HAVE CALCULATIONS SUBMITTED WITH SHOP DRAWINGS BEFORE THE APPROVAL WILL BE CONSIDERED.
 - THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK DONE UNDER THIS SPECIFICATION WILL BE FREE FROM FAULTY MATERIALS OR WORKMANSHIP AND HEREBY AGREES TO REPAIR OR REPLACE WITHOUT COST TO THE OWNER AND TO HIS SATISFACTION ALL DEFECTS OR IMPERFECTIONS APPEARING IN SAID WORK. THE GUARANTEE SHALL BE FOR A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE OWNER WHICH INCLUDES ALL WORK DONE UNDER THE SPECIFICATION. SEE SPECIFICATIONS FOR ADDITIONAL WARRANTY AND GUARANTEE REQUIREMENTS.

GENERAL NOTES (CONTINUED)

- PIPES AND CONDUITS SHALL BE SUPPORTED AND BRACED PER THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", R-0003 THE SUPERSEDED "SEISMIC RESTRAINT SYSTEM", R-0120 UNSTRUT "SEISMIC BRACING SYSTEMS" OR OTHER PRE-APPROVED SYSTEM. ONCE THE EXACT LOCATION OF ALL THE PIPES AND CONDUITS HAVE BEEN ESTABLISHED, THE OWNER'S STRUCTURAL ENGINEER WILL CHECK SUPPORTING STRUCTURE TO ENSURE THAT THE DESIGN IS ADEQUATE. SEE FOOTNOTES 14 AND 15 TO CBC TITLE 24, PART 2, TABLE 16A-0 FOR LIMITATIONS.
 - THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO RECONSTRUCT THE CHILLED WATER PLANT AT LANAY COLLEGE IN ACCORDANCE WITH 1995 CALIFORNIA BUILDING CODE. SHOULD ANY CONDITION DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID CALIFORNIA BUILDING CODE, A CHANGE ORDER SHALL BE ISSUED DETAILED AND SPECIFYING THE REQUIRED WORK. THE CHANGE ORDER SHALL BE SUBMITTED TO, AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
 - ATTACHMENTS OF EQUIPMENT WEIGHING LESS THAN 400# AND SUPPORTED DIRECTLY ON THE FLOOR OR ROOF STRUCTURE OR TEMPORARILY OR MOVABLE EQUIPMENT OR EQUIPMENT WEIGHING LESS THAN 20# THAT IS SUPPORTED BY VIBRATION ISOLATION DEVICES SUSPENDED FROM THE ROOF, WALL, OR FLOOR NEED NOT BE DETAIL. (CBC TITLE 24, PART 2, SECTION 1630A.1). HOWEVER, SUCH EQUIPMENT MUST BE SUPPORTED AND ANCHORED TO RESIST THE FORCES PRESCRIBED BY SECTION 1630A.2 AND THE ANCHORAGE SHALL BE APPROVED BY THE ENGINEER AND USA AS A PART OF FIELD REVIEWS/INSPECTIONS.
 - WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, LOCATE THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
- INSTALLING EXPANSION ANCHORS (AS APPLICABLE)**
- PATCH AND REPAIR ALL DAMAGED SURFACES AS A RESULT OF NEW WORK INSTALLATION OR DEMOLITION.
 - PATCH AND REPAIR ALL ROOFING DAMAGED OR REMOVED AS A RESULT OF NEW WORK INSTALLATION OR DEMOLITION.
- EQUIPMENT ANCHORAGE**
- ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
- | | |
|--|-------------------------|
| Fixed Equipment on Grade | 20% of Operating Weight |
| Fixed Equipment on Structure | 30% of Operating Weight |
| Emergency Power Equipment on Grade | 30% of Operating Weight |
| Emergency Power Equipment on Structure | 40% of Operating Weight |
- Simultaneous Vertical Force - Use 1/3 X Horizontal Force.
- For Flexibly Mounted Equipment see Title 24, Section 1630A.2 CBC 1995
- WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.
- NOTES:**
- SEISMIC RESTRAINTS SHALL BE PROVIDED PER SMACNA "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS."

LEGEND

DRAWING SYMBOLS	PIPING SYMBOLS
<p>DETAIL NUMBER DRAWING NUMBER WHERE DRAWN</p> <p>SECTION NUMBER DRAWING NUMBER WHERE DRAWN</p> <p>UNIT DESIGNATION</p>	<p>DIRECTION OF FLOW</p> <p>ECCENTRIC REDUCER</p> <p>CONCENTRIC REDUCER</p> <p>CHWS- CHILLED WATER SUPPLY</p> <p>CHWR- CHILLED WATER RETURN</p> <p>CWTT- CONDENSER WATER RETURN (TO TOWER)</p> <p>CWTS- CONDENSER WATER SUPPLY (FROM TOWER)</p> <p>NEW PIPE</p> <p>EXISTING PIPE TO REMAIN</p> <p>EXTENT OF EXISTING TO BE REMOVED (SHOWN AS REQUIRED FOR CLARITY)</p> <p>POINT OF CONNECTION BETWEEN NEW AND EXISTING</p> <p>MAKE-UP WATER</p> <p>POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK</p> <p>TOP CONNECTION, 45° OR 90°</p> <p>BOTTOM CONNECTION, 45° OR 90°</p> <p>SIDE CONNECTION</p> <p>RISE OR DROP IN PIPE</p> <p>STRAINER</p> <p>BLOW OFF STRAINER</p> <p>THERMOMETER</p> <p>PRESSURE GAUGE</p> <p>GATE VALVE</p> <p>CHECK VALVE</p> <p>BUTTERFLY VALVE W/O ACTUATOR (SEE SPECIFICATION FOR OPERATOR TYPE)</p> <p>ISOLATION VALVE</p> <p>BALL VALVE</p> <p>AUTOMATIC AIR VENT</p> <p>VENTURI FLOW METER</p> <p>TEST PLUG (PRESSURE & TEMPERATURE)</p> <p>3/4" HOSE ADAPTER</p> <p>PRESSURE GAUGE COCK</p> <p>NEW PIPE</p> <p>EXISTING PIPE TO REMAIN</p> <p>POINT OF CONNECTION BETWEEN NEW AND EXISTING</p> <p>EXTENT OF EXISTING TO BE REMOVED</p> <p>POINT OF DEMOLITION</p> <p>COMPRESSED AIR</p> <p>ACID VENT</p> <p>ACID WASTE</p> <p>CONDENSATE DRAIN</p> <p>THREADED UNION</p> <p>FLANGED UNION</p> <p>GATE VALVE</p> <p>CHECK VALVE</p> <p>BUTTERFLY VALVE W/O ACTUATOR (SEE SPECIFICATION FOR OPERATOR TYPE)</p> <p>ISOLATION VALVE</p> <p>BALL VALVE</p> <p>BASE MOUNTED PUMP</p> <p>INLINE PUMP</p> <p>FLEXIBLE CONNECTION</p> <p>FLOW SWITCH</p> <p>DUPLEX STRAINER</p> <p>END CAP</p> <p>90 DEG ELBOW</p> <p>45 DEG ELBOW</p> <p>TURNUED UP</p> <p>TURNUED DOWN</p> <p>TEE</p> <p>TEE OUTLET UP</p> <p>TEE OUTLET DOWN</p> <p>BALL VALVE</p> <p>BUTTERFLY VALVE</p> <p>GATE VALVE</p> <p>GLOBE VALVE</p> <p>TWO WAY VALVE</p> <p>PRESSURE RELIEF VALVE</p> <p>PRESSURE REDUCING VALVE</p> <p>PLUG VALVE</p> <p>VENT PIPE</p> <p>MANUAL VOLUME DAMPER</p> <p>AIR VENT</p> <p>MAKE-UP VALVE</p> <p>NORMALLY OPEN</p> <p>NORMALLY CLOSED</p> <p>GATE VALVE</p> <p>MOTORIZED VALVE</p> <p>EXPANSION JOINT</p> <p>FLANGED END</p>
HVAC ABBREVIATIONS	
<p>AFD ADJUSTABLE FREQUENCY DRIVE</p> <p>CHWS CHILLED WATER SUPPLY</p> <p>CHWR CHILLED WATER RETURN</p> <p>CW COLD WATER</p> <p>CWTT CONDENSER WATER SUPPLY (FROM TOWER)</p> <p>CWTS CONDENSER WATER RETURN (TO TOWER)</p> <p>CNTT CONDENSER WATER RETURN (TO TOWER)</p> <p>E/A EXHAUST AIR</p> <p>EF EXHAUST FAN</p> <p>ET EXPANSION TANK</p> <p>(E) EXISTING</p> <p>(N) NEW</p> <p>FC FLEXIBLE CONNECTION</p> <p>FD FLOOR DRAIN</p> <p>FLR FLOOR</p> <p>HP HORSEPOWER</p> <p>MAX MAXIMUM</p> <p>MIN MINIMUM</p> <p>NOM NOMINAL</p> <p>CHP CHILLED WATER PUMP</p> <p>CWP CONDENSER WATER PUMP</p> <p>PD PRESSURE DROP (FEET OF WATER)</p> <p>PHWS PRIMARY HOT WATER SUPPLY</p> <p>PHWR PRIMARY HOT WATER RETURN</p> <p>SHWP SECONDARY HOT WATER PUMP</p> <p>HWHP HOT WATER PUMP</p> <p>SCHWP SECONDARY CHILLED WATER PUMP</p> <p>WFM WATER FLOW METER</p> <p>CT COOLING TOWER</p> <p>EER ENERGY EFFICIENCY RATIO</p> <p>HC HEATING COIL</p> <p>LPR LOW PRESSURE STEAM CONDENSATE RETURN</p> <p>LPS LOW PRESSURE STEAM (15 PSIG & BELOW)</p> <p>LBS/HR POUNDS PER HOUR</p> <p>A COMPRESSED AIR</p> <p>ABV ABOVE</p> <p>AD ABOVE DOOR</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>AP ACCESS PANEL</p> <p>BLW BELOW</p> <p>BFF BELOW FINISH FLOOR</p> <p>BHP BRAKE HORSEPOWER</p> <p>BV BUTTERFLY VALVE</p> <p>CC COOLING COIL</p> <p>CFM CUBIC FEET PER MINUTE</p> <p>CH CHILLER</p> <p>EL ENERGY EFFICIENCY RATIO</p> <p>CEILING</p> <p>CO CLEANOUT</p> <p>CW COLD/DOMESTIC WATER</p> <p>CV CHECK VALVE</p> <p>D CONDENSATE DRAIN</p> <p>DB DRY BULB</p> <p>DDC DIRECT DIGITAL COMPUTERIZED CONTROLLER</p> <p>DI DIGITAL INPUT CONTROL POINT</p> <p>DM DAMPER MOTOR</p> <p>DN DOWN</p> <p>DO DIGITAL OUTPUT CONTROL POINT</p> <p>DP DIFFERENTIAL PRESSURE SENSOR</p> <p>ELEVATION</p> <p>EP EXPOSED PIPING</p> <p>EQUIP EQUIPMENT</p> <p>ESP EXTERNAL STATIC PRESSURE</p> <p>EWB ENTERING WET BULB TEMPERATURE</p> <p>EWT ENTERING WATER TEMPERATURE</p> <p>FCD FLOOR CLEAN OUT</p> <p>FD FLOOR DRAIN</p> <p>FLR/FLL FLOOR</p> <p>FFM FEET PER MINUTE</p> <p>G GAS</p> <p>GCD GRADE CLEAN OUT</p> <p>G.L.V. GLOBE VALVE</p> <p>GPM GALLONS PER MINUTE</p> <p>T GRADE</p> <p>GV GATE VALVE</p> <p>HC HEATING COIL</p> <p>HOA HAND-OFF-AUTO</p> <p>HP HORSEPOWER</p> <p>HW HOT/DOMESTIC WATER</p> <p>HWP HOT WATER PUMP</p> <p>HWR HOT WATER RETURN</p> <p>HWS HOT WATER SUPPLY</p> <p>KW KILOWATT</p> <p>LAT LEAVING AIR TEMPERATURE</p> <p>LOB LEAVING DRY BULB TEMPERATURE</p> <p>LPS LOW PRESSURE STEAM</p> <p>LWB LEAVING WET BULB TEMPERATURE</p> <p>LWT LEAVING WATER TEMPERATURE</p> <p>MUA MAKE-UP AIR</p> <p>MHP MOTOR HORSEPOWER</p> <p>MUW MAKE-UP WATER</p> <p>NC NORMALLY CLOSED</p> <p>NO NORMALLY OPEN</p> <p>OA OUTSIDE AIR</p> <p>OAI OUTSIDE AIR INTAKE</p> <p>O.S.&Y OUTSIDE SYSTEM & YOKE GATE VALVE</p> <p>RF ROOF</p> <p>T THERMOSTAT/TEMPERATURE SENSOR</p> <p>TSP TOTAL STATIC PRESSURE</p> <p>UC UNDERGROUND</p> <p>UTG UP TO GRADE</p> <p>V VENT PIPE</p> <p>VD MANUAL VOLUME DAMPER</p> <p>WV VALVE</p> <p>VTR VENT THRU ROOF</p> <p>VSD VARIABLE SPEED DRIVE</p> <p>WCO WALL CLEAN OUT</p> <p>OV GATE VALVE</p> <p>HC HEATING COIL</p> <p>HCA HAND-OFF-AUTO</p> <p>HP HORSEPOWER</p> <p>HW HOT/DOMESTIC WATER</p> <p>HWP HOT WATER PUMP</p> <p>HWR HOT WATER RETURN</p> <p>HWS HOT WATER SUPPLY</p>	



NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
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 WALNUT CREEK, CALIFORNIA 94596
 Project: 98-005



Client:

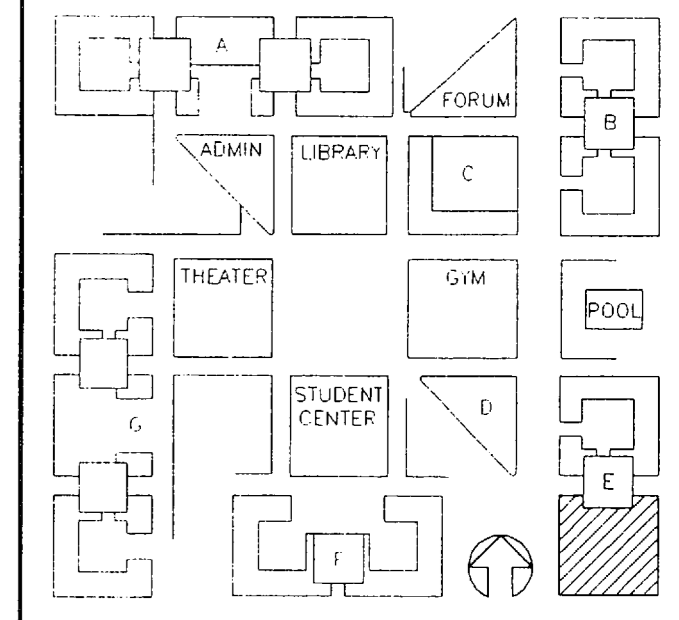
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

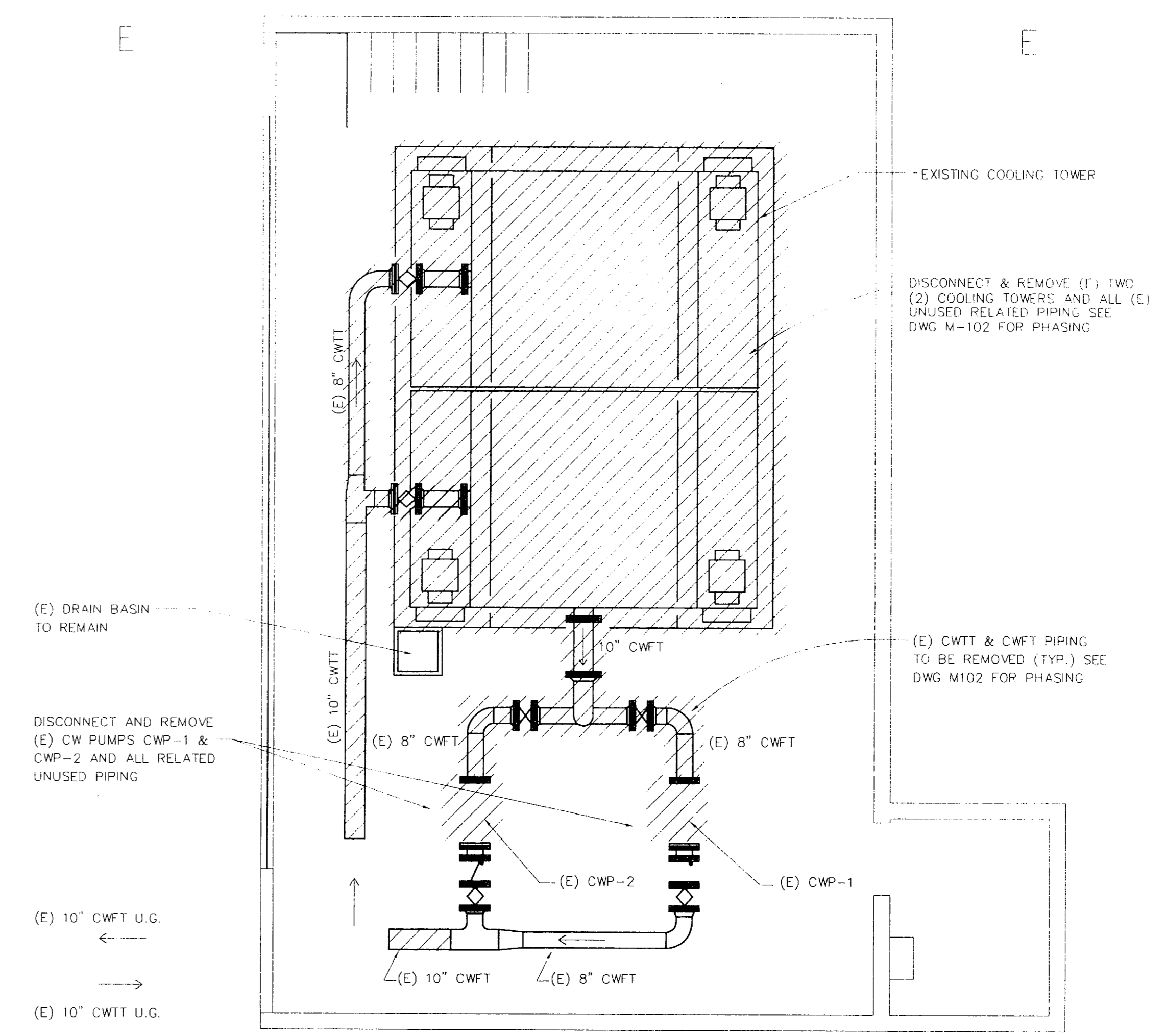
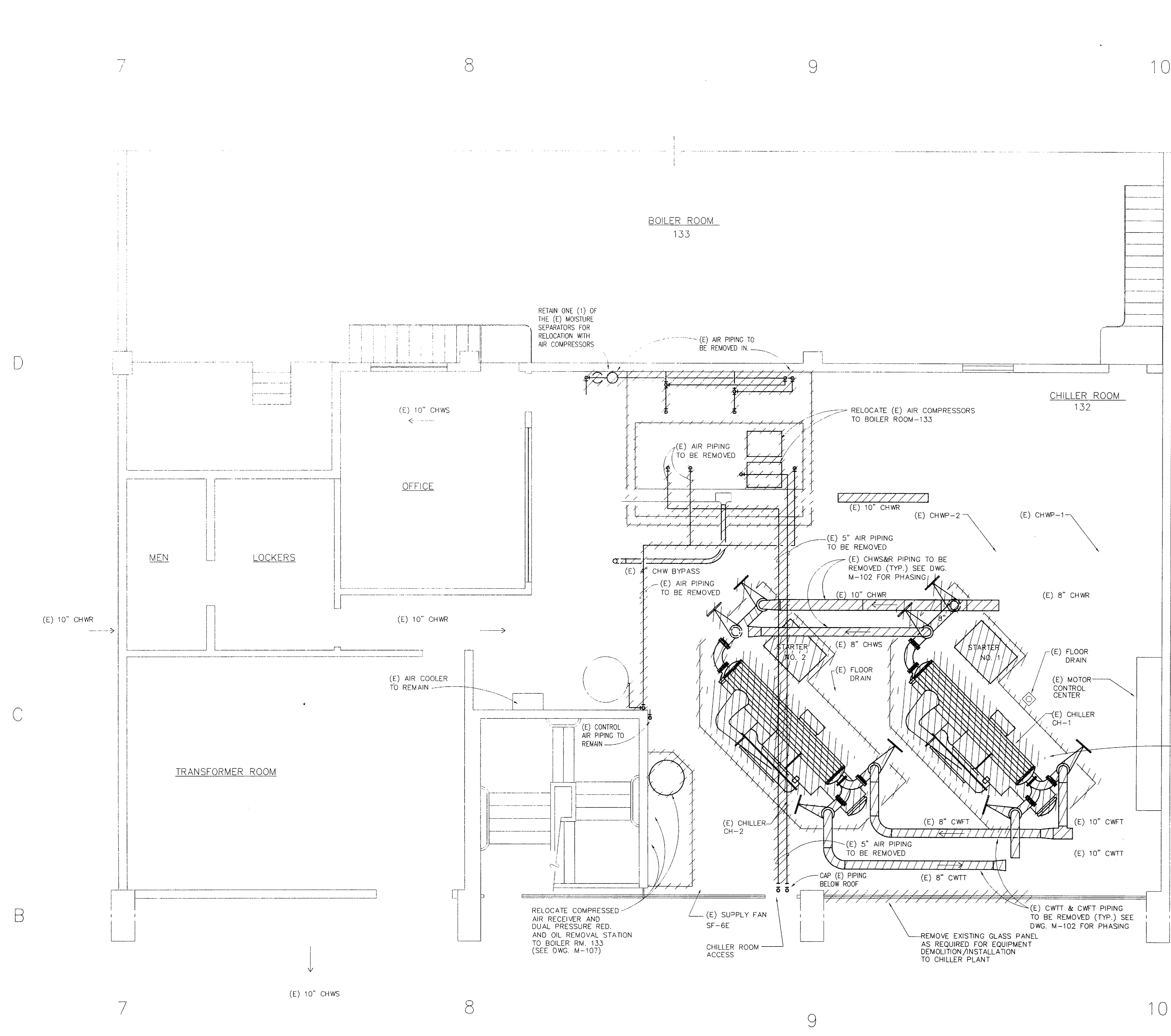
Drawing Name:
LEGEND, ABBREVIATIONS, NOTES AND SCOPE OF WORK

DATE:	5/28/98	JOB NO.:	98-005
SCALE:	NONE	SHEET NO.:	
DRAWN BY:	KLM	M-001	
CHECKED BY:	CAR		
APPROVED BY:	RCS		

CONSTRUCTION DOCUMENTS



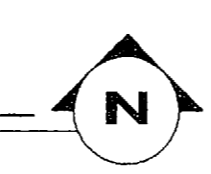
KEY PLAN



DEMOLITION NOTES:

- CONTRACTOR SHALL REMOVE COMPRESSOR & MOTOR FROM CH-1 INCLUDING INLET VANES, REMOVE FLOAT ASSEMBLY INCLUDING HOUSING AND REMOVE PURGE. DELIVER THESE COMPONENTS TO OWNER. COMPONENTS WILL BE USED FOR STUDENT TEACHING PURPOSES BY FACULTY, PROVIDE CHILLER COMPONENTS ACCORDINGLY.

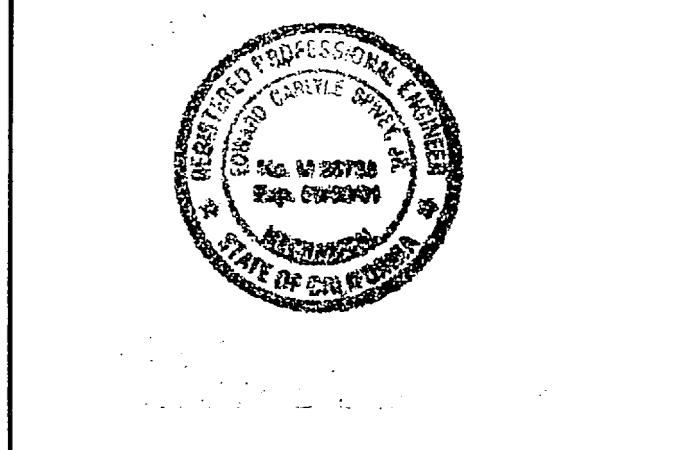
PARTIAL CENTRAL PLANT FLOOR PLAN-DEMOLITION
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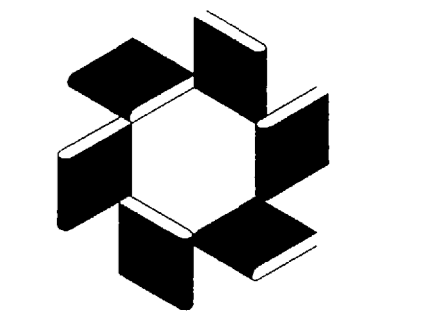


NO.	DATE	DESCRIPTION
REVISIONS		

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 (510) 944-8929
 Project: 98-005



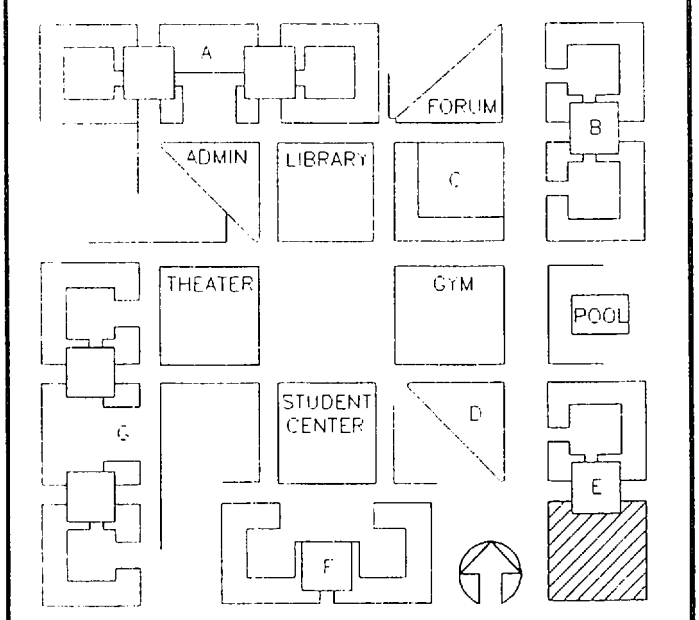
Client:

Peralta Community College District

Project Name:
**MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT**

Drawing Name:
**LANEY COLLEGE-CHILLER PLANT
 DEMOLITION**

DATE:	5/26/98	JOB NO:	98-005
SCALE:	1/4"=1'-0"	SHEET NO.	
DRAWN BY:	KLM	M-100	
CHECKED BY:	CAR		
APPROVED BY:	ECS		

CONSTRUCTION DOCUMENTS



KEY PLAN

NO.	DATE	DESCRIPTION
1	4/9/98	CHWS piping

REVISIONS

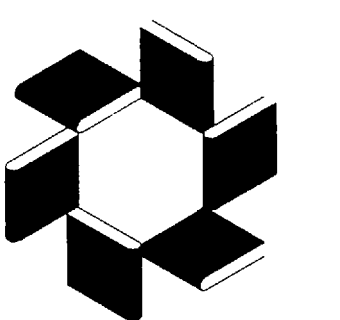
MECHANICAL CONSULTANT
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JUN 2 2 1999

BOSEK, GIBSON & ASSOCIATES, INC.
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 WALNUT CREEK, CALIFORNIA 94596
 Project: 98-005



Client:



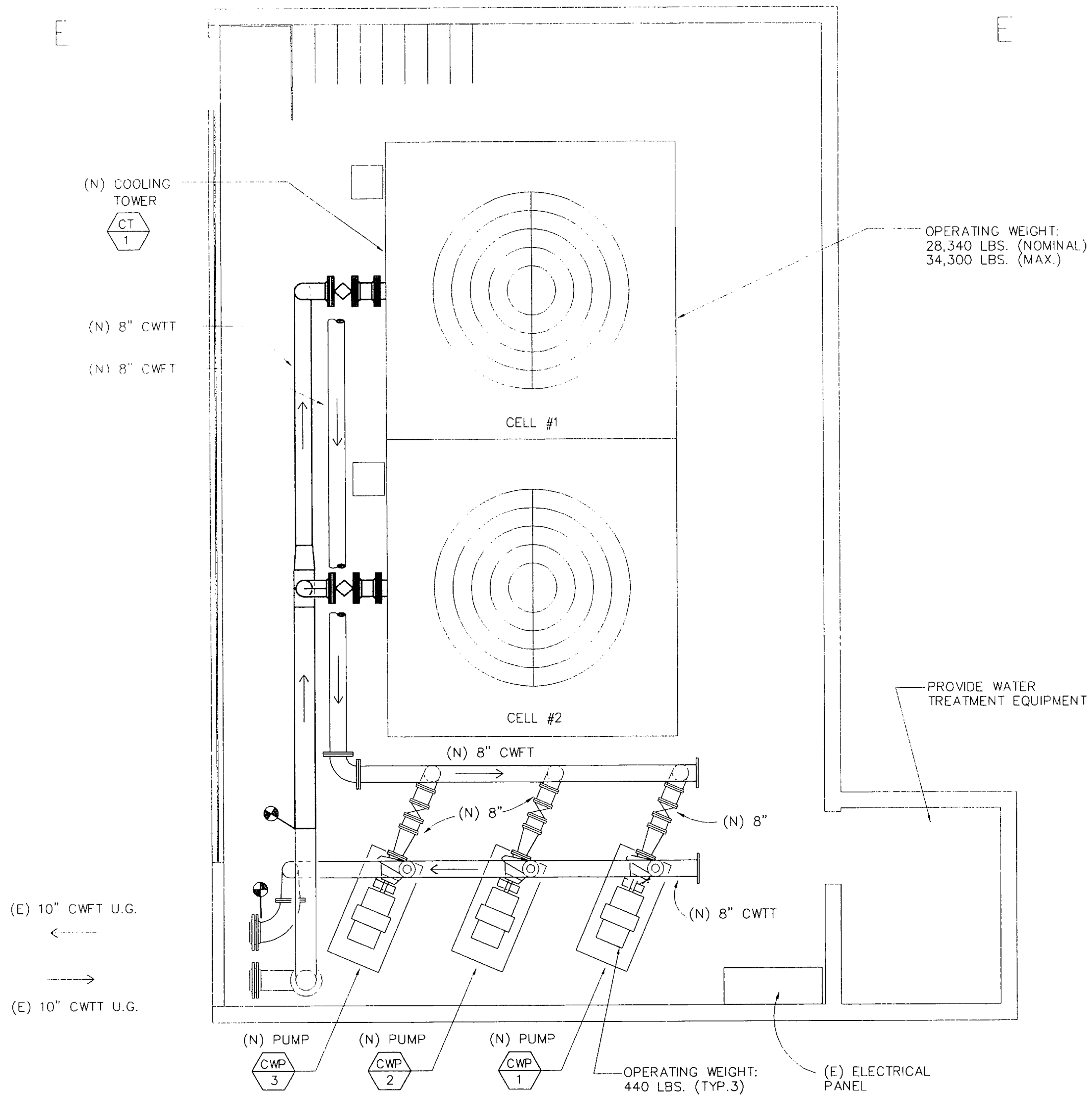
Peralta Community College District

Project Name:
 MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
 LANEY COLLEGE-CHILLER PLANT
 INSTALLATION

DATE:	5/26/98	JOB NO.:	98-005
SCALE:	1/4"=1'-0"	SHEET NO.:	
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CHECKED BY:	CAR		
APPROVED BY:	ECS		

CONSTRUCTION DOCUMENTS



GENERAL NOTES:

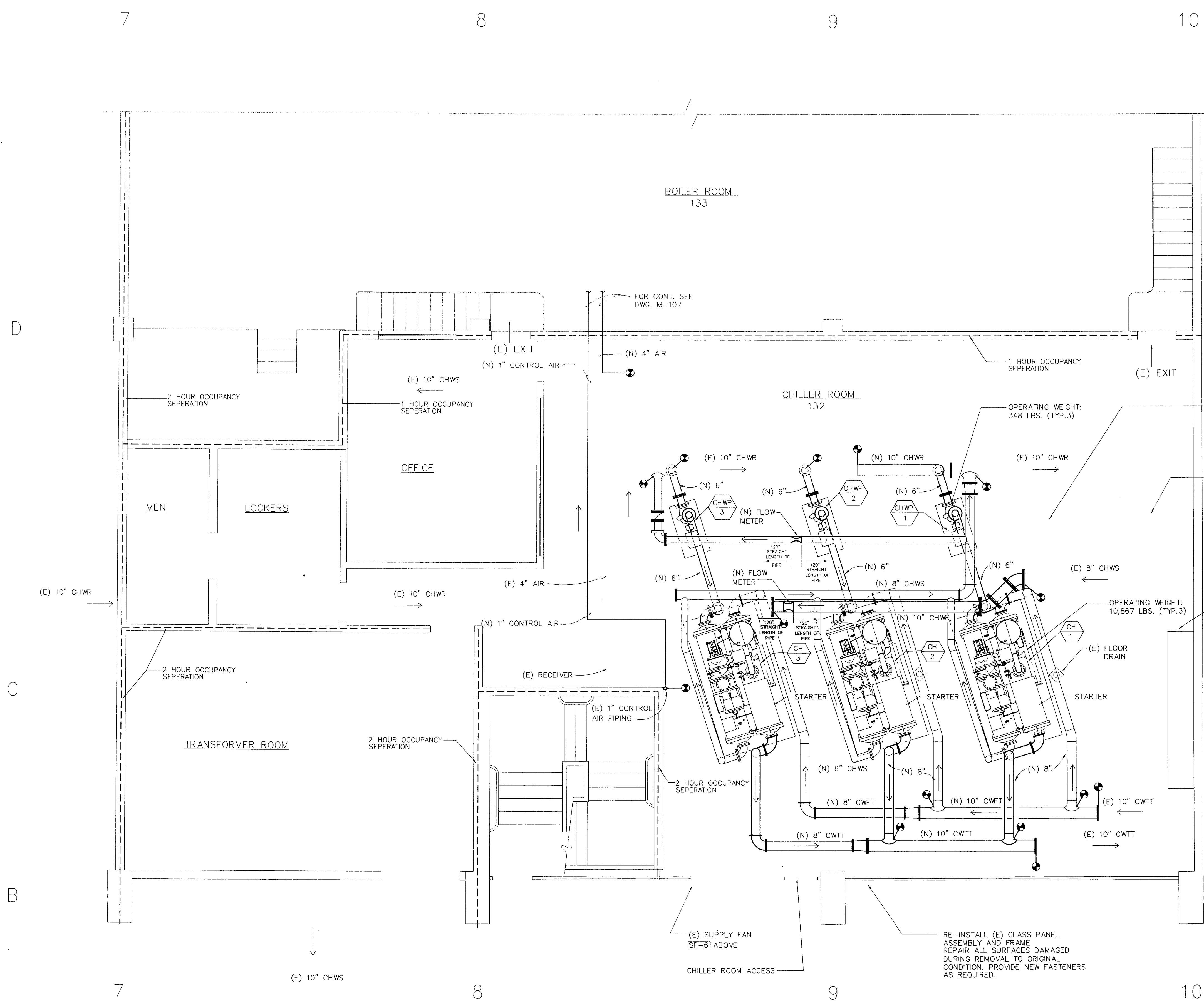
1. THE CONTRACTOR SHALL SECURE ALL NECESSARY INSURANCE AND OBTAIN THE REQUIRED PERMITS FROM THE AGENCY OR AGENCIES HAVING JURISDICTION.
2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO ANY MADE APART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM PERALTA COMMUNITY COLLEGE DISTRICT PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY CONTRACTOR.
3. ALL SHUTDOWN, REMOVAL, RE-INSTALLATION & RE-START UP OF (N) & (E) EQUIPMENT SHALL BE COORDINATED W/ PERALTA COMMUNITY COLLEGE DISTRICT. ASCERTAIN FROM BUILDING CHIEF ENGINEER AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
4. PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW FOR ROUTING OF PIPING TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED.
5. SUPPORT ALL PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FROM EQUIPMENT, FURNISH ADDITIONAL FRAMING. WHEN SUPPORTING FROM BUILDING, USE BEAM CLAMPS IN APPROVED MANNER.
6. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR FITTING IN ALL NEW EQUIPMENT, CHILLER VALVE, PIPING AND ACCESSORIES IN SPACE PROVIDED. MAKE ALL NECESSARY PIPING CONNECTIONS TO (N) CHILLERS AS REQ'D. PER MANUFACTURERS RECOMMENDATION. PROVIDE ALL NECESSARY HARDWARE TO COMPLETE THE INSTALLATION.
8. (N) EQUIPMENT AND PIPING CONNECTIONS SHALL BE PROPERLY ALIGNED.
9. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY THE PERALTA COMMUNITY COLLEGE DISTRICT.
10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
11. THE REFRIGERANT PRESSURE RELIEF FROM NEW CHILLERS TO EXISTING REFRIGERANT PRESSURE RELIEF PIPING THROUGHOUT LENGTH OF ENTIRE PIPING SYSTEM. SECURELY FASTEN PIPING TO SUPPORT WITHIN 6 FEET FOLLOWING FIRST BEND FROM THE COMPRESSOR AND WITHIN 2 FEET OF EACH SUBSEQUENT BEND, ANGLES OR TEE AND SUPPORTED AT POINT NOT MORE THAN SPECIFIED FOR PIPING SYSTEM.

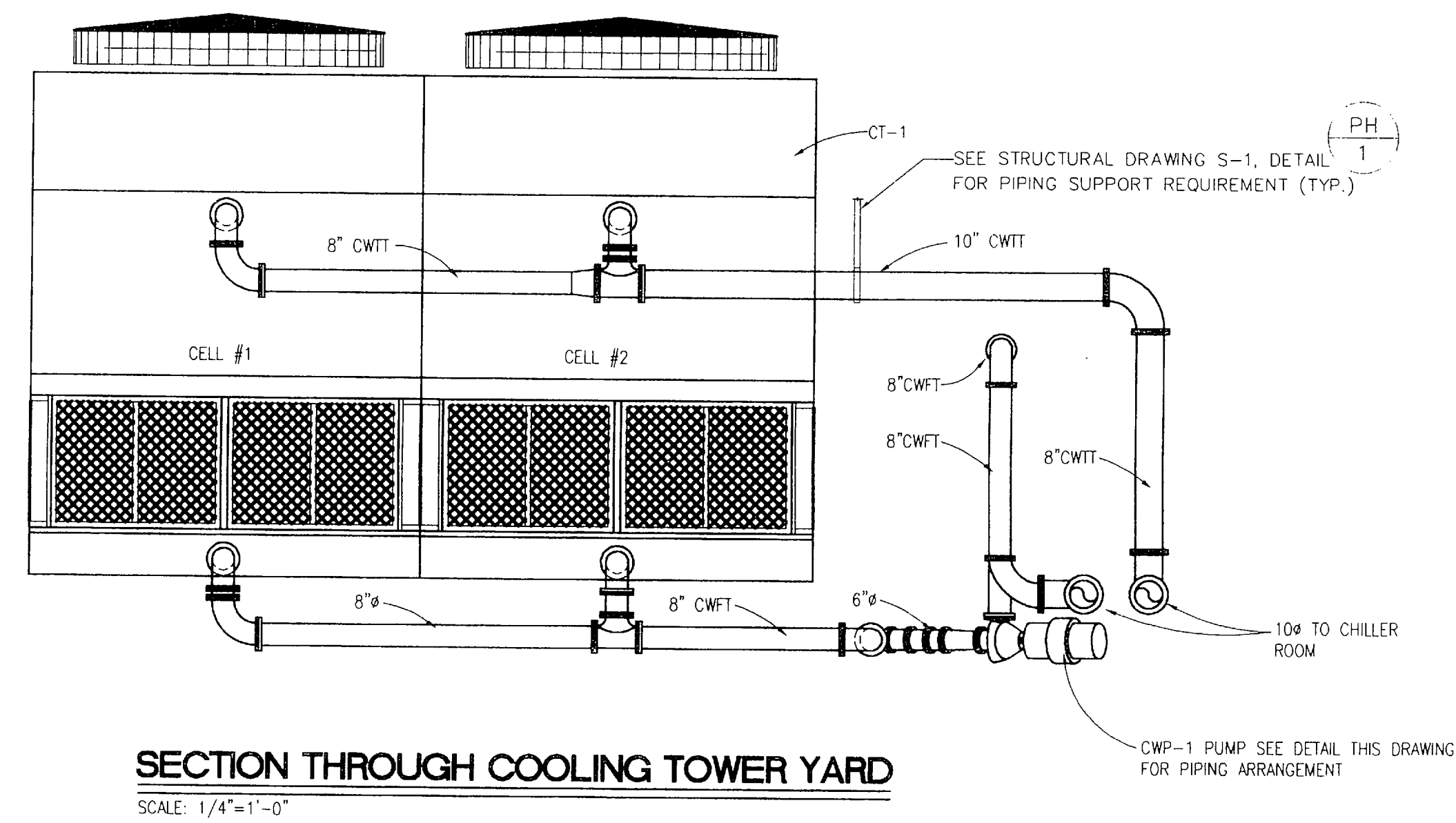
NOTES:

1. INSTALL DRAIN VALVES AT LOWEST PART OF PIPING SYSTEM.
2. AIR VENT VALVES SHOULD BE INSTALLED AT HIGHEST PART OF EACH LINE.
3. ALL CONNECTING PIPING TO BE SUPPORTED EXTERNAL TO THE MACHINE.

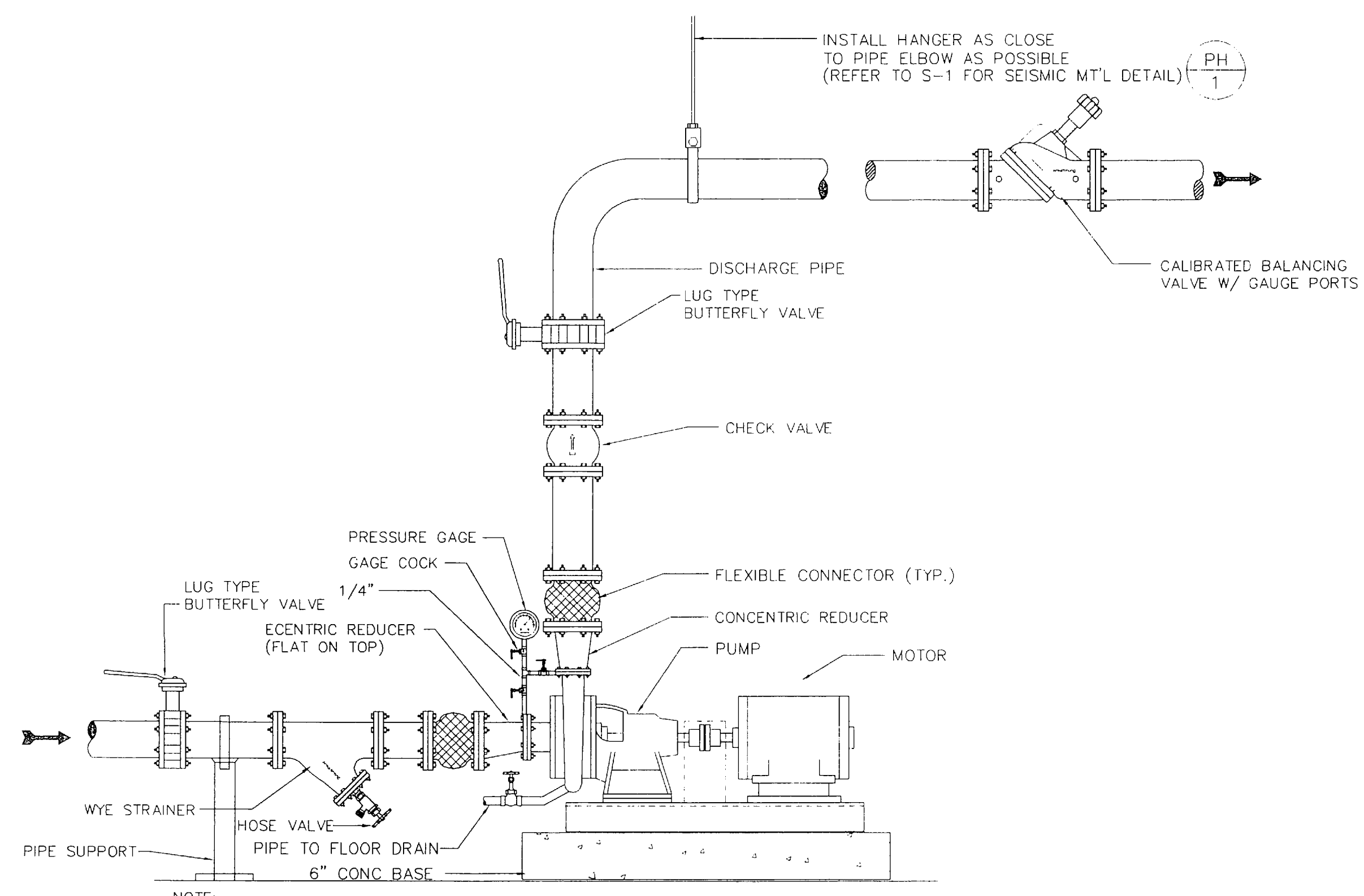
PARTIAL CENTRAL PLANT FLOOR PLAN-INSTALLATION

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



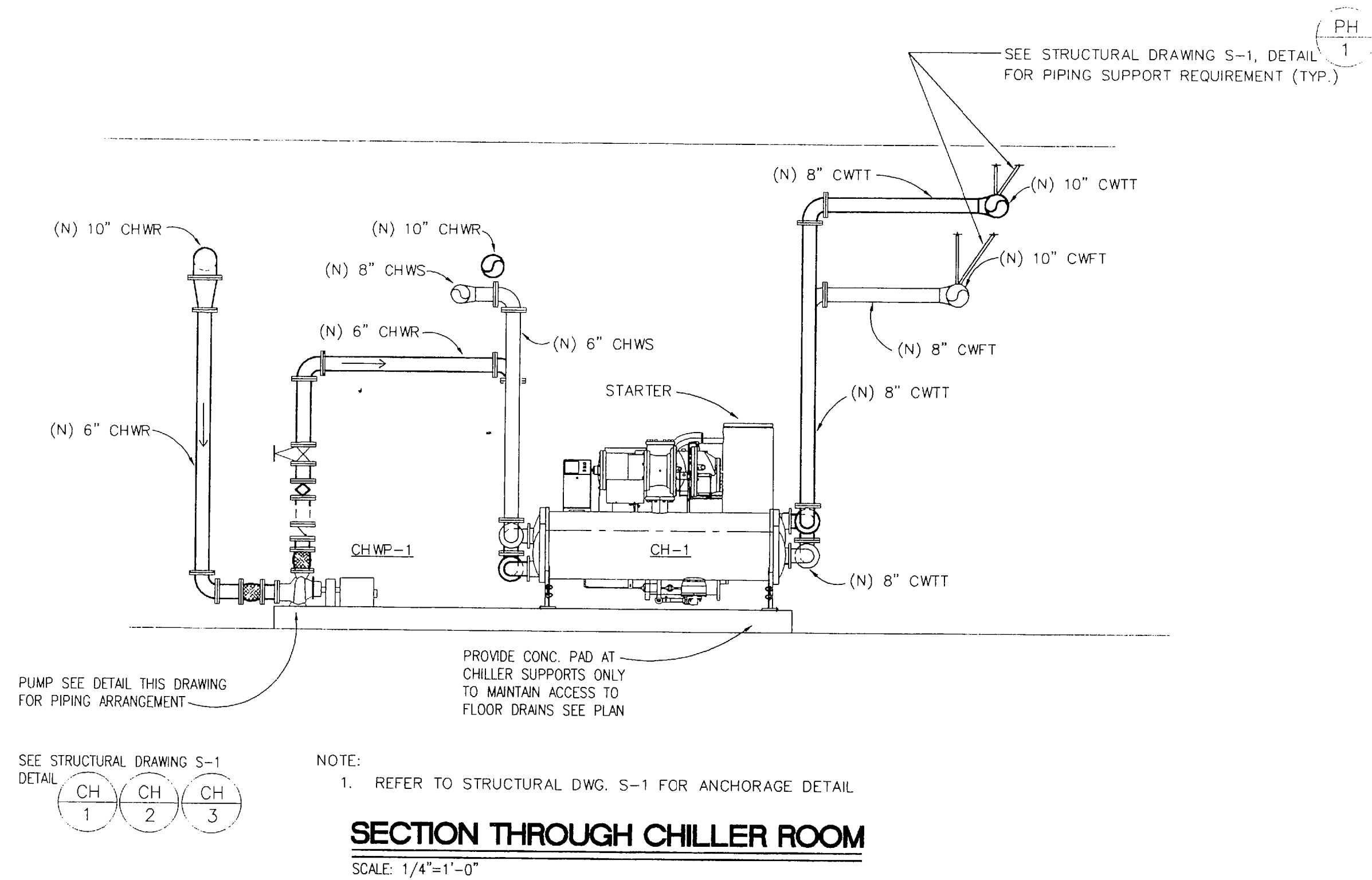


SECTION THROUGH COOLING TOWER YARD
SCALE: 1/4"=1'-0"

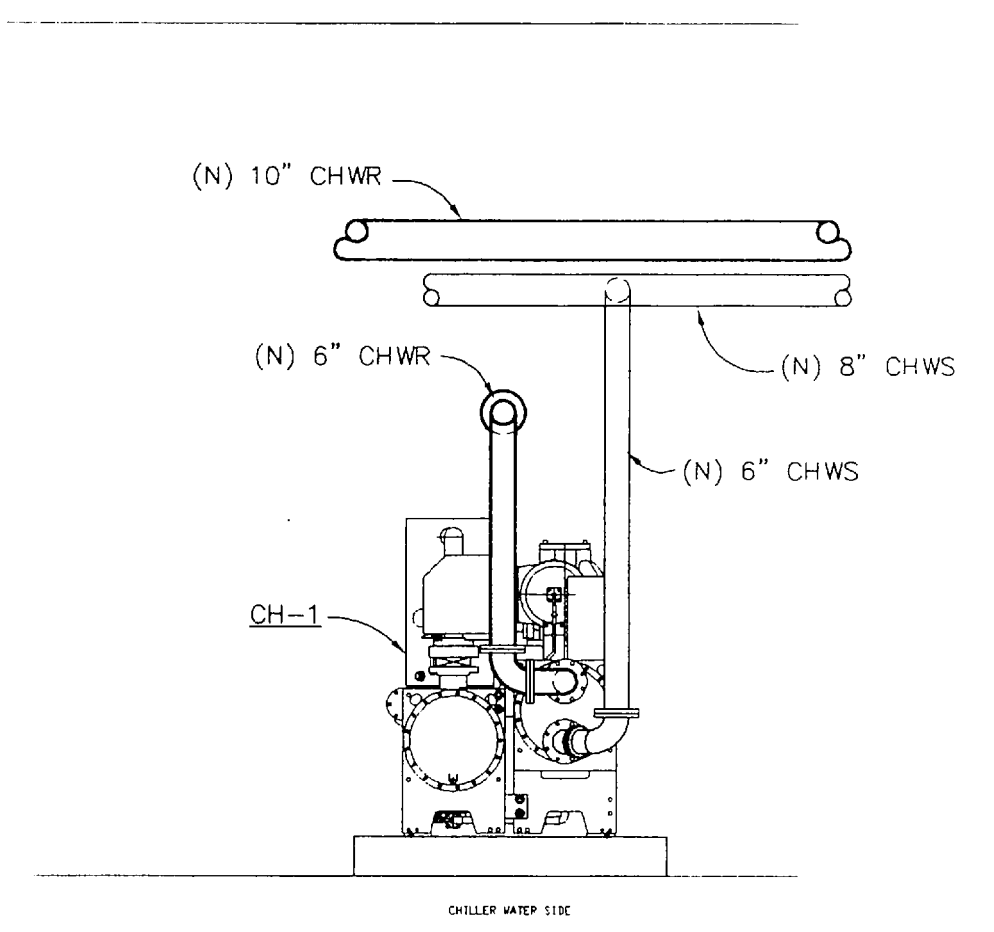


NOTE:
1. PROVIDE INERTIA BASE ON ALL INSTALLATIONS WITHIN OCCUPIED BUILDINGS OR OFF GRADE.
2. A TRIPLE DUTY VALVE MAY BE USED OF THE DISCHARGE PIPE IN LIEU OF THE CHECK VALVE, ISOLATION VALVE/BALANCING VALVE.

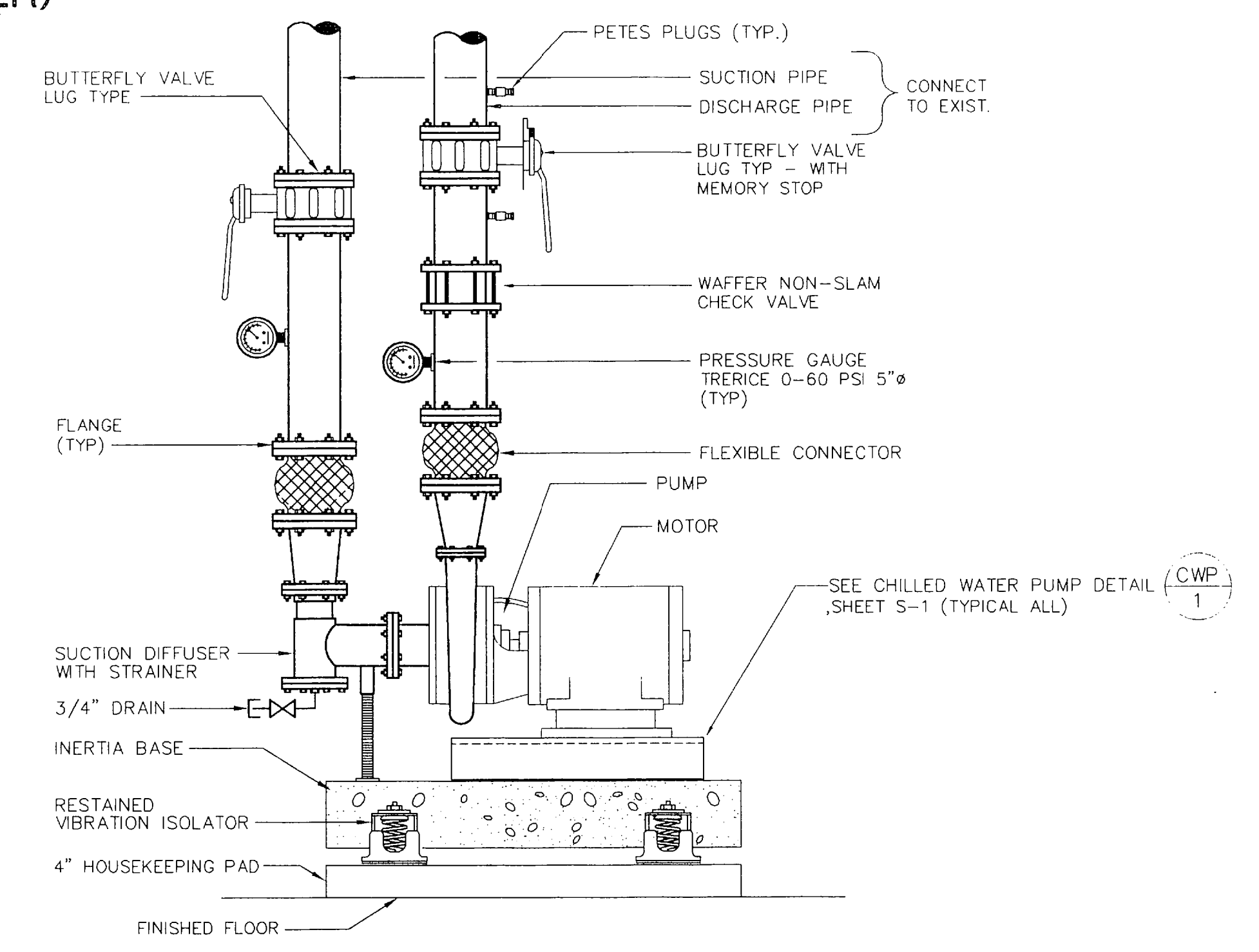
END SUCTION PUMP DETAIL (NO SUCTION DIFFUSER)
NOT TO SCALE



SECTION THROUGH CHILLER ROOM
SCALE: 1/4"=1'-0"

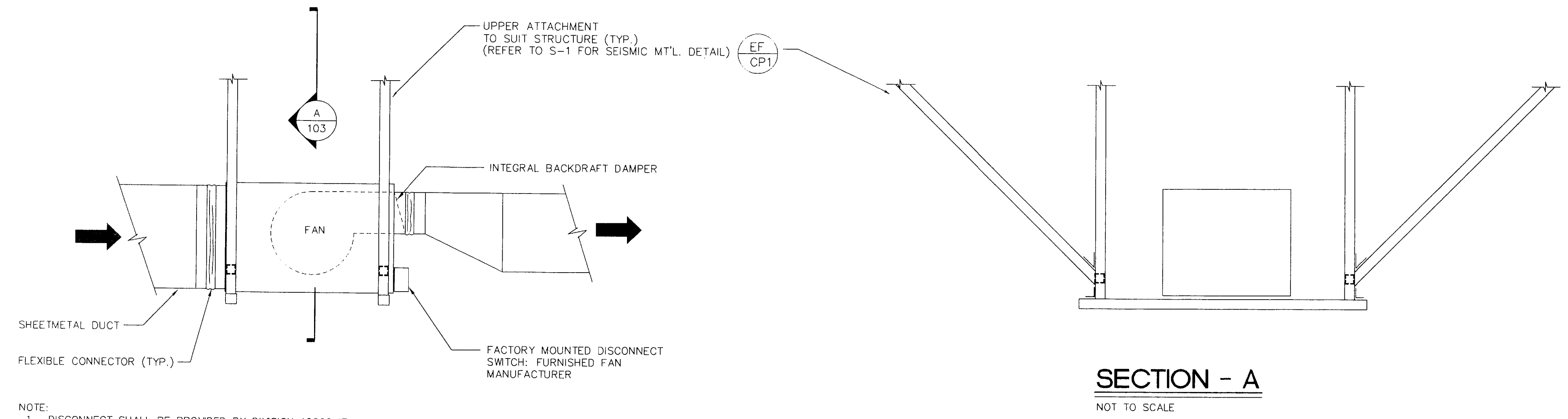


SECTION THROUGH CHILLER ROOM
SCALE: 1/4"=1'-0"



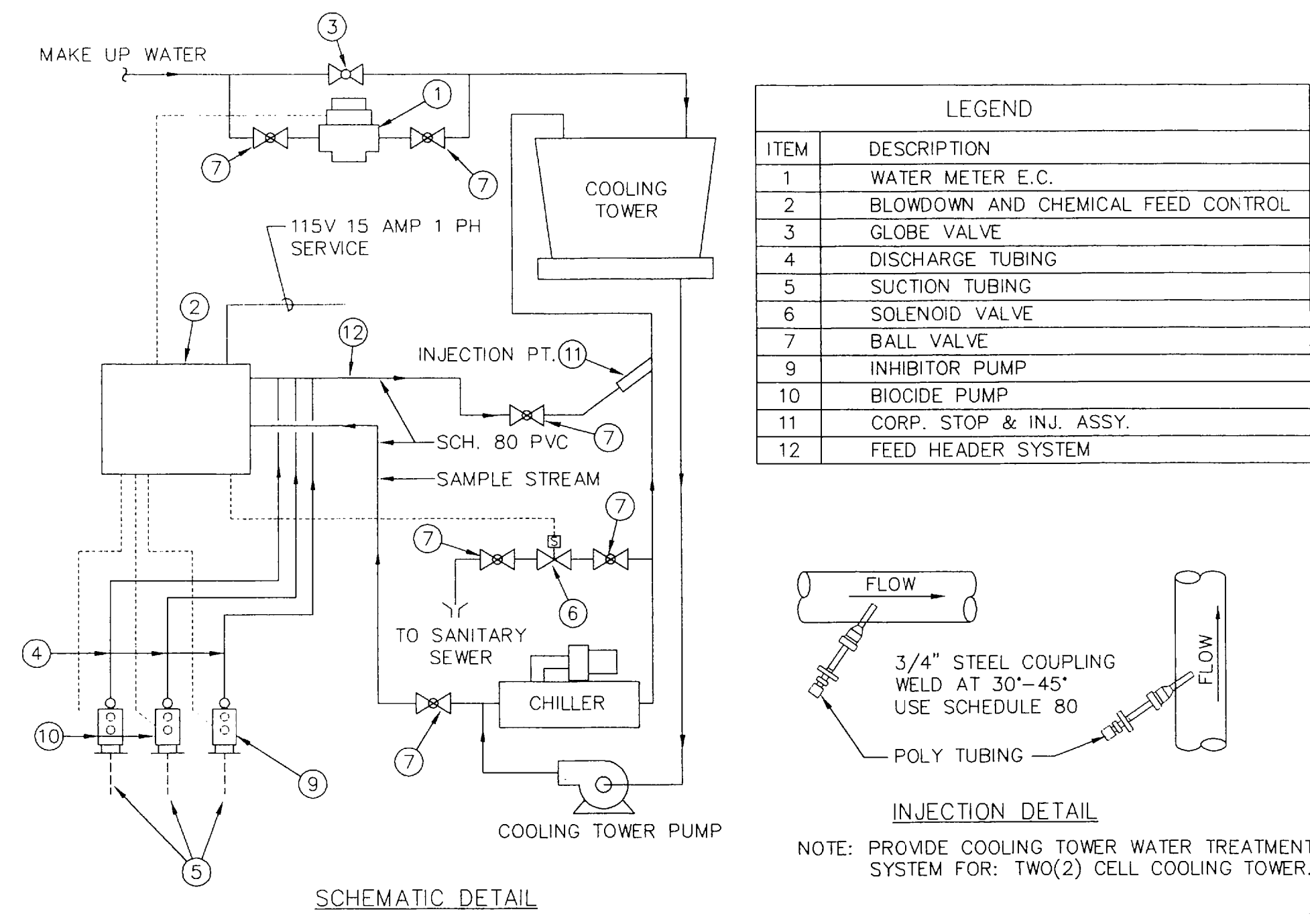
NOTE:
1. A TRIPLE DUTY VALVE MAY BE USED ON THE DISCHARGE PIPE IN LIEU OF THE CHECK VALVE, ISOLATION VALVE/BALANCE VALVE.
2. REFER TO STRUCTURAL DWG. S-1 FOR ANCHORAGE DETAIL.

END SUCTION PUMP DETAIL
NOT TO SCALE

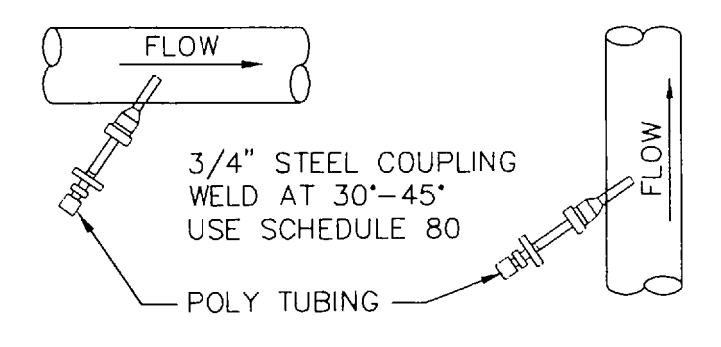


NOTE:
1. DISCONNECT SHALL BE PROVIDED BY DIVISION 16000 IF NOT AVAILABLE AS FACTORY MOUNTED.
2. FLEXIBLE CONNECTORS SHALL NOT BE BUNCHED AND SHALL BE STRETCHED TAUT.

INLINE FAN DETAIL
NOT TO SCALE

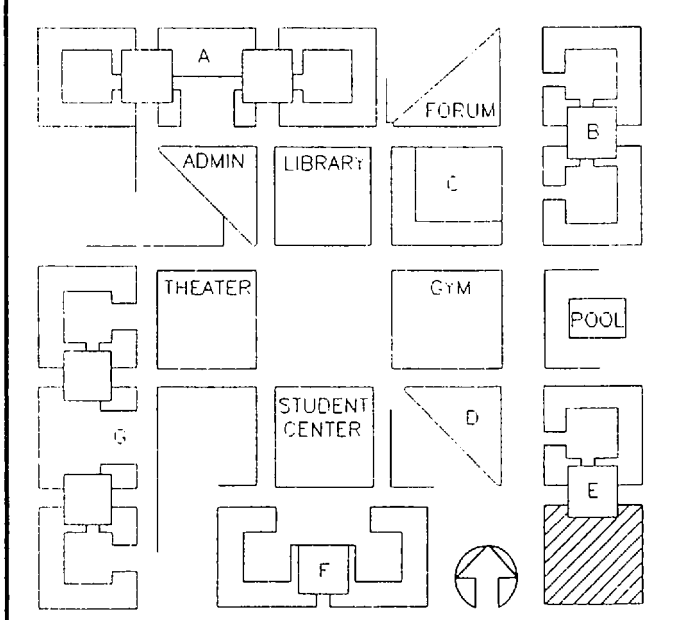


LEGEND	
ITEM	DESCRIPTION
1	WATER METER E.C.
2	BLOWDOWN AND CHEMICAL FEED CONTROL
3	GLOBE VALVE
4	DISCHARGE TUBING
5	SUCTION TUBING
6	SOLENOID VALVE
7	BALL VALVE
9	INHIBITOR PUMP
10	BIODIDE PUMP
11	CORP. STOP & INJ. ASSY.
12	FEED HEADER SYSTEM



NOTE: PROVIDE COOLING TOWER WATER TREATMENT SYSTEM FOR TWO(2) CELL COOLING TOWER.

COOLING TOWER WATER TREATMENT SYSTEM
NOT TO SCALE



KEY PLAN

NO.	DATE	DESCRIPTION
4	4/22/98	C.T. Water Treatment System

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



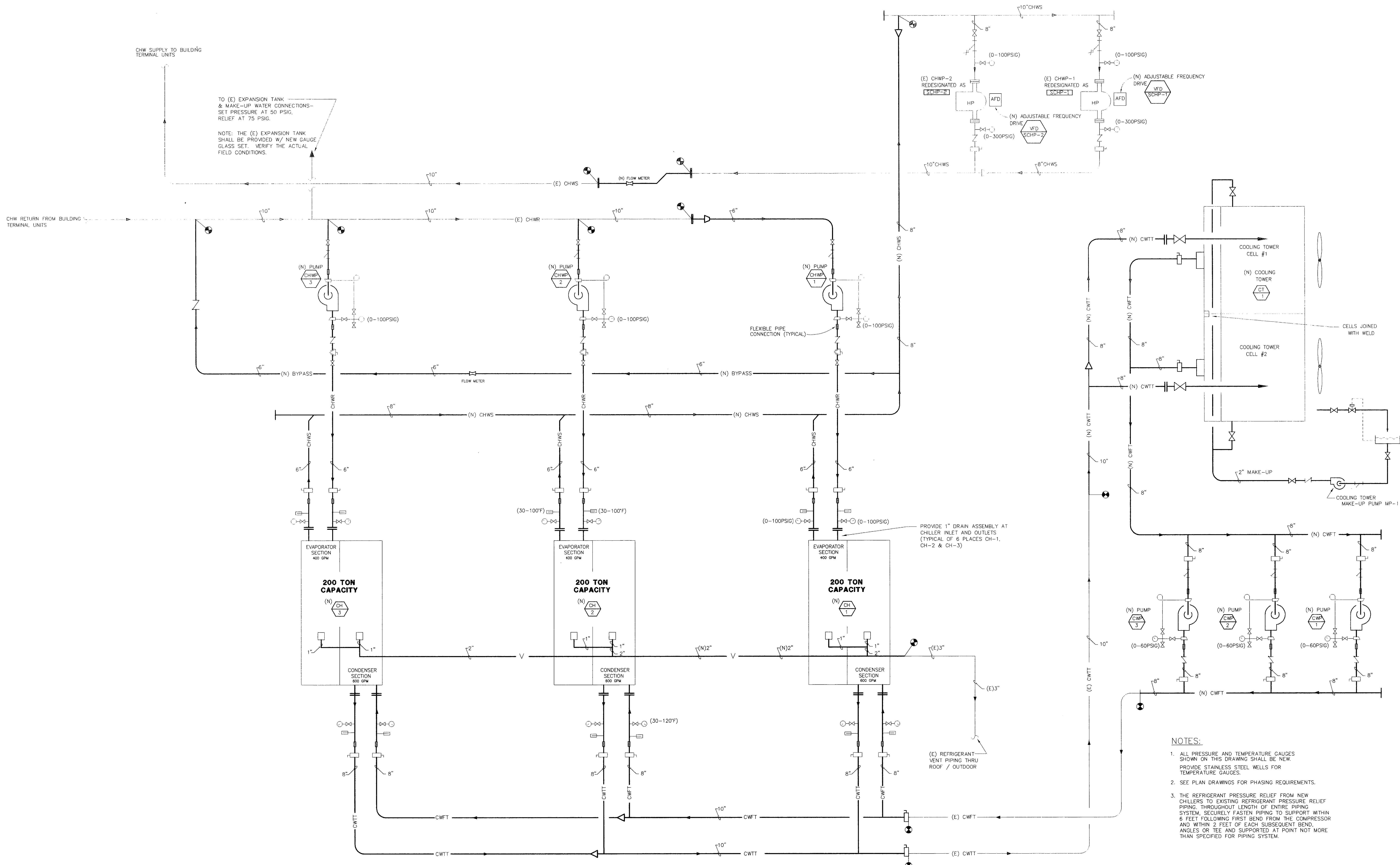
Client:
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE CHILLER PLANT SECTIONS AND DETAILS

DATE: 5/28/98	JOB NO: 98-005
SCALE: AS SHOWN	SHEET NO.
DRAWN BY: KLM	M-103
CHECKED BY: CAR	
APPROVED BY: ECS	

CONSTRUCTION DOCUMENTS

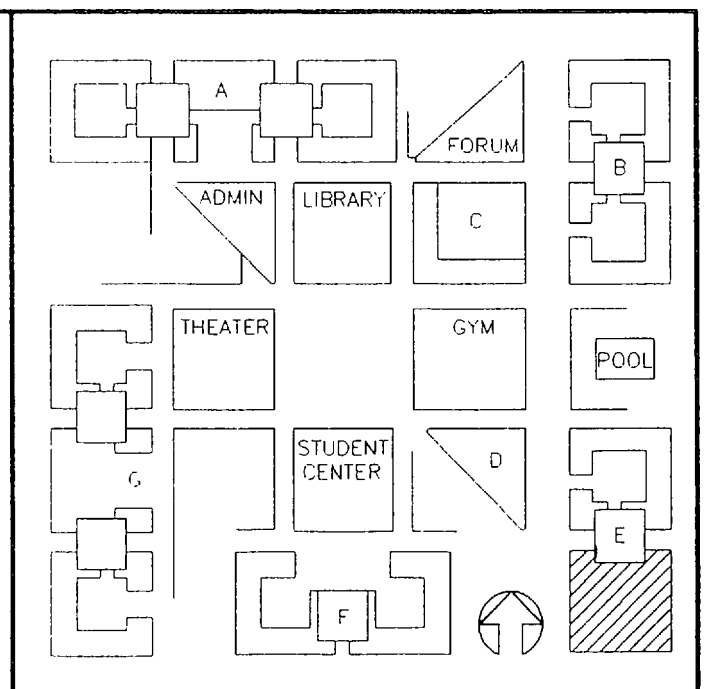


CHILLER PLANT-ONE LINE PIPING AND INSTRUMENTATION DIAGRAM

NO SCALE

SCHEDULE OF FLOW REQUIREMENTS (GPM)									
CHILLED WATER PUMPS						COND. WATER PUMPS			
EXISTING PUMP	NEW FLOW REDESIG.	EXISTING PUMP	NEW FLOW REDESIG.	NEW PUMP FLOW	NEW PUMP FLOW	NEW PUMP FLOW	NEW PUMP FLOW	NEW PUMP FLOW	NEW PUMP FLOW
(CHWS & R)	(CHWS & R)	(CHWS & R)	(CHWS & R)	(CHWS & R)	(CHWS & R)	(CHWS & R)	(CWS & R)	(CWS & R)	(CWS & R)
60 HP	60 HP	60 HP	60 HP	79 HP	77 HP	7130 HP	15 HP	15 HP	15 HP
750	600	750	600	400	400	400	600	600	600

NOTES:
 ① PROVIDE NEW IMPELLER, LARGEST SIZE POSSIBLE NOT TO OVERLOAD MOTOR—FLOW RATE BALANCED BY AFD CONTROL.

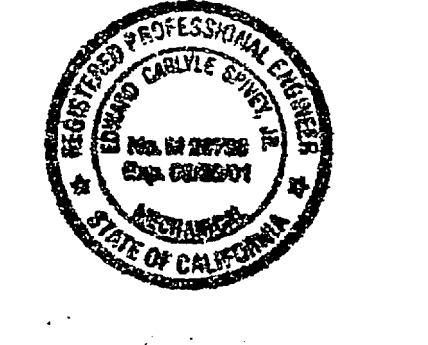


KEY PLAN

NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
 ENGINEERING CONSULTANTS
 1371 OAKLAND BLVD., SUITE 102
 WALNUT CREEK, CALIFORNIA 94596
 (415) 944-8929
 Project: 98-005



Client:

Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE - CHILLER PLANT ONE-LINE PIPING & INSTRUMENTATION DIAGRAM

DATE: 5/26/98 JOB NO: 98-005
 SCALE: NONE SHEET NO.
 DRAWN BY: KLM
 CHECKED BY: CAR
 APPR'D BY: ECS

CONSTRUCTION DOCUMENTS

M-104

WATER COOLED CHILLER UNIT SCHEDULE																							
UNIT DESIGNATION	LOCATION	MIN. TONS	COMPRESSOR MOTOR										EVAPORATOR			CONDENSER			MANUFACTURER	MODEL			
			APLV	KW INPUT	VOLT/ PHASE	MOTOR INPUT KW	RATED L. AMPS	O.L.T. AMPS	L.R.D. AMPS	INRUSH AMPS	MAX FUSE CIR. BR.	MIN. CIR. AMPACITY	MOTOR RPM	FLOW (GPM)	ENT. WATER TEMP (°F)	LVG. WATER TEMP (°F)	MAX. P.D. (FT. HD.)	FLOW (GPM)			ENT. WATER TEMP (°F)	LVG. WATER TEMP (°F)	MAX. P.D. (FT. HD.)
CH 1 CH 2 CH 3	BLDG. E RM. 132	200	0.478	95.6	460/60	95	141	152	1217	-	300	176	-	400	56	44	13.4	600	72	82	15.3	CARRIER	MODEL 23XL-111 SCREW COMP. EC40

COOLING TOWER SCHEDULE															
UNIT DESIGNATION	LOCATION	WATER DATA			OUTSIDE DESIGN WB(°F)	NO. CELLS	FAN	CFM	MOTOR DATA				MANUFACTURER	MODEL	REMARKS
		GPM	TEMP (°F)						RPM	NO.	H.P. (EA)	VOLT PH			
			EWT	LWT											
CT 1	OUTSIDE SOUTH OF BLDG. E	1800	82	72	65°F	2	AXIAL PROPELLER	181,200	1800	2	2@25	460/3	1800 (1)	EVAPCO	AT-12-724B OPERATING WT= 26,120 LBS. SHIPPING WT= 16,040 LBS.

NOTES:

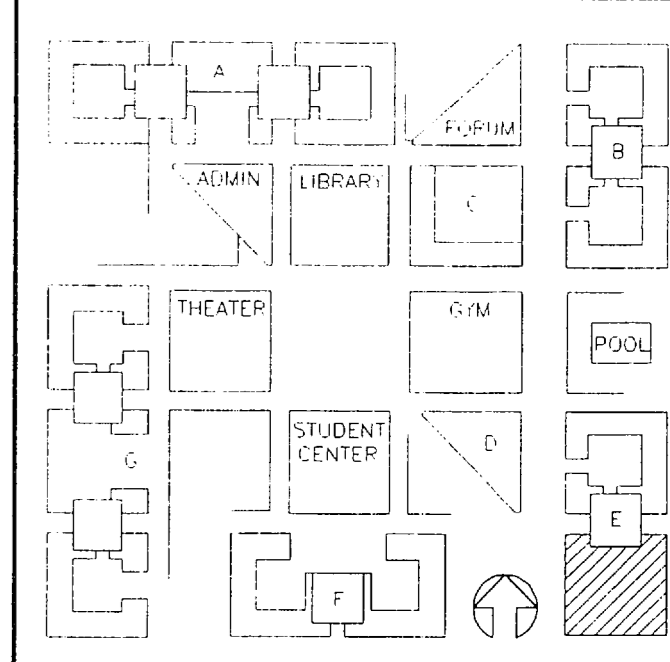
- (1) PROVIDE AFD FOR EACH COOLING TOWER FAN MOTOR, TEMPERATURE SENSOR FOR EACH AFD (BY CONTROL'S MANUFACTURER).
- (2) PROVIDE THE FOLLOWING: (2)-8" DIAMETER WATER OUTLET CONNECTIONS AND 2-8" DIAMETER INLET CONNECTIONS, 2" DIAMETER MAKE-UP CONNECTION, 2-3" DIAMETER DRAIN CONNECTIONS.
- (3) DRIFT RATE NOT GREATER THAN 0.001%.
- (4) MAKE-UP PUMP SIZED FOR 36 GPM.

PUMP SCHEDULE																			
UNIT DESIGNATION	SERVICE	LOCATION	TYPE	WATER FLOW/GPM	TOTAL HEAD FT.	WATER TEMP °F	MOTOR H.P.	RPM	IMPELLER DIA.	SUCTION DIA.	DISCHARGE DIA.	ELECTRICAL			OPERATING WEIGHT (LBS.)	MANUFACTURER	MODEL	NOTES	MOUNTING DETAIL NO.
												VOLT.	Ø	HZ.					
CHILLED WATER																			
CHP 1 CHP 2 CHP 3	CHILLED WATER PRIMARY PUMPS	BLDG. E	CENTRIFUGAL END SUCTION FLEX. COUPLED	400	40	44	7.5	1750	7	5	5	460	4	60	290	B&G	SERIES 1510	NEW PUMPS	(CHP 1) (TYP.) STRUCTURAL DWG. S-1
SCP 1 SCP 2	CHILLED WATER SECONDARY PUMPS	BLDG. E	VERTICALLY MOUNTED SPLIT CASE	750	160	44	60	1770		6	5	460	3	60				EXISTING PUMPS	
CONDENSER WATER																			
CWP 1 CWP 2 CWP 3	CHILLER UNITS	BLDG. E	END SUCTION CLOSE COUPLED	600	60	72	15	1750	9"	5	4	460	3	60	440	PACO PUMPS	TYPE LC MODEL 4095-7	NEW PUMPS	(CWP 1) (TYP.) STRUCTURAL DWG. S-1

EXHAUST FAN SCHEDULE															
UNIT DESIGNATION	LOCATION	CFM	T.S.P. (IN H ₂ O)	FAN DATA			MOTOR DATA				DRIVE TYPE	MANUFACTURER	MODEL	REMARKS	MOUNTING DETAIL NO.
				RPM	BHP	ZONES	H.P.	V	PH	HZ					
EF 1 DPI	BLDG. E RM. 132	3000	0.375	1407	0.82	13.9	1	460	3	60	BELT	PENN	SX125BC	TWO (2) SPEED MOTOR	EF 1 DPI STRUCTURAL DWG. S-1

NOTES:

- (1) PROVIDE 1.5 INCH MIN. DEFLECTION SEISMIC ISOLATION.
- (2) ALL WORK SHALL BE IN ACCORDANCE WITH THE 1995 CALIFORNIA MECHANICAL CODE, 1995 CBC FOR FAN OPERATION AND EMERGENCY REFRIGERANT VENTILATION CONTROL.



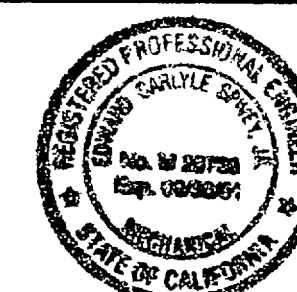
KEY PLAN

NO.	DATE	DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



Client:
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE CHILLER PLANT SCHEDULES

DATE: 5/26/98 JOB NO: 98-005

SCALE: NONE SHEET NO.

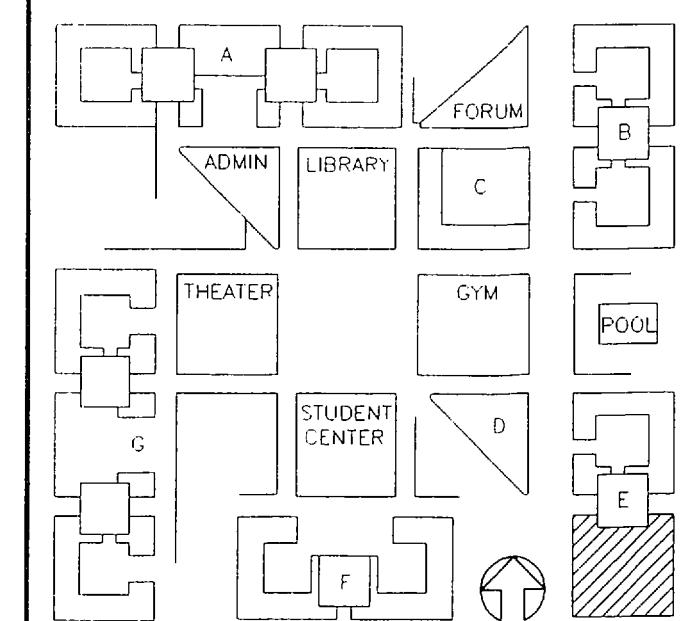
DRAWN BY: KLM

CHECKED BY: CAR

APPROVED BY: ECS

CONSTRUCTION DOCUMENTS

M-105



KEY PLAN

NO.	DATE	DESCRIPTION
REVISIONS		
<p>MECHANICAL CONSULTANT BOSEK, GIBSON & ASSOCIATES WALNUT CREEK, CA 925/944-8929</p>		
JUN 22 1999		
<p>BOSEK, GIBSON & ASSOCIATES, INC. ENGINEERING CONSULTANTS 1374 OAKLAND BLVD., SUITE 102 WALNUT CREEK, CALIFORNIA 94596 (925) 944-8929 Project: 98-005</p>		

REVISIONS

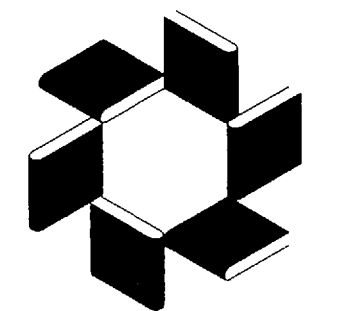
MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 925/944-8929

JUN 22 1999

BOSEK, GIBSON & ASSOCIATES, INC.
 ENGINEERING CONSULTANTS
 1374 OAKLAND BLVD., SUITE 102
 WALNUT CREEK, CALIFORNIA 94596
 (925) 944-8929
 Project: 98-005



Client:



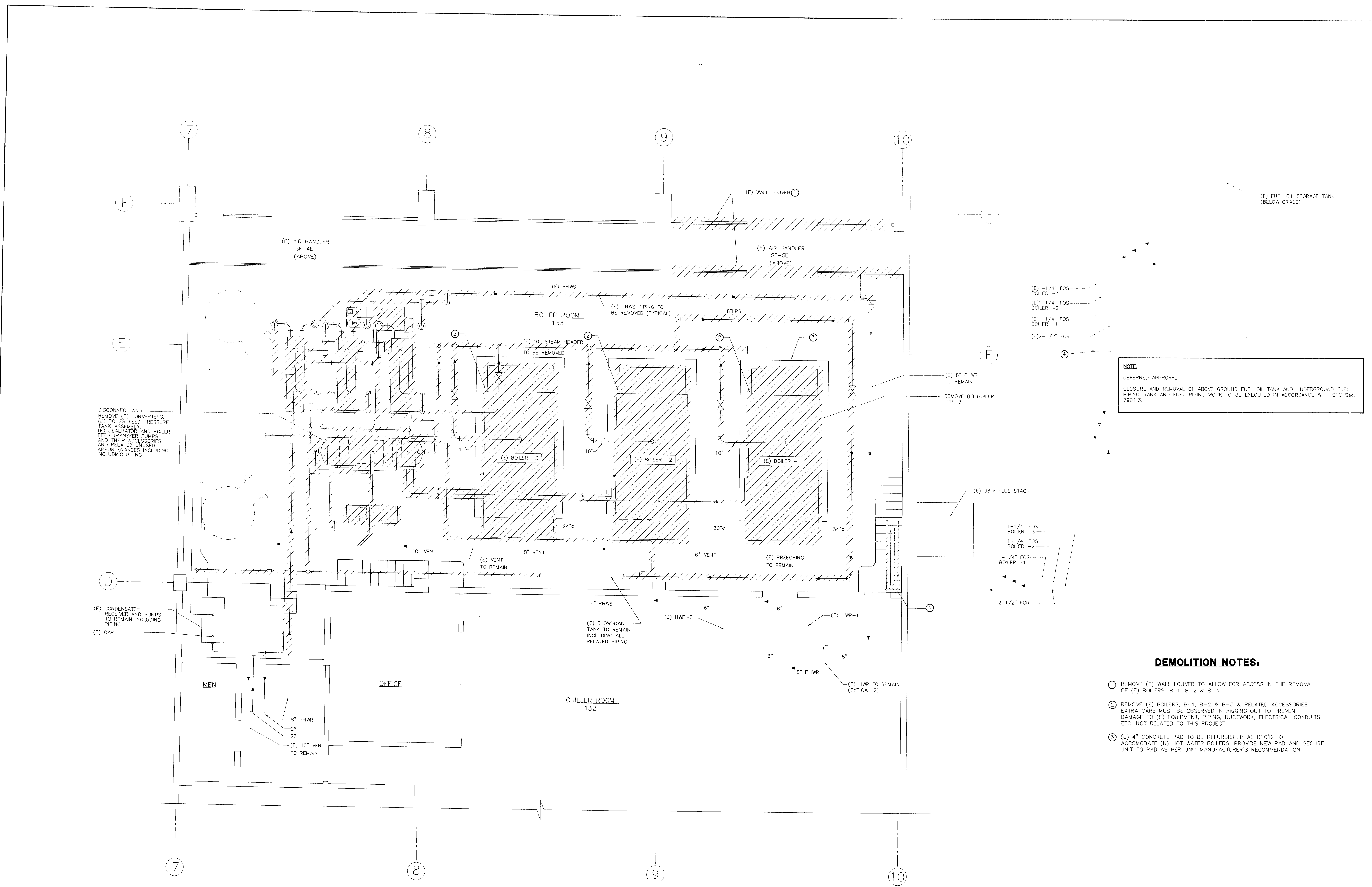
Peralta Community College District

Project Name:
**MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT**

Drawing Name:
**LANEY COLLEGE- BOILER PLANT
 DEMOLITION**

DATE: 5/26/98	JOB NO: 98-005
SCALE: 1/4"=1'-0"	SHEET NO.
DRAWN BY: KLM	M-106
CHECKED BY: CAR	
APPROVED BY: ECS	

CONSTRUCTION DOCUMENTS

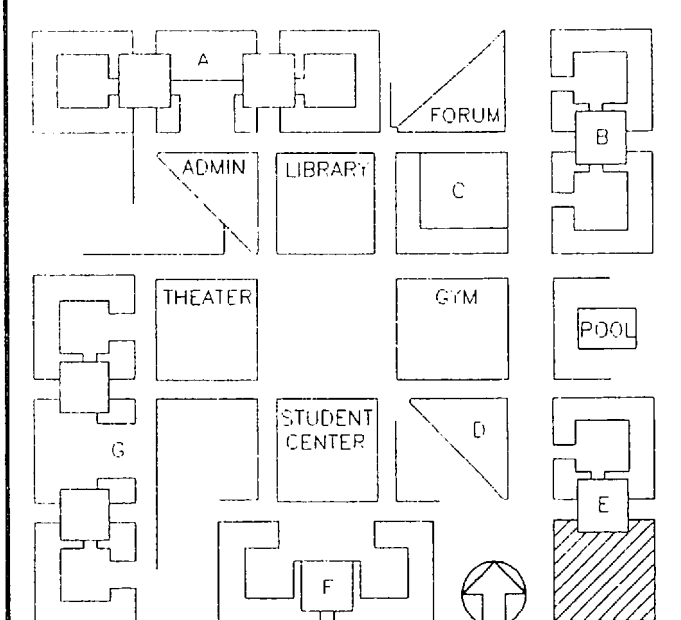


NOTE:
 DEFERRED APPROVAL
 CLOSURE AND REMOVAL OF ABOVE GROUND FUEL OIL TANK AND UNDERGROUND FUEL PIPING, TANK AND FUEL PIPING WORK TO BE EXECUTED IN ACCORDANCE WITH CFC Sec. 7901.3.1

DEMOLITION NOTES:

- REMOVE (E) WALL LOUVER TO ALLOW FOR ACCESS IN THE REMOVAL OF (E) BOILERS, B-1, B-2 & B-3.
- REMOVE (E) BOILERS, B-1, B-2 & B-3 & RELATED ACCESSORIES. EXTRA CARE MUST BE OBSERVED IN RIGGING OUT TO PREVENT DAMAGE TO (E) EQUIPMENT, PIPING, DUCTWORK, ELECTRICAL CONDUITS, ETC. NOT RELATED TO THIS PROJECT.
- (E) 4" CONCRETE PAD TO BE REFURBISHED AS REQ'D TO ACCOMMODATE (N) HOT WATER BOILERS. PROVIDE NEW PAD AND SECURE UNIT TO PAD AS PER UNIT MANUFACTURER'S RECOMMENDATION.

PARTIAL CENTRAL PLANT FLOOR PLAN-DEMOLITION
 SCALE: 1/4"=1'-0" 



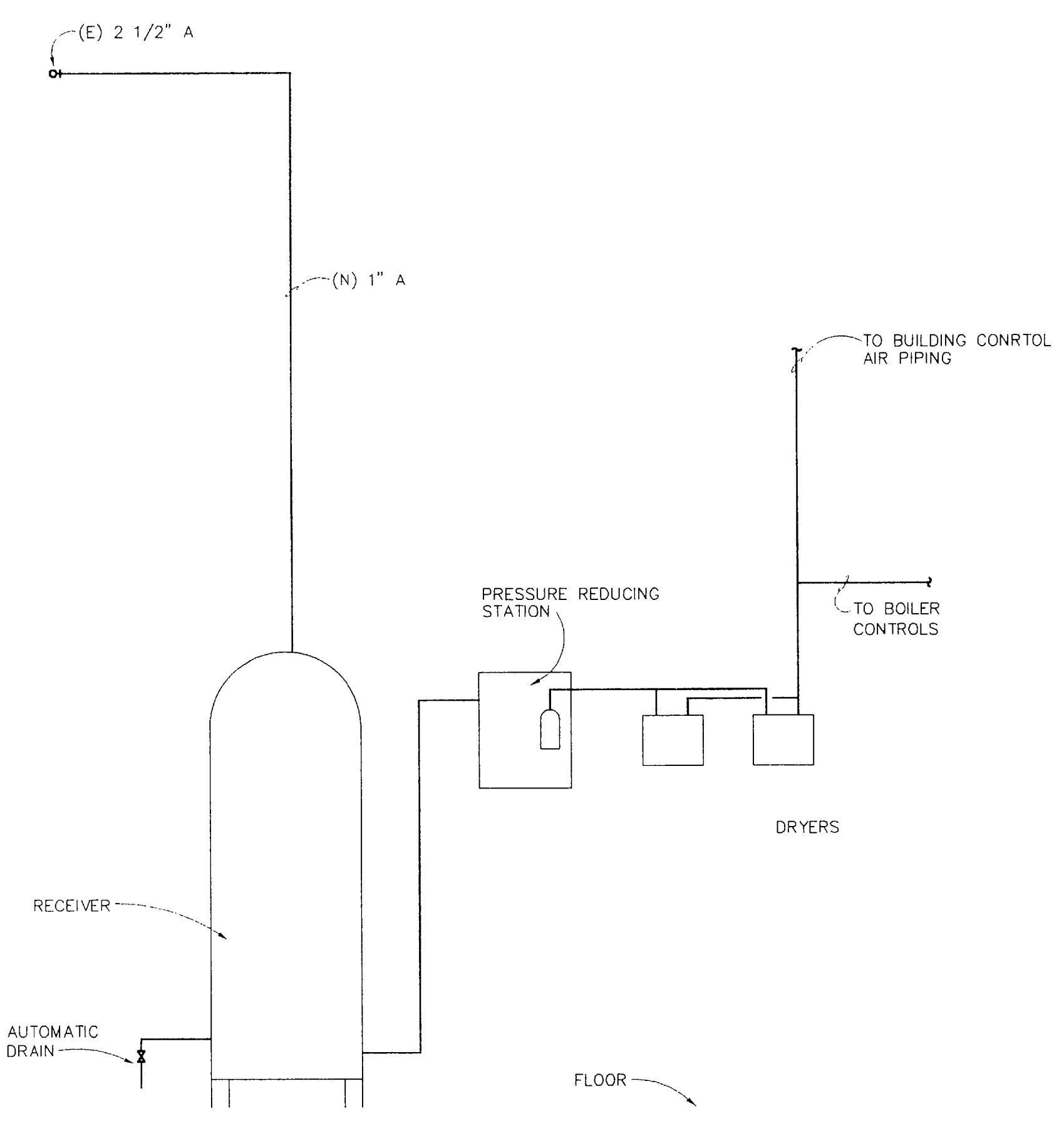
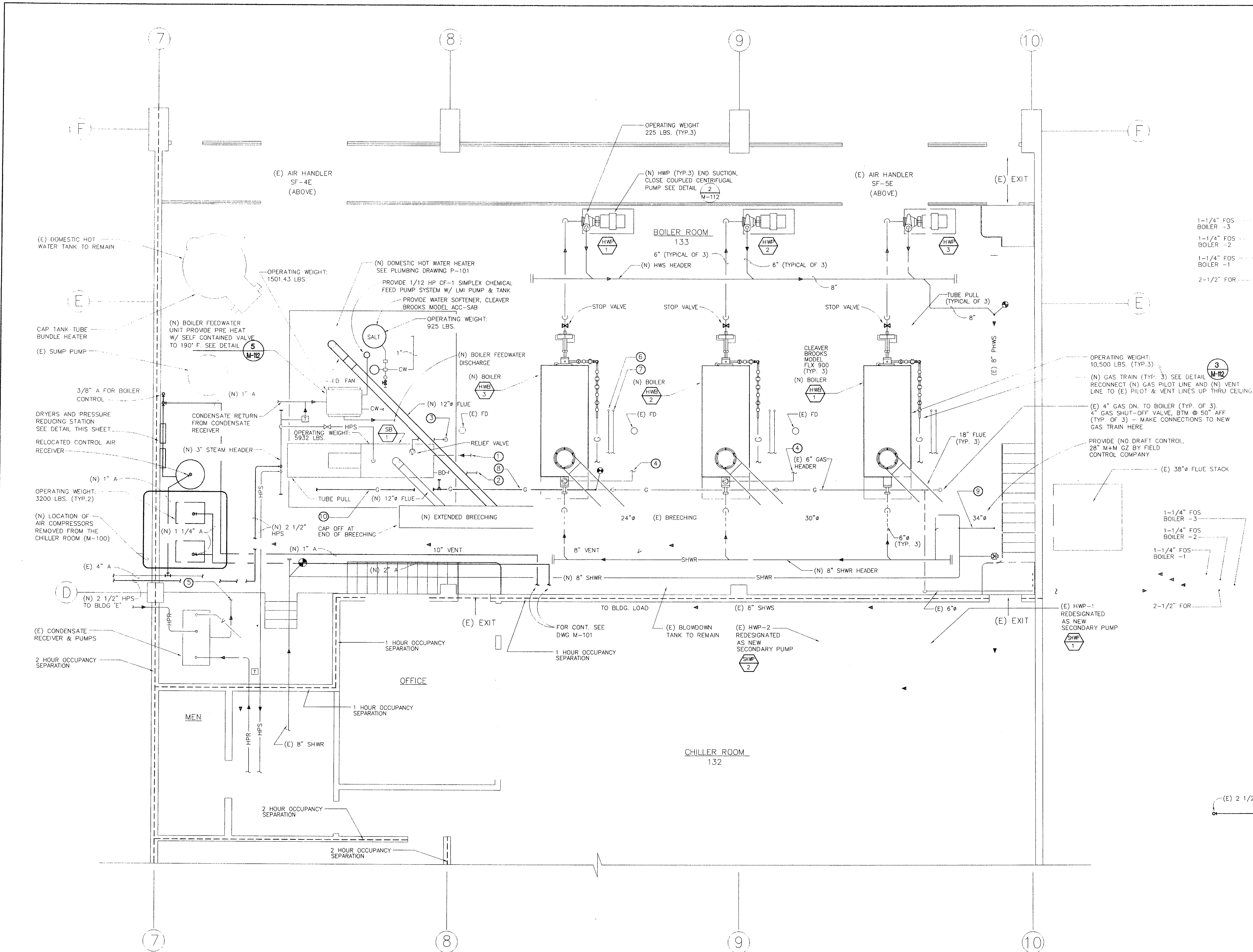
KEY PLAN

INSTALLATION NOTES

- 1 FROM FEEDWATER SYSTEM
- 2 (N) BLOWDOWN LINE TO BLOWDOWN TANK
- 3 TO BLOWDOWN TANK OR SEPARATION/AFTER COOLER
- 4 PRESSURE RELIEF PIPED TO FLOOR DRAIN
- 5 TO (N) BOILER FEEDWATER UNIT
- 6 (E) 3/4" V (TYP. OF 3)
- 7 (E) 3/4" MANUAL GAS TO PILOT (TYP. OF 3)
- 8 (N) GAS LINE
- 9 (N) 6" BYPASS
- 10 (N) GAS TRAIN-SEE DETAIL (M-107)

GENERAL NOTES:

1. THE CONTRACTOR SHALL SECURE ALL NECESSARY INSURANCE AND OBTAIN THE REQUIRED PERMITS FROM THE AGENCY OR AGENCIES HAVING JURISDICTION.
2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO ANY MADE APART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM PERALTA COMMUNITY COLLEGE DISTRICT PRIOR TO SUBMITTING A PROPOSAL. OF ANY WORK OR MATERIAL WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY CONTRACTOR.
3. ALL SHUTDOWN, REMOVAL, RE-INSTALLATION & RE-START UP OF (N) & (E) EQUIPMENT SHALL BE COORDINATED W/ PERALTA COMMUNITY COLLEGE DISTRICT. ASCERTAIN FROM BUILDING CHIEF ENGINEER AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
4. PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW FOR ROUTING OF PIPING TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED.
5. SUPPORT ALL PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FROM EQUIPMENT, FURNISH ADDITIONAL FRAMING. WHEN SUPPORTING FROM BUILDING, USE BEAM CLAMPS IN APPROVED MANNER.
6. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR FITTING IN ALL NEW EQUIPMENT, BOILER VALVE, PIPING AND ACCESSORIES IN SPACE PROVIDED. MAKE ALL NECESSARY PIPING CONNECTIONS TO (N) BOILERS AS REQ'D. PER MANUFACTURERS RECOMMENDATION. PROVIDE ALL NECESSARY HARDWARE TO COMPLETE THE INSTALLATION.
8. (N) EQUIPMENT AND PIPING CONNECTIONS SHALL BE PROPERLY ALIGNED.
9. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY THE PERALTA COMMUNITY COLLEGE DISTRICT.
10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
11. OWNER TO ABATE BOILERS, PIPING AND BREACHING.
12. CONTRACTOR TO INSTALL NEW BREACHING INSULATION.



CONTROL AIR RECEIVER PIPING DETAIL

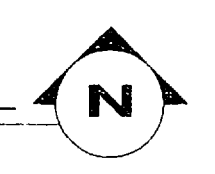
NOT TO SCALE

REFERENCE: 1994 UMC
SECTION 707: AREA OF COMBUSTION AIR OPENINGS
TABLE NO. 7-A

CONDITION	SIZE OF OPENINGS OR DUCTS
APPLIANCE IN CONFINED SPACE:	PROVIDE CEILING & FLOOR OPENINGS EACH OPENING 1 SQ. IN. PER 4,000 BTU/H INPUT.
ALL AIR FROM OUTDOORS OBTAIN FROM OUTDOORS OR FROM SPACE FREELY COMMUNICATING WITH OUTDOORS.	
THE FOLLOWING BTU/H INPUT FOR (N) BOILERS & DOMESTIC GAS FIRED WATER HEATERS:	
(A) HOT WATER BOILER = 9,000,000 BTUH x 3 = 27,000,000 BTUH	
(B) STEAM BOILER = 1,674,000 BTUH x 1 = 1,674,000 BTUH	
(C) WATER BOILER = 700,000 BTUH x 1 = 700,000 BTUH	
	29,374,000 BTUH / 4,000 BTU/HR-SQ. IN.
	REQUIRED OPENING AREA = 7,344 SQ. IN.
THE EXISTING OPENINGS IN THE EXTERIOR WALL ARE:	
(A) UPPER WALL OPENINGS: (34" x 36") (10) (0.70) = 8,568 SQ. IN. (WE EXCEED)	
(B) LOWER WALL OPENINGS: DIA. OF OPENING = 5 FT. = 60 IN. $A = \frac{\pi(D)^2}{4} = \frac{\pi(60)^2}{4} = 2828 \text{ SQ. IN.} \times 3$ $A = 8484 \text{ SQ. IN.}$	

PARTIAL CENTRAL PLANT FLOOR PLAN-INSTALLATION

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



CONSTRUCTION DOCUMENTS

NO. DATE DESCRIPTION

5	8/14/98	New HPS piping to BLDG. 132
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MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



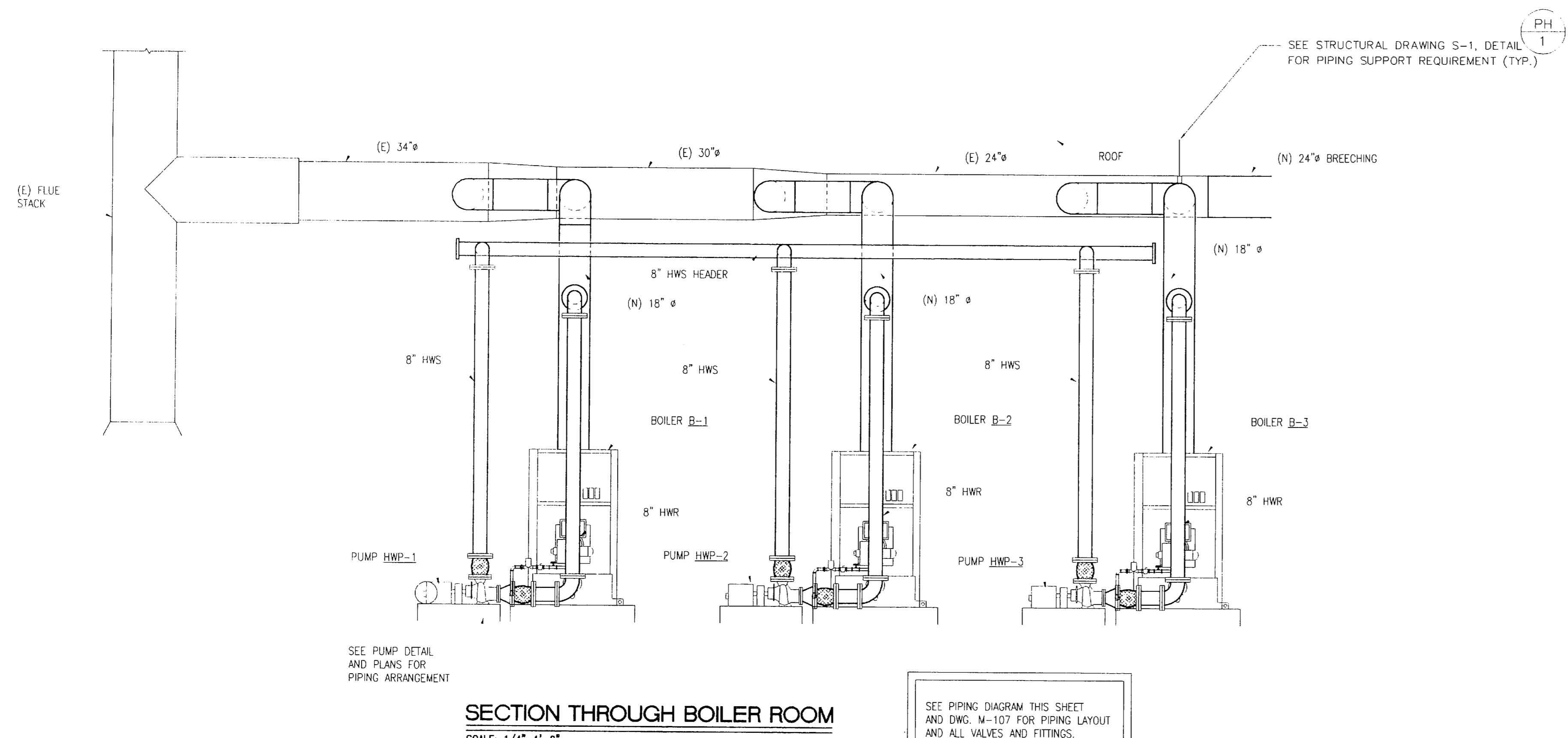
Client:

Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

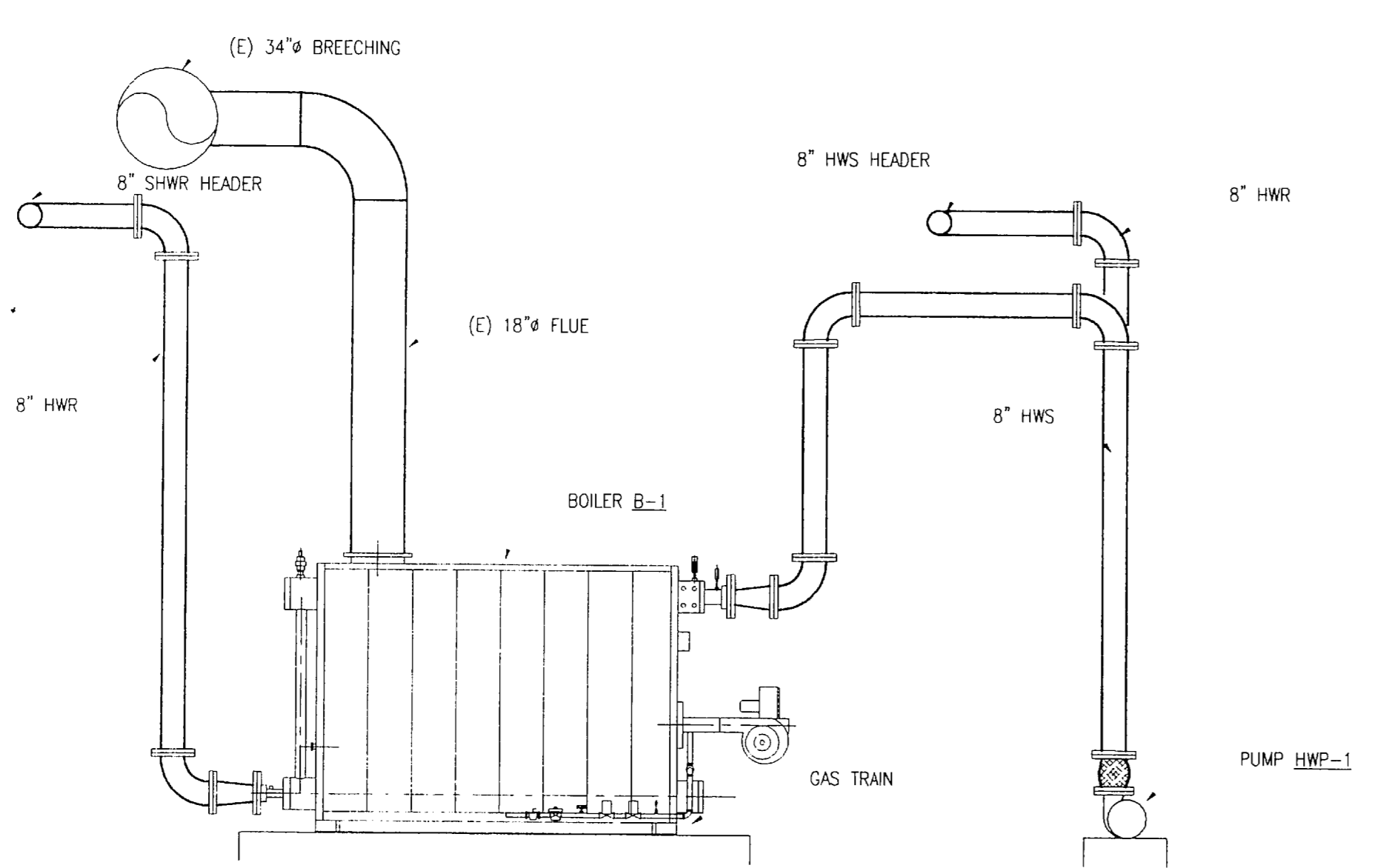
Drawing Name:
LANEY COLLEGE- BOILER PLANT INSTALLATION

DATE: 5/26/98 JOB NO: 98-005
SCALE: 1/4"=1'-0" SHEET NO.
DRAWN BY: KLM
CHECKED BY: CAR
APPROVED BY: ECS
M-107



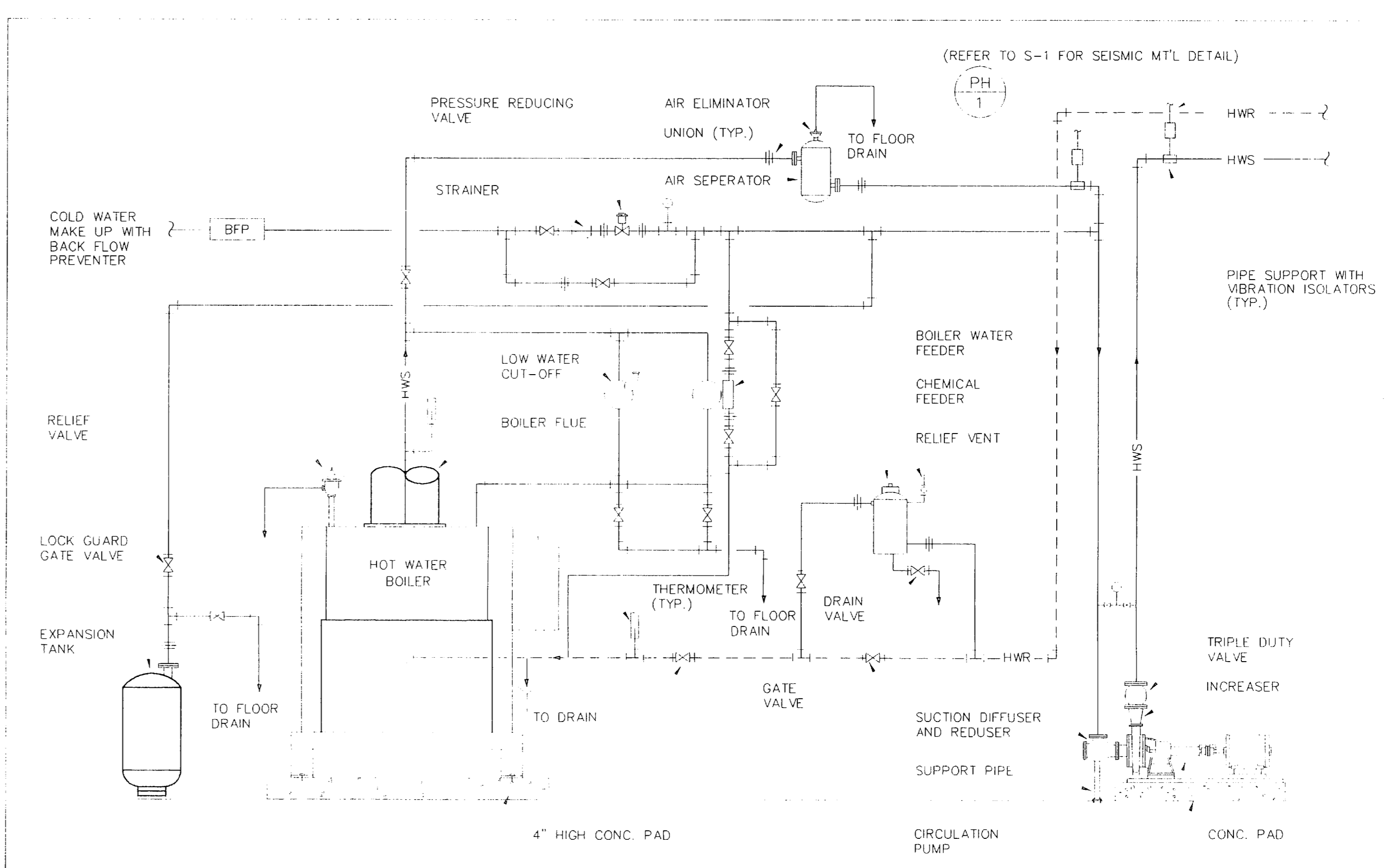
SECTION THROUGH BOILER ROOM
SCALE: 1/4"=1'-0"

SEE PIPING DIAGRAM THIS SHEET AND DWG. M-107 FOR PIPING LAYOUT AND ALL VALVES AND FITTINGS.

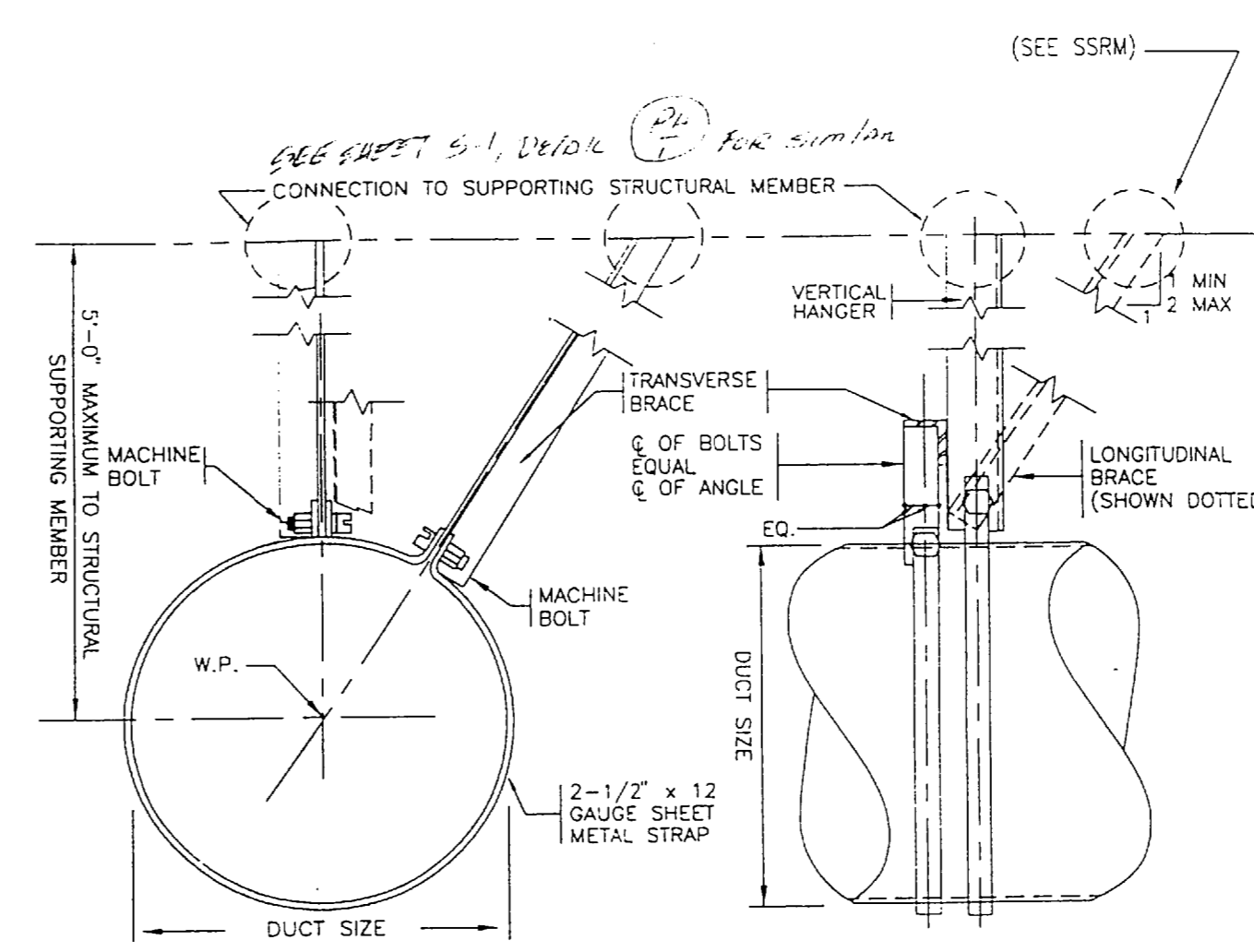


SECTION THROUGH BOILER ROOM
SCALE: 1/4"=1'-0"

NOTE: SEE PIPING DIAGRAM THIS SHEET AND DWG. M-107 FOR PIPING LAYOUT AND ALL VALVES AND FITTINGS.

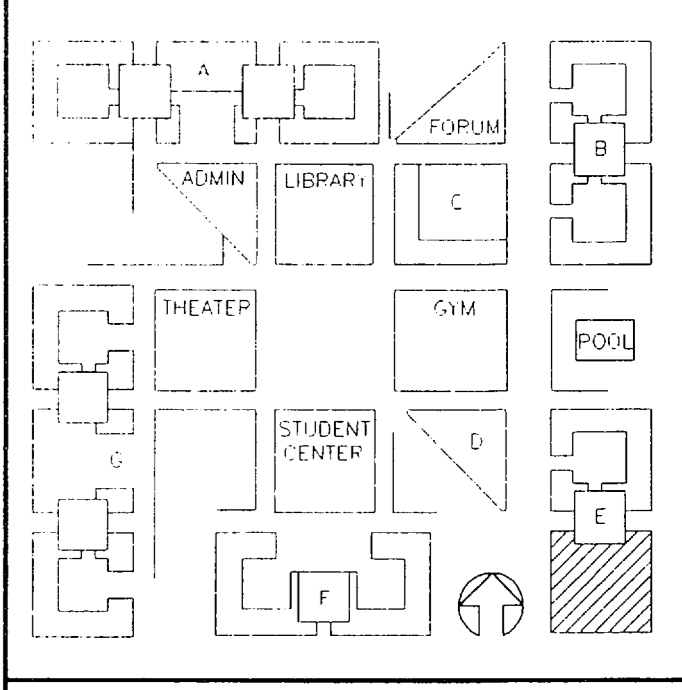


1 HOT WATER BOILER PIPING DIAGRAM
M-109 NOT TO SCALE



NOTE:
1. DUCT SUPPORT AND BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE SMOCA SEISMIC RESTRAINT MANUAL (SSRM), LATEST EDITION. REFER TO SSRM CHAPTER 3 FOR GENERAL REQUIREMENTS.
2. SEE SSRM TABLE S-3, 6-3 OR 7-3 FOR VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES. BOLT SIZE, CONNECTION TO SUPPORTING STRUCTURE, AND SPACING OF BRACING.

1 SINGLE HANGER BRACING FOR ROUND DUCTS 28" THROUGH 48"
M-109 NOT TO SCALE



KEY PLAN

NO.	DATE	DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

JUN 2 4 1998

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Project: 98-005



Client:

Peralta Community College District

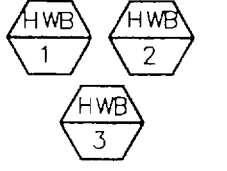
Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE- BOILER PLANT SECTIONS AND DETAILS

DATE: 5/26/98	JOB NO: 98-005
SCALE: AS SHOWN	SHEET NO.
DRAWN BY: KLM	M-109
CHECKED BY: CAR	
APPROVED BY: ECS	

CONSTRUCTION DOCUMENTS



HOT WATER BOILER - GAS SCHEDULE

UNIT DESIGNATION	LOCATION	TYPE	CAPACITY(BTUH)		APPROX. BHP	FIRING RATE/GAS (CFH)	HEATING SURFACE	ELECTRICAL			OPERATING WEIGHT LBS.	MANUFACTURER	MODEL	NOTES
			INPUT	OUTPUT				VOLT.	PHASE	HZ.				
	BLDG. E RM. 133	HOT WATER	9,000,000	7,200,000	215	9000	850.0	460	60	3	10,500	CLEAVER BROOKS	FLX 900	


NOTES:

1. APPROXIMATE BOILER HP = 215.
2. BOILER TO OPERATE AT 60 PSIG, 160 PSIG RELIEF VALVE.
3. PROVIDE FORCE-DRAFT BURNER FOR NATURAL GAS WITH 3:1 TURN DOWN AND FULL MODULATION.
4. MINIMUM GAS PRESSURE OF THE UNIT IS 48.3 INCHES W.C.
5. UNITS SHALL INCLUDE BOILER/BURNER MANAGEMENT SYSTEMS (HAWK) WITH LINK INTERFACE FOR JOHNSON CONTROLS.
6. MINIMUM RETURN TEMPERATURE SHOULD NOT BE LESS THAN 140 DEGREES.

HOT WATER PUMP SCHEDULE

UNIT DESIGNATION	SERVICE	LOCATION	TYPE	MODEL NO.	FLOW RATE (GPM)	TOTAL DYNM. HEAD (FT.)	EFF.	MOTOR			OPERATING WEIGHT (LBS.)	MANUFACTURER	REMARKS
								H.P.	RPM	VOLTAGE			
	HWB-1	BLDG. E RM. 133	CENTRIFUGAL	SERIES 4280	480	30	70.92	10	1800	460	225	ARMSTRONG	CENTERLINE DISC. END SUCTION MOTOR MOUNTED PUMP, NEW
		BLDG. E RM. 132	CENTRIFUGAL		600	100		30	1750	460	1,403		VERTICALLY MOUNTED SPLIT CASE PUMPS 200 PSIG WORKING PRESSURE, EXISTING


STEAM (GAS FIRED) - BOILER SCHEDULE

UNIT DESIGNATION	LOCATION	TYPE	BO. H.P.	CAPACITY BTU/HR		STEAM OUTPUT LBS/HR @ 212°F	FUEL	FAN		OPERATING WEIGHT, LBS.	REMARKS
				INPUT	OUTPUT			TYPE	H.P.		
	BLDG. E RM. 133	WATER TUBE STEAM	40	1,674,000	1,340,000	1381	NATURAL GAS	FORCED DRAFT	1/2	6000	AJAX BOILER INC. SFG-40

NOTES:

1. BOILER TO OPERATE AT 60 PSIG STEAM, SET RELIEF VALVE AT 150 PSIG.
2. PROVIDE FORCE-DRAFT BURNER FOR NATURAL GAS WITH LOW-HIGH-LOW SEQUENCE.

BOILER FEED PUMP SCHEDULE

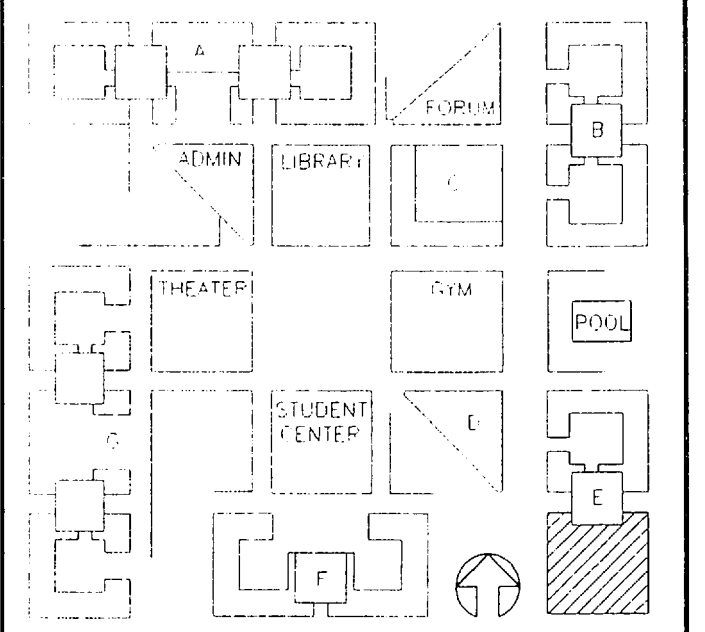
UNIT DESIGNATION	LOCATION	GPM	DISCHARGE PRESSURE (PSI)	H.P.	RPM	RECEIVER CAPACITY (GAL)	MANUFACTURER	MODEL
	BLDG. E RM. 133	7.5	75	1.5	3450	71	SKIDMORE	S-50-U-71-75

NOTES:

1. BOILER FEED PUMP TO BE CENTRIFUGAL DUPLEX.
2. PROVIDE TEMP. PREHEAT, MAGNESIUM ANODE & CHEMICAL QUILL.
3. PROVIDE CF-1 SIMPLEX CHEMICAL FEED SYSTEM WITH LMI PUMP & TANK.
4. PROVIDE W-S-1 SIMPLEX MODEL 60-1 WATER SOFTENER.

STEAM TRAP SCHEDULE

UNIT DESIGNATION	DESCRIPTION	SIZE	LBS/HR	MAX. OPERATING PRESS. (PSI)	SERVICE	REMARKS
T-1	FLOAT AND THERMOSTATIC	3/4"	-	45	STEAM HEADER	SPIRAX SARCO FT-75
T-2	FLOAT AND THERMOSTATIC	3/4"	-	45	END OF LINE	SPIRAX SARCO FT-75
T-3	FLOAT AND THERMOSTATIC	3/4"	-	45	STEAM BRANCH	SPIRAX SARCO FT-75
T-4	INVERTED BUCKET	3/4"	225 LBS/hr	45	FEEDWATER TANK	SPIRAX SARCO FT-14



KEY PLAN

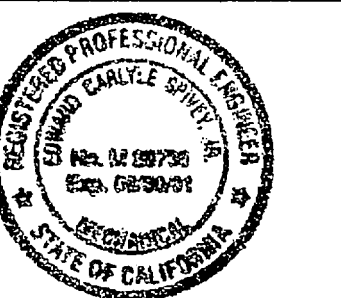
NO.	DATE	DESCRIPTION

REVISIONS

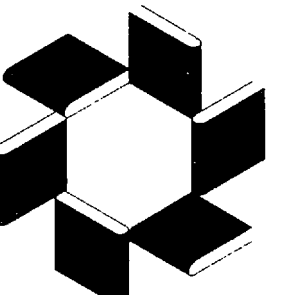
MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
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JUN 2 1999

BOSEK, GIBSON & ASSOCIATES, INC.
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 (925) 944-8929
 Project: 98-005



Client:



Peralta Community College District

Project Name:
 MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
 LANEY COLLEGE - BOILER PLANT
 SCHEDULES

DATE: 5/26/98 JOB NO: 98-005

SCALE: NONE SHEET NO.

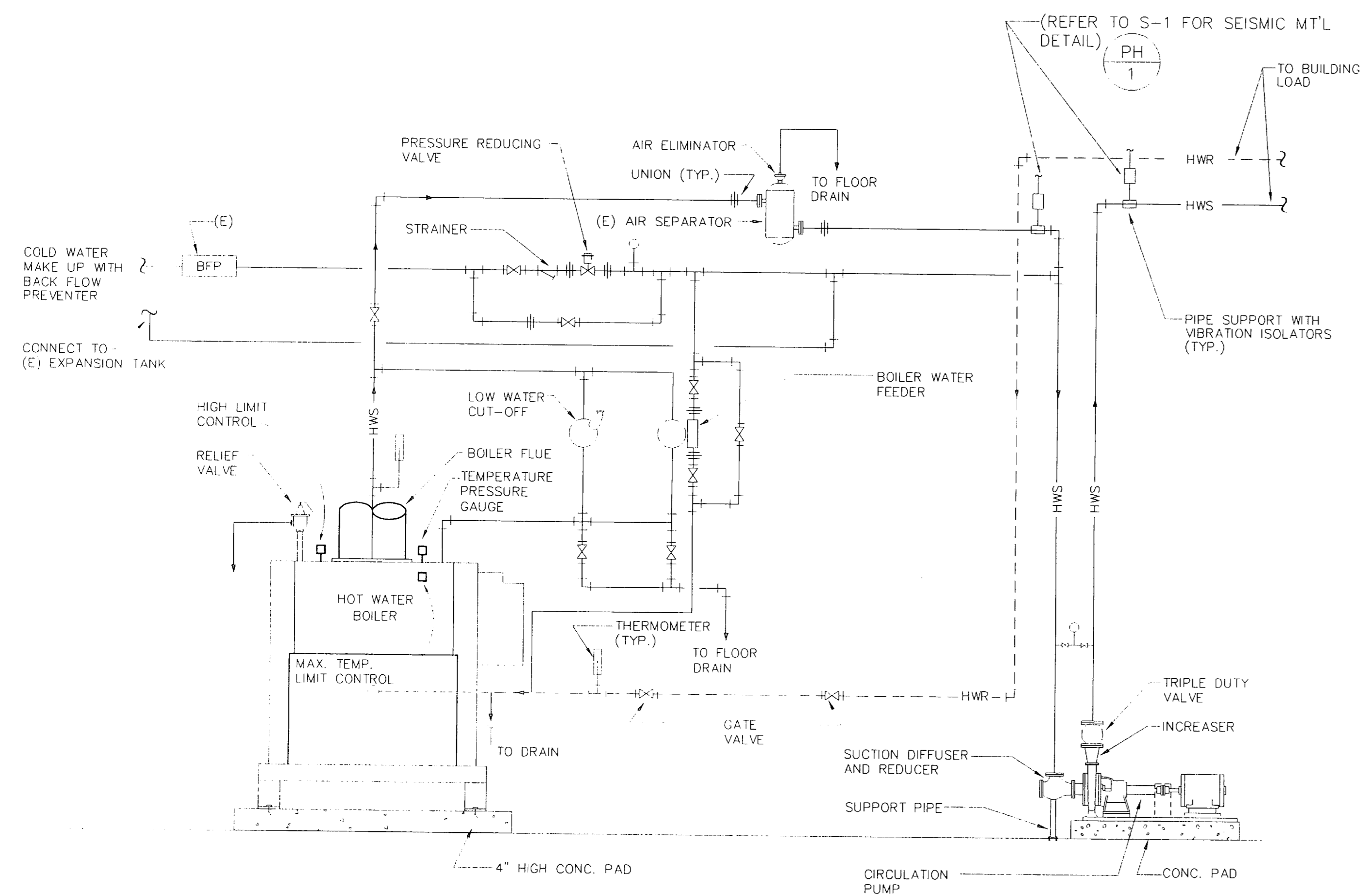
DRAWN BY: KLM

CHECKED BY: CAR

APPROVED BY: ECS

M-111

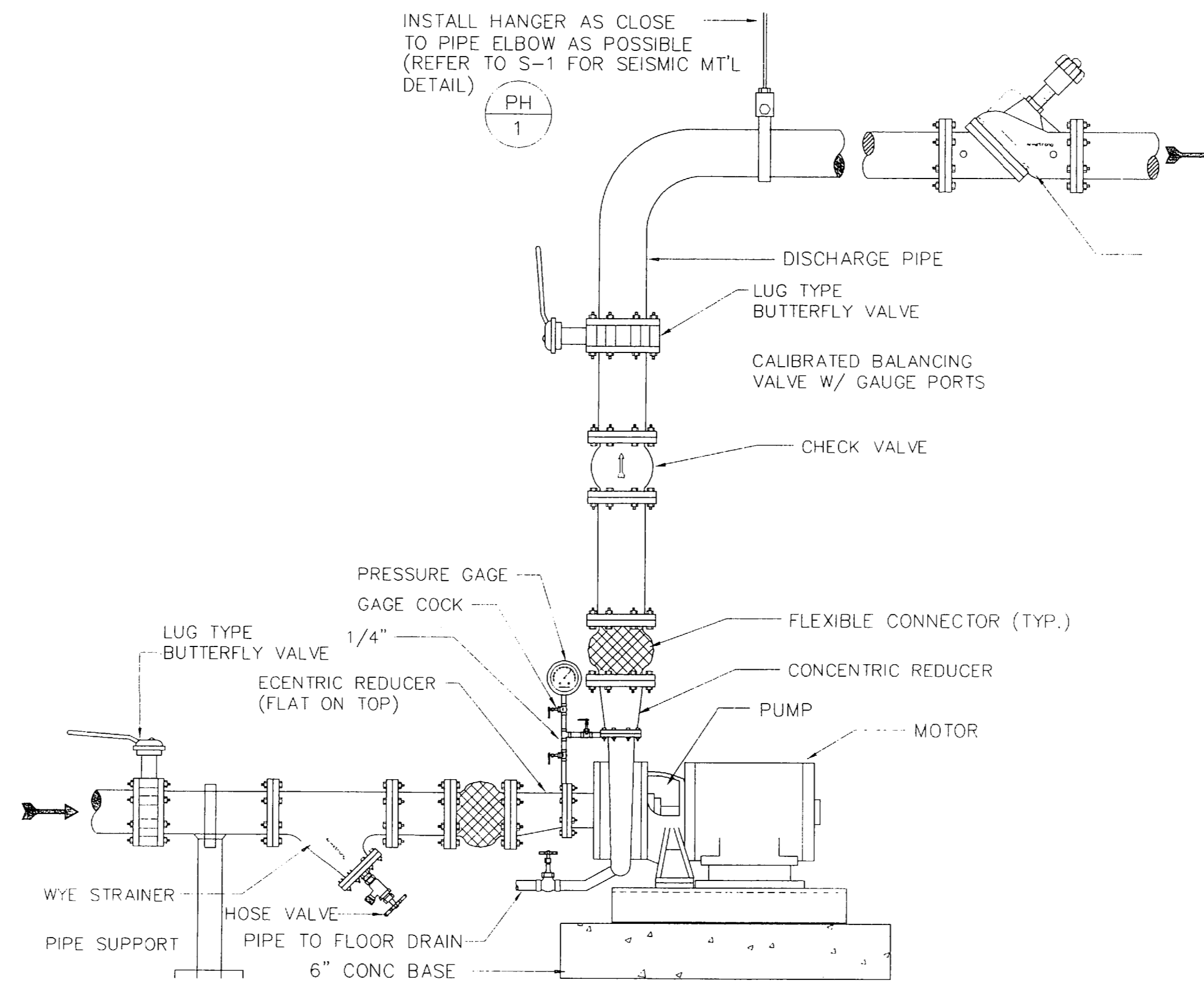
CONSTRUCTION DOCUMENTS



HOT WATER BOILER PIPING - DETAIL

1
M-112

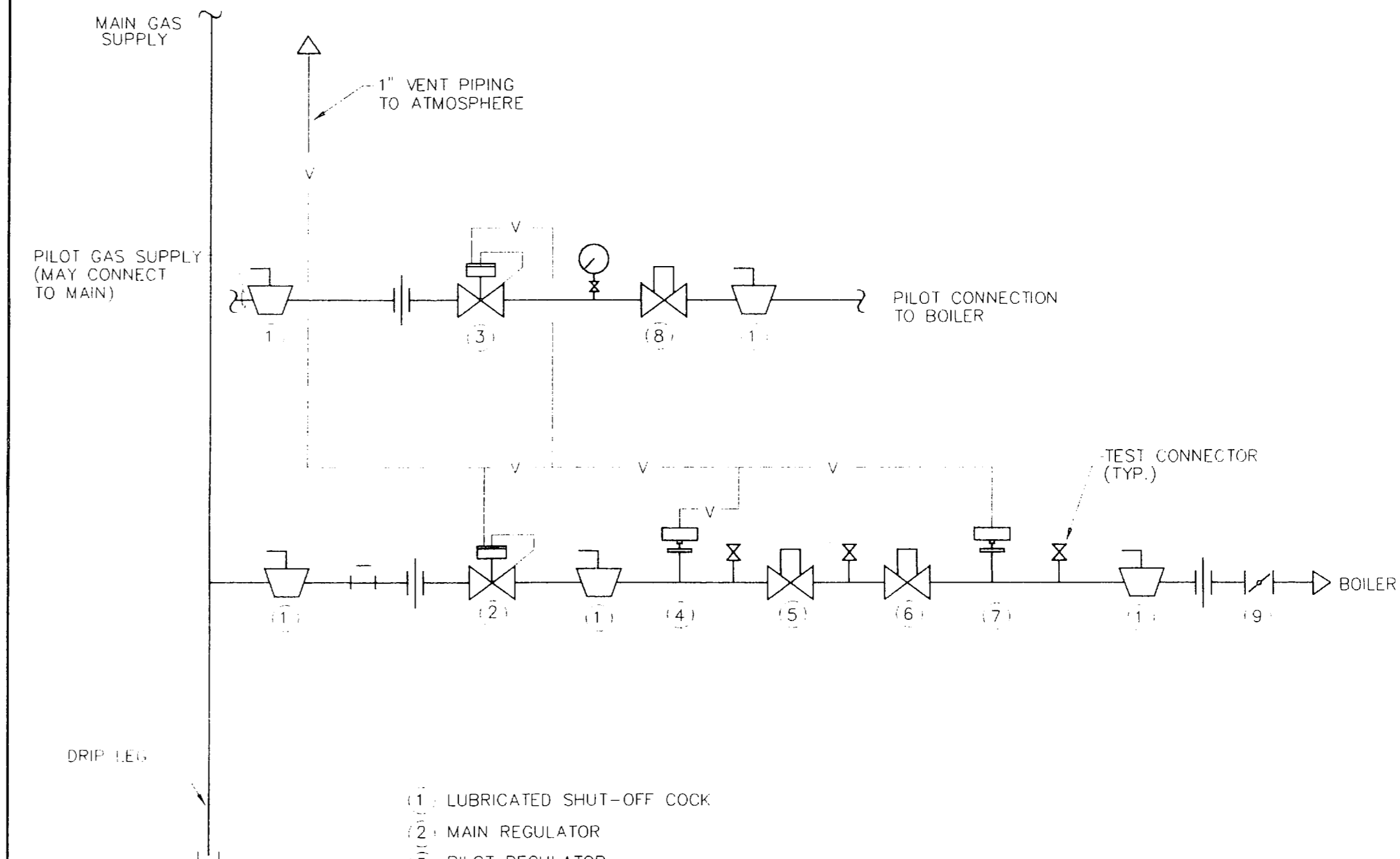
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END SUCTION PUMP - DETAIL (NO SUCTION DIFFUSER)

2
M-112

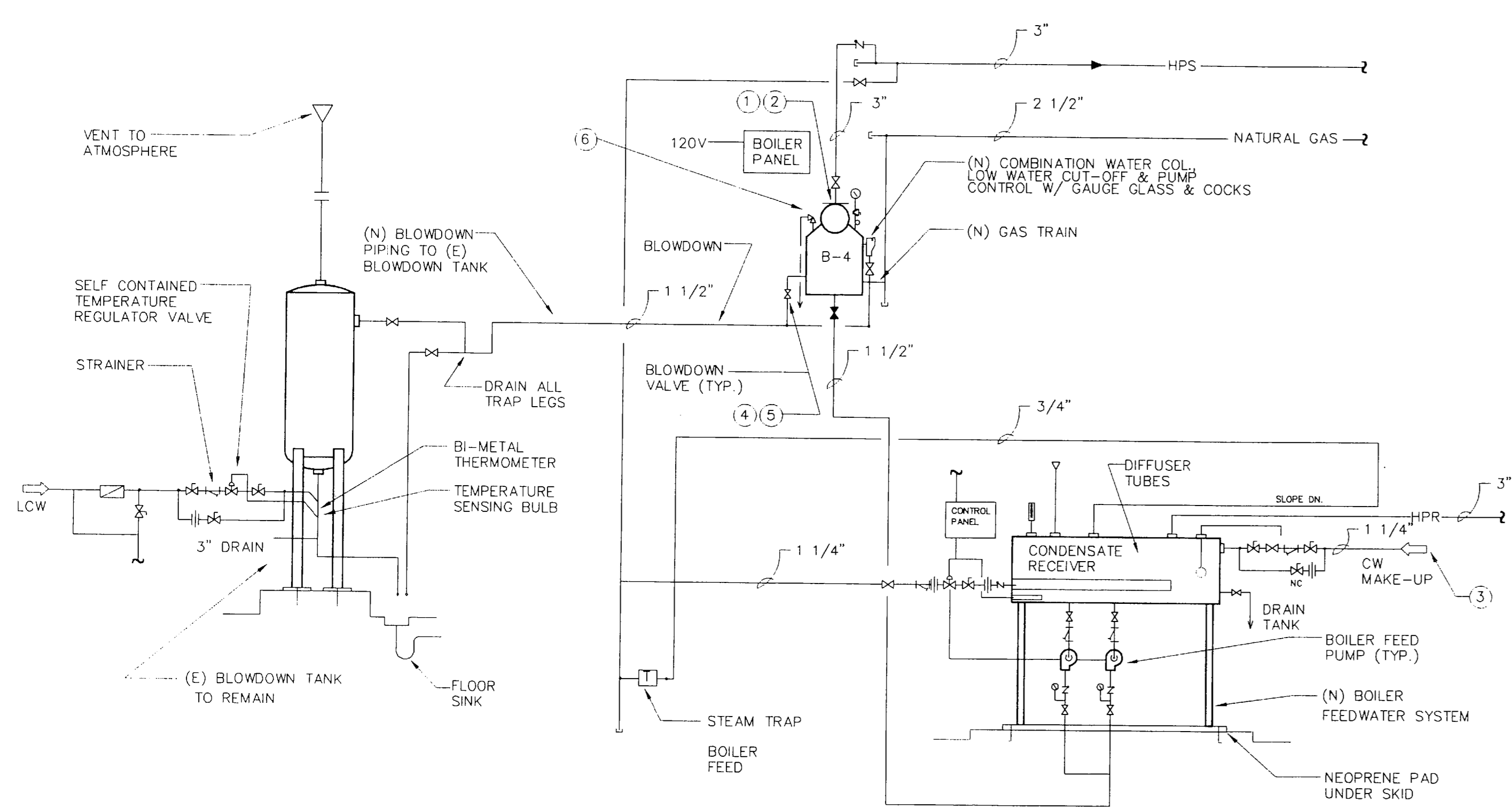
NOT TO SCALE



BOILER GAS TRAIN (TYP.) - DETAIL

3
M-112

(SCHEMATIC NOT TO SCALE)



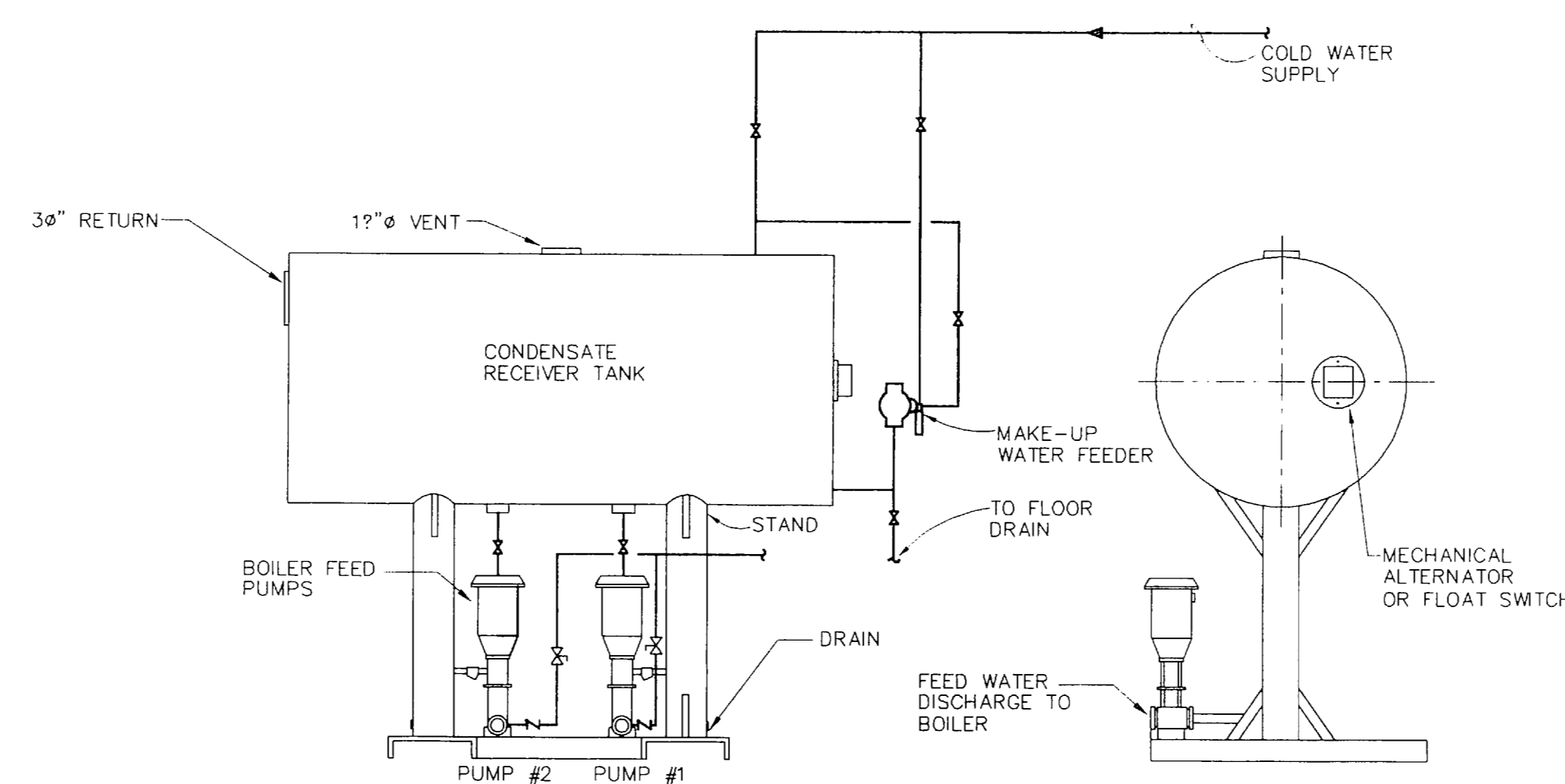
NOTES:

- 1 THE STEAM BOILER SHALL BE BROUGHT UP TO A STEAMING RATE OF ABOUT 20 TO 30 MINUTES AND THE FEEDWATER TANK HEATED TO 90° F PRIOR TO ANY STEAM LOAD.
- 2 THE SYSTEM IS AN ATTENDED BOILER OVER 15 PSI AND SHALL REQUIRE HOURLY CHECK ON THE OPERATING STATUS.
- 3 THE DOMESTIC COLD WATER SHALL BE SOFTWATER.
- 4 THE SURFACE BLOWDOWN SHALL BE PIPED W/ A CHECK IF THE MEETING SURFACE VALVE IS PIPED COMMON TO THE BOTTOM BLOWDOWN LINE.
- 5 THE BOTTOM BLOWDOWN SHALL HAVE A QUICK AND SLOW OPENING VALVE PIPED TO THE BLOWDOWN SEPARATOR OR BLOWDOWN TANK. THE LOWEST POINT OF THE PIPING NEAR THE BLOWDOWN TANK SHALL HAVE A DEAD MAN DRAIN TO ALLOW THE BOILER TO BE COMPLETELY DRAINED.
- 6 THE BOILER SAFETY VALVES SHALL BE PIPED WITH DRIP TRAPS IF PIPED VERTICALLY OR PIPE TO THE SEPARATOR VENT CONNECTION.

STEAM BOILER PIPING - DETAIL

4
M-112

(SCHEMATIC NOT TO SCALE)



BOILER FEEDWATER SYSTEM - DETAIL

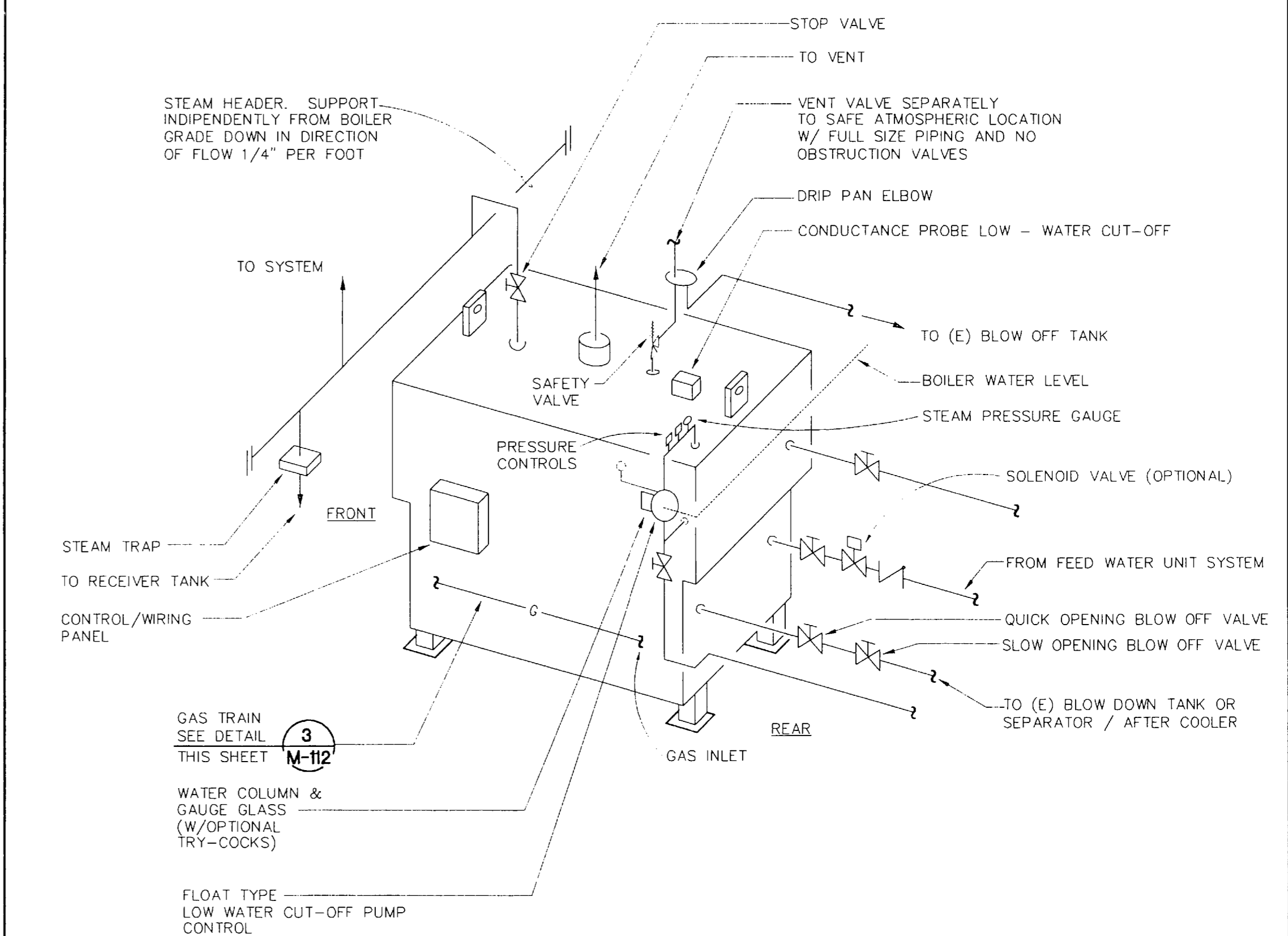
5
M-112

NOT TO SCALE

BOILER FEED SYSTEM: DUPLEX, SERVING ONE BOILER

NOTES:

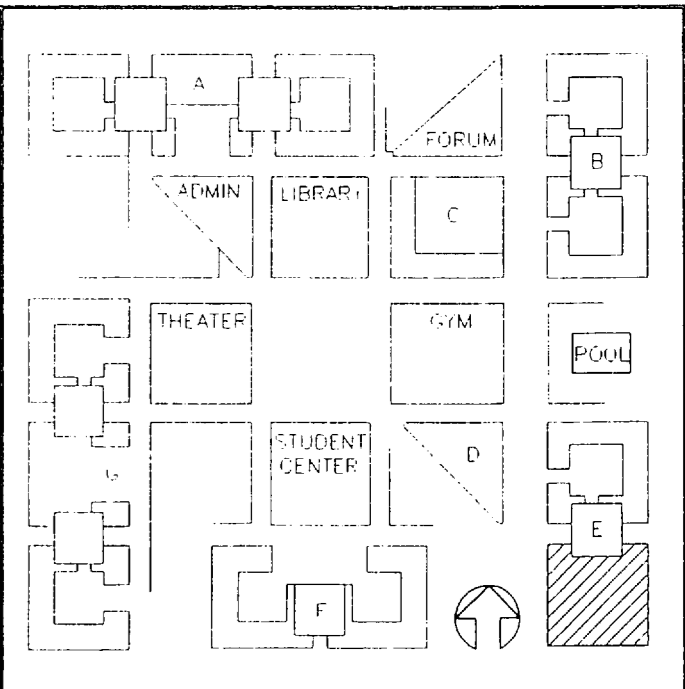
- 1 THE FEED WATER PUMPS SHALL BE ON AND OFF WITH STEAM RATED CHECK VALVES, BOTH AT THE DISCHARGE OF THE PUMPS AND AT THE INLET TO THE BOILER.
- 2 THE FEED WATER PUMPS SHALL BE CONTROLLED BY A PUMP CONTROL OR FEED WATER REGULATOR MOUNTED ON THE BOILER.



STEAM BOILER PIPING DETAIL

6
M-112

(SCHEMATIC NOT TO SCALE)



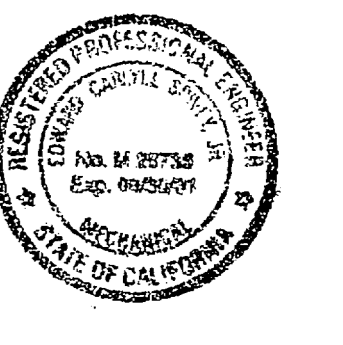
KEY PLAN

NO.	DATE	DESCRIPTION
3	4/21/98	Added Steam boiler pipe sizes

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
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(925) 944-8929
Project: 98-005



Peralta Community College District

MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

LANEY COLLEGE - BOILER PLANT DETAILS

DATE:	5/26/98	JOB NO.:	98-005
SCALE:	NONE	SHEET NO.:	
DRAWN BY:	KLM	M-112	
CHECKED BY:	CAR		
APPROVED BY:	ECS		

CONSTRUCTION DOCUMENTS

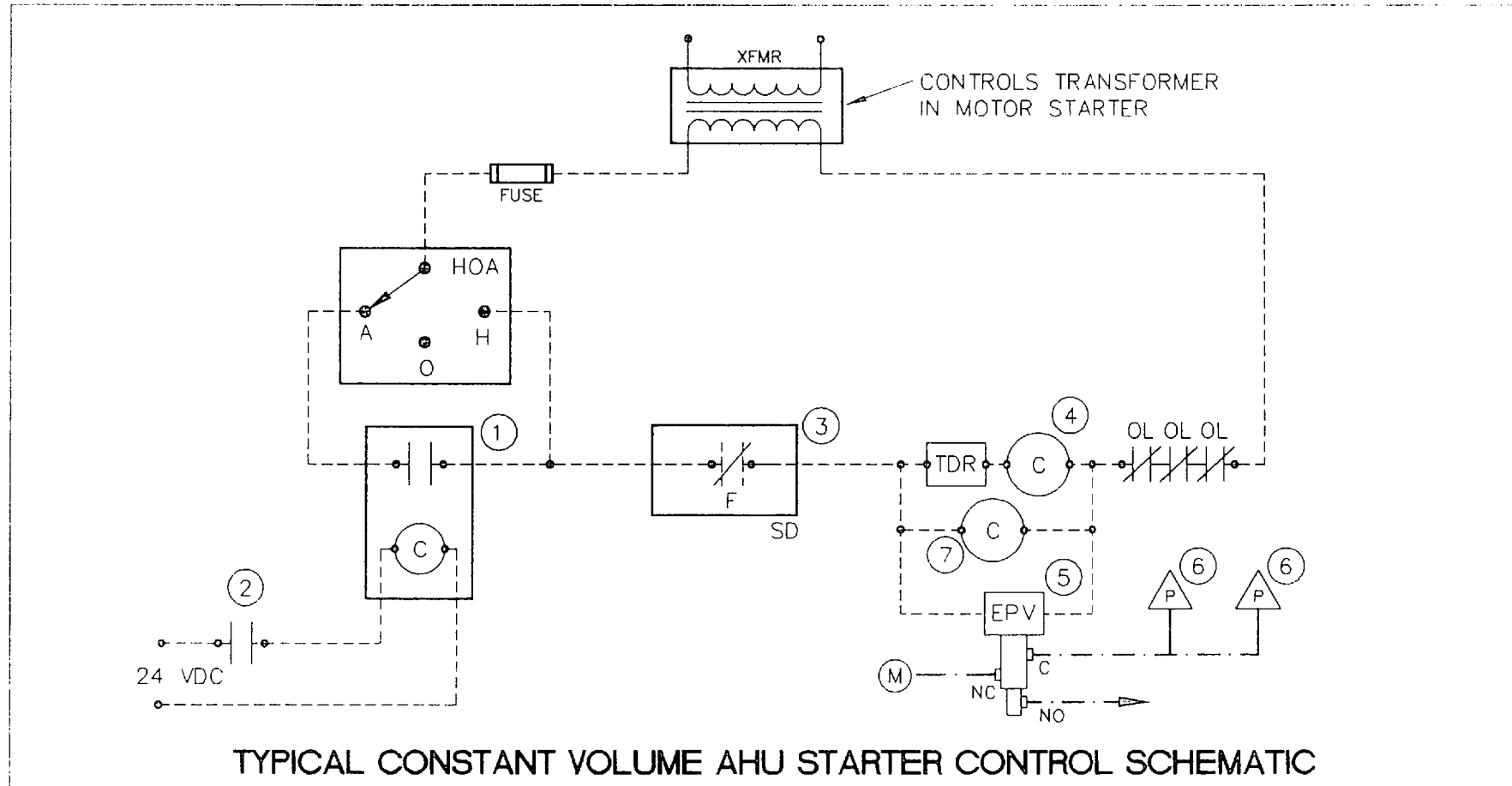
CONTROLS - GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL EXISTING CONDITIONS BEFORE BEGINNING WORK. THE BIDDER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE CODES.
2. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES AND BEAR THEIR LABELS.
3. CONTRACTOR SHALL REMOVE ALL LEFT-OVER CONDUIT, WIRE, SORAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM HIS WORK.
4. CONTRACTOR SHALL REPORT TO THE ENGINEER ANY OBSERVATIONS OF CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING WHICH WOULD PREVENT THE CORRECT INSTALLATION OF THE CONTROL SYSTEM.
5. CONTRACTOR SHALL LAY OUT CONDUIT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES. LIST OF EXPOSED CONDUIT SHALL BE LIMITED AND MUST BE APPROVED BY OWNER. INVESTIGATE FIELD CONDITIONS TO REDUCE EXISTING CONDUIT WHERE POSSIBLE. USE OF FIRE ALARM OR SECURITY CONDUITS IS NOT PERMITTED. USE ELECTRICAL OR OTHER ABANDONED CONDUIT ONLY WHERE WRITTEN PERMISSION IS PROVIDED.
6. ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED TO MAINTAIN THE FIRE SEPARATION RATING. FIRE SEALING ASSEMBLIES MUST BE LISTED FOR THE APPLICATION.
7. ALL CONDUIT CROSSING EXPANSION JOINTS SHALL BE PROVIDED WITH SPECIFIED EXPANSION DEFLECTION FITTINGS.
8. EXISTING DEVICES ARE SHOWN WITH THE SUBSCRIPT (E)I. DISCONNECT AND REMOVE ALL EXISTING DEVICES, CONTROL WIRING AND PNEUMATIC TUBING/PIPING WHERE ABANDONED OR NOT USED. TURN OVER TO OWNER EXISTING DEVICES THAT ARE NOT REUSED. DISCARD IF OWNER DOES NOT WANT. THE CONTRACTOR WILL ENDEAVOR TO LOCATE AND REMOVE ALL EXISTING PNEUMATIC BRANCH LINES THAT ARE NO LONGER REQUIRED.
9. WHEN A DEVICE IS REMOVED FROM AN EXISTING EXPOSED OR FINISHED WALL WHICH WILL REMAIN PATCH WALL AND FINISH TO MATCH EXISTING OR NEW FINISH IF REQUIRED.
10. WHERE ADDITIONAL CIRCUITS ARE NEEDED IN EXISTING PANEL, PROVIDE NEW CIRCUIT BREAKERS OF COMPARABLE TYPE AND INTERRUPTING RATING TO MATCH EXISTING IN EXISTING SPACES AS REQUIRED. UPDATE EIC CIRCUIT DIRECTORY WITH ALL CIRCUIT MODIFICATIONS.
11. DRAWINGS INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK TO MEET SPACE CONDITIONS. FINAL LOCATIONS SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
12. PRIOR TO COMMENCING TRENCHING OPERATIONS, CONTACT THE UTILITIES UNDERGROUND SERVICE ALERT BUREAU AND DETERMINE THE EXACT LOCATION OF ANY EXISTING UTILITY LINES WHICH MIGHT BE DAMAGED DURING THE INSTALLATION OF THIS WORK. HAND TRENCH BACKFILL AND COMPACT IN AREAS OF EXISTING UTILITY LINES TO AVOID DAMAGE TO SAME. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SERVICE.
13. PLENUM RATED CABLE WITHOUT THE USE OF A RACEWAY MAY BE INSTALLED ABOVE ACCESSIBLE AND NON-ACCESSIBLE CEILING.
14. CONTRACTOR SHALL DESIGNATE ALL CONTROL SYSTEM JUNCTION BOXES WITH THE "T" TAIL LETTERS "BAS" ON THE COVER. PROVIDE FOR IDENTIFICATION BY ALL SYSTEM CONTROLS INCLUDING WIRE CONDUIT AND REMOTE/LOCATED DEVICES AND SENSORS AS REQUIRED BY THE SPECIFICATIONS.
15. SIZE VALVE ACTUATORS FOR TWICE BREAKAWAY TORQUE AT MAXIMUM EXPECTED DIFFERENTIAL ACROSS SYSTEM OF 40 PSI.
16. CONTROLS SUPPLIER SHALL INDICATE RECOMMENDED CONDUCTOR TYPE AND SIZE REQUIRED, TAKING INTO ACCOUNT LOAD AND VOLTAGE DROP.
17. PROVIDE PRESERVE PROPER OPERATION OF DAMPERS REQUIRED TO FALD CLOSED WHEN THE RESPECTIVE AIR HANDLER IS NOT OPERATED OR FAULTED OFF. THESE INCLUDE SMOKE DAMPERS, RETURN AIR DAMPERS WITH ACTUATORS AND EXHAUST AIR DAMPERS. PRESERVE THE INTERCONNECTION TO THESE SYSTEMS.
18. ALL EQUIPMENT SHUT DOWNS (AIR HANDLING UNITS, CHILLERS, ETC.) SHALL BE PRE-ARRANGED WITH THE DISTRICT OPERATING PERSONNEL AND OCCUR ONLY WITH THEIR PRIOR APPROVAL.
19. REPORT ALL ITEMS OBSERVED AND DISCOVERED THAT REQUIRE SERVICE, REPAIR AND/OR REPLACEMENT TO THE DISTRICT DIRECTOR OF MAINTENANCE FOR CORRECTION.
20. INSTALLATION OF OAKWAYS SHALL NOT BE STARTED UNTIL A DETAILED SHOP DRAWING PACKAGE CONTAINING PLANS AND SPECIFICATIONS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN SUBMITTED TO AND APPROVED BY THE ENGINEER.

CONTROLS - SCOPE OF WORK

1. BASE BID SHALL INCLUDE ALL CONTROLS WORK DESCRIBED HEREIN SHOWN ON THE PLANS, INDICATED IN THE SPECIFICATIONS, AND DEFINED BY THE SCOPE OF WORK. PROVIDE A DETAILED ALTERNATE BID TO REMOVE FROM THE SCOPE SELECTED WORK TO BE REINSTALLED TO THE FACILITY OPERATING PERSONNEL.
2. IN GENERAL, CONTROL WORK SHALL BE DEFINED AS ALL WORK NOT IN THE DIRECT PATH OF PROVIDING POWER TO THE FACILITY. PROVIDE DIRECT CONNECTION TO DIRECT DIGITAL CONTROL (DDC) PANELS AND PANELS PROVIDED BY CONTROLS SUBCONTRACTOR AND OTHER CONTROL PANELS INSTALLED FACTORY MOUNTED ON EQUIPMENT IS CONSIDERED WORK OF THIS SUBCONTRACTOR. IN GENERAL, STARTERS ARE BEING PROVIDED BY OWNER. EXCEPT WHERE NOTED OTHERWISE, PROVIDE INTEGRAL WITH EQUIPMENT COORDINATE REQUIREMENTS FOR INTERLOCKS TO NEW STARTERS WITH OWNER'S CONTRACTOR.
3. CONTROLS CONTRACTOR SHALL PROVIDE THE FOLLOWING ITEMS:
 - A. CONTROLS AIR COMPRESSORS AS REQUIRED.
 - B. CONTROLS AIR SYSTEMS AS REQUIRED.
 - C. PRESSURE REDUCING STATIONS AS REQUIRED.
 - D. ALL WIRING FREQUENCY DRIVES ARRANGED FOR DIRECT COMMUNICATION TO DDC.
 - E. RETROFITTING MANIPULATOR PANELS AND RELATED SENSORS, ALARM DEVICES AND MER EXHAUST FAN CONTROLS.
 - F. ALL CONTROL VALVES AS INDICATED.
 - G. ALL FLOW METERS WHERE INDICATED.
 - H. INTERCONNECTION OF CONTROLS TO ALL END USE DEVICES AND PANELS BUT NOT BETWEEN PANELS PROVIDED BY OTHERS EXCEPT WHERE SPECIFICALLY NOTED.
4. PROVIDE NEW CONTROLS RETROFIT DIVERS AT LANLEY COLLEGE. THIS WORK SHALL BE A SEPARATE ACCESSIBLE ITEM.
5. PROVIDE NEW DUPLEX CONTROLS AIR COMPRESSORS INCLUDING INTERNAL RECEIVER TANK IN BUILDING C BOILER ROOM AT COLLEGE OF ALAMEDA TO REPLACE EXISTING 1 HP AIR COMPRESSORS. INCLUDE NEW REPRESSION AIR OPERATOR, OIL SEPARATOR, AUTOMATIC WATER SEPARATOR AND PRESSURE REDUCING STATION. THIS WORK SHALL BE A SEPARATE ACCESSIBLE ITEM. SEE NEW CONTROLS COMPRESSED AIR SYSTEM ACCORDING TO SYSTEM REQUIREMENT.
6. PROVIDE NEW DUPLEX CONTROLS AIR COMPRESSORS LESS INTERNAL RECEIVER TANK IN BUILDING I BOILER ROOM AT MERRITT COLLEGE. TO REPLACE EXISTING DUPLEX 1 HP AIR COMPRESSORS. INCLUDE NEW REPRESSION AIR OPERATOR, OIL SEPARATOR, AUTOMATIC WATER SEPARATOR AND PRESSURE REDUCING STATION. THIS WORK SHALL BE A SEPARATE ACCESSIBLE ITEM. SEE NEW CONTROLS COMPRESSED AIR SYSTEM ACCORDING TO SYSTEM REQUIREMENT.
7. PROVIDE FOUR PRESSURE DIFFERENTIAL SENSORS AT LANLEY COLLEGE, TWO LOCATED IN THE CHILLED WATER SYSTEM AND TWO LOCATED IN THE HEATING HOT WATER SYSTEM FOR CONTROL OF VARIABLE SPEED ECONOMIZER PUMPS. LOCATE SENSORS IN BUILDING A AND ADMINISTRATION BUILDING. ENGINEER WILL OBTAIN FINAL LOCATION DURING CONSTRUCTION.
8. PROVIDE NEW TWO-WAY CHILLED WATER CONTROL VALVES TO REPLACE ALL EXISTING (EXCEPT LANLEY KJW F003). VALVES SHALL BE FULLY MOUNTING, ELECTRONIC 4-20 mA INPUT OR 1-5 VOLT INPUT. VALVES EXISTING HOT WATER VALVES OR DAMPER OPERATORS ARE BEING CONTROLLED BY DDC. ELECTRONIC 4-20 mA INPUT OR 1-5 VOLT INPUT NEW HOT WATER VALVES SHALL BE ELECTRONIC. VALVES AND OPEN AIR VALVES SHALL BE RELATED TO CONTROL OUTPUT SIGNAL VALUE SUPPLIED TO THESE DEVICES.
9. PROVIDE ALLOWANCE TO REPLACE 10 PERCENT OF ALL HOT WATER HEATING COIL VALVES AND REHEAT COIL VALVES IN LANLEY, MERRITT AND ALAMEDA COLLEGES. WITH ELECTRONIC TWO-WAY VALVES. CONTRACTOR SHALL VERIFY THE OPERATION OF EVERY EXISTING CONTROLS DEVICE. THESE SHALL BE A SEPARATE ACCESSIBLE ITEM.
10. REPLACE ALL EXISTING PNEUMATIC SPACE THERMOSTATS (NOT CONVERTED TO DDC) IN LANLEY, MERRITT AND ALAMEDA COLLEGES (EXCEPT LANLEY KJW BLDG F003). NEW SPACE THERMOSTATS SHALL HAVE INTERNAL CONTACTS SETPOINT AND LOCKING COVER. WORK SHALL INCLUDE REPLACING ALL CONTROLS AIR TUBING FOR LEAKS AND REPLACING RETROFITTED AIR TUBING AND AIR TUBING THAT HAS LEAKS. ISOLATE ALL REMOVED CONTROLS AIR TUBING. THIS WORK SHALL BE A SEPARATE ACCESSIBLE ITEM.

11. CLEAN ALL AIR INTAKE SCREENS, FULLY SERVICE ALL EXISTING CONTROL DAMPERS INCLUDING REMOVAL OF DIRT FROM DAMPER FRAMES, WIPING INTERFERENCE WITH DAMPER OPERATION IS POSSIBLE AND FROM PAINT, LUBRICANT. ALL EXISTING DAMPERS AND RETURN LINES AS REQUIRED TO MAKE EXISTING DAMPERS FULLY OPERABLE ACROSS THEIR ENTIRE OPERATING RANGE.
12. PROVIDE / PRESERVE PROPER OPERATION OF DAMPERS REQUIRED TO FALD CLOSED WHEN RESPECTIVE AIR HANDLER IS NOT OPERATED OR FAULTED OFF. THESE INCLUDE SMOKE DAMPERS, RETURN AIR ACTUATORS WITH ACTUATORS. NOTE THAT EXISTING SMOKE DETECTORS ARE TIED TO FIRE ALARM SYSTEM. SOME EXISTING SMOKE DETECTORS SHALL BE TIED TO EXISTING STARTERS. ALERT OWNER OF ALL EXISTING SMOKE DETECTORS NOT TIED DIRECTLY TO FIRE ALARM PANEL. PRESERVE THE INTERCONNECTIONS TO THESE SYSTEMS.
13. ALL EQUIPMENT SHUT DOWNS (AIR HANDLING UNITS, CHILLERS, ETC.) SHALL BE PRE-ARRANGED WITH DISTRICT OPERATING PERSONNEL AND OCCUR ONLY WITH THEIR PRIOR APPROVAL.
14. REPORT ALL ITEMS WHICH IS NOT WORK OF THIS CONTRACT OBSERVED OR DISCOVERED WHICH REQUIRE SERVICE, REPAIR AND /OR REPLACEMENT TO THE DISTRICT DIRECTOR OF MAINTENANCE FOR CORRECTION.
15. TEST AND BALANCE THE DDC SYSTEM REQUIRE CLOSE COORDINATION WITH REGARD TO SETTING MINIMUM OUTSIDE AIR FLOW RATES AT AIR HANDLERS. ALL NECESSARY COORDINATION AND ASSISTANCE BETWEEN THE CONTROLS SUBCONTRACTOR AND THE TEST AND BALANCE SUBCONTRACTOR IS REQUIRED.
16. WHERE MULTIPLE SENSORS MEASURE SAME VALUE (ie OUTSIDE AIR AT INTAKE TO AHU). DDC CONTRACTOR SHALL INSTALL MINIMUM OF USE OF SENSOR WHERE PROTECT AND BRANDED INFORMATION TO OTHER SENSORS AT EACH DAMPER. CROSS COMPARE SENSOR READINGS AND NOTE DEVIATIONS 11% F.



- NOTES:
- 1 DDC INTERPOSING RELAY
 - 2 DDC OUTPUT RELAY
 - 3 DUCT SMOKE DETECTOR INTERLOCK FROM FIRE ALARM PANEL, DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.
 - 4 SAF STARTER COIL
 - 5 E.P. VALVE, APPLIES PNEUMATIC PRESSURE TO SMOKE DAMPERS, ZONE CONTROLS, ETC., UPON AHU START
 - 6 PNEUMATIC SUPPLY TO SPACE THERMOSTATS, DAMPERS, OTHER EQUIPMENT INTERLOCKS, ETC.
 - 7 HARD WIRED INTERLOCKS TO OTHER EQUIPMENT

ABBREVIATIONS

- | | | | | | |
|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|---------------------------|-----------------------------|
| AHU - AIR HANDLING UNIT | D.C. - DIRECT DIGITAL CONTROLLER | EPV - ELECTRIC - PNEUMATIC VALVE | GUI - GRAPHICS USER INTERFACE | N.O. - NORMALLY OPEN | N.C. - NORMALLY CLOSED |
| HDA - HAND / OFF / AUTOMATIC SWITCH | VAV - VARIABLE AIR VOLUME | CAV - CONSTANT AIR VOLUME | S.P. - SET POINT | R.A. - REVERSE ACTING | D.A. - DIRECT ACTING |
| S.F. - SUPPLY AIR FAN | EAF - EXHAUST AIR FAN | S/S - START / STOP | AI - ANALOG INPUT | DI - DIGITAL INPUT | AO - ANALOG OUTPUT |
| E/A - EXHAUST AIR | R/A - RETURN AIR | S/A - SUPPLY AIR | DO - DIGITAL OUTPUT | DD - DIGITAL INPUT TO DDC | DDO - DIGITAL OUTPUT TO DDC |
| (E) - EXISTING | | | | | |

CONTROL POINT DESIGNATIONS

ENCOMPASSING ALL THREE CAMPUSES AND THE DISTRICT OFFICE, EACH CONTROL POINT SHALL HAVE A UNIQUE DESIGNATION. DESIGNATIONS SHALL INCLUDE THE FACILITY LETTER AND BUILDING LETTER IN ACCORDANCE WITH THE FOLLOWING CODES. IN ADDITION, PROVIDE EQUIPMENT-SPECIFIC AND POINT-SPECIFIC DESCRIPTIONS AS DESIGNATED ON THESE PLANS.

FACILITY AND BUILDING CODES

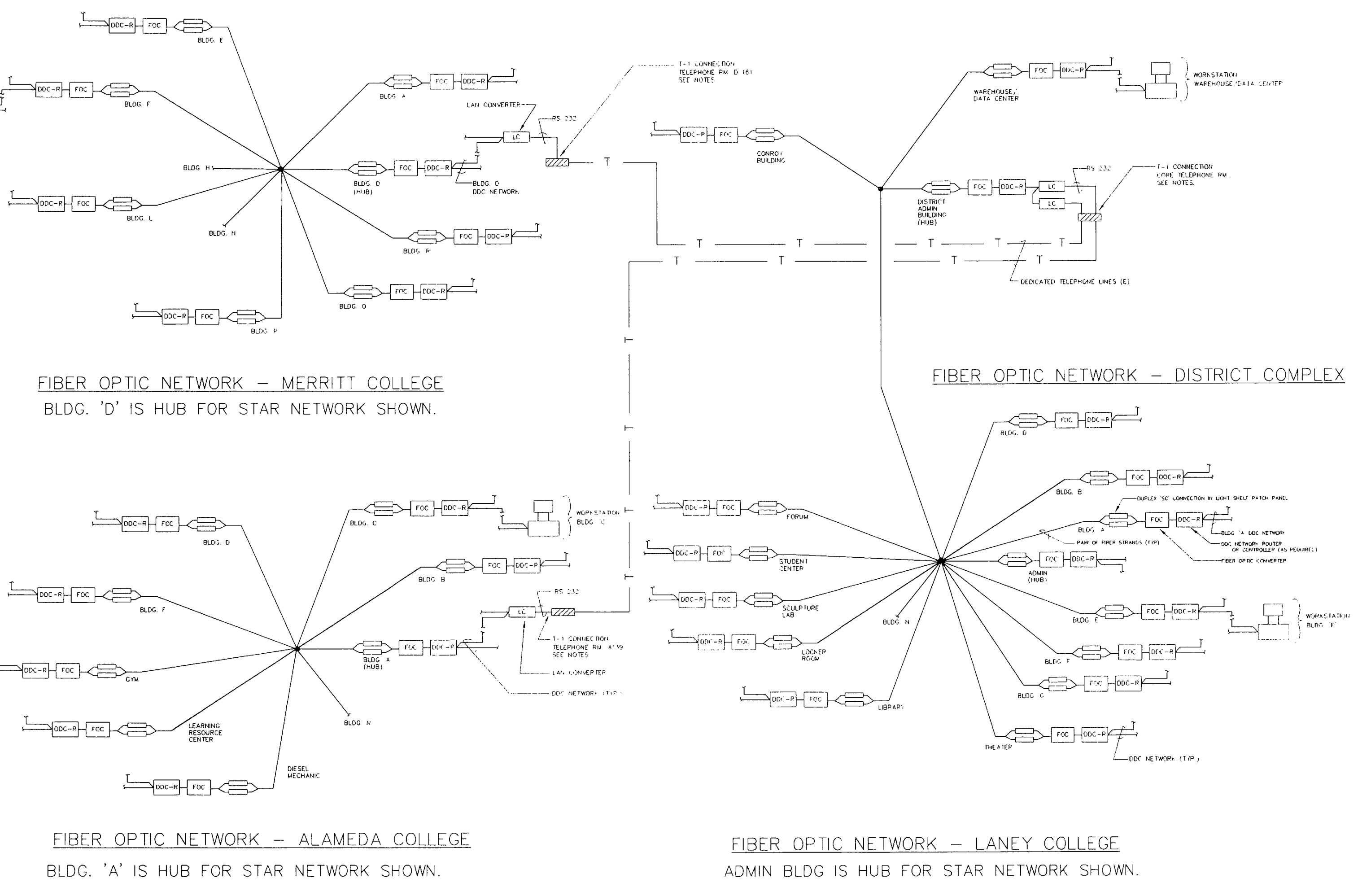
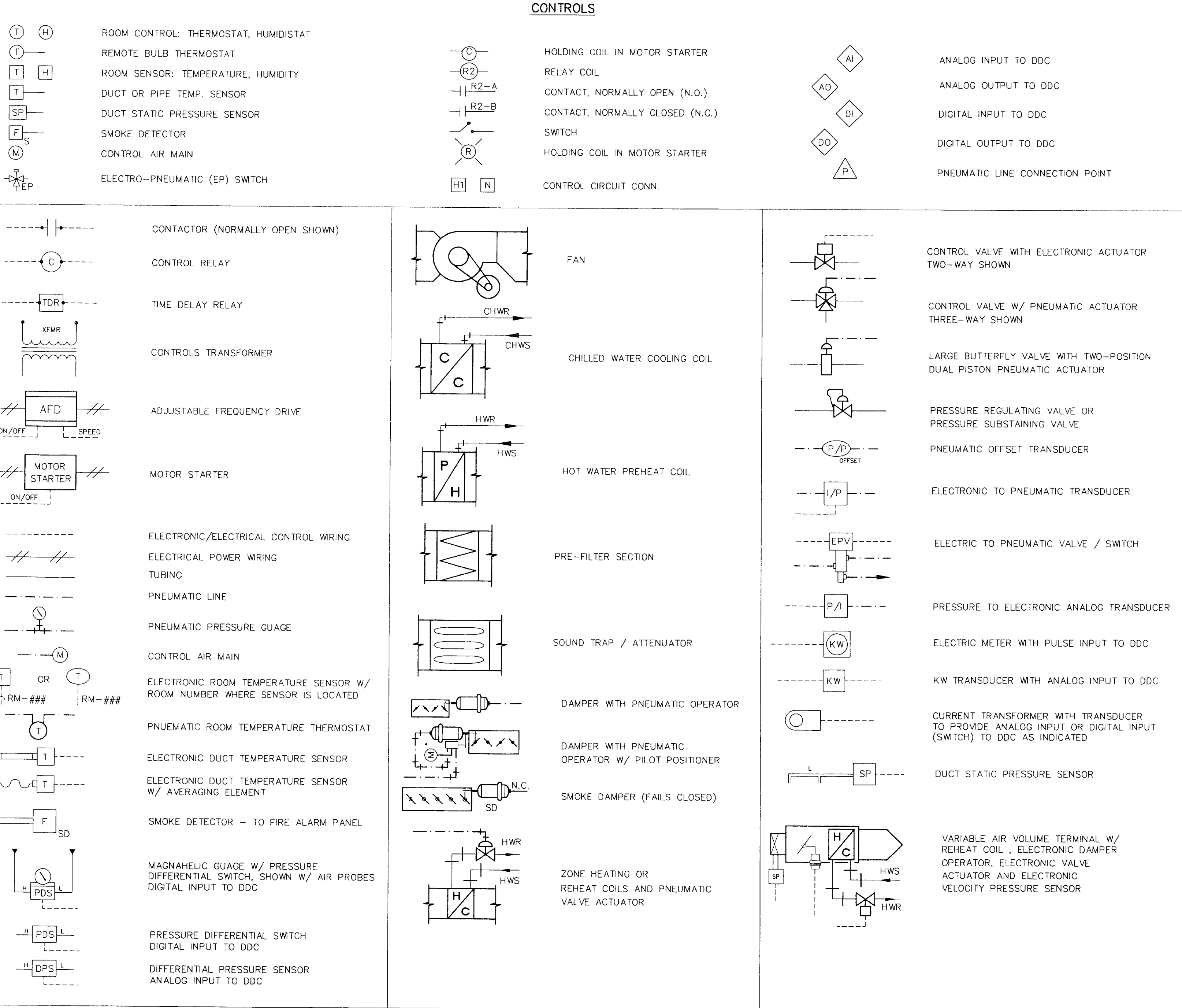
- | | |
|-------------------------------|-------------------------------|
| A = COLLEGE OF ALAMEDA | L = LANLEY COLLEGE |
| A = BUILDING A | L = BUILDING A |
| B = BUILDING B | B = BUILDING B |
| C = BUILDING C | C = BUILDING C |
| D = BUILDING D | D = BUILDING D |
| E = BUILDING E | E = BUILDING E |
| F = BUILDING F | F = BUILDING F |
| G = GYM | G = GYM |
| M = MERRITT COLLEGE | M = LEARNING RESOURCE CENTER |
| A = BUILDING A | N = DIESEL MECHANICS |
| D = BUILDING D | N = CHILDREN'S CENTER |
| E = BUILDING E | O = LOCKER ROOM |
| F = BUILDING F | P = SCULPTURE LABORATORY |
| H = HORTICULTURE COMPLEX | R = BUTLER BUILDING |
| L = LIBRARY | S = STUDENT CENTER |
| N = CHILDREN'S CENTER | T = ADMINISTRATION BUILDING |
| P = BUILDING P | U = FORUM |
| R = BUILDING R | V = GYMNASIUM & SWIMMING POOL |
| | D = DISTRICT COMPLEX |
| | B = BUTLER BUILDING |
| | C = CONROY BUILDING |
| | P = PORTABLE BUILDINGS |

AHU CONTROL POINT DESIGNATIONS

THE FOLLOWING ESTABLISHES THE MINIMUM REQUIREMENT FOR INFORMATION DISPLAYED ON THE GRAPHICS USER'S INTERFACE NOT ALL POINTS FOUND ON THE DRAWINGS MAY BE DISPLAYED BELOW. THE FOLLOWING ESTABLISHES THE STANDARD FOR POINT IDENTIFICATION.

- | | |
|--------------|--|
| AH#-ECCO-% | PERCENT OPERATION OF ECONOMIZER DAMPERS |
| AH#-PF-STAT | PRE-FILTER STATUS FOR DESIGNATED AHU (CLEAN / DIRTY) |
| AH#-CC-% | COOLING COIL - PERCENT CHILLED WATER VALVE POSITION |
| AH#-AF-STAT | AFTER-FILTER STATUS FOR DESIGNATED AHU (CLEAN / DIRTY) |
| AH#-SAT | SUPPLY AIR TEMPERATURE FOR DESIGNATED AHU |
| AH#-PH-SAT | PREHEAT COIL SUPPLY AIR TEMPERATURE AT DESIGNATED AHU |
| AH#-PH-% | PREHEAT COIL - PERCENT HOT WATER VALVE POSITION |
| AH#-SAF-S/S | START/STOP COMMAND TO SUPPLY AIR FAN OF DESIGNATED AHU |
| AH#-SAF-AMP | STATUS OF SUPPLY AIR FAN OF DESIGNATED AHU VIA ANALOG AMPS MEASURED |
| AH#-EF-AMP | EXHAUST AIR FAN INPUT POWER AMPS AT DESIGNATED AHU |
| AH#-RAT | RETURN AIR TEMPERATURE MEASURED AT DESIGNATED AHU |
| AH#-MAT | MIXED AIR TEMPERATURE MEASURED AT DESIGNATED AHU |
| AH#-OAT | OUTSIDE AIR TEMPERATURE MEASURED AT DESIGNATED AHU |
| CAV#-##-HV%Z | CAV HOT WATER VALVE POSITION (% OPEN) FOR DESIGNATED CAV ON AHU |
| CAV#-##-RT | ROOM TEMPERATURE (% OF ZONE SERVED BY DESIGNATED CAV) |
| RM-### | ROOM NUMBER OF STAT LOCATION CORRESPONDING WITH CAV TERMINAL |
| AH#-RLF-% | RELIEF AIR DAMPER - PERCENT OF DAMPER POSITION |
| AH#-EA-SP | EXHAUST AIR STATIC PRESSURE DIFFERENTIAL (INCHES W.G. BELOW ATMOSP.) |

LEGEND



PERALTA COMMUNICATION ARCHITECTURE

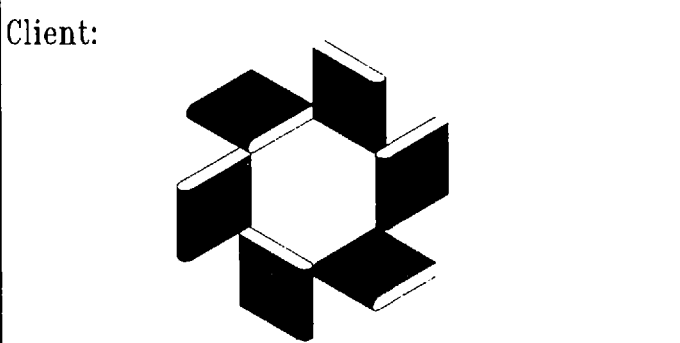
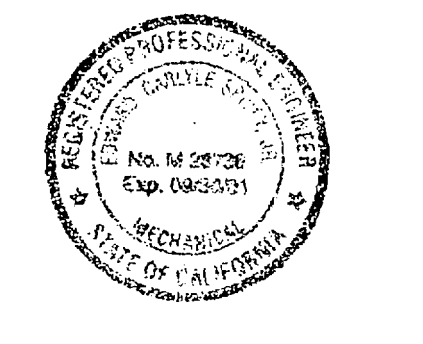
- NOTES:
1. DDC CONTRACTOR SHALL USE FIBER OPTIC STRANDS #9 & #10 WHICH HAVE BEEN RESERVED FOR THE FACILITY AUTOMATION SYSTEM.
 2. ON THIS DIAGRAM, ONLY THE FIBER STRANDS ARE EXISTING. DDC CONTRACTOR SHALL MAKE CONNECTION TO EXISTING FIBER IN FIBER DISTRIBUTION SHELF USING "SC" DUPLEX CONNECTOR. DDC CONTRACTOR SHALL PROVIDE THIS CONNECTOR AND ALL OTHER COMPONENTS REQUIRED TO MAKE DDC LAN OPERABLE.
 3. MAKE RS-232 CONNECTION TO UNUSED FREQUENCY OF T-1 DEDICATED TELEPHONE LINE.

REVISIONS

NO.	DATE	DESCRIPTION

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
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 1571 OAKLAND BLVD., SUITE 102
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 (510) 944-8929
 Project: 98-005



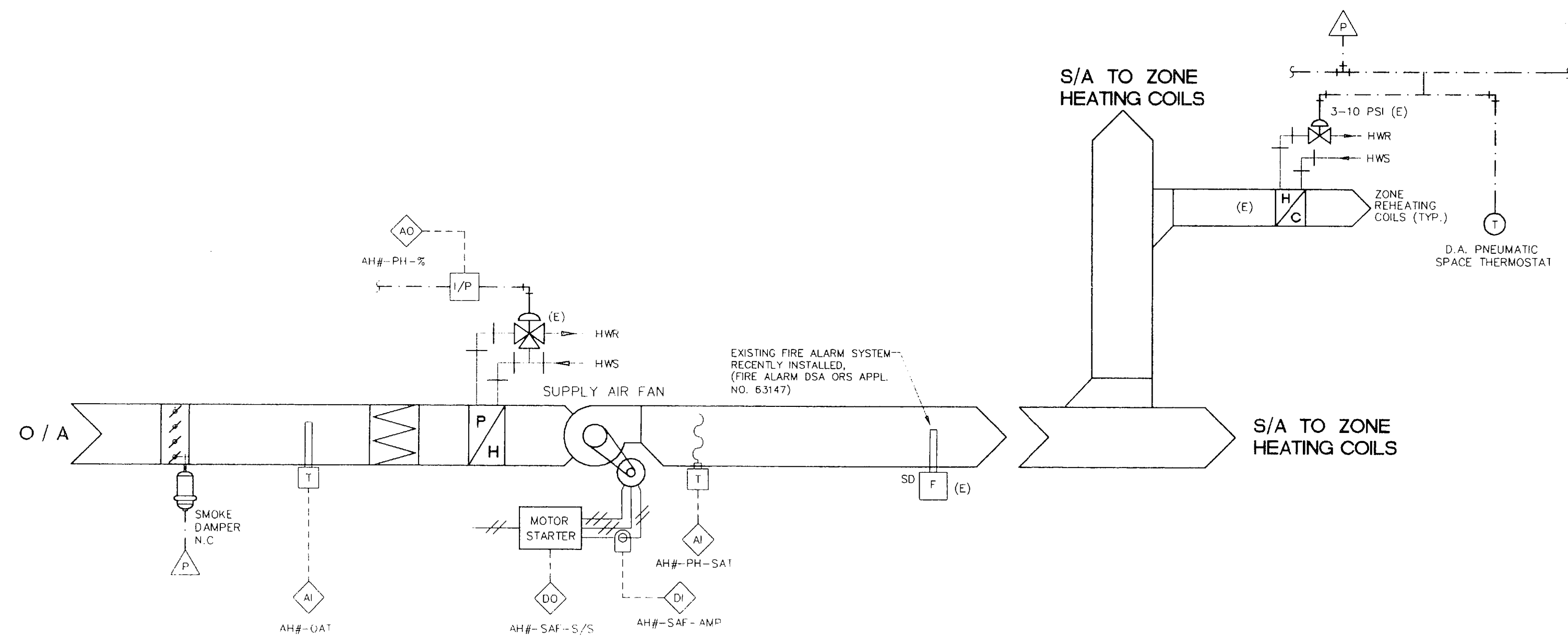
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LEGEND, ABBREVIATIONS, NOTES AND SCOPE OF WORK

DATE:	12/4/98	JOB NO:	98-005
SCALE:	NONE	SHEET NO.	
DRAWN BY:	KLM	MC-001	
CHECKED BY:	CAR		
APPROVED BY:	ECS		

CONSTRUCTION DOCUMENTS



100% O.A. H & V AIR HANDLING UNIT - CONTROL DIAGRAM

TYPICAL OF AIR HANDLING UNITS INDICATED

LANEY COLLEGE									
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	PRE-HEAT COIL		SUPPLY FAN H.P.	NUMBER REHEAT COILS	NOTES
					SAT (°F)	GPM			
D	SF-1D	D 116, LOCKER RM.	CLASSROOMS/DANCE BLDG. 'D'	EF-10, EF-20	55°F	9.0	5	4	(1)
E	SF-1E	'E'-MECH. PENTHOUSE	1ST FLR. KITCHEN AREA	EF-1E	55°F	33.0	15	13	(1)
E	SF-3E	'E'-BAKERY CLG.	1ST FLR. BAKERY AREA	EF-4E	74°F	21.0	5	1	(1)
G	SF-3G	'G' - NORTH MECH. PENTHOUSE	WEST SIDE BLDG. 'A' 1ST AND 2ND FLOOR	EF-11G, EF-6G, EF-10G	55°F	36.5	15	18	(1)

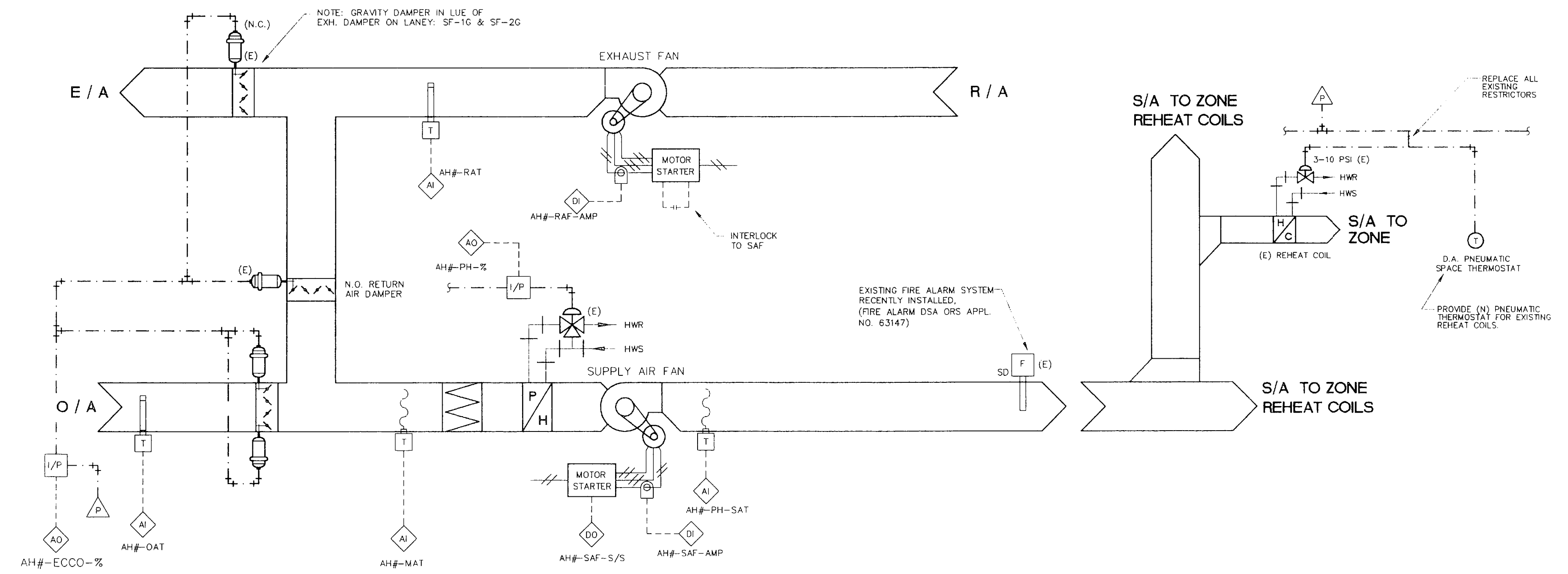
NOTES:

- (1) DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.

MERRITT COLLEGE									
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	PRE-HEAT COIL		SUPPLY FAN H.P.	NUMBER REHEAT COILS	NOTES
					SAT (°F)	GPM			
F	S-1F	MECH. RM. F-233	LOCKER ROOMS 1ST & 2ND FLRS.	E-1F, E-2F, E-3F, E-7F	60	20	10	3	(1)(3)
F	S-2F	MECH. RM. F-109	TEAM RM. (1ST FLR.) OFFICES (2ND FLR.)	E-5F, E-6F, E-4F	60	22	5	8	(1)(3)
D	S-1D	MECH. RM. Q-001	KITCHEN Q1 & Q2	E-1D	60	36.0	20	9	(2)(3)

NOTES:

- (1) NO O.A. DAMPER INSTALLED
- (2) 800 CFM RETURN AIR
- (3) DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.



CVRH AIR HANDLING UNIT- CONTROL DIAGRAM

TYPICAL OF AIR HANDLING UNITS INDICATED

LANEY COLLEGE												
BLDG.	AHU DESIGNATION	R.A. FAN DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	PRE-HEAT COIL		SUPPLY FAN H.P.	RETURN FAN H.P.	MIN. O.A. (CFM)	NUMBER REHEAT COILS	NOTES
						SAT (°F)	GPM					
BLDG. F	SF-2E	EF-5E	'E' MECH. PENTHOUSE	BLDG. 'E' 1ST AND 2ND FLOORS	EF-6E	N/A	N/A	15	10	7,800	26	(4)(11)
BLDG. F	SF-6F	EF-6F	'F' MECH. PENTHOUSE	BLDG. 'F' 2ND FLR. PORTIONS 1ST FLR.	EF-2F, EF-3F, EF-9F	55	20.0	20	7.5	14,000	26	(4)(11)
BLDG. G	SF-1G	RF-1G	'G' SOUTH MECH. PENTHOUSE	SOUTH PORTION BLDG. 'G'	EF-1G	55	25.0	20	3	20,400	23	(4)(11)
BLDG. G	SF-2G	RF-2G	'G' SOUTH MECH. PENTHOUSE	CENTRAL PORTION BLDG. 'G'	EF-3G, EF-4G	55	13.5	10	3	11,700	16	(4)(11)
A	SF-1A	EF-1A	'A'-WEST MECH. PENTHOUSE	WEST SIDE BLDG. 'A' 1ST AND 2ND FLOOR	EF-2A, EF-3A	55°F	38.5	15	??	8,300	22	(3)(4)(11)
A	SF-2A	EF-4A	'A'-WEST MECH. PENTHOUSE	CENTRAL PORTION BLDG. 'A' 1ST AND 2ND FLOOR	EF-12A	55°F	35.4	15	??	6,000	13	(3)(4)(11)
A	SF-5A	EF-9A	'A'-EAST MECH. PENTHOUSE	EAST SIDE BLDG. 'A' 1ST AND 2ND FLOOR	EF-10A	55°F	32.5	15	5	11,000	16	(3)(4)(11)
A	SF-6A	EF-11A	A 194 CLG.	1ST FLOOR, BLDG. 'A' DRY CLEANING DEPT.	-----	55°F	14.5	??	5	1,800	5	(3)(4)(11)
B	SF-1B	EF-1B	'B' - MECH. RM.	'B' PERIMETER CLASSRMS. AND LABS	EF-3B, EF-4B, EF-5B	55°F	51.0	2.0	10	6,400	22	(3)(4)(11)
B	SF-2B	EF-2B	'B' - MECH. RM.	'B' - CENTER CLASSRMS. AND LABS	-----	55°F	42.0	15	10	5,400	22	(3)(4)(11)
C	SF-1C	EF-1C	'C' - MECH. RM. C 111	BLDG. 'C'	EF-2C	55°F	14.0	5	5	1,800	4	(3)(4)(11)
GYM	SF-3 GYM	EF-2 GYM	LOCKER RM. GYM 116	GYM - EAST SIDE	EF-2 GYM, EF-6 GYM, EF-4 GYM, EF-8 GYM	55°F	34.0	15	15	5,000	8	(3)(4)(11)
GYM	SF-4 GYM	EF-7 GYM				55°F	27.0	15	15	7,500	13	(3)(4)(11)

COLLEGE OF ALAMEDA												
BLDG.	AHU DESIGNATION	R.A. FAN DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	PRE-HEAT COIL		SUPPLY FAN H.P.	RETURN FAN H.P.	MIN. O.A. (CFM)	NUMBER REHEAT COILS	NOTES
						SAT (°F)	GPM					
BLDG. A	S-A-1	E-A-1	'A' - MECH. PENTHOUSE	BLDG. 'A' 1ST FLOOR	E-A-4	N/A	N/A	15	5	7,300	19	(6)(4)(11)
BLDG. A	S-A-2	E-A-2	'A' - MECH. PENTHOUSE	BLDG. 'A' 2ND FLR.	-	N/A	N/A	15	5	3,900	19	(6)(4)(11)
BLDG. B	S-B-1	E-B-1	'B' - ROOF	BLDG. 'B' 1ST FLOOR & MEZZ.	E-B-6,7,9,10, 11, 12, 13 & 14	55	6.0	10	1.5	8,800	9	(1)(4)(11)
BLDG. C	S-C-1	E-C-1	'C' - MECH. RM. 215	BLDG. 'C' 1ST AND 2ND FLRS.	E-C-2	N/A	N/A	15	7.5	4,300	22	(1)(4)(11)
BLDG. D	S-D-1	E-D-1	'D' - MECH. RM. 101	BLDG. 'D' 1ST FLR.	E-D-2			15	7.5	7,150	8	(1)(5)(4)(11)
BLDG. D	S-D-2	E-D-3	'D' - MECH. RM. 201	BLDG. 'D' 2ND FLR.	E-D-5, E-D-8			10	5	2,650	20	(1)(4)(11)
BLDG. D	S-D-3	E-D-4	'D' - MECH. D241 / D322	BLDG. 'D' 3RD FLR.	-			10	5	2,800	14	(1)(4)(11)
BLDG. D	S-D-4	E-D-6	'D' - MECH. RM.	RM. D-119	-			3	1	700	4	(2)(1)(4)(11)
BLDG. D	S-D-5	E-D-7	'D' - MECH. RM.	RM. D-237	-			5	1.5	1,000	5	(2)(4)(11)
BLDG. F	S-F-1	E-F-1	'F' - MECH. PENTHOUSE	BLDG. 'F' 1ST & 2ND FLRS.	E-F-2			30	10	17,100	18	(1)(4)(11)

MERRITT COLLEGE												
BLDG.	AHU DESIGNATION	R.A. FAN DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	PRE-HEAT COIL		SUPPLY FAN H.P.	RETURN FAN H.P.	MIN. O.A. (CFM)	NUMBER REHEAT COILS	NOTES
						SAT (°F)	GPM					
BLDG. D	S-1D	E-2D	'D' WEST PENTHOUSE	SCIENCE BLDG. - WEST SIDE	E-1D, E-4D, E-6D, FE-1D	60	35.0	30	2	36,800	44	(4)(11)
BLDG. D	S-2D	E-3D	'D' EAST PENTHOUSE	SCIENCE BLDG. - EAST SIDE	E-5D, FE-2D, FE-3D	60	25.0	30	??	27,200	24	(4)(11)
BLDG. P	S-1P	E-1P	'P' UTILITY RISER	COMPUTER & CLS. RM.	-			20	??	5,000	17	(6)(8)(10)(4)(11)
BLDG. R	S-1R	E-1R	'R' - BLDG.	CAMPUS CENTER	E-2R, E-3R, E-4R, E-5R			15	5	6,000	11	(9)(4)(11)
BLDG. L LIBRARY	S-1S	E-1S	'L' WEST PENTHOUSE	LIBRARY BLDG. - WEST SIDE	E-3S			15	5	2,000	17	(7)(4)(11)
BLDG. L LIBRARY	S-2S	E-2S	'L' EAST PENTHOUSE	LIBRARY BLDG. - EAST SIDE	-			15	5	4,000	10	(7)(4)(11)

NOTES:

- (1) REPLACE PILOT POSITIONER ON O.A. DAMPER OPERATOR.
- (2) REMOVE ABANDONED CHILLED WATER COIL FROM AIR HANDLER RESHEAVE FOR LOWER STATIC PRESSURE.
- (3) REPAIR EXISTING ECONOMIZER LINKAGES.
- (4) PROVIDE DDC ZONE CONTROLS WHERE SCHEDULED.
- (5) REPLACE BIRD SCREEN
- (6) EXISTING O.A. DAMPER ACTUATOR OF INSUFFICIENT POWER FOR PROPER OPERATION PROVIDE NEW ACTUATOR TO CORRECT ACCORDINGLY.
- (7) TWO PIPE THERMOSTATS
- (8) INTERLOCK ELECTRIC DUCT HEATERS
- (9) NO EXHAUST AIR DAMPERS
- (10) MERRITT BLDG. 'D', REHEAT COILS HC-1P, HC-2P & HC-3P DISABLED
- (11) DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.

CONSTRUCTION DOCUMENTS

NO. DATE DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1371 OAKLAND BLVD., SUITE 102
WALNUT CREEK, CALIFORNIA 94596
(510) 944-8929
Project: 98-005

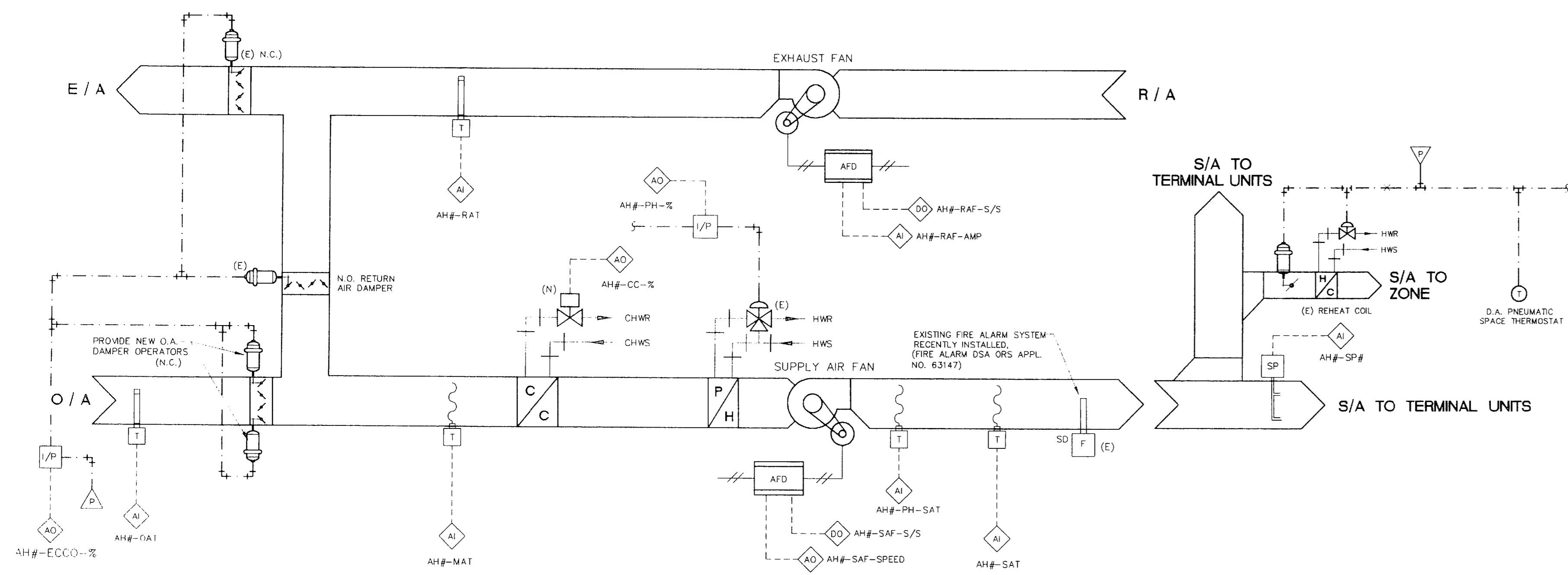
Client:
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
AHU CONTROL DIAGRAMS

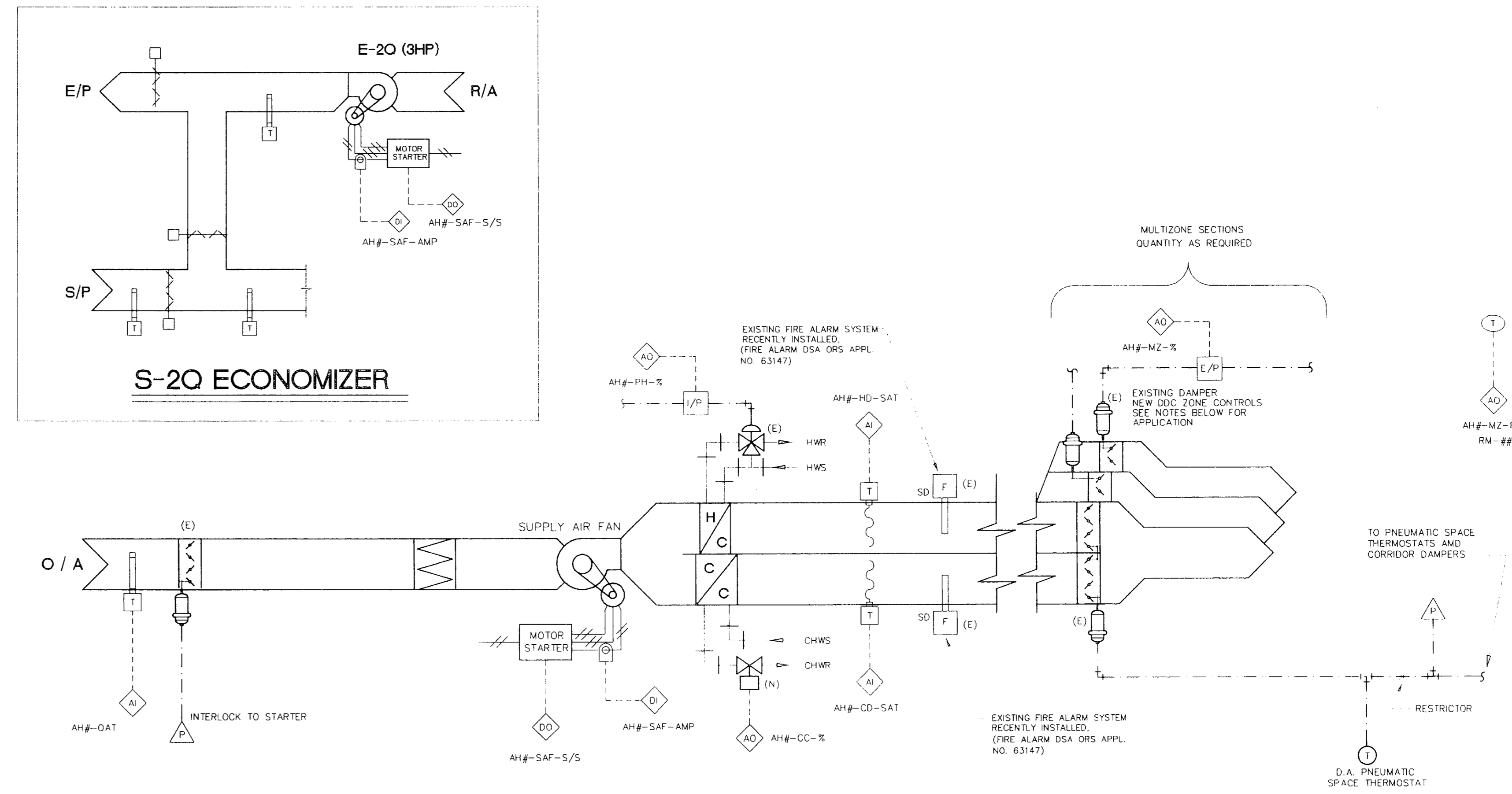
DATE: 5/26/98 JOB NO: 98-005
SCALE: NONE SHEET NO.
DRAWN BY: KLM
CHECKED BY: CAR
APPROVED BY: ECS

MC-002



VAV AIR HANDLING UNIT - CONTROL DIAGRAM

TYPICAL OF AIR HANDLING UNITS INDICATED



MULTIZONE AIR HANDLING UNIT - CONTROL DIAGRAM

TYPICAL OF AIR HANDLING UNITS INDICATED

LANEY COLLEGE													
BLDG.	AHU DESIGNATION	R.A. FAN DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		COOLING COIL		SUPPLY FAN H.P.	RETURN FAN H.P.	MIN. O.A. CFM	NUMBER TERMINAL UNITS
						SAT (°F)	GPM	SAT (°F)	GPM				
BLDG. A	AC-1A	-	CLG. RM. A 502	'A' - 1ST FLOOR EAST	EF-8A EF-6A	-	-	55	40	10	-	4,280	9
FORUM	AC-1 FOR	EF-1	FORUM MECH. RM.	LECTURE HALL	-	-	-	55	82	15	5	5,460	9
LIBRARY	SF-1 LIB	EF-1 LIB	LIBRARY MECH. RM. 113	WEST LIBRARY	-	-	-	55	154	30	15	8,400	16
LIBRARY	SF-2 LIB	EF-2 LIB	LIBRARY MECH. RM. 116	EAST LIBRARY	-	-	-	55	156	30	15	8,400	15
BLDG. G	AC-1G	RF-3G	NORTH MECH. PENTHOUSE	MUSIC DEPARTMENT	-	-	-	55	75	15	5	5,160	12
ADMIN.	SF-1 ADM	EF-1	BASEMENT B 104	BASEMENT & 1ST FLR. ADMIN.	-	-	-	55	54	7?	5	2,700	7
STUDENT CENTER	SF-1 STC	EF-3 STC	MECH. RM. 418	WEST PORTION STUDENT CTR.	-	55	41	55	165	20	15	9,800	16
STUDENT CENTER	SF-2 STC	EF-3 STC	MECH. RM. 418	EAST PORTION STUDENT CTR.	-	55	36	55	146	20	ABV.	8,600	14
THEATER	SF-1 TH	RF-1 TH	MECH. RM. 418	TV STUDIO, UTILITIES	-	-	-	5	128	15	5	6,400	9
THEATER	SF-2 TH	RF-2 TH	MECH. RM. 418	AUDITORIUM, LOBBY	-	-	-	5	98	15	5	1,900	24

NOTES:

- REMOVE ALL EXISTING STARTERS AND INLET VANES AND REPLACE WITH NEW A.F.D.s
- BALANCE DAMPER MINIMUM POSITION AS A FUNCTION OF SUPPLY AIR FAN SPEED TO MAINTAIN MINIMUM OUTSIDE AIR QUANTITIES.
- PROVIDE DDC ZONE CONTROLS FOR EACH VAV AHU WHERE SCHEDULED.
- DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS. (TYPICAL ALL)

LANEY COLLEGE												
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		COOLING COIL		SUPPLY FAN H.P.	NUMBER ZONES	NOTES	
					SAT (°F)	GPM	SAT (°F)	GPM				
STUDENT CENTER	SF-4 STC	'STC' - 1ST FLR. MECH. ROOM	ST.C. KITCHEN	-	84	45.0	55	79.0	15	5	(5)(6)	

COLLEGE OF ALAMEDA												
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		COOLING COIL		SUPPLY FAN H.P.	NUMBER ZONES	NOTES	
					SAT (°F)	GPM	SAT (°F)	GPM				
GYM	S-1-GYM	GYM RM. 128	LOCKER BLDG.	E-1-G, E-2-G E-4-G	100	43.0	N/A	N/A	10	2	(1)(2)(6)	
GYM	SF-2-GYM	GYM RM. 230	LOCKER BLDG.	-	105	8.0	N/A	N/A	1.5	2	(1)(2)(6)	

MERRITT COLLEGE												
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		COOLING COIL		SUPPLY FAN H.P.	NUMBER ZONES	NOTES	
					SAT (°F)	GPM	SAT (°F)	GPM				
BLDG. Q	S-20	MECH. RM. Q 114	BLDGS. Q3 & P	E-3Q, E-20	60	29.0	N/A	N/A	15	7	(3)(4)(5)(6)	

NOTES:

- PROVIDE DDC ZONE CONTROL, ALL ZONES
- NO OUTSIDE AIR DAMPER
- S-20, E-20 & ECONOMIZER, HAS RETURN FAN SET MIN. O.A. = 3,400 CFM
- SYSTEM INCLUDES 5 PNEUMATICALLY CONTROLLED DUCT MOUNTED ZONE REHEAT COILS.
- PROVIDE DDC ZONE CONTROLS WHERE SCHEDULED.
- DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.

NO. DATE DESCRIPTION

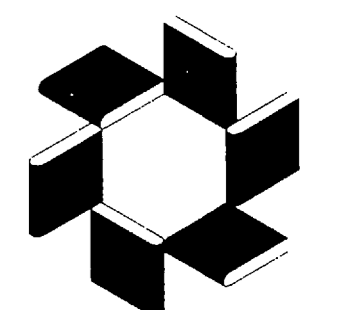
REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1371 OAKLAND BLDG., SUITE 102
WALNUT CREEK, CALIFORNIA 94596
(510) 944-8929
Project: 98-005



Client:



Peralta Community College District

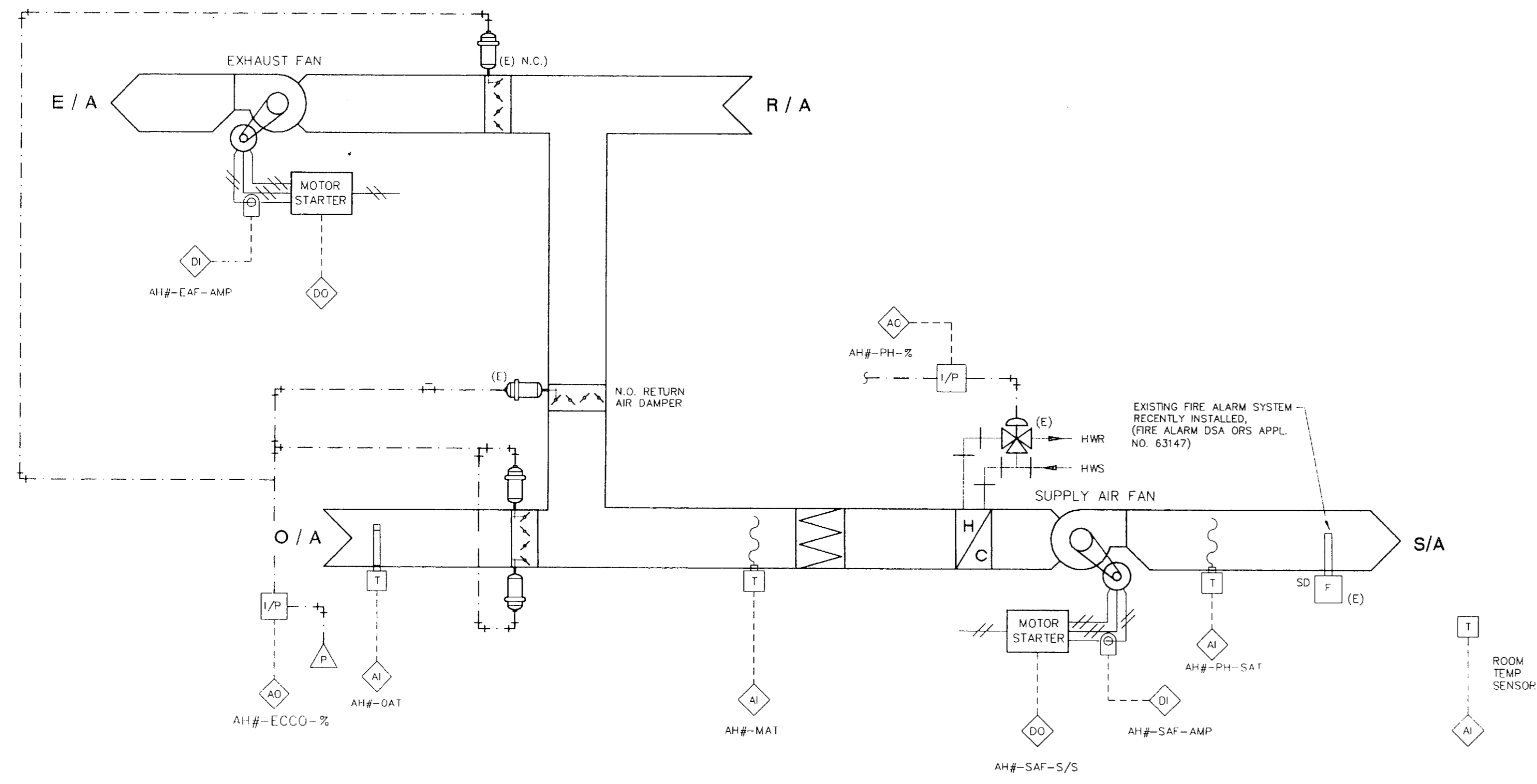
Project Name:
MECHANICAL SYSTEMS MAINTENANCE
EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
AHU CONTROL DIAGRAMS

DATE: 5/26/98 JOB NO: 98-005
SCALE: NONE SHEET NO.
DRAWN BY: KLM
CHECKED BY: CAR
APPROVED BY: ECS

CONSTRUCTION DOCUMENTS

MC-003

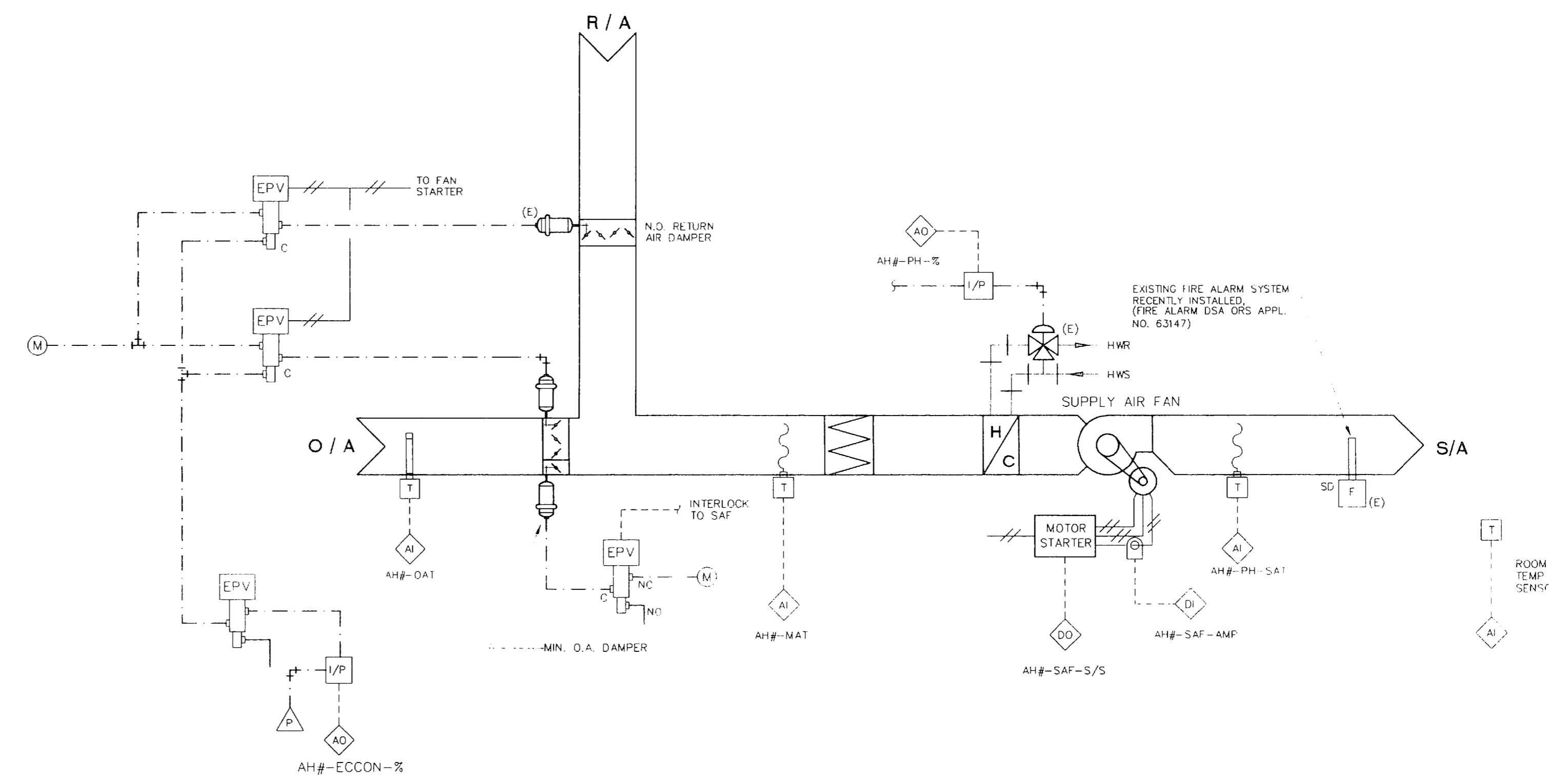


SINGLE ZONE H & V AHU W/ EXH. ECONOMIZER
TYPICAL OF AIR HANDLING UNITS INDICATED

COLLEGE OF ALAMEDA											
BLDG.	AHU DESIGNATION	E.A. FAN	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		SUPPLY FAN H.P.	EXH. FAN H.P.	MIN. O.A. (CFM)	NOTES
						SAT (°F)	GPM				
GYM	S-4-GYM	E-3-GYM	GYM MECH. RM. 211	DANCE	-	95	17.0	3	?	2,000	

MERRITT COLLEGE											
BLDG.	AHU DESIGNATION	ECONO. EXH. FAN	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		SUPPLY FAN H.P.	EXH. FAN H.P.	MIN. O.A. (CFM)	NOTES
						SAT (°F)	GPM				
BLDG. E	S-1E	NONE	WEST PENTHOUSE	GYM - WEST	E-1E	91.5	16.0	3	N/A	2400	(1)
BLDG. E	S-2E	NONE	EAST PENTHOUSE	GYM - EAST	E-1E	91.5	16.0	3	N/A	2400	(1)

- NOTES:**
- (1) GRAVITY DAMPER AT EXHAUST AIR LOCATION
 - (2) DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.



SINGLE ZONE H & V AHU W/ SMOKE CONTROL
TYPICAL OF AIR HANDLING UNITS INDICATED

COLLEGE OF ALAMEDA										
BLDG.	AHU DESIGNATION	LOCATION	SERVICE	INTERLOCKED EQUIPMENT	HEATING COIL		SUPPLY FAN H.P.	MIN. O.A. (CFM)		
					SAT (°F)	GPM				
GYM	S-5 GYM	GYM MECH. RM. 200	GYM	E-5-GYM	93	32.0	10	5,400		
GYM	S-6 GYM	GYM MECH. RM. 201	GYM	E-6-GYM	93	32.0	10	5,400		

- NOTES:**
- (1) DUCT SMOKE DETECTOR AND FIRE ALARM SHUTDOWN OF AIR HANDLING UNITS IS EXISTING. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THESE INTERLOCKS.

SMOKE CONTROL SEQUENCE			
CONDITION	FAN STATUS	OAD	RAD
NORMAL OFF	OFF	C	O
NORMAL ON	ON	ECONO.	ECONO.
SMOKE @ S.A.	STOP	C	C
SMOKE @ R.A.	STOP	O	C
OVER-RIDE ON	START	O	C

NO. DATE DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
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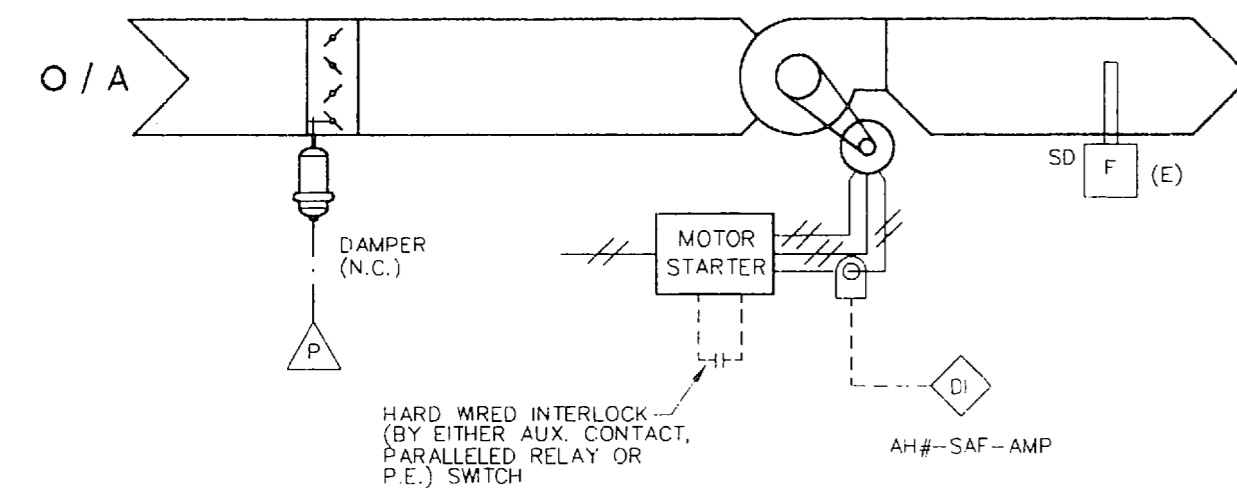
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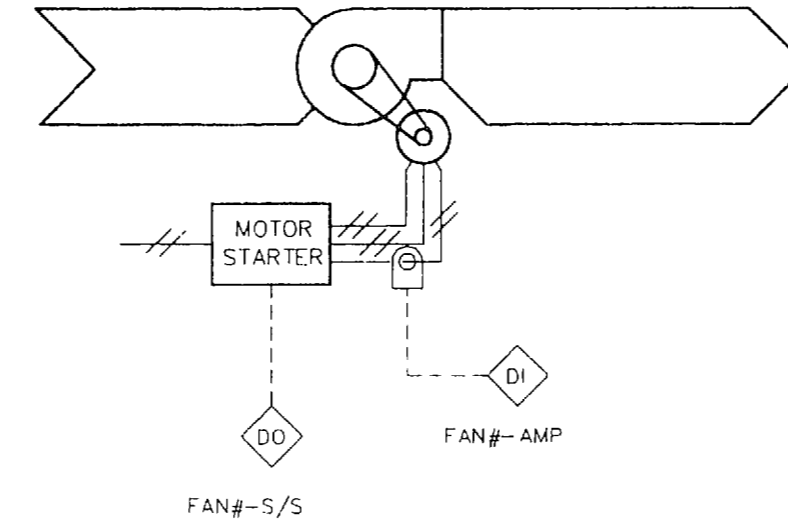
CONSTRUCTION DOCUMENTS

MC-005



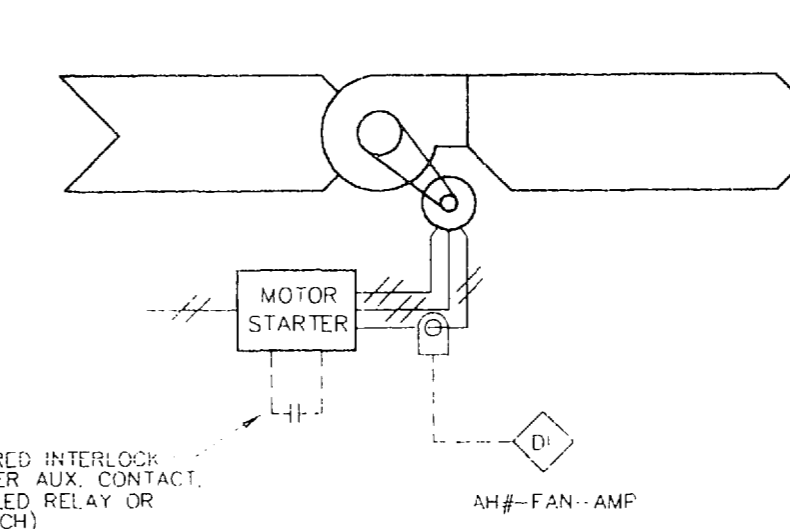
SUPPLY FANS

TYPICAL OF SUPPLY FANS INDICATED



EXHAUST / TRANSFER FANS

TYPICAL OF FANS CONTROLLED ON INDEPENDENT SCHEDULE



EXHAUST / TRANSFER FANS

TYPICAL OF FANS INTERLOCKED TO OTHER EQUIPMENT

LANEY COLLEGE						
BLDG.	FAN DESIGNATION	LOCATION	SERVICE	H.P.	INTERLOCKED EQUIPMENT	NOTES
A	EF-2A	WEST PENTHOUSE	GENERAL EXHAUST	3.0	SF-1A	(1)
A	EF-3A	WEST PENTHOUSE	HOOD EXHAUST	7.5	SF-1A	(1)
A	EF-5A	WEST PENTHOUSE	GENERAL EXHAUST	1.0	-	(1)(3)
A	EF-6A	WEST PENTHOUSE	HOOD EXHAUST	1/2	AC-1A	(1)
A	EF-7A	EAST PENTHOUSE	TOILET EXHAUST	20	-	(1)(3)
A	EF-8A	EAST PENTHOUSE	FUME HOOD EXHAUST	3.0	AC-1A	(1)
A	EF-10A	EAST PENTHOUSE	FUME HOOD EXHAUST	1/2	SF-5A	(1)(2)
A	EF-11A	EAST PENTHOUSE	TOILET EXHAUST	5.0	SF-6A	(1)
A	EF-12A	WEST PENTHOUSE	WEIGHT ROOM EXH.	1/8	SF-2A	(1)(2)
B	EF-3B	MECH. PENTHOUSE	TOILET EXHAUST	1/2	SF-1B	(1)(2)
B	EF-4B	-	STORAGE EXHAUST	1/2	SF-1B	(1)(2)
B	EF-5B	-	LIFE SCIENCE EXHAUST	1/2	SF-1B	(2)
C	EF-1C	MECH. ROOM C111	GENERAL EXHAUST	5	SF-1C	(1)
C	EF-2C	MECH. ROOM C111	TOILET EXHAUST	1/2	SF-1C	(1)(2)
D	EF-1D	MECH. RM D 109	GENERAL EXHAUST	5	SF-1D	(1)
D	EF-2D	MECH. RM D 109	TOILET EXHAUST	1/2	SF-1D	(1)(2)
E	EF-1E	PENTHOUSE	KITCHEN EXHAUST	10	SF-1E	(1)
E	EF-2E	-	DISHWASHER EXHAUST	1/2	SF-1E	(1)(2)
E	EF-3E	-	TOILET/LOCKER EXH.	1.0	SF-1E/SF-2E	(2)
E	EF-4E	-	BAKERY AREA EXH.	5.0	SF-3E	(1)
E	EF-6E	-	NURSING DEPT. EXH.	1.0	SF-2E	(2)
E	EF-7E	-	PASTERY RM. EXH.	1/2	AC-1E	(2)
F	EF-1F	PENTHOUSE	OXY-ACET	5	SF-2F	(1)
F	EF-2F	-	TOILET EXHAUST	1/2	SF-6F	(1)(2)
F	EF-3F	-	LAB EXHAUST	5	SF-6F	(1)
F	EF-4F	-	ARC-WELD	5	SF-5F	(1)
F	EF-5F	-	ARC-WELD	5	SF-4F	(1)
F	EF-6F	-	ARC-WELD	5	SF-3F	(1)
F	EF-7F	-	CLS. RM. EXHAUST	2	SF-1F	(1)
F	EF-8F	-	GLAZING BOOTH	5	SF-6F	(1)
G	EF-1G	SOUTH PENTHOUSE	MACHINE SHOP	5	SF-1G	(1)
G	EF-2G	SOUTH PENTHOUSE	SPRAY BOOTH EXHAUST	3	-	(2)
G	EF-3G	SOUTH PENTHOUSE	TOILET EXHAUST	1/8	SF-2G	(1)
G	EF-4G	NORTH PENTHOUSE	BLUEPRINT EXHAUST	1/8	SF-2G	(1)
G	EF-5G	SOUTH PENTHOUSE	SPRAY RM. EXHAUST	5	-	(3)
G	EF-6G	NORTH PENTHOUSE	TOILET EXHAUST	1/8	SF-3G	(1)
G	EF-7G	SOUTH PENTHOUSE	CARPENTRY BOOTH EXH.	3	-	(3)
G	EF-10G	NORTH PENTHOUSE	TOILET EXHAUST	1/8	SF-3G	(1)
G	EF-11G	NORTH PENTHOUSE	CENTRAL EXHAUST	7 1/2	SF-3G	(1)
ADM	EF-2 ADM	ADM. B-104	PUMP RM. EXHAUST	1/8	SF-1 ADM	(1)(2)
ADM	EF-3 ADM	MECH. RM. 950	GENERAL EXHAUST	5	SF-2 ADM	(1)
ADM	EF-4 ADM	MECH. RM. 950	TOILET EXHAUST	1.0	SF-2 ADM	(1)(2)

LANEY COLLEGE (CONT'D)						
BLDG.	FAN DESIGNATION	LOCATION	SERVICE	H.P.	INTERLOCKED EQUIPMENT	NOTES
GYM	EF-1 GYM	BLDG. 'C' MECH. RM	EQUIP. DRYING RM	1/2	SF-2 GYM	(1)(2)(5)
GYM	EF-3 GYM	GYM MECH. RM	EAST SIDE OF GYM	10	SF-1 GYM	
GYM	EF-4 GYM	GYM MECH. RM	GYM OFFICE EXHAUST	1.0	SF-3 GYM	
GYM	EF-8 GYM	LOCKER BLDG. 116	LOCKER RM. EXHAUST	15	SF-4 GYM	(1)
FOR	EF-2 FOR	FORUM MECH. RM	HOOD EXHAUST	1/2	SF-1 FOR	(1)(2)
FOR	EF-3 FOR	FORUM MECH. RM	TOILET EXHAUST	1/2	SF-1 FOR	(1)(2)
LIB	EF-3 LIB	ROOF	TOILET EXHAUST	1/2	SF-1 FOR	(2)
LIB	EF-4 LIB	ROOF	TOILET EXHAUST	1/2	SF-2 FOR	(2)
S. CTR	EF-1 S.CT.	MECH. RM. S.CT. 418	CART/TRAY WASH	5	EF-4 S.CT.	
S. CTR	EF-2 S.CT.	-	KITCHEN HOOD	10	-	(3)
S. CTR	EF-4 S.CT.	-	TOILET/TRASH	5	SF-4 S.CT.	
S. CTR	EF-5 S.CT.	-	STORAGE RMS.	2	SF-4 S.CT.	
S. CTR	EF-6 S.CT.	-	EQUIP. ROOM	5	SF-4 S.CT.	
THEATER	EF-1 TH	MECH. RM	TOILET EXH.	2	SF-1/SF-2 TH	
THEATER	EF-2 TH	TRAP AREA	TRAP AREA	1.5	SF-4 TH	(1)(2)

LANEY COLLEGE (SUPPLY FANS)						
BLDG.	FAN DESIGNATION	LOCATION	SERVICE	H.P.	INTERLOCKED EQUIPMENT	NOTES
A	SF-3A	WEST PENTHOUSE	FUME HOOD SUPPLY	2.0	EF-5A	(5)
A	SF-4A	EAST PENTHOUSE	FUME HOOD SUPPLY	5.0	EF-7A	
E	SF-7E	E 111 CLG.	DISHWASHER SUPPLY	1/2	EF-2E	(2)
G	SF-4G	RM. G 101	METALS RM. VENT	3.0	-	(3)
G	SF-5G	RM. G 101	-	3.0	SF-4G	
G	SF-6G	RM. G 101	-	3.0	SF-4G	
ST. CTR.	SF-3 STC	MECH. ST. CTR. 418	KITCHEN/SERVARY SUPPLY	5.0	EF-2 STC	
THEATER	SF-4 TH	TRAP AREA	DINNER ROOM	1.5	SF-2 TH	(1)

COLLEGE OF ALAMEDA						
BLDG.	FAN DESIGNATION	LOCATION	SERVICE	H.P.	INTERLOCKED EQUIPMENT	NOTES
A	E-A-3	ROOF	UPHOLSTERY	1/2	-	(1)(2)(3)
A	E-A-4	PENTHOUSE	TOILET EXH.	1/2	S-A-1	(2)
B	E-B-2	N. MEZZ.	B 106 RM. EXH.	1/2	S-B-2	(2)
B	E-B-3	S. MEZZ.	B 105 RM. EXH.	1/2	S-B-3	(2)
B	E-B-5	C-215	B - AUTO EXH.	5	-	(3)
B	E-B-6	ROOF	WELDING	1/2	S-B-1	(2)
B	E-B-7	-	TOILET EXH.	1/2	S-B-1	(2)
B	E-B-9	-	TOILET EXH.	1/2	S-B-1	(1)(2)
B	E-B-10	B-101, 102, 103	-	1.5	S-B-1	(1)(2)
B	E-B-11	B - 113	-	1.0	-	(1)(2)
B	E-B-12	B - 113	-	1.0	-	(1)(2)
B	E-B-13	B - 107	-	1/2	-	(1)(2)
B	E-B-14	B - 107	-	1/2	-	(1)(2)
C	E-C-2	C-215	TOILET EXH.	1.0	S-C-1	(2)
D	E-D-2	D-101	FUME HOODS	3	S-D-1	(3)
D	E-D-5	ROOF	TOILET EXH.	1/2	S-D-2	(2)
D	E-D-8	ROOF	TOILET EXH.	1/8	S-D-2	(2)
F	E-F-2	PENTHOUSE	-	1/2	S-F-1	(2)
F	E-F-3	-	-	1/2	E-F-6	(2)
F	E-F-4	-	-	1/2	E-F-6	(2)
F	E-F-5	-	-	1/2	E-F-6	(2)
F	E-F-6	-	-	5	-	(1)(2)(4)
G	E-G-1	ROOF	LOCKER RMS.	1/2	S-G-1	(2)
G	E-G-2	ROOF	LOCKER RMS.	1.5	S-G-1	(2)
G	E-G-4	ROOF	LOCKER RMS.	1.0	S-G-1	(2)
G	E-G-5	G-104	GYM	1/2	S-G-5	(2)
G	E-G-6	G-102	GYM	1/2	S-G-6	(2)

MERRITT COLLEGE						
BLDG.	FAN DESIGNATION	LOCATION	SERVICE	H.P.	INTERLOCKED EQUIPMENT	NOTES
D	E-D-10	WEST PENTHOUSE	GENERAL EXHAUST	3	S-D-10	(1)(2)
D	E-D-40	ROOF	TOILET EXH.	1/2	S-D-10	(1)(2)
D	E-D-50	-	ROOM EXHAUST	1.0	S-D-20	(1)(2)
D	E-D-60	-	FUME HOOD EXH.	1/8	S-D-10	(1)(2)
D	FE-10	WEST PENTHOUSE	-	5	S-D-10	(1)
D	FE-20	EAST PENTHOUSE	-	3	S-D-20	(1)
D	FE-30	EAST PENTHOUSE	TOILET EXH. FAN	3	S-D-20	(1)
E	E-E	E-103	LOCKER RM. EXH.	1/2	S-E-1/S-E-2E	(1)(2)
F	E-F	ROOF	LOCKER RM. EXH.	1/2	S-F	(1)(2)
F	E-F	-	-	1.5	S-F	(1)(2)
F	E-F	-	-	1/2	S-F	(1)(2)
F	E-F	-	-	1/2	S-F	(1)(2)
F	E-F	-	-	1/2	S-F	(1)(2)
F	E-F	-	-	1/8	S-F	(1)(2)
L	E-L	WEST PENTHOUSE	TOILET EXH.	1/2	S-L	(1)(2)
P	E-P	STAR P216 CLG.	TOILET EXH.	1/8	S-P	(2)
OS	E-OS	SERVICE LEVEL ST. BLDG.	SNACK BAR EXH.	2	S-20	(1)
OS	E-R900	CLG. Q218	ADMN. EXH.	1/2	R90-8	(2)
G1 & G2	E-G	ROOF	KITCHEN HOOD	5	-	(3)(6)
G1 & G2	E-G	ROOF	GRILLE EXH.	1.0	E-40	(2)
R3	E-R	ROOF	HIDDEN EXH.	1/2	S-R	(2)
R1	E-R	-	TOILET EXH.	1/2	S-R	(2)
R1	E-R	-	MINED EXHAUST	1/2	S-R	(2)
R2	E-SR	-	DARK ROOM EXH.	1/2	S-R	(2)
P	EF-1P	ROOF	COURT VENTL.	1/2	-	(2)(3)(7)
P	EF-2P	-	-	1/2	EF-1P	(2)
P	EF-3P	-	-	1/2	EF-1P	(2)

FAN NOTES:

- (1) EXISTING INTERLOCK NOTED
- (2) FANS 1/2 HP AND SMALLER MAY HAVE PROOF OF FLOW THROUGH AUX. CONTACTS AT CONTRACTOR'S OPTION WHERE NOTED.
- (3) FAN SHALL BE OPERATED ON ITS OWN INDEPENDENT SCHEDULE. PROVIDE DIGITAL OUTPUT.
- (4) INTERLOCK ALAMEDA SUPPLY FAN S-F-1 TO OPERATE IF EF-F-6 IS OPERATED.
- (5) LEAVE ALL LOCAL SWITCHING IN PLACE AND OPERABLE EVEN IF NOT SPECIFICALLY NOTED. ROUTE INTERLOCK IN SERIES W/ LOCAL SWITCHING TO OVERRIDE "OFF" IF LOCAL SWITCHING LEFT "ON".
- (6) INTERLOCK MERRITT SUPPLY FAN S-10 TO OPERATE IF E-40 IS OPERATED.
- (7) OPERATE FROM SPACE TEMP. SENSOR.

NO. DATE DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
510/944-8929

JUN 2 1999

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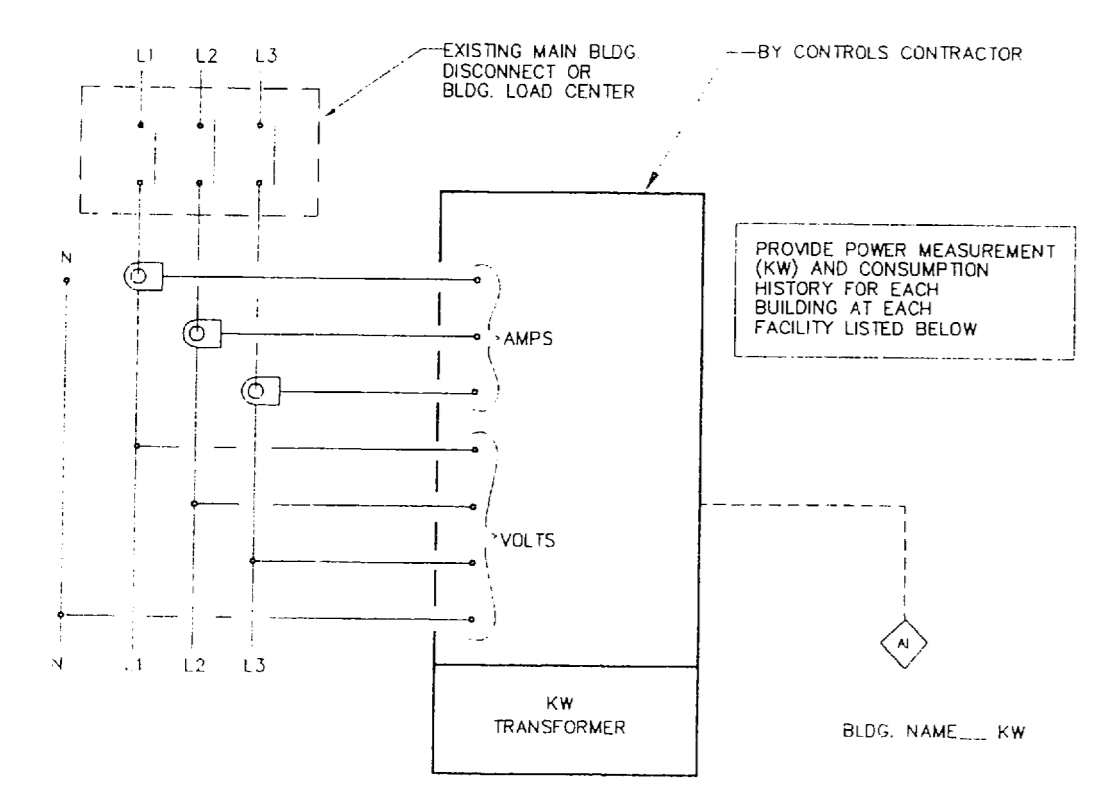
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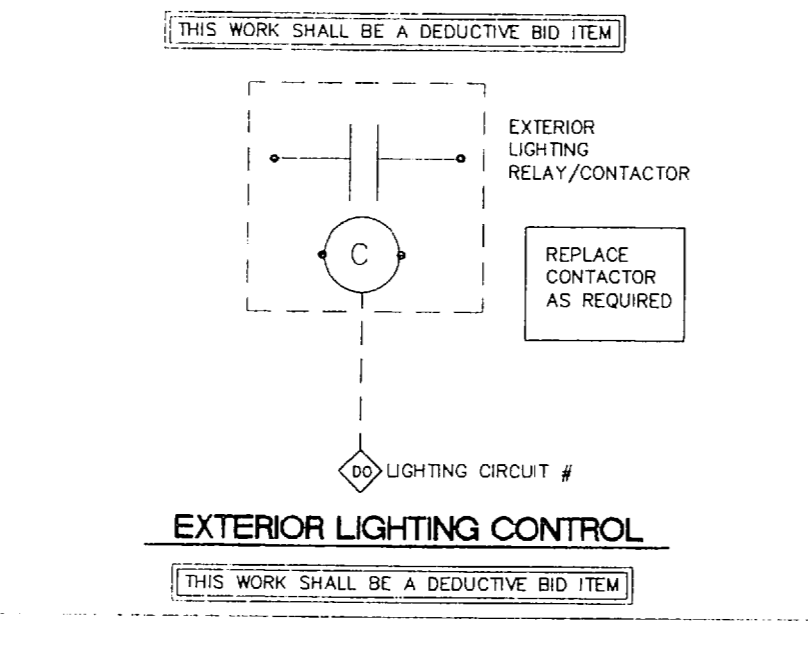
MC-007

CONSTRUCTION DOCUMENTS



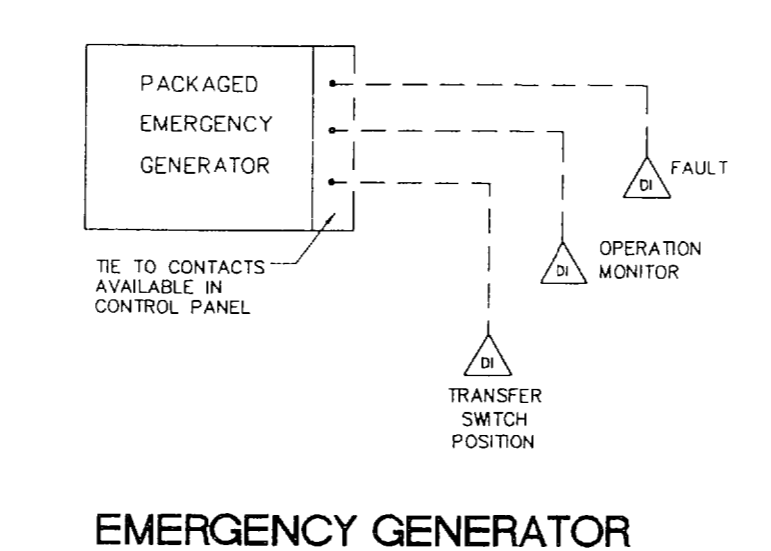
POWER FACTOR CORRECTED BUILDING ELECTRICAL POWER MEASUREMENT
(THIS WORK SHALL BE A DEDUCTIVE BID ITEM)

LANEY COLLEGE		ALAMEDA COLLEGE		MERRITT COLLEGE	
BLDG.	LOAD CENTER LOCATION	BLDG.	LOAD CENTER LOCATION	BLDG.	LOAD CENTER LOCATION
A	TRANSFORMER ROOM RM # 100	A	AVY. GROUND ELECTRIC VAULT 'C'	A	MAIN CAMPUS POWER DISTR. CTR. RM. C215
ANM		D	UNDERGROUND ELECTRIC VAULT 'D'	B	
HP		E	AVY. GROUND ELECTRIC VAULT 'C'	H	DIESEL MECH. (S)
IR	TRANSFORMER ROOM RM # 110	F	UNDERGROUND ELECTRIC VAULT 'D'	I	
OTW		L	LIBRARY ELECTRIC ROOM 118-D	D	
FOR		P	UNDERGROUND ELECTRIC VAULT 'D'	F	
C	TRANSFORMER ROOM RM # 110	Q	UNDERGROUND ELECTRIC VAULT 'D'	U	CHILD CARE
E		K	UNDERGROUND ELECTRIC VAULT 'D'	L	CHILD CARE
TH	THEATER TRANSFORMER ROOM RM # TH-110	R	CHILD CARE UNDERGROUND ELECTRIC VAULT 'D'	U	CHILD CARE
F	STUDENT SERV. TRANSFORMER ROOM RM # F-110			B	BALL FIELD
ST. C					



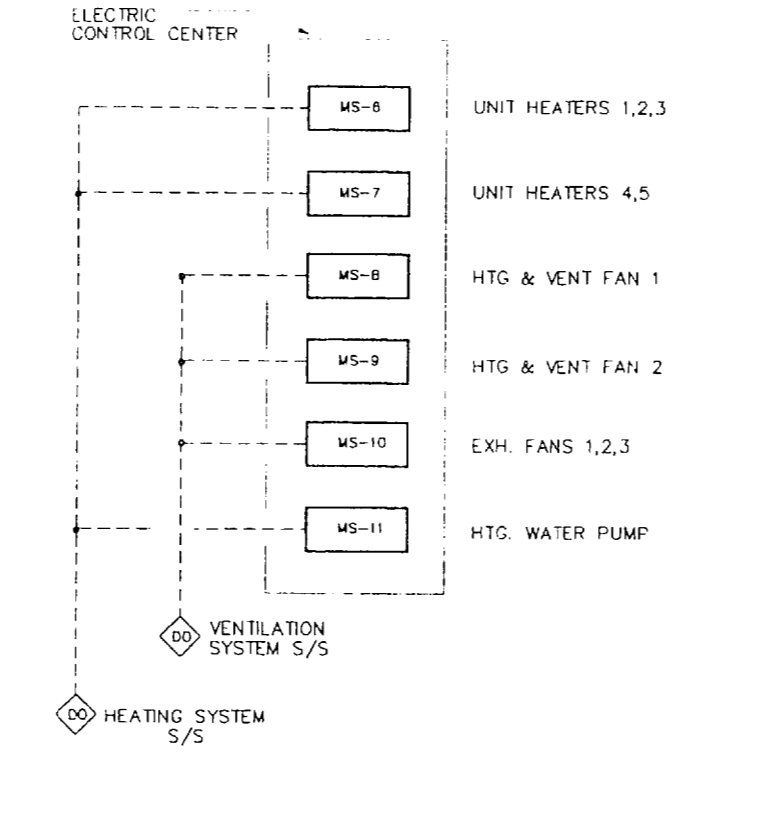
EXTERIOR LIGHTING CONTROL
(THIS WORK SHALL BE A DEDUCTIVE BID ITEM)

- LANEY COLLEGE**
- BLDG. A - WEST PENTHOUSE MECH. RM. - EXTERIOR LIGHTING CONTACTOR
 - BLDG. A - EAST PENTHOUSE MECH. RM. - EXTERIOR LIGHTING CONTACTOR
 - BLDG. B - RM. B204 - EXTERIOR LIGHTING CONTACTOR
 - BLDG. C - RM. C124 - EXTERIOR LIGHTING CONTACTOR
 - BLDG. D - MECH. RM. D109 - EXTERIOR LIGHTING CONTACTOR
 - BLDG. E - RM. E242 - EXTERIOR LIGHTING CONTACTOR
 - BLDG. E - RM. E208 - EXTERIOR LIGHTING CONTACTOR
 - BLDG. F - JAN. CLOSET F207A, EXTERIOR LIGHTING CONTACTOR
 - BLDG. F - ELEC. RM. F257, EXTERIOR LIGHTING CONTACTOR
 - BLDG. G - JAN. CLOSET 207A, EXTERIOR LIGHTING CONTACTOR
 - BLDG. G - NORTH MECH. PENTHOUSE, EXTERIOR LIGHTING CONTACTOR
 - BLDG. G - SOUTH MECH. PENTHOUSE, EXTERIOR LIGHTING CONTACTOR
 - BLDG. G - THEATER - ROOM TH. 305, EXTERIOR LIGHTING TIME CLOCK
 - BLDG. H - THEATER - TRANSFORMER RM. TH. 118, EXTERIOR LIGHTING CONTACTOR
 - BLDG. H - NORTH MECH. PENTHOUSE, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - WEST PENTHOUSE, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - STUDENT CTR. - MECH. RM. ST. C. 131, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - STUDENT CTR. - ROOM ST. C. 300, LEFT HALL, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - MECH. RM. 116, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - MECH. RM. 112, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - MECH. RM. FOR 200B, EXTERIOR LIGHTING CONTACTOR



EMERGENCY GENERATOR
(TYPICAL WHERE INDICATED)
(THIS WORK SHALL BE A DEDUCTIVE BID ITEM)

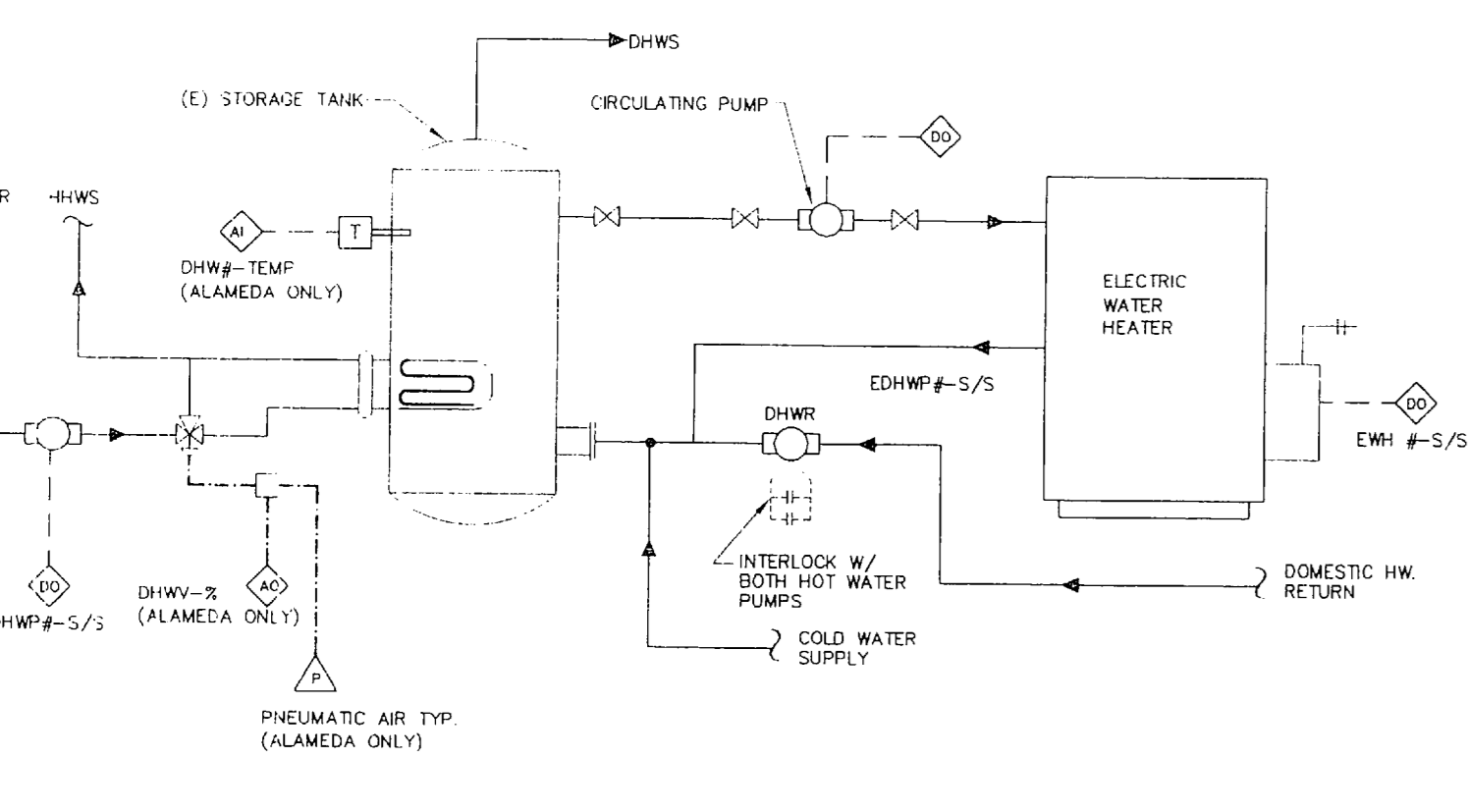
- LANEY COLLEGE**
- LOCATED IN ADMIN. BLDG. BASEMENT
- MERRITT COLLEGE**
- LOCATED IN ELECTRIC VAULT 'B'
 - LOCATED IN ELECTRIC VAULT 'C'
 - LOCATED IN ELECTRIC VAULT 'D'



COLLEGE OF ALAMEDA DIESEL MECHANICS BUILDING 'E' - HVAC CONTROL
(THIS WORK SHALL BE A DEDUCTIVE BID ITEM)

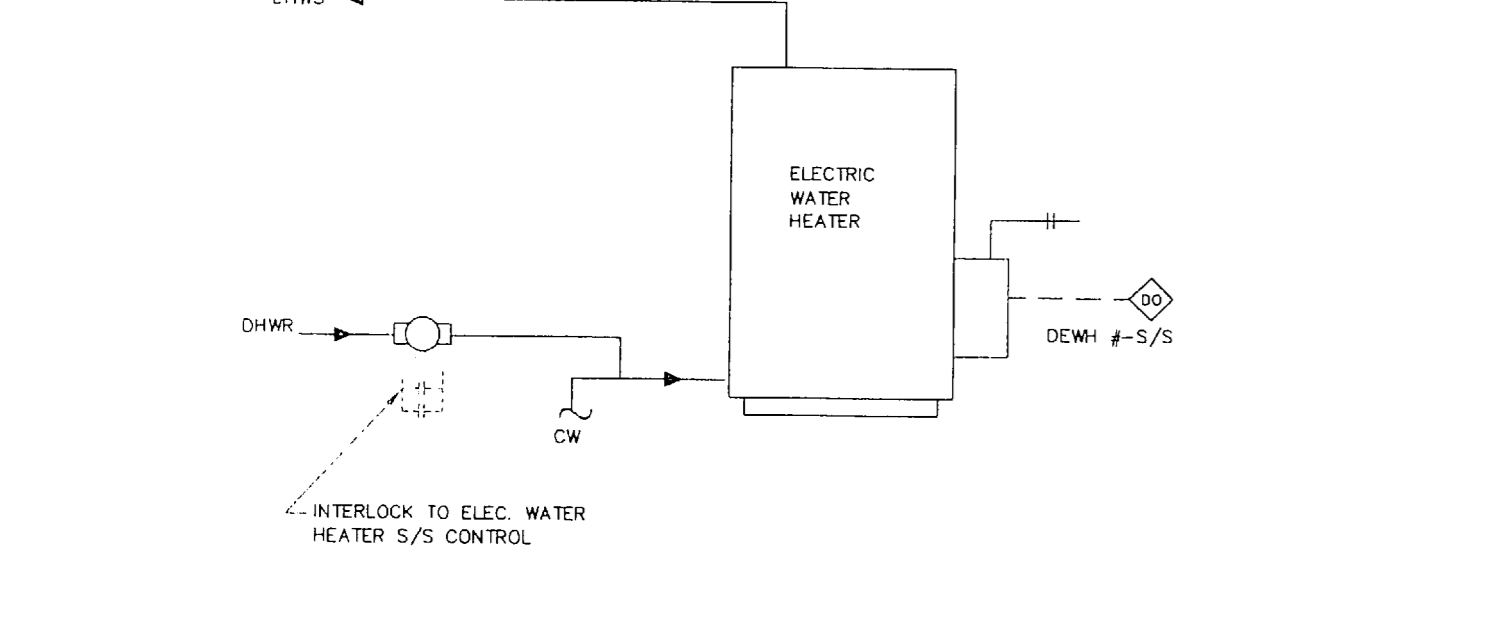
- ALAMEDA COLLEGE**
- BLDG. A - RM. A121, EXTERIOR LIGHTING CONTACTORS
 - BLDG. B - RM. B102 (OUTSIDE), EXTERIOR LIGHTING CONTACTOR
 - BLDG. B - RM. B114, (2) TWO EXTERIOR LIGHTING TIME CLOCKS
 - BLDG. C - BOILER RM. C115, (2) TWO EXTERIOR LIGHTING CONTACTORS
 - BLDG. D - RM. D108, EXTERIOR LIGHTING CONTACTOR
 - BLDG. F - RM. F120, EXTERIOR LIGHTING CONTACTOR
 - BLDG. G - RM. G111, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - RM. I111, EXTERIOR LIGHTING CONTACTOR
 - BLDG. I - MECH. BLDG. RM. E105, EXTERIOR LIGHTING TIME CLOCK

- MERRITT COLLEGE**
- PARKING LOT LIGHTS CONTACTOR LOCATED IN ELECTRIC VAULT 'B'
 - BLDG. EXTERIOR LIGHTS CONTACTOR LOCATED IN ELECTRIC VAULT 'D'
 - OUTSIDE LIGHTS, CONTACTOR IN BLDG. 'D' WEST PENTHOUSE
 - OUTSIDE LIGHTS, CONTACTOR IN BLDG. 'D' EAST PENTHOUSE
 - PARKING LOT LIGHTS, CONTACTOR LOCATED WITHIN VAULT 'C'
 - OUTSIDE LIGHTS, CONTACTOR LOCATED WITHIN VAULT 'C'
 - OUTSIDE LIGHTS, CONTACTOR IN RM. A-121
 - OUTSIDE LIGHTS, CONTACTOR IN RM. A-103
 - OUTSIDE LIGHTS, CONTACTOR IN RM. A-106
 - OUTSIDE LIGHTS, CONTACTOR IN RM. L-106
 - PARKING LOT LIGHTS, CONTACTOR LOCATED IN ELECTRIC VAULT 'D'
 - OUTSIDE LIGHTS, CONTACTOR LOCATED IN ELECTRIC VAULT 'D'
 - OUTSIDE LIGHTS, CONTACTOR LOCATED IN RM. P-217
 - OUTSIDE LIGHTS, CONTACTOR LOCATED IN RM. Q-113



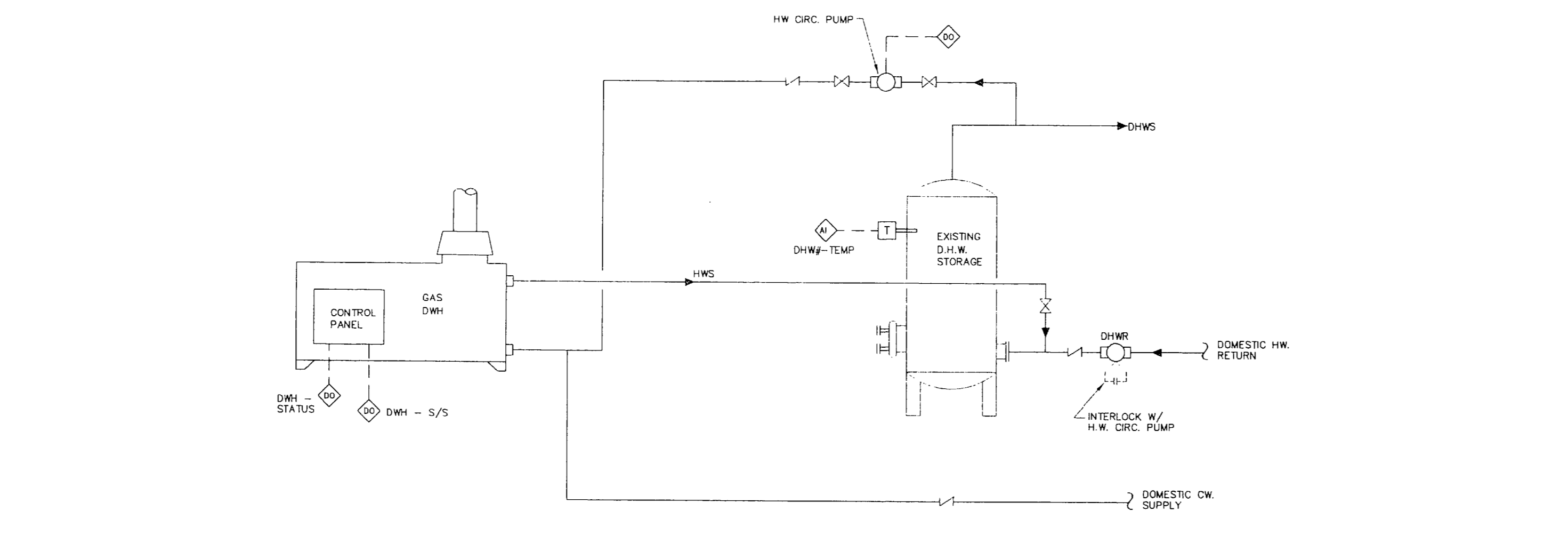
DOMESTIC WATER HEATER CONTROLS DIAGRAM
(TYPICAL WHERE INDICATED)

- ALAMEDA COLLEGE**
- BLDG. 'A', MECHANICAL PENTHOUSE
 - BLDG. 'B', MECHANICAL ROOM B204
 - BLDG. 'F', MECHANICAL PENTHOUSE (STORAGE TANK) & ROOM F207 (ELEC. W.H.)
- MERRITT COLLEGE**
- BLDG. 'A', MECHANICAL ROOM A105
 - BLDG. 'D', ELEC. RM. D163 ((2) TWO DHW PUMPS (P-3D & P-4D)), PROVIDE LEAD/LAG, CHANGEOVER WEEKLY
 - BLDG. 'Q', MECHANICAL ROOM Q001



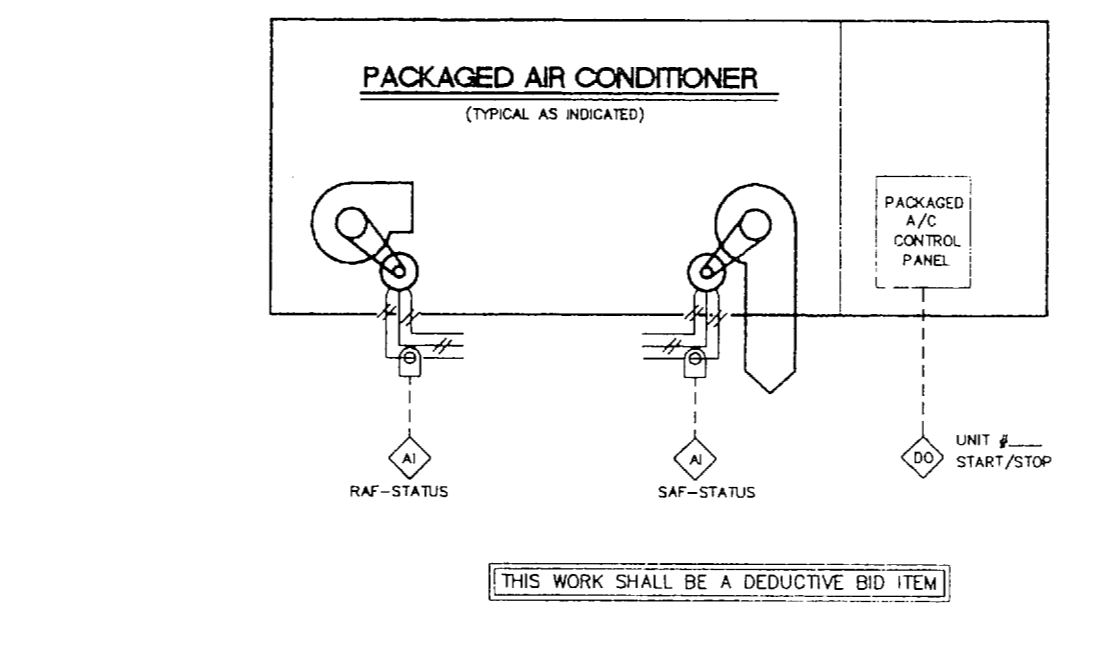
ELECTRIC WATER HEATER CONTROL DIAGRAM
(TYPICAL WHERE INDICATED)

- MERRITT COLLEGE**
- BLDG. 'E', ROOM E 103
 - BLDG. 'L', ROOM L 119
 - BLDG. 'P', ROOM P 217
 - BLDG. 'Q', ROOM Q 113



GAS FIRED DOMESTIC WATER HEATER CONTROLS DIAGRAM

- ALAMEDA COLLEGE**
- BLDG. 'Q', 'D' & 'Q1M', BLDG. 'Q' BOILER ROOM
- MERRITT COLLEGE**
- BLDG. 'Q', BLDG. 'Q' BOILER ROOM



PACKAGED AIR CONDITIONER
(TYPICAL WHERE INDICATED)
(THIS WORK SHALL BE A DEDUCTIVE BID ITEM)

LANEY COLLEGE

BLDG.	UNIT DESIGNATION	SERVICE	SAF. R.P.	SAF. R.P.	INTERLOCKED EQUIPMENT	NOTES
G	RTU-G-1	0 272 COMPUTER LAB	1.0	-	-	(1)
G	RTU-G-2	0 275 COMPUTER LAB	1.0	-	-	(1)
G	RTU-G-3	FUTURE COMPUTER LAB 0 272	1.0	-	-	(1)

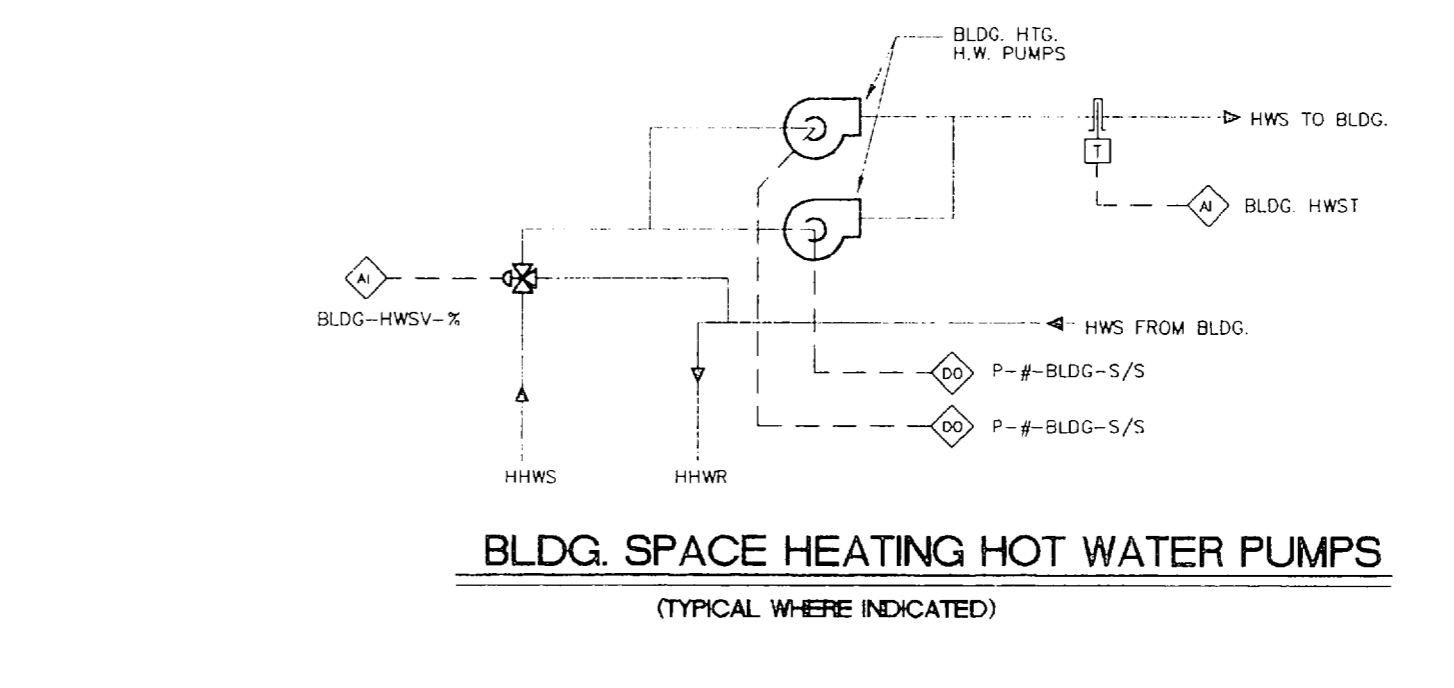
COLLEGE OF ALAMEDA

BLDG.	UNIT DESIGNATION	SERVICE	SAF. R.P.	SAF. R.P.	INTERLOCKED EQUIPMENT	NOTES
LCR	RTU-S-1	LIBRARY	10	5	-	(2)
LCR	RTU-S-2		10	5	-	(2)
LCR	RTU-S-3		10	5	-	(2)
LCR	RTU-S-4		10	5	-	(2)
LCR	RTU-S-5	COMPUTER LAB	5	-	-	
LCR	RTU-S-6	COMPUTER LAB	3	-	-	(1)

MERRITT COLLEGE

BLDG.	UNIT DESIGNATION	SERVICE	SAF. R.P.	SAF. R.P.	INTERLOCKED EQUIPMENT	NOTES
BLDG. D	AC-10	COMPUTER Q.S. R.M.	5	-	-	(1)(3)
BLDG. D	AC-20		5	-	-	(1)(3)
BLDG. D	AC-30		5	-	-	(1)(3)
BLDG. D	ROB-B	ADMIN. OFFICE	5	-	E-200 B (RM 218, 213)	(1)(3)

- NOTES:**
- CONFIRM SUPPLY MOTOR H.P. FOR PURPOSE OF SIZING CURRENT TRANSFORMER.
 - EXISTING MULTIZONE ROOFTOP UNIT CONTROLLED BY STAND ALONE JOHNSON CONTROLS MEDYS DIRECT DIGITAL PROCESSOR. DIRECT INTERCONNECTION TO EXISTING PROCESSOR WILL BE SUPPLEMENTED REQUIREMENT FOR NEW PROCESSOR ANALOG & DIGITAL CONTROL POINTS IF DIRECT INTERCONNECTION OPTION CHOSEN. MAP RTU FAN STATUS, HEATING STATUS, COOL DECK TEMPERATURES, ECONOMIZER OPERATION AND ROOM TEMPERATURES TO QUA.
 - SPLIT SYSTEM AIR CONDITIONING UNIT
 - PACKAGED UNIT, CLG. DISABLED, SELF-CONTAINED ELEC. CONTROLS ON H.W. COIL.



BLDG. SPACE HEATING HOT WATER PUMPS
(TYPICAL WHERE INDICATED)

LANEY COLLEGE

BLDG.	DESIGNATION	LOCATION	NOTES
A	P-1A		(1)(2)(3)(4)(5)
A	P-2A		(1)(2)(3)(4)(5)
B	P-1B		(1)(2)(3)(4)(5)
B	P-2B		(1)(2)(3)(4)(5)
C	P-1C		(1)(2)(3)(4)(5)
C	P-2C		(1)(2)(3)(4)(5)
D	P-1D		(1)(2)(3)(4)(5)
D	P-2D		(1)(2)(3)(4)(5)
E	P-1E	CHILLER RM.	(1)(2)(3)(4)(5)
E	P-2E	CHILLER RM.	(1)(2)(3)(4)(5)
F	P-1F		(1)(2)(3)(4)(5)
F	P-2F		(1)(2)(3)(4)(5)
GTM	P-1 GTM		(1)(2)(3)(4)(5)
GTM	P-2 GTM		(1)(2)(3)(4)(5)
ADM	P-1 ADM	ADM B104	(1)(2)(3)(4)(5)
ADM	P-2 ADM	ADM B104	(1)(2)(3)(4)(5)
ADM	P-3 ADM	ADM B104	(1)(2)(3)(4)(5)
ADM	P-4 ADM	ADM B104	(1)(2)(3)(4)(5)
SH	P-1 SH		(1)(2)(3)(4)(5)
SH	P-2 SH		(1)(2)(3)(4)(5)
ST. CTR.			
ST. CTR.			

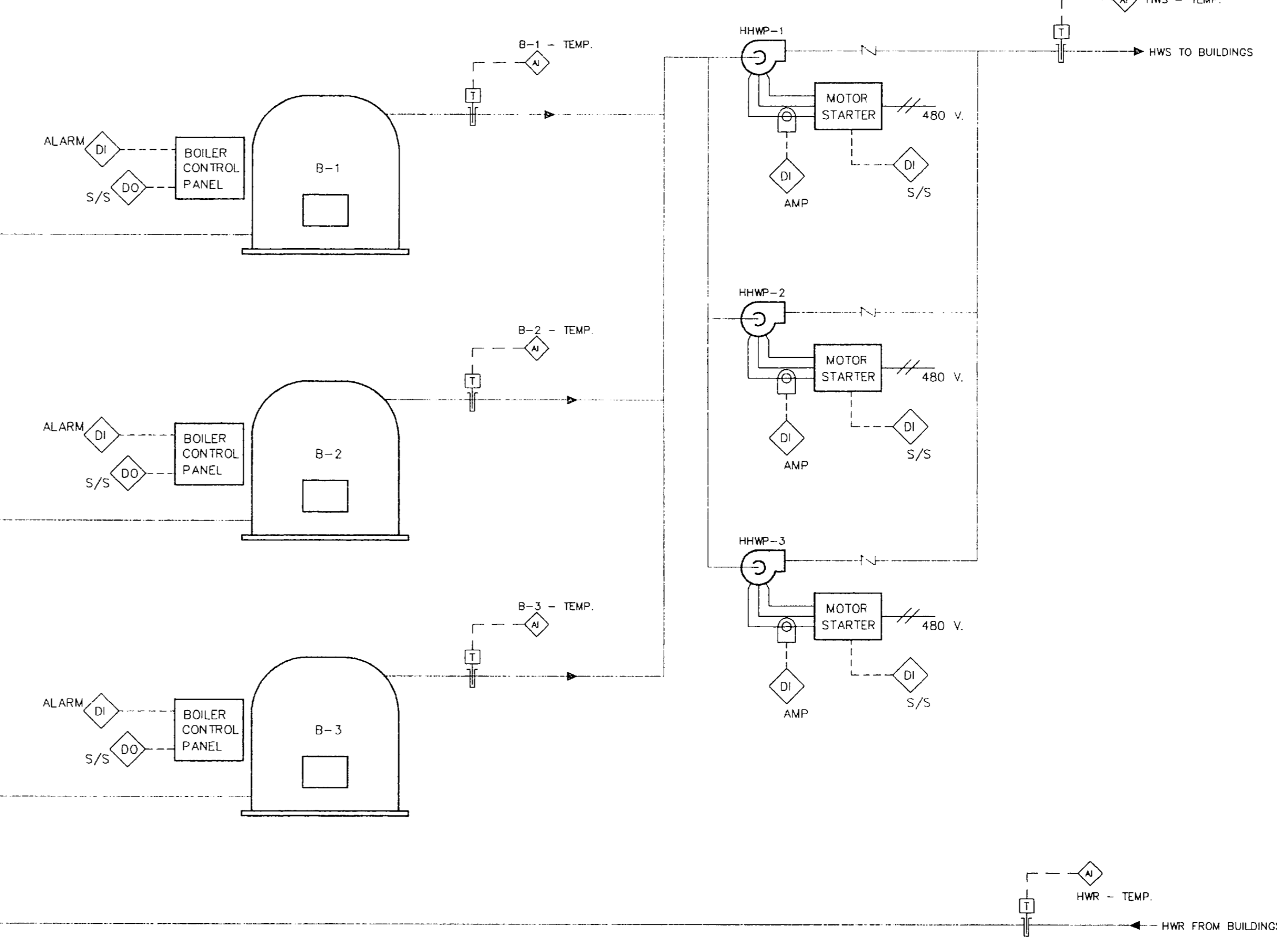
ALAMEDA COLLEGE

BLDG.	DESIGNATION	LOCATION	NOTES
A	OP-A-1	PENTHOUSE	(1)(2)
B	OP-B-1	MECH. ROOM	(1)(2)
C	OP-C-1	BOILER ROOM	(1)(2)
D	OP-D-1	RM. D-100	(1)(2)
E	OP-E-1	MECH. ROOM	(1)(2)
F	OP-F-1	PENTHOUSE	(1)(2)
UW	OP-U-1	BLDG. C BOILER RM.	(1)(2)
URC	OP-URC-1	BLDG. C BOILER RM.	(1)(2)

MERRITT COLLEGE

BLDG.	DESIGNATION	LOCATION	NOTES
F	P-1F	F-109	(1)(2)(3)
E	P-1E	E-103	(1)(3)
D	P-1D	D-163	(1)(3)(4)
D	P-2D	D-163	(1)(3)(4)
A	P-1A	A-105	(1)(3)
L	P-1L	L-119	(1)(3)
P	P-1P	P-119	(1)(2)
Q	P-1Q	Q-114	(1)(2)(3)
Q	P-2Q	Q-114	(1)(2)(3)(4)

- NOTES:**
- NO 3-WAY CONTROL VALVE INSTALLED
 - PROVIDE START/STOP CONTROL UPON OPERATION OF ANY RESPECTIVE BUILDING AIR HANDLING UNIT AND OPERATION OF BOILER PLANT.
 - RESET HOT WATER SUPPLY TEMPERATURE INVERSELY PROPORTIONAL TO OUTSIDE AIR BETWEEN LIMITS OF 200° (ADJUSTABLE) AND 100° (ADJUSTABLE) SUPPLY WATER TEMPERATURES CORRESPONDING TO 30° (ADJUSTABLE) AND 70° (ADJUSTABLE) OUTSIDE AIR TEMPERATURES.
 - PROVIDE LEAD & STANDBY OPERATION, CHANGEOVER WEEKLY.
 - LANEY PUMP Slightly Different Configuration, (CONTROL POINTS REMAIN SAME).



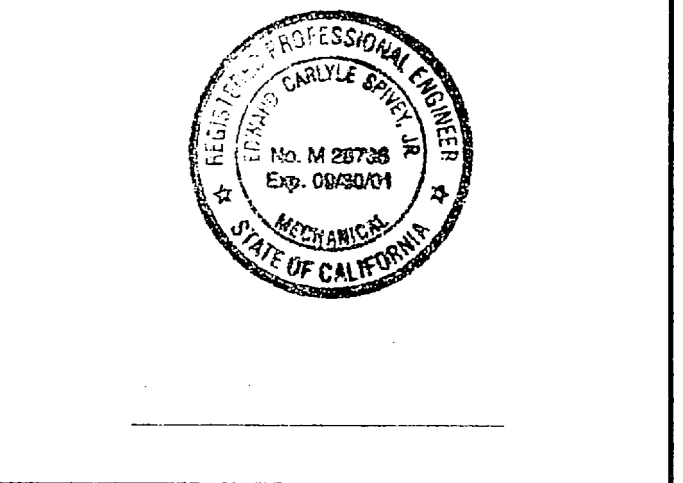
BOILER PLANT - CONTROL DETAIL (TYP. OF 2)

- ALAMEDA BOILER PLANT - BLDG. 'Q'
 - MERRITT BOILER PLANT - BLDG. 'F'
- (NOTE: MERRITT BOILER PLANT HAS ONLY TWO (2) HEATING HOT WATER PUMPS)

NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1374 OAKLAND BLVD., SUITE 105
WALNUT CREEK, CALIFORNIA 94596
(510) 944-8929
Project: 98-005



Client:
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

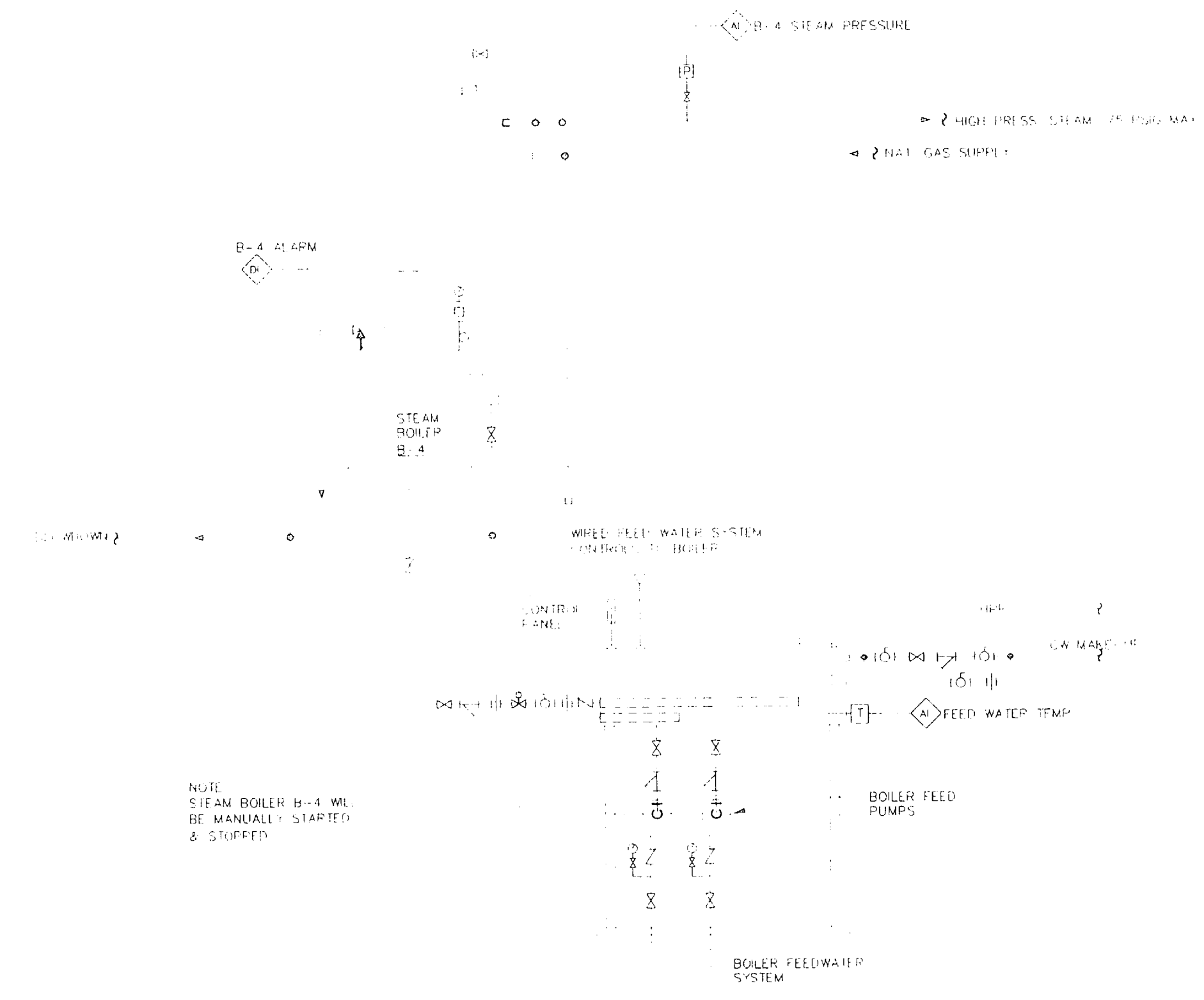
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GENERAL CONTROL DETAILS

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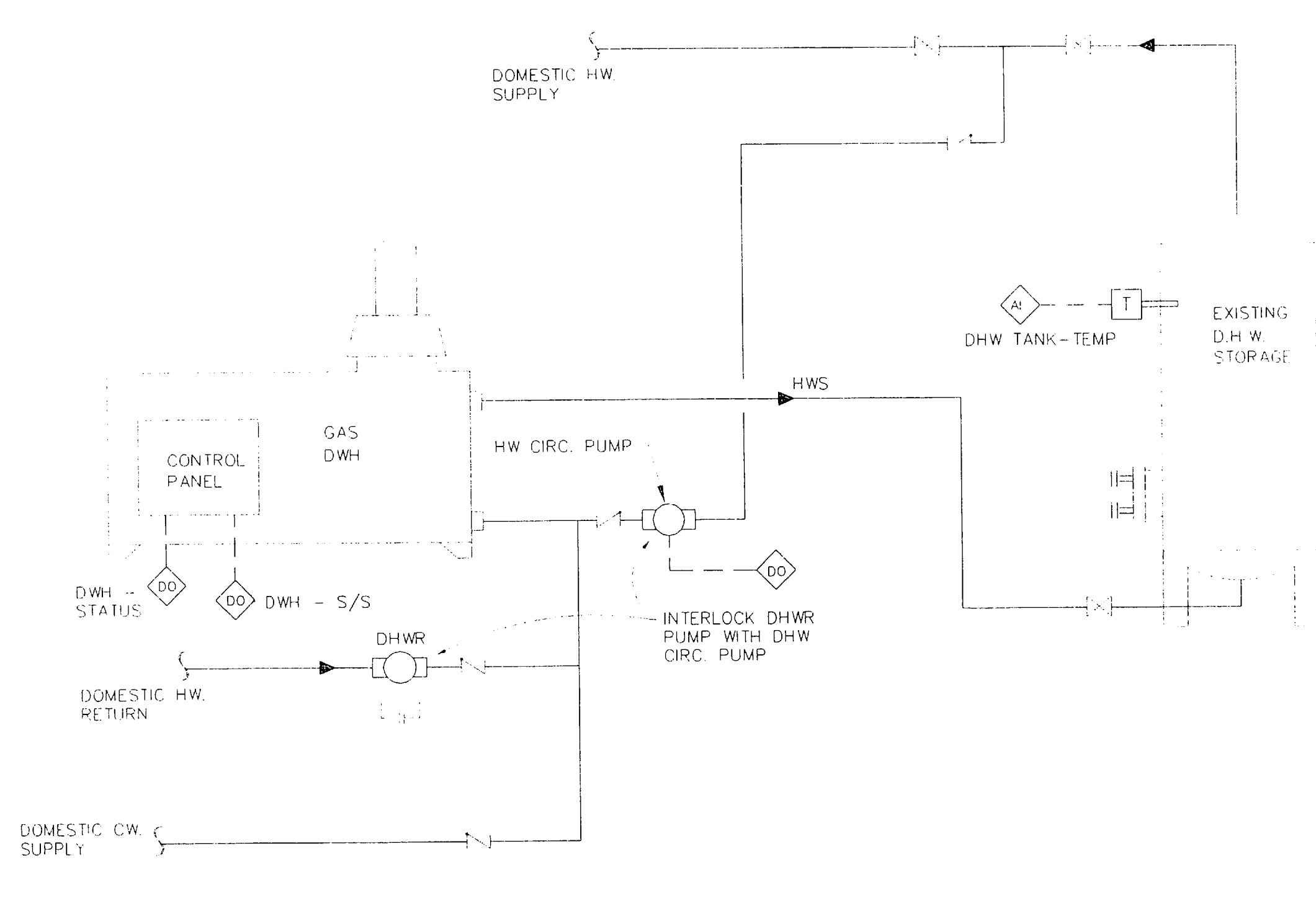
CONSTRUCTION DOCUMENTS

ADJUSTABLE FREQUENCY DRIVE SCHEDULE					
EQUIPMENT TAG	EQUIPMENT DESCRIPTION	MOTOR H. P.	VOLTS / PHASE	VFD LOCATION	NOTES
SCWP-1	CHILLED WATER PUMP	60	460 / 3ø	CHILLER PLANT - BLDG. "E"	
SCWP-2	CHILLED WATER PUMP	60	460 / 3ø	CHILLER PLANT - BLDG. "E"	
SCWP-1	HOT WATER PUMP	30	460 / 3ø	CHILLER PLANT - BLDG. "E"	
SCWP-2	HOT WATER PUMP	30	460 / 3ø	CHILLER PLANT - BLDG. "E"	
CT-1-1	COOLING TOWER FAN	25	460 / 3ø	COOLING TOWER YARD - BLDG. "E"	1
CT-1-2	COOLING TOWER FAN	25	460 / 3ø	COOLING TOWER YARD - BLDG. "E"	1
AC-1A	SUPPLY FAN	10	460 / 3ø	CLG. ROOM A502	2
AC-1 FOR	SUPPLY FAN	15	460 / 3ø	FORUM MECHANICAL ROOM	2
EF-1 FOR	RETURN FAN	5	460 / 3ø	FORUM MECHANICAL ROOM	2
SF-1 LIB	SUPPLY FAN	30	460 / 3ø	LIBRARY MECHANICAL ROOM 113	2
EF-1 LIB	RETURN FAN	15	460 / 3ø	LIBRARY MECHANICAL ROOM 113	2
SF-2 LIB	SUPPLY FAN	30	460 / 3ø	LIBRARY MECHANICAL ROOM 116	2
EF-2 LIB	RETURN FAN	15	460 / 3ø	LIBRARY MECHANICAL ROOM 116	2
AC-1G	SUPPLY FAN	15	460 / 3ø	BLDG. "G" - N. MECH. PENTHOUSE	2
RF-3G	RETURN FAN	5	460 / 3ø	BLDG. "G" - N. MECH. PENTHOUSE	2
RF-1 ADM	SUPPLY FAN	10	460 / 3ø	ADMIN. BASEMENT B104	2
EF-1 ADM	RETURN FAN	5	460 / 3ø	ADMIN. BASEMENT B104	2
SF-1 STC	SUPPLY FAN	20	460 / 3ø	STUDENT CENTER MECH. ROOM 418	2
EF-1 STC	RETURN FAN	15	460 / 3ø	STUDENT CENTER MECH. ROOM 418	2
SF-2 STC	SUPPLY FAN	20	460 / 3ø	STUDENT CENTER MECH. ROOM 418	2
EF-2 STC	RETURN FAN	15	460 / 3ø	STUDENT CENTER MECH. ROOM 418	2
SF-1 TH	SUPPLY FAN	15	460 / 3ø	THEATER MECH. ROOM 418	2
RF-1 TH	RETURN FAN	5	460 / 3ø	THEATER MECH. ROOM 418	2
SF-2 TH	SUPPLY FAN	15	460 / 3ø	THEATER MECH. ROOM 418	2
RF-2 TH	RETURN FAN	5	460 / 3ø	THEATER MECH. ROOM 418	2

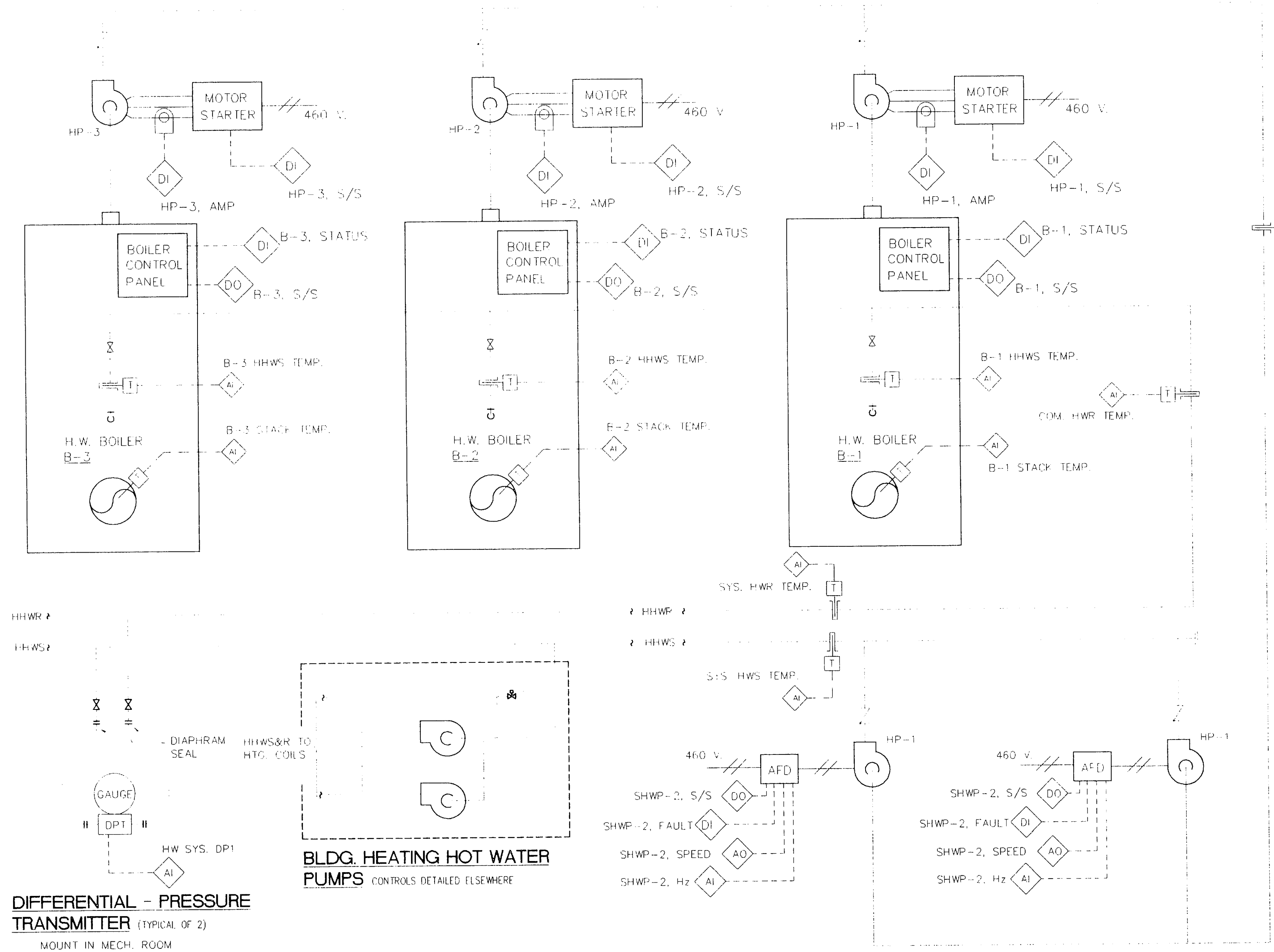
NOTES:
 1. NEMA 4 ENCLOSURE FOR EXPOSED AMBIENT LOCATION
 2. THE SAFETY SHUT DOWN CIRCUIT TO FIRE ALARM SYSTEM
 3. MECHANICAL SHALL MOUNT VFD'S. ELECTRICAL SHALL PROVIDE WIRE AND CONDUIT



LANEY STEAM BOILER - CONTROL SYSTEM DETAILS

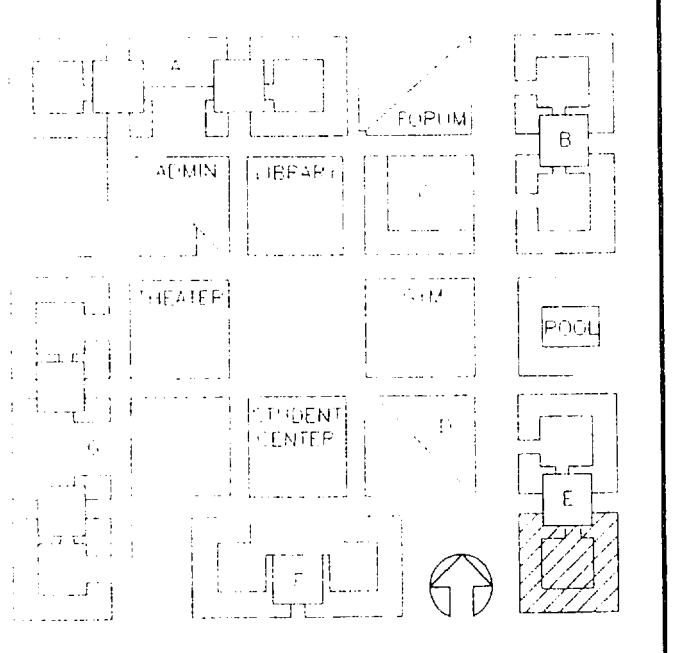


LANEY DOMESTIC WATER HEATER CONTROLS DIAGRAM



LANEY HOT WATER BOILER PLANT - CONTROLS DETAIL

DIFFERENTIAL - PRESSURE TRANSMITTER (TYPICAL OF 2)
 MOUNT IN MECH. ROOM WHERE GAUGE IS VISIBLE
 LOCATE:
 1. BLDG. "A" AT BLDG. HTG. H.W. PUMPS
 2. ADMIN. BLDG. AT HTG. H.W. PUMPS



KEY PLAN

NO.	DATE	DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
 ENGINEERING CONSULTANTS
 1371 OAKLAND BLVD., SUITE 102
 WALNUT CREEK, CALIFORNIA 94596
 (510) 944-8929
 Project: 98-005



Client:
Peralta Community College District

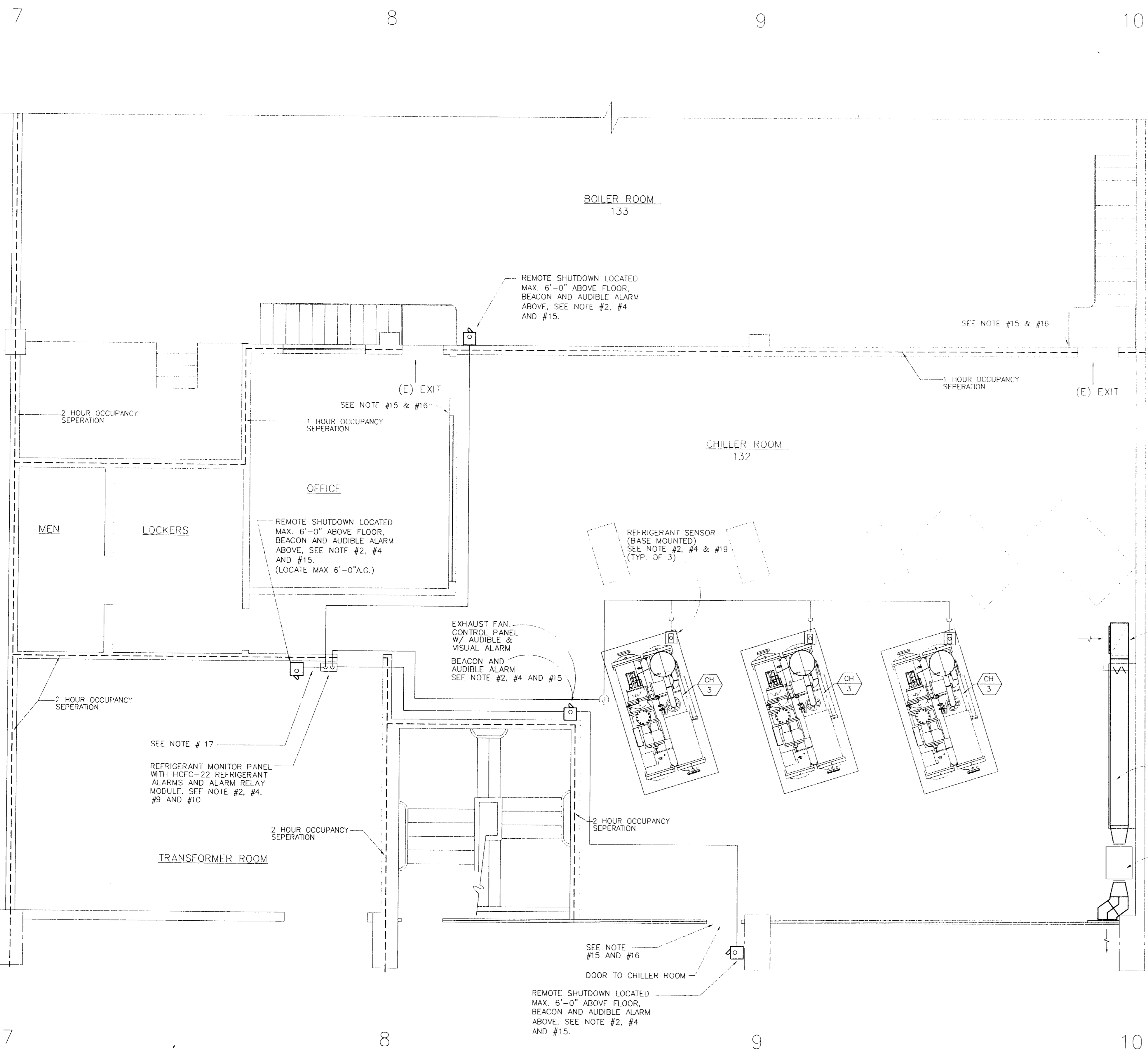
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MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE-BOILER PLANT CONTROL PLANS

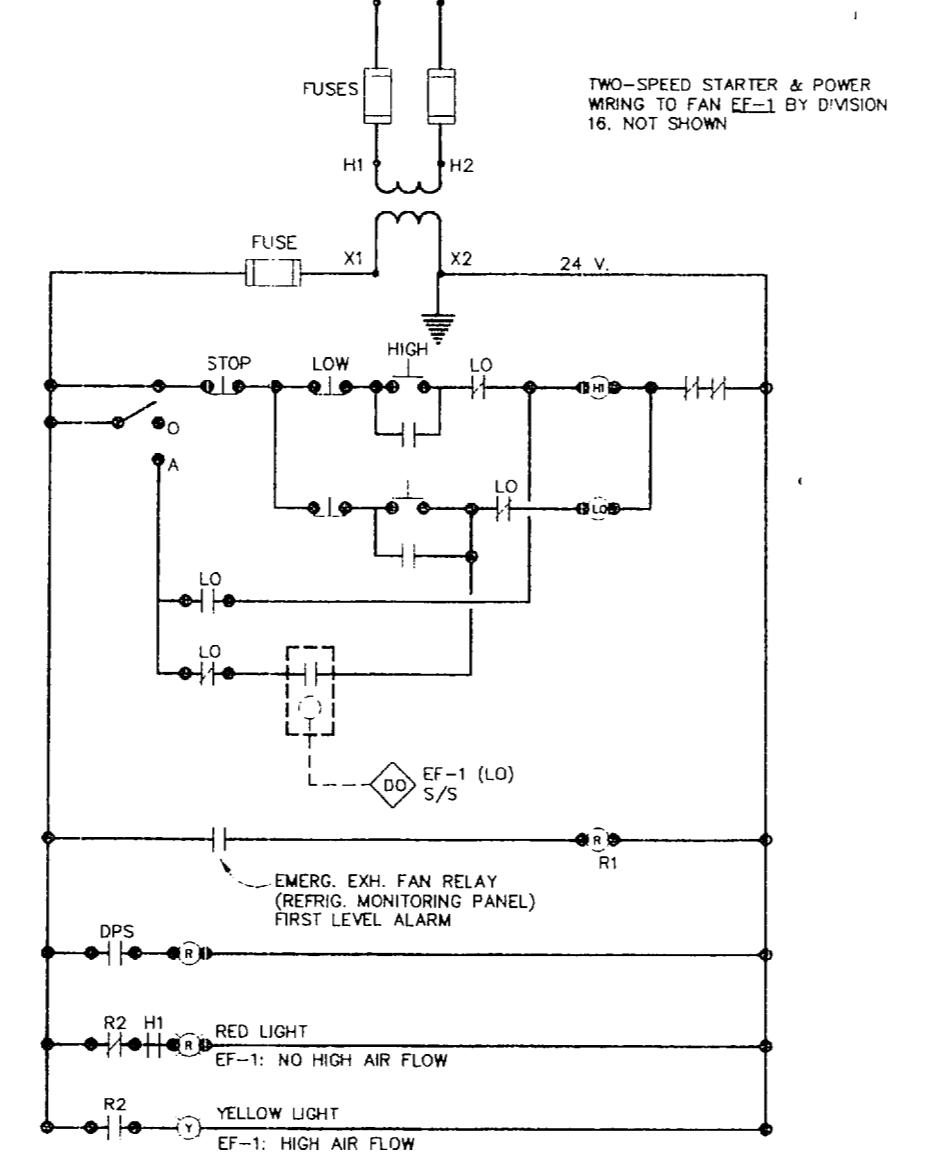
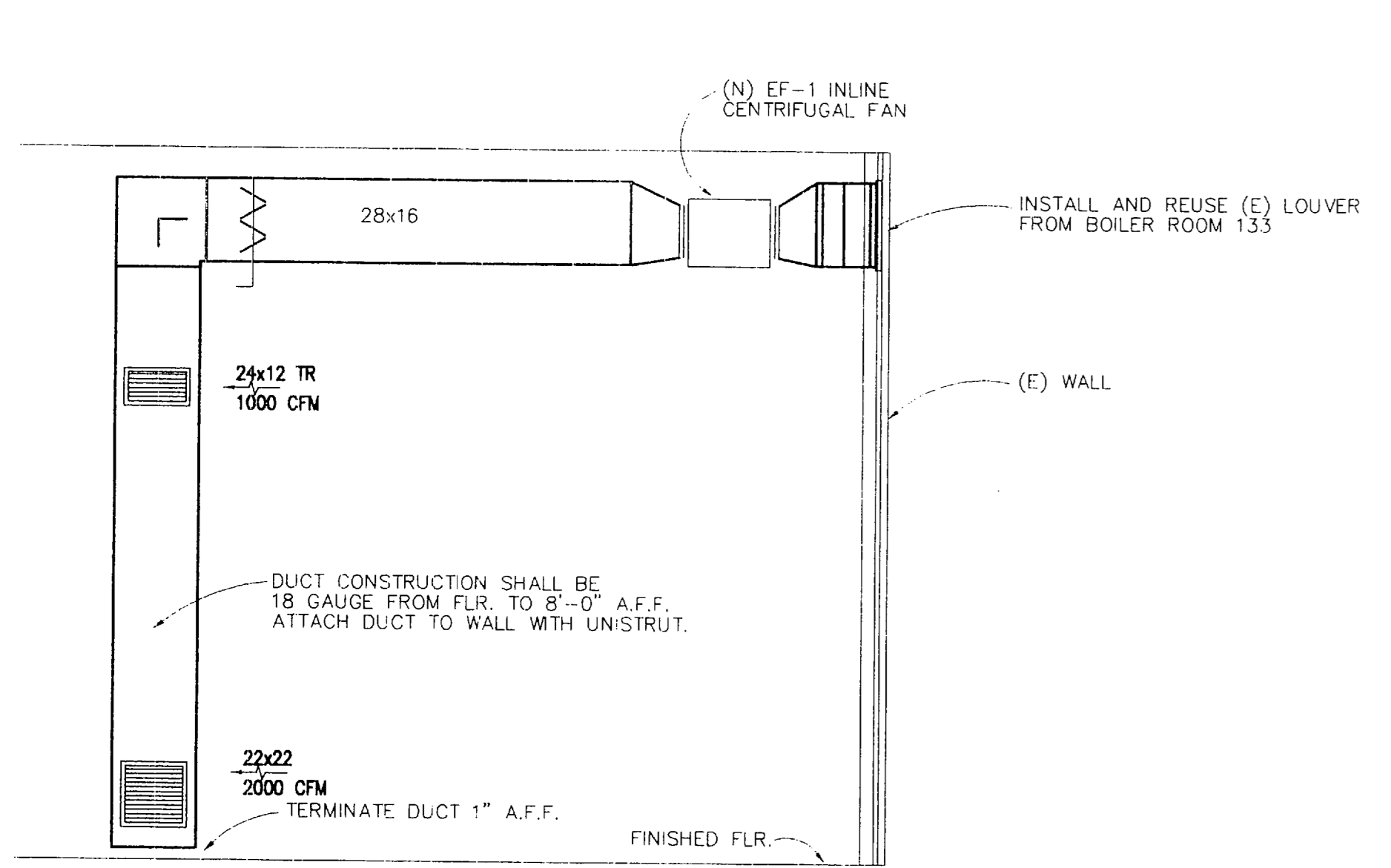
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APPROVED BY:	ECS		

MC-101

CONSTRUCTION DOCUMENTS



REFRIGERANT MONITORING AND VENTILATION PLAN
 SCALE: 1/4"=1'-0"



LANEY CHILLER ROOM EXHAUST FAN FAN EF-1 CONTROL DIAGRAM

NOTES:
 1. PROVIDE HAND OPERATOR AND AUTOMATIC OPERATION OF MECH. ROOM EXHAUST FAN (E).
 2. CONFIRM OPERATION OF FAN EF-1 IN HIGH SPEED BY PRESSURE DIFFERENTIAL SWITCH SET TO DETERMINE HIGH SPEED FROM LOW SPEED. CONFIRM (A) RED & GREEN MONITORING LIGHTS.
 3. PROVIDE DDC CONTROL OF FAN AT LOW SPEED. NOTING MONITOR ACTIVATES HIGH SPEED.

REFRIGERANT - HCFC R134a
 SAFETY GROUP CLASSIFICATION - A1

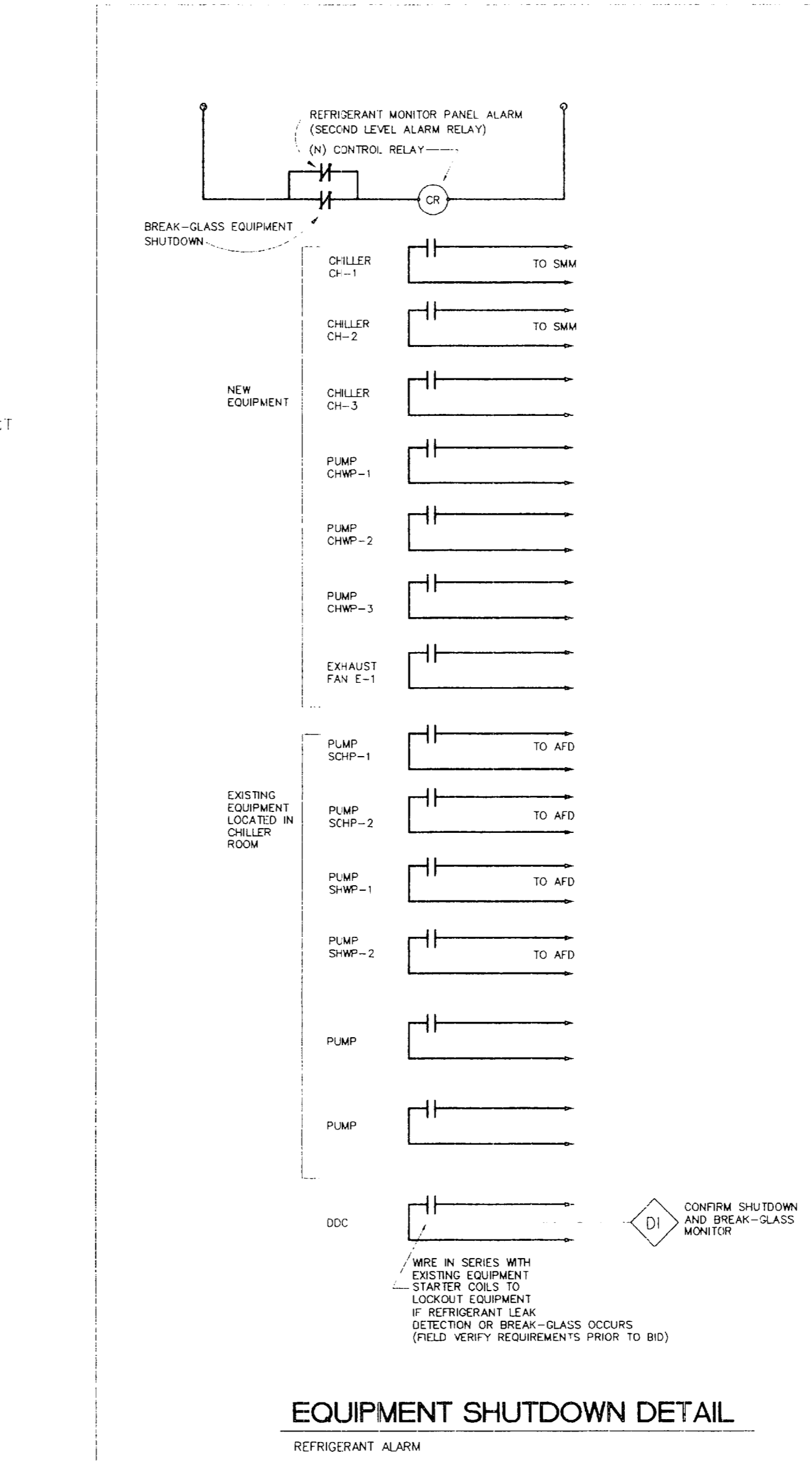
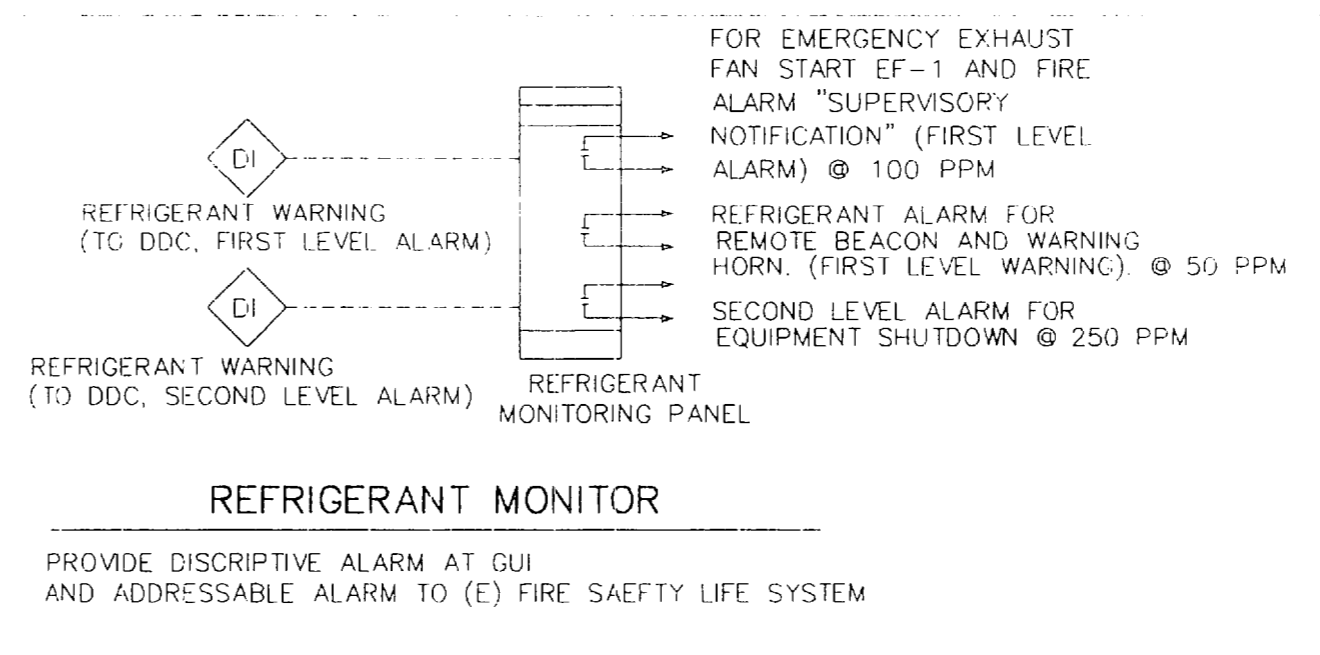
REL (ppm) = 1,000
 IDLH (ppm) = 50,000
 LFL (ppm) = N/A
 50% (IDLH) (ppm) = 25,000
 25% (LFL) (ppm) = N/A
 PEL (ppm) = 1,000

MAXIMUM LEVEL TO ACTIVATE ALARM (CHOOSE MINIMUM)

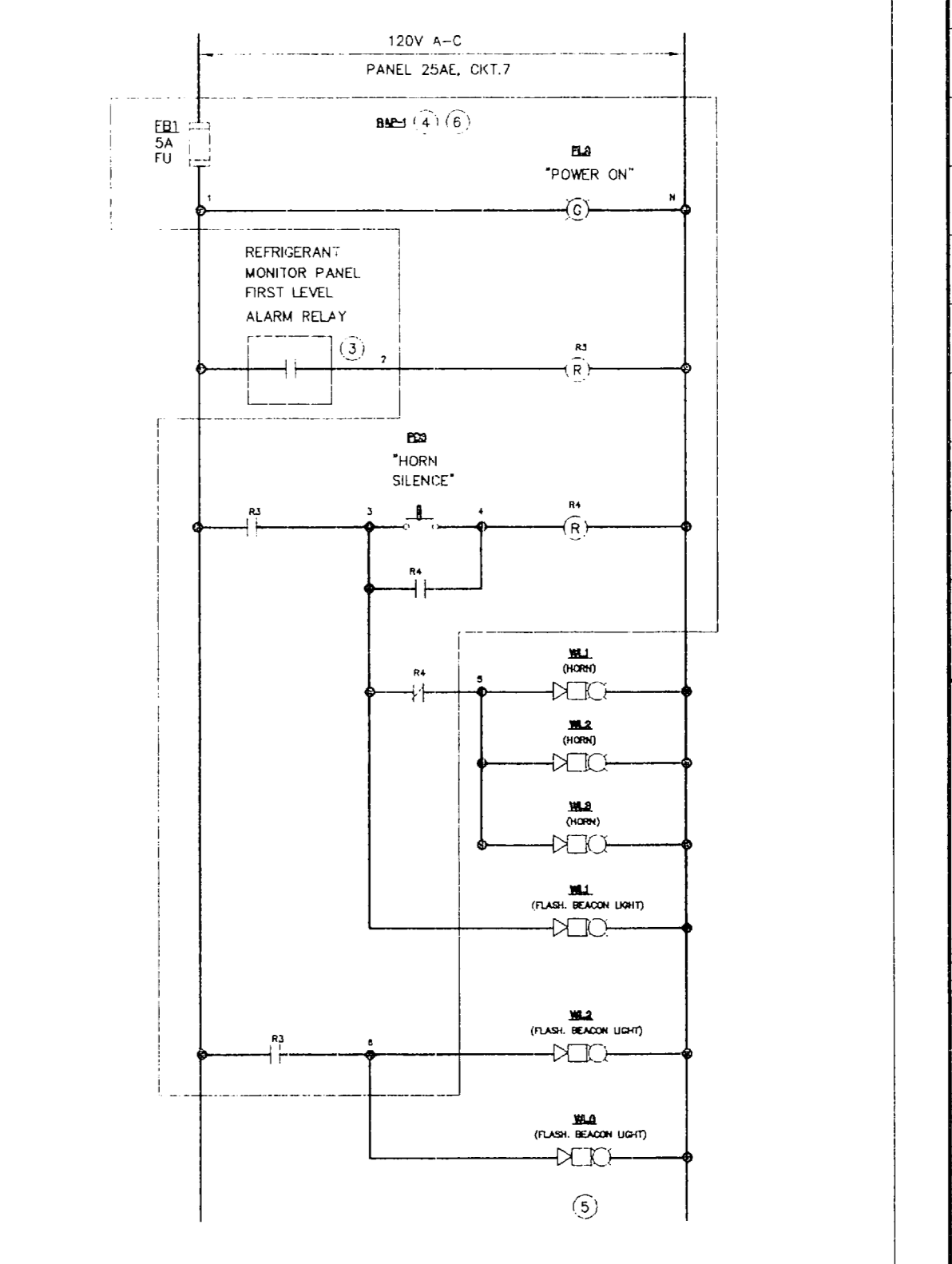
NOTES:

- GENERAL: ALL ELECTRICAL CONSTRUCTION AND MATERIAL SHALL BE IN COMPLIANCE WITH THE LATEST NEC CODE, APPLICABLE GOVERNMENT, STATE AND LOCAL REGULATIONS, RULES AND ORDINANCES. (SEE DIVISION 16)
- PROVIDE AND INSTALL FIELD WIRING AND CONTROL RELAY OUTPUT INTERFACE FOR INTERLOCK SYSTEM AMONG EXHAUST FAN EF-1, REFRIGERANT SENSOR/ALARM AND CONTROL PANEL, LOCAL ALARM RELAY MODULE AND REMOTE BEACON AND AUDIBLE ALARMS. SEE NOTE #4.
- DIVISION 16 SHALL PROVIDE AND INSTALL WIRING AND CONDUIT INTERFACE BETWEEN SENSOR DEVICES, REMOTE BEACONS AND MONITOR PANEL. PRIOR TO BID, CONSULT MONITOR/SENSOR MANUFACTURER FOR PRODUCT SPECIFIC SENSOR TYPES TO DETERMINE INTERFACE REQUIREMENTS. PROVIDE AND INSTALL IN CONDUIT OR PRODUCT COMPATIBLE TUBING FOR GAS DETECTION AS REQUIRED.
- SEE ELECTRICAL DRAWINGS. COORDINATE ALL WORK WITH DIVISION 16.
- POWER CIRCUIT FOR REMOTE BEACON BY DIVISION 15.
- PROVIDE (1) TWO SPEED FAN, LOW SPEED FOR NORMAL VENTILATION AND HIGH SPEED FOR EMERGENCY PURGE OF REFRIGERANT GAS.
- PROVIDE A CLEARLY IDENTIFIED SWITCH OF THE BREAK GLASS TYPE TO PROVIDE EQUIPMENT SHUTDOWN AND ON-OFF ONLY CONTROL OF EXHAUST FAN EF-1 IMMEDIATELY OUTSIDE AND ADJACENT TO MACHINERY ROOM EXIT.
- PROVIDE ALL INTERFACE RELAYS FOR EMERGENCY CONTROL AND INTERLOCKS WITH NEW EXHAUST FANS AND ASSOCIATED STARTERS.
- PROVIDE TWO AUXILIARY CONTACT OUTPUT SIGNALS TO THE DDC FACILITY MANAGEMENT SYSTEM FOR REFRIGERANT LEAK DETECTION ALARM. ONE OUTPUT SHALL BE FOR FIRST LEVEL ALARM TO INITIATE WARNING SYSTEM AND ONE OUTPUT SHALL BE FOR THE SECOND LEVEL ALARM TO SHUT DOWN EQUIPMENT. DDC SHALL DUPLICATE EQUIPMENT SHUT DOWN OF CHILLER PLANT AND SHUT DOWN ALL EQUIPMENT IN BOILER ROOM.

NOTE:
 REFRIGERANT: HCFC R-134A, 530 LBS. GROUP A1 REFRIGERANT.

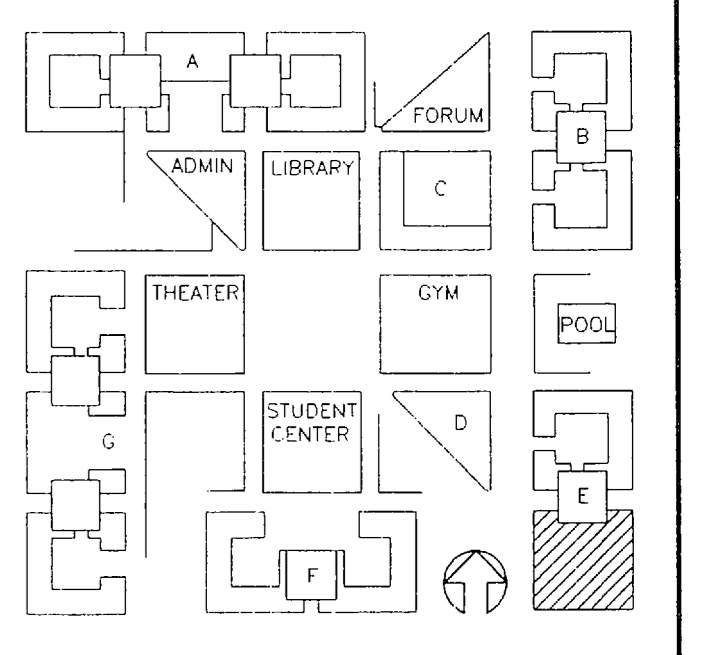
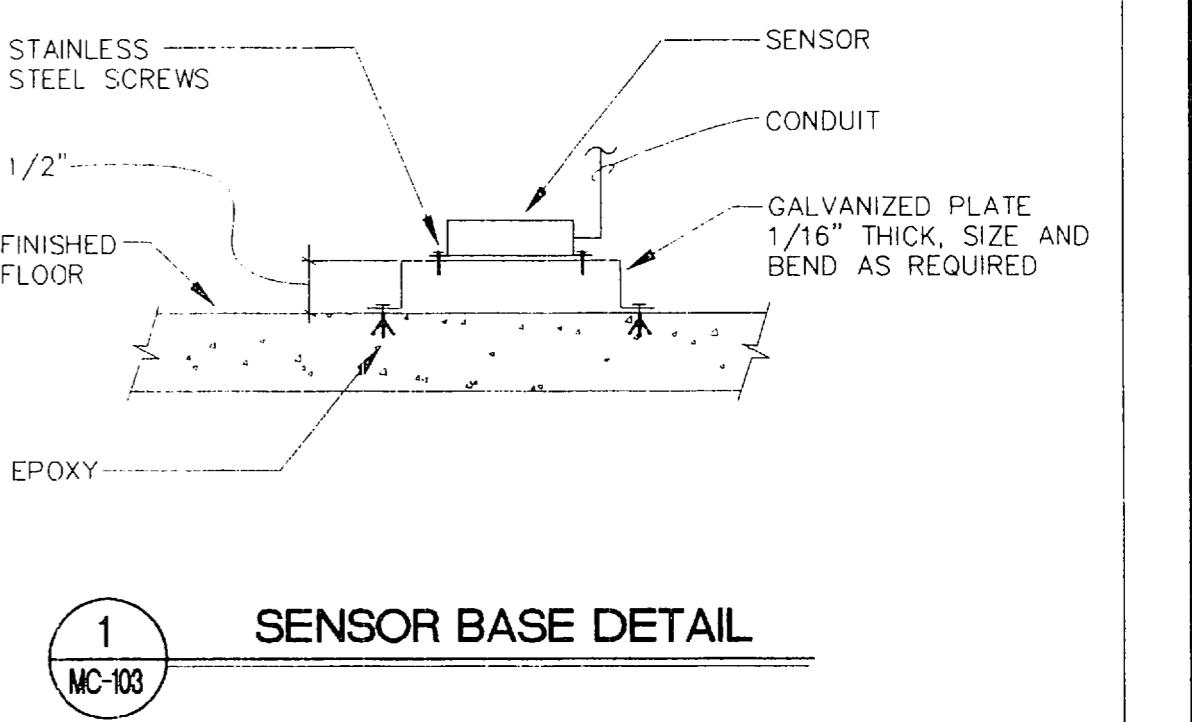


- PROVIDE AN AUXILIARY CONTACT OUTPUT SIGNAL FOR ADDRESSABLE ALARM TO THE EXISTING PYROTRONICS FIRE ALARM/LIFE SAFETY SYSTEM FOR REFRIGERANT LEAK DETECTION AND ALARM. (SEE DIVISION 16) FOR PANEL MANUFACTURER, CONTACT JENSEN INSTRUMENT COMPANY 415-589-9720.
- UPON ALARM SIGNAL OUTPUT FROM THE LEAK DETECTION PANEL, ALL EQUIPMENT LOCATED IN THE MECHANICAL ROOM (CHILLERS, PUMPS, AND AIR COMPRESSOR) SHUT-OFF VIA THE ENERGY MANAGEMENT SYSTEM OR VIA EXISTING STARTER CIRCUITS. SEE DRAWING M-8 FOR ADDITIONAL REQUIREMENTS.
- ALL WORK SHALL CONFORM TO PER 1904 UMC SECTION FOR "EMERGENCY CONTROL OF THE VENTILATION SYSTEMS."
- ALL WORK SHALL CONFORM TO PER 1904 UMC SECTION FOR "EMERGENCY CONTROL OF ELECTRICALLY ENERGIZED EQUIPMENT."
- DIVISION 16 SHALL PROVIDE POWER SOURCE FOR MONITORING SYSTEM DEVICES. (EMERGENCY POWER) SEE ELECTRICAL DRAWINGS.
- PROVIDE CODE REQUIRED SIGNAGE FOR NON ENTRY AND EMERGENCY CONTROL INSTRUCTIONS, INCLUDING "FIRE DEPARTMENT-EMERGENCY CONTROL BOX"
- PROVIDE NO ENTRY INSTRUCTIONS AND DIRECTION FOR AUTHORIZED PERSONNEL TO LOCATE IN TRANSFORMER ROOM THE REFRIGERANT MONITOR PANEL.
- PROVIDE SELF CONTAINED BREATHING APPARATUS AT THIS LOCATION.
- PROVIDE SIGNAGE FOR "NO EXIT"
- ROUTE SENSING PIPE IN CONDUIT, DO NOT INSTALL SENSOR CONDUIT IN WALLWAYS. AVOID TRIPPING HAZARDS. SENSOR SHALL BE MOUNTED APPROXIMATELY 1/2" ABOVE FINISHED FLOOR. PROVIDE GALVANIZED METAL BASE W/ (4) 1/2" X 1" CONCRETE ANCHORS.



RAP-1 REFRIGERANT ALARM PANEL WIRING DIAGRAM

WL1 - LOCATE OUTSIDE CHILLER PLANT AT ENTRANCE.
 WL2 - LOCATE IN CHILLER PLANT VIEWABLE FROM OFFICE.
 WL3 - LOCATE IN BOILER PLANT

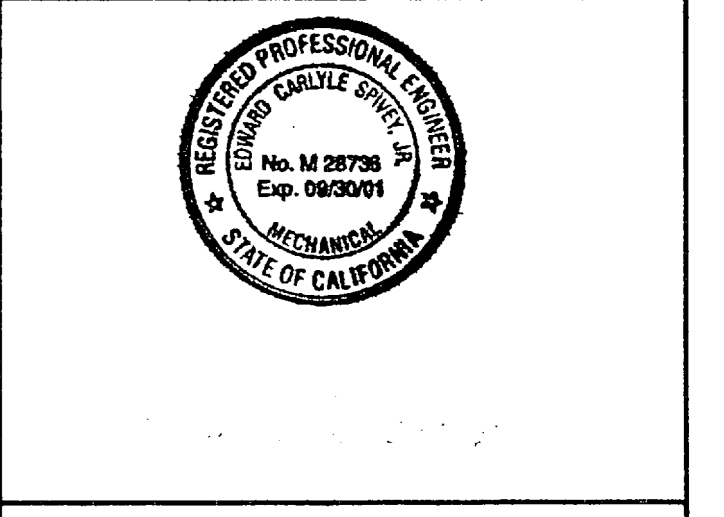


KEY PLAN

REVISIONS

NO.	DATE	DESCRIPTION

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929



Peralta Community College District

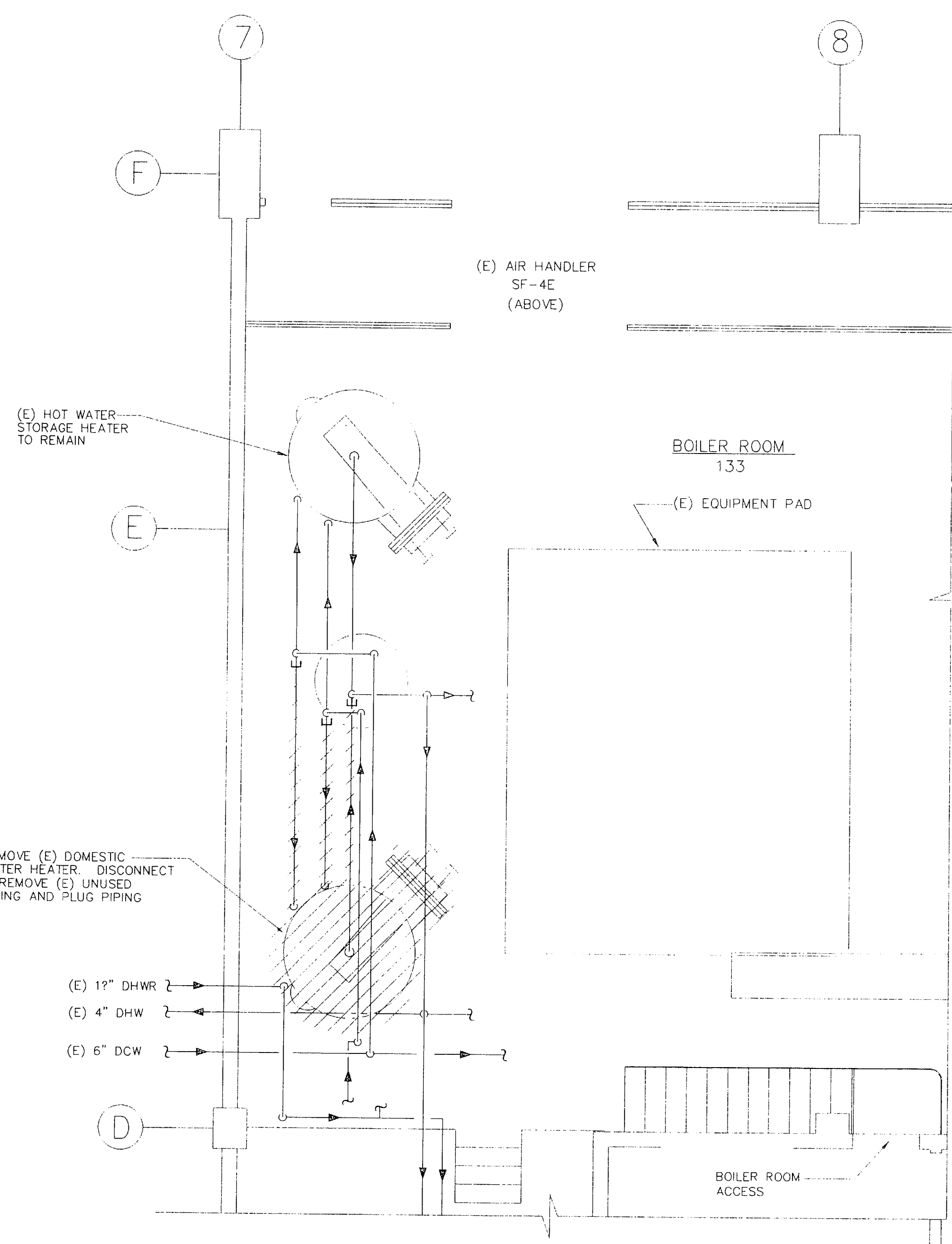
Client:
Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE-CHILLER PLANT REFRIGERANT MONITORING AND VENTILATION PLAN

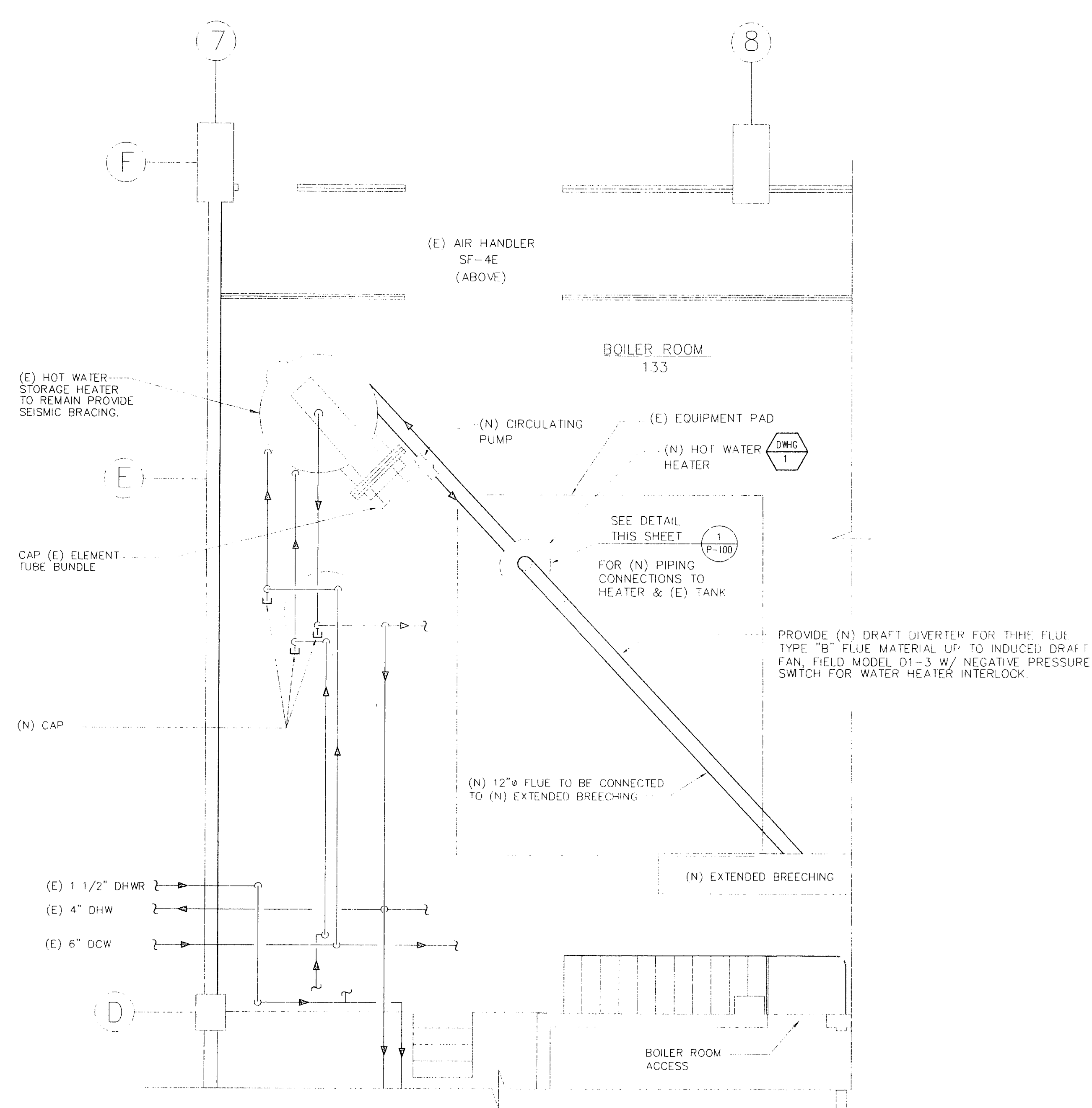
DATE: 5/28/98 JOB NO: 98-005
 SCALE: 1/4"=1'-0" SHEET NO.
 DRAWN BY: KLM
 CHECKED BY: CAR
 APPROVED BY: ECS

CONSTRUCTION DOCUMENTS



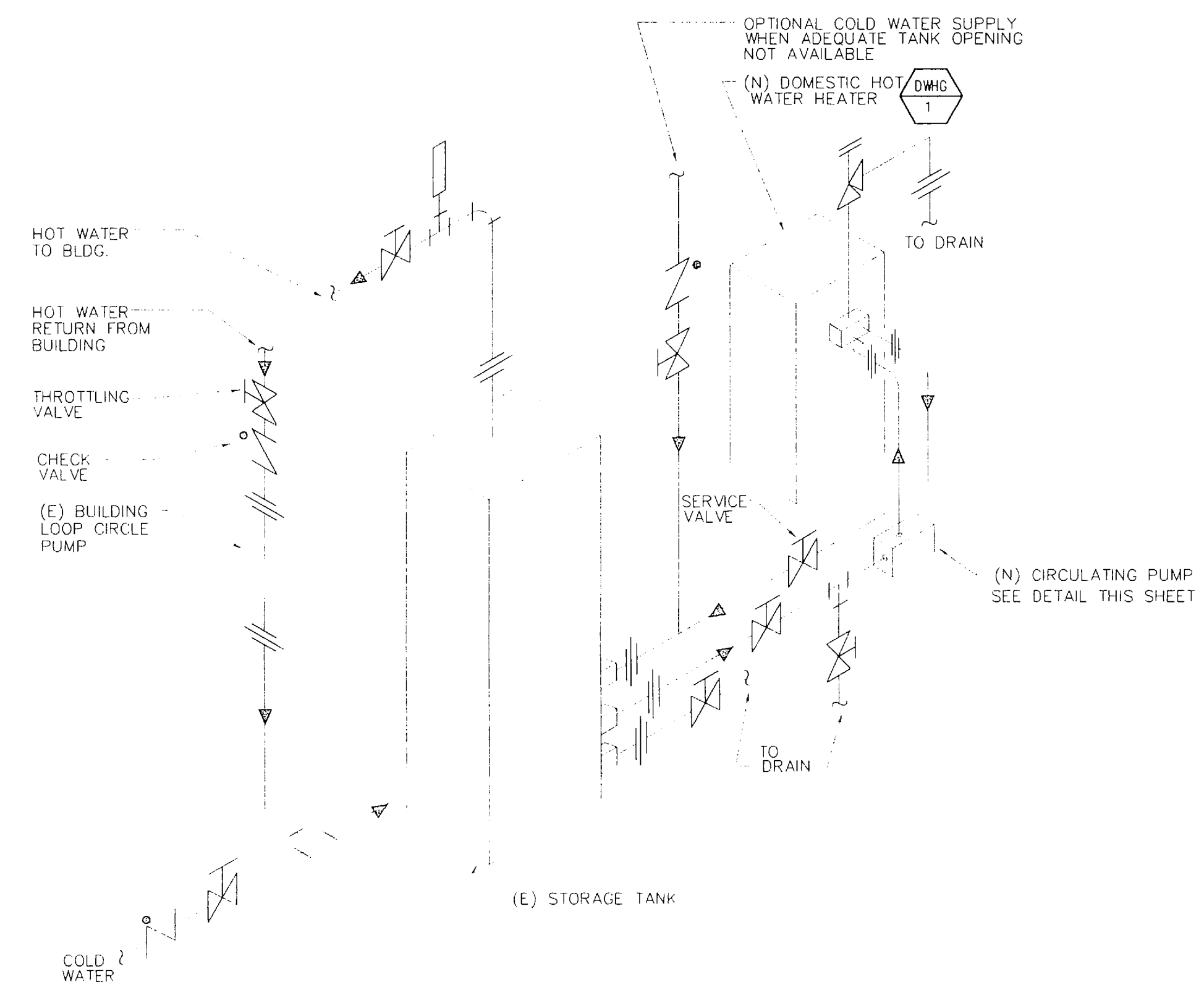
**BLDG. 'E'
DEMOLITION WORK PARTIAL PLAN**

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



**BLDG. 'E'
NEW WORK PARTIAL PLAN**

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



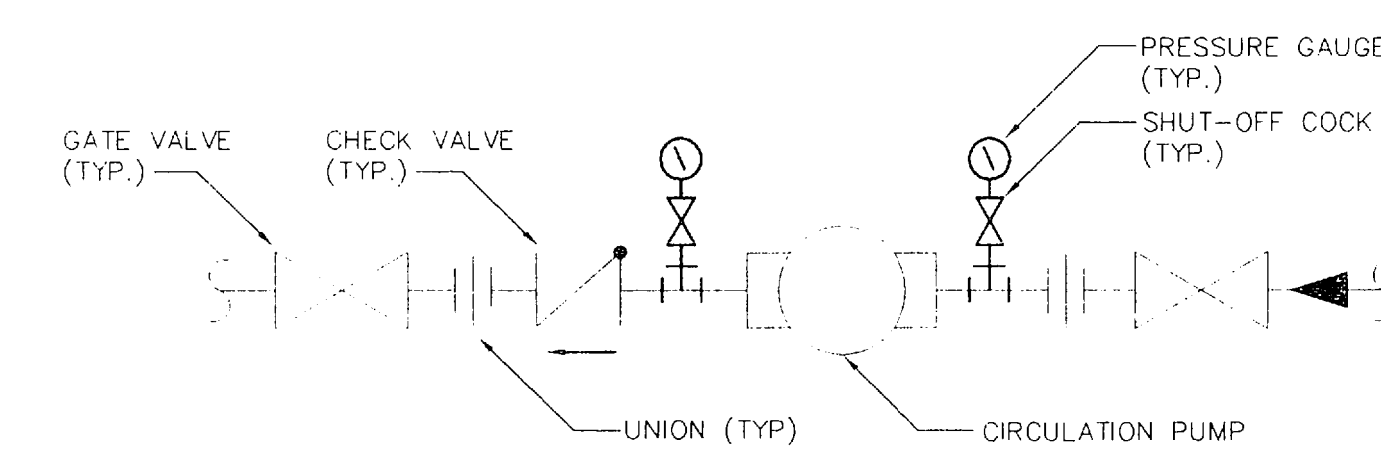
GAS FIRED WATER HEATER PIPING - DETAIL

NOT TO SCALE

NOTES:

1. PLUMB SWING CHECK VALVE IN GRAVITY CLOSED POSITION.
2. PIPE ALL RELIEF VALVES TO DRAIN, OR AS LOCAL CODES REQUIRE.
3. LOCATE TEE AS CLOSE AS POSSIBLE TO TANK.
4. PROVIDE TEMPERATURE/PRESSURE RELIEF VALVE IN THE TANK.
5. MINIMUM PIPE SIZE BETWEEN HEATER AND TANK TO BE EQUAL TO HEATER INLET/OUTLET CONNECTION.
6. CONNECT GAS TO (N) HEATER GAS TRAIL INLET.
7. FOR EXACT SIZE AND ARRANGEMENT OF PIPING AND EQUIPMENT SEE PIPING FLOOR PLANS.

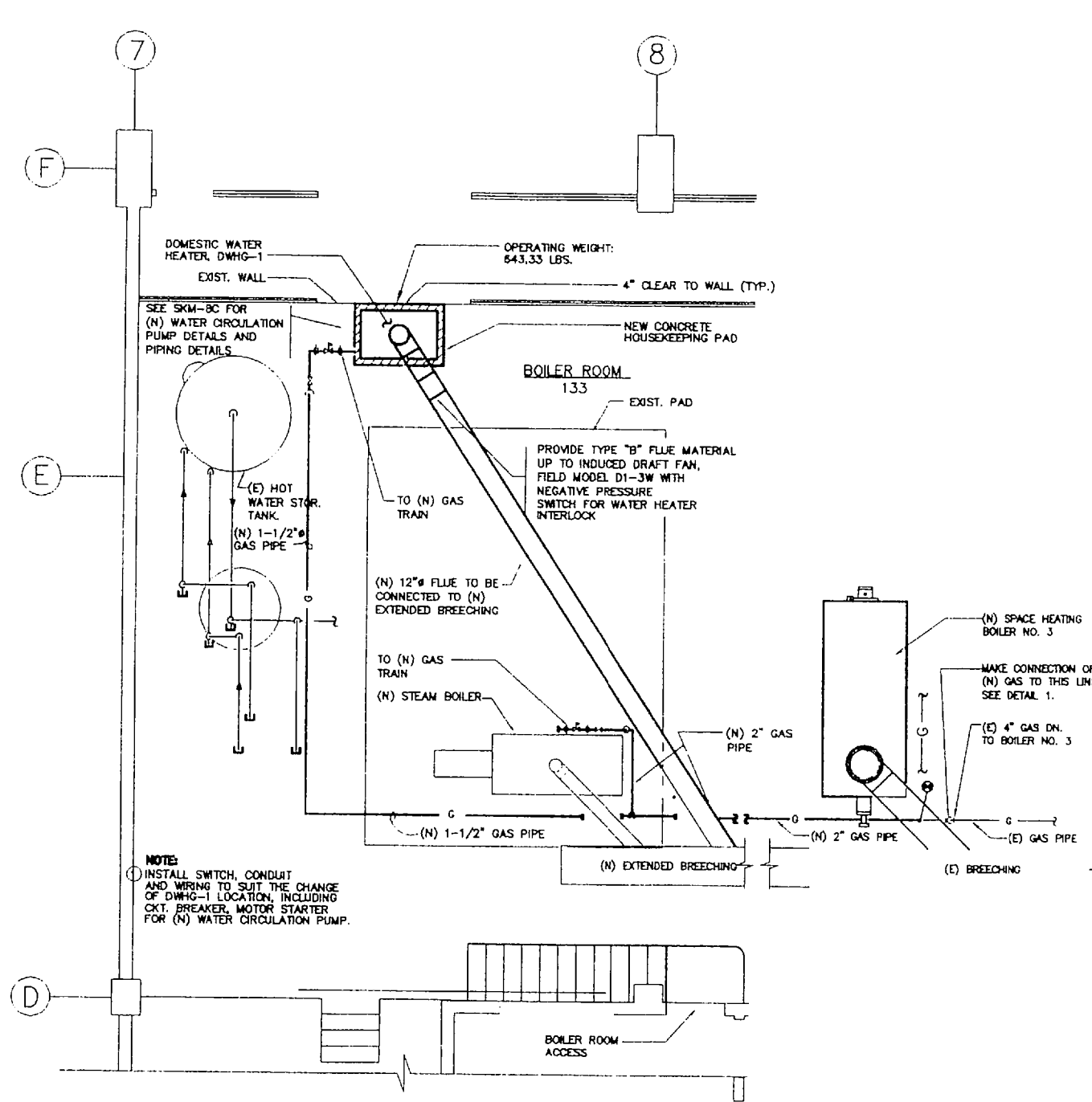
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P-100



HOT WATER CIRCULATION PUMP DETAIL

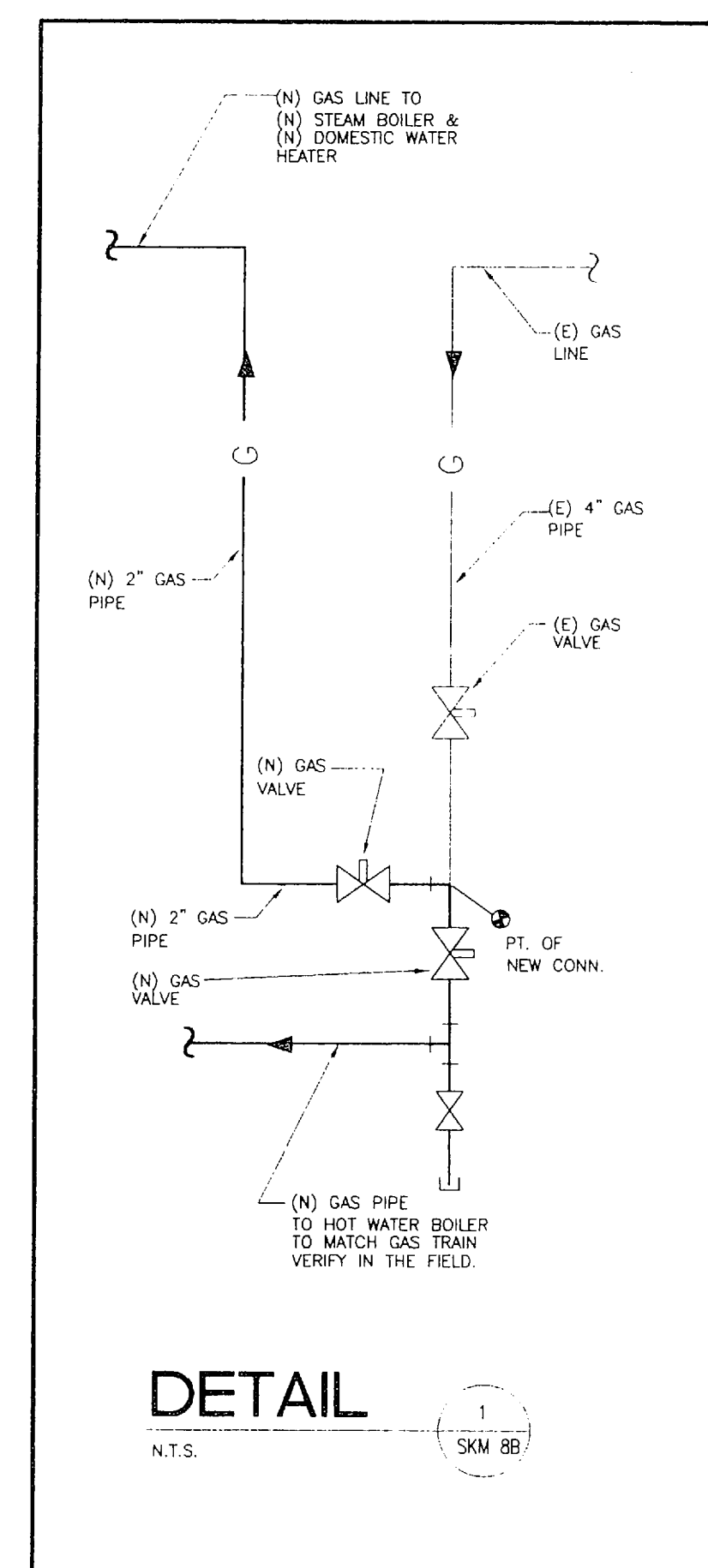
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P-100



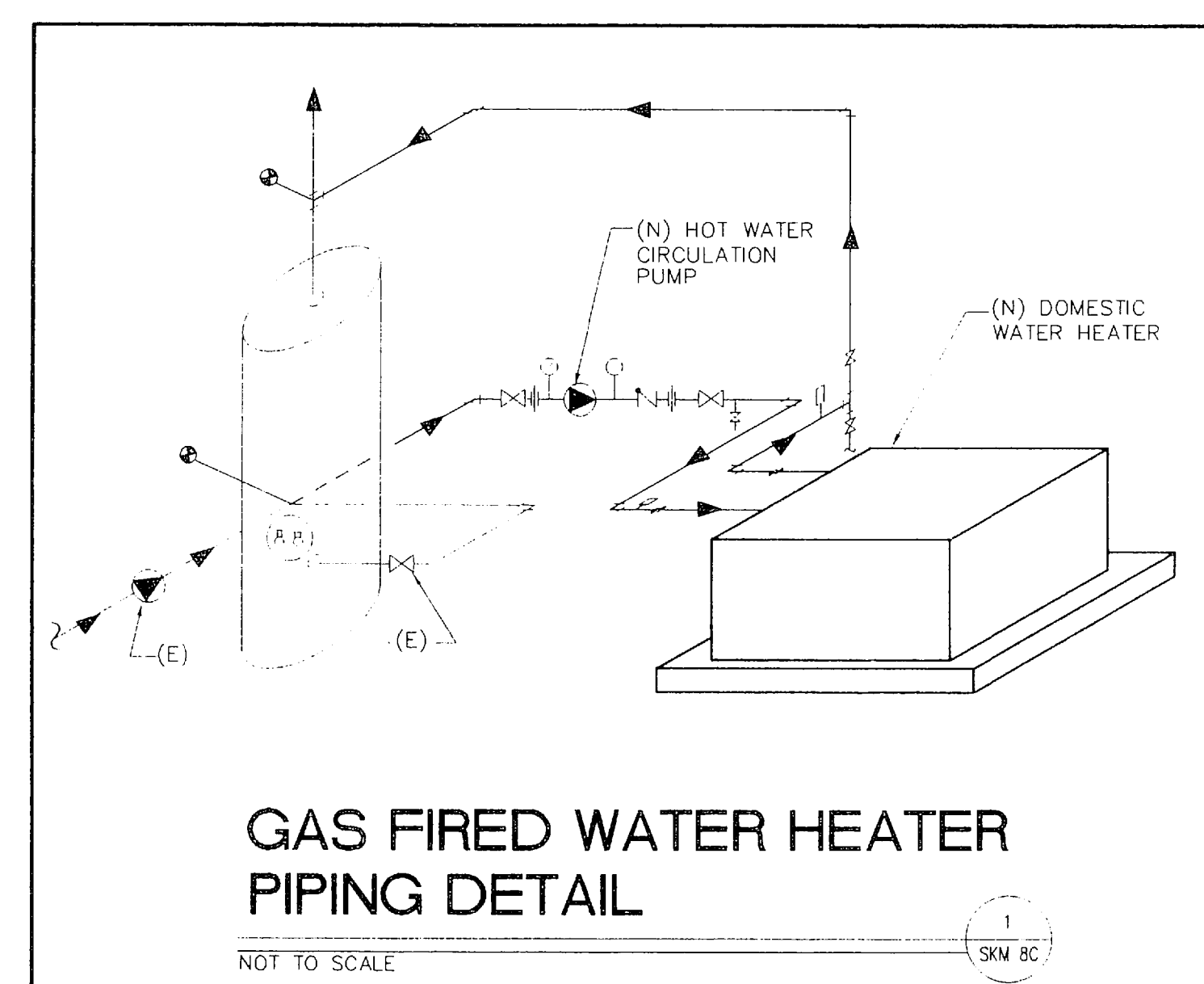
**BLDG. 'E'
NEW WORK PARTIAL PLAN**

SCALE : 1/8"=1'-0"



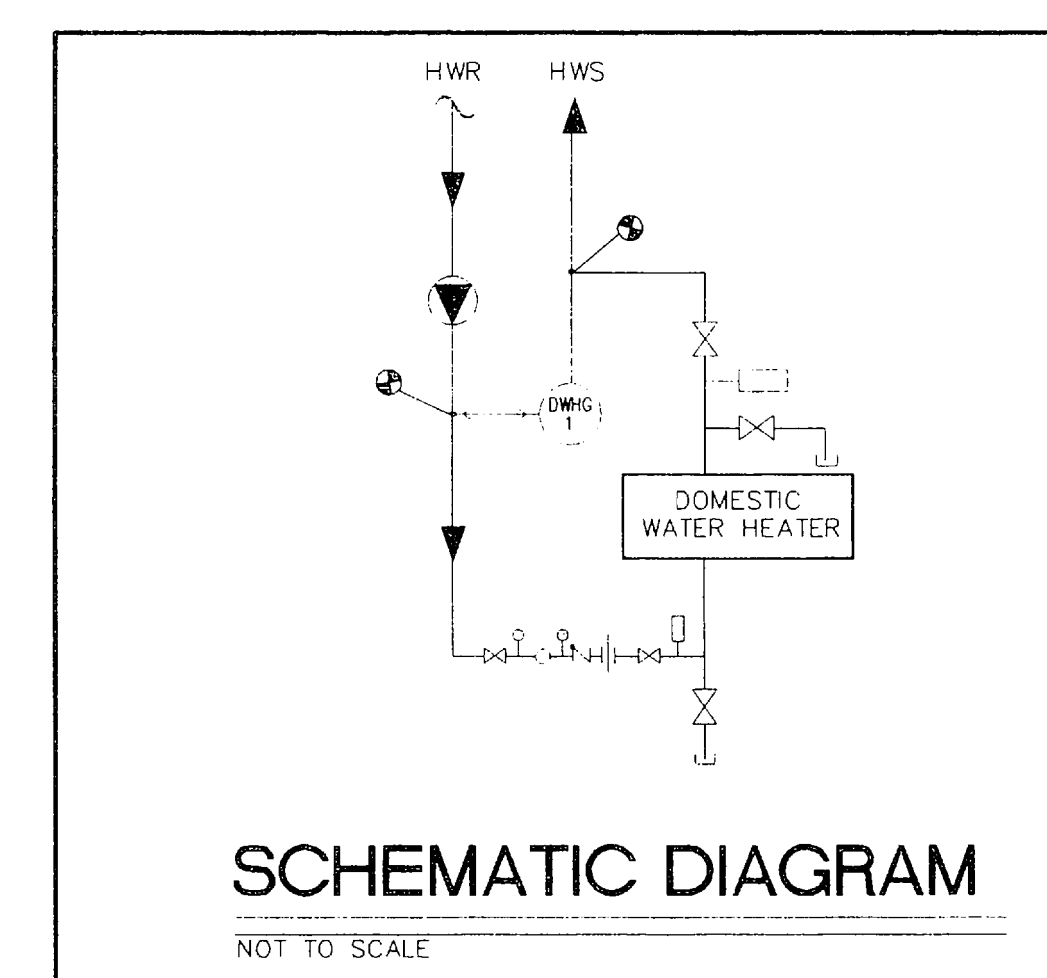
DETAIL

N.T.S.



GAS FIRED WATER HEATER PIPING DETAIL

NOT TO SCALE



SCHEMATIC DIAGRAM

NOT TO SCALE

GAS FIRED DOMESTIC HOT WATER HEATER SCHEDULE - (LANEY COLLEGE)

UNIT DESIGNATION	LOCATION	SERVICE	RECOVERY RATE			INPUT MBH	OUTPUT MBH	ELECTRICAL			REMARKS
			GPH	ENTER	LEAVES			V.	HZ.	PH.	
DMC 1	BLDG. "E" BOILER RM. 133	BLDG. "E"	672	40	140	700	560	120	60	1	ACE WATER HEATER MODEL B7G

NOTES:

1. APPROXIMATE BHP = 17; WT. 325 lbs. SEE STRUCTURAL DRAWING S-1, DETAIL (1) FOR ANCHOR REQUIREMENTS.
2. STANDARD OPERATING DATA: GPM = 26, HD. FT. = 8.3, DEGREE RISE = 43.
3. PROVIDE CIRCULATING PUMP, FLOW SWITCH, TANK AQUASTAT AND ALL RELATED ACCESSORIES FOR A COMPLETE SYSTEM.
4. THE DOMESTIC WATER HEATER IF SET FOR 140° F. FOR THE KITCHEN SHOULD HAVE ANTI-SCALD DEVICES TO PROTECT SHOWERS / LABS TO 115° F. OR 120° F. MAXIMUM TEMPERATURE.

CONSTRUCTION DOCUMENTS

NO.	DATE	DESCRIPTION
8	10/16/98	GAS PIPING TO STM. BOILER & DOM. WATER HTR.

REVISIONS

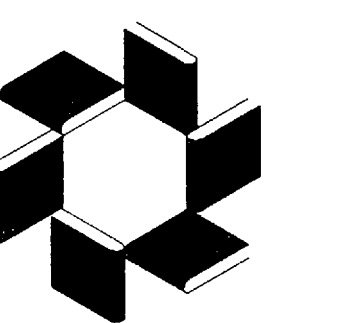
MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

JUN 22 1999

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



Client:



**Peralta Community
College District**

Project Name:
**MECHANICAL SYSTEMS MAINTENANCE
EQUIPMENT REPLACEMENT PROJECT**

Drawing Name:

**LANEY COLLEGE
DEMO AND NEW WORK
& SCHEDULES AND DETAILS**

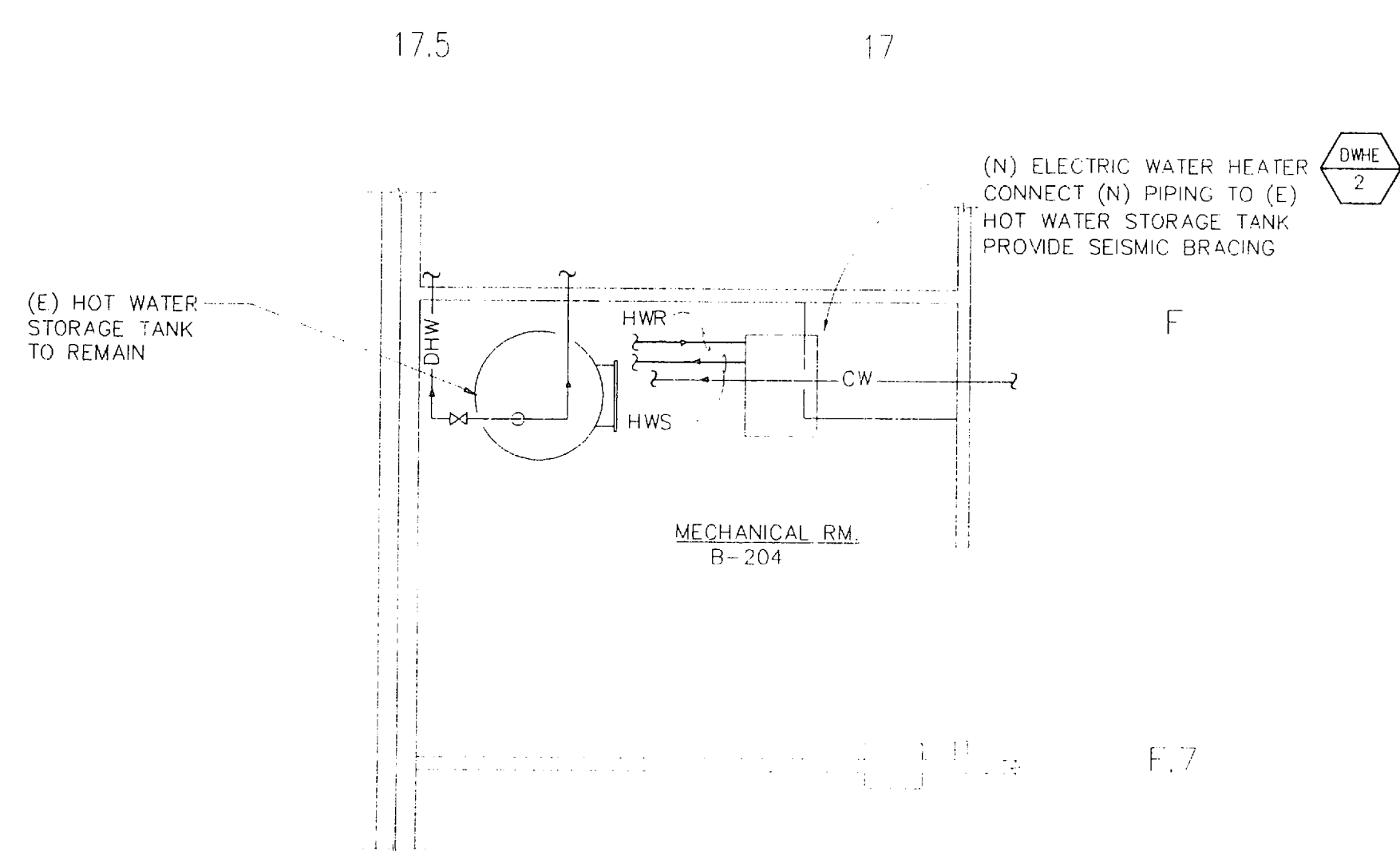
DATE: 5/26/98 JOB NO: 98-005

SCALE: NONE SHEET NO.

DRAWN BY: KLM **P-100**

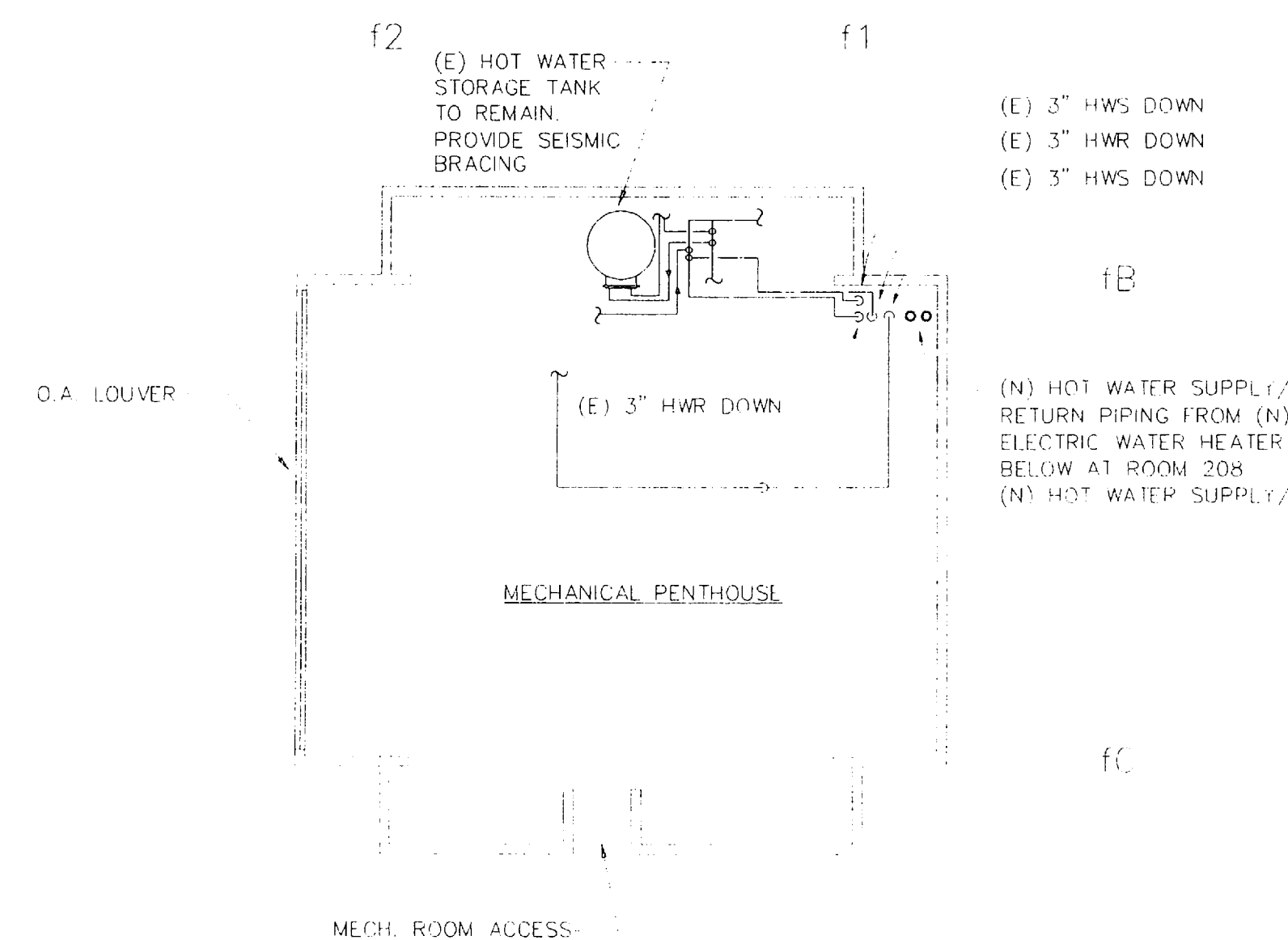
CHECKED BY: CAR

APPROVED BY: ECS



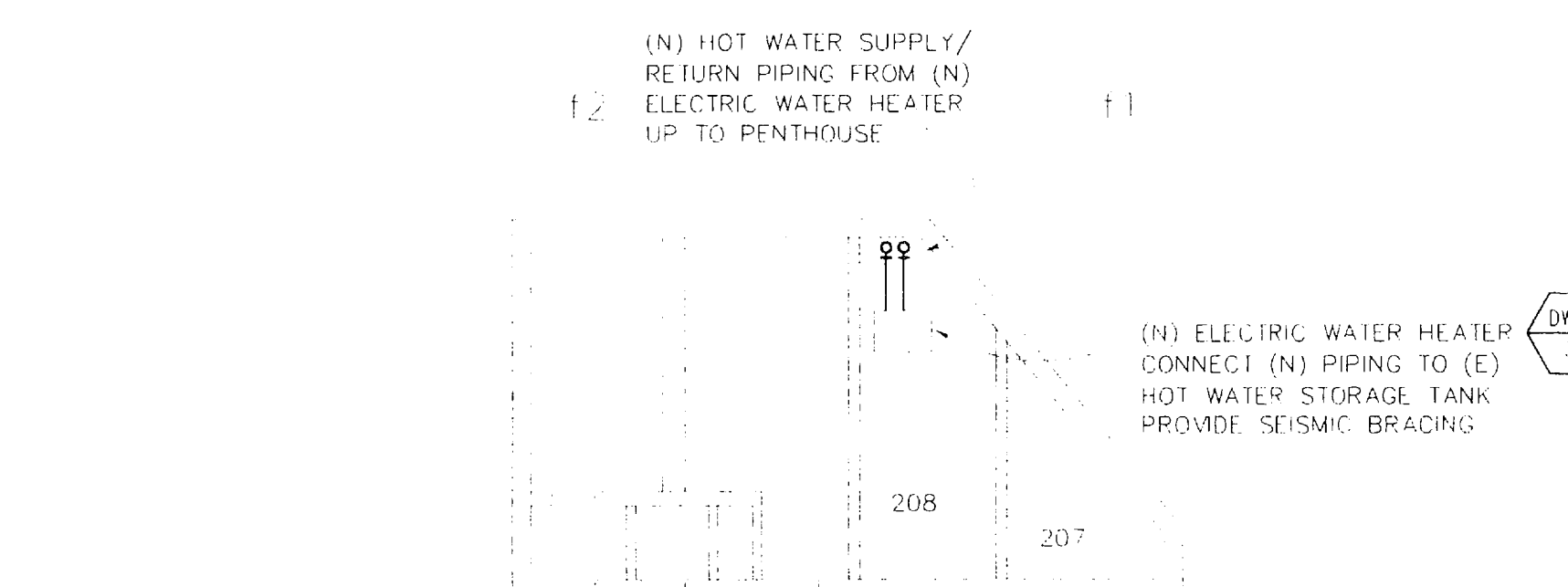
BUILDING 'B' - NEW WORK PARTIAL PLAN

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



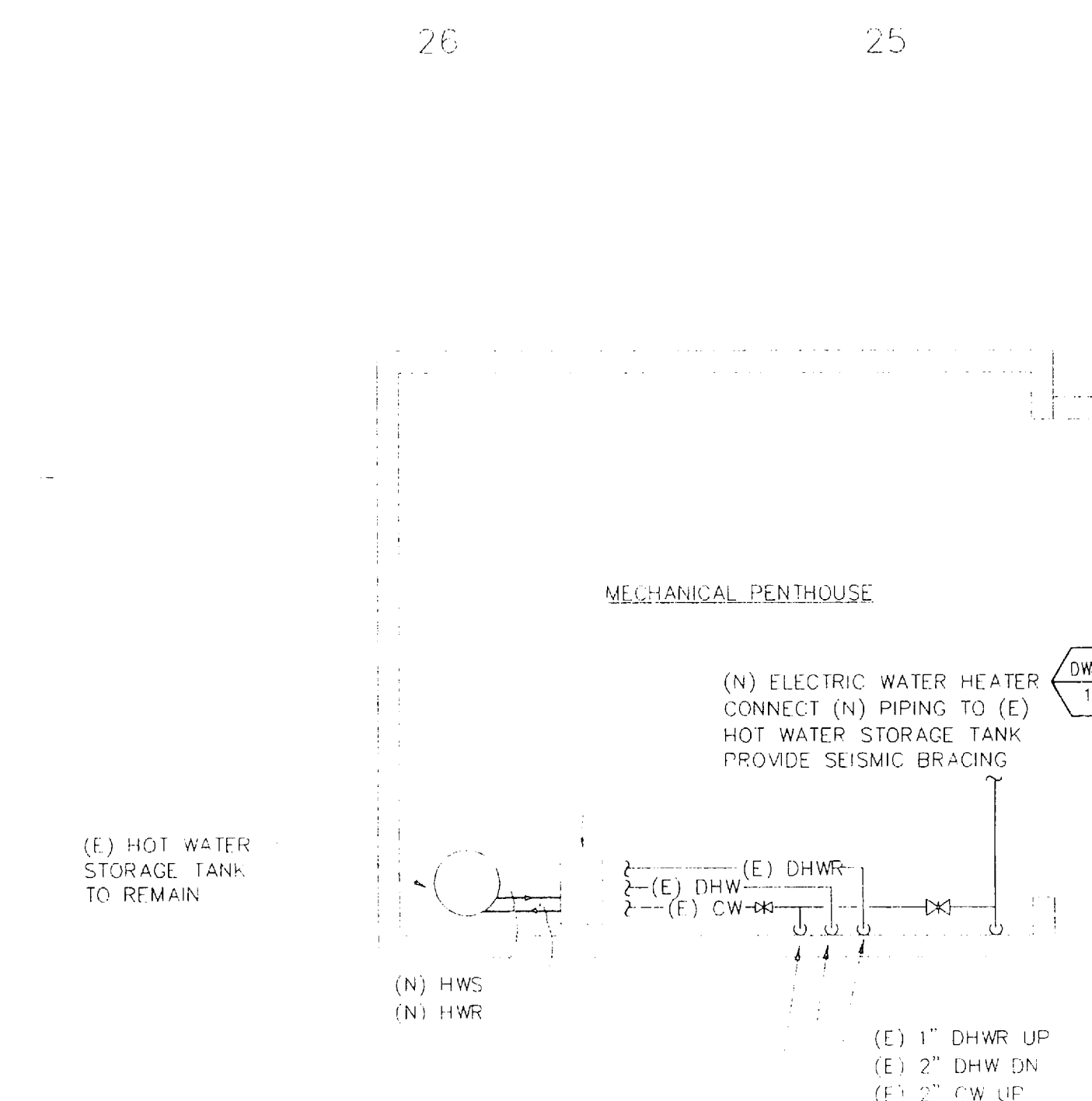
BUILDING 'F' - NEW WORK PARTIAL PLAN

SCALE: 1/8"=1'-0"



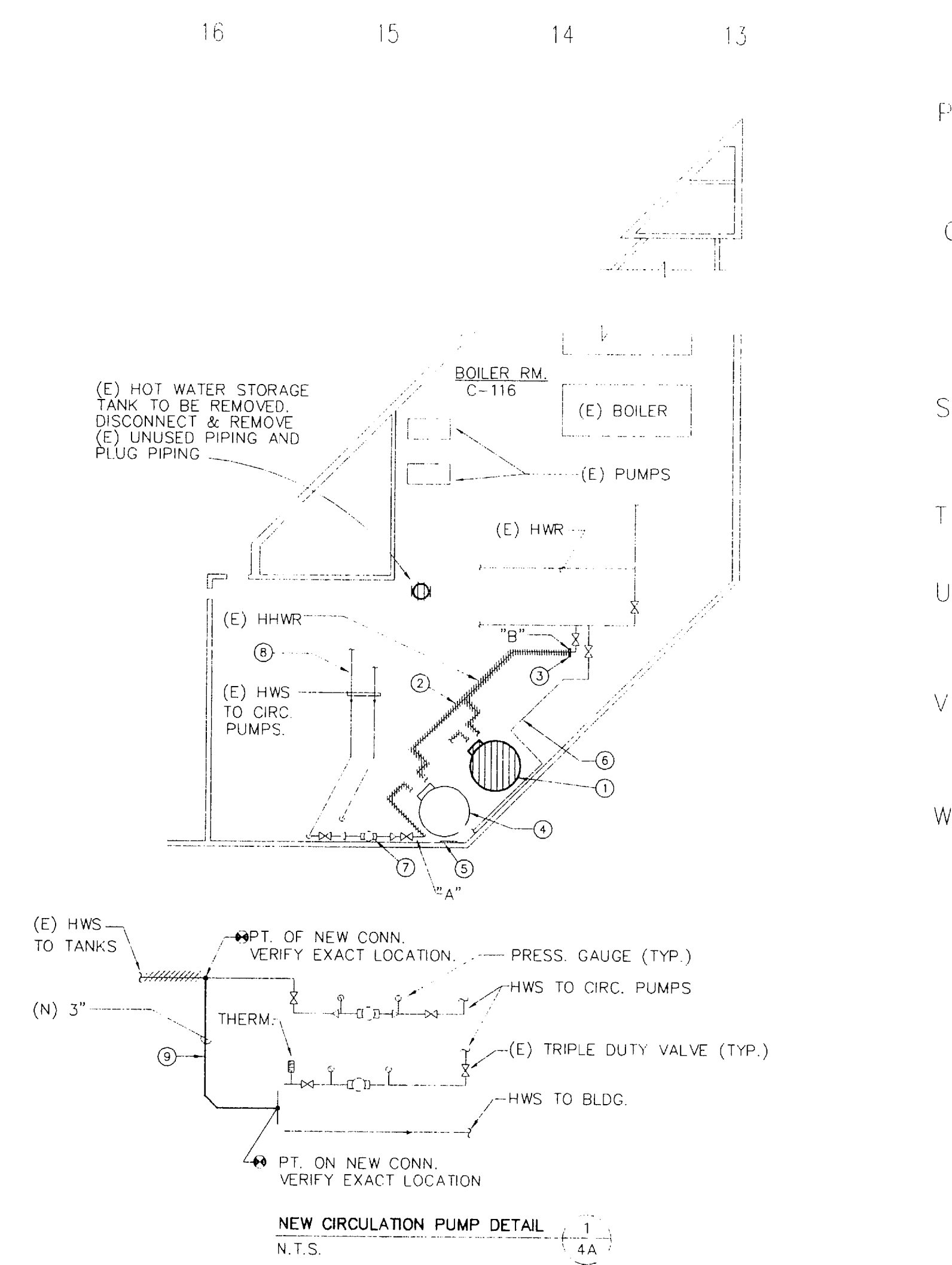
BUILDING 'F' - NEW WORK PARTIAL PLAN

SCALE: 1/8"=1'-0"



BUILDING 'A' - NEW WORK PARTIAL PLAN

SCALE: 1/8"=1'-0"

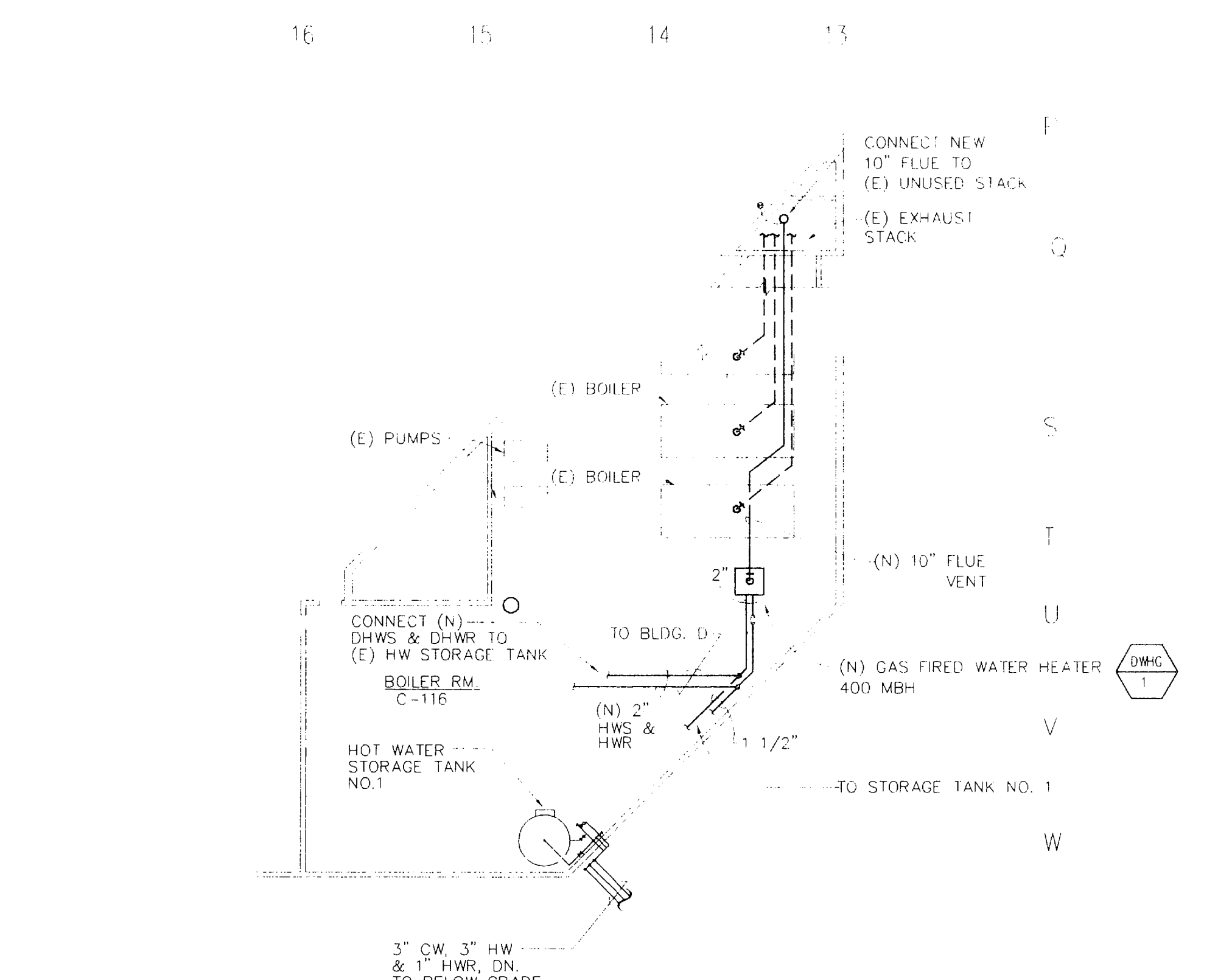


BUILDING 'C' - DEMOLITION WORK PARTIAL PLAN

SCALE: 1/16"=1'-0"

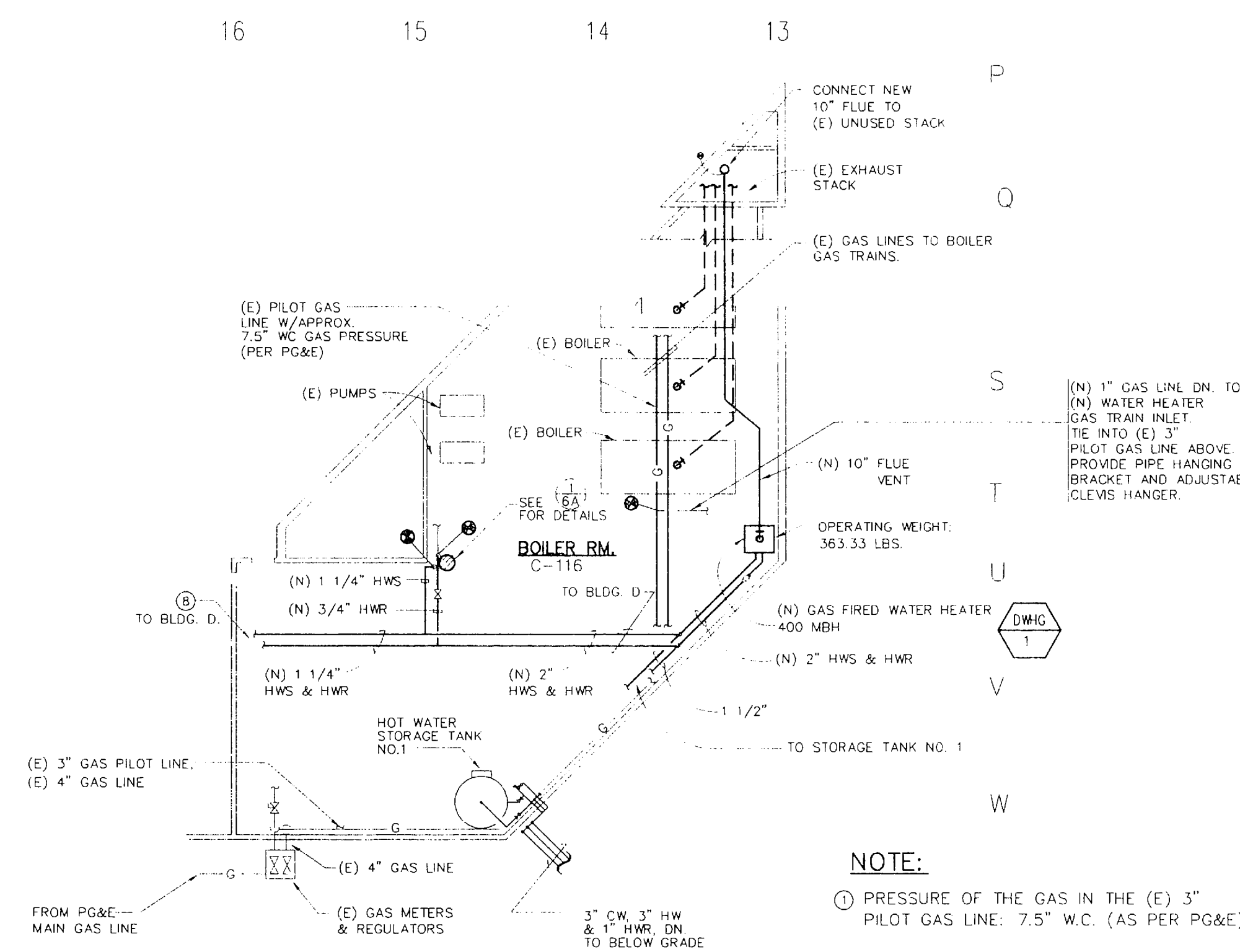
DEMOLITION NOTES:

- 1) DISCONNECT & REMOVE EXIST. HOT WATER STORAGE TANK NO. 2 AND ALL EXIST. UNUSED RELATED PIPING, CONTROLS & APPURTENANCES.
- 2) EXIST. HWR PIPING TO BE REMOVED FROM SUGGESTED PTS. "A" TO "B" AS INDICATED. VERIFY EXACT LOCATION IN FIELD.
- 3) PROVIDE CAP FOR FUTURE.
- 4) EXIST. H.W. STORAGE TANK NO.1 TO REMAIN. DISCONNECT & REMOVE ALL EXIST. UNUSED RELATED PIPING & APPURTENANCES. CAP EXIST. ELEMENT TUBE BUNDLE.
- 5) EXIST. ELECTRICAL WORKS/PANELS TO REMAIN.
- 6) EXIST. HWR LINE TO REMAIN.
- 7) EXIST. CIRCULATION PUMP (UPPER LEVEL) TO REMAIN. CONNECT (N) PIPING TO DISCHARGE SIDE OF EXIST. CIRCULATION PUMP (LOWER LEVEL) TO SERVE AS A BACK-UP UNIT. SEE NEW INSTALLATION DETAIL.
- 8) EXIST. HWS LINES FROM BOILERS TO REMAIN.
- 9) PROVIDE (N) 3" PIPING CONNECTION BETWEEN EXIST. CIRCULATION PUMPS.
- 10) REMOVAL WORK WILL BE CONFINED TO THE BOILER ROOM AND ADJACENT AREAS AND SHALL NOT CREATE DUST, DIRT OR OTHER INCONVENIENCES TO OTHER AREAS OF THE BUILDING.
- 11) REMOVAL WORK SHALL BE NOT INVOLVE INTERRUPTION OF HEATING WATER OR ELECTRIC SERVICES TO THE BUILDING WITHOUT APPROVAL OF OWNER.
- 12) REMOVAL WORK SHALL BE CONFINED TO NORMAL WORKING HOURS UNLESS OTHERWISE APPROVED.



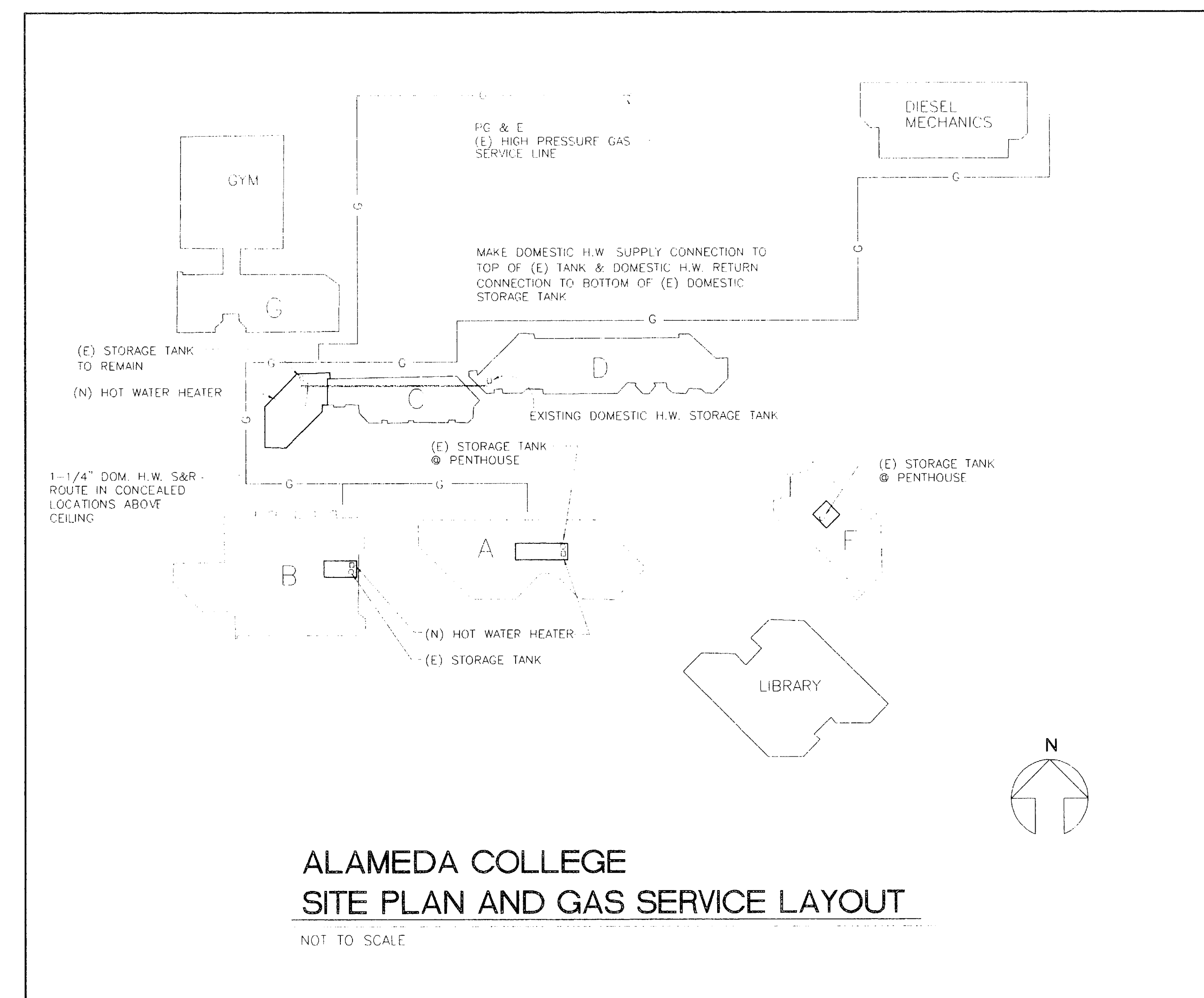
BUILDING 'C' - NEW WORK PARTIAL PLAN

SCALE: 1/16"=1'-0"



BUILDING 'C' - DEMO/NEW WORK PARTIAL PLANS

SCALE: 1/16"=1'-0"

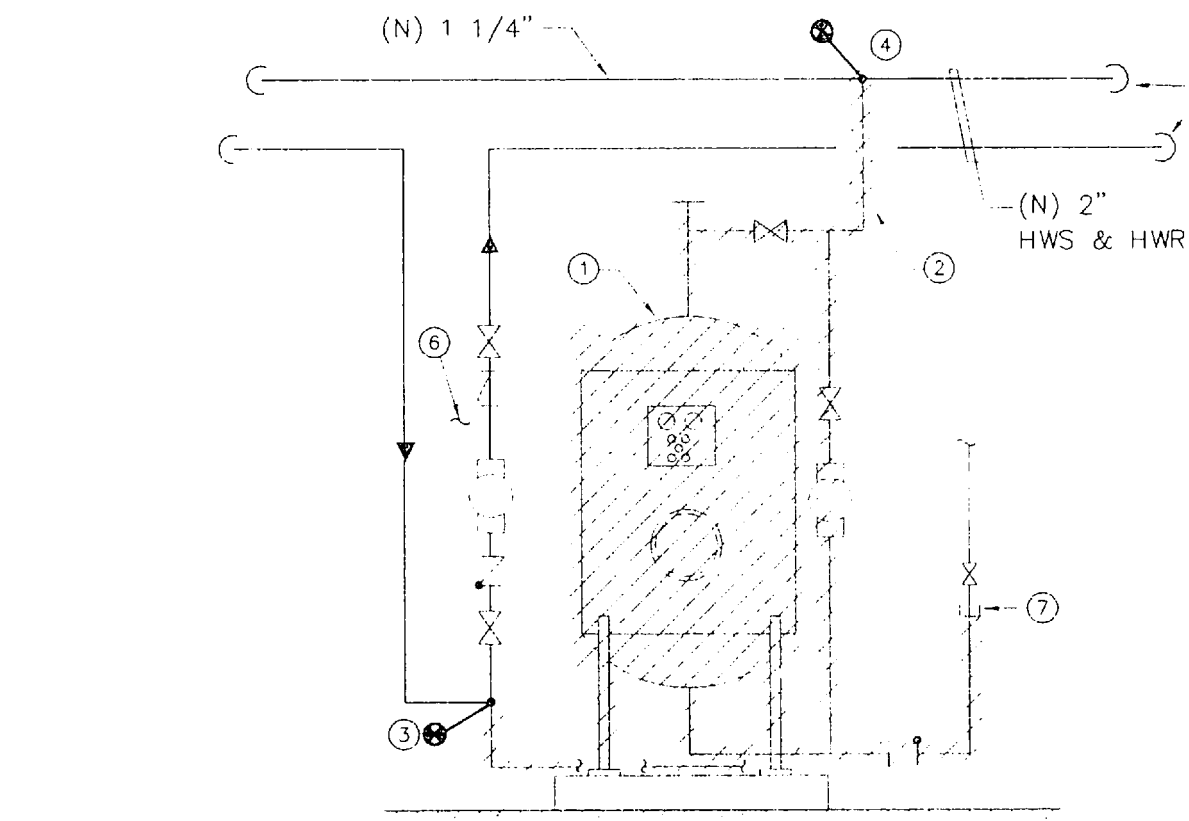


ALAMEDA COLLEGE SITE PLAN AND GAS SERVICE LAYOUT

NOT TO SCALE

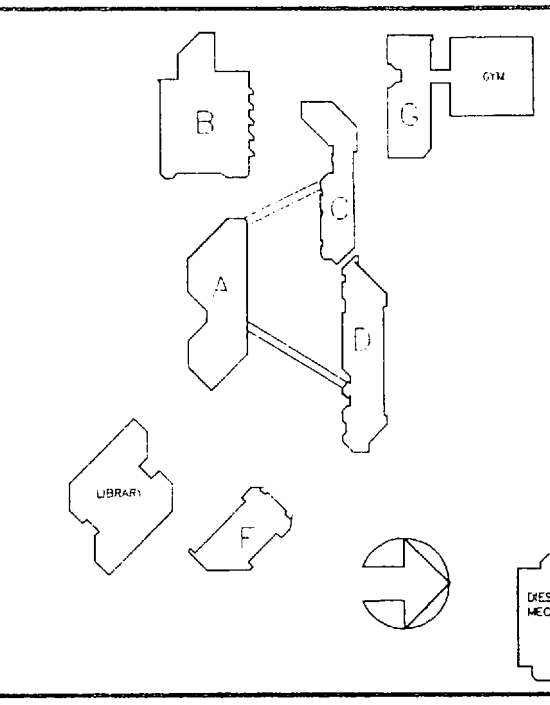
DEMOLITION NOTES:

- 1) DISCONNECT & REMOVE EXIST. HOT WATER STORAGE TANK AND ALL EXIST. UNUSED RELATED PIPING, CONTROLS & APPURTENANCES.
- 2) EXIST. HWS OUTLET TO BE REMOVED FROM TOP OF THE TANK. INCLUDING UNUSED RELATED PIPING, (E) CIRCULATING PUMP, CONTROLS AND APPURTENANCES. AS INDICATED. CAP (E) PIPING CONNECTIONS FROM BOILERS. VERIFY EXACT LOCATION IN FIELD.
- 3) SUGGESTED POINT OF CONNECTION OF (N) 3/4" HWR TO (E) HWR LINE. VERIFY EXACT LOCATION IN FIELD.
- 4) SUGGESTED POINT OF CONNECTION OF (N) 1 1/4" HWS TO (E) HWS LINE. VERIFY EXACT LOCATION IN FIELD.
- 5) (N) HWS & HWR LINES FROM BLDG. C TO BE CONNECTED TO THE (N) GAS FIRED DOMESTIC WATER HEATER.
- 6) (E) HWR LINE, INCLUDING (E) CIRCULATION PUMP, CONTROLS & APPURTENANCES TO REMAIN.
- 7) CAP (E) CW LINE FOR FUTURE USE.
- 8) (N) HWS & HWR LINES TO (E) HOT WATER STORAGE TANK IN BLDG. D.
- 9) REMOVAL WORK WILL BE CONFINED TO THE BOILER ROOM AND ADJACENT AREAS AND SHALL NOT CREATE DUST, DIRT OR OTHER INCONVENIENCES TO OTHER AREAS OF THE BUILDING.
- 10) REMOVAL WORK SHALL NOT INVOLVE INTERRUPTION OF HEATING WATER OR ELECTRIC SERVICES TO THE BUILDING WITHOUT APPROVAL OF OWNER.
- 11) REMOVAL WORK SHALL BE CONFINED TO NORMAL WORKING HOURS UNLESS OTHERWISE APPROVED.



H.W. STORAGE TANK & PIPING DEMO DETAIL

NOT TO SCALE



KEY PLAN

NO.	DATE	DESCRIPTION
6	10/9/98	Demolition Bldg. 'C' Demo/New Work Plan
4A	8/11/98	BLDG.'C' - (Piping locations new circ. pump detail)
3	4/21/98	Added Bldg. 'C' pipe sizes/ Located (e) & (s) DHW units

REVISIONS

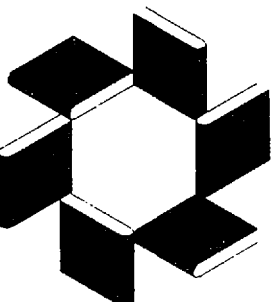
MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

JUN 22 1998

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 200
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



Client:



Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
ALAMEDA COLLEGE - DEMOLITION WORK FLOOR PLANS

DATE: 5/26/98 JOB NO: 98-005

SCALE: AS SHOWN SHEET NO.

DRAWN BY: KLM **P-200**

CHECKED BY: CAR

APPROVED BY: ECS

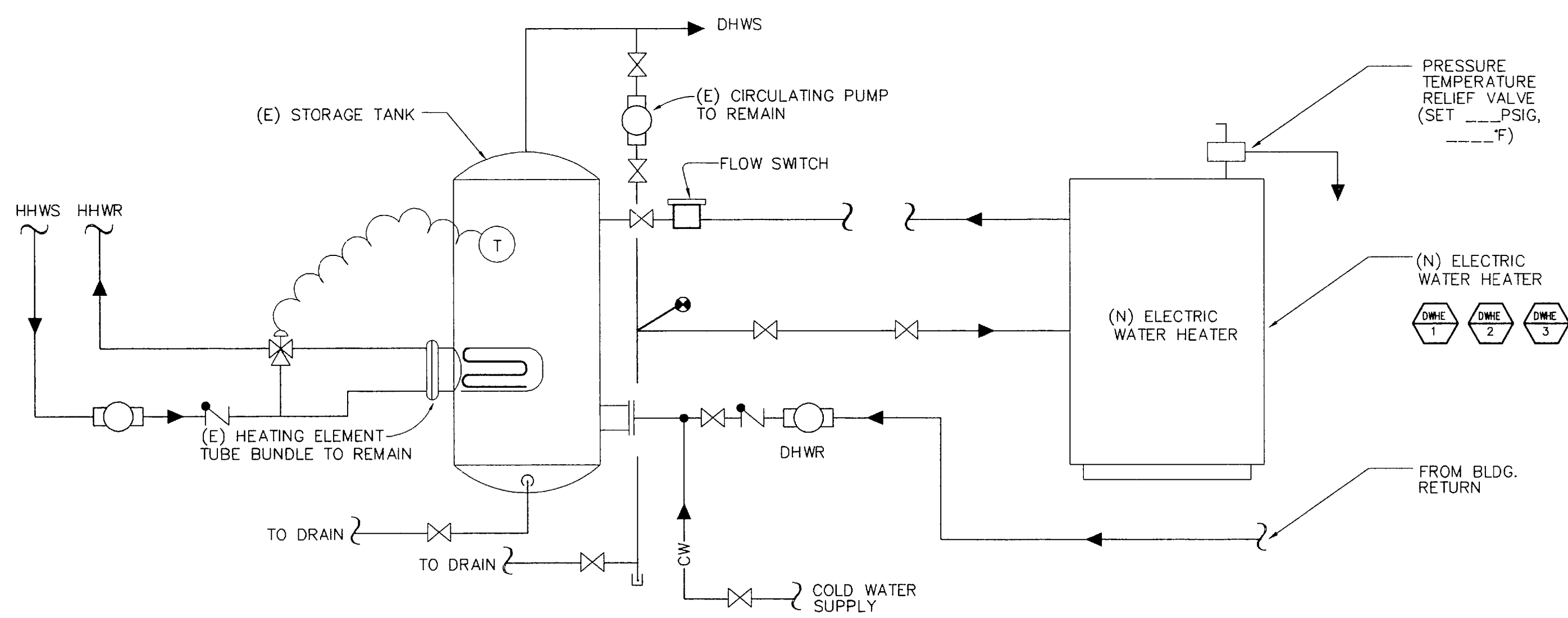
CONSTRUCTION DOCUMENTS

ELECTRIC DOMESTIC HOT WATER HEATER SCHEDULE - (COLLEGE OF ALAMEDA)

UNIT DESIGNATION	LOCATION	SERVICE	RECOVERY RATE			INPUT KW	ELECTRICAL			REMARKS	OPERATING WEIGHT (LBS.)
			GPH	ENTER	LEAVES		V.	HZ.	PH.		
DWE 1	BLDG. A	BLDG. A	50	40	140	12	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275
DWE 2	BLDG. B	BLDG. B	40	40	140	12	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275
DWE 3	BLDG. F	BLDG. F	40	40	140	24	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275

NOTES:

1. SHELL MATERIAL TO BE SOLID COPPER SILICON REQUIRING NO LINING, 150 PSIG WP.
2. HEATERS TO INCLUDE MAGNETIC CONTRACTORS, FLOW SWITCH FOR OVERTEMPERATURE CUT-OUT CONTROL, LIGHTED ON / OFF SWITCH, & SAFETY HI-TEMP CUT-OFF WITH MANUAL RESET.
3. OPERATING TEMPERATURE RANGE TO BE MANUALLY ADJUSTABLE FOR 100° F TO 180° F.
4. INSULATION TO MEET ASHRAE STANDARD 90 A, ENCLOSED IN A 304 STAINLESS STEEL JACKET.
5. MANUFACTURER TO PROVIDE APPROVED MEANS FOR SEISMIC RESTRAINT.
6. HEATERS TO BE FACTORY WIRED AND TESTED.



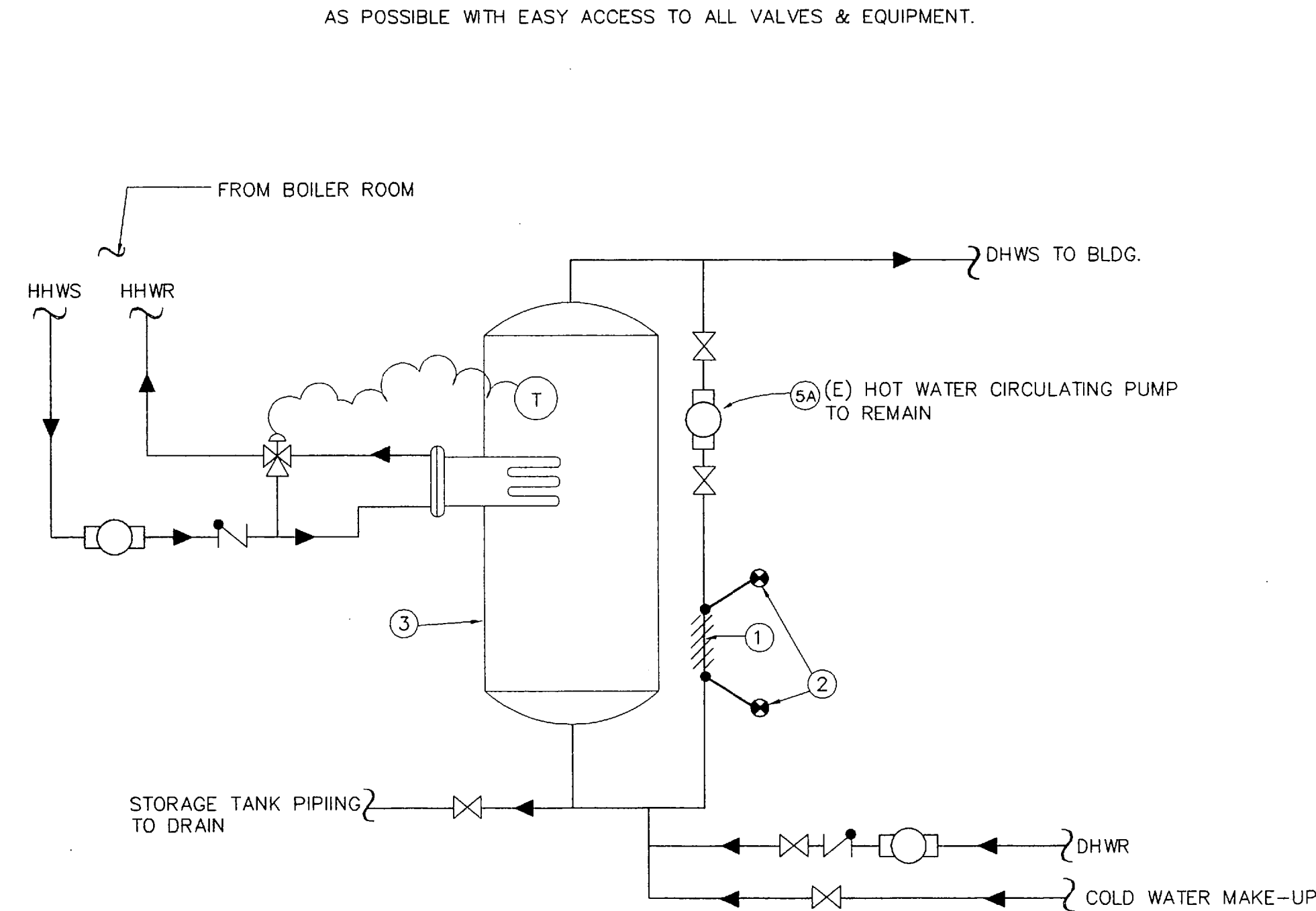
ELECTRIC WATER HEATER PIPING DIAGRAM

NOT TO SCALE

1 P-201

NOTES:

1. ELECTRICAL WATER HEATER TO BUS USE ONLY WHEN BOILERS ARE OFF.
2. THE PIPING ARRANGEMENT SHALL BE NEATLY AS CLOSE TO WALL & HEATER AS POSSIBLE WITH EASY ACCESS TO ALL VALVES & EQUIPMENT.



DEMO WORK PLAN

NOT TO SCALE

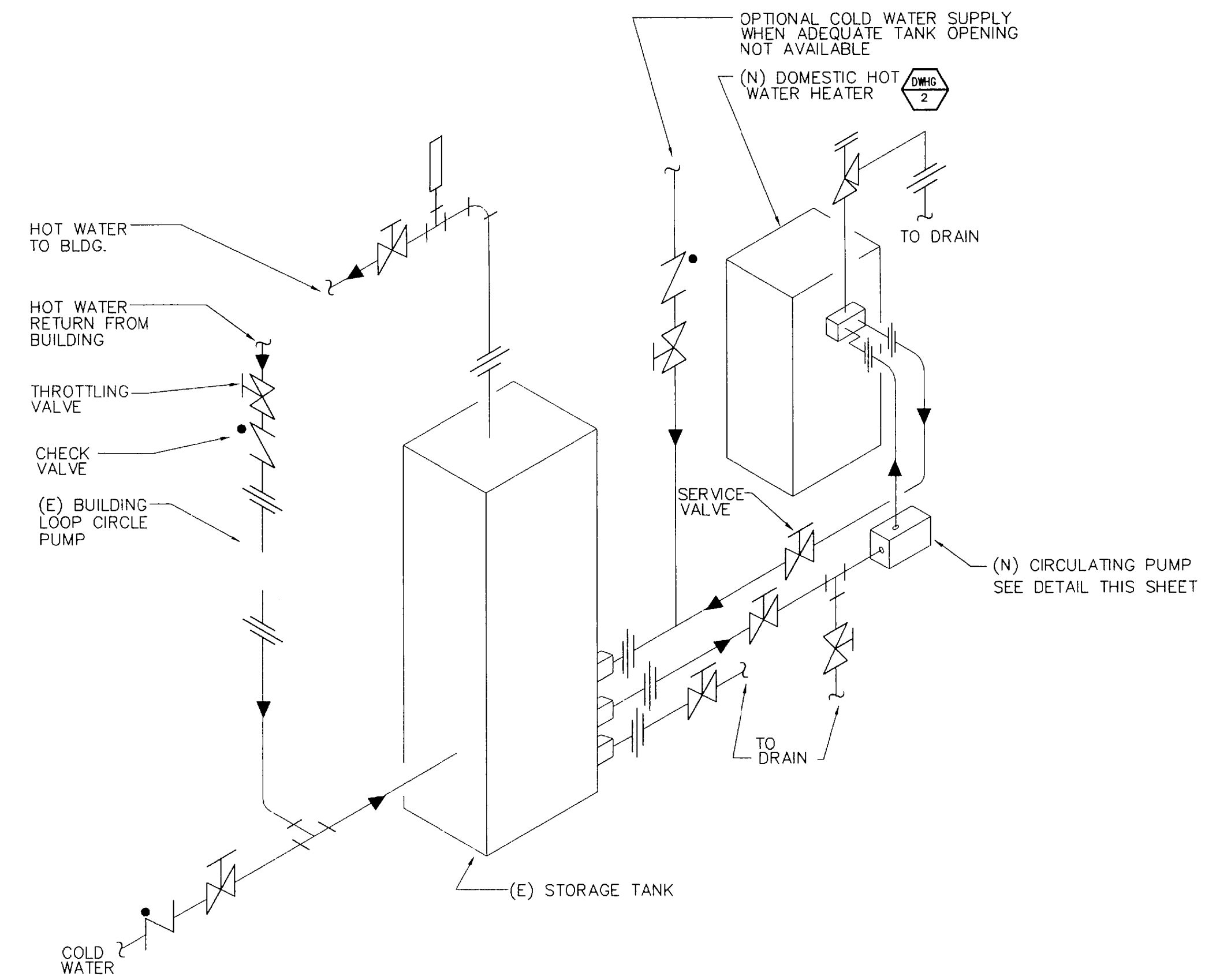
1 7A

GAS FIRED DOMESTIC HOT WATER HEATER SCHEDULE - (COLLEGE OF ALAMEDA)

UNIT DESIGNATION	LOCATION	SERVICE	RECOVERY RATE			INPUT MBH	OUTPUT MBH	ELECTRICAL			REMARKS
			GPH	ENTER	LEAVES			V.	HZ.	PH.	
DWHG 2	BOILER RM. BLDG. C	BLDG. C, D & GYM	389	40	140	400	324	120	60	1	RAYPAK MODEL SIZE 400

NOTES:

1. PROVIDE CIRCULATING PUMP, FLOW SWITCH, TANK AQUASTAT AND RELATED ACCESSORIES FOR A COMPLETE SYSTEM.
2. SHIPPING WT. = 360 lbs.



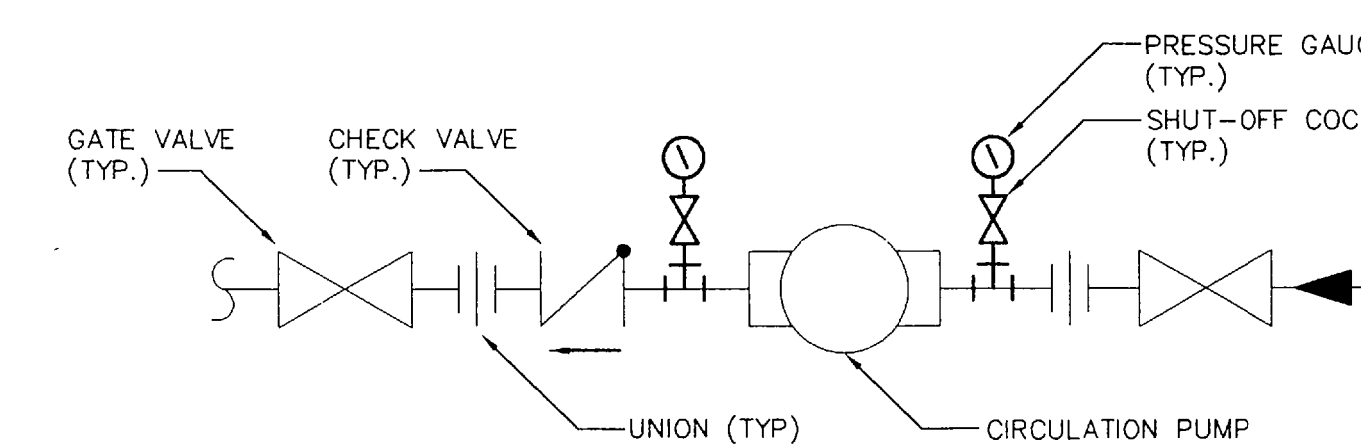
GAS FIRED WATER HEATER PIPING - DETAIL

NOT TO SCALE

2 P-201

NOTES:

1. PLUMB SWING CHECK VALVE IN GRAVITY CLOSED POSITION.
2. PIPE ALL RELIEF VALVES TO DRAIN, OR AS LOCAL CODES REQUIRE.
3. LOCATE TEE AS CLOSE AS POSSIBLE TO TANK.
4. PROVIDE TEMPERATURE/PRESSURE RELIEF VALVE IN THE TANK.
5. MINIMUM PIPE SIZE BETWEEN HEATER AND TANK TO BE EQUAL TO HEATER INLET/OUTLET CONNECTION.
6. CONNECT GAS TO (N) HEATER GAS TRAIN INLET.
7. FOR EXACT SIZE AND ARRANGEMENT OF PIPING AND EQUIPMENT SEE PIPING FLOOR PLANS.



HOT WATER CIRCULATION PUMP DETAIL

NOT TO SCALE

3 P-201

CONSTRUCTION NOTES:

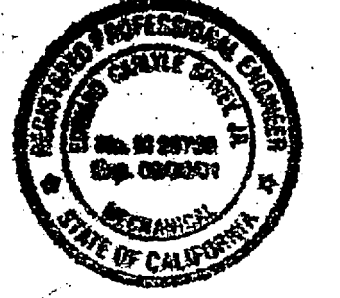
- 1 REMOVE HOT WATER PIPING TO POINT OF DISCONNECT.
- 2 SUGGESTED POINTS OF DISCONNECT. VERIFY EXACT LOCATIONS IN FIELD
- 3 EXISTING HOT WATER STORAGE TANK TO REMAIN. (TYP)
- 4 HEATING ELEMENT TUBE BUNDLE, EXISTING HHWS & HHWR PIPING FROM BOILER PLANT AND ASSOCIATED CONTROLS, VALVES TO REMAIN.
- 5A FOR COLLEGE OF ALAMEDA : REUSE EXISTING HOT WATER CIRCULATION PUMPS. (TYP.3)
- 6 SUGGESTED POINTS OF CONNECTIONS. VERIFY EXACT LOCATIONS IN FIELD.
- 7 THE FOLLOWING MINIMUM PIPE SIZES BETWEEN TANK & HEATER SHALL BE PROVIDED: DWHE-1=3/4"; DWHE-2=3/4"; DWHE-3=3/4"; DWHE-4=3/4"; DWHE-5=3/4"; DWHE-6=3/4"
- 8 PROVIDE NEW ELECTRIC WATER HEATERS. (TYP.) SEE SCHEDULE DWG. P-201
- 9 THE WORK ON THESE DRAWINGS IS GENERALLY DIAGRAMMATIC AND IS INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, PIPING, ETC. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PERFORM THOROUGH FIELD SURVEYS OF EXISTING SITE CONDITIONS.
- 10 REMOVAL WORKS SHALL NOT INVOLVE INTERRUPTION OF HEATING WATER OR ELECTRIC SERVICES TO THE BLDG. W/OUT APPROVAL OF OWNER.

NO.	DATE	DESCRIPTION
7	10/12/98	(N) ELECTRIC H.W. HEATERS PTS. OF CONN.

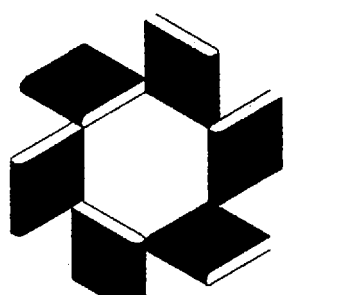
REVISIONS

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1371 OAKLAND BLVD., SUITE 102
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



Client:



Peralta Community College District

Project Name:

MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:

COLLEGE OF ALAMEDA - SCHEDULES AND DETAILS

DATE: 5/26/98

JOB NO: 98-005

SCALE: NONE

SHEET NO.

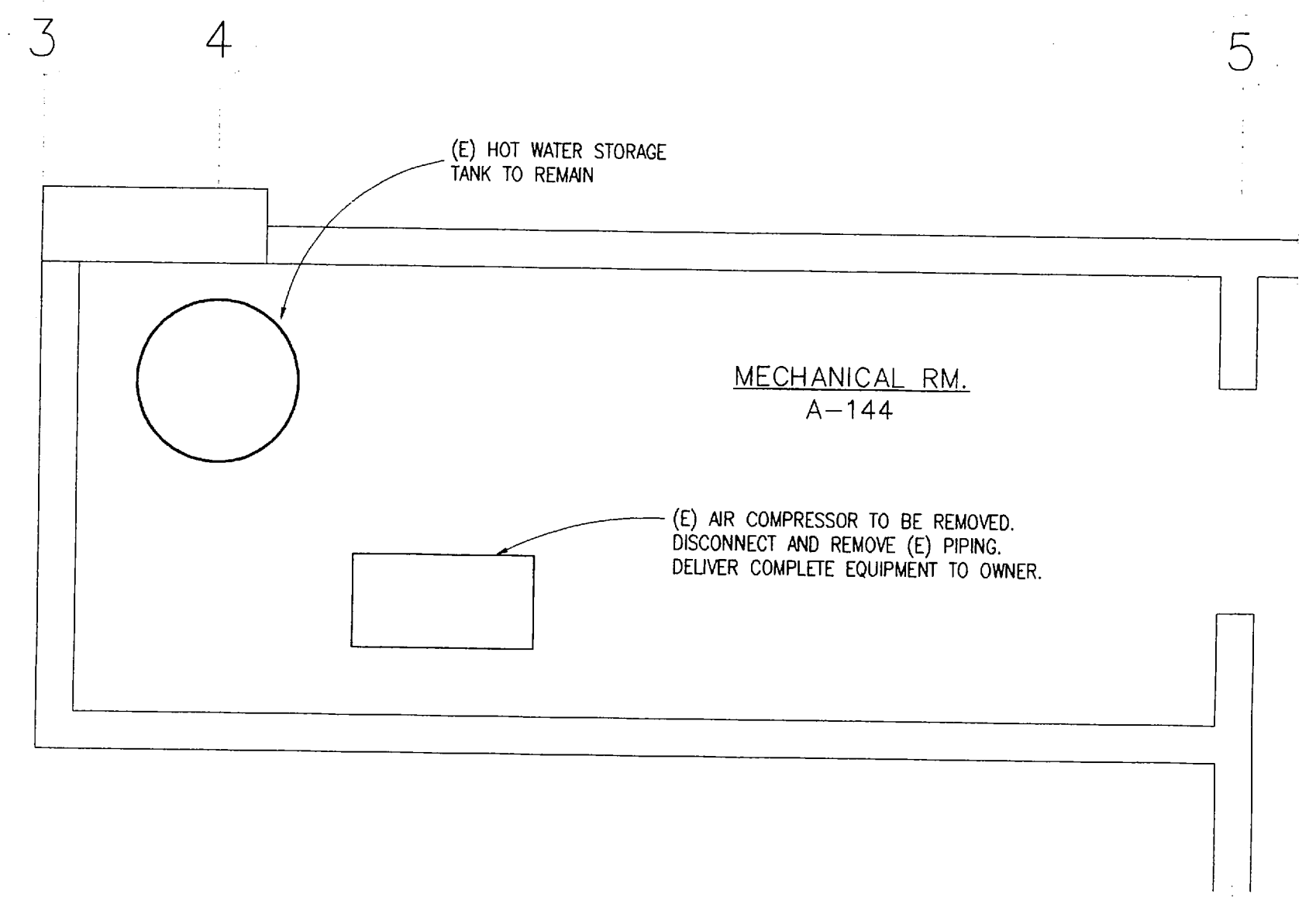
DRAWN BY: KLM

CHECKED BY: CAR

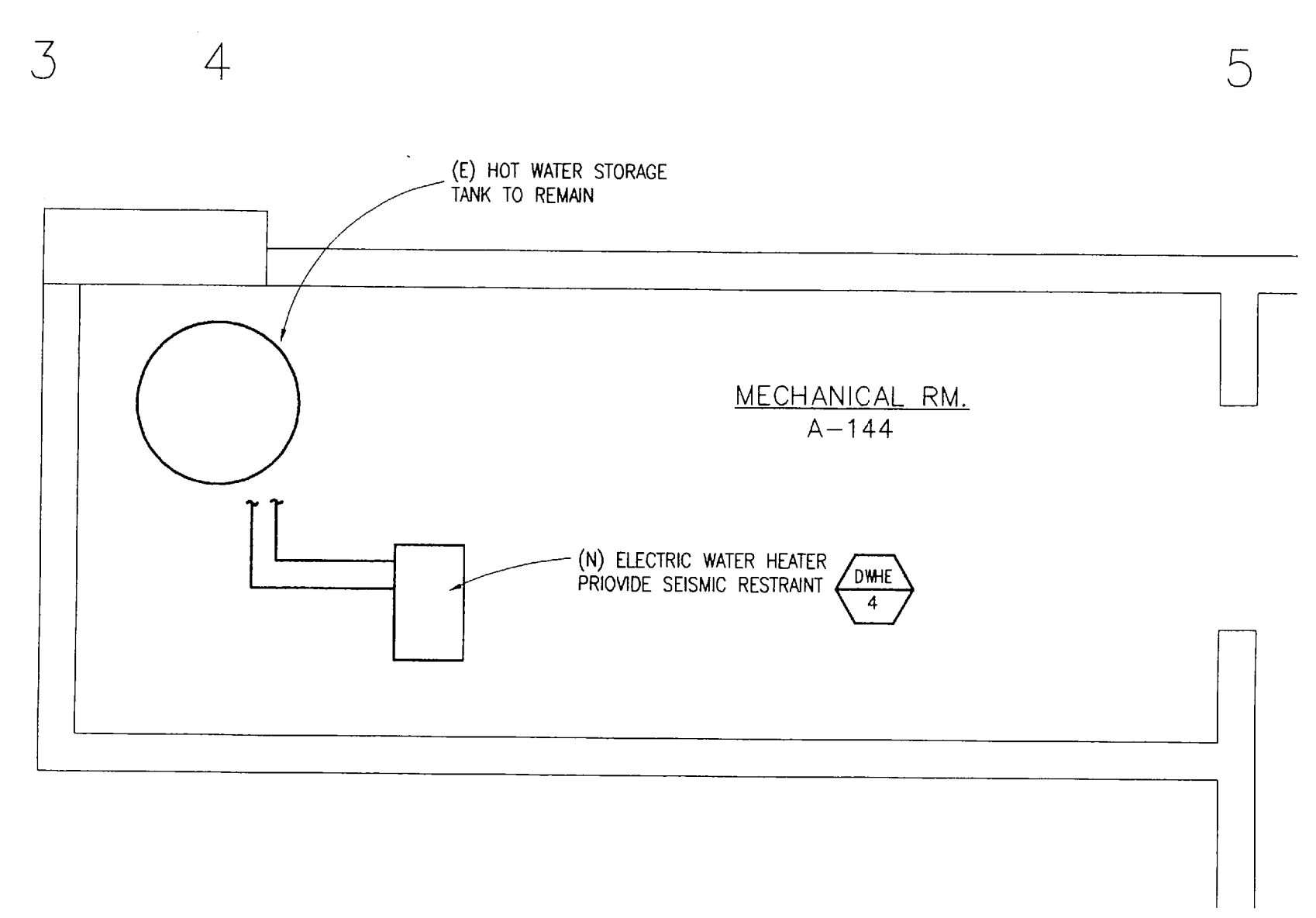
APPROVED BY: ECS

P-201

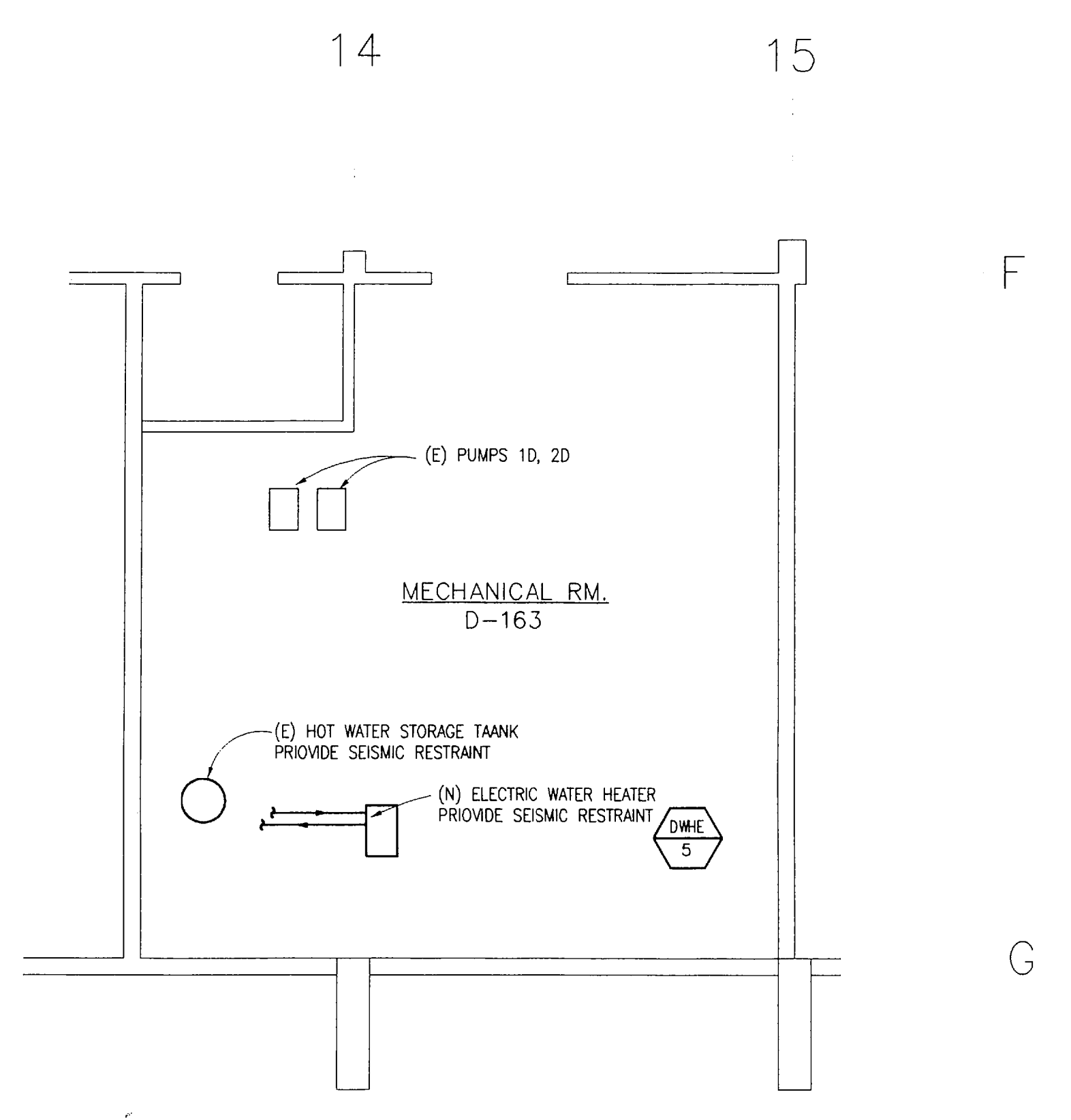
CONSTRUCTION DOCUMENTS



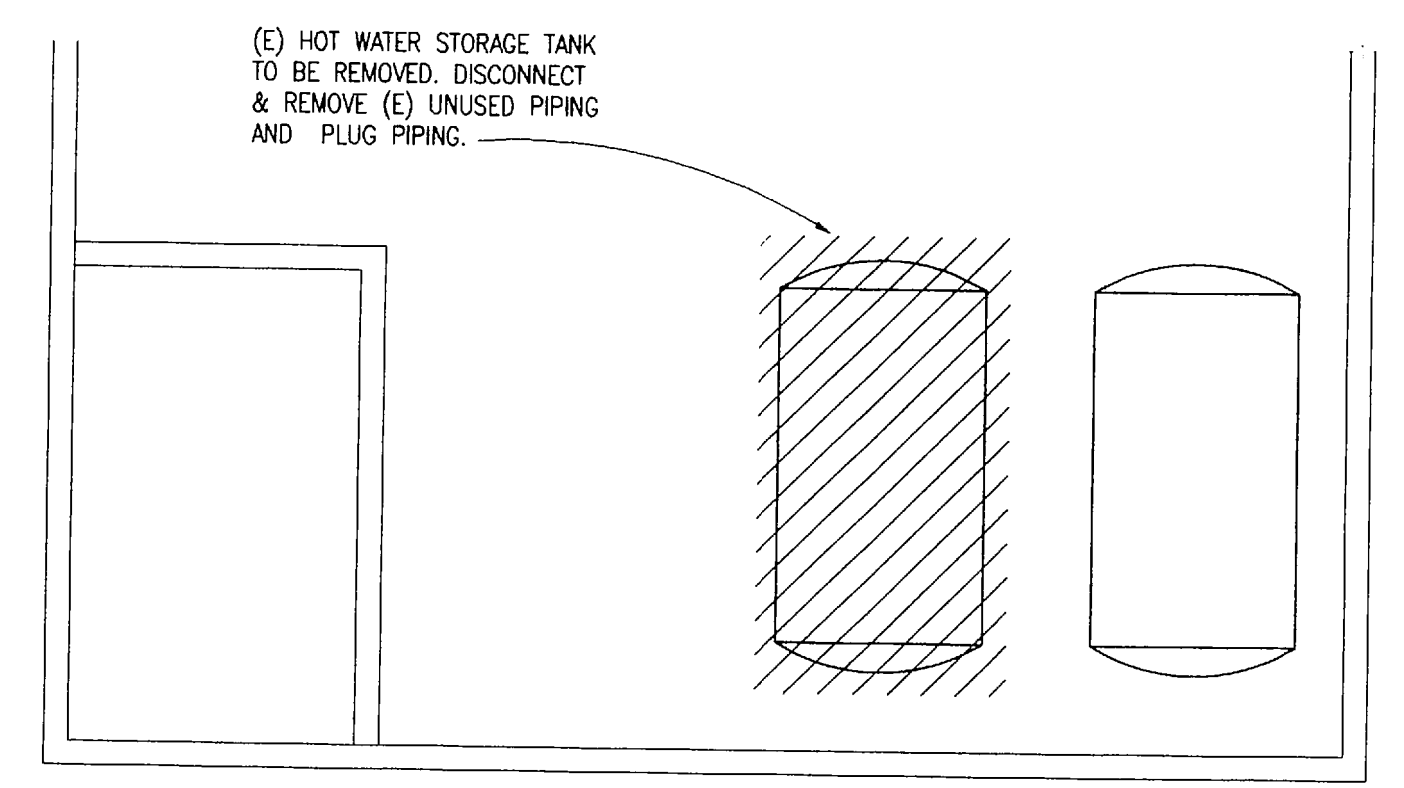
BUILDING 'A' - DEMOLITION WORK PARTIAL PLAN
SCALE: 1/2"=1'-0"



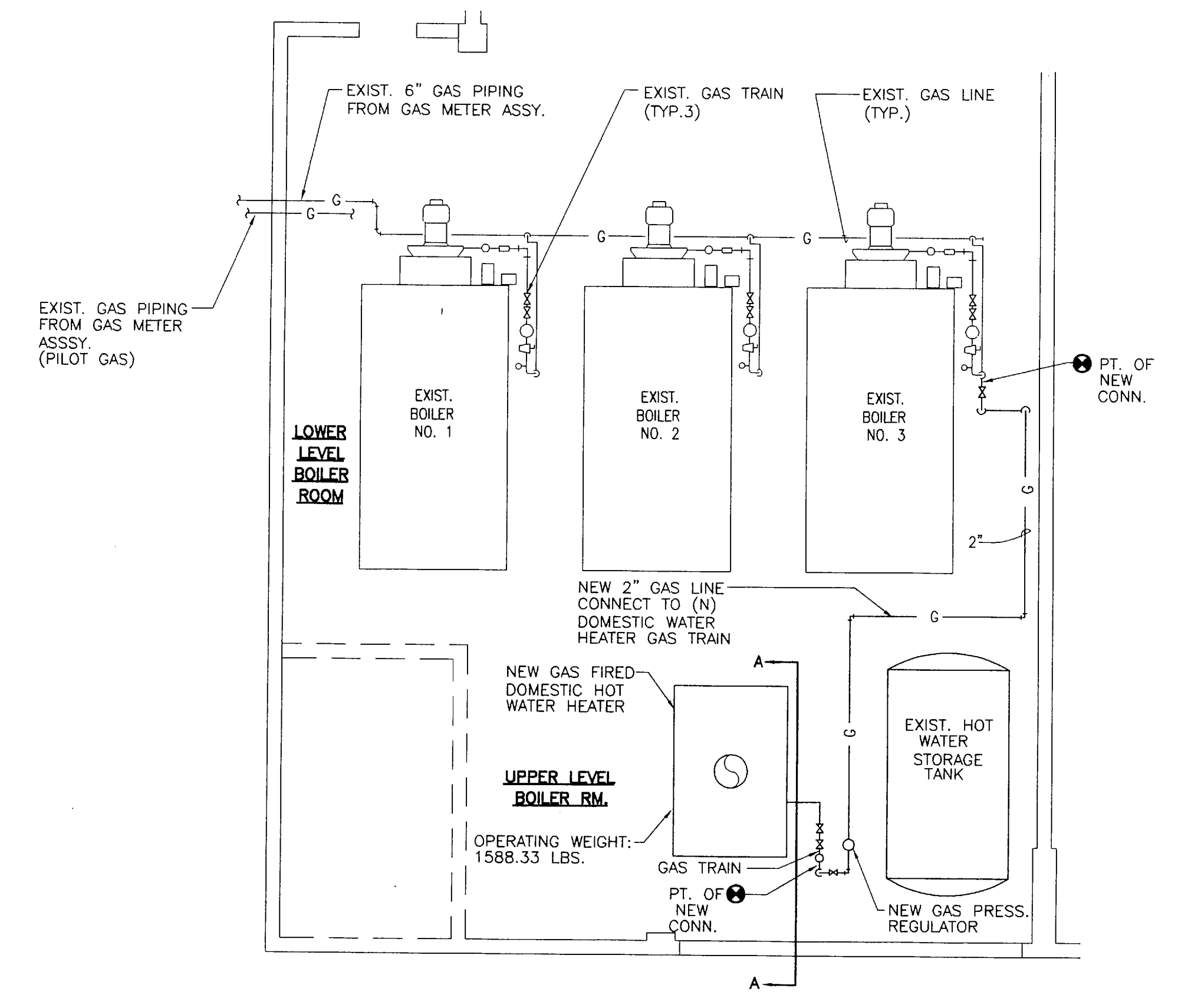
BUILDING 'A' - NEW WORK PARTIAL PLAN
SCALE: 1/2"=1'-0"



BUILDING 'D' - NEW WORK PARTIAL PLAN
SCALE: 1/4"=1'-0"



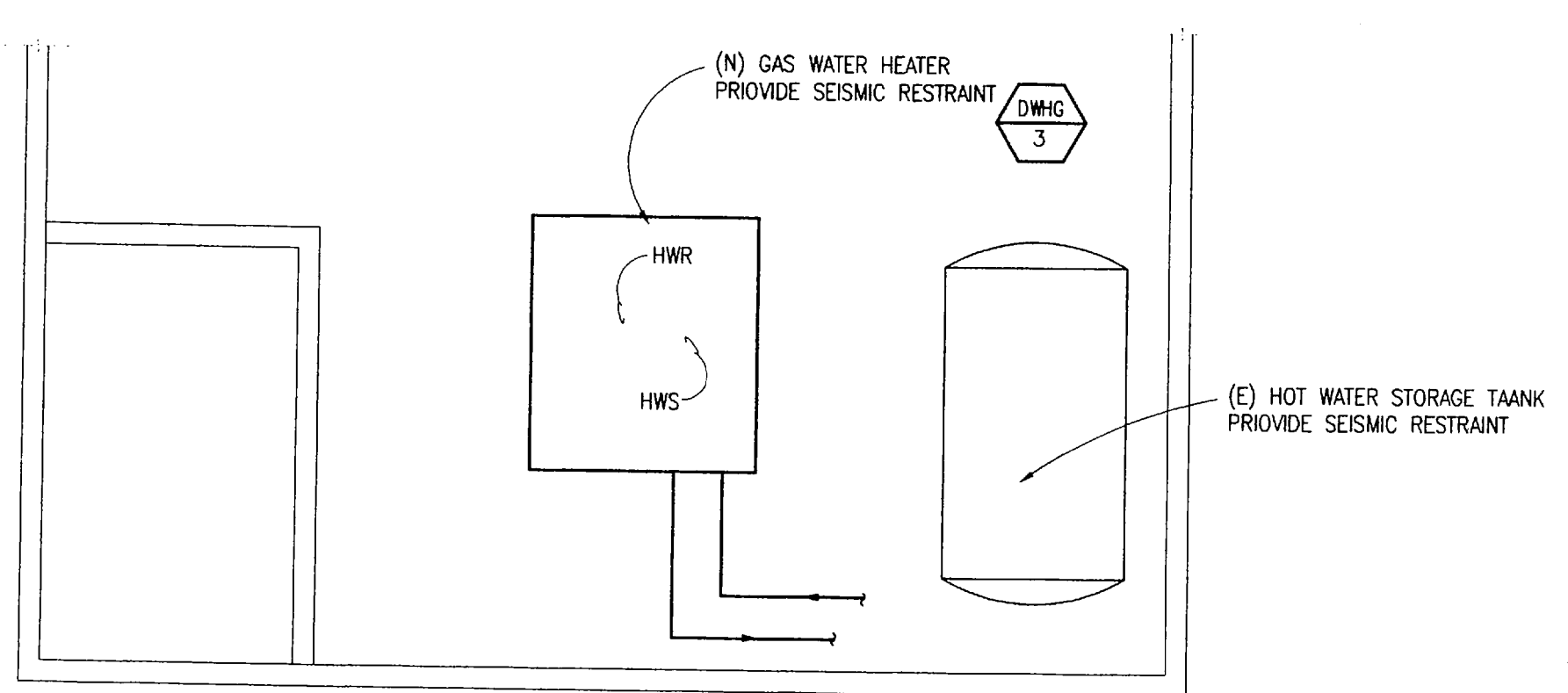
BUILDING 'F' - DEMOLITION WORK BOILER ROOM PARTIAL PLAN
SCALE: 1/4"=1'-0"



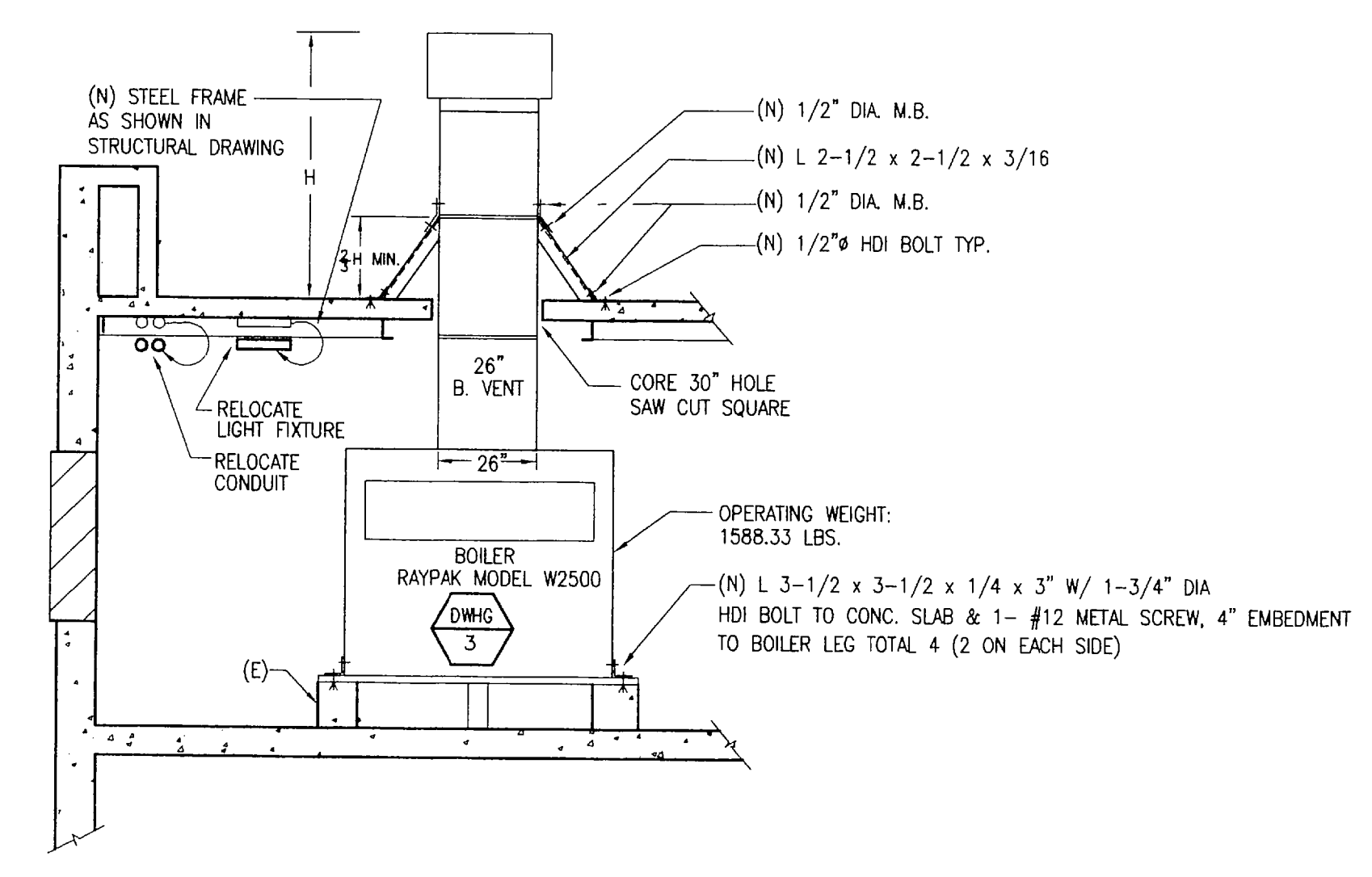
BUILDING 'F' - NEW WORK BOILER ROOM
SCALE: 1/4"=1'-0"

GENERAL NOTES:

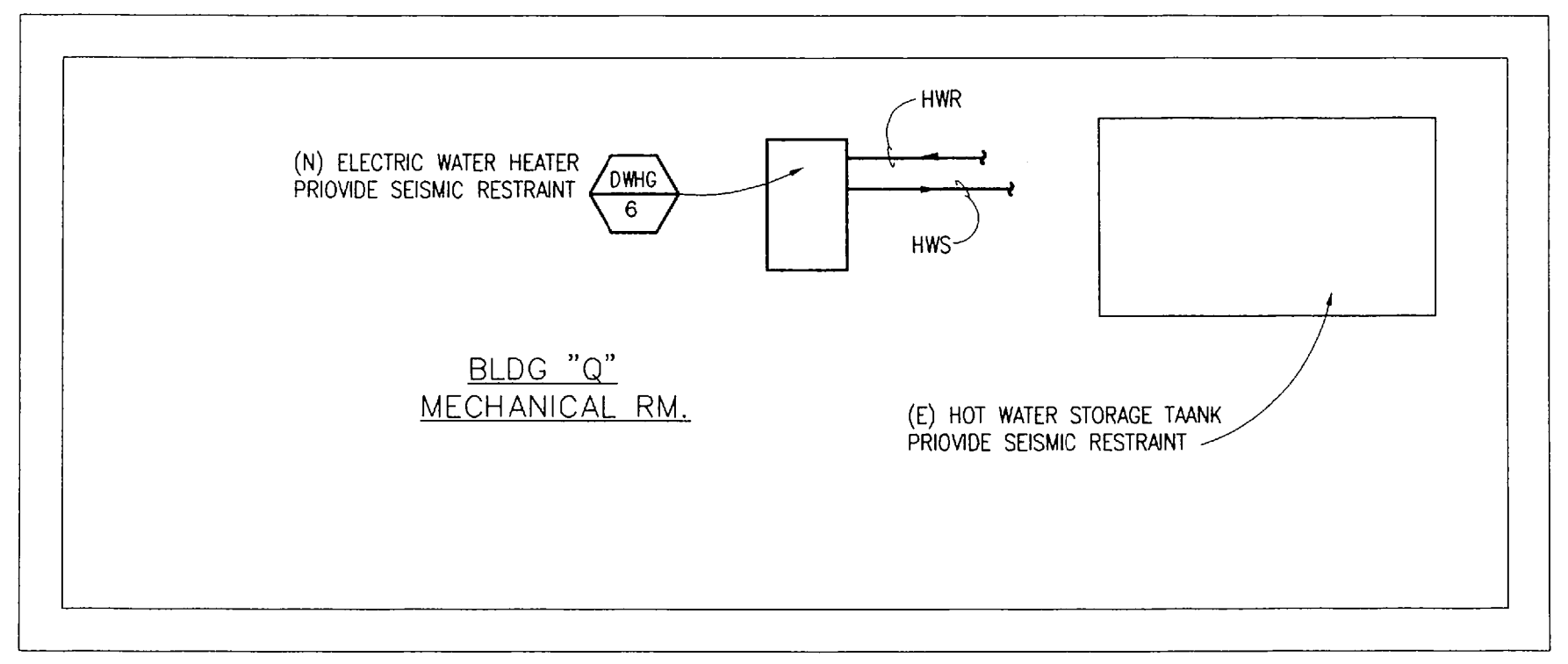
1. PROVIDE THERMOMETERS ON INLET AND OUTLET OF WATER HEATER AS PER SPEC SECTION 1555B-7.
2. CONNECT GAS SUPPLY TO GAS LINE WITH DRIP LEG, TEE, GAS COCK, AND UNION; FULL SIZE OF UNIT INLET CONNECTION. LOCATE PIPING SO AS NOT TO INTERFERE WITH SERVICE OF UNIT.
3. CONNECT FLUE TO DRAFT HOOD OF GAS FIRED WATER HEATER WITH GAS TIGHT CONNECTION. PROVIDE FLUE OF MINIMUM SIZE AS FLUE OUTLET ON HEATER. COMPLY WITH GAS UTILITY REQUIREMENTS. THE FLUE SHALL GO STRAIGHT UP THROUGH THE ROOF. FLASH ROOF PENETRATION. PROVIDE TYPE B VENTING SYSTEM WHICH SHALL BE DESIGNED AND CONSTRUCTED TO DEVELOP A POSITIVE FLOW ADEQUATE TO CONVEY ALL PRODUCTS OF COMBUSTION TO OUTSIDE ATMOSPHERE. TYPE B GAS VENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE VENT SHALL EXTEND ABOVE THE ROOF SURFACE THROUGH A FLASHING, AND TERMINATE IN AN APPROVED OR LISTED VENT CAP WHICH SHALL BE INSTALLED ACCORDING TO ITS LISTING AND MANUFACTURER'S INSTRUCTIONS.



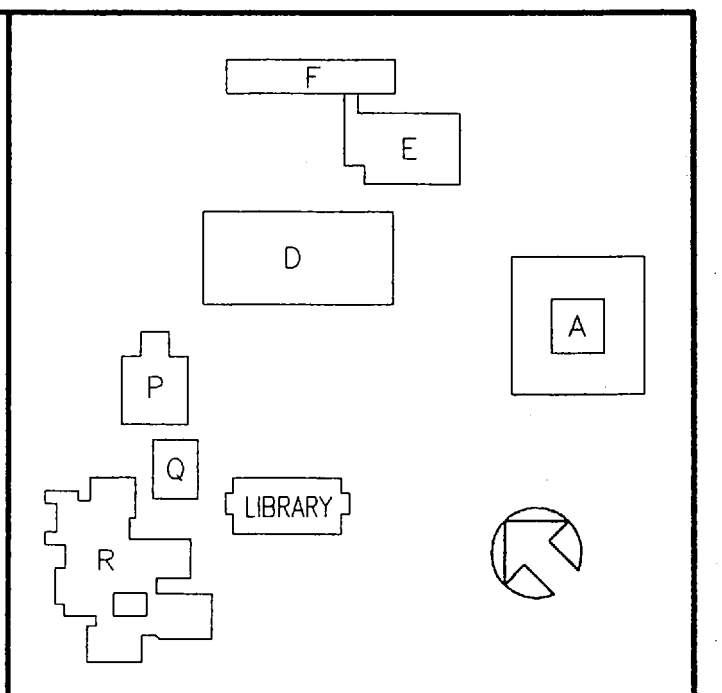
BUILDING 'F' - NEW WORK BOILER ROOM PARTIAL PLAN
SCALE: 1/4"=1'-0"



FRONT SIDE VIEW ELEVATION - 'AA'
SCALE: 3/8"=1'-0"



BUILDING 'O' - NEW WORK PARTIAL PLAN
SCALE: 1/2"=1'-0"



KEY PLAN

NO.	DATE	DESCRIPTION
10	11/12/98	DWHG-3 GAS VENT PIPING
9	10/30/98	BOILER ROOM NEW WORK

REVISIONS

NO.	DATE	DESCRIPTION
10	11/12/98	DWHG-3 GAS VENT PIPING
9	10/30/98	BOILER ROOM NEW WORK

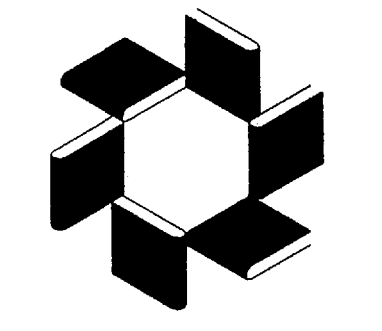
MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
925/944-8929

JUN 22 1999

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1415 OAKLAND BLVD., SUITE 300
WALNUT CREEK, CALIFORNIA 94596
(925) 944-8929
Project: 98-005



Client:



Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
MERRITT COLLEGE - DEMOLITION WORK FLOOR PLANS

DATE:	5/28/98	JOB NO:	98-005
SCALE:	AS SHOWN	SHEET NO.	
DRAWN BY:	KLM	P-300	
CHECKED BY:	CAR		
APPROVED BY:	ECS		

CONSTRUCTION DOCUMENTS

ELECTRIC DOMESTIC HOT WATER HEATER SCHEDULE - (MERRITT COLLEGE)

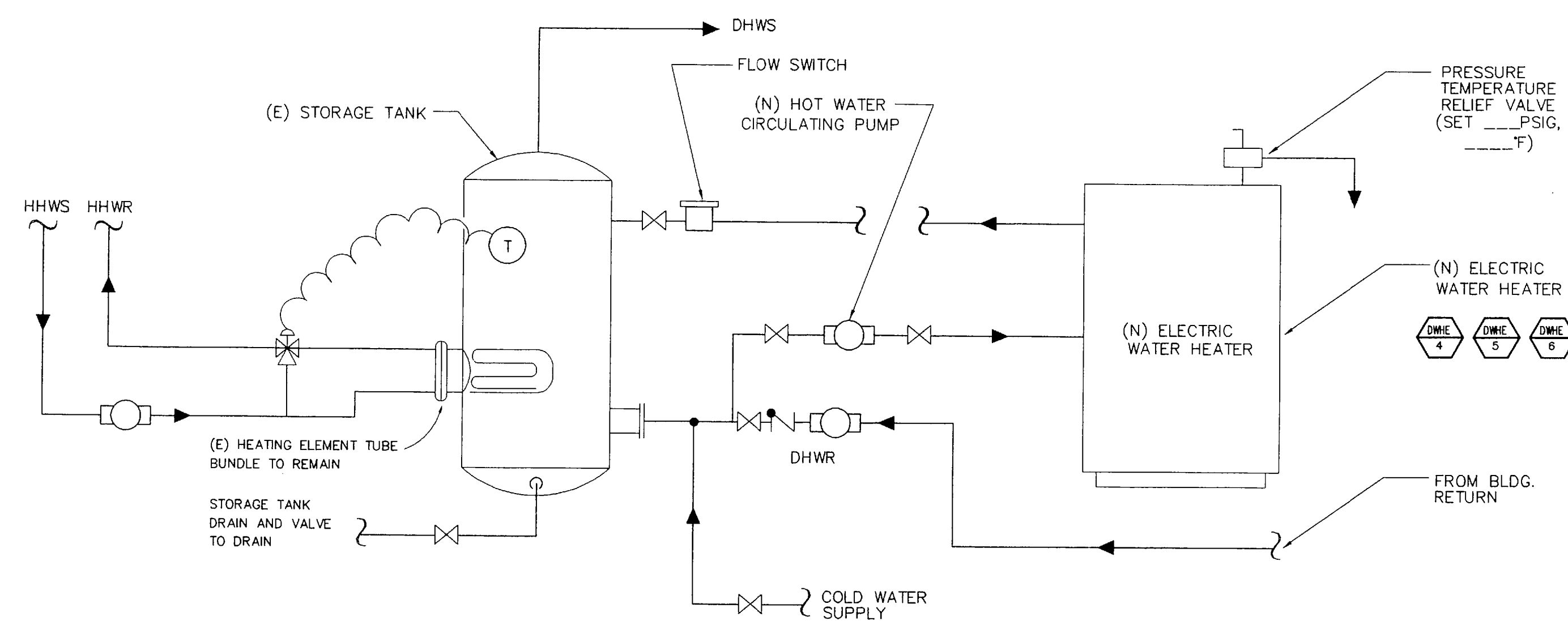
UNIT DESIGNATION	LOCATION	SERVICE	RECOVERY RATE			INPUT KW	ELECTRICAL			REMARKS	OPERATING WEIGHT (LBS.)
			GPH	ENTER	LEAVES		V.	HZ.	PH.		
OME 4	BLDG. A	BLDG. A	50	40	140	12	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275
OME 5	BLDG. D	BLDG. D	60	40	140	12	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275
OME 6	BLDG. Q	BLDG. Q	200	40	140	40	480	60	3ø	PATTERSON - KELLY CO. MODEL A15	275

NOTES:

- SHELL MATERIAL TO BE SOLID COPPER SILICON REQUIRING NO LINING, 150 PSIG WP.
- HEATERS TO INCLUDE MAGNETIC CONTRACTORS, FLOW SWITCH FOR OVERTEMPERATURE CUT-OUT CONTROL, LIGHTED ON / OFF SWITCH, & SAFETY HI-TEMP CUT-OFF WITH MANUAL RESET.
- OPERATING TEMPERATURE RANGE TO BE MANUALLY ADJUSTABLE FOR 100° F TO 180° F.
- INSULATION TO MEET ASHRAE STANDARD 90 A, ENCLOSED IN A 304 STAINLESS STEEL JACKET.
- MANUFACTURER TO PROVIDE APPROVED MEANS FOR SEISMIC RESTRAINT.
- HEATERS TO BE FACTORY WIRED AND TESTED.

HOT WATER CIRCULATION PUMP

UNIT DESIGNATION	HORSE POWER	MANUFACTURER	MODEL	V / ø	OPERATING WEIGHT (LBS.)
CP-3	1/6	ARMSTRONG	S-35	115 / 1ø	12
CP-4	1/6	ARMSTRONG	S-35	115 / 1ø	12
CP-5	1/6	ARMSTRONG	S-35	115 / 1ø	12

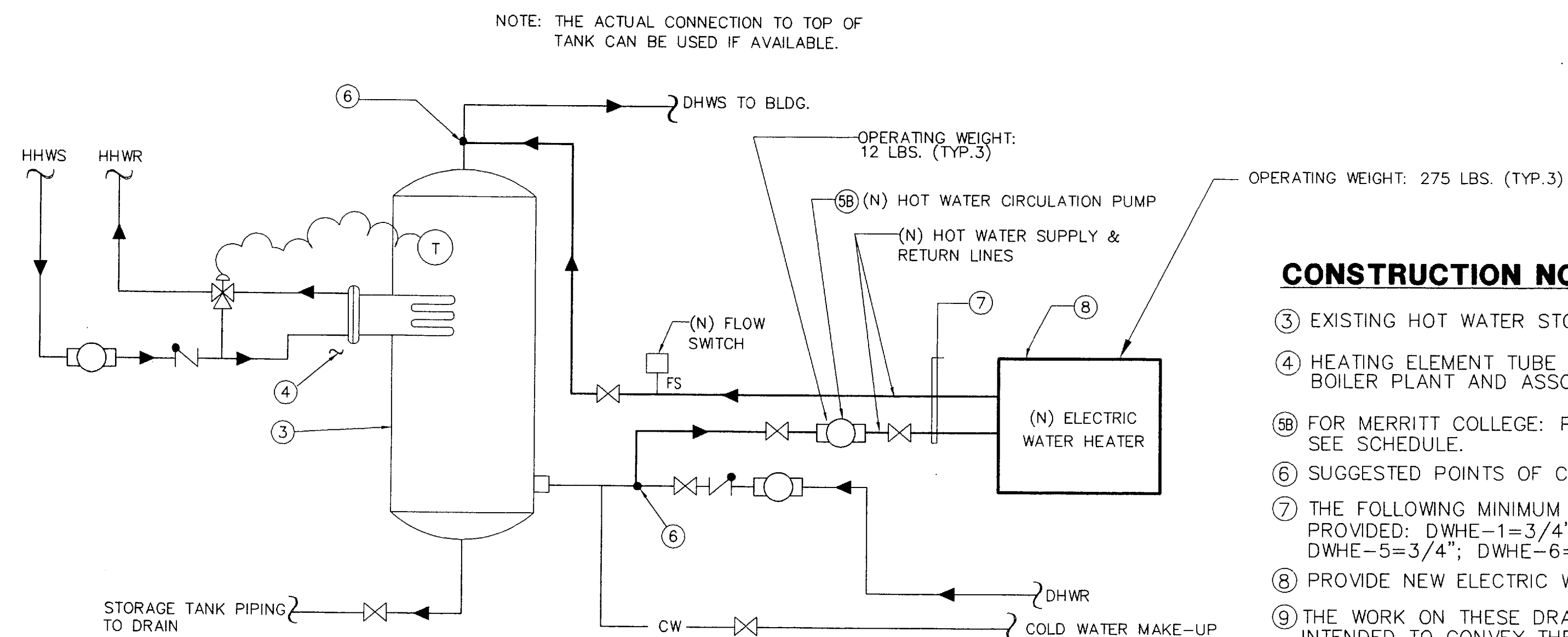


ELECTRIC WATER HEATER PIPING DIAGRAM - DETAIL

NOT TO SCALE

NOTES:

- ELECTRICAL WATER HEATER TO BE USED ONLY WHEN BOILERS ARE OFF.
- THE PIPING ARRANGEMENT SHALL BE NEATLY AS CLOSE TO WALL & HEATER AS POSSIBLE WITH EASY ACCESS TO ALL VALVES & EQUIPMENT.



NEW WORK PLAN

NOT TO SCALE

CONSTRUCTION NOTES:

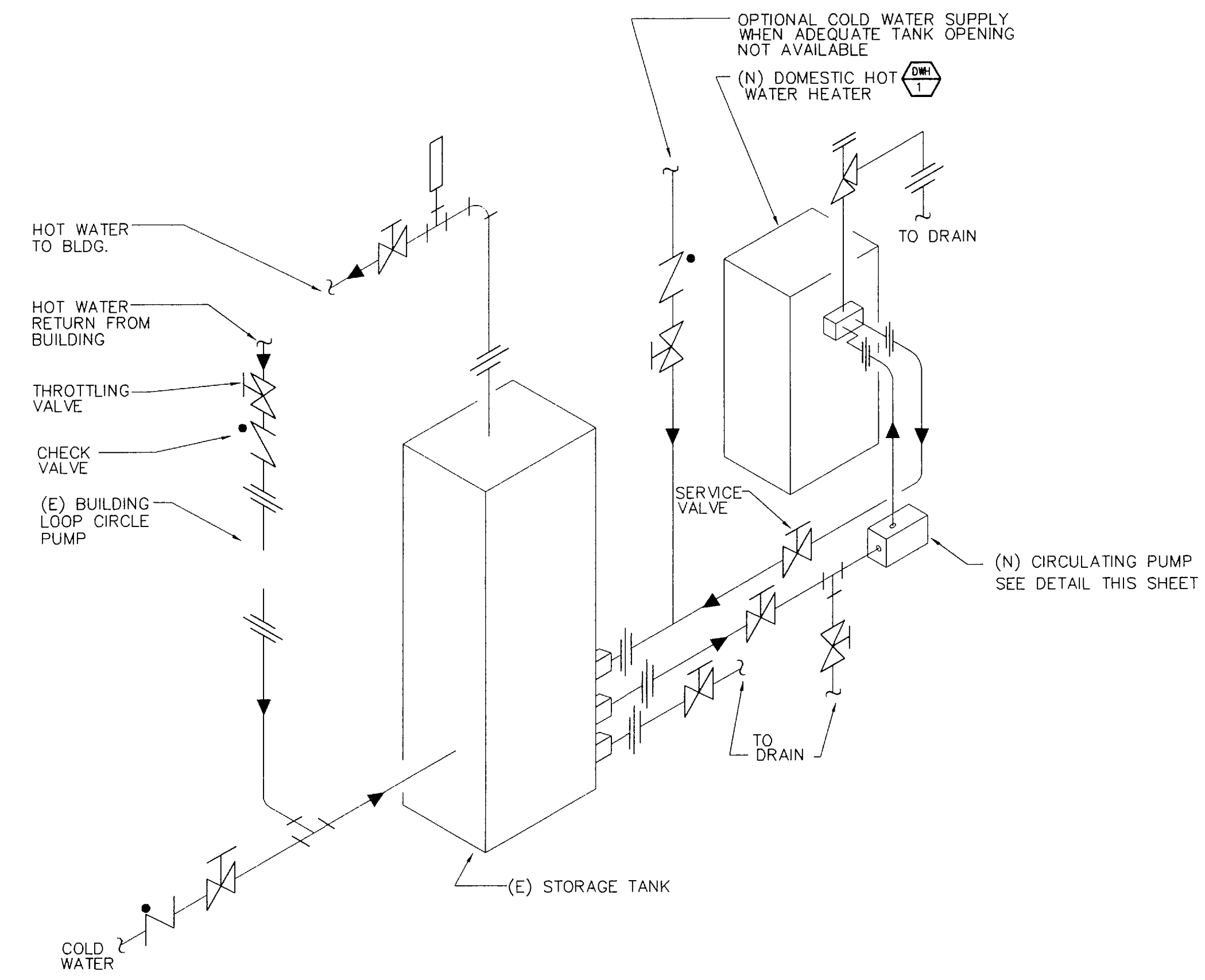
- EXISTING HOT WATER STORAGE TANK TO REMAIN. (TYP)
- HEATING ELEMENT TUBE BUNDLE, EXISTING HHWS & HHWR PIPING FROM BOILER PLANT AND ASSOCIATED CONTROLS, VALVES TO REMAIN.
- FOR MERRITT COLLEGE: PROVIDE NEW HOT WATER CIRCULATION PUMPS. (TYP.3) SEE SCHEDULE.
- SUGGESTED POINTS OF CONNECTIONS. VERIFY EXACT LOCATIONS IN FIELD.
- THE FOLLOWING MINIMUM PIPE SIZES BETWEEN TANK & HEATER SHALL BE PROVIDED: DWHE-1=3/4"; DWHE-2=3/4"; DWHE-3=3/4"; DWHE-4=3/4"; DWHE-5=3/4"; DWHE-6=3/4"
- PROVIDE NEW ELECTRIC WATER HEATERS. (TYP.) SEE SCHEDULE
- THE WORK ON THESE DRAWINGS IS GENERALLY DIAGRAMMATIC AND IS INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, PIPING, ETC. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PERFORM THOROUGH FIELD SURVEYS OF EXISTING SITE CONDITIONS.
- REMOVAL WORKS SHALL NOT INVOLVE INTERRUPTION OF HEATING WATER OR ELECTRIC SERVICES TO THE BLDG. W/O APPROVAL OF OWNER.

GAS FIRED DOMESTIC HOT WATER HEATER SCHEDULE - (MERRITT COLLEGE)

UNIT DESIGNATION	LOCATION	SERVICE	RECOVERY RATE			INPUT MBH	OUTPUT MBH	ELECTRICAL			REMARKS	OPERATING WEIGHT (LBS.)
			GPH	ENTER	LEAVES			V.	HZ.	PH.		
OME 3	RM. F-125	BLDG. F	2460	40	140	2499	2049	120	60	1	TELEDYNE LAARS 2500	1,588

NOTES:

- PROVIDE CIRCULATING PUMP, FLOW SWITCH, TANK AQUASTAT AND RELATED ACCESSORIES FOR A COMPLETE SYSTEM.

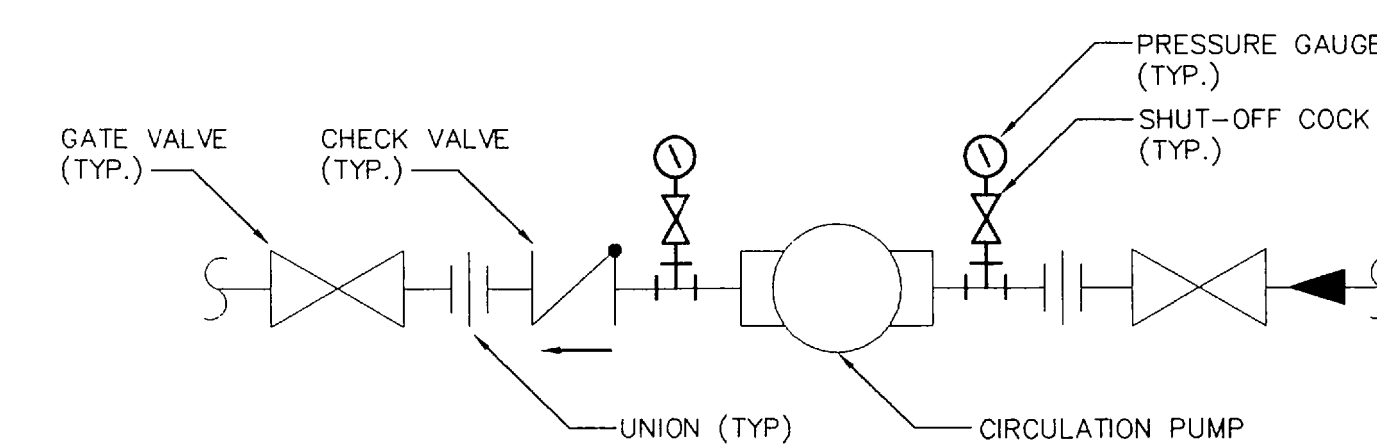


GAS FIRED WATER HEATER PIPING - DETAIL

NOT TO SCALE

NOTES:

- PLUMB SWING CHECK VALVE IN GRAVITY CLOSED POSITION.
- PIPE ALL RELIEF VALVES TO DRAIN, OR AS LOCAL CODES REQUIRE.
- LOCATE TEE AS CLOSE AS POSSIBLE TO TANK.
- PROVIDE TEMPERATURE/PRESSURE RELIEF VALVE IN THE TANK.
- MINIMUM PIPE SIZE BETWEEN HEATER AND TANK TO BE EQUAL TO HEATER INLET/OUTLET CONNECTION.
- CONNECT GAS TO (N) HEATER GAS TRAIN INLET.
- FOR EXACT SIZE AND ARRANGEMENT OF PIPING AND EQUIPMENT SEE PIPING FLOOR PLANS.



HOT WATER CIRCULATION PUMP DETAIL

NOT TO SCALE

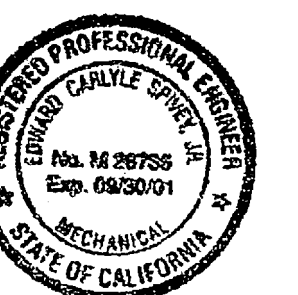
NO.	DATE	DESCRIPTION
7	10/12/98	ELECTRIC H.W. HEATERS FT. OF CONN.

REVISIONS

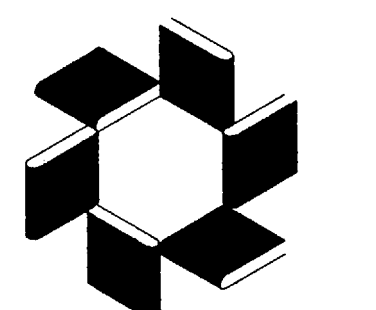
MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
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JUN 22 1999

BOSEK, GIBSON & ASSOCIATES, INC.
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1415 OAKLAND BLVD., SUITE 200
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(925) 944-8929
Project: 98-005



Client:



Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
MERRITT COLLEGE - SCHEDULES AND DETAILS

DATE: 5/26/98 JOB NO: 98-005

SCALE: NONE SHEET NO.

DRAWN BY: KLM

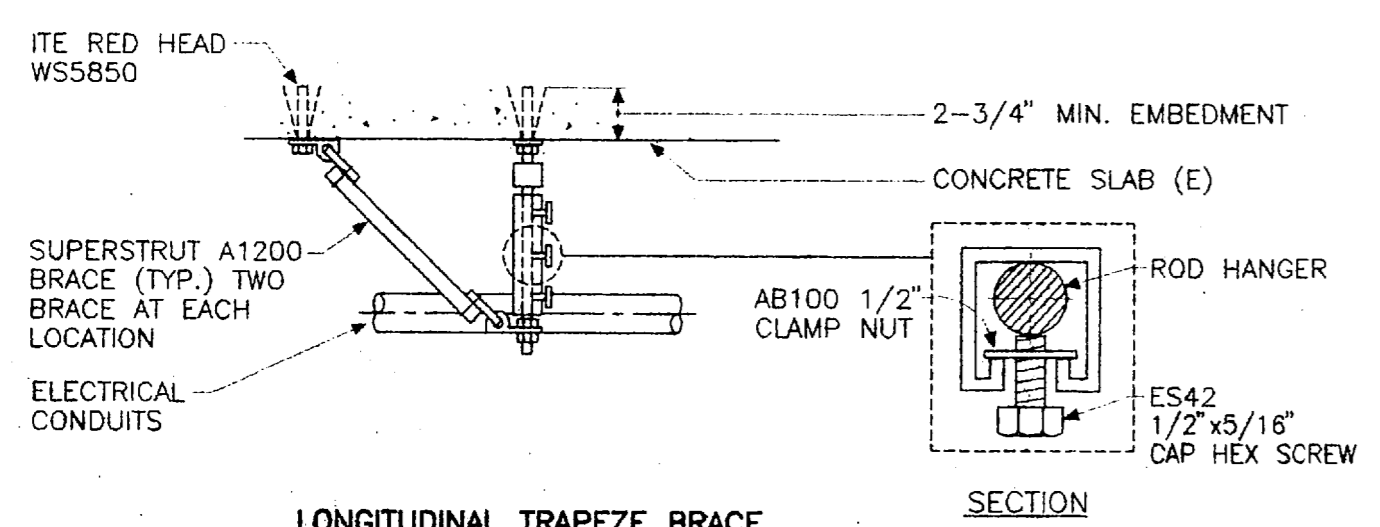
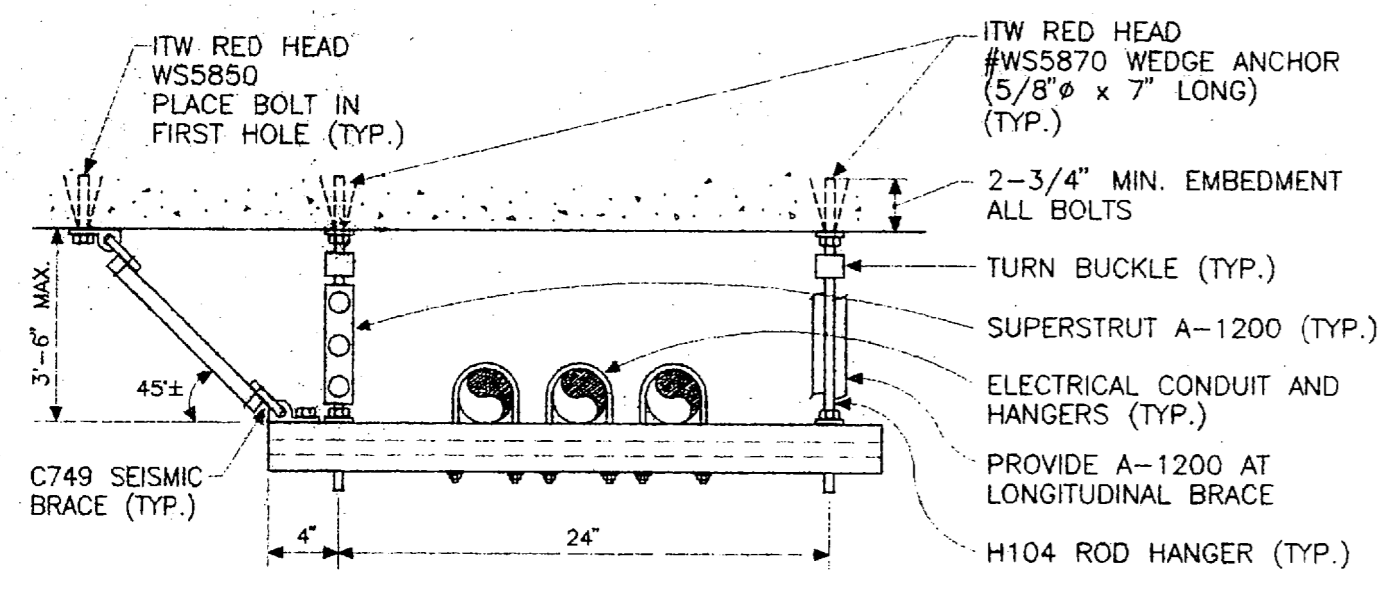
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APPROVED BY: ECS

P-301

CONSTRUCTION DOCUMENTS

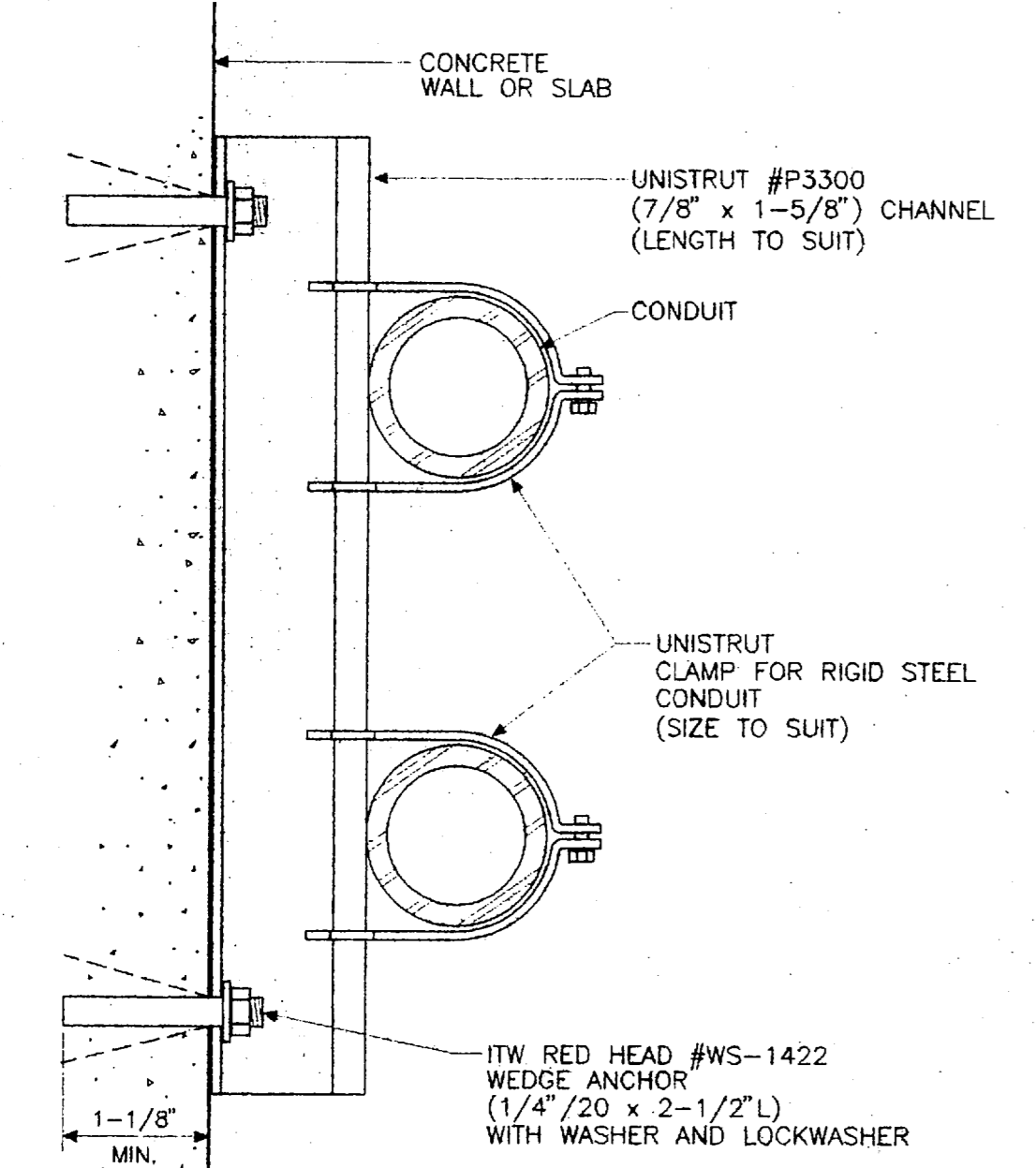
DETAILS



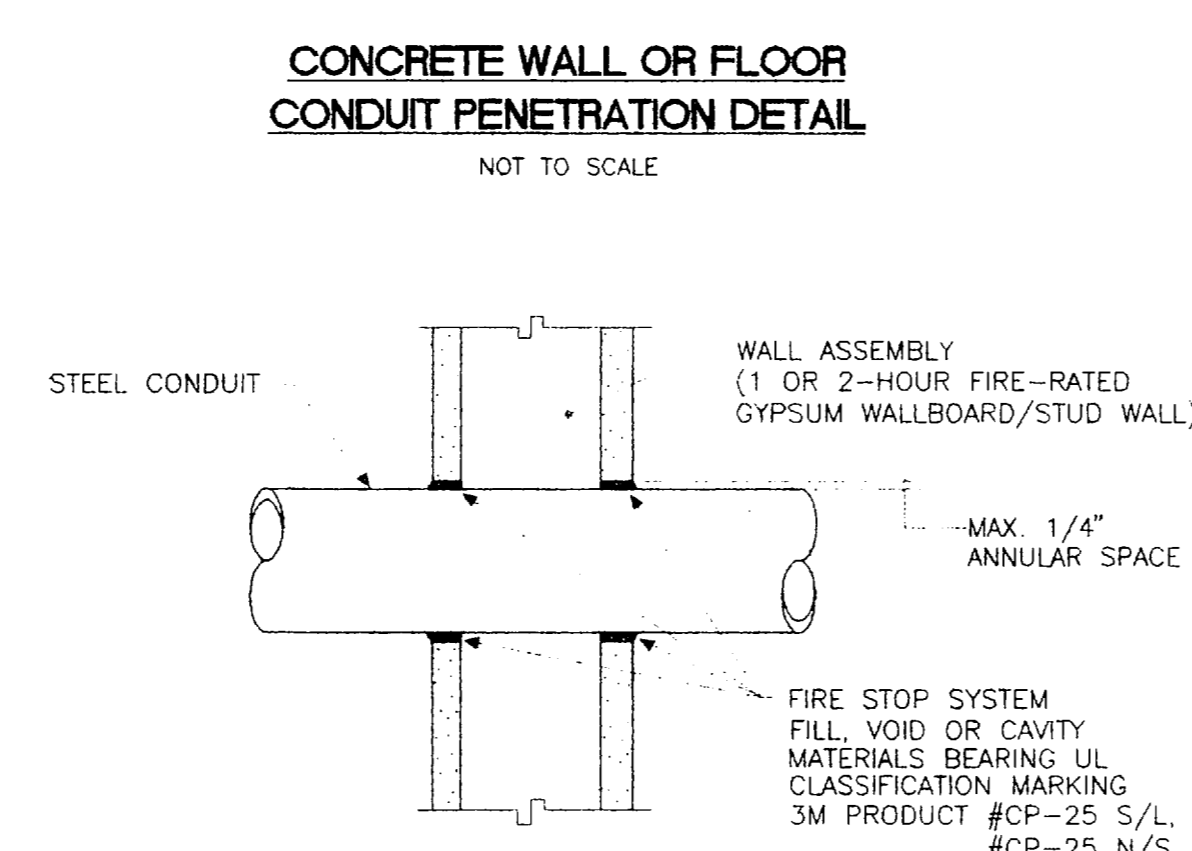
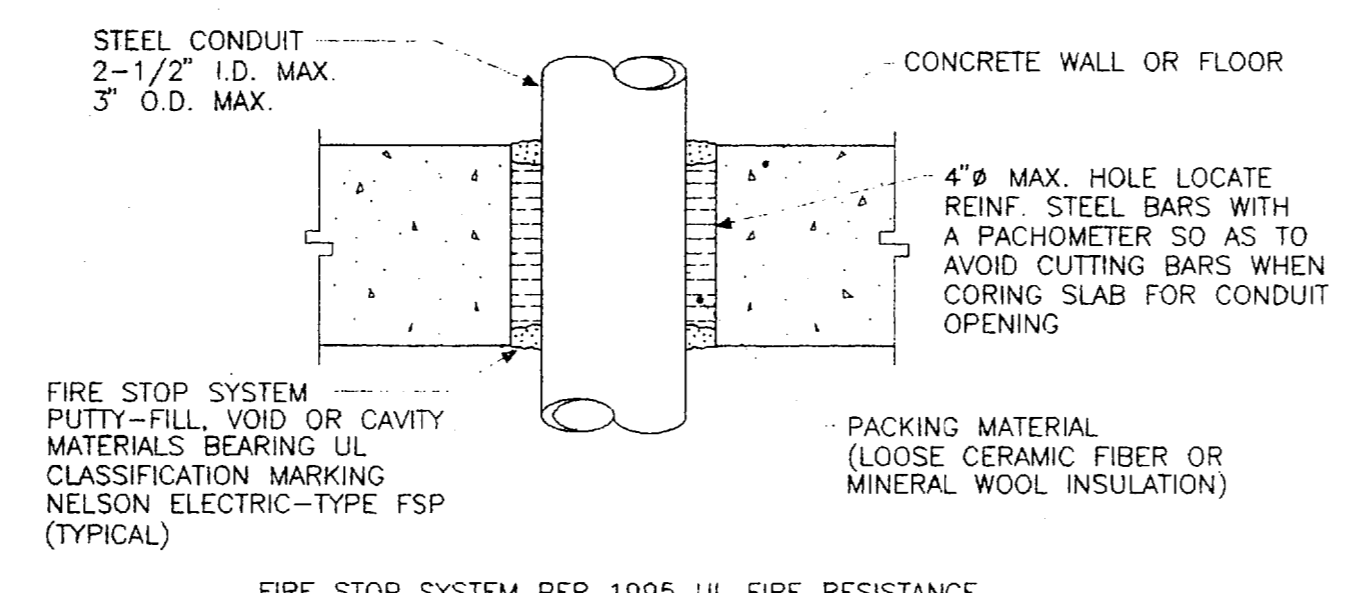
CONDUIT SIZE	HORIZONTAL BRACE SPACING	LONGITUDINAL BRACE SPACING
3" & OVER	18'-0"	36'-0"

NOTE:
ON THIS TESTS REQUIRED FOR 50% OF EXPANSION BOLTS:
MIN. 1000 LBS FOR 1/2" BOLTS
MIN. 1200 LBS FOR 5/8" BOLTS
PLACE ALL EXPANSION BOLTS IN BOTTOM OF (E) CONCRETE SLAB

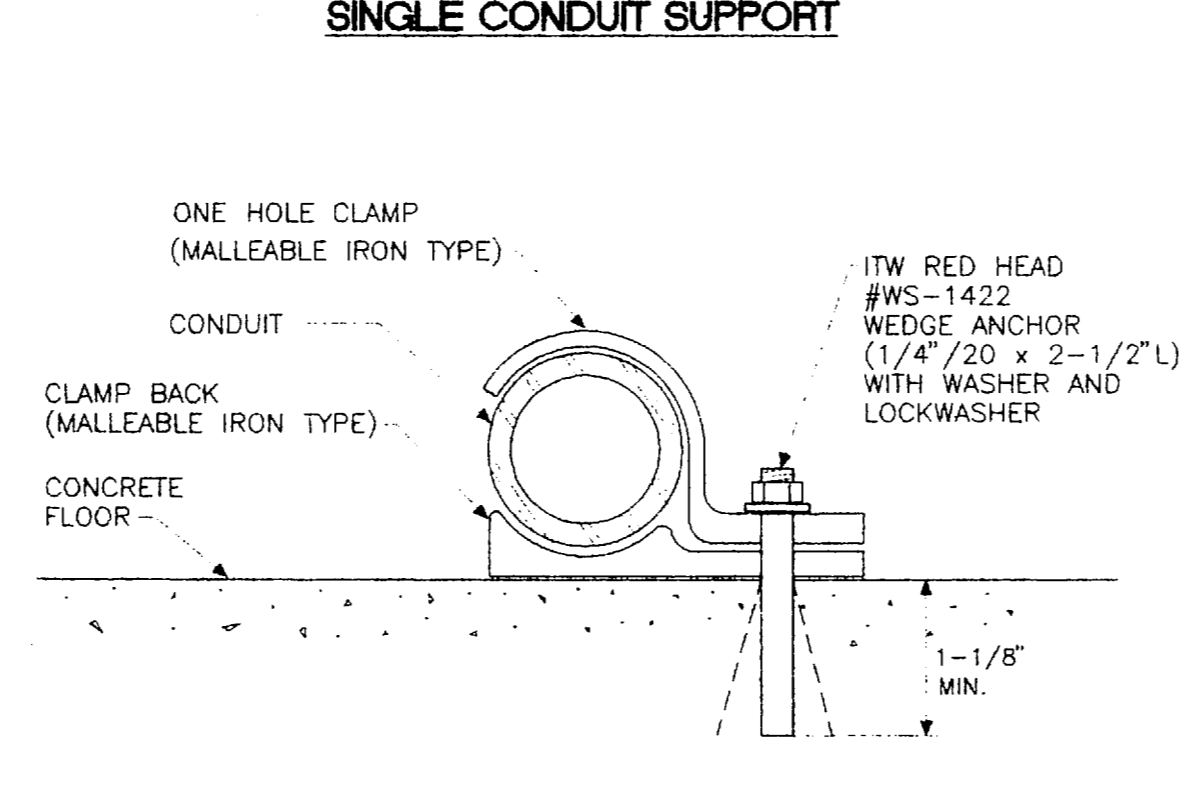
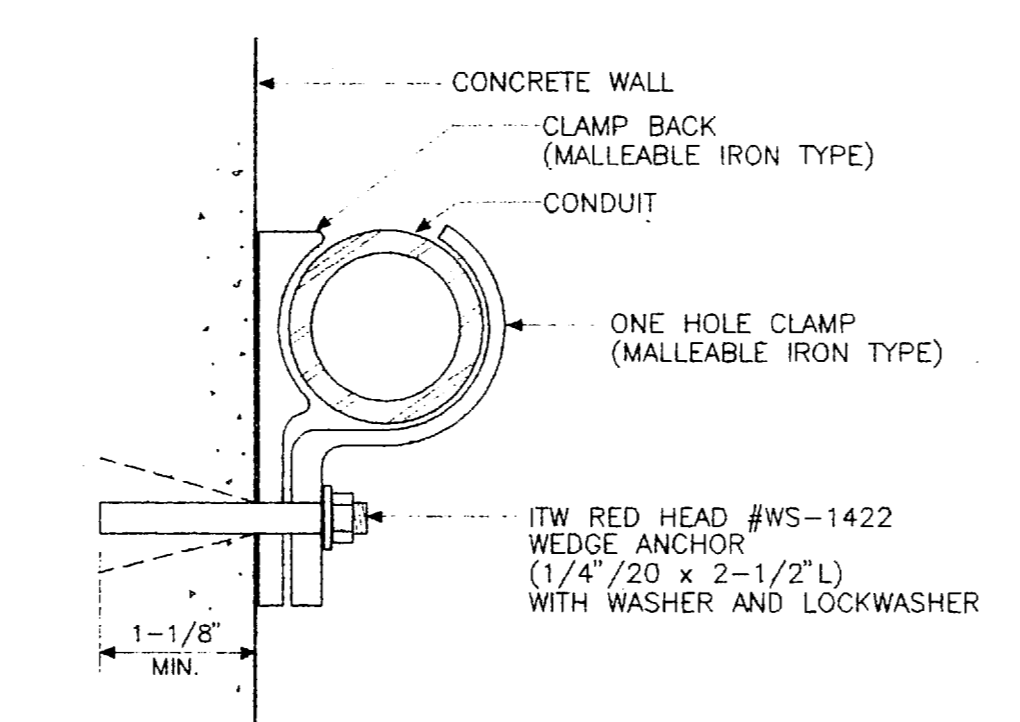
SEISMIC SWAY BRACE DETAIL
NOT TO SCALE



MULTIPLE CONDUITS SUPPORT
NOT TO SCALE



1 OR 2-HOUR FIRE-RATED WALL CONDUIT PENETRATION DETAIL
NOT TO SCALE



EQUIPMENT ANCHORAGE

A. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTION IN ANY DIRECTION USING THE FOLLOWING CRITERIA:

FIXED EQUIPMENT ON GRADE	20% OF OPERATING WEIGHT
FIXED EQUIPMENT ON STRUCTURE	30% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON GRADE	30% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON STRUCTURE	40% OF OPERATING WEIGHT

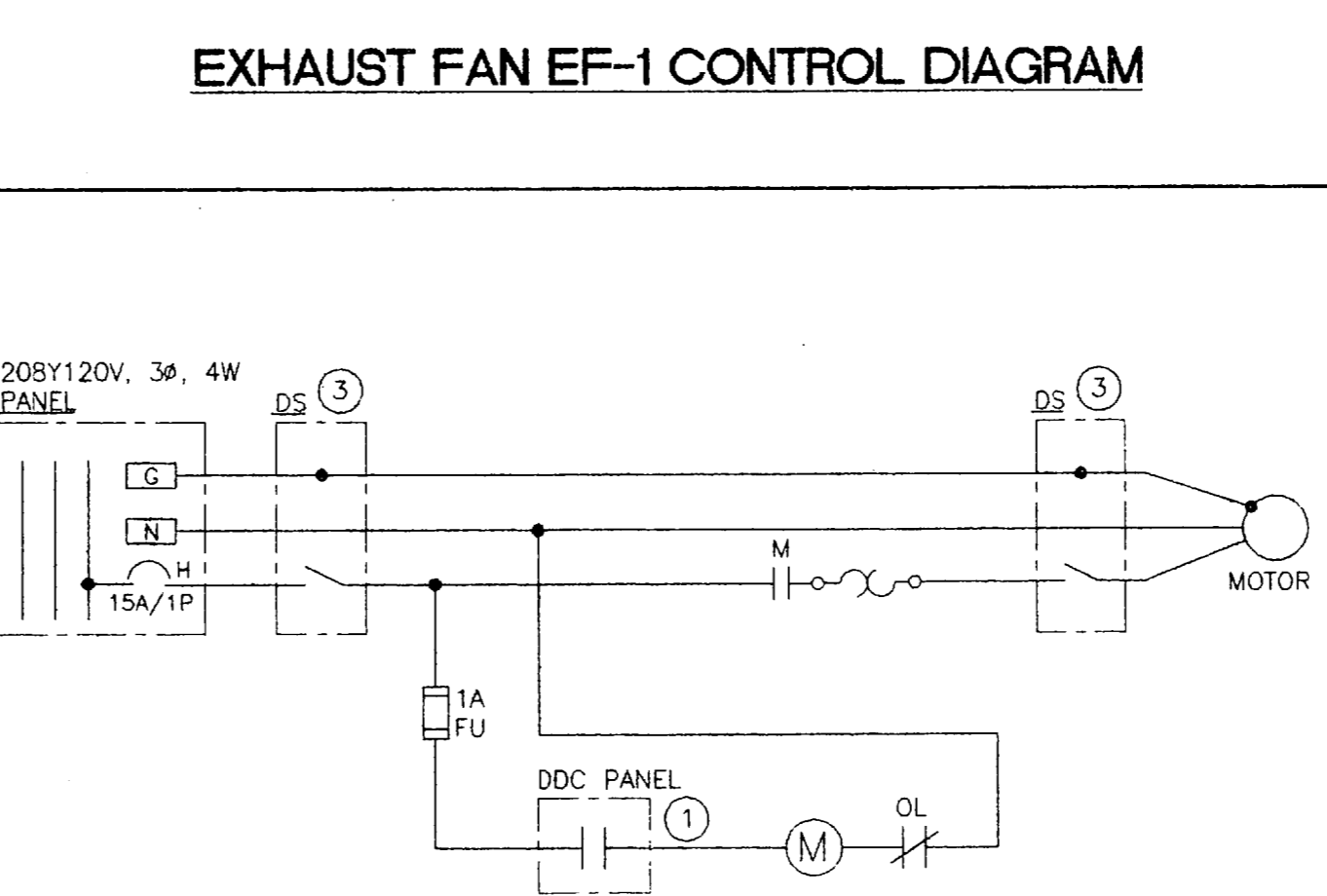
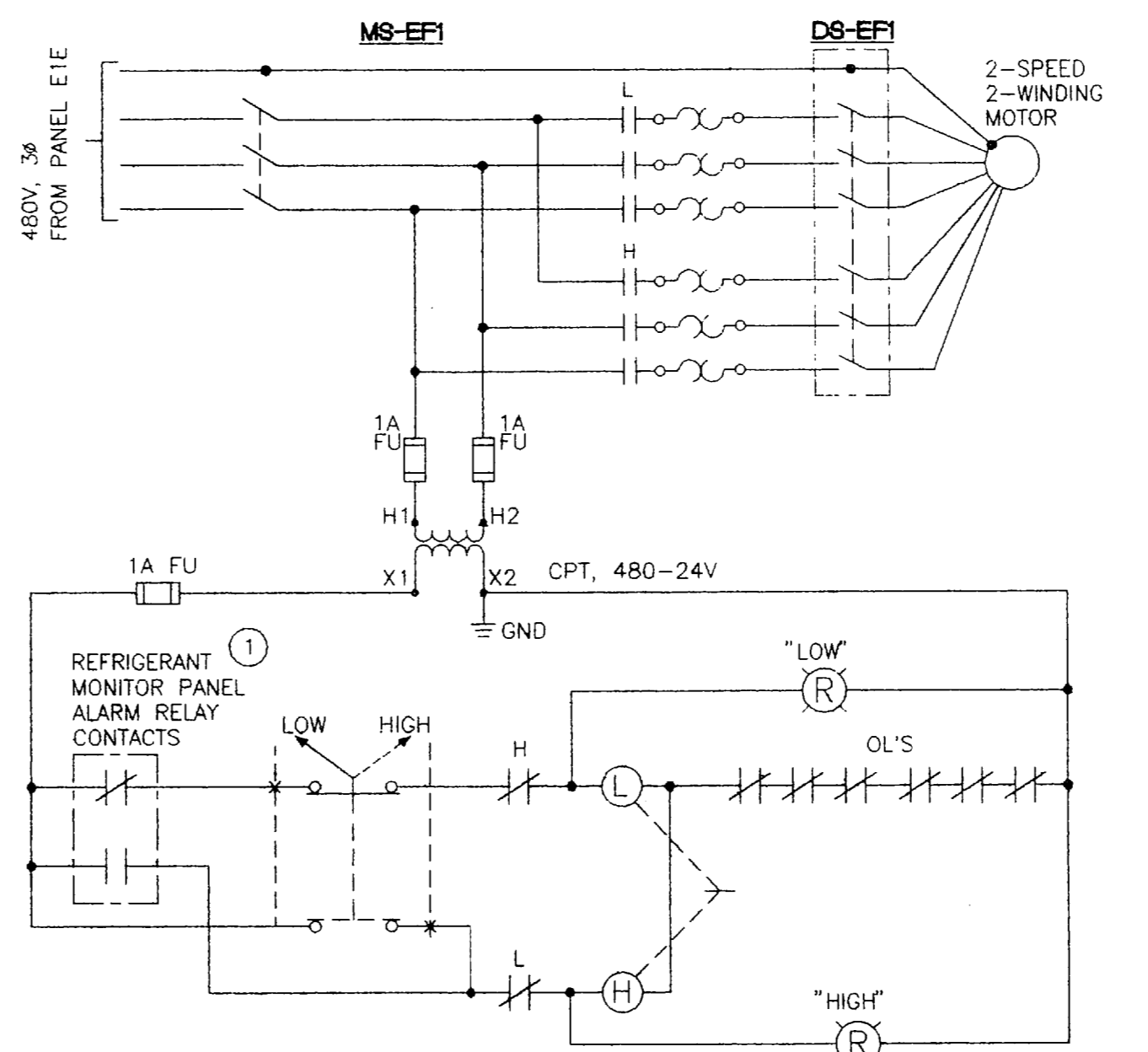
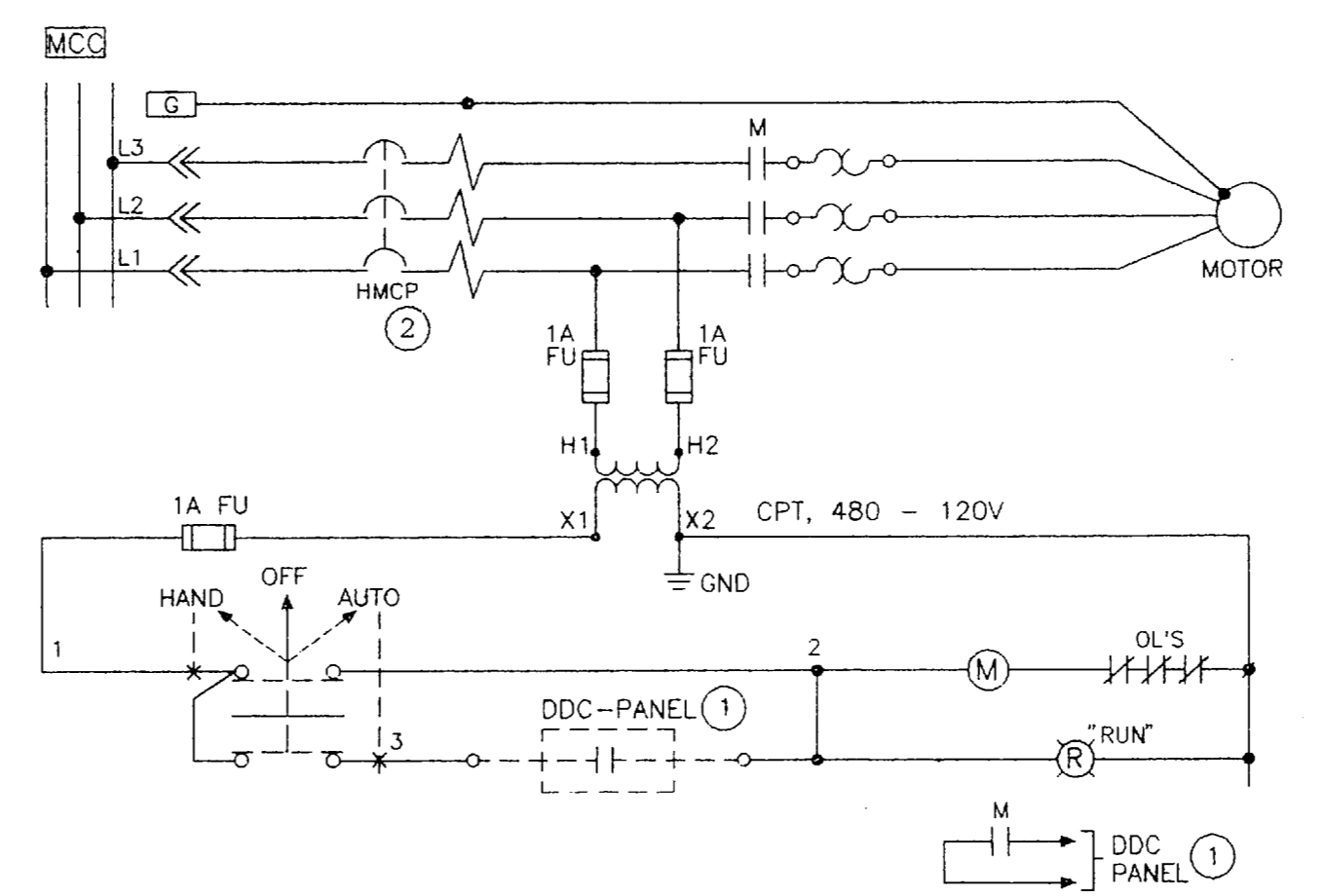
SIMULTANEOUS VERTICAL FORCE - USE 1/3 x HORIZONTAL FORCE.

FOR FLEXIBLY MOUNTED EQUIPMENT SEE TITLE 24, SECTION 1630A.2, CBC 1995.

WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO APPROVAL OF THE ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.

B. SEISMIC RESTRAINTS SHALL BE PROVIDED PER SMACNA "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEM."

DIAGRAMS



PANEL ER2C		MOUNTING TYPE : SURFACE			
MAIN LUG ONLY : 100 A		SHORT-CIRCUIT RATING (RMS SYM.) : 10 KA			
VOLT : 208Y/120V		SOLID NEUTRAL <input checked="" type="checkbox"/> GROUND BUS <input checked="" type="checkbox"/>			
PHASE : 3		WIRE : 4			
		CIRCUIT BREAKER : BOLT-ON TYPE			
LOAD (A)	DIRECTORY	CIRCUIT BREAKER	DIRECTORY	LOAD (A)	
#A #B #C		A/P NO.	NO. A/P	#A #B #C	
SPACE		20/1 1	2 20/1	STEAM BOILER SB-1	8
		20/1 3	4 20/1	CF1 AND WS-1	4
		20/1 5	6 20/1	DWHG-1 AND IDF-1	6
		20/1 7	8 20/1	AIR DRYERS	6
		20/1 9	10 20/1	SPARE	
		20/1 11	12 20/1		
		20/1 13	14 20/1		
		20/1 15	16 20/1	SPACE	
		20/1 17	18 20/1	SPACE	
SUB TOTAL		SUB TOTAL			
		TOTAL CONNECTED LOAD			

LEGEND

- SWITCH
 - CIRCUIT BREAKER, THERMAL-MAGNETIC MOLDED-CASE TYPE
 - FUSE
 - TRANSFORMER
 - MOTOR CIRCUIT PROTECTOR (MCP), MAGNETIC ONLY TYPE CIRCUIT BREAKER
 - GROUNDING
 - MOTOR STARTER
 - DRAWOUT STABS
 - MOTOR STARTER, NEMA SIZE AS INDICATED
 - MOTOR STARTER COIL
 - RELAY COIL
 - NORMALLY OPEN (NO) CONTACT
 - NORMALLY CLOSED (NC) CONTACT
 - PUSHBUTTON SWITCH, N.C. CONTACT
 - PUSHBUTTON SWITCH, N.O. CONTACT
 - 3-POSITION SELECTOR SWITCH
 - PILOT LIGHT, R = RED, G = GREEN
 - FIRE ALARM ADDRESSABLE INTERFACE MODULE
 - DISCONNECT SWITCH, FUSED
 - DISCONNECT SWITCH, NONFUSED
 - MOTOR OUTLET, NUMBER INDICATES HORSEPOWER UON
 - DUPLEX RECEPTACLE, NEMA 5-20R, COMMERCIAL SPECIFICATION GRADE, WALL MOUNTED +18" UON
 - JUNCTION BOX
 - PANELBOARD
 - FLASHING BEACON LIGHT WITH WARNING HORN
 - CONDUIT RUN CONCEALED IN CEILING OR WALL UON
 - CONDUIT RUN CONCEALED BELOW FINISHED FLOOR OR GRADE
 - FLEXIBLE METAL CONDUIT
 - CONDUIT RUN "UP"
 - CONDUIT RUN "DOWN"
 - CONDUIT HOME RUN, CONTINUE CONDUIT AND CONDUCTORS TO PANEL, DEVICE OR TERMINAL
 - BRANCH CIRCUIT WITH #12 AWG INSULATED GROUND WIRE
- NOTE: BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AWG WIRE CIRCUIT. ADDITIONAL NUMBER OF #2 AWG AS FOLLOWS:
- 3 #12
 - 3 #12 + 1 #12G

NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
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WALNUT CREEK, CA
510/944-8929

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1371 OAKLAND BLVD., SUITE 102
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(510) 944-8929
Project: 98-005



REVISIONS
DATE: 10/1/98
BY: W.L.
JUN 2 2 1999

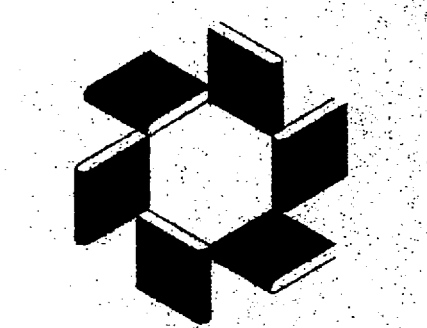
DEMOLITION NOTES

- A. EXISTING EQUIPMENT, DEVICES AND CONDUIT RUNS NOT SHOWN SHALL REMAIN.
- B. REMOVE ALL OR PORTIONS OF EXISTING FACILITIES THAT ARE IN THE PATH OF THE NEW WORK. REESTABLISH COMPLETE SERVICE TO ALL EXISTING FACILITIES WHERE DISRUPTED BY THIS WORK.
- C. MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING OUTLETS REMAINING IN USE WHETHER SHOWN OR NOT. RECONNECT CIRCUIT CONDUITS AND WIRING WHICH ARE INTERRUPTED DUE TO REMOVAL OF OUTLETS.
- D. DEENERGIZE AND DISCONNECT EXISTING CIRCUITS TO EQUIPMENT TO BE REMOVED OR RELOCATED.
- E. EXISTING CONDUIT RUNS MAY BE REUSED FOR NEW WIRING WHERE FEASIBLE. REMOVE ABANDONED CONDUIT RUNS (WITH WIRING REMOVED) IN ACCESSIBLE AREAS. ABANDONED CONDUIT RUNS IN INACCESSIBLE AREAS SHALL REMAIN AND BE CAPED.
- F. SEAL CEILING, WALL AND FLOOR PENETRATIONS CAUSED BY REMOVAL OF CONDUITS.
- G. PLUG BOX, CABINET AND ENCLOSURE OPENINGS CAUSED BY REMOVAL OF CONDUITS.

NOTES

- 1. SEE MECHANICAL DRAWINGS FOR CONTROL CONNECTION.
- 2. SET HMCP TO SUIT MOTOR NAMEPLATE RATINGS PER NEC AND MANUFACTURER'S INSTRUCTION.
- 3. SEE SINGLE-LINE DIAGRAM FOR LOCATION.

Client:



Peralta Community College District

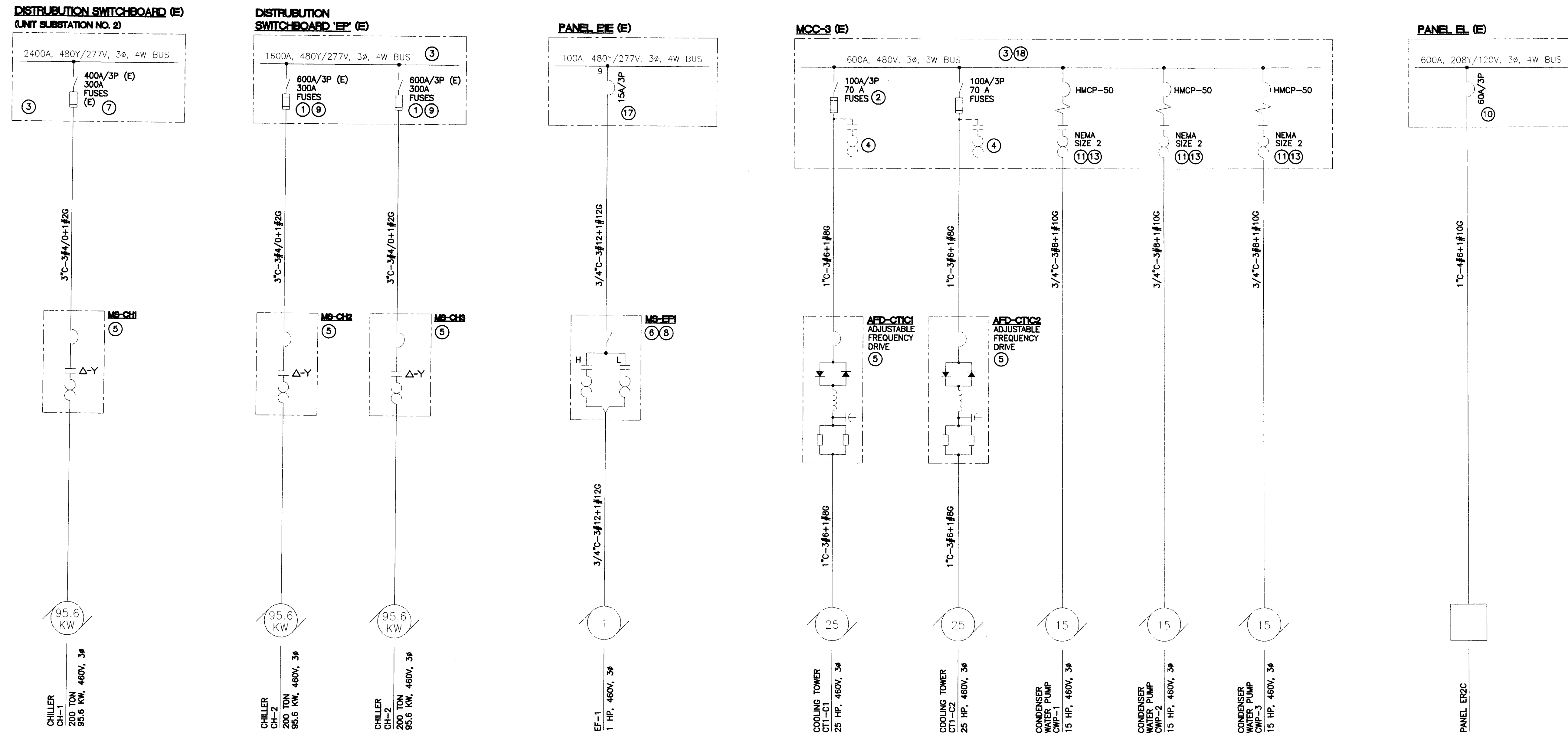
Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE LEGEND, DIAGRAMS AND DETAILS

DATE: 5/26/98	JOB NO: 98-005
SCALE: NONE	SHEET NO.
DRAWN BY: SU	E-101
CHECKED BY: WL	
APPROVED BY:	

CONSTRUCTION DOCUMENTS

SINGLE-LINE DIAGRAMS



PLAN NOTES

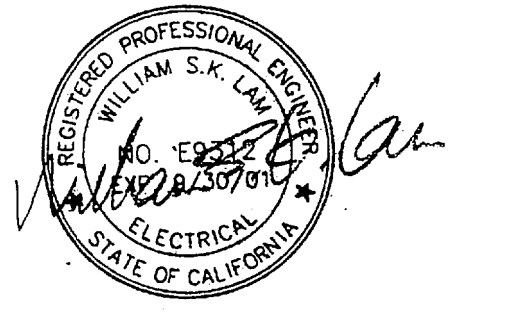
- REPLACE EXISTING FUSES WITH CURRENT-LIMITING, DUAL-ELEMENT (TIME-DELAY) FUSES. PROVIDE FUSE REDUCER TO SUIT.
- REPLACE EXISTING FUSES WITH CURRENT-LIMITING, DUAL-ELEMENT (TIME-DELAY) FUSES.
- NOTE MOTOR DESIGNATION CHANGE AND REPLACE EXISTING NAMEPLATE ON SWITCHBOARD OR MCC DOOR WITH NEW NAMEPLATE WITH ENGRAVING AS SHOWN.
- REMOVE EXISTING MOTOR STARTER, INDICATING LIGHT, SELECTOR SWITCH, AND ASSOCIATED WIRING. INSTALL OILTIGHT HOLE SEALS TO COVER PUSH-BUTTON HOLES.
- EQUIPMENT TO BE FURNISHED AND INSTALLED BY CHILLER MANUFACTURER, MECHANICAL CONTRACTOR OR PLUMBING CONTRACTOR. INSTALL AND CONNECT POWER CIRCUIT CONDUIT(S) AND WIRING AS SHOWN ON THE ELECTRICAL DRAWINGS.
- COMBINATION MAGNETIC STARTER, 3-POLE, 2-SPEED, SEPARATE WINDING, NEMA SIZE 1 WITH DISCONNECT SWITCH, 24V COIL, 480-24V CONTROL POWER TRANSFORMER WITH TWO (2) PRIMARY FUSES AND ONE (1) SECONDARY FUSE, AND NEMA 12 ENCLOSURE. PROVIDE THERMAL OVERLOAD HEATER ELEMENTS PER NEC AND MANUFACTURER'S INSTRUCTION TO SUIT MOTOR NAMEPLATE RATING. PROVIDE 2-POSITION SELECTOR SWITCH (HIGH-LOW) AND TWO GREEN, 120V, LED TYPE INDICATING LIGHTS ON COVER WITH LEGENDPLATES.
- DISCONNECT, TAPE (WITH ELECTRICAL TAPE) AND ABANDON EXISTING ELECTRIC BOILER CIRCUIT WIRES. CONNECT NEW CHILLER CIRCUIT WIRES TO EXISTING SWITCH.
- PROVIDE PADLOCK TO LOCK SWITCH ON AT ALL TIMES.
- CONNECT NEW CHILLER CIRCUIT WIRES TO EXISTING SWITCH.
- INSTALL NEW CIRCUIT BREAKER ON EXISTING PANEL. NEW CIRCUIT BREAKER SHALL HAVE 22KA INTERRUPTING CAPACITY RATING AT 240V A-C.
- REPLACE EXISTING STARTER CELL UNIT WITH A NEW COMPLETE UNIT (FROM CUTLER-HAMMER) INCLUDING:
 - a. UL LABEL.
 - b. NEW TIN-PLATED COPPER STAB ASSEMBLY.
 - c. NEW DOOR, HANDLE MECHANISM AND HARDWARE.
 - d. NEW DIVIDER PAN AND MOUNTING HARDWARE.
 - e. MOTOR CIRCUIT PROTECTOR WITH 65KA INTERRUPTING CAPACITY RATING AT 480V A-C.
 - f. 4000 STARTER WITH 120V COIL.
 - g. NEMA CLASS 1, TYPE B WITH PULL-APART TERMINAL BLOCKS.
 - h. RED LED TYPE 120V A-C INDICATING LIGHT WITH "RUN" LEGENDPLATE.
 - i. HAND-OFF-AUTO THREE POSITION SELECTOR SWITCH.
 - j. CONTROL POWER TRANSFORMER (480-120V) WITH TWO (2) PRIMARY FUSES AND ONE (1) SECONDARY FUSE.
- REPLACE EXISTING STARTER CELL UNIT WITH A NEW COMPLETE UNIT (FROM CUTLER-HAMMER) INCLUDING:
 - a. UL LABEL.
 - b. NEW TIN-PLATED COPPER STAB ASSEMBLY.
 - c. NEW DOOR, HANDLE MECHANISM AND HARDWARE.
 - d. NEW DIVIDER PAN AND MOUNTING HARDWARE.
 - e. THERMAL-MAGNETIC TYPE CIRCUIT BREAKER WITH 65KA INTERRUPTING CAPACITY RATING AT 480V A-C.
- INSTALL THERMAL OVERLOAD HEATER ELEMENTS TO SUIT MOTOR NAMEPLATE RATING.
- 480V, HEAVY-DUTY TYPE SAFETY SWITCH.
- SALVAGED EXISTING WIREWAY AND FUSIBLE SWITCHES.
- INSTALL MOTOR POWER CIRCUIT FROM AFD TO MOTOR.
- INSTALL CIRCUIT BREAKER ON EXISTING PANEL.
- SALVAGE AND DELIVER REMOVED MCC PARTS TO OWNER.

NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
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ELECTRICAL CONSULTANT
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1371 OAKLAND BLVD., SUITE 102
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(510) 944-8929
Project: 98-005



Client:
Peralta Community College District

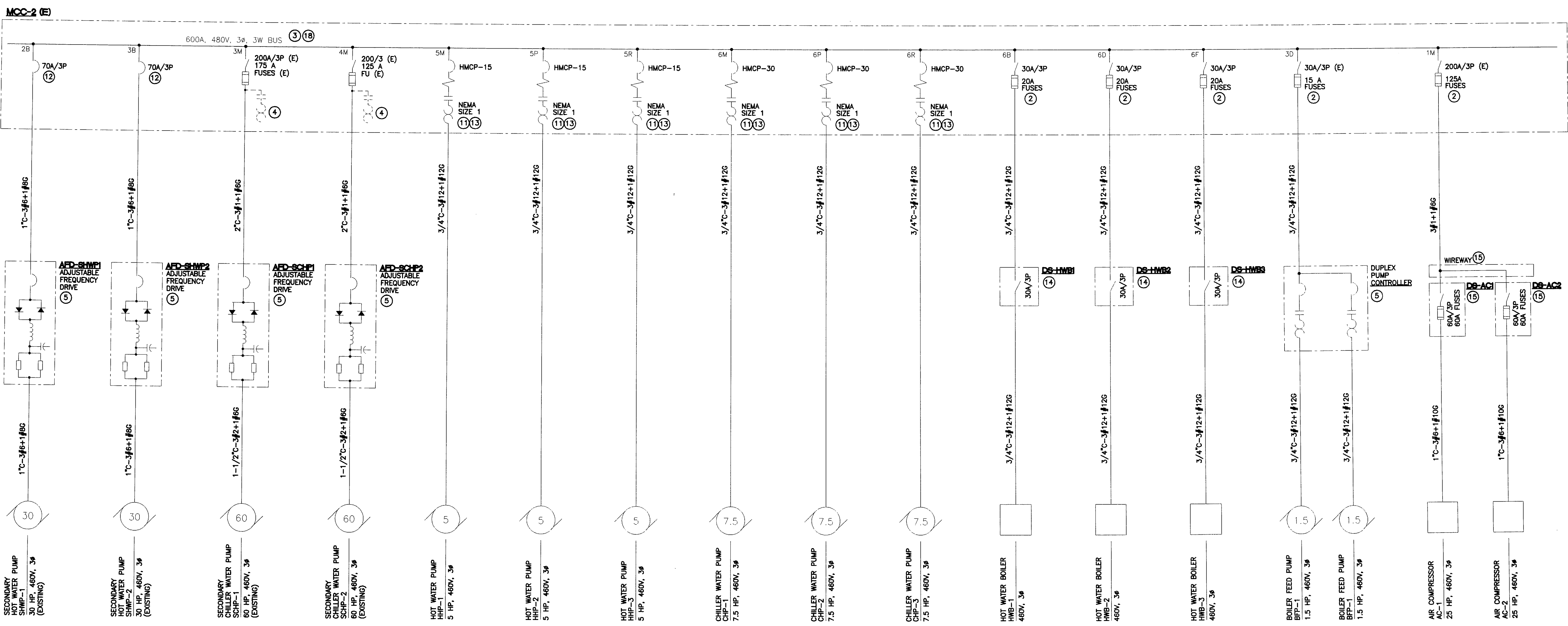
Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE CHILLER PLANT AND BOILER ROOM SINGLE-LINE DIAGRAM

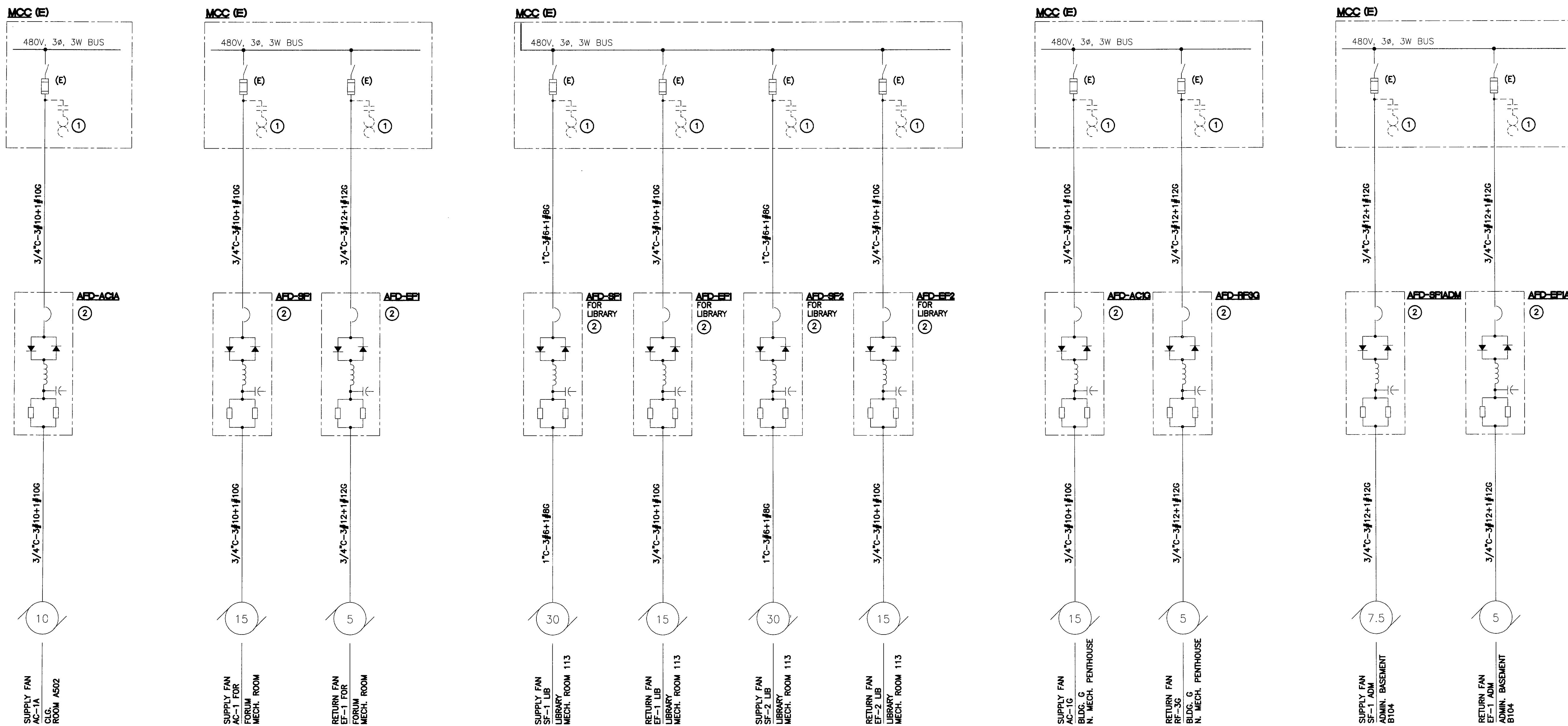
DATE:	5/26/98	JOB NO.:	98-005
SCALE:	NONE	SHEET NO.:	
DRAWN BY:	SU	E-102	
CHECKED BY:	WL		
APPROVED BY:			

CONSTRUCTION DOCUMENTS

SINGLE-LINE DIAGRAMS



SINGLE-LINE DIAGRAMS



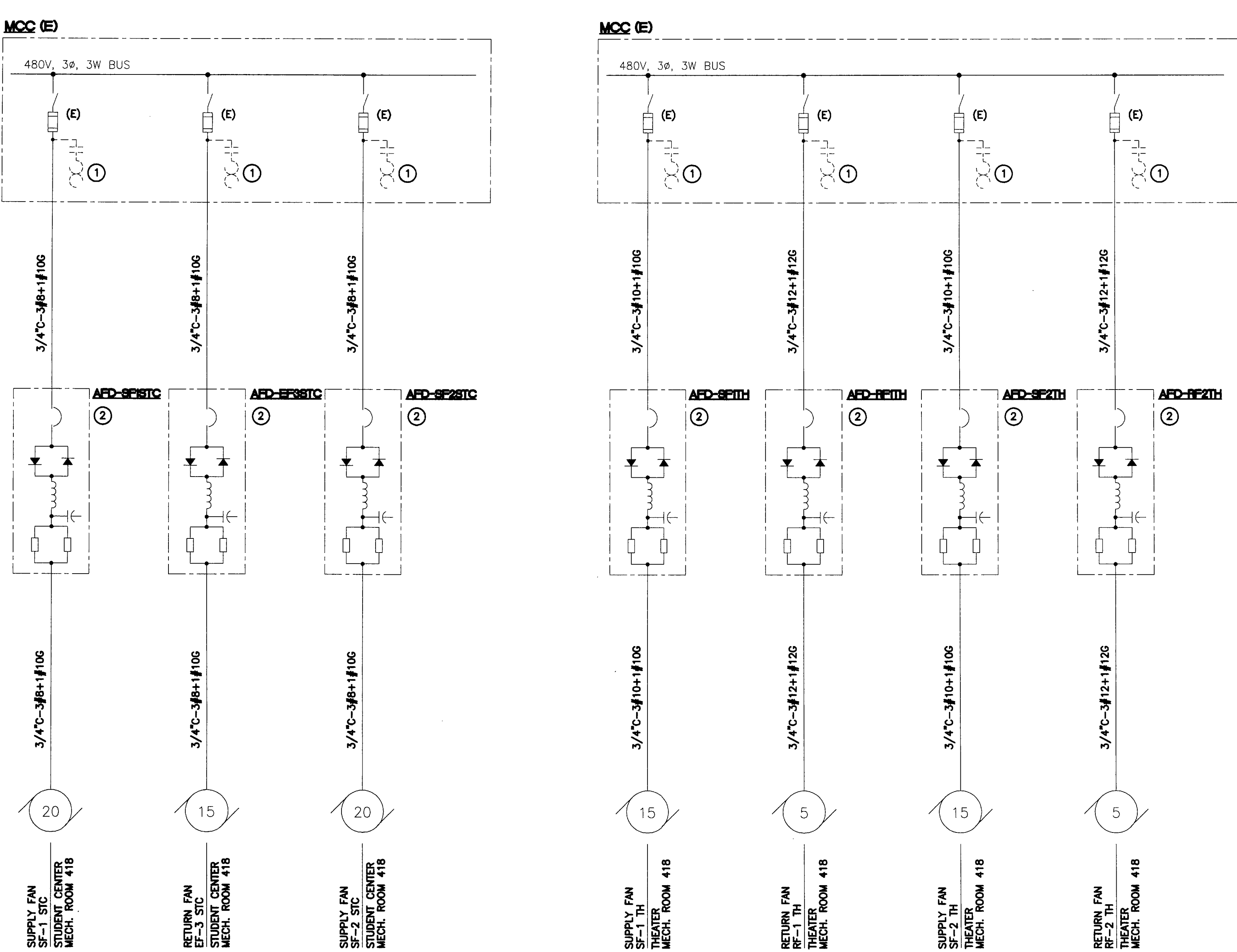
PLAN NOTES

- ① REMOVE EXISTING MOTOR STARTER, INDICATING LIGHT, SELECTOR SWITCH, AND ASSOCIATED WIRING. INSTALL OILTIGHT HOLE SEALS TO COVER PUSH-BUTTON HOLES.
- ② EQUIPMENT TO BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL AND CONNECT POWER CIRCUIT CONDUIT(S) AND WIRING AS SHOWN ON THE ELECTRICAL DRAWINGS.

GENERAL NOTES

- A. VERIFY EQUIPMENT AND CIRCUIT CONDUIT LOCATION PRIOR TO BID.
- B. AFD'S ARE INSTALLED BY MECHANICAL CONTRACTOR.
- C. REMOVE EXISTING STARTER AND REWIRE MOTOR CIRCUIT FROM MCC TO AFD, AND FROM AFD TO MOTOR.
- D. CONNECT EXISTING DUCT SMOKE DETECTOR CIRCUITS FOR FAN SHUTDOWN.
- E. SALVAGE AND DELIVER REMOVED MCC PARTS TO OWNER.

SINGLE-LINE DIAGRAMS



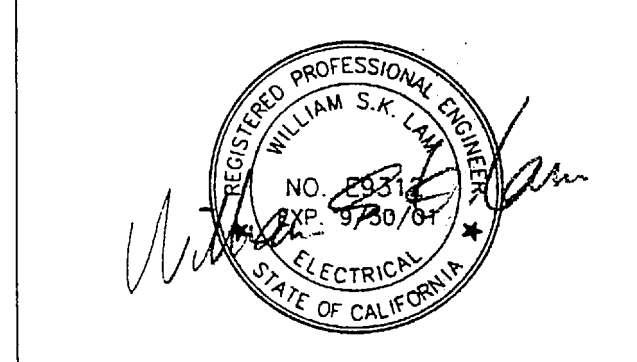
NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
BOSEK, GIBSON & ASSOCIATES
WALNUT CREEK, CA
510/944-8929

ELECTRICAL CONSULTANT
WILLIAM LAM & ASSOCIATES
1832 Buchanan St., Suite 207
San Francisco, CA 94115
415/346-1112

B
G
A

BOSEK, GIBSON & ASSOCIATES, INC.
ENGINEERING CONSULTANTS
1371 OAKLAND BLVD., SUITE 102
WALNUT CREEK, CALIFORNIA 94698
(916) 844-8929
Project: 98-005



Client:

Peralta Community College District

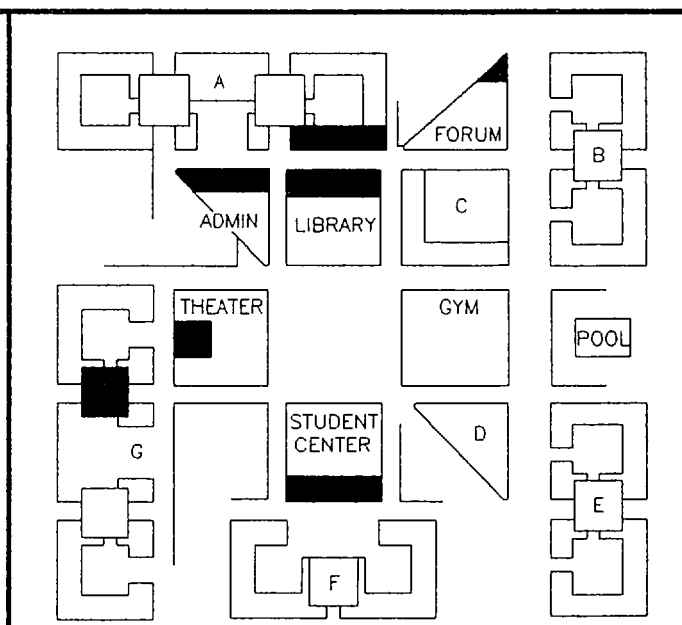
Project Name:
MECHANICAL SYSTEMS MAINTENANCE
EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE
FAN AFD
SINGLE-LINE DIAGRAM

DATE:	5/26/98	JOB NO.:	98-005
SCALE:	NONE	SHEET NO.:	
DRAWN BY:	WL	E-106	
CHECKED BY:	WL		
APPROVED BY:			

CONSTRUCTION DOCUMENTS

APR 22 1999



KEY PLAN

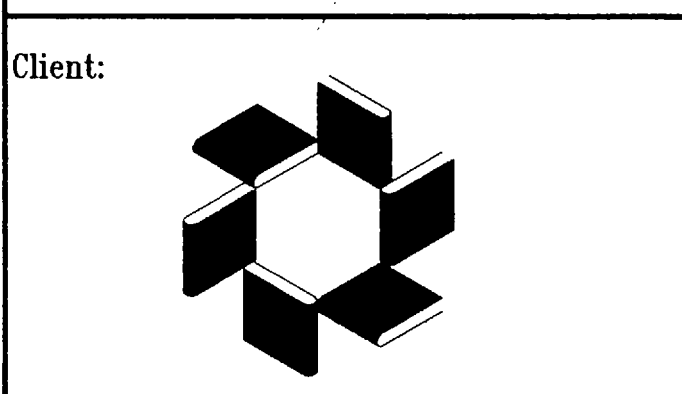
NO.	DATE	DESCRIPTION
REVISIONS		
MECHANICAL CONSULTANT BOSEK, GIBSON & ASSOCIATES WALNUT CREEK, CA 510/944-8929		
BOSEK, GIBSON & ASSOCIATES, INC. ENGINEERING CONSULTANTS 1371 OAKLAND BLVD., SUITE 102 WALNUT CREEK, CALIFORNIA 94596 (510) 944-8929 Project: 98-005		

NO. DATE DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

BOSEK, GIBSON & ASSOCIATES, INC.
 ENGINEERING CONSULTANTS
 1371 OAKLAND BLVD., SUITE 102
 WALNUT CREEK, CALIFORNIA 94596
 (510) 944-8929
 Project: 98-005



Peralta Community College District

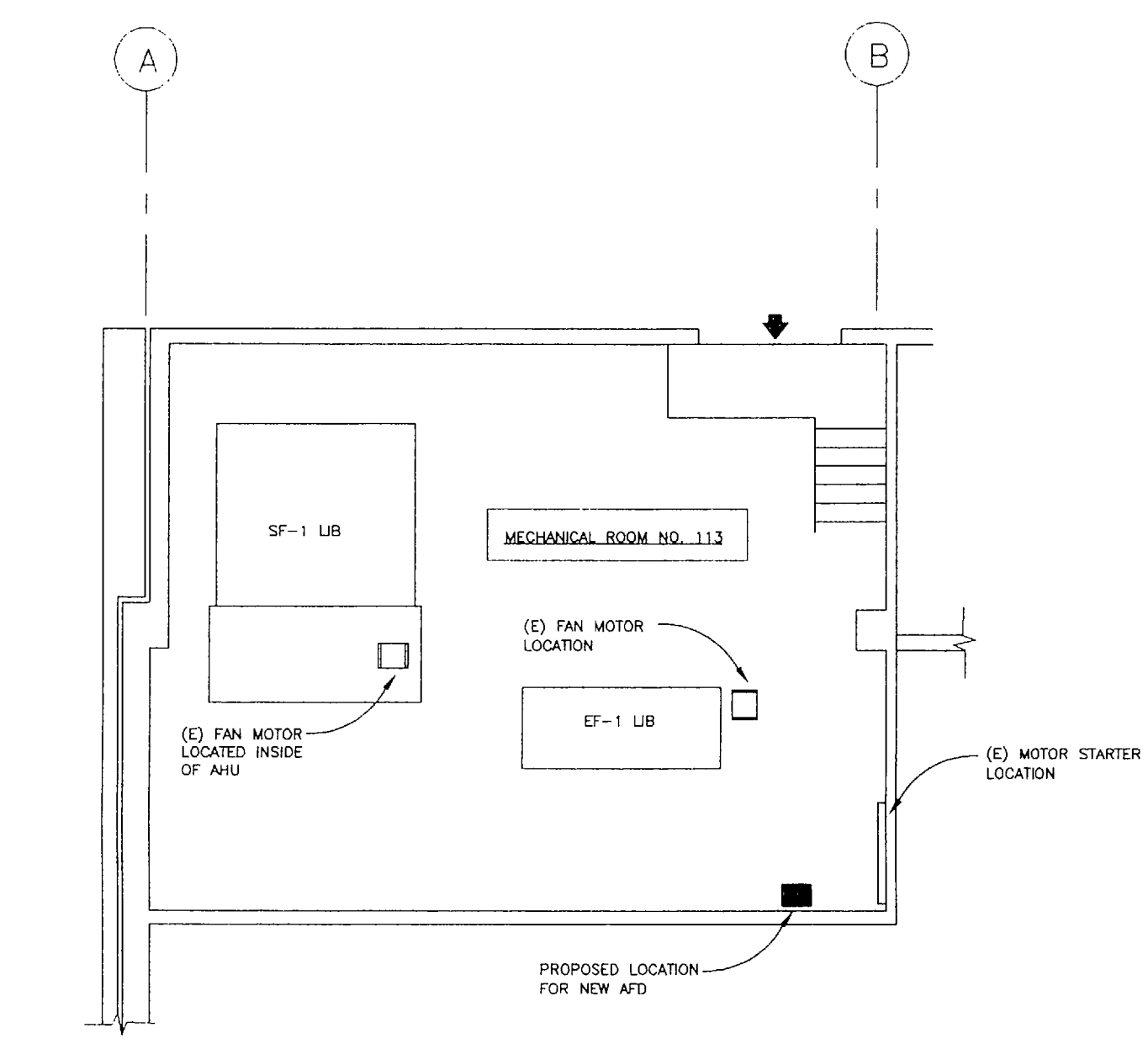
Client:
 MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
 LANEY COLLEGE
 PROPOSED NEW AFD LOCATIONS

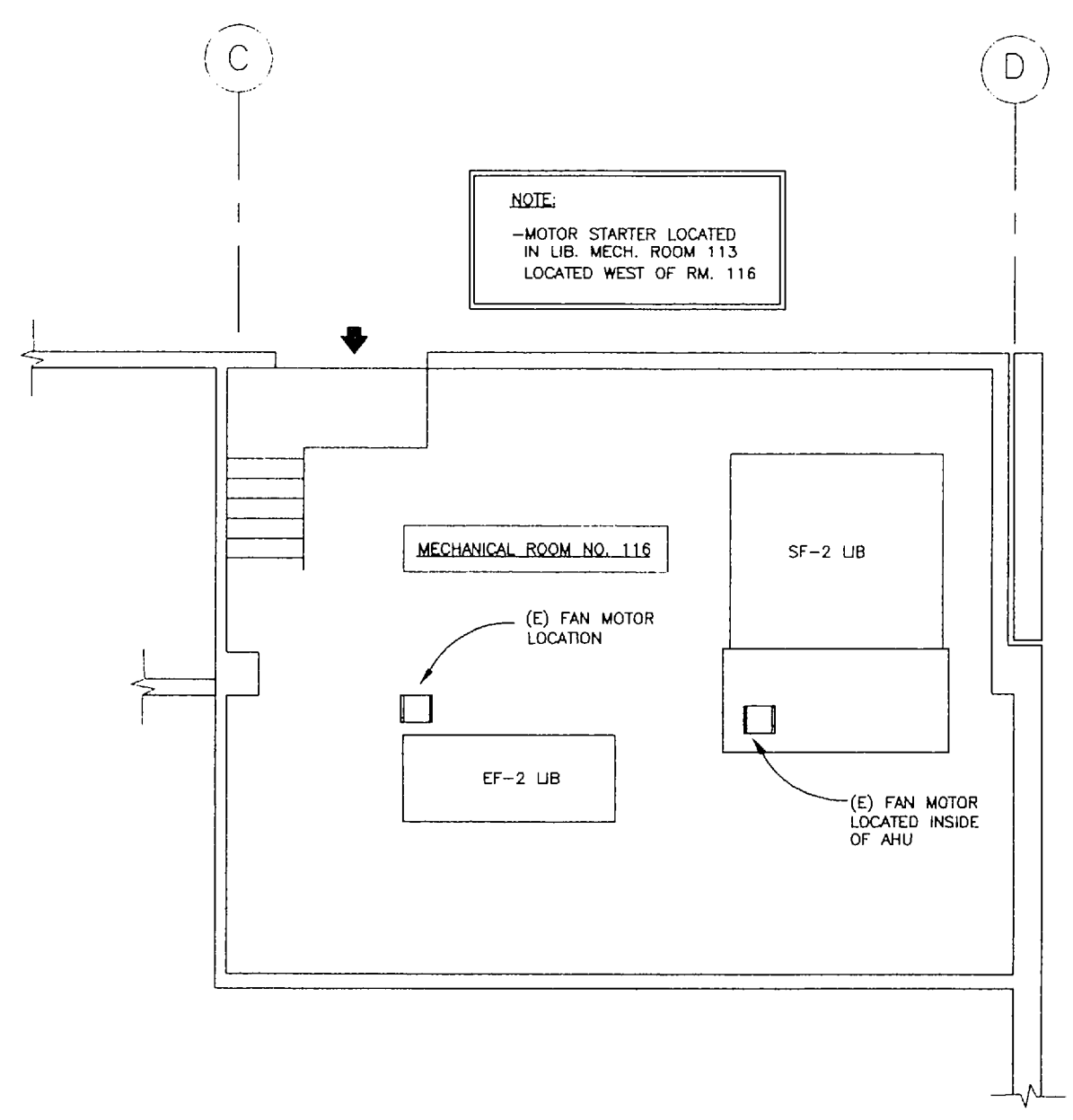
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CONSTRUCTION DOCUMENTS

MAY 22 1999

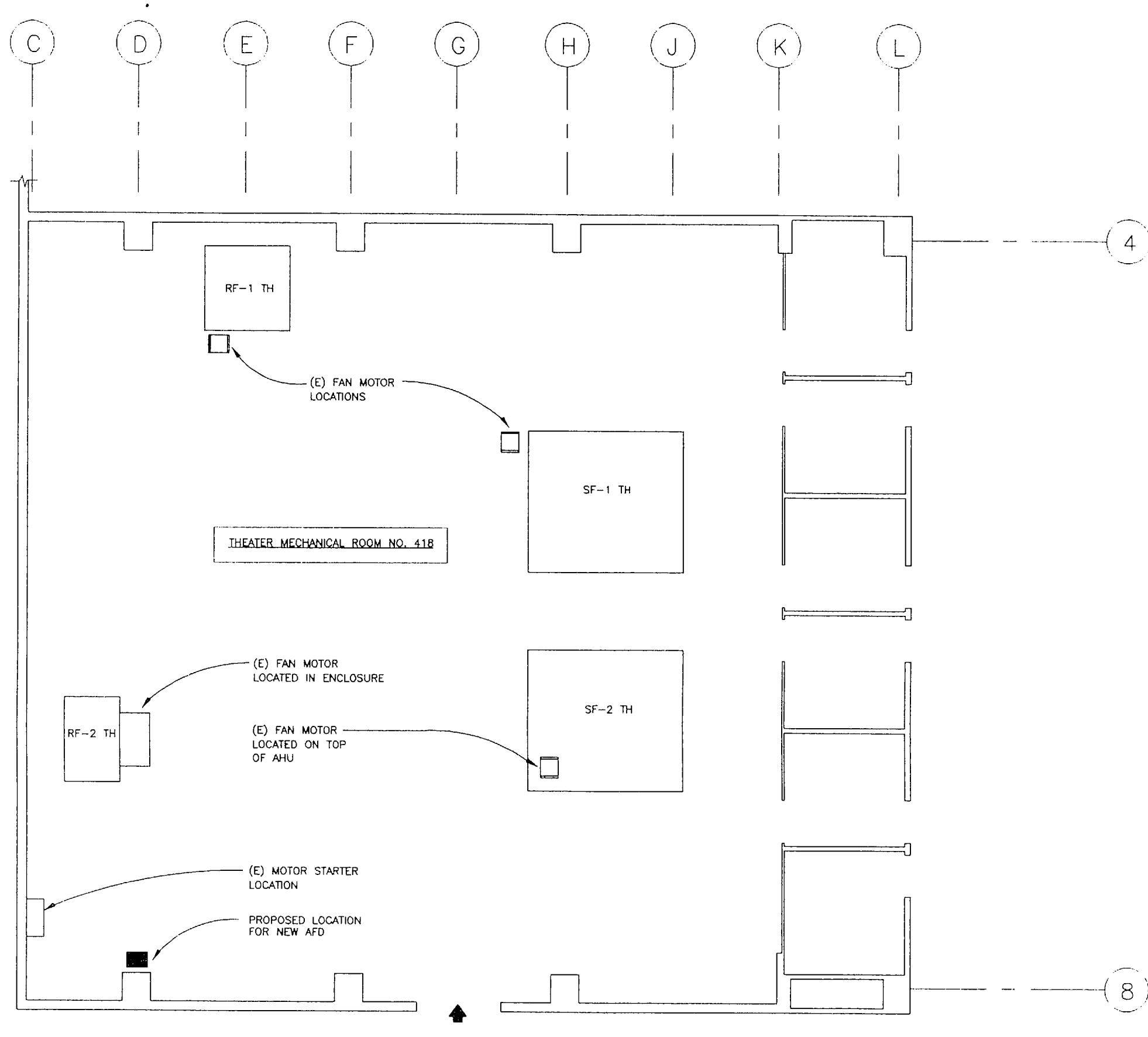


LIBRARY - MECHANICAL ROOM NO. 113
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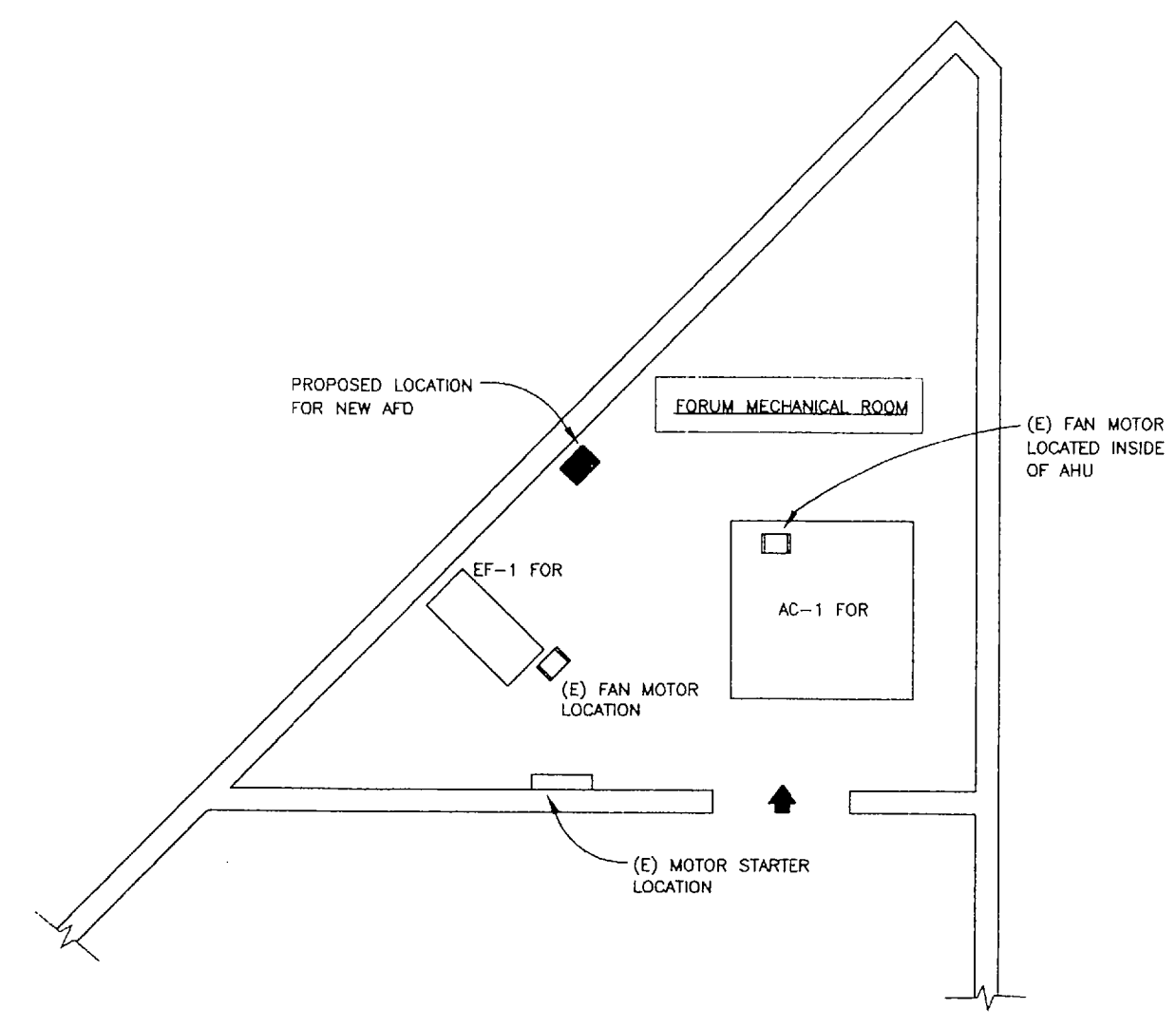


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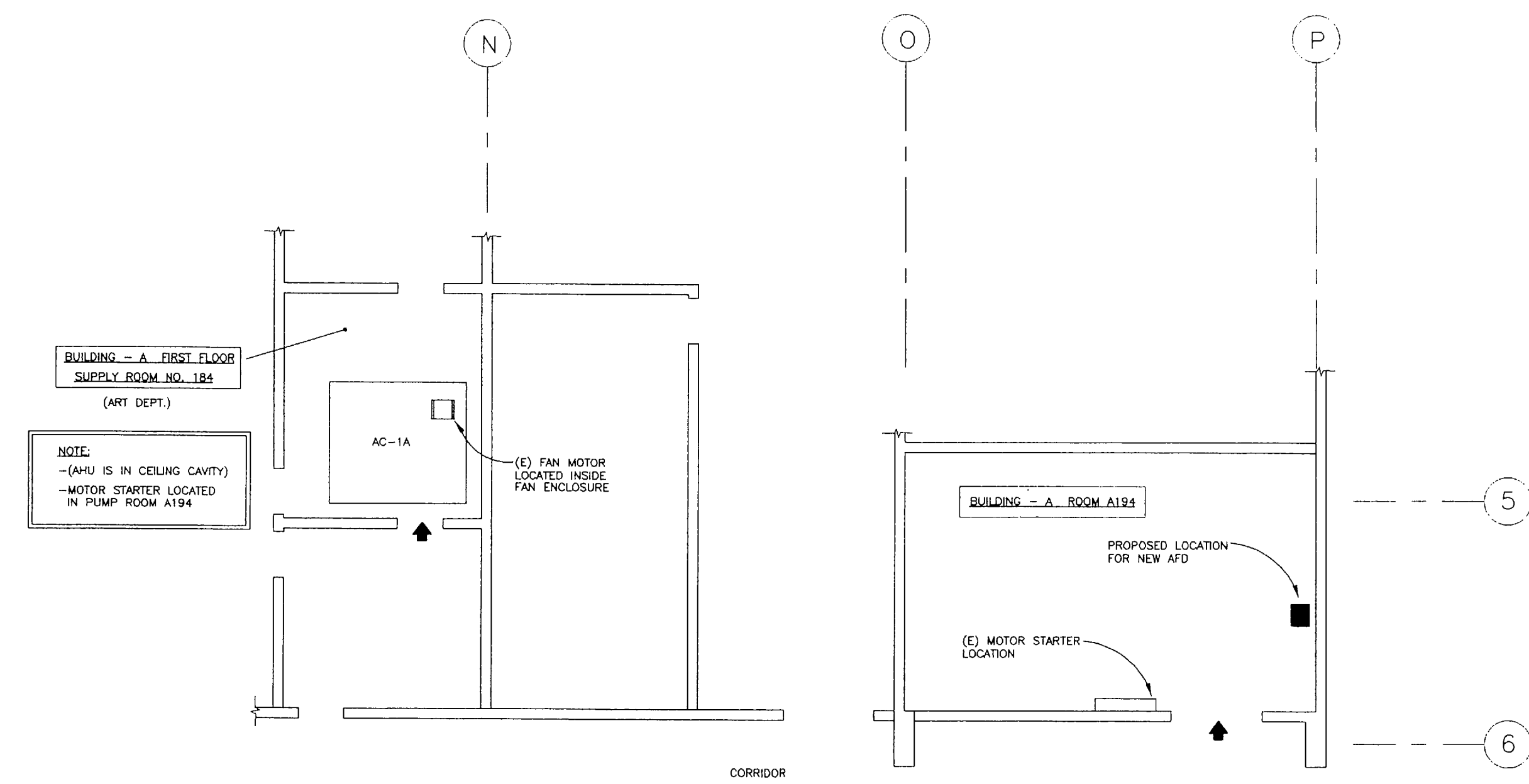
NOTE:
 1. THE ONLY SCOPE OF WORK IN THESE LOCATIONS IS PROVIDING NEW AFD'S.



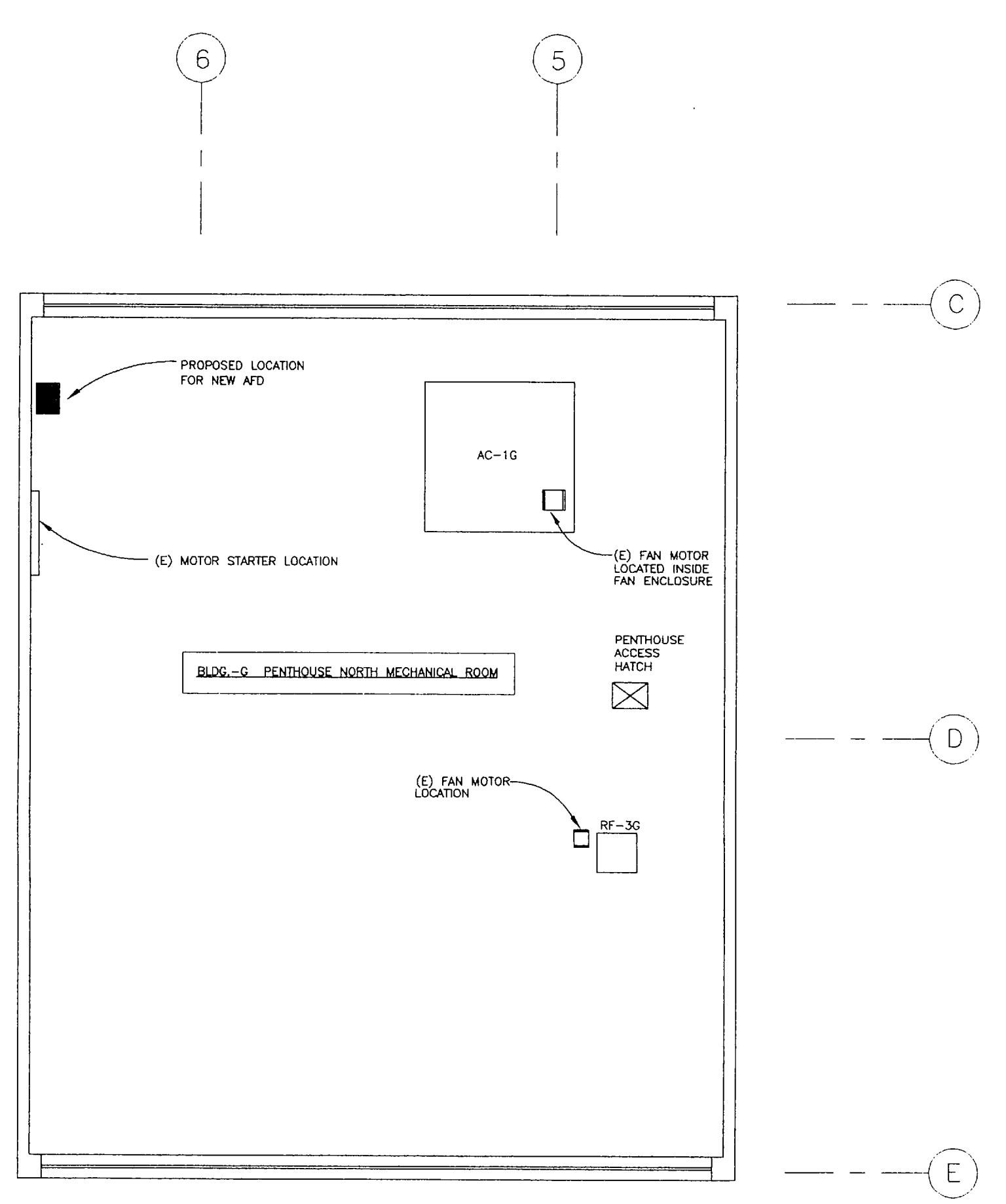
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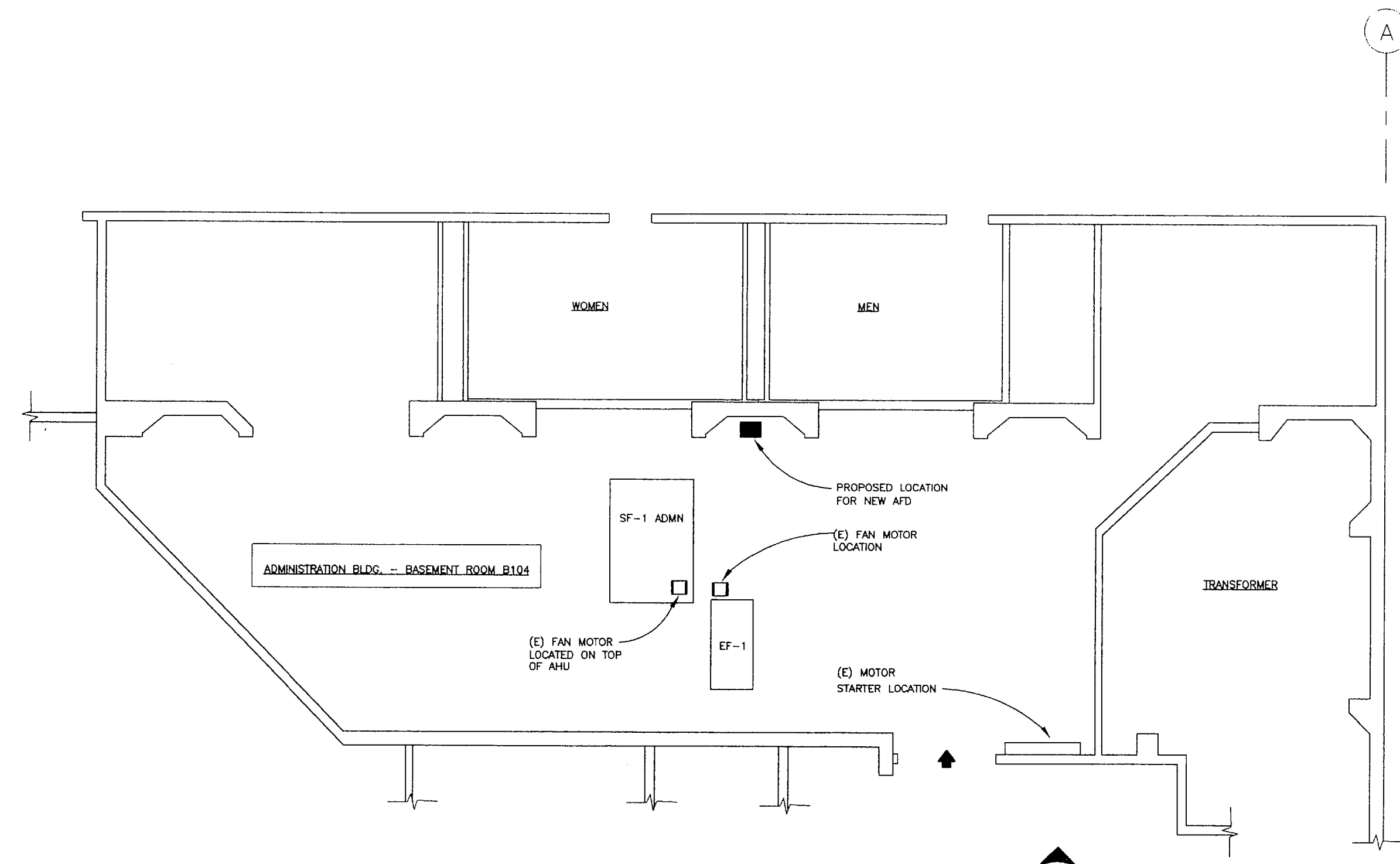
FORUM - MECHANICAL ROOM
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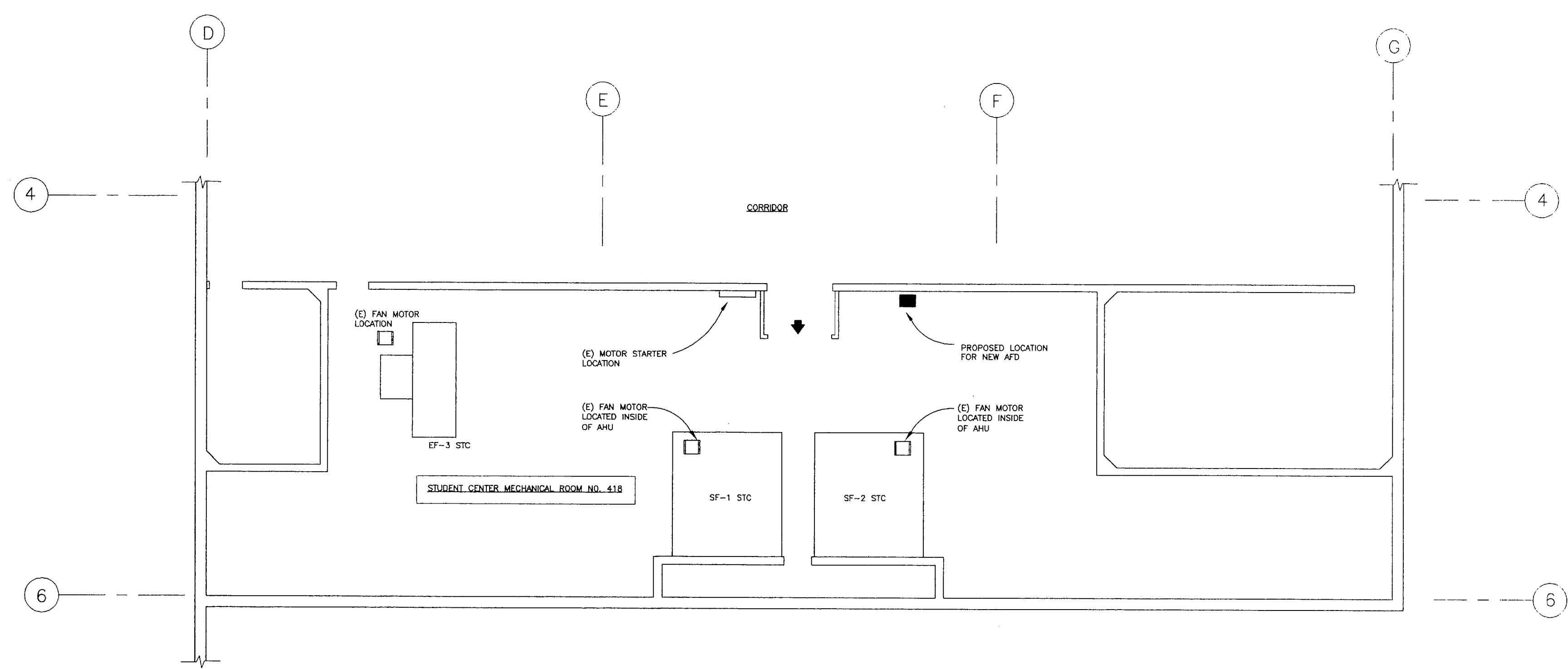
BLDG. A - 1ST FLOOR SUPPLY RM. NO. 184
 SCALE: 1/8"=1'-0"



BLDG. - G PENTHOUSE NORTH MECH. ROOM
 SCALE: 1/8"=1'-0"

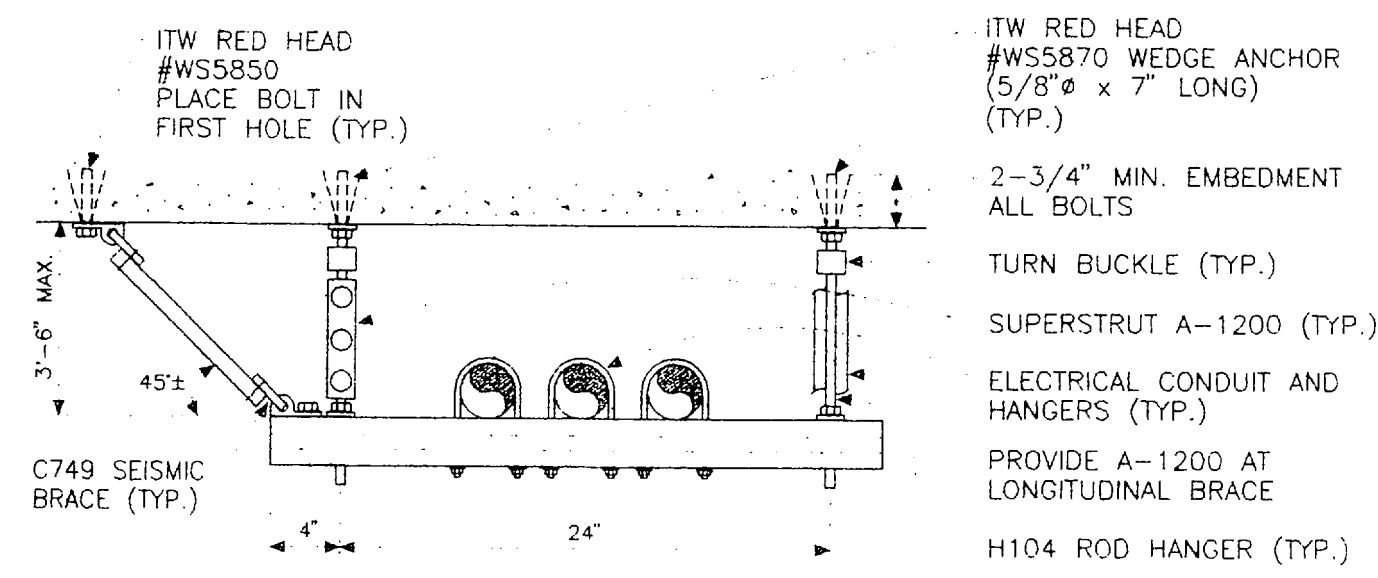


ADMIN. BLDG. - BASEMENT ROOM B104
 SCALE: 1/8"=1'-0"

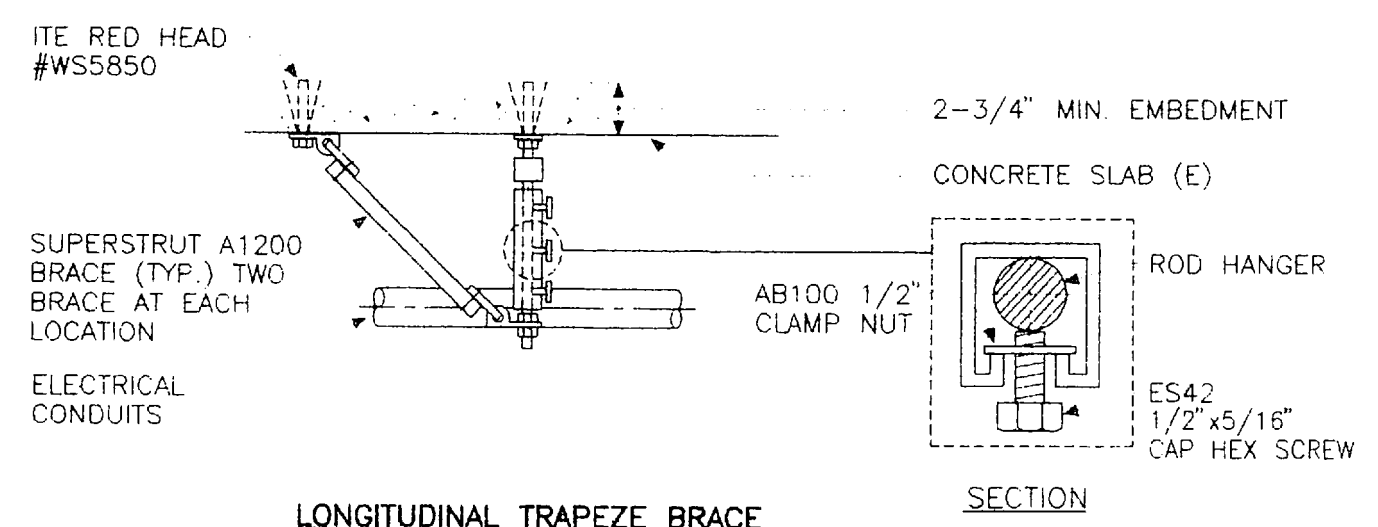


STUDENT CENTER - MECHANICAL RM. NO. 418
 SCALE: 1/8"=1'-0"

DETAILS



HORIZONTAL TRAPEZE BRACE

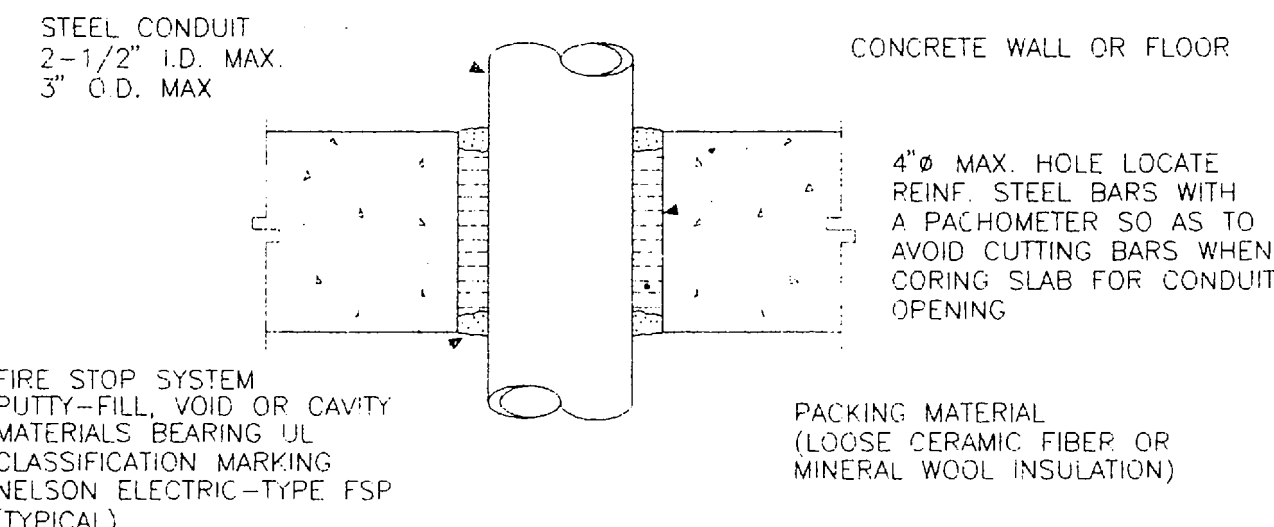


LONGITUDINAL TRAPEZE BRACE

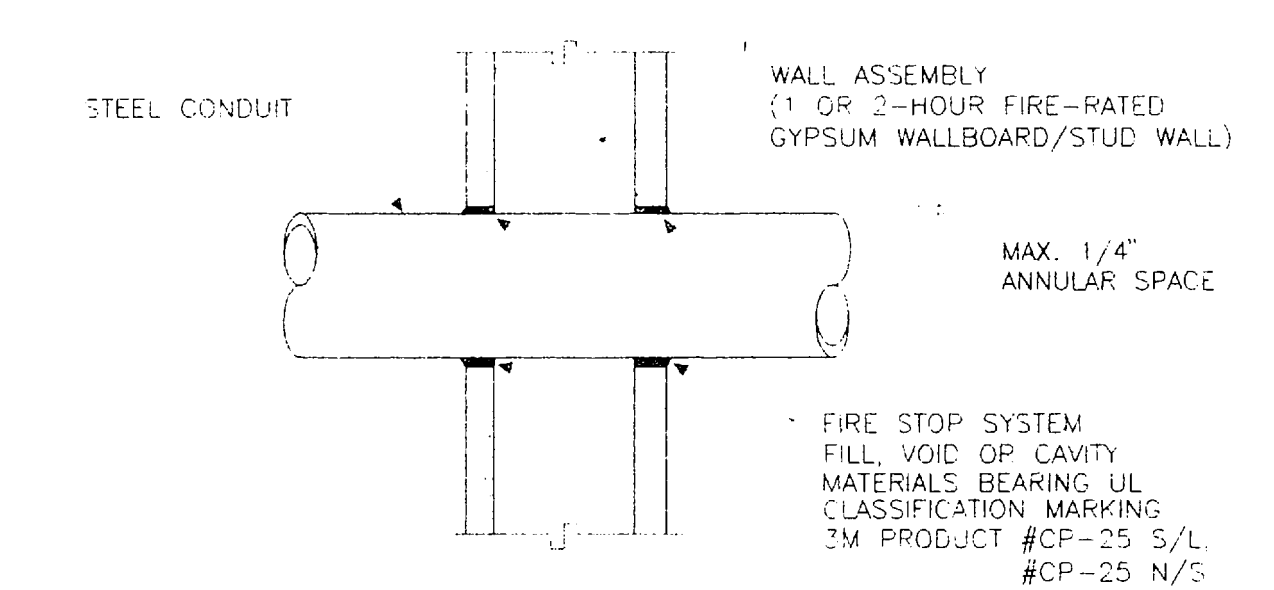
CONDUIT SIZE	HORIZONTAL BRACE SPACING	LONGITUDINAL BRACE SPACING
3" & OVER	18'-0"	36'-0"

NOTE:
 ON THIS TESTS REQUIRED FOR 50% OF EXPANSION BOLTS:
 MIN. 1000 LBS FOR 1/2" BOLTS
 MIN. 1200 LBS FOR 5/8" BOLTS
 PLACE ALL EXPANSION BOLTS IN BOTTOM OF (E) CONCRETE SLAB

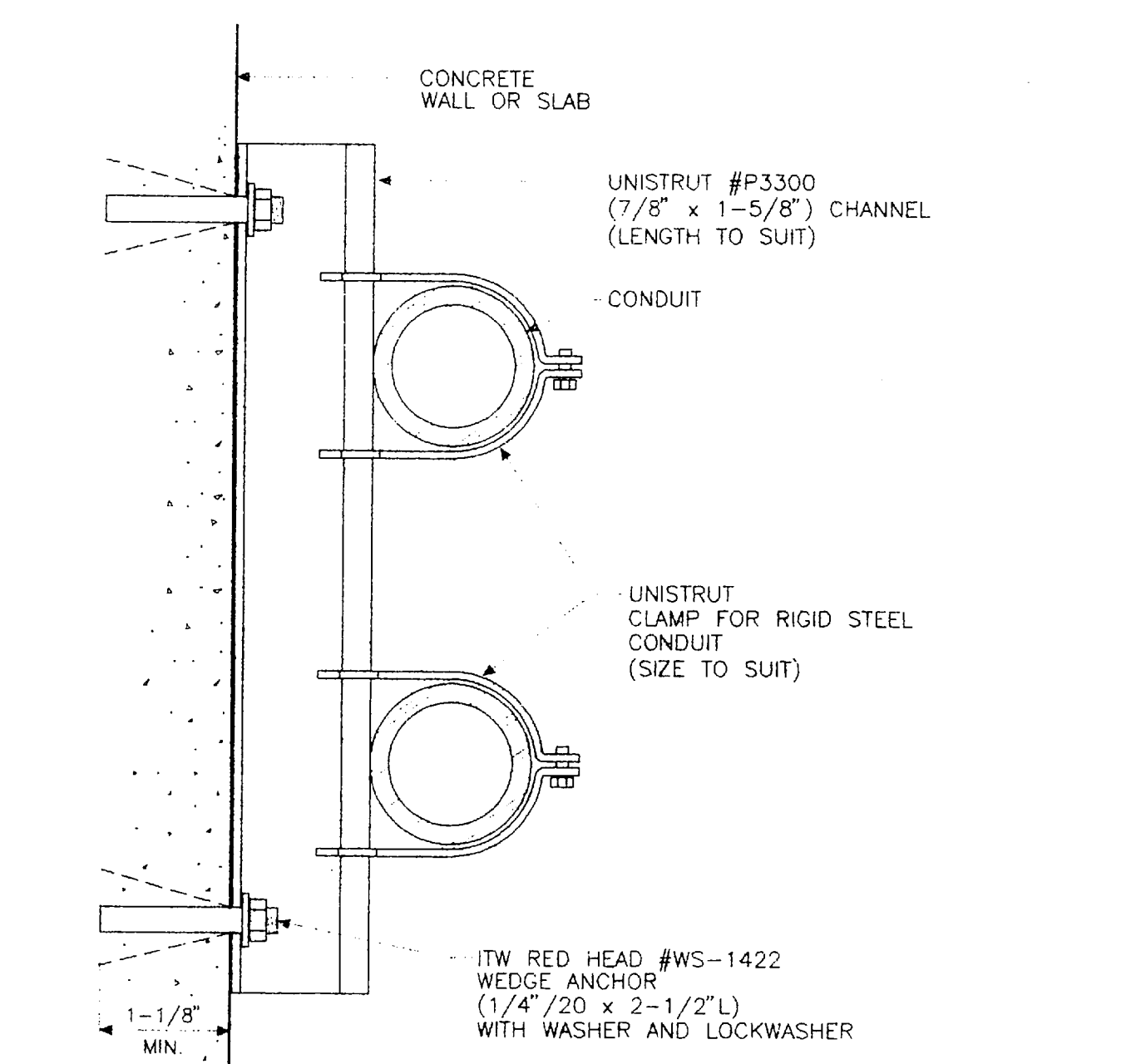
SEISMIC SWAY BRACE DETAIL
 NOT TO SCALE



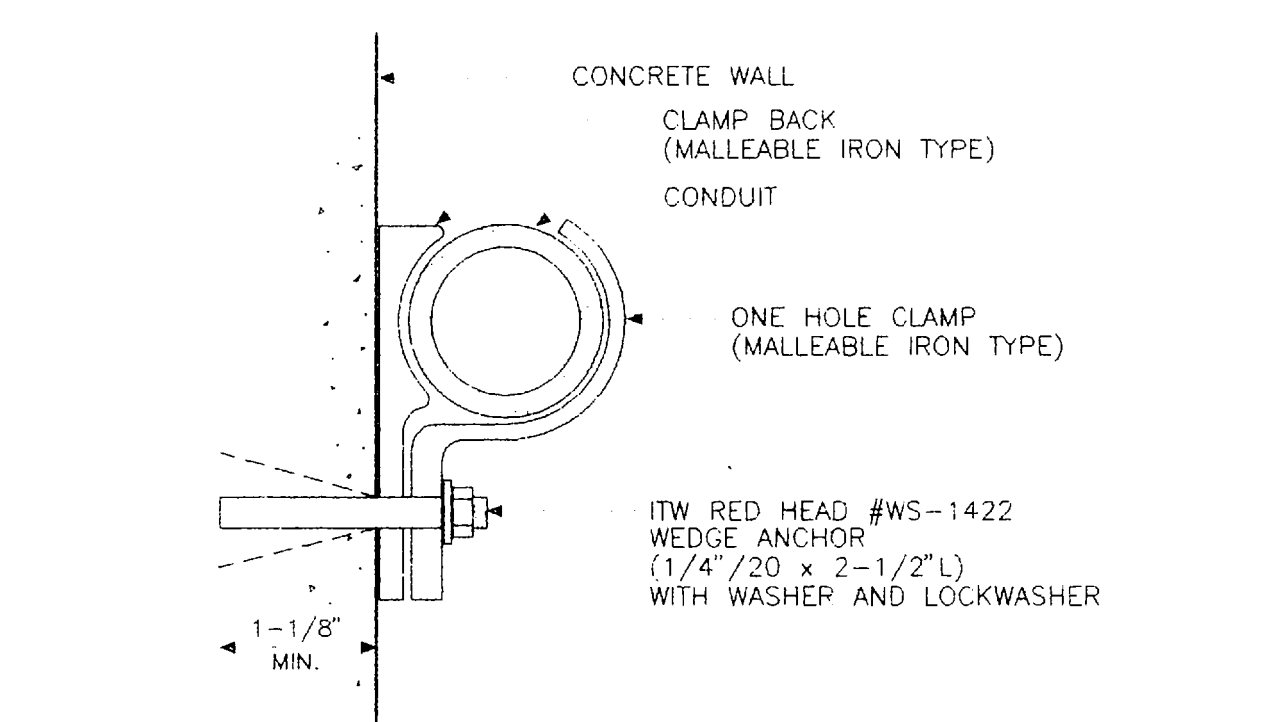
CONCRETE WALL OR FLOOR CONDUIT PENETRATION DETAIL
 NOT TO SCALE



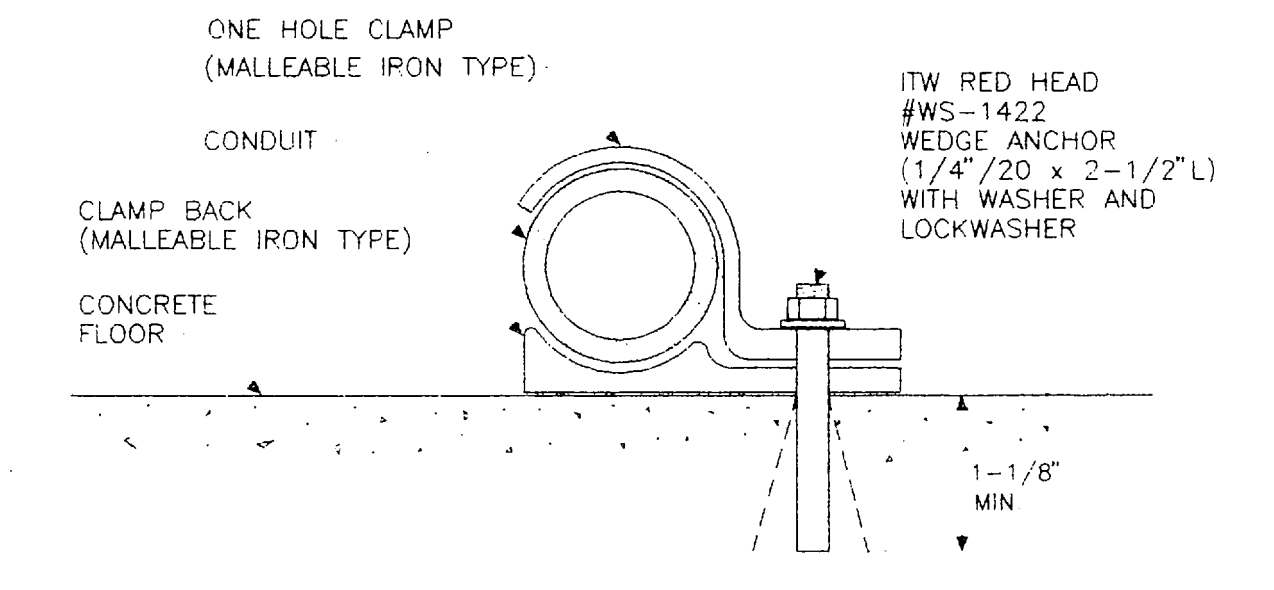
1 OR 2-HOUR FIRE-RATED WALL CONDUIT PENETRATION DETAIL
 NOT TO SCALE



MULTIPLE CONDUITS SUPPORT
 NOT TO SCALE

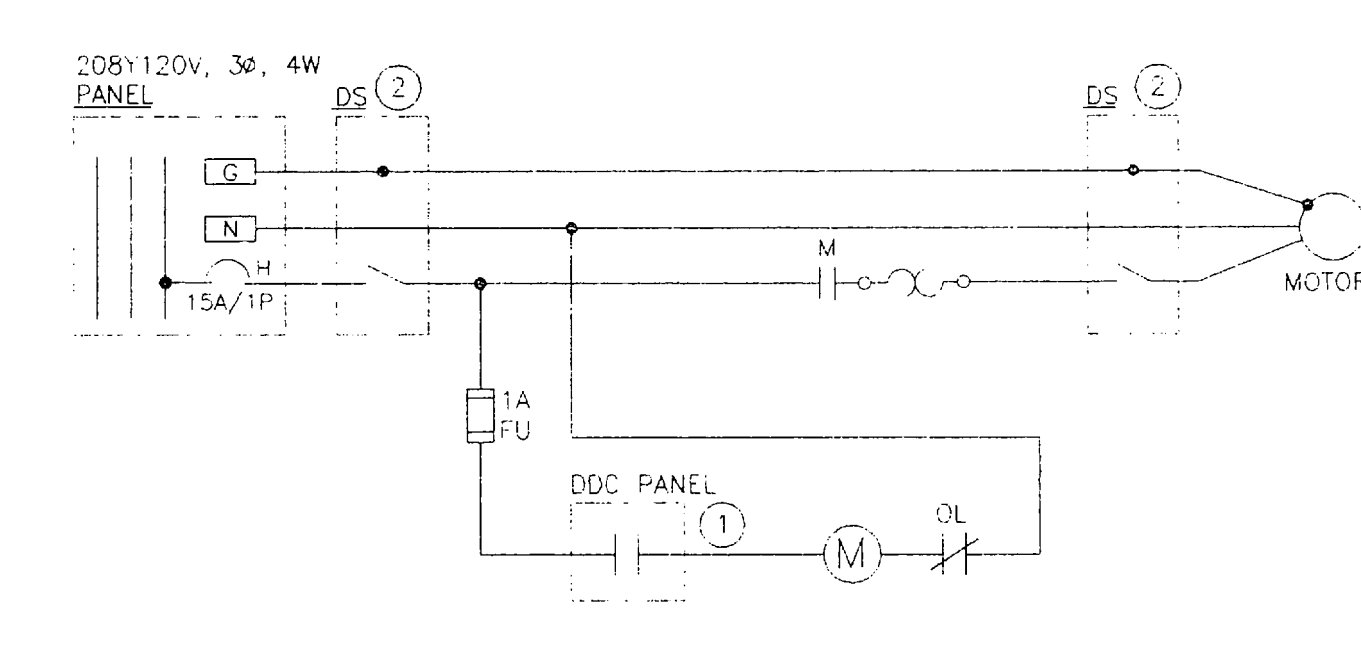


SINGLE CONDUIT SUPPORT



SINGLE CONDUIT SUPPORT

DIAGRAMS



CIRCULATION PUMP CONTROL ELEMENTARY DIAGRAM

NOTE
 1 SEE MECHANICAL DRAWINGS FOR CONTROL CONNECTION
 2 SEE SINGLE-LINE DIAGRAM FOR LOCATION

LEGEND

- SWITCH
- CIRCUIT BREAKER, THERMAL-MAGNETIC MOLDED-CASE TYPE
- FUSE
- TRANSFORMER
- MOTOR CIRCUIT PROTECTOR (MCP), MAGNETIC ONLY TYPE CIRCUIT BREAKER
- GROUNDING
- MOTOR STARTER
- DRAWOUT STABS
- MOTOR STARTER, NEMA SIZE AS INDICATED
- MOTOR STARTER COIL
- RELAY COIL
- NORMALLY OPEN (NO) CONTACT
- NORMALLY CLOSED (NC) CONTACT
- PUSHBUTTON SWITCH, N.O. CONTACT
- PUSHBUTTON SWITCH, N.C. CONTACT
- 3-POSITION SELECTOR SWITCH
- PILOT LIGHT, R = RED, G = GREEN
- FIRE ALARM ADDRESSABLE INTERFACE MODULE
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, NONFUSED
- MOTOR OUTLET, NUMBER INDICATES HORSEPOWER UON
- DURLEX RECEPTACLE, NEMA 5-20R, COMMERCIAL SPECIFICATION GRADE, WALL MOUNTED +18" UON
- JUNCTION BOX
- PANELBOARD
- FLASHING BEACON LIGHT WITH WARNING HORN
- CONDUIT RUN CONCEALED IN CEILING OR WALL UON
- CONDUIT RUN CONCEALED BELOW FINISHED FLOOR OR GRADE
- FLEXIBLE METAL CONDUIT
- CONDUIT RUN "UP"
- CONDUIT RUN "DOWN"
- CONDUIT HOME RUN, CONTINUE CONDUIT AND CONDUCTORS TO PANEL, DEVICE OR TERMINAL
- BRANCH CIRCUIT WITH #12 AWG INSULATED GROUND WIRE
 NOTE: BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AWG WIRE CIRCUIT. ADDITIONAL NUMBER OF #2 AWG AS FOLLOWS:
 --- 3 #12
 --- 3 #12 + 1 #12G

- INDICATES NUMBERED NOTE ON RESPECTIVE SHEET
- A AMPERE
- AFD ADJUSTABLE FREQUENCY DRIVE
- AFF ABOVE FINISHED FLOOR
- C CONDUIT
- DS DISCONNECT SWITCH
- DWG DRAWING
- G GROUND
- GFCI GROUND-FAULT CIRCUIT-INTERRUPTER TYPE
- MCC MOTOR CONTROL CENTER
- MS MOTOR STARTER
- N NEUTRAL
- TYP TYPICAL
- UON UNLESS OTHERWISE NOTED
- V VOLT
- WP EQUIPMENT OR DEVICE WITH WEATHERPROOF ENCLOSURE
- (E) EXISTING TO REMAIN
- (R) EXISTING TO BE REMOVED

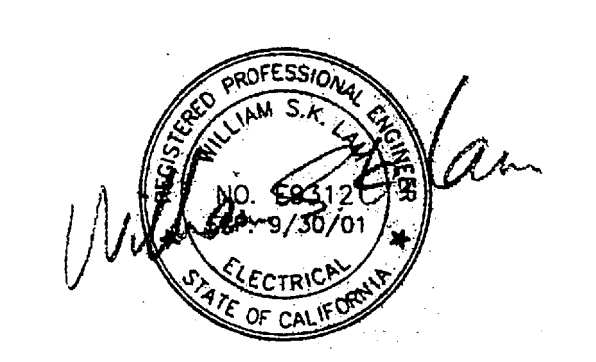
NO.	DATE	DESCRIPTION

REVISIONS

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

ELECTRICAL CONSULTANT
 WILLIAM LAM & ASSOCIATES
 1832 Buchanan St., Suite 207
 San Francisco, CA 94115
 415/346-1112

BOSEK, GIBSON & ASSOCIATES, INC.
 ENGINEERING CONSULTANTS
 1371 OAKLAND BLVD., SUITE 106
 WALNUT CREEK, CALIFORNIA 94596
 (510) 944-8929
 Project: 98-005



EQUIPMENT ANCHORAGE

A. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTION IN ANY DIRECTION USING THE FOLLOWING CRITERIA:

FIXED EQUIPMENT ON GRADE	20% OF OPERATING WEIGHT
FIXED EQUIPMENT ON STRUCTURE	30% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON GRADE	30% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON STRUCTURE	40% OF OPERATING WEIGHT

SIMULTANEOUS VERTICAL FORCE - USE 1/3 x HORIZONTAL FORCE.
 FOR FLEXIBLY MOUNTED EQUIPMENT SEE TITLE 24, SECTION 1630A.2, CBC 1995
 WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO APPROVAL OF THE ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.

B. SEISMIC RESTRAINTS SHALL BE PROVIDED PER SMACNA "SEISMIC RESTRAINT MANUAL" GUIDELINES FOR MECHANICAL SYSTEMS.

DEMOLITION NOTES

- A. EXISTING EQUIPMENT, DEVICES AND CONDUIT RUNS NOT SHOWN SHALL REMAIN.
- B. REROUTE ALL OR PORTIONS OF EXISTING FACILITIES THAT ARE IN THE PATH OF THE NEW WORK. REESTABLISH COMPLETE SERVICE TO ALL EXISTING FACILITIES WHERE DISRUPTED BY THIS WORK.
- C. MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING OUTLETS REMAINING IN USE WHETHER SHOWN OR NOT. RECONNECT CIRCUIT CONDUITS AND WIRING WHICH ARE INTERRUPTED DUE TO REMOVAL OF OUTLETS.
- D. DEENERGIZE AND DISCONNECT EXISTING CIRCUITS TO EQUIPMENT TO BE REMOVED OR RELOCATED.
- E. EXISTING CONDUIT RUNS MAY BE REUSED FOR NEW WIRING WHERE FEASIBLE. REMOVE ABANDONED CONDUIT RUNS (WITH WIRING REMOVED) IN ACCESSIBLE AREAS. ABANDONED CONDUIT RUNS IN INACCESSIBLE AREAS SHALL REMAIN AND BE CAPPED.
- F. SEAL CEILING, WALL AND FLOOR PENETRATIONS CAUSED BY REMOVAL OF CONDUITS.
- G. PLUG BOX, CABINET AND ENCLOSURE OPENINGS CAUSED BY REMOVAL OF CONDUITS.

Client:

 Peralta Community College District

Project Name:
 MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

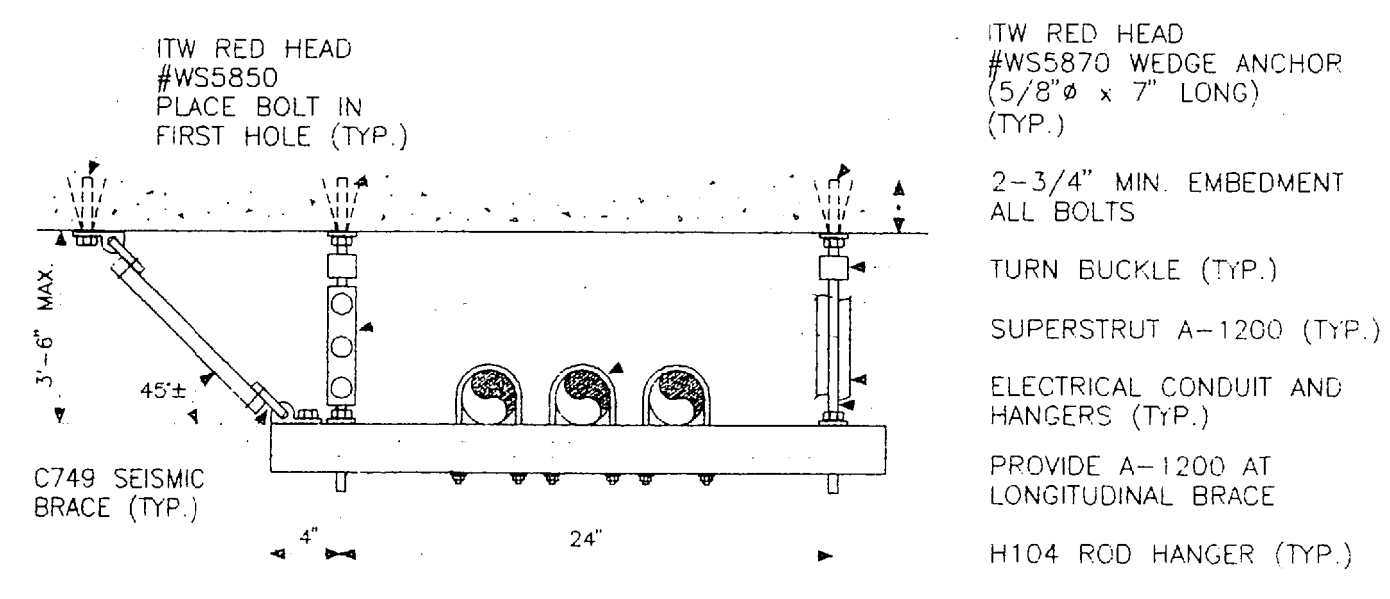
Drawing Name:
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DATE:	5/26/98	JOB NO.:	98-005
SCALE:	NONE	SHEET NO.:	
DRAWN BY:	SU	CHECKED BY:	WL
APPROVED BY:			

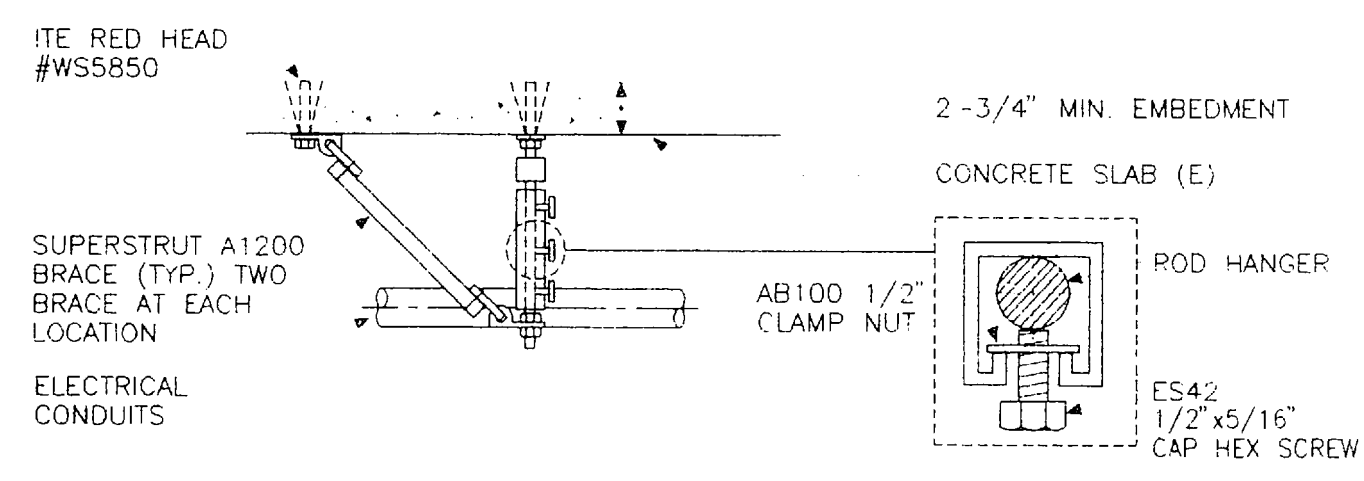
CONSTRUCTION DOCUMENTS

E-201

DETAILS



HORIZONTAL TRAPEZE BRACE



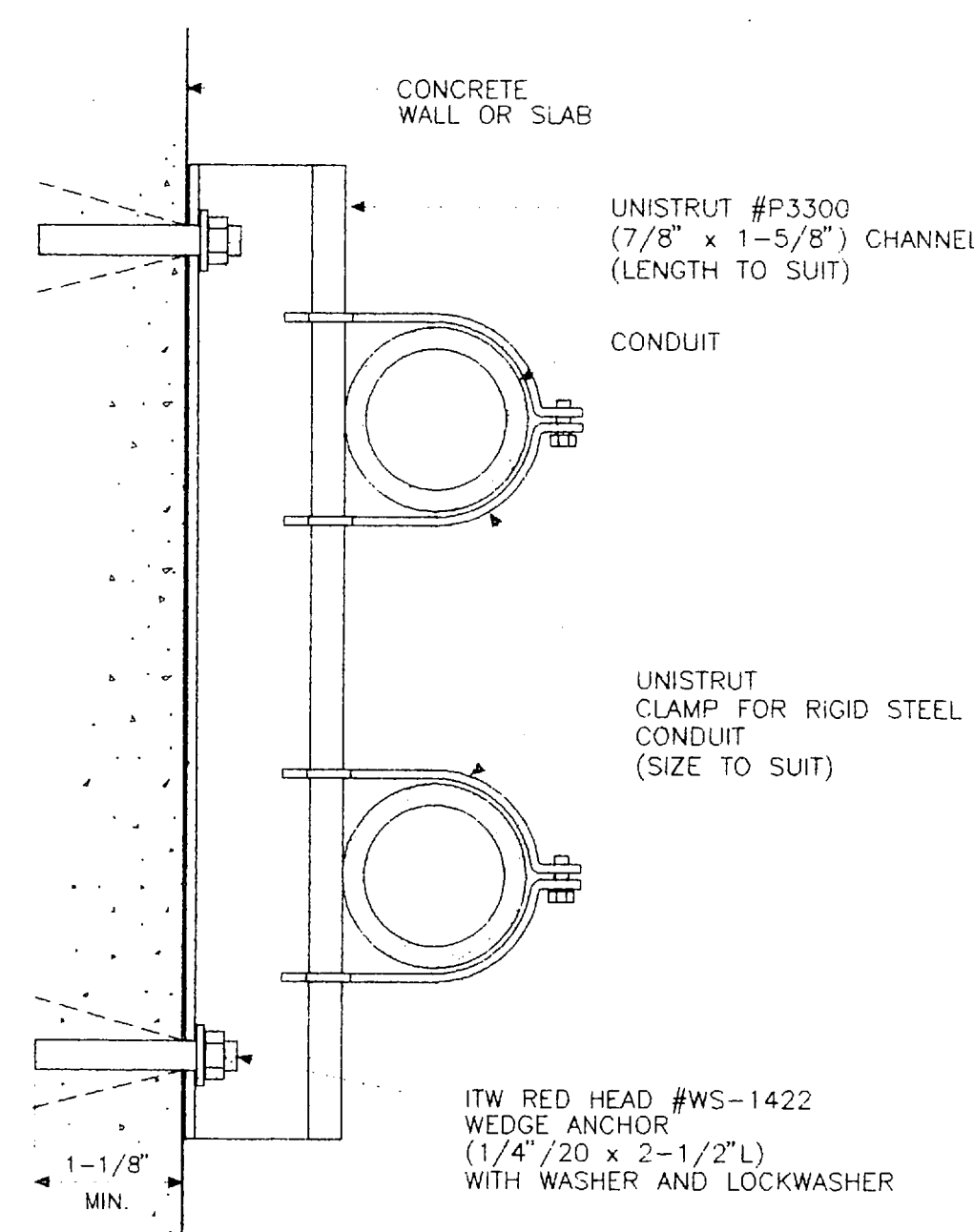
LONGITUDINAL TRAPEZE BRACE

CONDUIT SIZE	HORIZONTAL BRACE SPACING	LONGITUDINAL BRACE SPACING
3" & OVER	18'-0"	36'-0"

NOTE:
 ON THIS TESTS REQUIRED FOR 50% OF EXPANSION BOLTS
 MIN 1000 LBS FOR 1/2" BOLTS
 MIN 1200 LBS FOR 5/8" BOLTS
 PLACE ALL EXPANSION BOLTS IN BOTTOM OF (E) CONCRETE SLAB

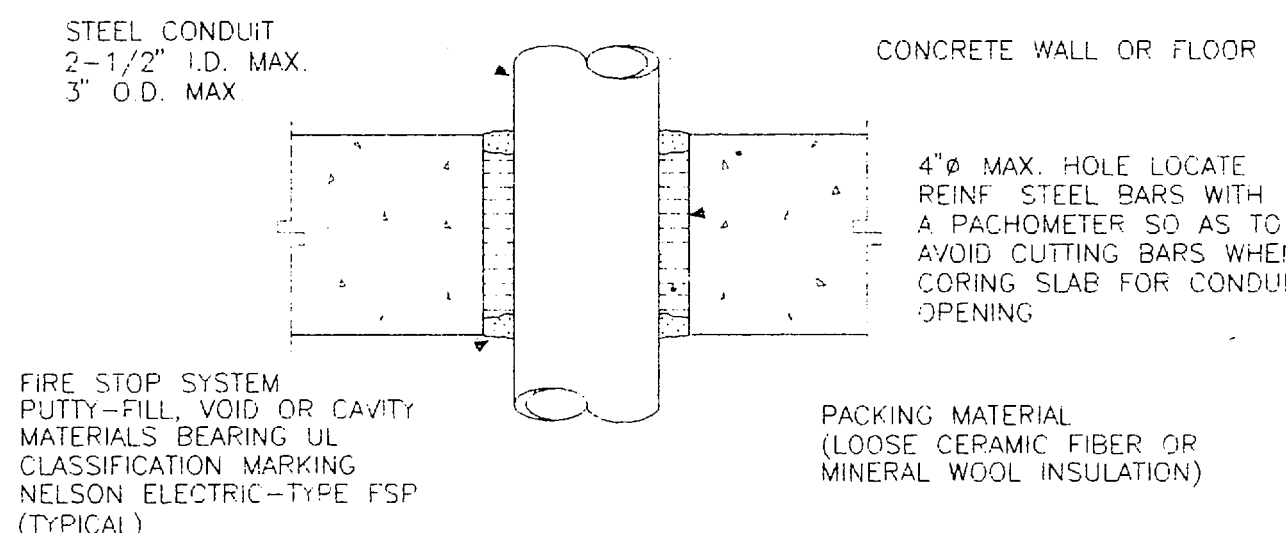
SEISMIC SWAY BRACE DETAIL

NOT TO SCALE



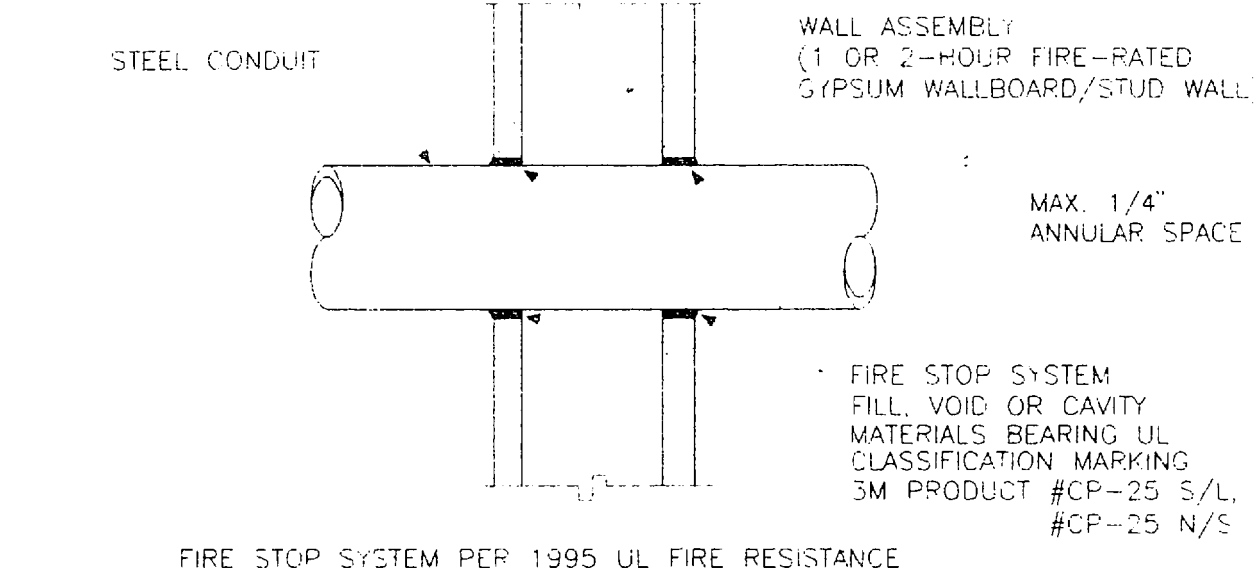
MULTIPLE CONDUITS SUPPORT

NOT TO SCALE



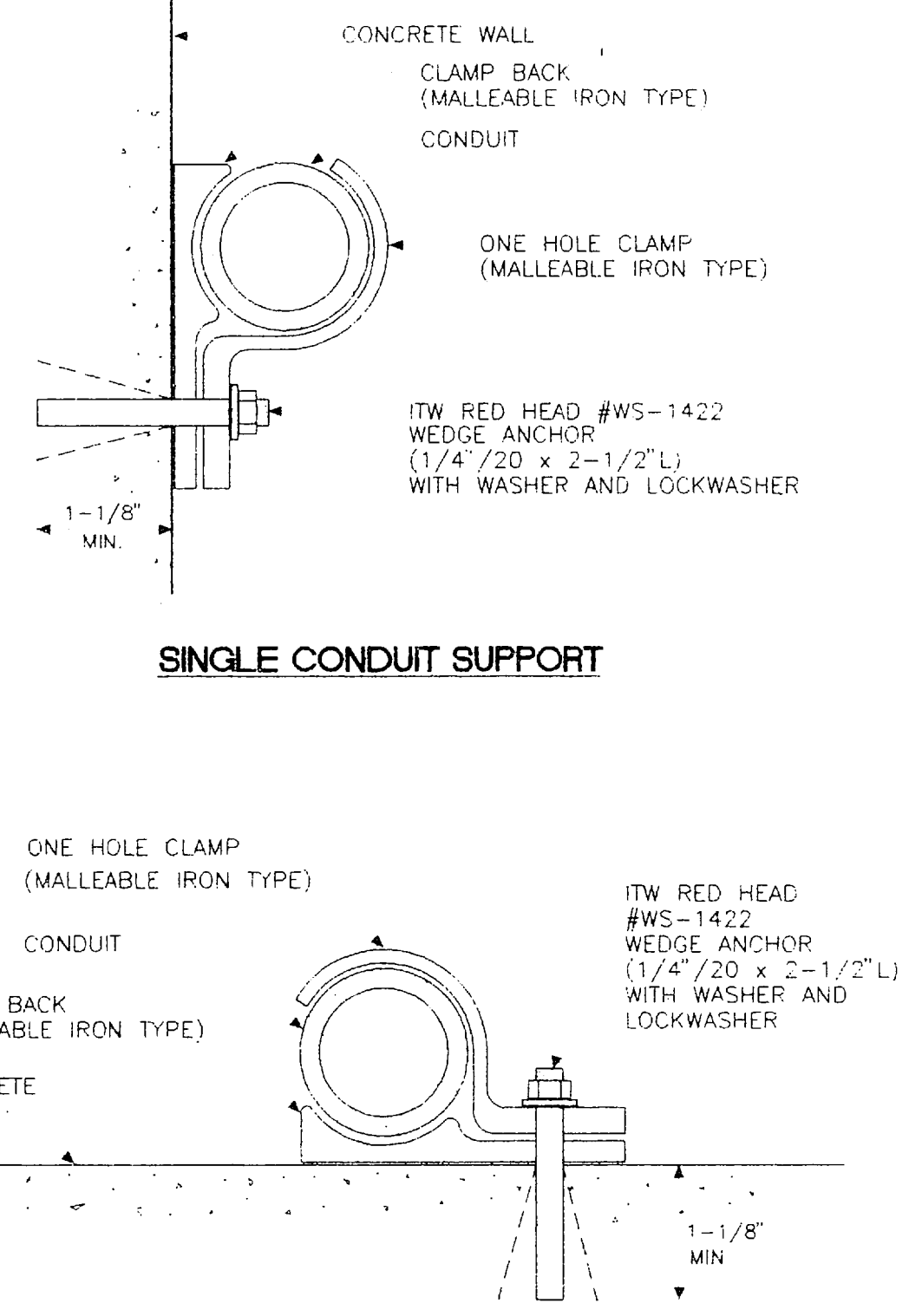
CONCRETE WALL OR FLOOR CONDUIT PENETRATION DETAIL

NOT TO SCALE

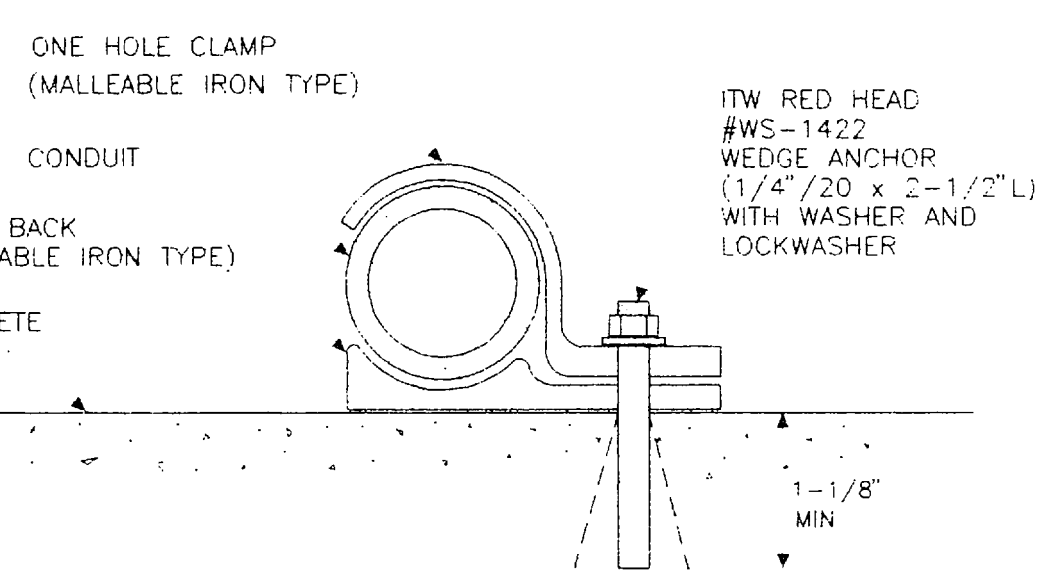


1 OR 2-HOUR FIRE-RATED WALL CONDUIT PENETRATION DETAIL

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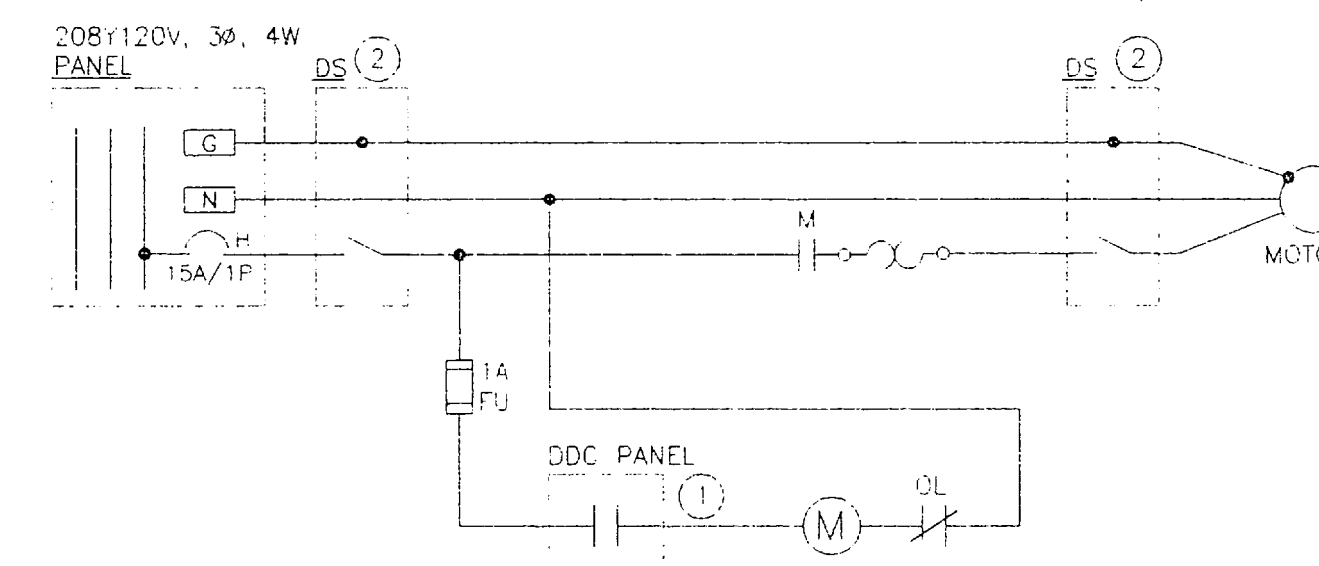


SINGLE CONDUIT SUPPORT



SINGLE CONDUIT SUPPORT

DIAGRAMS



CIRCULATION PUMP CONTROL ELEMENTARY DIAGRAM

NOTE

- 1 SEE MECHANICAL DRAWINGS FOR CONTROL CONNECTION.
- 2 SEE SINGLE-LINE DIAGRAM FOR LOCATION.

LEGEND

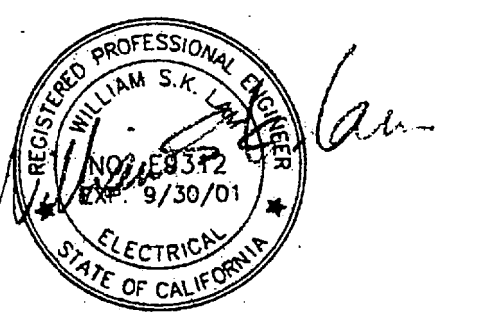
- SWITCH
- CIRCUIT BREAKER, THERMAL-MAGNETIC MOLDED-CASE TYPE
- FUSE
- TRANSFORMER
- MOTOR CIRCUIT PROTECTOR (MCP); MAGNETIC ONLY TYPE CIRCUIT BREAKER
- GROUNDING
- MOTOR STARTER
- DRAWOUT STABS
- MOTOR STARTER, NEMA SIZE AS INDICATED
- MOTOR STARTER COIL
- RELAY COIL
- NORMALLY OPEN (NO) CONTACT
- NORMALLY CLOSED (NC) CONTACT
- PUSHBUTTON SWITCH, N.C. CONTACT
- PUSHBUTTON SWITCH, N.O. CONTACT
- 3-POSITION SELECTOR SWITCH
- PILOT LIGHT, P = RED, G = GREEN
- FIRE ALARM ADDRESSABLE INTERFACE MODULE
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, NONFUSED
- MOTOR OUTLET, NUMBER INDICATES HORSEPOWER UON
- DUPLEX RECEPTACLE, NEMA 5-20R, COMMERCIAL SPECIFICATION GRADE, WALL MOUNTED +18" UON
- JUNCTION BOX
- PANELBOARD
- FLASHING BEACON LIGHT WITH WARNING HORN
- CONDUIT RUN CONCEALED IN CEILING OR WALL UON
- CONDUIT RUN CONCEALED BELOW FINISHED FLOOR OR GRADE
- FLEXIBLE METAL CONDUIT
- CONDUIT RUN "UP"
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- CONDUIT HOME RUN, CONTINUE CONDUIT AND CONDUCTORS TO PANEL, DEVICE OR TERMINAL
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 NOTE: BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AWG WIRE CIRCUIT. ADDITIONAL NUMBER OF #2 AWG AS FOLLOWS:
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 --- 3 #12 + 1 #12G
- 1 INDICATES NUMBERED NOTE ON RESPECTIVE SHEET
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- AFD ADJUSTABLE FREQUENCY DRIVE
- AFI ABOVE FINISHED FLOOR
- C CONDUIT
- DS DISCONNECT SWITCH
- DWG DRAWING
- G GROUND
- GFCI GROUND-FAULT CIRCUIT-INTERRUPTER TYPE
- MCC MOTOR CONTROL CENTER
- MS MOTOR STARTER
- N NEUTRAL
- TYP TYPICAL
- UON UNLESS OTHERWISE NOTED
- V VOLT
- WP EQUIPMENT OR DEVICE WITH WEATHERPROOF ENCLOSURE
- (E) EXISTING TO REMAIN
- (R) EXISTING TO BE REMOVED

NO.	DATE	DESCRIPTION
REVISIONS		

MECHANICAL CONSULTANT
 BOSEK, GIBSON & ASSOCIATES
 WALNUT CREEK, CA
 510/944-8929

ELECTRICAL CONSULTANT
 WILLIAM LAM & ASSOCIATES
 1852 Buchanan St., Suite 207
 San Francisco, CA 94115
 415/346-1112

BOSEK, GIBSON & ASSOCIATES, INC.
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 WALNUT CREEK, CALIFORNIA 94596
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 Project: 98-005



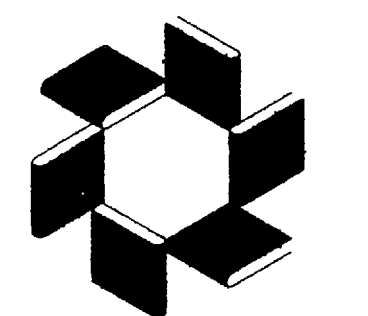
EQUIPMENT ANCHORAGE

- A. ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTION IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
 FIXED EQUIPMENT ON GRADE 20% OF OPERATING WEIGHT
 FIXED EQUIPMENT ON STRUCTURE 30% OF OPERATING WEIGHT
 EMERGENCY POWER EQUIPMENT ON GRADE 30% OF OPERATING WEIGHT
 EMERGENCY POWER EQUIPMENT ON STRUCTURE 40% OF OPERATING WEIGHT
 SIMULTANEOUS VERTICAL FORCE - USE 1/3 x HORIZONTAL FORCE.
 FOR FLEXIBLY MOUNTED EQUIPMENT SEE TITLE 24, SECTION 1630A.2, CBC 1995
 WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO APPROVAL OF THE ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.
- B. SEISMIC RESTRAINTS SHALL BE PROVIDED PER SMOACNA "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEM."

DEMOLITION NOTES

- A. EXISTING EQUIPMENT, DEVICES AND CONDUIT RUNS NOT SHOWN SHALL REMAIN.
- B. REROUTE ALL OR PORTIONS OF EXISTING FACILITIES THAT ARE IN THE PATH OF THE NEW WORK. REESTABLISH COMPLETE SERVICE TO ALL EXISTING FACILITIES WHERE DISRUPTED BY THIS WORK.
- C. MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING OUTLETS REMAINING IN USE WHETHER SHOWN OR NOT. RECONNECT CIRCUIT CONDUITS AND WIRING WHICH ARE INTERRUPTED DUE TO REMOVAL OF OUTLETS.
- D. DENERGIZE AND DISCONNECT EXISTING CIRCUITS TO EQUIPMENT TO BE REMOVED OR RELOCATED.
- E. EXISTING CONDUIT RUNS MAY BE REUSED FOR NEW WIRING WHERE FEASIBLE. REMOVE ABANDONED CONDUIT RUNS (WITH WIRING REMOVED) IN ACCESSIBLE AREAS. ABANDONED CONDUIT RUNS IN INACCESSIBLE AREAS SHALL REMAIN AND BE CAPPED.
- F. SEAL CEILING, WALL AND FLOOR PENETRATIONS CAUSED BY REMOVAL OF CONDUITS.
- G. PLUG BOX, CABINET AND ENCLOSURE OPENINGS CAUSED BY REMOVAL OF CONDUITS.

Client:



Peralta Community College District

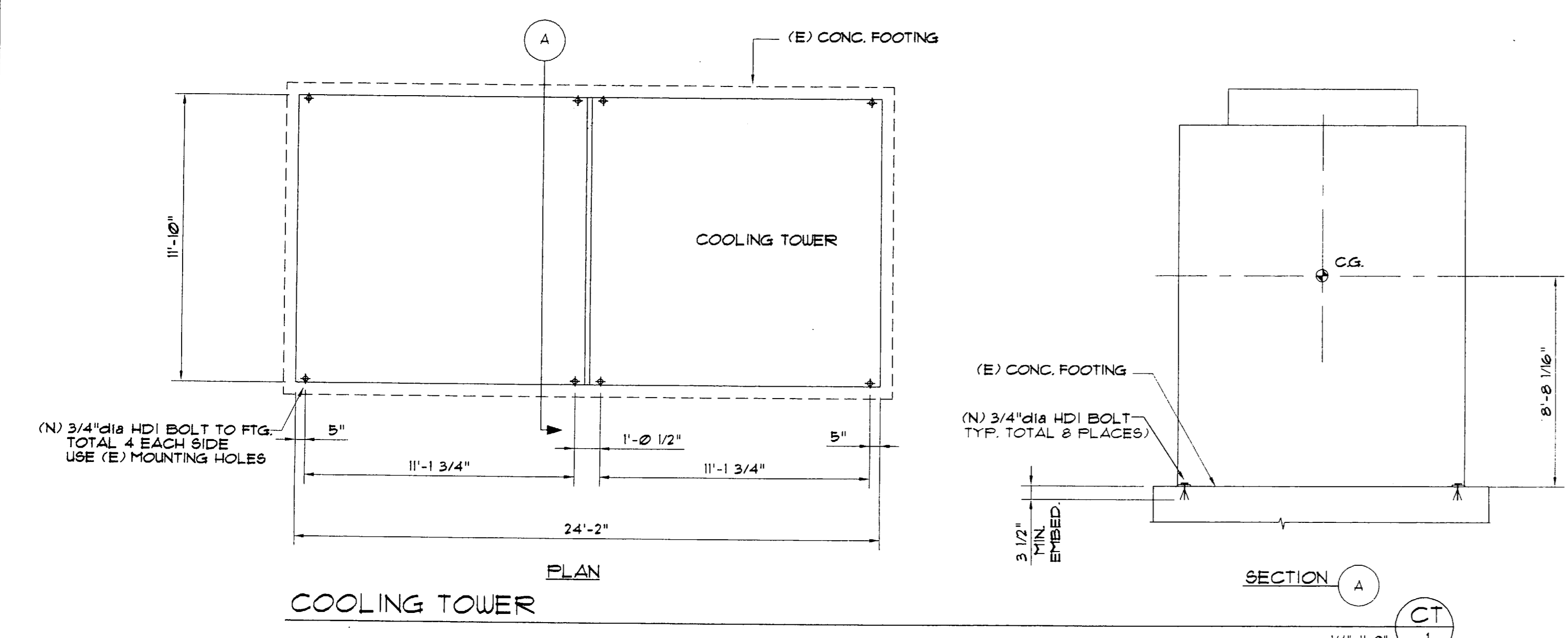
Project Name:
 MECHANICAL SYSTEMS MAINTENANCE
 EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
 MERRITT COLLEGE
 LEGEND, DIAGRAMS AND DETAILS

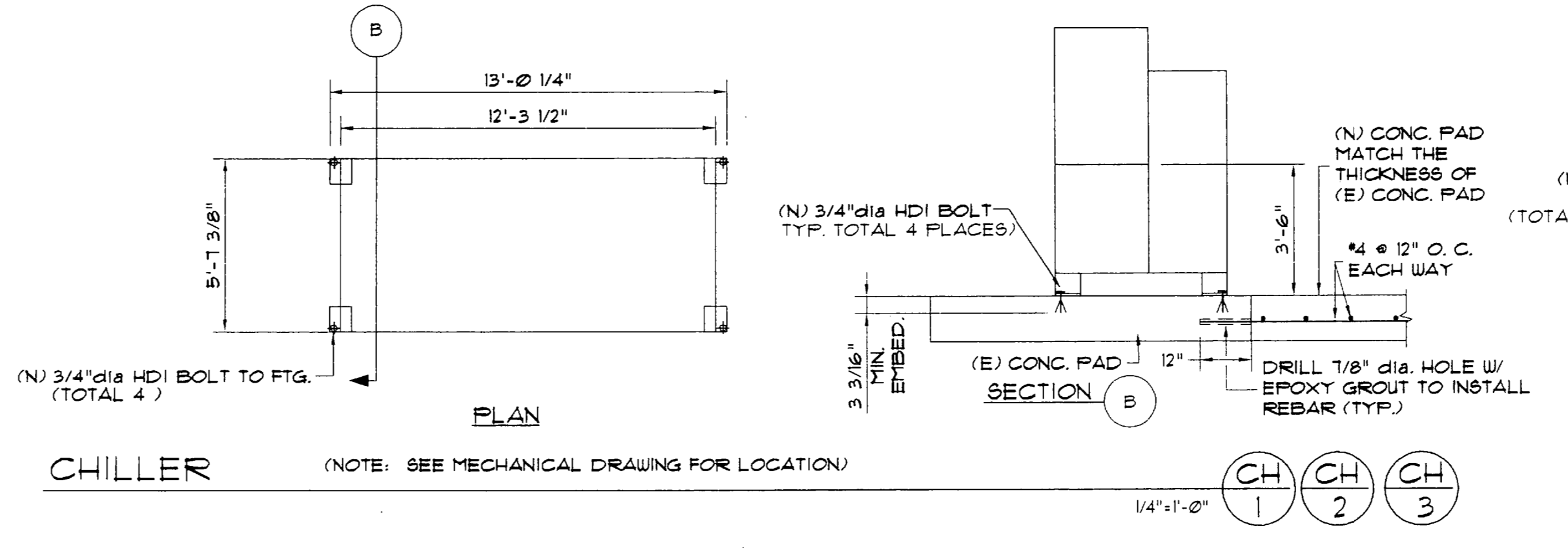
DATE: 5/26/98	JOB NO: 98-005
SCALE: NONE	SHEET NO.
DRAWN BY: SU	E-301
CHECKED BY: WL	
APPROVED BY:	

CONSTRUCTION DOCUMENTS

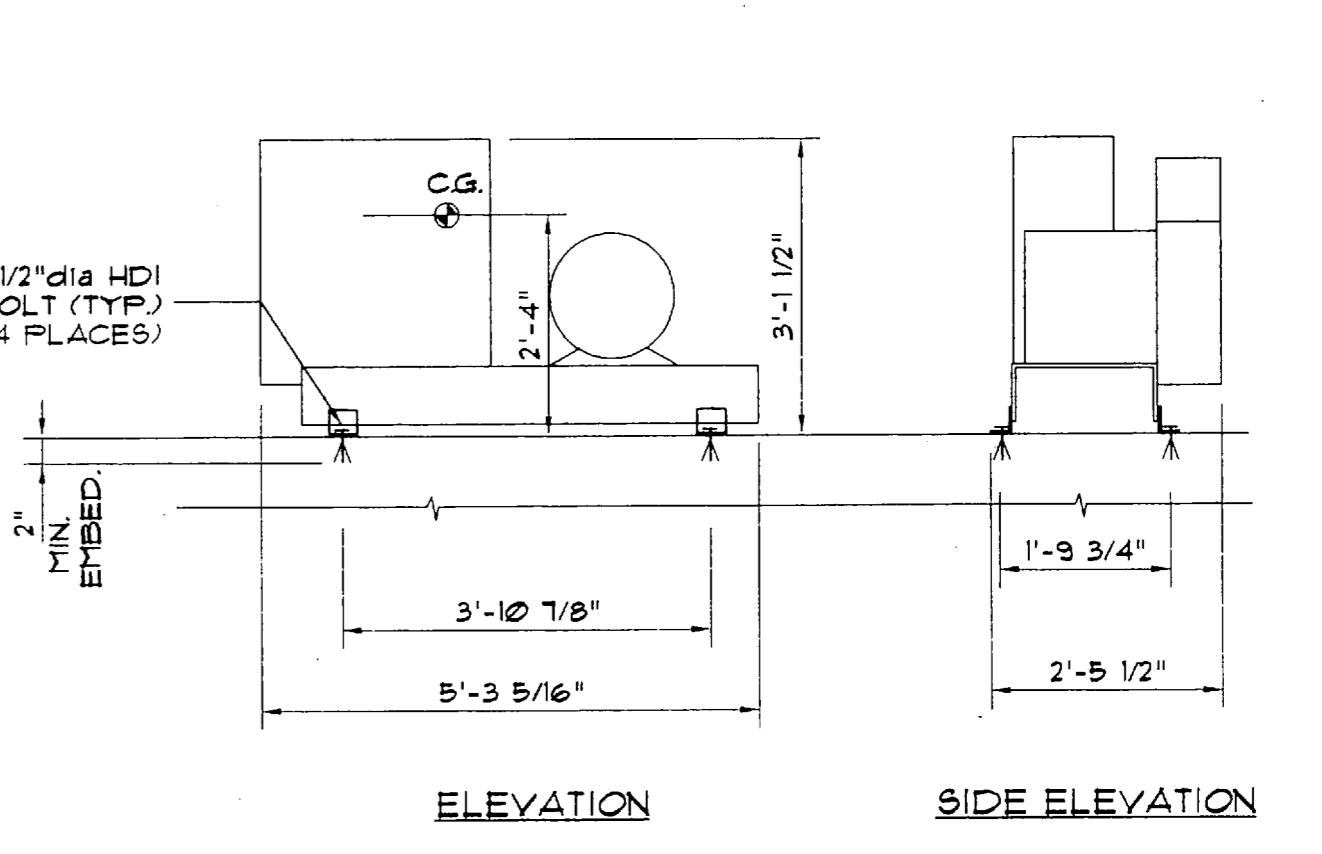
JUN 22 1998



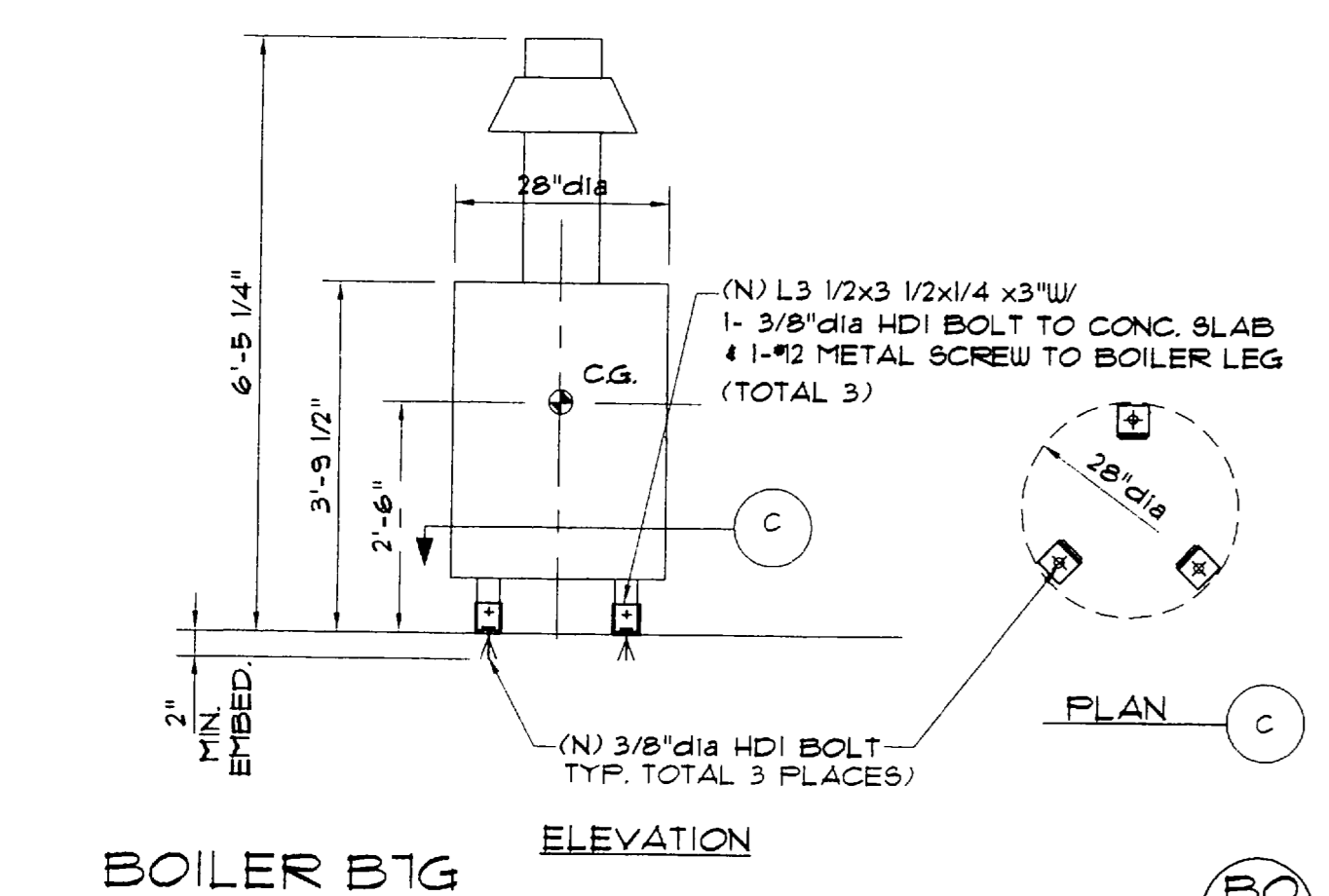
COOLING TOWER



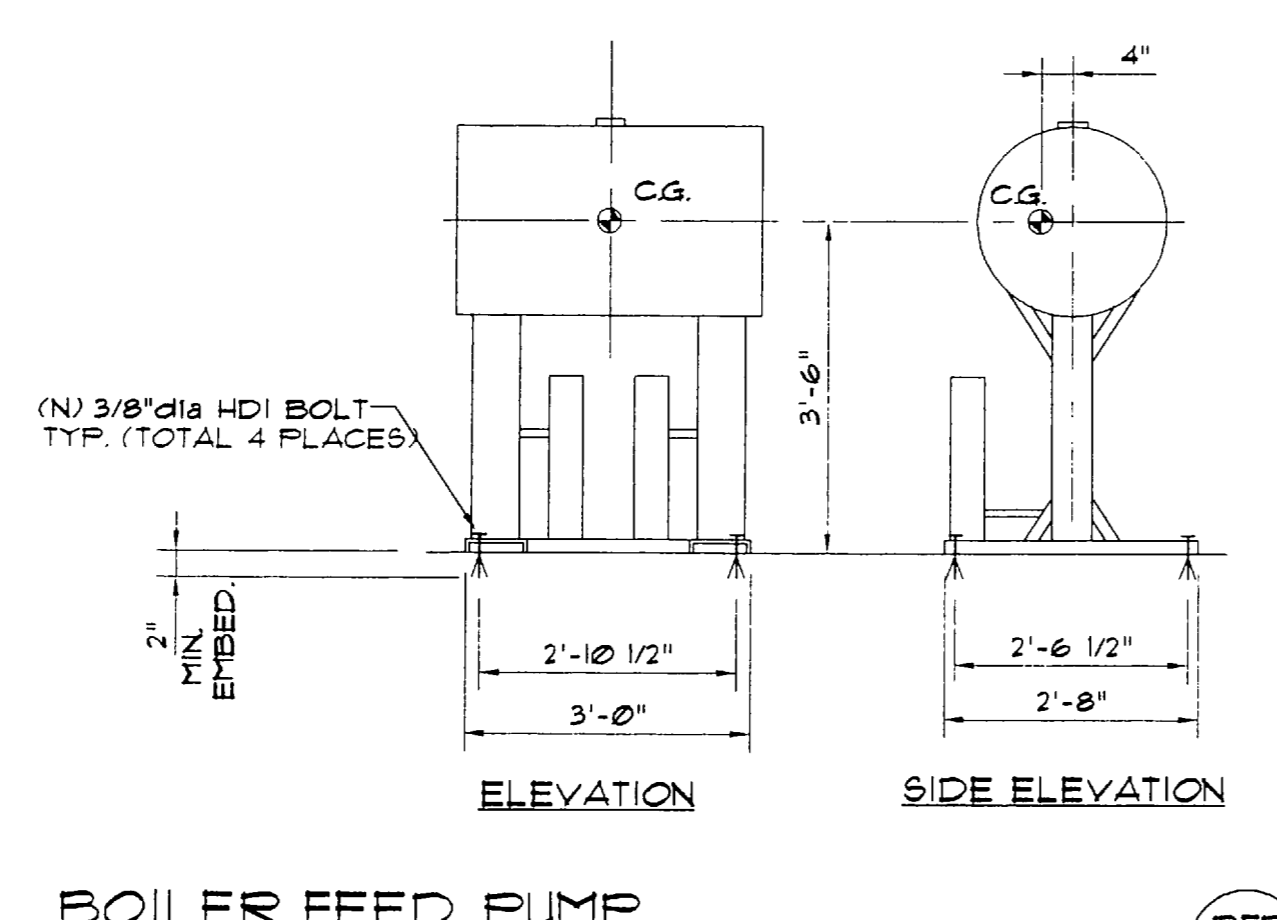
CHILLER



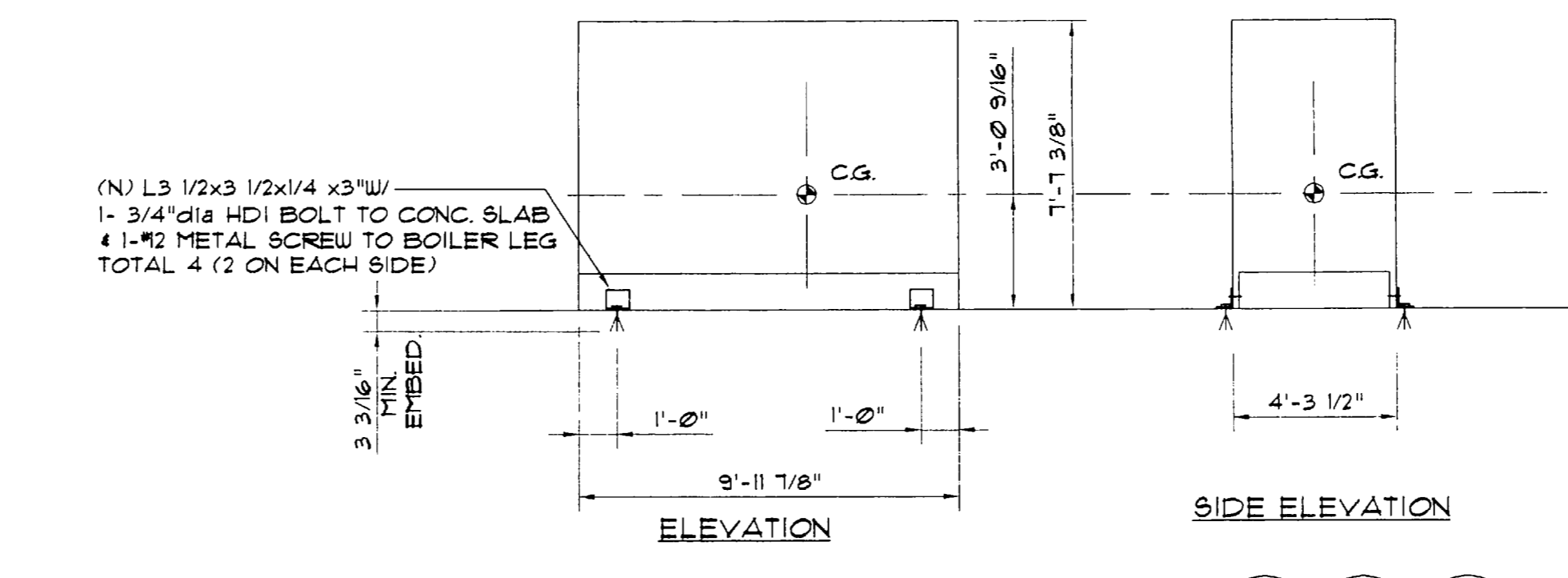
COMPRESSOR



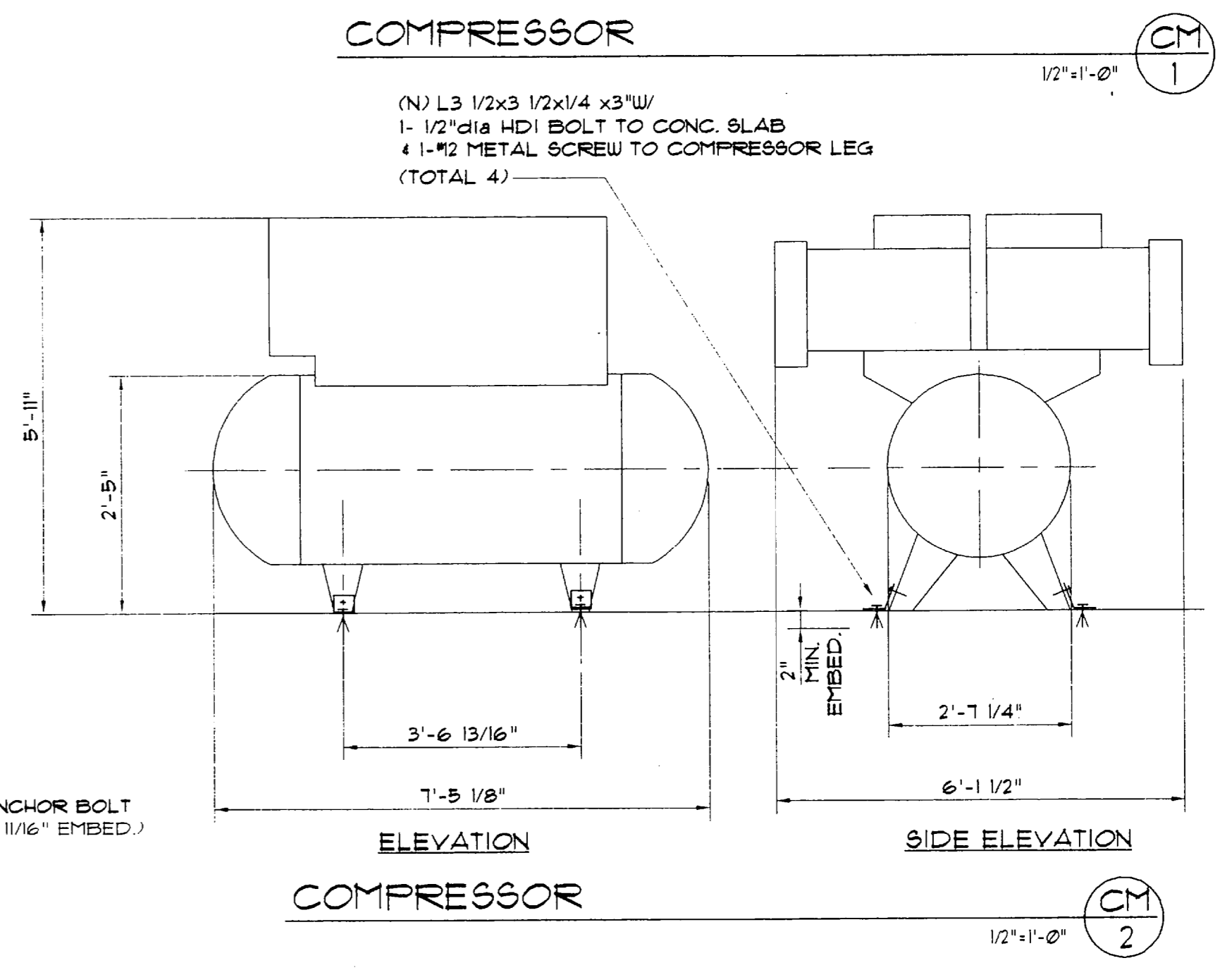
BOILER B7G



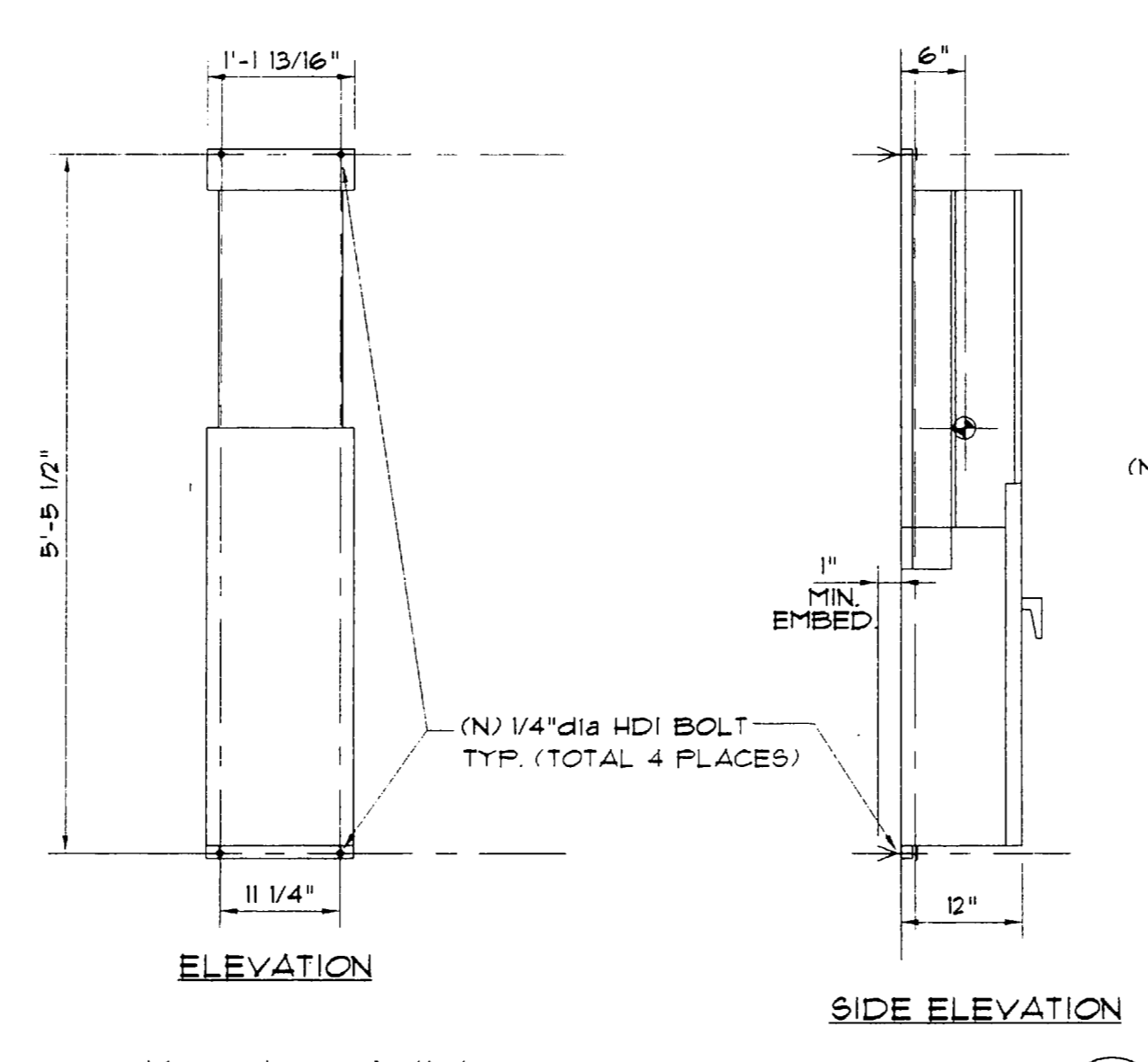
BOILER FEED PUMP



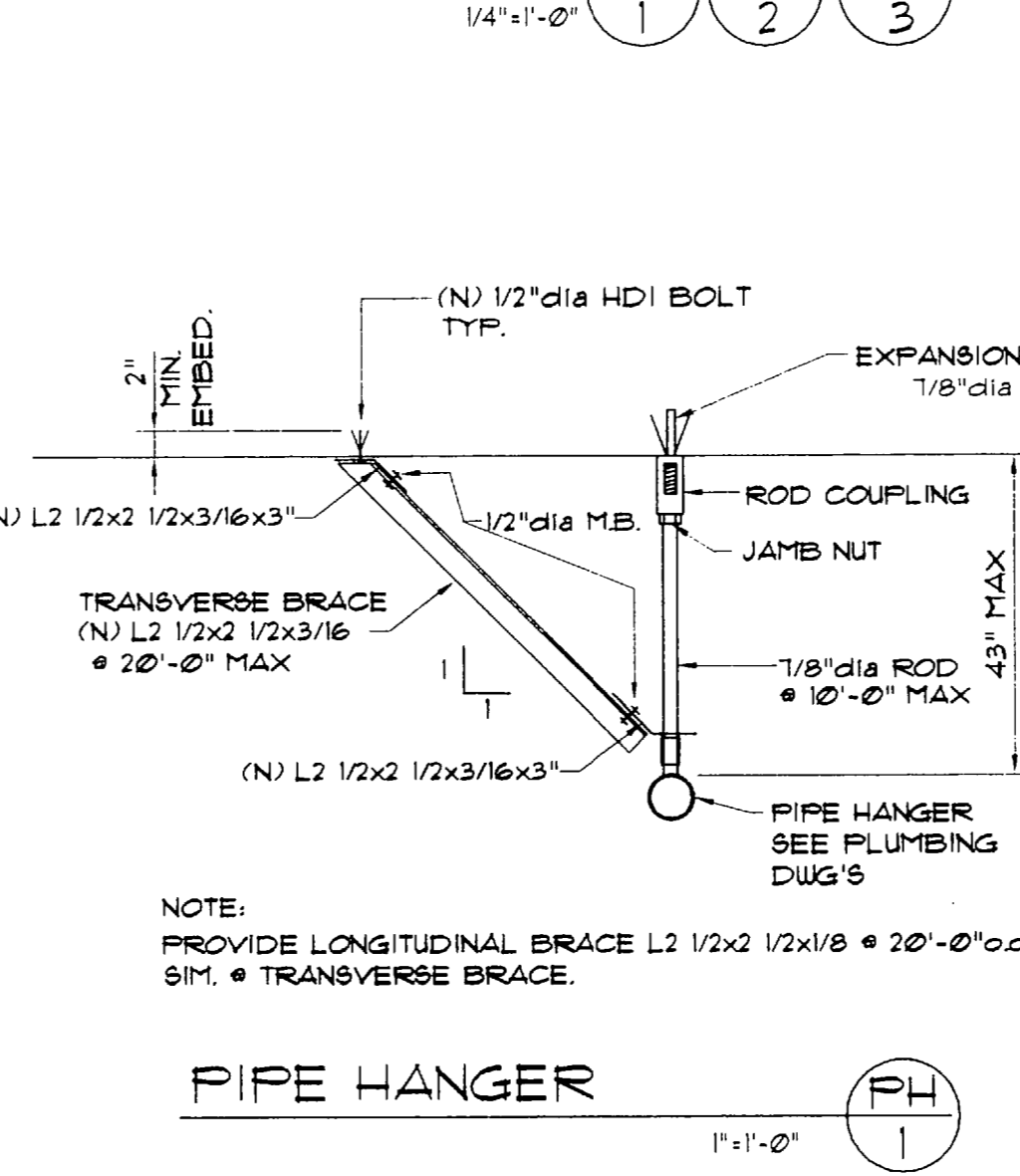
HOT WATER BOILER



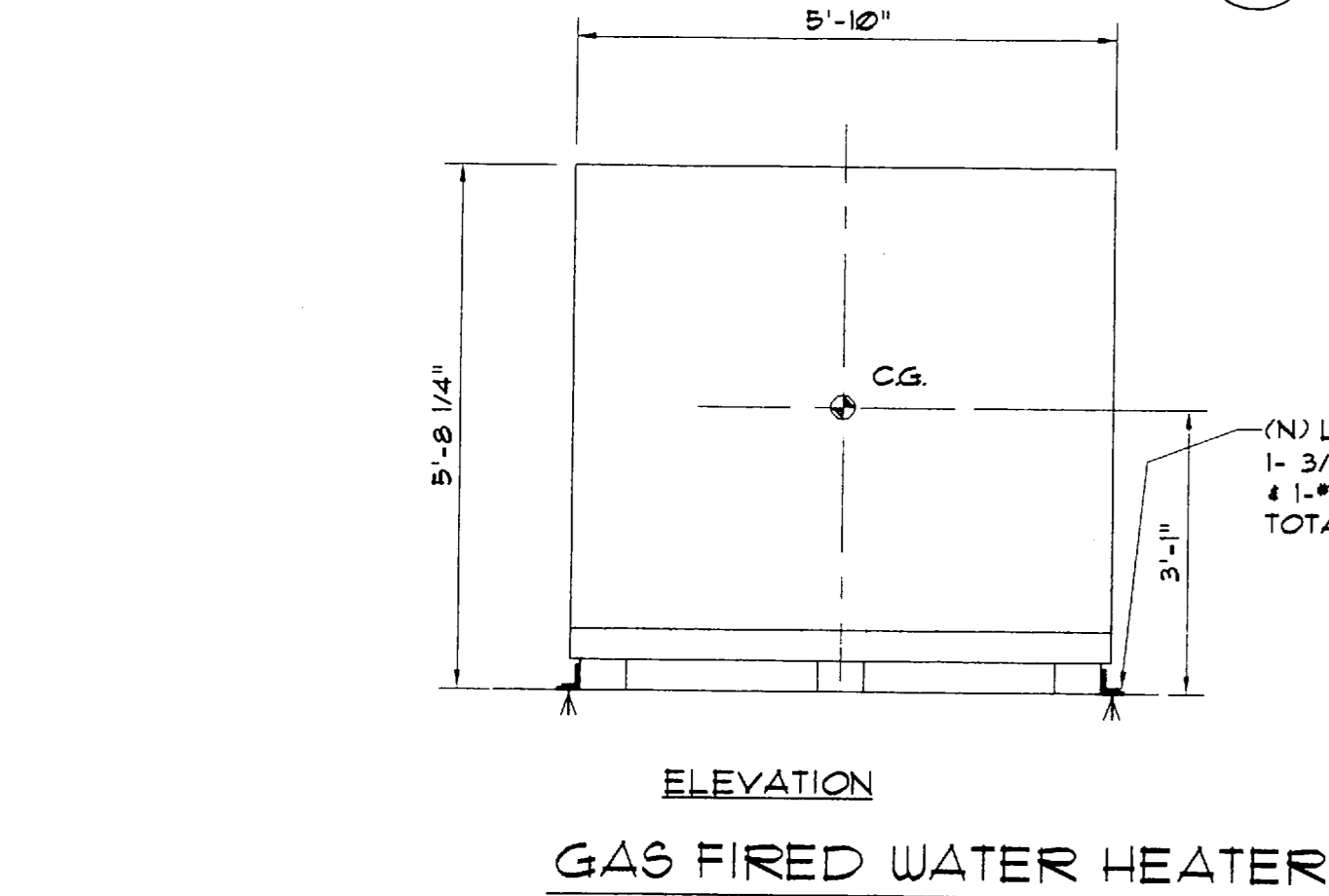
COMPRESSOR



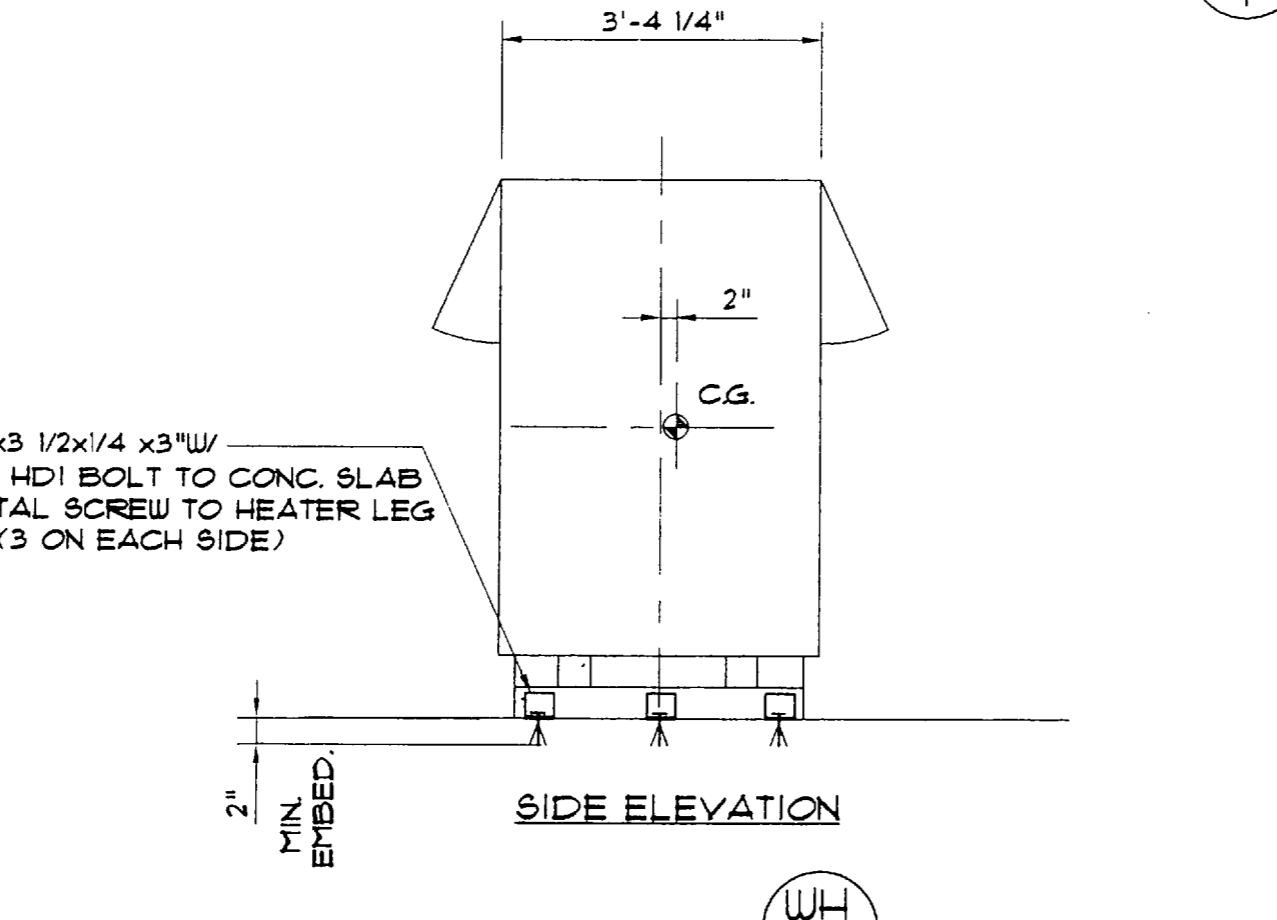
CONTROL PANEL



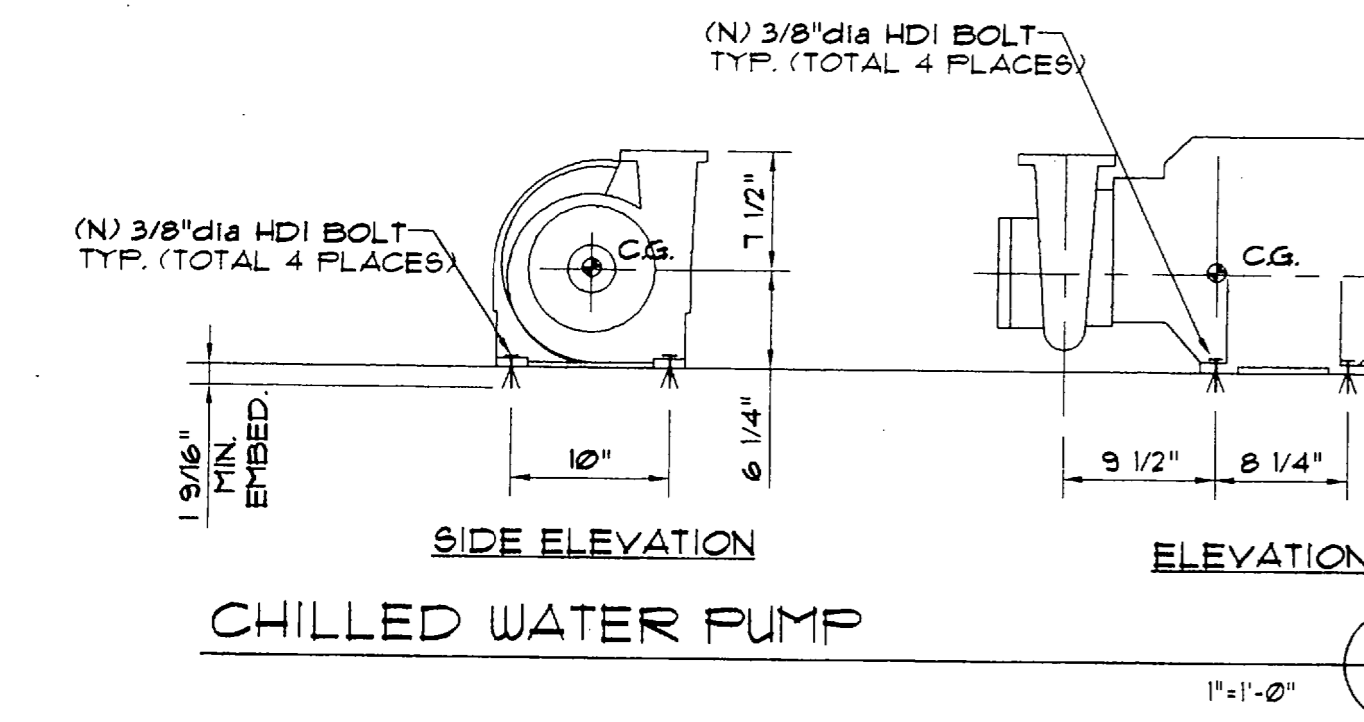
PIPE HANGER



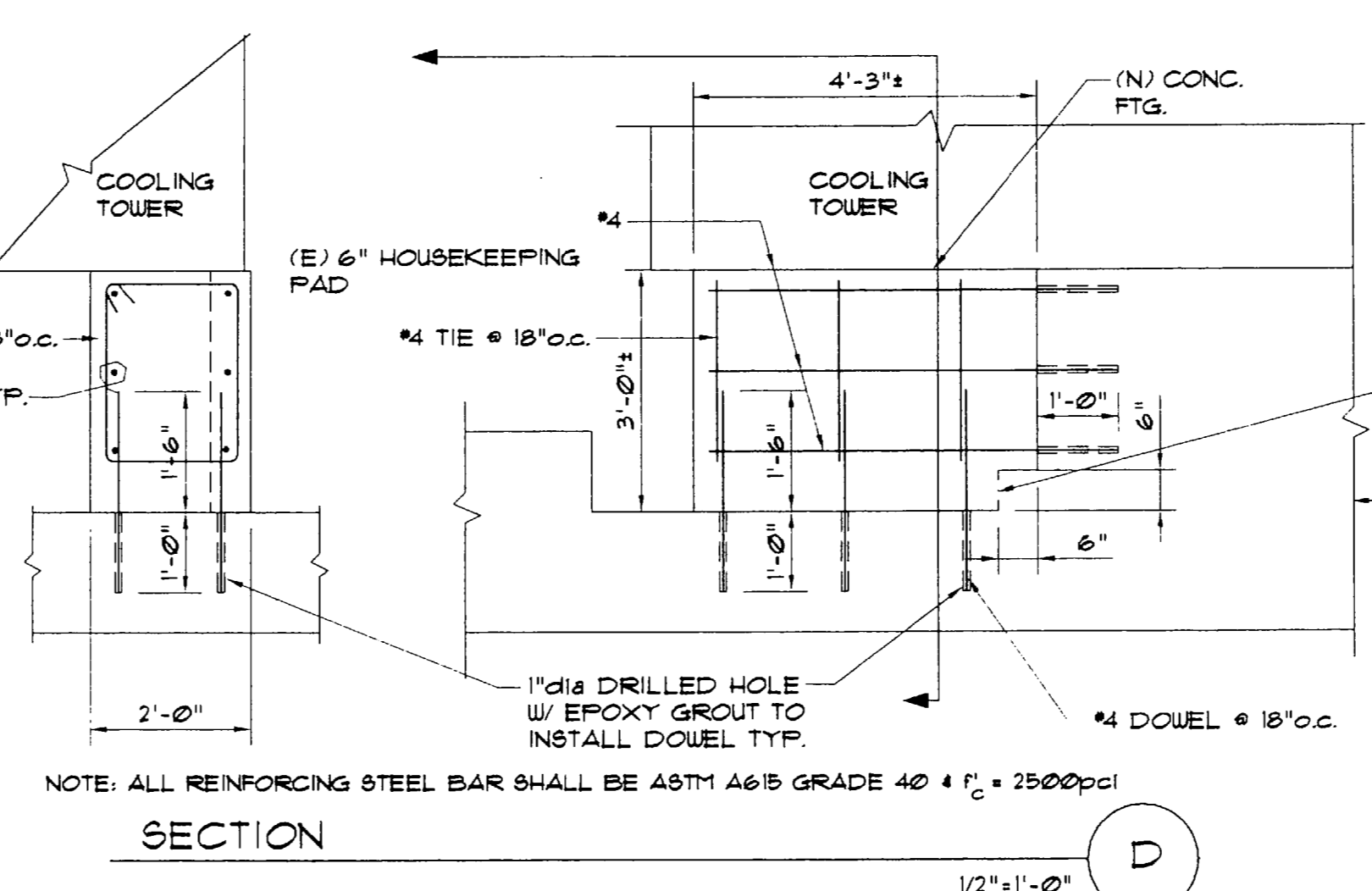
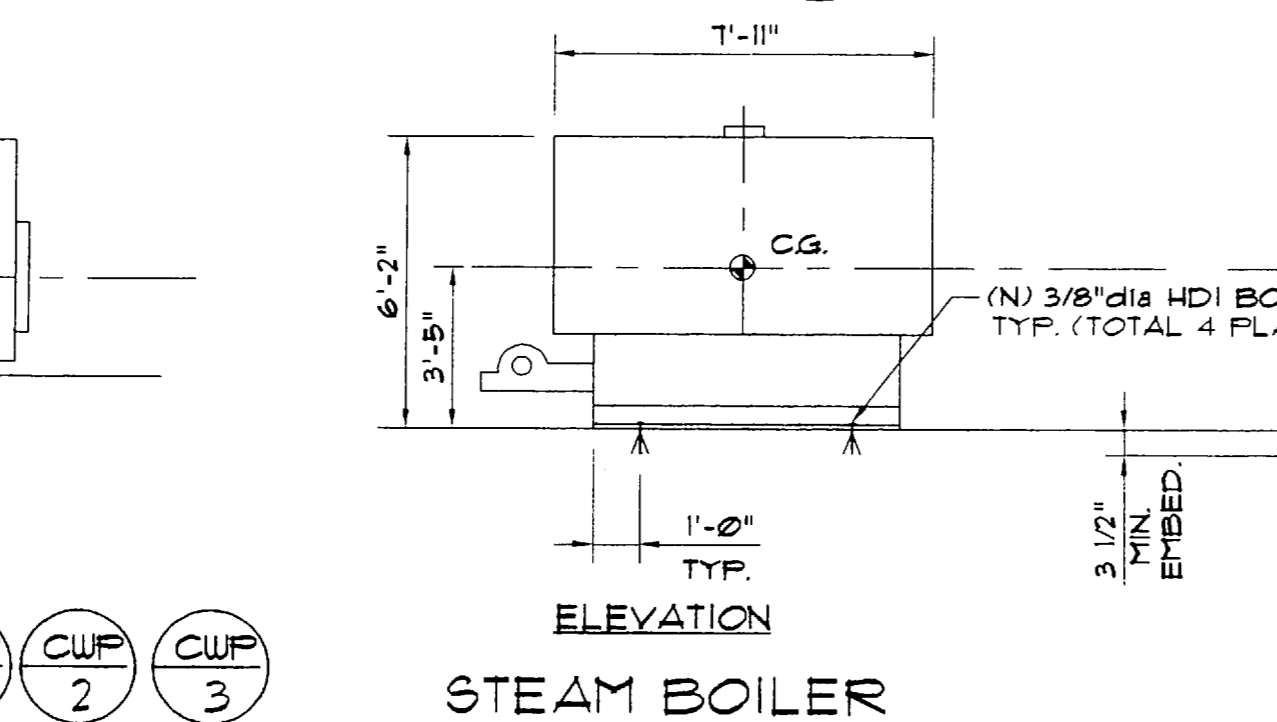
GAS FIRED WATER HEATER



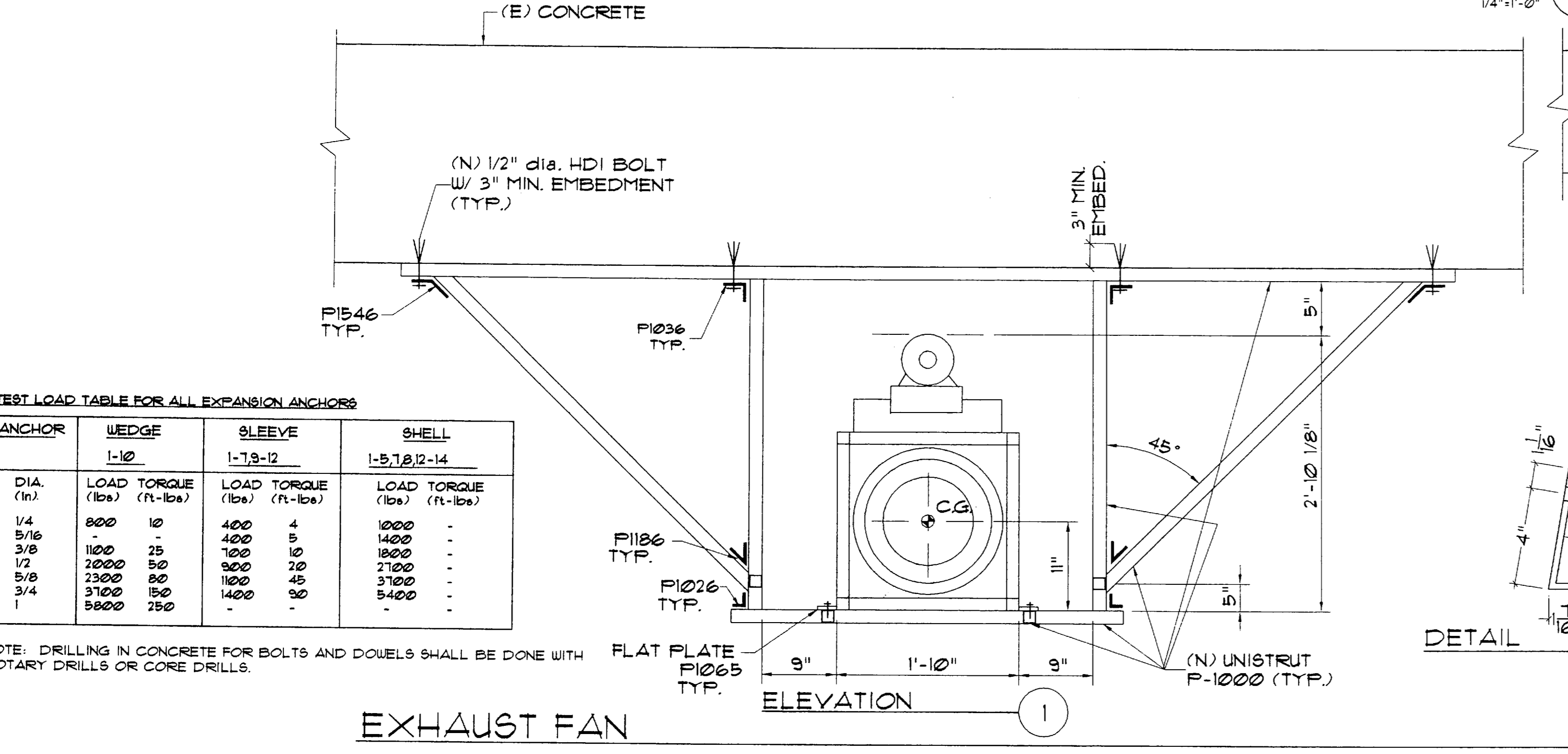
STEAM BOILER



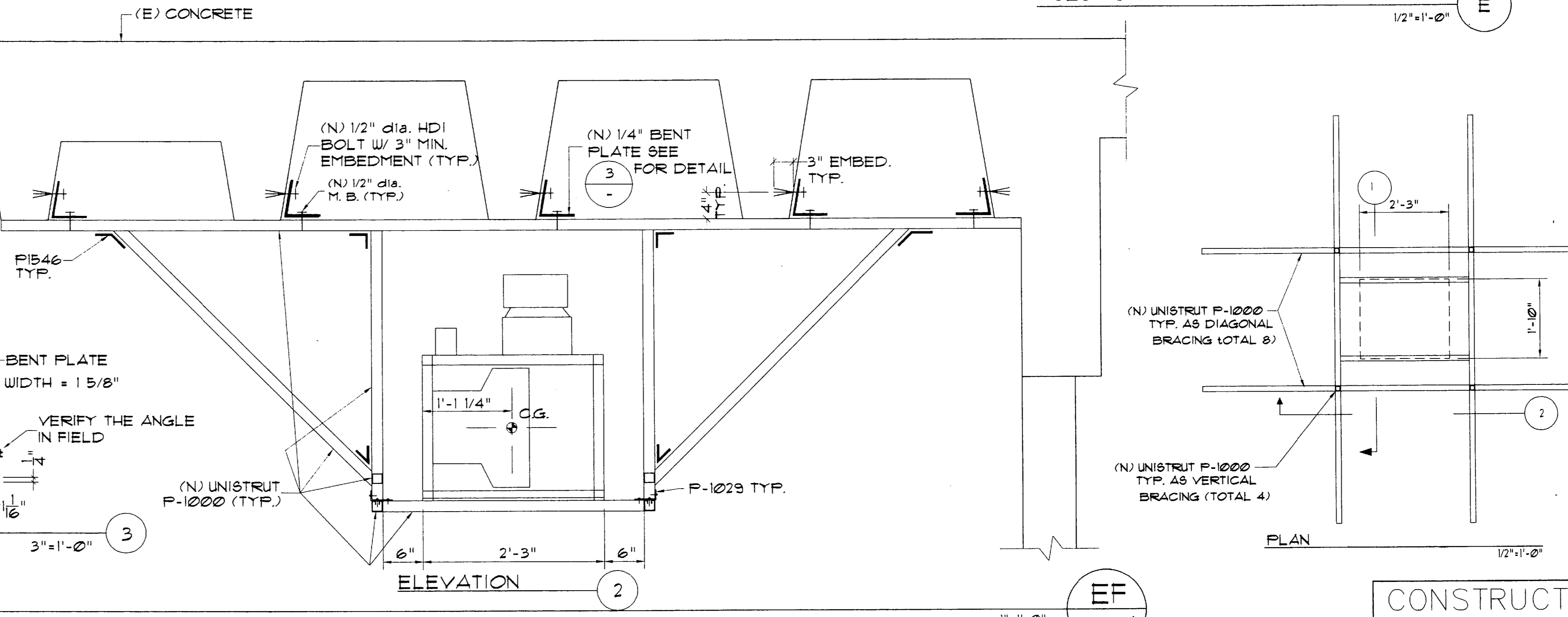
CHILLED WATER PUMP



CONC. COOLING TOWER SUPPORT EXTENSION



EXHAUST FAN

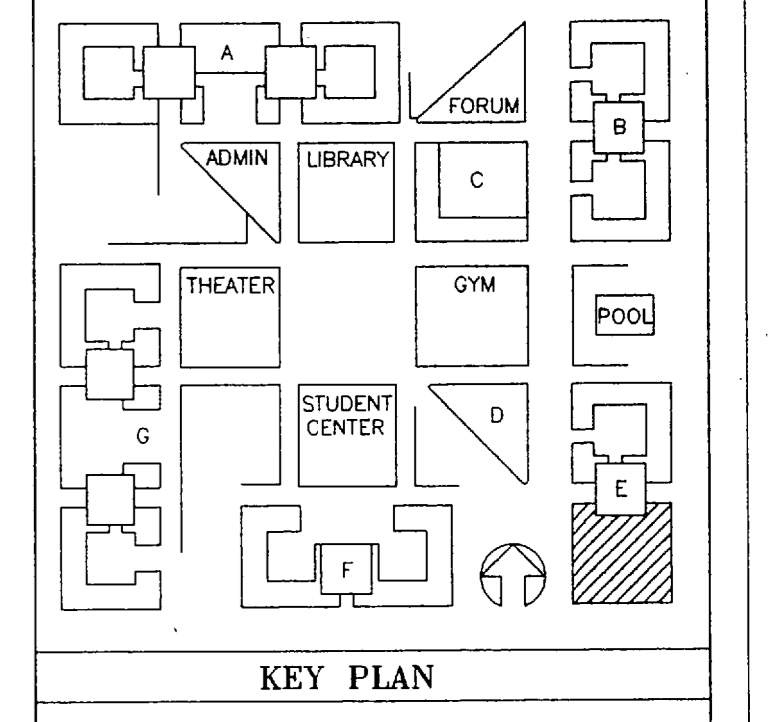


EXHAUST FAN

TEST LOAD TABLE FOR ALL EXPANSION ANCHORS

ANCHOR	WEDGE	SLEEVE	SHELL
DIA (in)	LOAD TORQUE (lbs) (ft-lbs)	LOAD TORQUE (lbs) (ft-lbs)	LOAD TORQUE (lbs) (ft-lbs)
1/4	800	10	400
5/16	1100	25	700
3/8	2200	50	1400
1/2	3700	100	2700
5/8	5400	150	4100
3/4	8000	250	5400

NOTE: DRILLING IN CONCRETE FOR BOLTS AND DOUELS SHALL BE DONE WITH ROTARY DRILLS OR CORE DRILLS.

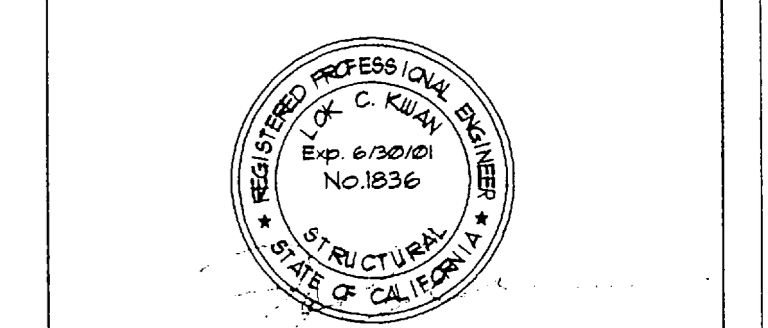


KEY PLAN

NO.	DATE	DESCRIPTION

REVISIONS

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BOSEK, GIBSON & ASSOCIATES, INC.
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 1371 OAKLAND BLVD., SUITE 102
 WALNUT CREEK, CALIFORNIA 94596
 (510) 944-8929
 Project: 88-005

Client:

Peralta Community College District

Project Name:
MECHANICAL SYSTEMS MAINTENANCE EQUIPMENT REPLACEMENT PROJECT

Drawing Name:
LANEY COLLEGE- EQUIPMENT INSTALLATION ELEVATIONS, PLANS

DATE: 03/26/99	JOB NO: P-1947
SCALE: AS NOTED	SHEET NO.
DRAWN BY: NA	S1
CHECKED BY: LK	
APPROVED BY: LK	

CONSTRUCTION DOCUMENTS

