



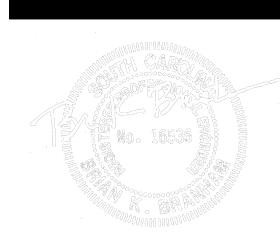
ARCHITECTURE ENGINEERING INTERIORS

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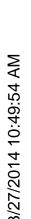
■ PROJECT NUMBER: 10041.01

USC CAMPUS PLANNING & CONSTRUCTION

NORTH ENERGY PLANT RENTAL CHILLER CONNECTIONS

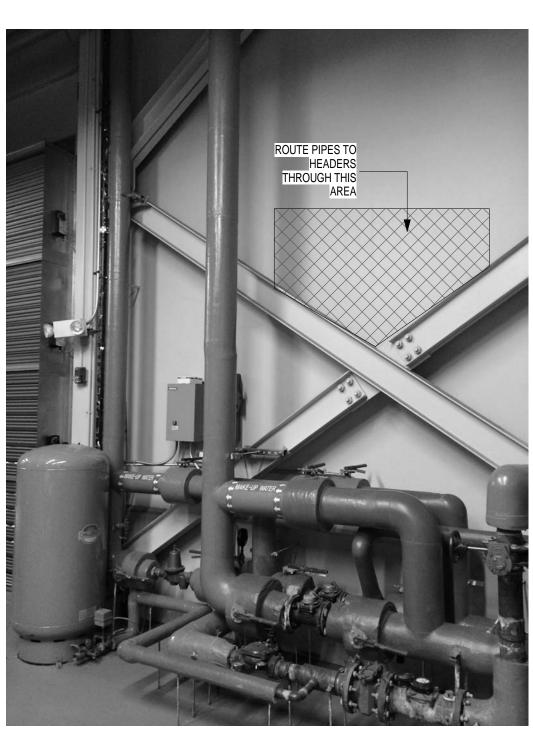
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ELECTRICAL PLAN

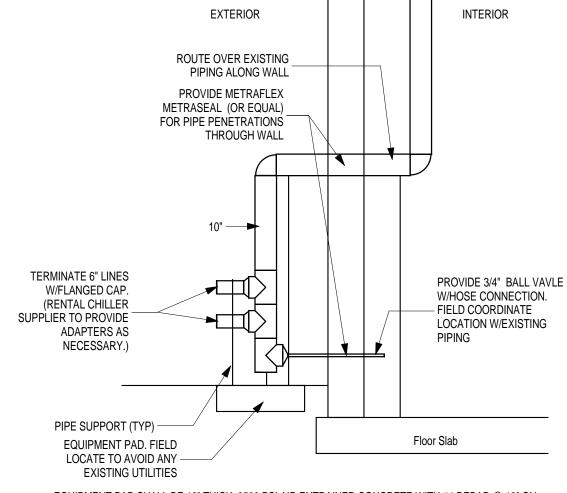




AERIAL VIEW



2 INTERIOR VIEW OF WALL PENETRATION AREA



EQUIPMENT PAD SHALL BE 12" THICK, 3500 PSI AIR ENTRAINED CONCRETE WITH #4 REBAR @ 12" ON CENTER (TOP & BOTTOM). SUB-BASE SHALL BE 4" OF #57 STONE. PROVIDE ADDITIONAL EQUIPMENT PADS AS NECESSARY TO SUPPORT PIPE AT IMC REQUIRED INTERVALS.

TYPICAL RENTAL CHILLER CONNECTION HEADER

NOT TO SCALE

SEISMIC AND WIND REQUIREMENTS FOR MECHANICAL SYSTEMS

INFORMATION FOR IBC-2012 /ASCE 7-10

- A. PER SECTION 301.15 OF THE 2012 EDITION OF THE INTERNATIONAL MECHANICAL CODE, MECHANICAL EQUIPMENT, APPLIANCES AND SUPPORTS (INLCUDING ROOF CURBS & ROOF RAILS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. WHERE SEISMIC RESTRAINT IS REQUIRED, THE MORE DEMANDING FORCE OF WIND AND SEISMIC MUST BE USED. SEE SEISMIC INFORMATION CONTAINED IN THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY.
- B. USE APPLICABLE TABLE BELOW FOR SPECIFIC COMPONENTS IMPORTANCE FACTOR DESIGNATIONS.
 C. USE APPLICABLE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH MECHANICAL COMPONENT.
- FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL.
 WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC
- ENGINEER. DO NOT POUR ANY HOUSEKEÉPING PADS PRIOR TO THE THE RECEIPT OF THE SEISMIC SUBMITTAL.
 SEISMIC RESTRAINTS FOR PIPING AND DUCTWORK MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.
- G. SEISMIC CATEGORY "C".

Ip = 1.0	Ip = 1.5
PIPING SYSTEMS	

SEISMIC DESIGN CATEGORY C

COMPONENT IMPORTANCE FACTOR (In)

		COMPONEN	NT IMPORTANCE FACTOR (Ip)
		1.0	1.5
COMPONENT IDENTIFICATION		SEISMIC RESTRAINT REQUIREMENT	SEISMIC RESTRAINT REQUIREMENT
ROOF MOUNTED		NOT REQUIRED	RESTRAIN ALL
FLOO	R MOUNTED	NOT REQUIRED	RESTRAIN ALL
WALI	L MOUNTED	NOT REQUIRED	RESTRAIN ALL
COMPON	IENT SUPPORTS	NOT REQUIRED	RESTRAIN ALL
SUSPENDED EQUIPMENT	INLINE W/ DUCT	NOT REQUIRED	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN. (SEE NOTE 3)
	NOT INLINE W/ DUCT/PIPE	NOT REQUIRED	RESTRAIN ALL
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)		NOT REQUIRED	>2" (SEE NOTE 4)
SUSPENDED NON DUCTILE PIPING (CAST IRON, PLASTIC, CERAMIC)		NOT REQUIRED	RESTRAIN ALL (SEE NOTE 4)
SUSPENDED PIPE ON TRAPEZE		NOT REQUIRED	RESTRAIN IF ANY PIPE ON TRAPEZE > 2" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10 LBS/FT (SEE NOTE 4)
DUCTWORK		NOT REQUIRED	6 SQ.FT. AND LARGER (SEE NOTE 5)
MULTIPLE DUCTS ON TRAPEZE		NOT REQUIRED	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT (SEE NOTES 4,5)
COMPONENT CERTIFICATION (SEE NOTE 6)		NOT REQUIRED	REQUIRED

- NOTES:
 1. EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
 2. RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHTS 400 LBS. OR LESS, IS MOUNTED AT 4 FT. OR LESS ABOVE A FLOOR, AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.
- FLEXIBLE CONNECTIONS REQUIRED FOR PIPE CONNECTIONS ONLY.
 RESTRAINT IS NOT REQUIRED IF THE PIPING / DUCTWORK IS SUPPORTED BY HANGERS AND EACH HANGER IN THE PIPING RUN IS 12 IN. OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A
- LENGTH OF 12 IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.

 5. ALL DUCTWORK, REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.

 6. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.

MECHANICAL NOTES

- THE DRAWINGS DESCRIBE THE SCOPE OF WORK OF THIS PROJECT. ALL LABOR, MATERIAL, EQUIPMENT, MACHINERY, SUPERVISION, MANAGEMENT AND OTHER ITEMS NECESSARY TO PROVIDE A COMPLETE INSTALLATION OF ALL SYSTEMS SHOWN ON DRAWINGS AND/OR SPECIFICATIONS TO BE PROVIDED BY THE CONTRACTOR.
 ALL WORK IS TO BE PERFORMED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL MECHANICAL CODE AND BUILDING CODE, NFPA CODES, AND APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. OBTAIN ALL PERMITS REQUIRED, GIVE ALL LEGAL NOTICES, AND HAVE ALL WORK INSPECTED AS REQUIRED BY LOCAL OR STATE LAW.
- REQUIRED BY LOCAL OR STATE LAW.

 3. DRAWINGS SHOULD BE INTERPRETED AS GENERAL LAYOUT AND ARRANGEMENT DRAWINGS. THE DRAWINGS ARE NOT INTENDED TO SHOW AND CANNOT SHOW COMPLETE OR PRECISE MEASUREMENTS AND DETAILS OF THE BUILDING AND INSTALLATION IN EVERY RESPECT, AND THEY DO NOT INCLUDE ALL DETAILS OF MANUFACTURED EQUIPMENT, CONSTRUCTION, PIPING, DUCT WORK, ETC. MEASUREMENT FIGURES WRITTEN UPON THE DRAWING ARE TO BE RELIED UPON AS A DIMENSION FOR INSTALLATION PURPOSES, EXACT LOCATIONS AND MEASUREMENTS ARE TO BE DEFINED IN THE FIELD AND THE CONTRACTOR IS RESPONSIBLE FOR THEIR ACCURACY AND USE IN
- CONSTRUCTION OF THE WORK. COORDINATE CLOSELY WITH OWNER & OTHER TRADES.

 4. COORDINATE VOLTAGE AND PHASE OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING EQUIPMENT.

 5. ALL ELECTRICAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT IS TO BE PROVIDED AND INSTALLED BY
- DIVISION 23. THIS INFORMATION SHALL BE INDICATED ON SHOP DRAWINGS.
 6. FOLLOW MANUFACTURER'S RECOMMENDATIONS AND WRITTEN INSTRUCTIONS FOR THE INSTALLATION OF ALL EQUIPMENT, MATERIALS AND ASSEMBLIES INDICATED ON THESE CONTRACT DOCUMENTS. SHOULD CONFLICTS ARISE BETWEEN THESE DOCUMENTS, CODE REQUIREMENTS AND MANUFACTURER'S INSTRUCTIONS, THE MORE STRINGENT REQUIREMENT ARE TO GOVERN.
 7. COORDINATE WORK WITH THAT OF ALL OTHER TRADES TO ELIMINATE INTERFERENCE'S. EXAMINE IN ADVANCE THE LOCATION OF ELECTRICAL SYSTEMS, DUCTS, PIPING, STRUCTURES, CONDUITS AND OTHER EQUIPMENT AND COMPONENTS TO BE INSTALLED AND PROPERLY COORDINATE THE INSTALLATION OF MECHANICAL WORK TO AVOID
- AND OTHER EQUIPMENT.

 8. SUPPORT AND FASTEN ALL DUCTWORK, EQUIPMENT, ETC. SECURELY IN PLACE. SPACE, SECURE AND ADJUST HANGERS AND DUCTS, WITHOUT DEFLECTION OR SAG. CHAIN, STRAP, PERFORATED STRAP, WIRE HANGERS, OR
- WOOD PLUGS ARE PROHIBITED.

 9. ITEMS SPECIFIED HEREIN BY MANUFACTURER AND MODEL NUMBER ARE TO BE CONSIDERED THE MINIMUM QUALITY ACCEPTABLE FOR THE SPECIFIED APPLICATION AND ESTABLISH A STANDARD OF REQUIRED FUNCTION, DIMENSION, APPEARANCE, SERVICEABILITY, AVAILABILITY OF SPARE PARTS AND QUALITY TO BE MET BY ANY PROPOSED SUBSTITUTION. FOR SUBSTITUTIONS, IT IS TO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SUFFICIENT INFORMATION TO ESTABLISH "OR EQUAL" STATUS, IN THE DESIGN ENGINEER'S OPINION AND TO COORDINATE INSTALLATION OF THE AVAILABLE SPACE. INCREASED COSTS TO THE PROJECT ASSOCIATED WITH

INTERFERENCE'S BEFORE FABRICATING AND INSTALLING WORK. DETERMINE ALL DIMENSIONS BY ACTUAL FIELD CONDITIONS, MEASUREMENTS FROM MANUFACTURER'S CERTIFIED PRINTS AND COORDINATION WITH OTHER

TRADES AND TO MODIFY, OFFSET OR OTHERWISE ACCOMMODATE ALL EQUIPMENT TO THE STRUCTURE, UTILITIES

- CONTRACTOR SUBSTITUTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

 10. MAKE ALL NECESSARY TESTS, TRIAL OPERATIONS, ETC. REQUIRED TO PROVE THAT ALL SYSTEMS ARE IN COMPLETE SERVICEABLE CONDITION AND WILL FUNCTION AS INTENDED. ALL COSTS OF TEST SHALL BE BORNE BY THIS CONTRACTOR. SHOULD TEST REVEAL ANY DEFECTIVE MATERIAL OR WORKMANSHIP, SUCH WORK SHALL BE REPLACED AND TESTS REPEATED. ALL CORRECTIONS SHALL BE MADE USING NEW MATERIALS.
- FURNISH ALL NECESSARY ASSISTANCE AS DIRECTED BY THE OWNER WHICH MAY BE REQUIRED TO PROPERLY INSTRUCT THE OWNER IN THE OPERATION OF ALL EQUIPMENT. THIS SHALL INCLUDE PERSONAL INSTRUCTION OVERING ROUTINE MAINTENANCE AND OPERATION OF EQUIPMENT.
 FURNISH TWO COPIES OF COMPLETE OPERATION OF MAINTENANCE MANUALS FOR ALL EQUIPMENT INCLUDING
- NECESSARY CUT SHEETS, CHARTS, WRITTEN INSTRUCTIONS, WIRING DIAGRAMS, FINAL AS-BUILT DRAWINGS WITH BALANCED AIRFLOWS INDICATED ETC. THESE MAINTENANCE INSTRUCTIONS SHALL BE BOUND IN SUITABLE HARD BACK RING BIDDERS, PROPERLY INDEXED, AND DELIVERED TO THE OWNER AT ONE TIME.

 13. SUBMIT FIVE (5) COPIES OF ALL MATERIALS AND EQUIPMENT SPECIFIED HEREIN TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SHIPMENT TO THE PROJECT SITE
- FOR REVIEW PRIOR TO SHIPMENT TO THE PROJECT SITE.

 14. MAINTAIN AN ACCURATE SET OF RECORD DRAWINGS ON-SITE AT ALL TIMES DURING CONSTRUCTION WHICH SHALL BE AVAILABLE FOR EXAMINATION BY THE OWNER'S REPRESENTATIVE UPON REQUEST. PROVIDE THE OWNER WITH A COMPLETE MARKED-UP SET OF THE CONTRACT DRAWINGS AT PROJECT COMPLETION.
- 15. CORRECT ANY DEFECTS IN WORKMANSHIP AND/OR MATERIAL WHICH OCCUR DURING THE FIRST YEAR OF OPERATION. CERTIFICATE WILL COMMENCE ON THE DATE OF ACCEPTANCE OF WORK BY OWNER. SUBMIT WRITTEN CERTIFICATE WITH MAINTENANCE DATA. THE CONTRACTOR SHALL PROVIDE A WRITTEN MANUFACTURER'S WARRANTY ON ALL PARTS AND LABOR FOR A PERIOD OF 1 YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. WHERE INDICATED, PROVIDE EXTENDED WARRANTIES FOR PERIODS INDICATED.
- WHERE INDICATED, PROVIDE EXTENDED WARRANTIES FOR PERIODS INDICATED.

 16. ALL EQUIPMENT FURNISHED SHALL BE UL APPROVED AND SHALL BE LABELED OR LISTED BY UL.

 17. REESTABLISH THE INTEGRITY OF ALL RATED ASSEMBLIES IN WHICH HIS WORK REQUIRES ALTERATION OR MODIFICATION.

 18. EPAME AND SEALALL DUCT PENETRATIONS THROUGH WALLS AND ELOOPS AND POOF
- FRAME AND SEAL ALL DUCT PENETRATIONS THROUGH WALLS AND FLOORS AND ROOF.
 MATERIAL SHALL BE NEW AND MADE BY AN APPROVED MANUFACTURER. PIPING SHALL BE INSTALLED SO THAT IT CAN BE COMPLETELY DRAINED. EQUIPMENT AND MATERIALS SHALL BE INSTALLED, ERECTED OR APPLIED WITH THE BEST ENGINEERING OR CONSTRUCTION PRACTICE. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE OBSERVED, AS WELL AS ANY SPECIFIC INSTRUCTIONS GIVEN BY THE OWNER. ALL SUBSTANDARD WORK INSTALLED BY THIS CONTRACTOR SHALL BE REPLACED BY THIS CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. IF THIS CONTRACTOR DAMAGES EXISTING WORK, HE SHALL PAY THE COST OF REPLACEMENT OF THE DAMAGED WORK AT NO ADDITIONAL EXPENSE TO THE OWNER.
- WORK AT NO ADDITIONAL EXPENSE TO THE OWNER.

 20. CLEANING AGENTS SHALL BE COMPATIBLE WITH THE SYSTEM BEING CLEANED. PRIOR TO ERECTION, INSPECT AND CLEAN AS REQUIRED TO REMOVE SAND, DIRT AND SCALE. PRIOR TO FLUSHING SYSTEM, CONTROL VALVES, RUPTURE DISCS, ETC. THAT MAY BE DAMAGED BY CLEANING SHALL BE REMOVED AND REPLACED WITH SPOOL PIECES, PLUGS, ETC. REMOVED ITEMS SHALL BE CLEANED SEPARATELY. NEW PIPE SHALL BE VALVED OFF FROM EXISTING, THEN FILLED AS REQUIRED. ALLOW SYSTEM TO BE FILLED COMPLETELY. THEN DRAIN COMPLETELY. CONTRACTOR SHALL INSTALL DRAINS AS REQUIRED TO ENSURE COMPLETE DRAINAGE OF SYSTEM. ALL DAMAGE OR DISCOLORATION OF EQUIPMENT OR THE BUILDING DUE TO FAILURE TO CLEAN UP THOROUGHLY OR FLUSH OUT PIPING PROPERLY SHALL BE CORRECTED WITHOUT ADDITIONAL COST TO THE OWNER.

 21. SHUT-DOWN OF EXISTING SERVICES WHICH AFFECTS THE OPERATION WITHIN THE FACILITY REQUIRED TO ACCOMMODATE CONSTRUCTION ACTIVITIES DESCRIBED HEREIN, SHALL BE SCHEDULED WITH THE OWNER'S REPRESENTATIVE AND APPROVED IN WRITING. ALL SERVICES SHALL REMAIN OPERATIONAL DURING NORMAL
- PIPING INSTALLATIONS SHALL BE PER CURRENT MODERN INDUSTRY METHODS. PROVIDE PIPE SLEEVE LARGE ENOUGH FOR PIPE AND INSULATION WHERE PIPE PASSES THROUGH FLOORS OR WALLS. PIPE PASSING THROUGH FIRE WALLS SHALL BE PACKED WITH A LISTED FIRE PENETRATION SYSTEM. INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, EXCEPT WHERE OTHERWISE INDICATED.
 CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED WHICH IS INCIDENTAL TO THE INSTALLATION OF HIS WORK, CUT. CHANNEL. CHASE AND DRILL FLOORS. WALLS, PARTITIONS. CEILINGS, AND

BUSINESS HOURS UNLESS SPECIFICALLY APPROVED OTHERWISE.

OTHER SURFACES NECESSARY FOR PIPING INSTALLATIONS AFTER COORDINATING w/ OTHER TRADES. PERFORM CUTTING BY SKILLED MECHANICS OF THE TRADES INVOLVED. REPAIR CUT SURFACES USING MATERIALS MATCHING SPECIFIED MATERIALS AND METHODS REQUIRED FOR SURFACE. REFER TO STRUCTURAL DRAWINGS FOR DETAILS ON CONCRETE SLAB OPENINGS..

24. PRIOR TO BID, CONTRACTORS WILL BE RESPONSIBLE FOR VERIFYING EXISTING FIELD CONDITIONS. SUBMISSION OF BID INDICATES THE CONTRACTOR IS AWARE OF ALL FIELD CONDITIONS AND HAS EVAULATED THE REQUIREMENTS NECESSARY TO IMPLEMENT THE DESIGN INDICATED ON THE PLANS.

25. BACKGROUNDS IN HALF-TONE ARE BASED ON EXISTING FILES THAT HAVE NOT BEEN FIELD VERIFIED BY THE

- ENGINEER.

 26. PIPING SHALL BE WELDED SCHEDULE 40 PIPE.

 27. PIPING INSULATION SHALL BE 2" THICK CELLULAR GLASS WITH FACTORY APPLIED VAPOR BARRIER JACKET.
- 27. PIPING INSULATION SHALL BE 2" THICK CELLULAR GLASS WITH FACTORY APPLIED VAPOR BARRIER JACKET.
 INSULATION INSIDE OF THE BUILDING SHALL BE PROVIDED WITH AN ADDITIONAL CANVAS JACKET & SHALL BE
 PAINTED TO MATCH CURRENT FACILITY STANDARDS.
 28. PIPING ON THE EXTERIOR OF THE BUILDING SHALL BE PROVIDED WITH AN ADDITIONAL CORRUAGETED ALUMINMUM
- APPURTÈNANCES AS NECESSARY.

 29. LABEL EACH PIPE TYPE OF SERVICE AND DIRECTION OF FLOW EVERY 25' AND AT EVERY CHANGE IN DIRECTION.

 30. PROVIDE HANGERS AND SUPPORTS THAT COMPLY WITH MSS SP-58.SELECT APPROPRIATE TYPE BY APPLICATION. HANGERS TO BE ADJUSTABLE, CARBON STEEL WITH CLEVIS. fLOOR SUPPORTS TO BE AN ADJUSTABLE CAST IRON PIPE SADDLE WITH LOCK NUT, NIPPLE, FLOOR FLANGE AND CONCRETE PIER OR STEEL SUPPORT.

JACKET (0.032 THICK MIN.). SEAL JOINTS WITH MASTIC. PROVIDE PRE-MANUFACTURED JACKETS FOR FITTINGS &

- 31. BUTTERFLY VALVES SHALL BE ZWICK MODEL B1 DOUBLE FLANGED, ANSI 300 PRESSURE RATING.

 32. PROVIDE MOTOR ACTUATOR ON BUTTERFLY VALVES THE VALVES THE DAY.
- 32. PROVIDE MOTOR ACTUATOR ON BUTTERFLY VALVES AND CONNECT TO EXISTING BUILDING MANAGEMENT SYS
 TO ALLOW USC FACILITIES TO OPEN OR CLOSE THE VALVES THROUGH THE BMS.
 33. ALL NECESSARY CONTROLS WORK TO BE PROVIDED BY JCI. THIS MUST BE INCLUDED IN THE BID PRICE.
 34. PROVIE VALMATIC 2" #102SS/22.9 SURGE SUPPRESSION COMBINATION AIR RELIEF/VACUUM RELIEF VALVE (OR
 EQUAL) AT HIGH POINTS OF BOTH NEW LINES. SEE DETAIL 04 ON M0.1.
- 35. SUBMITTAL'S SHALL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
 PRODUCT DATA PERFORMANCE DATA AT DESIGN CONDITIONS, PUMP CURVES, FAN CURVES, WEIGHT, MATERIALS OF CONSTRUCTION, GAUGES, OPTIONS AND ACCESSORIES.
- SHOP DRAWINGS DIMENSIONS, WEIGHT DISTRIBUTION, REQUIRED CLEARANCES, METHOD OF ASSEMBLY, LOCATION SIZES AND UTILITY REQUIREMENTS OF ALL CONNECTIONS.
- WIRING DIAGRAMS ELECTRICAL POWER REQUIREMENTS AND ASSOCIATED ELECTRICAL LOADS, LADDER DIAGRAMS INDICATING CONTROL LOGIC, DIFFERENTIATE BETWEEN FACTORY AND FIELD WIRING.

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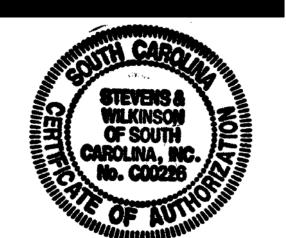
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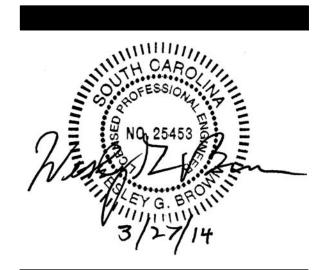
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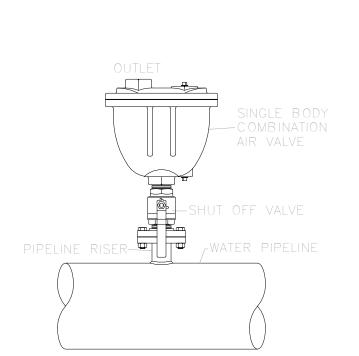
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MECHANICAL GENERAL

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COMBINATION AIR RELIEF/VACUUM RELIEF VALVE

KEYNOTES:

1 REMOVE EXISTING PIPE END CAP FROM 24" DIA. CHILLED WATER SUPPLY LINE. INSTALL A 36" LONG, 24" DIA. PIPE SECTION WITH 10" DIA. BRANCH LINE AND 10" MOTOR OPERATED BUTTERFLY VALVE. INSTALL EXISTING END CAP AT END OF NEW

REMOVE EXISTING PIPE END CAP FROM 24" DIA. CHILLED WATER RETURN LINE.
INSTALL A 36" LONG, 24" DIA. PIPE SECTION WITH 10" DIA. BRANCH LINE AND 10"
MOTOR OPERATED BUTTERFLY VALVE. INSTALL EXISTING END CAP AT END OF NEW



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HVAC PIPING PLAN

M1.0