

NEWFIELD ELEMENTARY SCHOOL

345 PEPPER RIDGE ROAD STAMFORD, CT 06905

BID# B4051

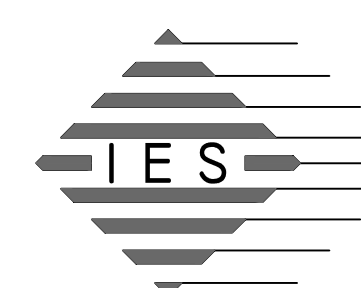
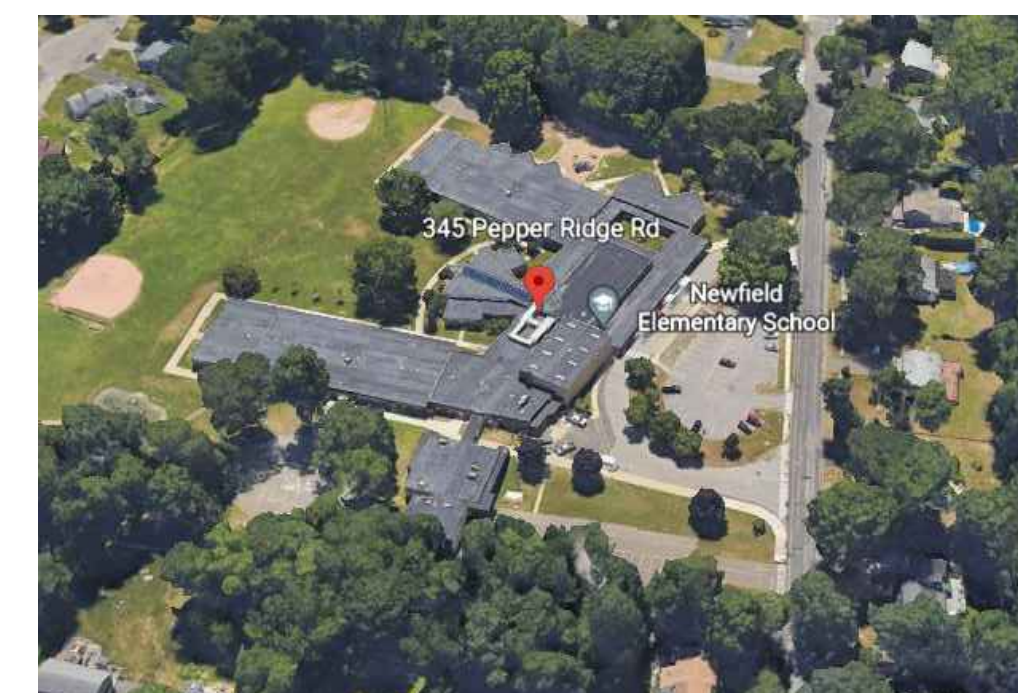
CAROLINE SIMMONS - MAYOR

DR. TAMU LUCERO - SUPERINTENDENT OF SCHOOLS

CONSTRUCTION DOCUMENTS

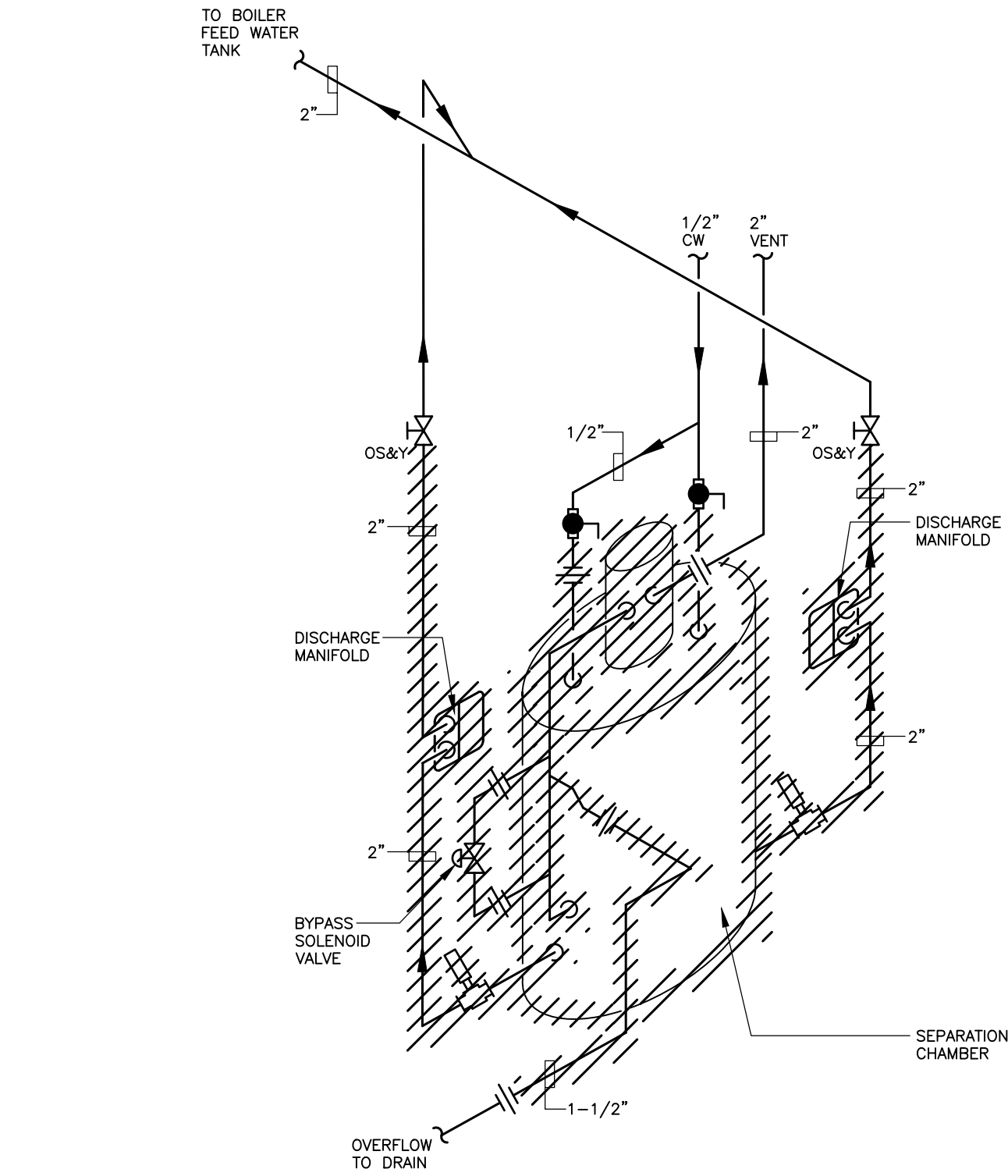
DECEMBER 8, 2022

VACUUM TANK REPLACEMENT PROJECT



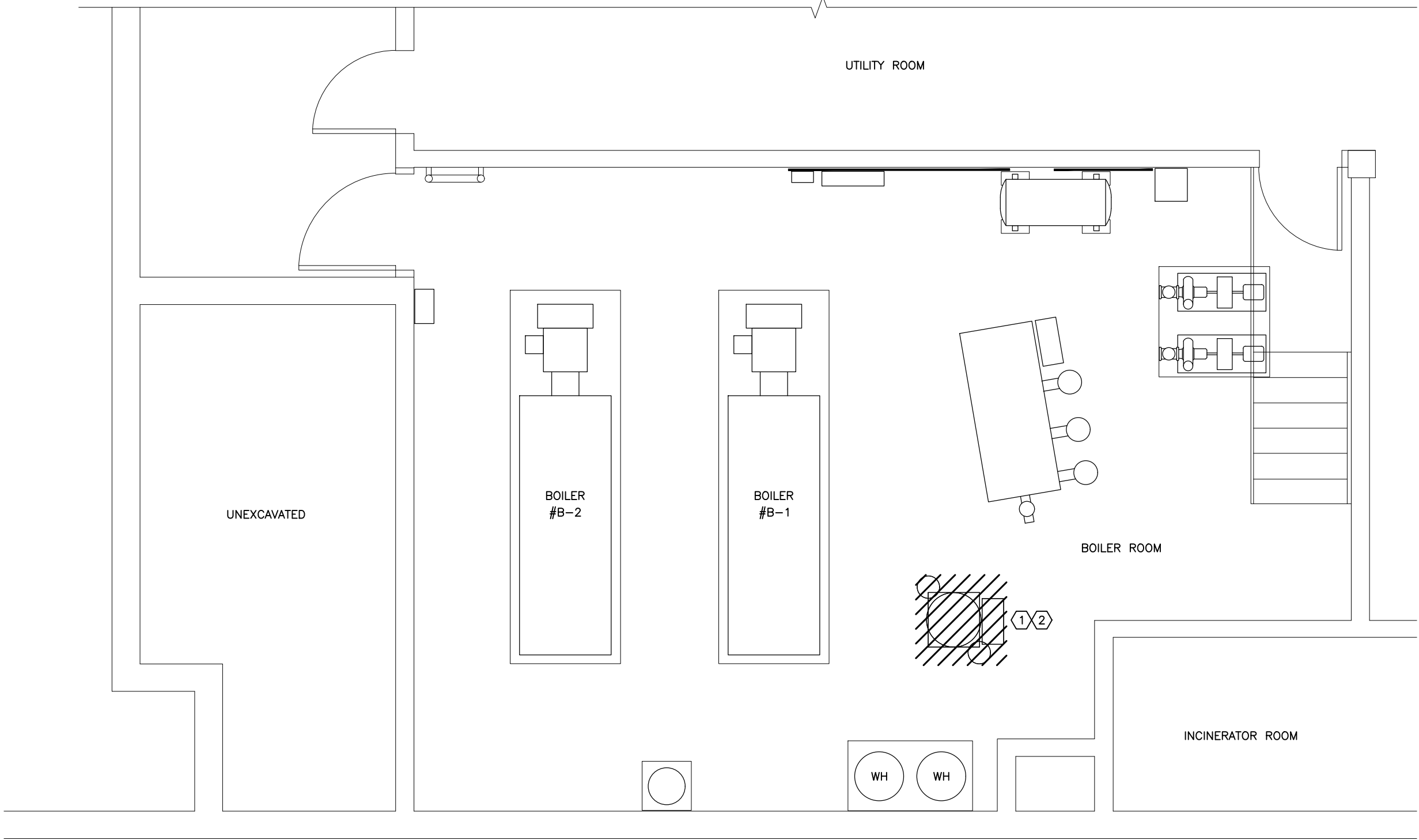
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DEMOLITION ISOMETRIC PIPING SCHEMATIC OF VACUUM CONDENSING UNIT

SCALE: N.T.S.



BOILER ROOM MECHANICAL & ELECTRICAL DEMOLITION PLAN

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

- DEMOLITION DRAWING NOTES
- 1 DISCONNECT, REMOVE, AND DISCARD EXISTING CONDENSATE VACUUM SYSTEM INCLUDING BUT NOT LIMITED TO ASSOCIATED SECTIONS CONDENSATE PIPING, VENT PIPING, COLD WATER MAKE UP PIPING, OVERFLOW PIPING, ETC.; CONTRACTOR SHALL SAFE OFF ALL EXISTING SHUT OFF VALVES DURING DEMOLITION PHASE.
 - 2 DISCONNECT EXISTING ELECTRICAL POWER WIRING AND CONTROL WIRING TO THE EXISTING VACUUM UNIT. EXISTING WIRING SHALL REMAIN FOR RECONNECTION TO NEW REPLACEMENT UNIT.

NOTES:

ISSUED FOR BID

REV.	DATE	DESCRIPTION
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PROJECT:

**NEWFIELD
ELEMENTARY
SCHOOL**

345 PEPPER RIDGE ROAD
STAMFORD, CT 06905

SHEET TITLE:

**BOILER ROOM MECHANICAL
& ELECTRICAL PLANS**

PROJECT NUMBER: B-4051

ISSUED: 12/8/22

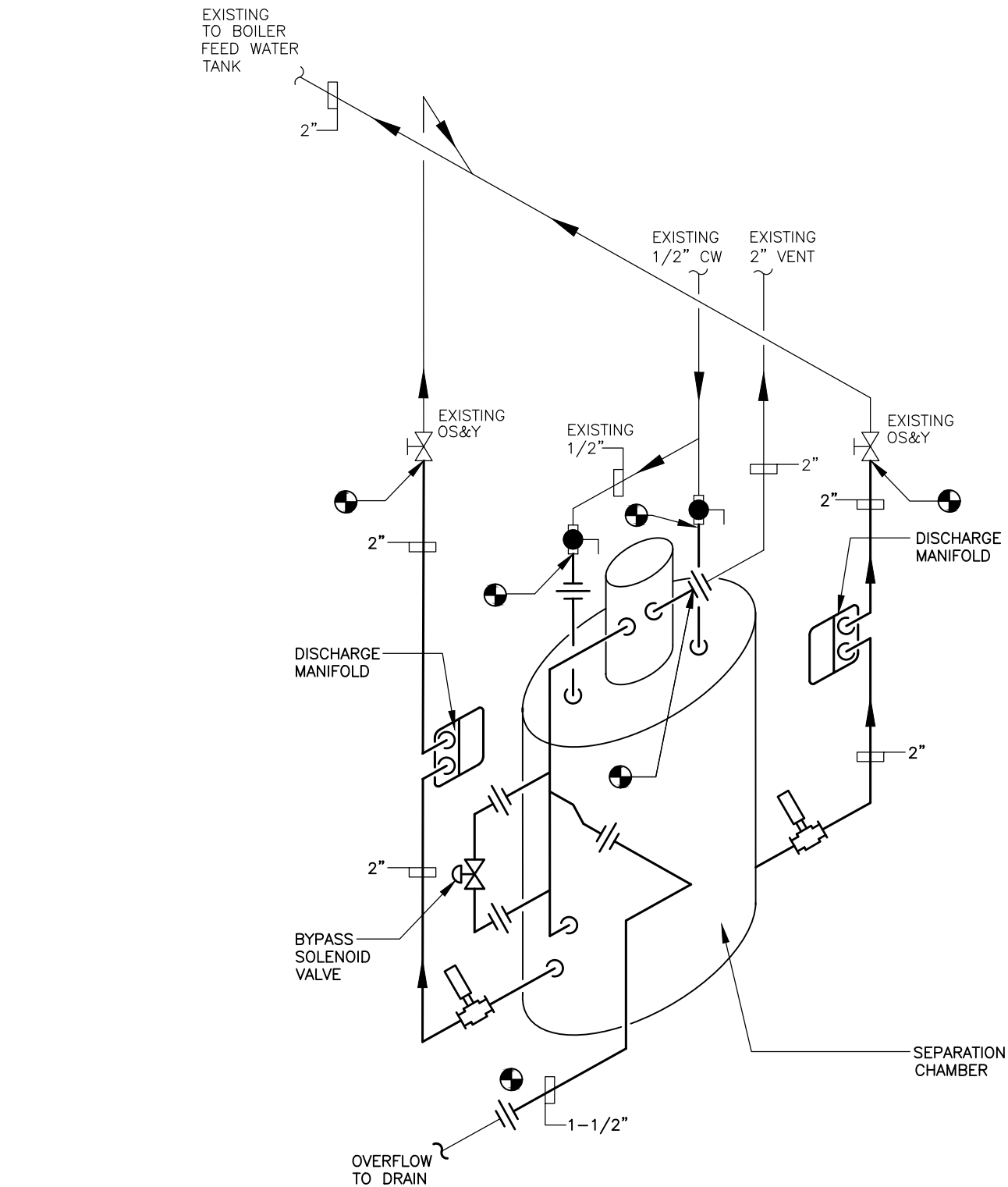
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SCALE: AS NOTED

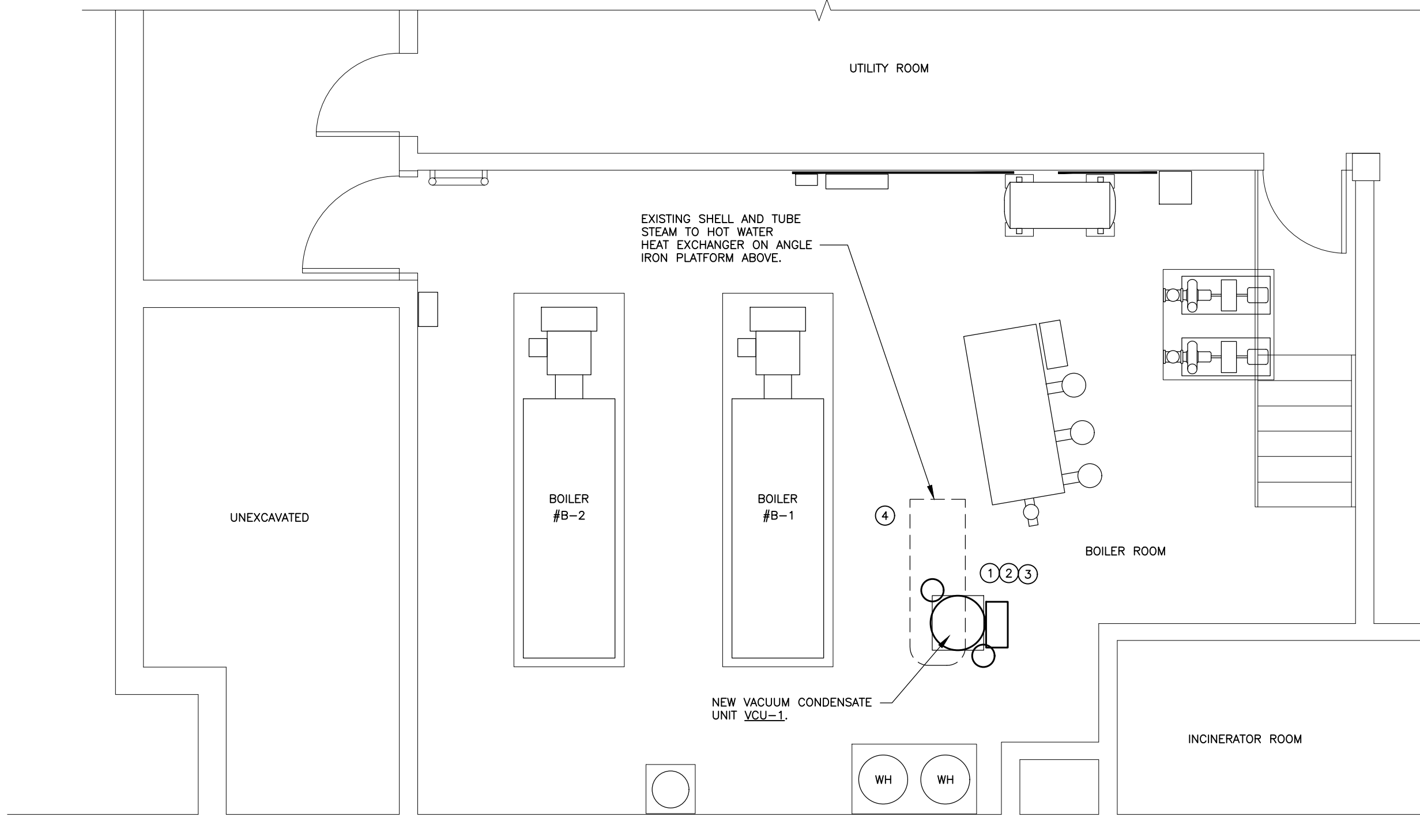
SHEET:

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ISOMETRIC PIPING SCHEMATIC OF VACUUM CONDENSING UNIT

SCALE: N.T.S.



BOILER ROOM MECHANICAL & ELECTRICAL PLAN

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

- DRAWING NOTES
- 1 PROVIDE NEW CONDENSATE VACUUM UNIT INCLUDING BUT NOT LIMITED TO SEPARATION TANK, DUPLEX PUMPS, SOLENOID VALVES, CONTROL PANEL, POWER PANEL, PIPING, FITTINGS, SPECIALTIES, ETC. REFER TO SCHEDULE AND ISOMETRIC SCHEMATIC FOR DETAILS.
 - 2 RE-CONNECT ELECTRICAL POWER TO NEW POWER TERMINAL EXTEND EXISTING WIRING TO SUIT.
 - 3 CONTRACTOR SHALL CLEAN, PREPARE, PRIMER AND PAINT THE EXISTING HOUSEKEEPING PAD ASSOCIATED WITH THE VACUUM TANK. PAINT PAD WITH SHERWIN WILLIAMS SLATE GRAY (OR OTHER COLOR SELECTED BY OWNER) OR APPROVED EQUAL. PREPARATION AND PAINT APPLICATION SHALL BE COMPLETED PRIOR TO RIGGING THE NEW VACUUM TANK IN PLACE.
 - 4 ADD ALTERNATE: DISCONNECT EXISTING STEAM, CONDENSATE, HOT WATER HEATING SUPPLY AND RETURN PIPING FROM EXISTING HEAT EXCHANGER AND THOROUGHLY CLEAN THE SHELL SIDE AND TUBE SIDE OF THE HEAT EXCHANGER BY CHEMICAL TREATMENT AND FLUSH OUT WITH WATER. RECONNECT ALL PIPING TO SUIT HEAT EXCHANGER RETURN TO SERVICE..

MECHANICAL (HVAC) SPECIFICATIONS

GENERAL

SCOPE

THE GENERAL SCOPE OF THE HVAC WORK IS TO REMOVE EXISTING SYSTEMS, MODIFY THE EXISTING SYSTEMS, AND PROVIDE NEW SYSTEMS AS INDICATED ON THESE DOCUMENTS

THE WORK TO BE DONE UNDER THIS DIVISION OF THE SPECIFICATIONS INCLUDE THE FURNISHING OF ALL EQUIPMENT, SUPPLIES, LABOR, SUPERVISION AND ALL MATERIALS NOT SPECIFICALLY MENTIONED BUT NECESSARY OR REQUIRED TO PROVIDE COMPLETE AND FULLY OPERATIONAL HVAC SYSTEMS. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION.

IT IS THE INTENT THAT ALL MECHANICAL WORK AND MATERIALS NECESSARY TO COMPLETE THE ENTIRE PROJECT IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS, WHETHER SPECIFICALLY MENTIONED HERE OR NOT, SHALL BE FURNISHED, ALL WORK AND MATERIALS NECESSARY TO FULFILL THIS INTENT SHALL BE SUPPLIED UNDER THE MECHANICAL SPECIFICATIONS WITHOUT ADDITIONAL COST TO THE OWNER.

DEFINITIONS

'FURNISH' OR 'PROVIDE' – TO FURNISH, ERECT, INSTALL AND CONNECT UP COMPLETE AND READY FOR OPERATION PARTICULAR WORK REFERRED TO, UNLESS SPECIFICALLY INDICATED OR SPECIFIED OTHERWISE.

'WORK' – LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND ALL OTHER ITEMS CUSTOMARILY FURNISHED AND/OR REQUIRED FOR PROPER AND COMPLETE INSTALLATION OF WORK.

'EXPOSED' – NOT INSTALLED UNDERGROUND OR 'CONCEALED' AS DEFINED ABOVE.

'INDICATE' OR 'SHOWN' – AS INDICATED OR SHOWN ON DRAWINGS OR SPECIFIED WITH SPECIFICATIONS.

'PIPE' – PIPE, FITTINGS, FLANGES, VALVES, CONTROLS, HANGERS, TRAPS, DRAINS, INSULATION AND ITEMS CUSTOMARILY OR REQUIRED IN CONNECTION WITH OR RELATING TO SUCH PIPING.

'SUPPLY' – TO PURCHASE, PRODUCE, ACQUIRE AND DELIVER COMPLETE WITH ALL RELATED ITEMS.

'INSTALL' – TO ERECT, MOUNT AND CONNECT UP COMPLETE WITH ALL RELATED ACCESSORIES.

'NOTED' – AS INDICATED ON DRAWINGS AND/OR SPECIFIED.

CODES, RULES, PERMITS AND FEES

THIS CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL STATE AND LOCAL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL STATE AND LOCAL DEPARTMENTS HAVING JURISDICTION; OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVERY OF SAME TO THE OWNER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

THIS CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS), IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WHETHER OR NOT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

THIS CONTRACTOR SHALL PERFORM AND FILE ALL TESTS IN ACCORDANCE WITH THE CURRENT REGULATIONS OF THE STATE AND LOCAL AUTHORITIES. HE SHALL FURNISH AND INSTALL SIGNS REQUIRED BY THE STATE AND LOCAL AUTHORITIES.

ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE RULES AND RECOMMENDATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, WITH ALL REQUIREMENTS OF LOCAL UTILITIES COMPANIES, WITH THE RECOMMENDATIONS OF THE FIRE INSURANCE RATING ORGANIZATION HAVING JURISDICTION.

ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CURRENT CONNECTICUT STATE BUILDING CODE, INCLUDING THE MOST CURRENTLY ADOPTED CONNECTICUT SUPPLEMENT AND APPLICABLE AMENDMENTS, STATE FIRE SAFETY CODE, NATIONAL BUILDING CODE, (INTERNATIONAL RESIDENTIAL CODE, INTERNATIONAL MECHANICAL CODE,) INTERNATIONAL PLUMBING CODE, N.F.P., A.D.A., U.L., NEMA, O.S.H.A. AND WITH ALL REQUIREMENTS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION. REQUIREMENTS OF THE ABOVE SHALL TAKE PRECEDENCE OVER PLANS AND SPECIFICATIONS.

INSURANCE

THE MECHANICAL CONTRACTOR SHALL FURNISH STATUTORY COMPENSATION INSURANCE CERTIFICATES FOR PERSONAL AND PROPERTY DAMAGE, DISABILITY/LIABILITY AS REQUIRED BY THE STAMFORD BOARD OF EDUCATION AND THE CITY OF STAMFORD AND/OR AS HEREINAFORE DESCRIBED.

GUARANTEE AND SERVICE

THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE INSTALLATION. IN ADDITION, THE CONTRACTOR SHALL PROVIDE, FREE OF CHARGE, ONE YEAR'S MAINTENANCE GUARANTEE ON MAINTAINED SERVICE AND ADJUSTMENT OF ALL EQUIPMENT IN THIS CONTRACT.

ALL COMPRESSORS TO HAVE (5) FIVE YEAR EXTENDED WARRANTIES.

DRAWINGS AND INTENT

DRAWINGS ARE INTENDED AS WORKING DRAWINGS FOR GENERAL LAYOUT OF THE VARIOUS HVAC SYSTEMS, HOWEVER, LAYOUT OF EQUIPMENT, ACCESSORIES, SPECIALTIES, DUCTWORK, AND PIPING SYSTEMS ARE DIAGRAMATICALLY UNLESS SPECIFICALLY DIMENSIONED AND TO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, VALVE, FITTINGS, TRAP, ELBOW, TRANSITION, OFFSETS, OR SIMILAR ITEMS REQUIRED FOR A COMPLETE INSTALLATION.

ALL EXISTING CONDITIONS ARE NOT INDICATED ON THE DOCUMENTS AND THOSE SHOWN ARE APPROXIMATIONS. THE CONTRACTOR IS TO VERIFY, IN THE FIELD, ALL EXISTING CONDITIONS.

EXAMINATION OF PREMISES – SPECIAL NOTE: NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO VISIT SITE, OR ANY ALLEGED MISUNDERSTANDING OF MATERIAL TO BE FURNISHED, OR WORK TO BE DONE; IT BEING THAT REFERRER OF PROPOSAL INDICATED WITH ITS AGREEMENT TO ITEMS AND CONDITIONS TENDERED TO HEREIN OR INDICATED ON AFOREMENTIONED DRAWINGS.

MEASUREMENTS

ALL MEASUREMENTS TAKEN AT THE BUILDING SHALL TAKE PRECEDENCE OVER SCALE DIMENSIONS. EVERY PART OF THE PLANS SHALL BE FITTED TO THE ACTUAL CONDITIONS AT THE BUILDING. IF IN CONFLICT WITH SCALE DIMENSIONS, CONTACT ARCHITECT FOR CLARIFICATION.

TEMPORARY SERVICES

THE HVAC CONTRACTOR IS TO COORDINATE WITH THE GENERAL CONTRACTOR, PRIOR TO PERFORMING WORK REQUIRING INTERRUPTION OF EXISTING SERVICES. THE CONTRACTOR SHALL SECURE FROM THE OWNER, APPROVAL OF THE PROPOSED OPERATION.

WORK SHALL BE ARRANGED FOR CONTINUOUS PERFORMANCE WHENEVER POSSIBLE. THE MECHANICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES AND/OR CONNECTIONS WHEN REQUIRED AND/OR SCHEDULED AND PERFORM OVERTIME WORK FOR ANY OPERATION WHICH REQUIRED SHUTDOWN OF THE FACILITIES AT NO ADDITIONAL COST TO THE OWNER.

THE AREA OF CONSTRUCTION AND/OR ADJACENT SPACES MAY BE OCCUPIED DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR IS TO TAKE ALL NECESSARY MEASURES AND PROVIDE ALL MATERIALS TO ENSURE A SAFE ENVIRONMENT FOR THE FACILITY'S OCCUPANTS.

CONTINUITY OF EXISTING SYSTEMS

WHEREVER AN EXISTING SYSTEM IS REMOVED, PARTIALLY REMOVED, OR MODIFIED THE REMAINING SYSTEM IS TO FUNCTION FULLY AS BEFORE.

MAINTAIN CONTINUITY OF THE EXISTING AIR SYSTEMS, HYDRONIC SYSTEMS, AND CONTROL SYSTEMS TO THE AREAS NOT AFFECTED BY THIS ALTERATION.

SCAFFOLDING, RIGGING AND HOISTING

UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ANY EQUIPMENT AND APPARATUS FURNISHED.

THE CONTRACTOR SHALL REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

HOUSEKEEPING

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STOCK OF MATERIALS AND EQUIPMENT STORED ON PREMISES, AT LOCATIONS DESIGNATED FOR SUCH USE, IN A NEAT AND ORDERLY MANNER.

THIS CONTRACTOR SHALL AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY HIS EMPLOYEES AT WORK. HE SHALL REMOVE HIS RUBBISH AND SURPLUS MATERIALS FROM THE JOB SITE AT THE END OF EACH WORK DAY AND SHALL LEAVE THE PREMISES AND HIS WORK IN A CLEAN AND ORDERLY CONDITION.

ALL MATERIAL SCHEDULED FOR REMOVAL IS TO BE DISPOSED OF IN A MANNER MEETING ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

PROTECTION OF MATERIALS AND EQUIPMENTS

CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION.

PROVIDE TEMPORARY CLOSURES ON OPEN ENDED DUCTS DURING CONSTRUCTION PERIOD.

TIGHTLY COVER AND PROTECT FIXTURES AND EQUIPMENT AGAINST DIRT, WATER AND CHEMICAL OR MECHANICAL INJURY.

AT COMPLETION OF ALL WORK, FIXTURES, EXPOSED MATERIALS AND EQUIPMENT SHALL BE THOROUGHLY CLEANED.

WORK NOT INCLUDED

ALL ELECTRICAL WORK
CUTTING AND PATCHING
UNTELS AND STRUCTURAL
ALL CONCRETE WORK

THIS CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH THE SIZES AND LOCATIONS OF CHASES AND OPENINGS WHICH ARE IN OUR WALLS, PARTITIONS, FLOORS, ROOFS, ETC., REQUIRED FOR THE INSTALLATION OF THE WORK CALLED FOR UNDER THIS CONTRACT. THIS WORK WILL BE DONE BY THE GENERAL CONTRACTOR, EXCEPT CUTTING REQUIRED FOR THE INSTALLATION OF HANGERS.

SHOP DRAWINGS

PRIOR TO DELIVERY TO THE JOB SITE, BUT SUFFICIENTLY IN ADVANCE OF REQUIREMENTS NECESSARY TO ALLOW ENGINEER AMPLE TIME FOR REVIEW, CONTRACTOR SHALL SUBMIT FOR APPROVAL, FIVE (5) COPIES OF EACH SHOP DRAWING.

INDICATE ON EACH SUBMISSION:

1. PROJECT NAME AND LOCATION
2. ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

ALL DUCTWORK SHOP DRAWINGS AND COORDINATION DRAWINGS SHALL BE SUBMITTED ON 3/8 IN SCALE DRAWINGS AND SHALL INCLUDE LOCATIONS AND SIZES OF EXISTING EQUIPMENT ALONG WITH NEW WORK. DRAWINGS SHALL INDICATE LOCATIONS OF HANGERS, SUPPORTS, EXPANSION JOINTS, GUIDES, ANCHORS OR ANCHOR LOADS.

COORDINATION DRAWINGS SHALL INDICATE ALL MEP EQUIPMENT, DUCTS AND PIPES AND PERTINENT ARCHITECTURAL ITEMS. MOUNTING HEIGHTS SHALL BE NOTED.

SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1. DUCTWORK LAYOUT, SHEET METAL DETAILS/STANDARDS
2. COORDINATION DRAWINGS

SUBMITTALS

PRIOR TO DELIVERY TO THE JOB SITE, BUT SUFFICIENTLY IN ADVANCE OF REQUIREMENTS NECESSARY TO ALLOW ENGINEER AMPLE TIME FOR REVIEW, CONTRACTOR SHALL SUBMIT FOR APPROVAL, FIVE (5) COPIES OF EACH SHOP DRAWING.

INDICATE ON EACH SUBMISSION:

1. PROJECT NAME AND LOCATION
2. ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

SUBMIT SUBMITTALS ON THE FOLLOWING:

1. PIPING MATERIALS
2. PIPING SPECIALTIES
3. PIPING INSULATION
4. VACUUM TANK AND CONDENSATE MOVING EQUIPMENT
5. CONTROLS
6. HYDRONIC SYSTEMS BALANCING REPORTS

EQUIPMENT DETAILN

THE PLANS AND/OR SPECIFICATIONS INDICATE THE NAME, MODEL, NUMBER OR TYPE OF EQUIPMENT OR MATERIALS SPECIFIED TO SET THE STANDARD OF THE EQUIPMENT FOR THE PROJECT. THE ENGINEER WILL ENTERTAIN THE USE OF OTHER MANUFACTURER'S EQUIPMENT OF LIKE FUNCTIONS AND EQUAL QUALITY. FINAL ACCEPTANCE OF SUBSTITUTES IS AT THE ENGINEER'S DISCRETION. SHOULD THE BIDDER DESIRE TO USE EQUIPMENT OR MATERIALS OR A MANUFACTURER OTHER THAN THOSE SPECIFIED OR SHOWN, HE SHALL ATTACH A RIDER TO THE BID FORM LISTING THE DEDUCTIONS AND/OR ADDITIONS TO HIS BASE BID, TOGETHER WITH THE MANUFACTURER'S NAME AND MODEL NUMBERS OF THE EQUIPMENT OR MATERIALS HE PROPOSED TO FURNISH AS "SUBSTITUTES"; IF NO SUFFICIENT INFORMATION IS FURNISHED, IT WILL BE EXPRESSLY UNDERSTOOD THAT ALL EQUIPMENT AND MATERIALS NAMED WILL BE FURNISHED IN FULL ACCORDANCE WITH THE PLANS AND/OR SPECIFICATIONS.

RECORD DRAWINGS

CONTRACTOR SHALL KEEP ACCURATE RECORD OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED PAYING PARTICULAR ATTENTION TO DIMENSIONING OUTSIDE UNDERGROUND UTILITY LINES, THEIR OFFSETS AND VALVES.

AT THE CLOSE-OUT OF THE PROJECT THE CONTRACTOR IS TO DELIVER TO THE OWNER TWO SETS OF "AS-BUILT" DRAWINGS COPIES OF ALL APPROVED SHOP DRAWINGS.

OWNER'S INSTRUCTIONS AND SYSTEM OPERATION

THE CONTRACTOR IS TO INSTRUCT THE OWNER, OR HIS REPRESENTATIVE, ON THE OPERATION AND MAINTENANCE PROCEDURES FOR ALL OF THE INSTALLED SYSTEMS AND EQUIPMENT. IN ADDITION TO THE VERBAL INSTRUCTIONS, THESE INSTRUCTIONS SHALL BE WRITTEN IN LAYMAN'S LANGUAGE AND SHALL BE INSERTED IN VINYL-COVERED THREE-RING LOOSE LEAF BINDER. CONTRACTOR SHALL ALSO PROVIDE THREE (3) USB THUMBDRIVES WITH ALL O&M INFORMATION INCLUDING THE CONTROL SEQUENCE OF OPERATION, RECORD AS-BUILT DRAWINGS AND EQUIPMENT O&M MANUALS. THIS INFORMATION IN BINDER SHALL BE FIRST SENT TO AND APPROVED BY THE OWNER/ENGINEER BEFORE TURNING OVER TO OWNER.

INSTALLATIONS

SLEEVES

PROVIDE NO. 22 GA. GALVANIZED IRON SLEEVES EXTENDED THROUGH CONSTRUCTION AT ALL PENETRATIONS THROUGH CEILINGS, WALLS AND PARTITIONS.

FOR INSULATED PIPING THE SLEEVE IS TO BE SIZED TO ALLOW INSULATION TO PASS THROUGH SLEEVE, PROVIDE 1/2 INCH SPACE BETWEEN PIPE AND/OR INSULATION AND SLEEVE.

FIRE SEAL ALL SLEEVES IN ACCORDANCE WITH BUILDING CODE AND APPLICABLE SECTIONS OF THE NFPA.

EXPANSION ANCHORS

SUSPEND HANGERS FROM EXPANSION ANCHORS IN SOLID CONCRETE SLABS SIMILAR TO HILTI HDI. PROVIDE HANGER IN PLACE WITH DOUBLE NUTS.

PROVIDE PROTECTION SHIELDS IN INSULATED PIPING. INSTALL HANGERS OVER INSULATION AND SHIELDS.

WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS, PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND REVIEWED.

HANGERS AND SUPPORTING

PIPE HANGING AND SUPPORTING – PIPING SHALL NOT BE SUPPORTED BY OTHER PIPING, BUT SHALL BE SUPPORTED WITH PIPE HANGERS SUITABLE FOR THE SIZE OF PIPE AND PROPER STRENGTH AND QUALITY AT PROPER INTERVALS SO THAT THE PIPING CANNOT BE MOVED ACCIDENTALLY FROM THE INSTALLED POSITION AS FOLLOWS:

PROVIDE CLEVIS HANGERS.	AT CENTER OF CENTER SPACING (UNLESS OTHERWISE NOTED)
1/2" INCH PIPE OR TUBING	6 FEET
3/4" INCH OR 1" INCH PIPE OR TUBING	8 FEET
1-1/4" INCH OR LARGER (HORIZONTAL)	10 FEET
1-1/4" INCH OR LARGER (VERTICAL)	EVERY FLOOR LEVEL

DUCT HANGING AND SUPPORTING – DUCTWORK SHALL NOT BE SUPPORTED BY OTHER DUCTWORK OR PIPING, BUT SHALL BE SUPPORTED WITH HANGERS OF TYPE AND AT SPACING AS PER SMACNA STANDARDS.

VIBRATION AND SEISMIC CONTROL

QUIET OPERATION – ALL WORK SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY SOUND OR VIBRATION WHICH IS OBJECTIONABLE IN THE OPINION OF THE ENGINEER. IN CASE OF MOVING MACHINERY, SOUND OR VIBRATION NOTICEABLE OUTSIDE OF ROOM IN WHICH IT IS INSTALLED, OR ANNOYING INSIDE ITS OWN ROOM, WILL BE CONSIDERED OBJECTIONABLE BY THE ENGINEER AND SHALL BE REMEDIED IN APPROVED MANNER BY THE CONTRACTOR AT HIS EXPENSE.

PROVIDE FLEXIBLE PIPE CONNECTIONS AT ALL PIPING CONNECTED TO MOVING EQUIPMENT.

PROVIDE FLEXIBLE DUCT CONNECTIONS AT ALL DUCTWORK CONNECTED TO MOVING EQUIPMENT. FLEXIBLE CONNECTIONS SHALL BE 29 OZ. NEOPRENE COATED FIBERGLASS, 6" DIA. BUT NOT MORE THAN 12" DIA. FASTEN TO DUCTWORK PER MANUFACTURER'S RECOMMENDATIONS. FABRIC SHALL NOT BE STRESSED OTHER THAN BY AIR PRESSURE. ALLOW AT LEAST ONE INCH SLACK TO INSURE THAT NO VIBRATION IS TRANSMITTED.

PROVIDE VIBRATION ISOLATION SPRINGS OR PADS AT MOUNTING AND SUPPORTS FOR ALL EQUIPMENT CAPABLE OF TRANSMITTING VIBRATIONS.

SEISMIC RESTRAINTS

SEISMIC RESTRAINTS DESIGNED AND CONSTRUCTED FOR LATERAL FORCES IN ANY DIRECTION SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT IN ACCORDANCE WITH THE STATE BUILDING CODE.

SEISMIC RESTRAINTS SHALL NOT BE REQUIRED FOR THE FOLLOWING:

1. PIPING IN BOILER AND MECHANICAL ROOMS LESS THAN 1-1/4 INCH INSIDE DIAMETER.
1. ALL OTHER PIPING LESS THAN 2-1/2 INCH INSIDE DIAMETER.
3. RECTANGULAR AIR-HANDLING DUCTS LESS THAN 6 SQUARE FEET IN CROSS-SECTIONAL AREA
4. ROUND AIR-HANDLING DUCTS LESS THAN 28 INCHES IN DIAMETER.
5. PIPING SUSPENDED BY INDIVIDUAL HANGERS 12 INCHES OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
6. DUCTS SUSPENDED BY HANGERS 12 INCHES OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.

SEISMIC RESTRAINT FOR DUCTWORK; PROVIDE REQUIRED BRACING MATERIAL. DUCTWORK SHALL BE SUPPORTED AND BRACED TO RESIST ALL DIRECTIONAL (TRANSVERSE, LONGITUDINAL, AND VERTICAL) FORCES EQUAL TO 10 PERCENT OF THE WEIGHT OF THE DUCT SYSTEM.

IDENTIFICATION

ALL IDENTIFICATION LABELING IS TO COMPLY WITH ASME A13.1

ALL PIPING IS TO BE LABELED WITH INDICATIONS OF SERVICE AND DIRECTION OF FLOW.

ALL DUCTWORK IS TO BE LABELED WITH INDICATIONS OF SERVICE, DIRECTION OF FLOW AND ASSOCIATED SYSTEM DESIGNATION.

ALL EQUIPMENT IS TO HAVE PERMANENT LABELS INDICATING EQUIPMENT DESIGNATION.

PAINTING

CONTRACTOR SHALL CLEAN, PREPARE, PRIMER AND PAINT THE EXISTING HOUSEKEEPING PAD WITH SHERWIN WILLIAMS SLATE GRAY CONCRETE PAINT PRIOR TO RIGGING OF NEW VACUUM TANK IN PLACE.

PIPING INSTALLATION

SIZES AND APPROXIMATE LOCATION OF PIPING SYSTEMS ARE SHOWN ON THE DRAWINGS. CHECK CAREFULLY WITH THE ARCHITECTURAL DRAWINGS, DRAWINGS SHOWING WORK OF OTHER TRADES, AND EXISTING FIELD CONDITIONS TO MAKE SURE THAT THERE WILL BE NO CONFLICT BETWEEN THESE TRADES AND THE PIPING SYSTEMS. PIPES SHALL BE OFFSET AS REQUIRED TO CLEAR STRUCTURAL MEMBERS AND EXISTING FIELD CONDITIONS.

PIPING TO BE INSTALLED WITH PROPER PITCH TO LOW POINTS. PROVIDE DRAIN VALVES AT ALL LOW POINTS AND AIR VENTS AT ALL HIGH POINTS OF THE PIPING SYSTEM.

INSTALL PIPING TO ALLOW FOR PIPE EXPANSION.

FIELD QUALITY CONTROL

PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS ACCORDING TO SMACNA'S "HVAC AIR DUCT LEAKAGE TEST MANUAL" AND PREPARE TEST REPORTS:

DISASSEMBLE, REASSEMBLE AND SEAL SEGMENTS OF SYSTEMS TO ACCOMMODATE LEAKAGE TESTING AND FOR COMPLIANCE WITH TEST REQUIREMENTS.

CONDUCT TESTS AT STATIC PRESSURES EQUAL TO MAXIMUM DESIGN PRESSURE OF SYSTEM OR SECTION BEING TESTED. IF PRESSURE CLASSES ARE NOT INDICATED, TEST ENTIRE SYSTEM AT MAXIMUM SYSTEM DESIGN PRESSURE. DO NOT PRESSURIZE SYSTEMS ABOVE MAXIMUM DESIGN OPERATING PRESSURE. GIVE SEVEN DAYS ADVANCE NOTICE FOR TESTING.

MAXIMUM ALLOWABLE LEAKAGE; COMPLY WITH REQUIREMENTS FOR LEAKAGE CLASS 3 FOR ROUND AND FLAT-OVAL DUCTS, LEAKAGE CLASS 12 FOR RECTANGULAR DUCTS IN PRESSURE CLASSES LOWER THAN AND EQUAL TO 2-INCH WG (500 PA) (BOTH POSITIVE AND NEGATIVE PRESSURES), AND LEAKAGE CLASS 6 FOR PRESSURE CLASSES FROM 2– TO 10– WG (500 TO 2500 PA).

REMAKE LEAKING JOINTS AND RETEST UNTIL LEAKAGE IS EQUAL TO OR LESS THAN MAXIMUM ALLOWABLE.

MATERIALS

DISSIMILAR METALS

WHENEVER DISSIMILAR PIPING MATERIALS ARE CONNECTED THE TWO SHALL BE SEPARATED WITH AN "INSULATION" CONNECTION (DIELECTRIC) FITTING.

PIPING

STEAM & CONDENSATE RETURN PIPING

STANDARD WEIGHT, SCHEDULE 40, OPEN HEARTH STEEL, NATIONAL OR EQUAL. FITTINGS FOR STEEL PIPE SHALL BE AS FOLLOWS: GENERALLY, BUT WELDING FITTINGS OVER TWO INCHES SHALL BE USED AND EITHER SOCKET-WELD OR SCREWED FOR TWO INCHES AND UNDER. WELDING FITTINGS SHALL BE STANDARD FORGED STEEL WITH CHAMFERED ENDS. ALL BRANCHES SHALL BE WELDED WITH EITHER WELDOLETE OR TEES.

HOT WATER HEATING PIPING

TYPE L COPPER TUBING WITH SWEAT FITTINGS WITH 95-5 SOLDER OR STANDARD WEIGHT, SCHEDULE 40, OPEN HEARTH STEEL, NATIONAL OR EQUAL. FITTINGS FOR STEEL PIPE SHALL BE AS FOLLOWS: GENERALLY, BUT WELDING FITTINGS OVER TWO INCHES SHALL BE USED AND EITHER SOCKET-WELD OR SCREWED FOR TWO INCHES AND UNDER. WELDING FITTINGS SHALL BE STANDARD FORGED STEEL WITH CHAMFERED ENDS. ALL BRANCHES SHALL BE WELDED WITH EITHER WELDOLETE OR TEES, OR MATCH EXISTING MATERIALS.

PIPE INSULATION

THE FOLLOWING PIPING SYSTEMS ARE TO BE INSULATED:

STEAM SUPPLY PIPING
STEAM CONDENSATE RETURN PIPING WITHIN 10'-0" OF THE FLOOR
HEATING HOT WATER SUPPLY AND RETURN PIPING

HOT WATER & STEAM HEATING AND CHILLED WATER PIPING INSULATION

INSULATE WITH RIGID PREFORMED FIBERGLASS WITH AP-1 PLUS JACKET, SCHULLER MICRO-LOK OR EQUAL. INSULATION THICKNESS SHALL BE 1" THICK FOR BELOW 1 1/2" OR SMALLER PIPING, 1-1/2" THICK FOR 2" TO 3" PIPING AND 2" THICK FOR PIPING 4" AND LARGER. PROVIDE ZESTON COVERS ON ALL FITTINGS.

VALVES AND SPECIALTIES

BALANCING FITTINGS

PROVIDE "B & G" CIRCUIT SETTER BALANCING FITTINGS ON ALL WATER SYSTEMS WHENEVER REQUIRED FOR BALANCING OF SYSTEMS.

THERMOMETERS

SHALL BE TERRECE UNIVERSAL ANGLE TYPE #LB0732, SOLID LIQUID FILLED, 4 1/2" DIAL SIZE. FURNISH WITH SEPARABLE SOCKET WITH 2" EXTENSION NECK.

STEAM SPECIALTIES

ALL STEAM TRAPS AND SPECIALTIES TO BE B & G OR SARCO.

STEAM AND CONDENSATE VALVES

ALL NEW STEAM AND CONDENSATE VALVES SHALL BE OS&Y TYPE RATED FOR MAXIMUM WORKING PRESSURE OF 125 PSI.

EQUIPMENT

THE SPECIFIED UNIT IS A ONE TO ONE REPLACEMENT OF THE EXISTING VACUUM SYSTEM. DUE TO SUPPLY CHAIN ISSUES, SUBSTITUTIONS ARE ALLOWED IF CAPACITY, PERFORMANCE, ELECTRICAL CHARACTERISTICS AND FORM/FIT ARE EQUAL.

CONTROLS

GENERAL

NEW UNIT SHALL BE RECONNECTED TO EXISTING CONTROL WIRING ADN PROGRAMMING.

GENERAL PIPE TEST

UNLESS OTHERWISE NOTED, TEST ALL PIPING HYDROSTATICALLY AT NOT LESS THAN 200 PSIG (4 PER SQUARE INCH PRESSURE) FOR TWO HOURS AND ALL DEFECTIVE MATERIAL SHALL BE REPLACED. BEFORE MAKING FINAL APPROVAL, THE SUBCONTRACTOR SHOULD PRODUCE A WRITTEN STATEMENT, SIGNED BY A REPRESENTATIVE OF THE OWNER'S UNDERWRITER, THAT THE WORK HAS BEEN COMPLETED AND TESTED IN ACCORDANCE WITH APPROVED SPECIFICATIONS AND PLANS. UNLESS OTHERWISE NOTED, PERFORM PRESSURE TESTS AND OBTAIN APPROVAL OF TEST RESULTS BEFORE STARTING CLEANING OR CONCEALING OF PIPE UNDER INSULATION OR OTHER FINISH. INSULATION REMOVAL AND REINSTALLATION WHICH IS REQUIRED BECAUSE INSULATION WAS INSTALLED PRIOR TO TESTING SHALL BE DONE BY THE CONTRACTOR AT NO EXTRA COST.

TESTS ARE SATISFACTORY ONLY WHEN JOISTS SHOW NO VISIBLE LEAKS AND TEST PRESSURE REMAINS CONSTANT AFTER CONTINUOUS TEST PERIOD. REPAIR LEAKS, AND REMOVE AND REPLACE DEFECTIVE PIPE, FITTINGS AND JOISTS WITH NEW MATERIAL, UNTIL ACCEPTED BY ARCHITECT AND INSPECTING AUTHORITY. WICKING, CAULKING, COMPOUNDING, PENNING, OR OTHER MAKESHIFT TYPE OF REPAIRS ARE NOT PERMITTED. REPEAT TESTS AFTER REPAIRS UNTIL SYSTEMS ARE PROVEN TIGHT.

CONTROLS

NEW VACUUM TANK SHALL BE PROVIDED WITH CONTROL PANEL AND INCLUDE BACNET PROTOCOL COMPATIBILITY TO INTERLOCK WITH THE EXISTING BUILDING MANAGEMENT SYSTEM (JOHNSON CONTROLS METASYS SYSTEM).

THE OWNER'S AUTOMATIC TEMPERATURE CONTROL VENDOR (JOHNSON CONTROLS) SHALL PROVIDE PROGRAMMING AND GRAPHICS TO INTEGRATE NEW VACUUM PUMP TO THE BMS.

SEQUENCE OF OPERATIONS:
IN GENERAL, THE OPERATION OF THE VACUUM TANK AND PUMPS SHALL BE DONE BY THE FACTORY CONTROL PANEL AND DEVICES. THE WATER LEVEL IN THE VACUUM TANK SHALL BE AUTOMATICALLY CONTROLLED BY A FACTORY SOLENOID VALVE ACTUATED BY AN INTEGRAL FLOAT SWITCH. TO OPERATE AT A HIGH VACUUM, THE WATER MUST BE AT A LOWER TEMPERATURE TO ACHIEVE A LOW VAPOR PRESSURE. THE TEMPERATURE LIMIT SWITCH AUTOMATICALLY ADMITTED BY USING A TEMPERATURE LIMIT SWITCH. THE TEMPERATURE LIMIT SWITCH ACTUATES THE SOLENOID VALVE IF THE TEMPERATURE RISES ABOVE 200 DEGREES (ASL).

THE FACTORY CONTROL PANEL SHALL BE EQUIPPED WITH A BACNET PROTOCOL CAPABILITY TO INTERLOCK WITH THE EXISTING BUILDING AUTOMATION SYSTEM. THE BMS SHALL ENABLE AND DISABLE THE VACUUM TANK SYSTEM WHEN THE BMS CYCLES THE BOILERS. THE BMS SHALL MONITOR THE OPERATION OF ALL PUMPS, LIQUID LEVEL IN THE VACUUM TANK, AND OUTLET WATER TEMPERATURE. THE BMS SHALL GENERATE ALARM FOR HIGH AND LOW WATER LEVELS IN THE TANK AS WELL AS HIGH OUTLET WATER TEMPERATURE. IF THE VACUUM TANK PACKAGE IS NOT AVAILABLE WITH A BACNET CAPABILITY, THEN THE OWNER'S AUTOMATIC TEMPERATURE CONTROL VENDOR (JOHNSON CONTROLS) SHALL PROVIDE A RETROFITTED BACNET CARD TO THE FACTORY CONTROL PANEL TO ACHIEVE INTERLOCK WITH BMS.

ADDITIONAL BIDDING INSTRUCTIONS:

THERE CAN NOT BE ANY WELDING OR CUTTING TORCHES USED DURING SCHOOL HOURS WHEN THE STUDENTS OCCUPY THE BUILDING. BIDDING SHALL BE SCHEDULED TO TEMIZE ALL LABOR COSTS PERTAINING TO CUTTING AND WELDING AS AN ADD ALTERNATE. CUTTING AND WELDING WORK SHALL BE LIMITED TO UNOCCUPIED HOURS WHICH INCLUDE WEEKDAYS BETWEEN 5:00 PM AND MIDNIGHTS MONDAY THRU FRIDAY. PROVIDE LINE ITEM FOR CUTTING AND WELDING WORK TO BE PERFORMED ON SATURDAYS AND SUNDAYS.

MECHANICAL DEMOLITION NOTES

1. THE MECHANICAL CONTRACTOR SHALL REMOVE ALL MECHANICAL EQUIPMENT, ACCESSORIES, CONTROLS AND ASSOCIATED PIPING AS SHOWN OR INDICATED ON THE DRAWINGS.
2. NO EQUIPMENT OR DEVICES THAT HAVE BEEN DISCONNECTED AND OR ABANDONED SHALL REMAIN.
3. THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING SYSTEMS AND CONDITIONS IN AREAS OF RENOVATION.
4. ANY SYSTEMS OR EQUIPMENT TO REMAIN ACTIVE DURING RENOVATION SHALL BE KEPT IN OPERATION BY PROVIDING TEMPORARY CONNECTIONS AS REQUIRED UNTIL NEW SYSTEMS ARE INSTALLED AND OPERATIONAL.
5. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER, CM, AND OR GENERAL CONTRACTOR ANY AND ALL PHASING OF THE MECHANICAL DEMOLITION WORK IN ORDER TO SATISFY THE CONSTRUCTION SCHEDULE AND OWNERS OCCUPANCY REQUIREMENTS.
6. ANY MECHANICAL EQUIPMENT TO BE REMOVED AND REUSED OR TURNED OVER TO THE OWNER, AT OWNERS REQUEST, OR AS INDICATED ON THE DRAWINGS SHALL BE CAREFULLY REMOVED AND STORED TO PREVENT DAMAGE.
7. THE MECHANICAL CONTRACTOR SHALL ALSO REVIEW THE ARCHITECTURAL DEMOLITION DRAWINGS AS PART OF THIS CONTRACT FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
8. ALL SERVICE INTERRUPTIONS SHALL BE COORDINATED AND APPROVED WITH THE OWNER IN ADVANCE PRIOR TO COMMENCEMENT OF ANY WORK.
9. THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS DEMOLITION WORK WITH THAT OF OTHER TRADES IN ORDER TO AVOID CONFLICTS.

MECHANICAL GENERAL NOTES

1. THESE GENERAL NOTES ARE APPLICABLE TO ALL MECHANICAL DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. MECHANICAL CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.

VACUUM CONDENSING UNIT SCHEDULE

SYMBOL	MANUFACTURER MODEL NUMBER	TYPE	LOCATION	SYSTEM SERVED	VACUUM SUCTION	CAPACITY (GALLONS)	TANK TYPE	WATER TEMP (°F)	FLANGE S/D	ELECTRICAL DATA VOLT—PH—HZ	POWER HP/BHP	MOTOR SPEED	NOTES
VCU-1	BELL & GOSSETT MJ SERIES MODEL 5003-35	FM	BOILER ROOM	STEAM BOILERS	31 CFM @ 5"Hg	45	VERTICAL	160°F	2"	208-3-60	3.0 HP (2)	3500	1,2,3,4
TYPES: FM = FLOOR MOUNTED													
NOTES: 1. PROVIDE WITH DUPLEX PUMP CONFIGURATION. 2. PROVIDE ALL TANK SPECIALTIES AND ACCESSORIES, VACUUM SWITCHES, SOLENOID VALVES, ETC. 3. PROVIDE WITH FACTORY CONTROL PANEL EQUIPPED WITH BAGNET TO INTERLOCK WITH EXISTING JOHNSON CONTROLS METASYS BMS SYSTEM. 4. PROVIDE WITH OPTIONAL TEMPERATURE LIMIT SWITCH.													

