

SPECIFICATIONS (CONTINUED)

9. MEDICAL GAS AND VACUUM PIPING

- A. PROVIDE ALL PIPING COMPLETE WITH FITTINGS, VALVES, HANGERS, SUPPORTS, GUIDES, SLEEVES AND ACCESSORIES.
 - B. INSTALL ALL MEDICAL GAS PIPING TO NFPA 99, LEVEL 1 REQUIREMENTS.
 - C. PROVIDE MEDICAL GAS OUTLETS TO MATCH EXISTING.
 - D. MEDICAL AIR AND OXYGEN PIPING SHALL BE TYPE "L" COPPER, CLEANED AND SEALED FOR OXYGEN SERVICE. MEDICAL VACUUM PIPING SHALL BE TYPE "L" COPPER.
 - E. ALL JOINTS SHALL BE BRAZED. BRAZING FILLER METALS SHALL BE AWS A5.8, BCUP SERIES ALLOYS. FLUX IS PROHIBITED UNLESS USED WITH BRONZE FITTINGS.
 - F. VALVES SHALL BE FACTORY CLEANED FOR OXYGEN SERVICE, EXCEPT FOR VALVES IN VACUUM PIPING.
- 10. INTERRUPTION OF EXISTING MEDICAL GAS SERVICE**
- A. CONTRACTOR SHALL NOT INTERRUPT MEDICAL GAS SERVICE TO OCCUPIED FACILITIES. UNDER NO CONDITIONS SHALL MEDICAL GAS SERVICE VALVES (EXISTING OR NEW) BE CLOSED BY THE CONTRACTOR.
 - B. OWNER SHALL BE RESPONSIBLE FOR ISOLATING PORTIONS OF EXISTING SYSTEMS AND CLOSING SERVICE VALVES AS REQUIRED: INCLUDING VERIFYING PROPER SERVICE VALVE OR ZONE VALVE LABELING AND EXACT AREAS OF ROOMS CONTROLLED.
 - 1) MEDICAL GAS SYSTEM ISOLATION:
 - A.A. TOTAL ISOLATION BETWEEN NEW SYSTEMS AND EXISTING SYSTEMS SHALL BE MAINTAINED UNTIL ALL NEW PIPING IS TESTED FOR LEAKS AND TESTED FOR CROSS CONNECTIONS PER NFPA 99 BY THE CONTRACTOR.
 - C. ALL MEDICAL GAS AND VACUUM PIPING SHALL BE TESTED AND CERTIFIED AS REQUIRED IN NFPA 99.

11. CONDENSATE PUMP

- A. QUALITY ASSURANCE: ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES; LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND MARKED FOR INTENDED USE.
- B. MANUFACTURERS:
 - 1) AURORA PUMP.
 - 2) BECKETT CORP.
 - 3) FLOW SERVICE CORP.
 - 4) HARTELL PUMPS DIV.
 - 5) LITTLE GIANT PUMP CO.
 - 6) MEPCO, LLC.
- C. DESCRIPTION: PACKAGED UNITS WITH CORROSION-RESISTANT PUMP, PLASTIC TANK WITH COVER AND AUTOMATIC CONTROLS. INCLUDE FACTORY OR FIELD INSTALLED CHECK VALVE AND A 72-INCH MINIMUM POWER CORD WITH PLUG.
- D. CONNECTION: INSTALL CHECK VALVE AND BALL VALVE ON CONDENSATE PUMP DISCHARGE.

12. FIRE PROTECTION

- A. SUMMARY
 - 1) PROVIDE FIRE PROTECTION SYSTEMS INCLUDING:
 - A.A. SPRINKLER
 - 2) MAINTAIN PROTECTION DURING CONSTRUCTION TO THE EXTENT REQUIRED BY AUTHORITIES HAVING JURISDICTION, (AHJ). PROVIDE A FIRE WATCH IF NEEDED.
 - 3) COORDINATE WITH OWNER'S ROOM USES TO PROVIDE ADEQUATE SYSTEM FOR ALL CONTRACT AREAS.
 - 4) COORDINATE LOCATION OF FIRE PROTECTION SYSTEMS TO AVOID INTERFERENCE WITH LOCATION OF DESIGNATED LIGHTING FIXTURE LOCATIONS. NOTIFY OWNER PRIOR TO CONSTRUCTION OF CONFLICTS, WHICH CANNOT BE RESOLVED.
- B. SUBMITTALS
 - 1) PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR EACH MATERIAL AND PRODUCT USED.
 - 2) DRAWINGS: SUBMIT THE FOLLOWING:
 - A.A. SUBMIT AS-BUILT DRAWINGS UPON COMPLETION OF WORK. THESE DRAWINGS SHALL REFLECT ANY CHANGES MADE SINCE TIME OF ORIGINAL DESIGN.
 - 3) OPERATION AND MAINTENANCE DATA: SUBMIT MANUFACTURER'S OPERATION AND MAINTENANCE DATA, INCLUDING OPERATING INSTRUCTIONS, LIST OF SPARE PARTS AND MAINTENANCE SCHEDULE.
- C. QUALITY ASSURANCE
 - 1) COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - 2) PROVIDE COMPLETE SPRINKLER COVERAGE PER NFPA 13.
 - 3) SYSTEM COMPONENTS TO BE UL LISTED OR FM APPROVED AND SHALL MEET THE REQUIREMENTS OF THE OWNER'S INSURANCE CARRIER.
 - 4) WARRANTY: PROVIDE AT MINIMUM A ONE YEAR WARRANTY FOR THE WORK, STARTING FROM TIME OF SUBSTANTIAL COMPLETION. COORDINATE ADDITIONAL WARRANTY REQUIREMENTS WITH THE OWNER.
- D. PIPING MATERIALS
 - 1) WET-PIPE SPRINKLER PIPING:
 - A.A. PIPING 2-INCHES AND SMALLER: SCHEDULE 40 STEEL WITH IRON FITTINGS AND THREADED JOINTS.
 - A.B. PIPING 2-1/2-INCHES AND LARGER: SCHEDULE 10 STEEL WITH GROOVED FITTINGS AND JOINTS.
 - A.C. PIPING IN MRI ROOM TO BE TYPE K COPPER WITH NON FERROUS FITTINGS AND JOINTS.
 - A.D. WELDED JOINTS ALSO ALLOWED.
 - 2) SHUT-OFF VALVES:
 - A.A. 2-INCHES AND SMALLER: BRONZE BODY GATE OR BUTTERFLY TYPE, THREADED ENDS.
 - A.B. 2-1/2-INCH AND LARGER: CAST IRON BODY, GROOVED OR FLANGED ENDS.
 - A.C. SUPERVISION: VALVES TO BE EQUIPPED WITH TAMPER SWITCHES, (FOR WIRING TO THE FACILITY FIRE ALARM SYSTEM).
 - A.D. MANUFACTURERS: GRINNELL, ELKHART, VIKING, OR APPROVED EQUAL.
 - 3) HANGERS: PROVIDE SUPPORTS PER NFPA 13. SUPPORT MATERIALS AND SPACING SHALL BE COMPATIBLE WITH MATERIALS BEING SUPPORTED.
 - 4) SEISMIC BRACING: SEISMICALLY BRACE SYSTEMS AS REQUIRED BY THE APPLICABLE BUILDING CODE.
 - 5) SLEEVES, ESCUTCHEONS AND FIRE STOP: PROVIDE STEEL PIPE SLEEVES WHERE SYSTEMS PASS THROUGH PARTITIONS AND WALLS. WHERE EXPOSED PIPES PASS THROUGH FINISHED AREAS, PROVIDE HEAVY CHROME ESCUTCHEONS. MAINTAIN THE INTEGRITY OF RATED WALL, FLOOR, CEILING AND SIMILAR ASSEMBLIES. PROVIDE FIRE STOP AS REQUIRED AT PIPING PENETRATIONS.
 - 6) SPRINKLER HEADS: PROVIDE QUICK-RESPONSE SPRINKLER HEADS OF A TYPE AND FINISH TO MATCH EXISTING HEADS. IN THE ABSENCE OF SIMILAR EXISTING INSTALLATIONS, PROVIDE THE FOLLOWING:
 - A.A. UPRIGHT AND PENDANT BRASS HEADS IN AREAS WITHOUT CEILINGS.
 - A.B. RECESSED HEADS, WHITE FINISH IN SUSPENDED CEILINGS.
 - A.C. CONCEALED HEADS, WHITE FINISH IN HARD CEILINGS.
 - A.D. MANUFACTURERS: GRINNELL, STAR, CENTRAL, VIKING, OR APPROVED EQUAL.
 - A.E. SPRINKLERS LOCATED IN MRI ROOM SHALL BE NON-FERROUS TYPE.
- E. FIRE PROTECTION EQUIPMENT AND SPECIALTIES
 - 1) GENERAL: PROVIDE SPRINKLER SYSTEMS COMPONENTS AS NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL NFPA 13 SYSTEM. COMPONENTS MAY INCLUDE, BUT NOT BE LIMITED TO; SPRINKLERS, STANDPIPES, BACKFLOW PREVENTERS, HOSE CABINETS, FIRE PUMP, JOCKEY PUMP, STARTERS, TRANSFER SWITCHES, FIRE DEPARTMENT CONNECTION, TEST VALVES, HORNS, SIGNALS AND ALL REQUIRED ACCESSORIES.
 - 2) ALARM DEVICES: PROVIDE FLOW, PRESSURE AND RELATED SUPERVISORY DEVICES AS REQUIRED. COORDINATE THOSE ITEMS WITH THE FIRE ALARM SYSTEM INSTALLER.

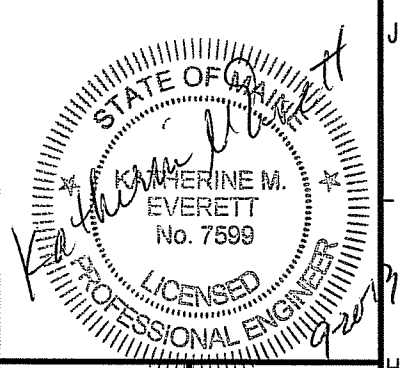
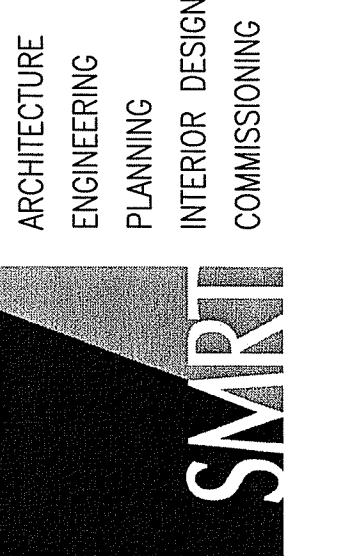
F. INSTALLATION

- 1) INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND BUILDING CODE REQUIREMENTS.
- 2) CENTER CEILING-MOUNTED ELEMENTS IN CENTER OF CEILING TILES AS APPLICABLE.
- 3) INSTALL PENDENT ORIENTATED HEADS ON ARM-OVERS.
- 4) CLEARLY LABEL ALL VALVES AND COMPONENTS
- 5) RESTORE DAMAGED FINISHES. TEST ALL SYSTEMS FOR PROPER OPERATION IN ACCORDANCE WITH NFPA 13. CLEAN AND PROTECT WORK FROM DAMAGE.

NOTE:

- 1. SEE SHEET P-001 FOR LEGEND AND ABBREVIATIONS.

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