

NEW HUMIDIFIER BOILER PLAN AND DIAGRAM NOTES	
1	LOW PRESSURE, POWER GAS FIRED BOILER COMPLETELY REPLACING EXISTING BOILER WITH ALL REQUIRED TRIM AND AUXILIARY EQUIPMENT AND CONTROLS. MOUNT ON NEW REINFORCED CONCRETE PAD PER FIELD CONDITIONS AND DETAILS. POWER BURNER WITH NEW GAS CONNECTION, POWER CONNECTIONS, CONTROL AND SAFETY CONNECTIONS MOUNTED PERMANENTLY TO BOILER PER MANUFACTURER'S AND CODE REQUIREMENTS. PROVIDE RECOMMENDED AND CODE REQUIRED CLEARANCES.
2	GAS TRAIN AND MAIN GAS FEED WITH SHUT-OFF VALVE, SAFETY FITTINGS, UNION, DIRT LEG, NEW, FULL-SIZE, PIPE AND FITTINGS TO GAS MAIN. MEET ALL GAS CODE AND BUILDING CODE REQUIREMENTS WITH INSTALLATION.
3	FLUE EXHAUST OUTLET, 10 INCH DIAMETER CONNECTION, RUN FULL SIZE TO EXISTING FLUE PIPING, WITH NEW MANUFACTURER APPROVED BAROMETRIC DAMPER AND COMPLETE INSTALLATION.
4	LOW-WATER CUT-OFF AND WATER FEED CONTROL WITH WATER GAUGE AND WITH WATER AND BOILER PIPING CONNECTIONS AND CONTROL AND SAFETY ELECTRICAL CONNECTIONS BY THE CONTRACTOR, PER MANUFACTURER'S REQUIREMENTS AND FIELD CONDITIONS FOR A COMPLETE INSTALLATION.
5	PRESSURE AND AQUASTAT CONTROLLERS AT TACHED AND PIPING TO BOILER WITH POWER AND CONTROL CONNECTIONS TO MANUFACTURER FURNISHED CONTROL PANEL. CONTRACTOR PROVIDE COMPLETE OPERATING INSTALLATION.
6	MAKE-UP WATER SOLENOID CONTROL VALVE WITH MANUAL BY-PASS VALVE CONNECTED TO RECONFIGURED BUILDING WATER FEED AND TO BOILER PER MANUFACTURER'S REQUIREMENTS WITH ALL NECESSARY COMPONENTS, FITTINGS AND CONTROL CONNECTIONS.
7	PRE-HEAT COIL, DUAL COIL CONNECTION TO BOILER BELOW WATER LINE WITH ISOLATION VALVE KIT, FOUR VALVES.
8	PRE-HEAT COIL CIRCULATING PUMP WITH SHUT-OFF VALVES, CIRCUIT SETTER, WITH SUCTION AND DISCHARGE FITTINGS AND AIR SEPARATOR WITH VENT.
9	WATER FEED, FROM NEW BACK-FLOW PREVENTER, WATER TREATMENT TANKS WITH CONTROLS, AND CHEMICAL FEED PUMP.
10	SUPPLY OUTLET, 4 INCH DIAMETER LOW PRESSURE STEAM FLANGE CONNECTIONS WITH NEW FITTINGS INCLUDING SHUT-OFF VALVE CONNECTED TO NEW SUPPLY HEADER PER BOILER MANUFACTURER'S REQUIREMENTS.
11	"HARTFORD LOOP" SUPPLY TO RETURN, NEW FULL-SIZE PIPING AND FITTINGS, WITH FEED WATER CONNECTIONS AND PIPE CONNECTIONS TO BOILER PER MANUFACTURER'S REQUIREMENTS. SEE DETAIL "A".
12	SUPPLY HEADER, ALL NEW FULL-SIZE, LOW PRESSURE STEAM PIPE WITH BOILER SUPPLY, MAIN LPS DISTRIBUTION, AND CONDENSATE DRAIN CONNECTIONS, WITH ISOLATION VALVES, UNIONS, ETC. PER FIELD CONDITIONS AVOIDING EXISTING POWER AND HVAC PIPING, DUCTWORK AND OTHER BOILER ROOM FEATURES.
13	SUPPLY STEAM DISTRIBUTION, NEW PIPING UP TO TWO EXISTING MAINS TO S-1/S-2 AND S-3/S-4 HUMIDIFICATION SYSTEMS. EXTEND NEW PIPING AND FITTINGS AS FAR AS NEEDED PER FIELD CONDITIONS, FOR A COMPLETE REBUILD DISTRIBUTION SYSTEM.
14	SURFACE BLOW DOWN SYSTEM WITH STRAINERS, SHUT-OFF VALVES, 3-WAY AND 2-WAY CONTROL VALVES, BOILER CONDUCTIVITY CONTROLLER, SAMPLE COOLER SYSTEM WITH WATER FEED FROM EXISTING DOMESTIC WATER BY SYSTEM WITH BACKFLOW PREVENTER AND SERVICE VALVES, ETC.; PIPE BLOW-DOWN AND SAMPLE COOLER SYSTEMS TO FLOOR DRAIN.
15	EXISTING CONDENSATE PUMP AND RECEIVER WITH RECONNECTED PIPE AND POWER CONNECTIONS, EXISTING AND NEW CONDENSATE RETURN PIPING FROM TWO HUMIDIFICATION DISTRIBUTION SYSTEMS, S-1/S-2 AND S-3/S-4, AND NEW BOILER INSTALLATION CONDENSATE RETURN PIPING; PROVIDE SHUT-OFF AND DRAIN VALVES FOR EACH CONDENSATE RETURN LINES TO THE RECEIVER TANK. PROVIDE NEW WATER FEED PIPING FOR THE CONDENSATE PUMP OUTLET TO THE BOILER WITH NEW CHECK VALVE, UNION, SHUT-OFF VALVE AND OTHER REQUIRED FITTINGS.
16	

BOILER SCHEDULE

POWER DRAFT BURNER BOILER WITH INTERLOCKING CONTROLS INCLUDING CONNECTIONS WITH COMBUSTION AIR INTAKE, ELECTRONIC IGNITION, AUTOMATIC VENT FAN, MICROPROCESSOR CONTROL, COLUMBIA, SUPERIOR, HURST, A ROWHEAD, BOILER-SMITH, EQUAL FIRE-TUBE BOILER FEATURES, EFFICIENCIES, WARRANTIES AND ACCESSORIES MODELS

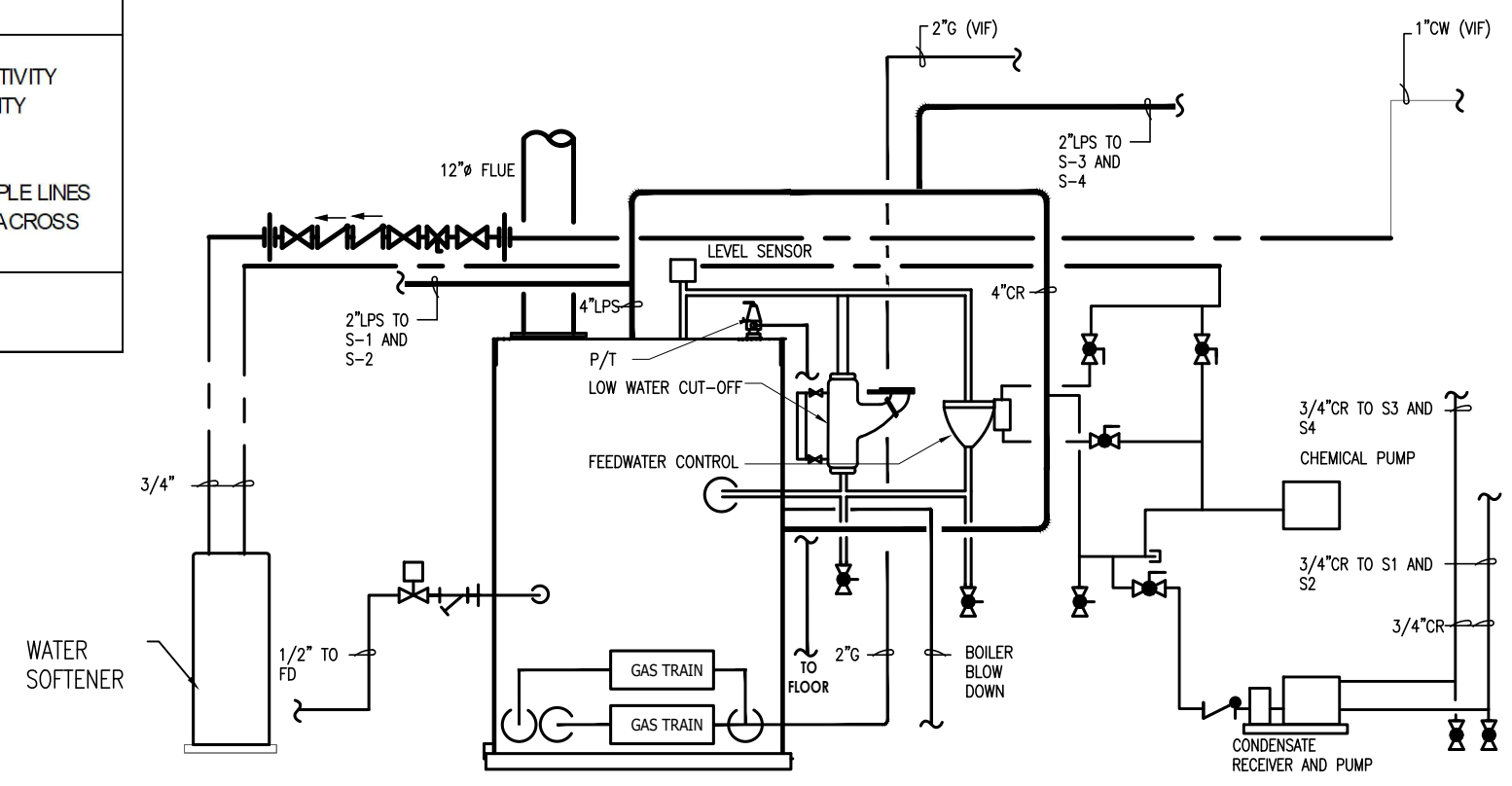
BOILER TAG	MODEL NO.	LOCATION	TOTAL INPUT CAPACITY (MBH)	GROSS OUTPUT CAPACITY (MBH)	SIZE (\"DX\"WX\"H)	DRY WEIGHT (LBS)	FLUE SIZE	COMBUSTION EFFICIENCY
B1	COLUMBIA MPH-20	1ST FLOOR MECHANICAL RM	840	688	69 X 33 X 64	2000	10 INCH	82%

BOILER FEATURES

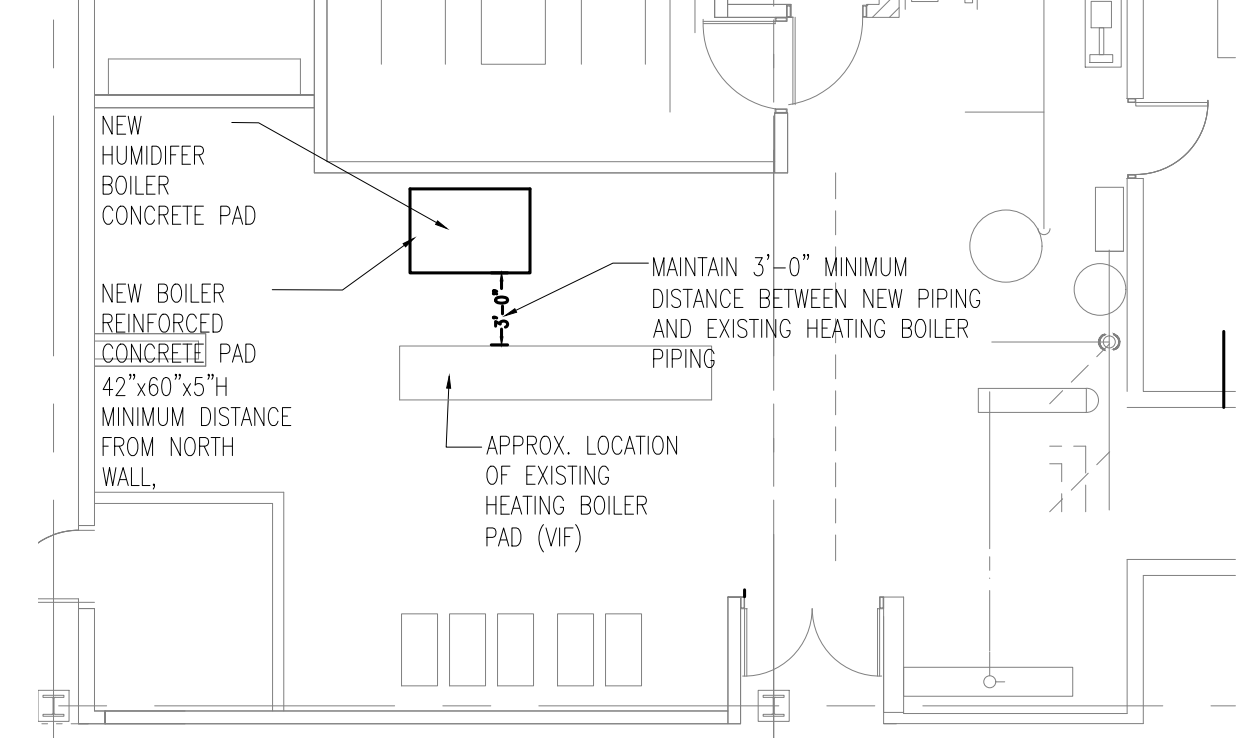
COLUMBIA MPH-20 BOILER, ROLLED TUBES, 20 HP, GAS 840/688.8 MBTUHR, 690 PPH STEAM, (PROVIDE ALL REQUIRED STEAM TRIM)

BOILER FEATURES:

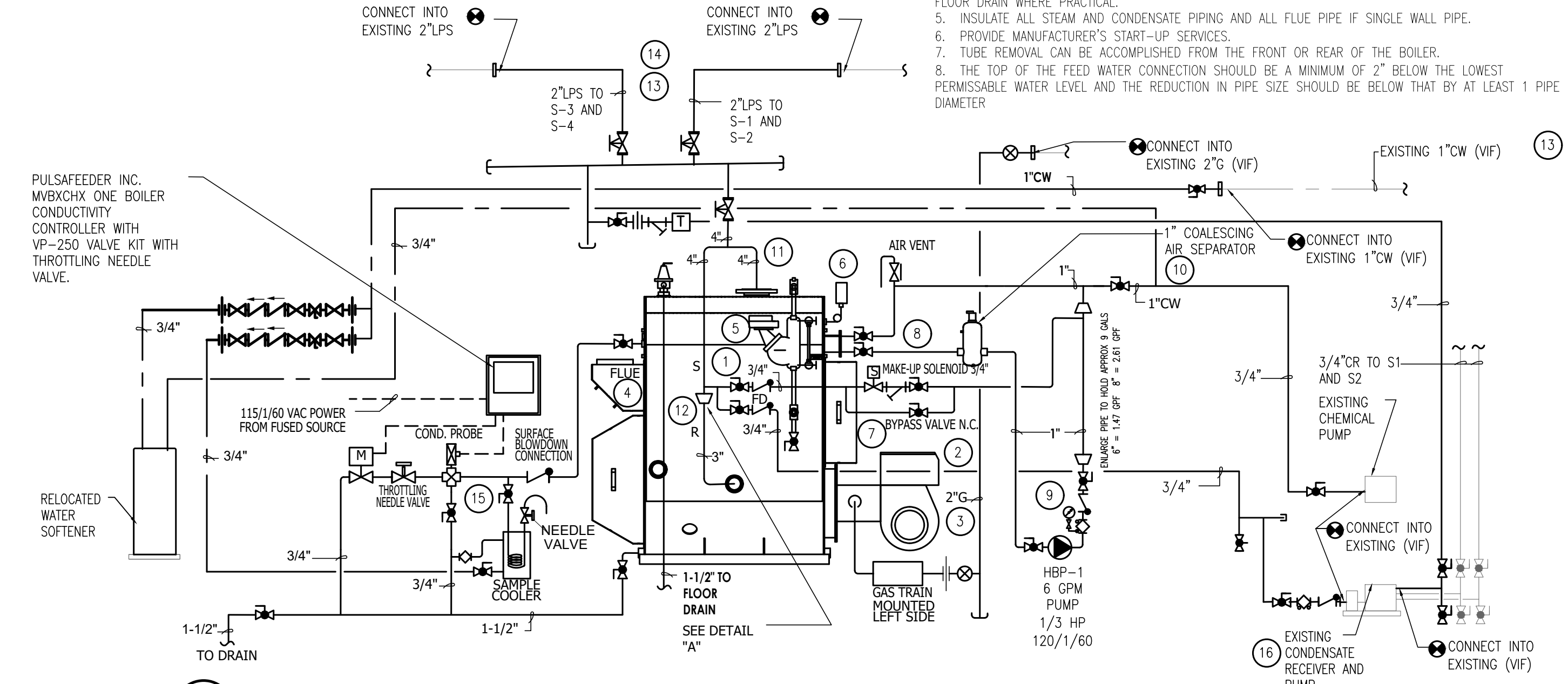
15 PSI STEAM TRIM FOR MPH-20;
 MPH LVCO AUTO RESET ON POWER OUTAGE (PROVIDE ALL REQUIRED STEAM TRIM)
 MPH LOW FIRE HOLD AQUASTAT AND WELL DAMPER BAROMETRIC 10\" WCOLLAR (01950201)
 MPH-20 TO MPH-40 PACKAGE AND TEST FIRE (COLUMBIA-SUPPLIED BURNER)
 GAS BURNER FOR MPH-20, JF30A-12
 MPH-15/MPH-20 ADD FULL MODULATION GAS PACKAGE
 AIR VENT VALVE 1/2\" OR 3/4\" 150# WATER VENT (011866F)
 3/4\" SOLENOID FEEDWATER KIT (SOLENOID VALVE, CHECK VALVE, STRAINER - DOES NOT INCLUDE ISOLATION OR BY-PASS VALVES)
 3/4\" OVERFLOW TRAP ASSEMBLY (F&T TRAP, STRAINER, ISOLATION VALVE SHALL BE PROVIDED BY THE CONTRACTOR.)
 FACTORY-AUTHORIZED STARTUP SHALL BE INCLUDED
HW COILS & CIRCULATION PUMP
 PROVIDE WITH TWO POTABLE HW COILS MPH-20
 DUAL COIL ISOLATION VALVE KIT, (4) 1\" VALVES
 FABTEK QAAB PUMP, STAINLESS STEEL, 1/3 HP, 120 V/1 PH/60 HZ, 3/4\" SUCTION X 1/2\" DISCHARGE FNPT
 1\" PUMP DISCHARGE MANIFOLD KIT WITH BALL VALVE, INLINE CHECK, BALANCE VALVE, 0-30 PSI GAUGE, 1/4\" NEEDLE VALVE, ISOLATION VALVE
 EAS-1 AIR SEPARATOR WITH VENT
AUTOMATIC SURFACE BLOWDOWN (ISOLATION VALVE SHALL BE PROVIDED BY THE CONTRACTOR)
 MICROVISION BOILER CONDUCTIVITY CONTROLLER, THE MICROVISION MICROPROCESSOR BASED BOILER CONDUCTIVITY CONTROLLER MONITORS AND CONTROLS TOTAL DISSOLVED SOLIDS (TDS) IN TERMS OF ELECTRICAL CONDUCTIVITY MEASURED IN MICRO SIEMENS PER CENTIMETER (µS/CM).
 BLOWDOWN VALVE KIT - TIMED SAMPLE METHOD INCLUDES A 1/2\" MOTORIZED BALL VALVE TO AUTOMATE THE BLOWDOWN AND A 1/2\" THROTTLING NEEDLE VALVE FOR THE BLOWDOWN AND SAMPLE LINES TO ADJUST THE RATE OF BLOWDOWN AND PREVENT FLASHING BY MAINTAINING A CONSTANT BACK PRESSURE ACROSS THE ELECTRODE.
SAMPLE COOLER
 SAMPLE COOLER, 316 SS COIL W/ 304 SS SHELL, 3/8\" NPT PROCESS CONN., 1/4\" NPT SAMPLE CONN.



2 EXISTING LPS RISER
NTS



1 PARTIAL BOILER ROOM PLAN
1/8\"=1'-0\"

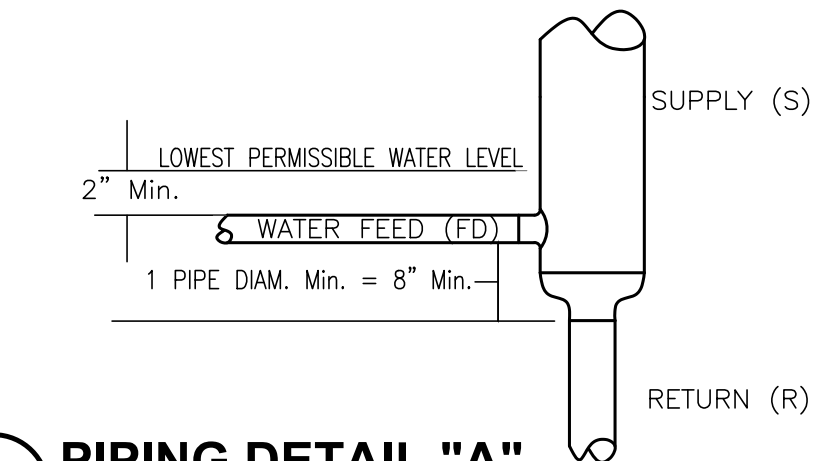


3 PROPOSED LOW PRESSURE STEAM RISER
NTS

PROVIDE 4 ADDITIONAL POINTS TO BE DETERMINED DURING CONSTRUCTION & COMMISSIONING. POINTS LISTED ABOVE MUST BE PROVIDED AS A MINIMUM.

POINTS LIST							
ADDRESS	POINT DESCRIPTOR	DI	AI	DO	AO	VP	REMARKS
	BOILER S/S						
	MAKEUP AIR UNIT S/S						

- NOTES
- INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - PROVIDE CONNECTION TO ELECTRICAL SERVICE PER N.E.C. AND LOCAL CODE.
 - PROVIDE CONNECTION OF GAS SERVICE IN ACCORDANCE WITH ANSI/AGA Z233.1
 - PIPE RELIEF VALVES TO 6\" ABOVE FLOOR WITH PROPER SUPPORT AND DRAIN CONNECTIONS TO NEAREST FLOOR DRAIN WHERE PRACTICAL.
 - INSULATE ALL STEAM AND CONDENSATE PIPING AND ALL FLUE PIPE IF SINGLE WALL PIPE.
 - PROVIDE MANUFACTURER'S START-UP SERVICES.
 - TUBE REMOVAL CAN BE ACCOMPLISHED FROM THE FRONT OR REAR OF THE BOILER.
 - THE TOP OF THE FEED WATER CONNECTION SHOULD BE A MINIMUM OF 2\" BELOW THE LOWEST PERMISSIBLE WATER LEVEL AND THE REDUCTION IN PIPE SIZE SHOULD BE BELOW THAT BY AT LEAST 1 PIPE DIAMETER.



4 PIPING DETAIL "A"
NTS

MECHANICAL SYMBOL LIST	
PIPE FITTINGS	ABBREVIATIONS
<ul style="list-style-type: none"> GATE VALVE ON VERTICAL PIPE STRAINER NPT OR FLNG DIRECTION OF FLOW GATE VALVE FLNG GLOBE VALVE CHECK VALVE NPT OR FLNG O S & Y GATE VALVE FLNG SOLENOID VALVE MANUAL AIR VENT PRESSURE GAUGE COCK BALANCING COCK OR NATURAL GAS COCK PRESSURE AND/OR TEMPERATURE RELIEF VALVE AUTOMATIC AIR VENT PITCH DOWN IN DIRECTION OF FLOW RISER (ELBOW) DOWN CONCENTRIC REDUCER ECCENTRIC REDUCER (FLAT SIDE UP OR DOWN) PLUGGED TEE CAPPED PIPE END RISER (TEE) DOWN RISER (ELBOW) UP RISER (TEE) UP UNION BALL VALVE BALANCING-TYPE BALL VALVE BALANCE VALVE W/GAUGE 1/2\" WATER HAMMER ARRESTER RELIEF VALVE 	<ul style="list-style-type: none"> ACD ACCESS DOOR AD AUTOMATIC DAMPER AFF ABOVE FINISHED FLOOR BI BLACK IRON BO BLANK OFF BS BIRD SCREEN CFM CUBIC FEET PER MINUTE CFM-E CUBIC FEET PER MINUTE-EXHAUST CFM-ER CUBIC FEET PER MINUTE-EXH/RET CFM-R CUBIC FEET PER MINUTE-RETURN CFM-S CUBIC FEET PER MINUTE-SUPPLY DIFF DIFFUSER DN DOWN EA EACH EA EXH EXHAUST AIR FAI FRESH AIR INTAKE FBO FURNISHED BY OTHERS FD FIRE DAMPER GA GAUGE GBD GRAVITY BACKDRAFT DAMPER GC GENERAL CONTRACTOR GR GRILLE MD MANUAL DAMPER NIC NOT IN CONTRACT NIK NECK OA OUTSIDE AIR OAI OUTSIDE AIR INTAKE PP PATCH PLATE RA/RET RETURN AIR RAD RADIATION REG REGISTER SA/SUP SUPPLY AIR TC TEMPERATURE CONTROL TYP TYPICAL VIF VERIFY IN FIELD
PIPE SERVICE TAGS	VENTILATION
<ul style="list-style-type: none"> CD CONDENSATE DRAIN LPS LOW PRESSURE STEAM G NATURAL GAS 	<ul style="list-style-type: none"> FLEXIBLE DUCT FLEXIBLE DUCT CONNECTION TURNING VANES IN ELBOW SUPPLY DIFFUSER, REGISTER OR GRILLE RETURN AND/OR EXHAUST REGISTER OR GRILLE UNDERCUT DOOR GRILLE EXHAUST AND/OR RETURN DUCT UP EXHAUST AND/OR RETURN DUCT DOWN SUPPLY DUCT UP SUPPLY DUCT DOWN OUTSIDE (FRESH) AIR INTAKE DUCT UP OUTSIDE (FRESH) AIR INTAKE DUCT DOWN HUMIDISTAT, HUMIDITY SENSOR THERMOSTAT, TEMPERATURE SENSOR

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M2.1