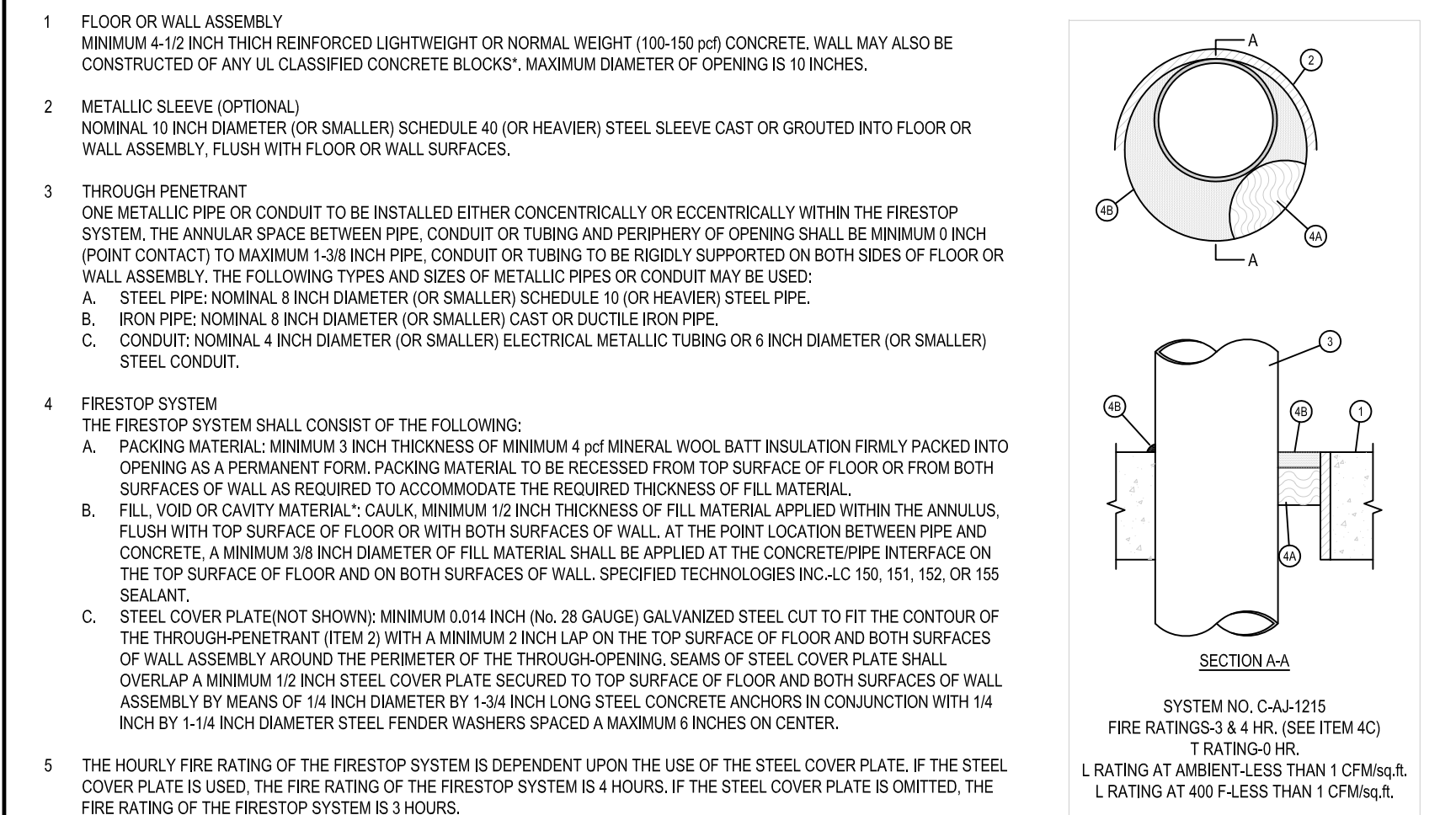
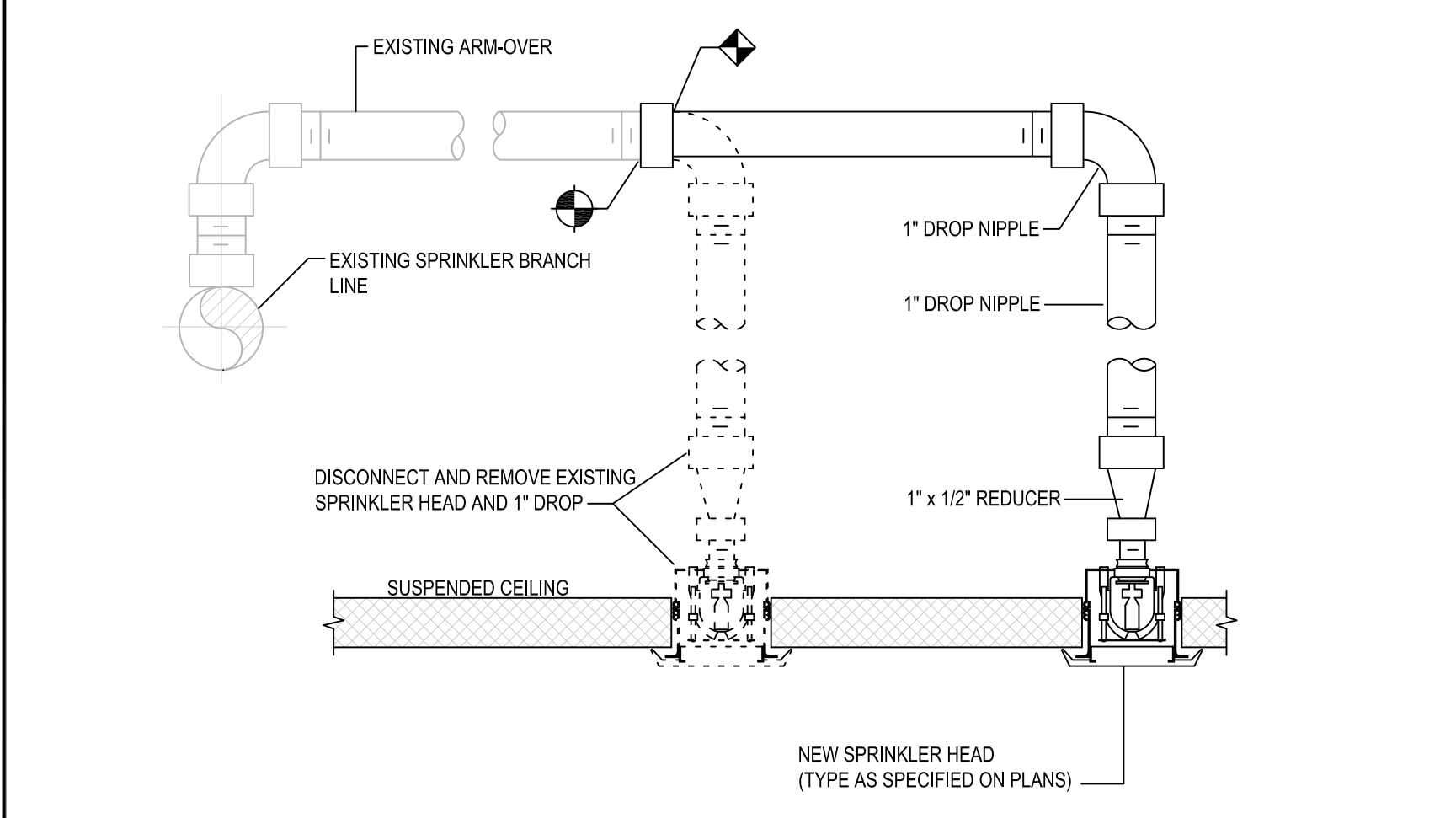


N.T.S. 1 **DETAIL: PIPING PENETRATION - HORIZONTAL** FIRE PROTECTION



N.T.S. 2 **DETAIL: PIPING PENETRATION - VERTICAL** FIRE PROTECTION



N.T.S. 3 **DETAIL: SPRINKLER RELOCATION - PIPE EXTENSION** FIRE PROTECTION

- BASIC FIRE PROTECTION REQUIREMENTS**
- ENTIRE BUILDING SHALL BE PROVIDED WITH HYDRAULICALLY CALCULATED SPRINKLER SYSTEM. PROVIDE 10 PSI SAFETY FACTOR.
  - CONTRACTOR TO PERFORM FLOW TEST TO ESTABLISH WATER PRESSURE. SUBMIT FLOW TEST FOR REVIEW PRIOR TO STARTING LAYOUT. INCREASE LISTED PIPE SIZE AS NECESSARY TO COMPLY WITH NFPA-13.
  - WATER VELOCITY IN ANY PIPING SECTION NOT EXCEED 20 FT/SEC.
  - ALL MATERIAL AND EQUIPMENT SHALL BE LISTED, LABELED OR CERTIFIED BY UNDERWRITERS LABORATORIES, INC AND FACTORY MUTUAL.
  - THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE PRIOR TO BID IN ORDER TO BECOME FAMILIAR WITH ALL EXISTING FIELD CONDITIONS. ALL QUESTIONS OR REQUESTS FOR CLARIFICATIONS REGARDING THE DESIGN SHALL BE SENT TO THE ENGINEER PRIOR TO BID SUBMISSION.
  - THE CONTRACTOR IS RESPONSIBLE FOR REVIEW ALL MEP AND ARCHITECTURAL DRAWINGS TO BECOME FAMILIAR WITH PROJECT AND AVAILABLE SPACE FOR SPRINKLER PIPING. THE SPRINKLER CONTRACTOR SHALL YIELD TO MECHANICAL DUCTWORK AND PIPING AND ELECTRICAL CONDUIT. PROVIDE OFFSETS IN SPRINKLER PIPING AS NEEDED.
  - UNLESS MORE STRINGENT PROVISIONS ARE SHOWN OR SPECIFIED, THE WORK SHALL COMPLY WITH APPLICABLE STANDARDS OF THE FOLLOWING:
    - A. FM APPROVAL GUIDE AND LOSS PREVENTION DATA.
    - B. UL 199: AUTOMATIC SPRINKLERS FOR FIRE PROTECTION SERVICE.
    - C. UL FIRE PROTECTION EQUIPMENT LIST.
    - D. SUPPLIER/INSTALLER COMPANY SPECIALIZING IN SPRINKLER SYSTEMS SPECIFIED, WITH FIVE YEARS EXPERIENCE.
    - E. LOCAL WATER COMPANY REQUIREMENTS.
    - F. NFPA 70: NATIONAL ELECTRIC CODE.
    - G. BUILDING CODE.
    - H. OWNER'S INSURANCE CARRIER REQUIREMENTS.
    - I. NFPA 13: STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
    - J. NFPA 14: STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS.
  - DURING CONSTRUCTION, CLOSE OPEN ENDS OF WORK SUBJECT TO THE WEATHER OR ADVERSE CONDITIONS WITH TEMPORARY COVERS OR PLUGS TO PREVENT ENTRY OF WATER, DIRT AND OBSTRUCTING MATERIALS. PROVIDE ALL TEMPORARY MEASURE TO PROTECT WORKING BEING INSTALLED, INCLUDING BUT NOT LIMITED TO, TEMPORARY HEAT AND CONSTRUCTION BARRIERS.
  - CONCEAL MECHANICAL CONSTRUCTION RUNNING THROUGH FINISHED SPACES WITHIN THE WALLS OR IN CHASES. WHERE CEILINGS OCCUR, CONCEAL THE WORK ABOVE THE CEILING UNLESS INDICATED OTHERWISE.
  - IN FINISHED SPACES WITH OR WITHOUT CEILINGS, COORDINATE THE WORK WITH OTHER TRADES SO AS TO BE IN CONFORMANCE WITH THE REFLECTED CEILING PLANS. IN FINISHED SPACES WITHOUT CEILING, RUN PIPING AND DUCTWORK PARALLEL WITH LINES OF BUILDING.
  - COOPERATE WITH OTHER TRADES AND FURNISH IN WRITING, INFORMATION NECESSARY TO PERMIT THE WORK OF OTHER TRADES TO BE INSTALLED AND WITH LEAST POSSIBLE INTERFERENCES OR DELAY.
  - WHERE PHYSICAL INTERFERENCES CANNOT BE RESOLVED READILY, PREPARE COMPOSITE DRAWINGS AT A SCALE OF NOT LESS THAN 1/4 INCH = 1 FT, CLEARLY SHOWING THE WORK OF THIS DIVISION IN RELATION TO THE WORK OF OTHER TRADES. OBTAIN WRITTEN ACCEPTANCE BY (A/E) OF PROPOSED CHANGES AND DISTRIBUTE DRAWINGS TO OTHER TRADES AFFECTED. CORRECT INSTALLED WORK IN CONFLICT WITH WORK OF OTHER TRADES AT NO ADDITIONAL COST.
  - SUBJECT TO ACCEPTANCE BY OWNER AND WITHOUT EXTRA COST, MAKE MODIFICATIONS IN THE LAYOUT AS REQUIRED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR THE PROPER EXECUTION OF THE WORK.
  - DO NOT INSTALL PIPING, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS AND CLOSETS. DO NOT INSTALL PIPING OVER, AROUND, IN FRONT OF, IN BACK OF, OR BELOW ELECTRICAL EQUIPMENT IN MECHANICAL EQUIPMENT ROOMS. DRIP PANS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES AROUND ELECTRICAL EQUIPMENT.
  - FIRE STOPPING; SYSTEM OR DEVICES LISTED IN THE UL FIRE RESISTANCE DIRECTORY UNDER CATEGORIES XHCR AND XHEZ MAY BE USED, PROVIDING THAT IT CONFORMS TO CONSTRUCTION TYPE, PENETRATION TYPE, ANNUAL SPACE REQUIREMENTS AND FIRE RATING INCLUDED IN EACH SEPARATE INSTANCE, AND THAT THE SYSTEMS BY SYMMETRICAL FOR WALL APPLICATIONS. SYSTEMS OR DEVICES MUST BE ASBESTOS-FREE. MORTAR SYSTEMS MUST BE WARNOCK HERSEY APPROVED. 3-M IS THE DESIGN STANDARD.
  - WARRANTY: PROVIDE MINIMUM 12 MONTHS FROM DATE OF INSTALLATION OR 18 MONTHS FROM DATE OF SHIPMENT ON ALL EQUIPMENT.
  - SHOP DRAWINGS: AS A MINIMUM, SHOW:
    - A. PIPING DRAWINGS AND WIRING DIAGRAMS.
    - B. LOCATION AND RATING OF SPRINKLER HEADS.
    - C. RISERS, DROPS AND OFFSETS REQUIRED TO AVOID INTERFERENCE WITH OTHER CONSTRUCTION.
    - D. SOURCE OF WATER SUPPLY AND DESIGN PRESSURE.
    - E. UNDERGROUND POINT OF CONNECTION TO WATER SUPPLY, DETAILS AND LOCATIONS OF ANCHORING AND JOINT REINFORCING.
    - F. PROVISION FOR FLUSHING, DRAINING AND TESTING, INCLUDING LOCATIONS AND SIZES OF DRAINS, VENTS AND FLOW TEST STATIONS.
    - G. PRODUCT DATA: DESCRIBE EACH PRODUCT SPECIFIED.
    - H. HYDRAULIC CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.
    - I. HEAD LOCATIONS.
  - MAINTENANCE MATERIAL:
    - A. SPARE SPRINKLER HEADS OF EACH TYPE AND TEMPERATURE RATING USED. COMPLY WITH NFPA 13 AS TO NUMBER REQUIRED.
    - B. ONE SPRINKLER WRENCH FOR EACH TYPE OF SPRINKLER HEAD.
    - C. PROVIDE SPARE PART LOCK BOX. LOCATE ON WALL IN MAINTENANCE SHOP.
  - DESIGN AREA: INCREASE SCHEDULED DESIGN AREA TO COMPLY WITH SLOPED SURFACES, DRY SYSTEM AND OTHER NFPA-13 REQUIREMENTS
- GAUGES**
- ACCEPTABLE MANUFACTURERS: TRERICE, MARSH, WEISS.
  - UL LISTED, CAST ALUMINUM OR BLACK PHENOLIC CASE, WITH BACK FLANGE, 3-1/2 INCH DIAMETER GLASS FACE AND SNAP RING WITH A UL LISTED SHUT-OFF VALVE TO ISOLATE GAUGE.
  - PHOSPHOR-BRONZE BOURDON TUBE, STAINLESS STEEL PINION AND NYLON-FACED STAINLESS STEEL SEGMENTS; ADJUSTABLE MOVEMENT FOR LINEARITY.
- SUPPORTS AND ANCHORS**
- PROVIDE SUPPORT MATERIALS IN ACCORDANCE WITH MSS SP-58. PROTECT AGAINST RUST, ABRASION AND ELECTROLYTIC ACTION. HANGERS SHALL BE UL LISTED AND FM APPROVED FOR FIRE SERVICE.
  - USE HOT-DIP GALVANIZED OR ZINC ELECTRO-PLATE SUPPORTS.
  - SUPPORT PIPING SYSTEMS IN ACCORDANCE WITH APPLICABLE (REFERENCED) STANDARDS. SPACE PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - STANDARD PIPE HANGERS (MSS TYPES LISTED FOR REFERENCE):
    - A. TYPE 1: ADJUSTABLE CLEVIS HANGER, CARBON STEEL.
    - B. TYPE 8: EXTENSION PIPE OR RISER CLAMP, CARBON STEEL.
  - CLAMPS, INSERTS, ATTACHMENTS, ANCHORS, GUIDES:
    - A. TYPE 18: INSERT, MALLEABLE IRON, UL & FM APPROVED.
    - B. TYPE 19 AND 23: C-TYPE CLAMP, DUCTILE IRON CLAMP, HARDENED STEEL CUP POINT SET SCREW AND LOCKNUT.
    - C. TYPE 22: WELDED BEAM ATTACHMENT, CARBON STEEL.
    - D. TYPE 28 AND 29: FORGED STEEL BEAM CLAMP WITH EYE NUT.
    - E. TYPE 31, 32, 33: LIGHT, MEDIUM, HEAVY WELDED CARBON STEEL BRACKET. ATTACH PIPE WITH SCHEDULED HANGER OR SUPPORT.
    - F. UNIVERSAL TRAPEZE HANGERS (UNISTRUT): CARBON STEEL CHANNEL.
    - G. HANGER RODS: CARBON STEEL, CADMIUM PLATED, THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUSLY THREADED.

- MECHANICAL IDENTIFICATION**
- ACCEPTABLE MANUFACTURERS: SETON, BRADY, CRAFTMARK.
  - IDENTIFY PIPING, WITH PIPE MARKERS, PRESSURE SENSITIVE VINYL, CONFORM TO ANSI/OSHA STANDARDS. INDICATE PIPE FLOW DIRECTION AND MEDIA.
  - TAG ALL VALVES WITH BRASS VALVE TAGS.
  - PROVIDE ALL SIGNAGE REQUIRED AND IN ACCORDANCE WITH NFPA.
- PIPING**
- ABOVE GROUND WET FIRE PROTECTION SYSTEMS:
    - A. PIPE: STEEL, WELDED OR SEAMLESS STEEL, BLACK; ASTM A53 OR A106 GRADE.
      - a. 2-1/2 INCH AND SMALLER: SCHEDULE 40.
      - b. 3 INCH AND LARGER: SCHEDULE 10.
    - B. JOINTS:
      - a. 2-1/2 INCH AND SMALLER: THREADED.
      - b. 3 INCH AND LARGER: ROLLED GROOVED.
    - C. FITTINGS:
      - a. 2-1/2 INCH AND SMALLER: CLASS 150 MALLEABLE IRON THREADED; ASTM B.16.3.
      - b. 3 INCH AND LARGER: COUPLINGS (VICTAULIC), DUCTILE IRON HOUSING, ASTM A536, GRADE E, EPDM TYPE A GASKET, RATED FOR FIRE PROTECTION SERVICES, UL AND FM APPROVED.
- VALVES**
- ACCEPTABLE MANUFACTURERS: DEZURICK, CRANE, GRINNEL, STOCKHAM, NIBCO, HAMMOND.
  - GATE VALVES, BRONZE (2-1/2 INCH AND SMALLER); 175 PSI, BRONZE BODY, SOLID BRONZE DISC, RISING STEM, THREADED ENDS; UNION BONNET, BRASS PACKING GLAND. UL AND FM APPROVED. UL 262. EQUAL TO STOCKHAM B-133.
  - BUTTERFLY VALVES: DUCTILE IRON BODY WITH POLYPHENYLENE SULFIDE COATING, ASTM A-395. DUCTILE IRON DISC, EPDM COATING. UL AND FM APPROVED. EQUAL TO VICTAULIC SERIES 705W.
  - BALL, 2 PIECE: 600 PSI TWO-PIECE, FULL PORT, BRASS BODY BALL VALVE, ZINC PLATED STEEL HANDLE WITH PROTECTIVE SLEEVE (LOCKABLE WHERE INDICATED), PTFE SEAT, THREADED JOINT, UL AND FM APPROVED. EQUAL TO STOCKHAM S206.
- SPRINKLER HEADS**
- UL LISTED AND FM APPROVED: TYPE AS SHOWN.
  - USE SPRINKLER HEADS HAVING 1/2 INCH ORIFICE WITH 5.6 "K" FACTOR UNLESS SHOWN OTHERWISE.
  - TEMPERATURE RATING: 155 DEGREES F, EXCEPT WHERE HEADS ARE SUBJECT TO ABNORMAL HEATING CONDITIONS AND OF SUFFICIENT RATING TO PREVENT ACCIDENTAL DISCHARGE WHEN NO FIRE IS PRESENT.
  - HEAD GUARDS: TYPE SUITABLE FOR SPRINKLER HEAD USED.
  - SPRINKLER HEAD CABINET: SURFACE MOUNTED CABINETS FOR STORING SPARE HEADS AND WRENCHES.
- SIGNS**
- IDENTIFICATION SIGNS AS REQUIRED BY NFPA 13.
  - WHERE THERE IS MORE THAN ONE CONTROL VALVE, PROVIDE IDENTIFICATION SIGNS INDICATING PORTION OF SYSTEM CONTROLLED BY EACH VALVE.
- GENERAL INSTALLATION**
- MAKE NECESSARY ALTERATIONS TO EXISTING WATER SYSTEM AS REQUIRED FOR CONNECTING NEW SYSTEMS. NEW MATERIALS IN ALTERED SYSTEMS SHALL MATCH EXISTING MATERIALS UNLESS SHOWN OR SPECIFIED OTHERWISE. INSTALL BRANCH SHUT-OFF VALVES TO ALLOW CONSTRUCTION TO PROCEED WITH MINIMUM DRAIN DOWN TIME FOR EXISTING FIRE PROTECTION SYSTEM.
  - USE BALL TYPE VALVES FOR MAIN RISER DRAIN, AUXILIARY DRAINS AND INSPECTOR'S TEST CONNECTIONS.
  - PROVIDE DRAIN CONNECTION FOR SECTIONAL OR FLOOR CONTROL VALVES, PIPED TO A FLOOR DRAIN, MOP RECEPTOR OR AS INDICATED.
  - PIPE 3/4 INCH AND LARGER AUXILIARY DRAINS TO FLOOR DRAIN, SUMP, MOP RECEPTOR OR OTHER APPROVED DISCHARGE LOCATION.
  - INSTALL BACKFLOW PREVENTOR ASSEMBLY AND ACCESSORIES IN COMPLIANCE WITH LOCAL WATER COMPANY REQUIREMENTS. PIPE BACKFLOW PREVENTOR DRAIN TO FLOOR DRAIN.
  - INSTALL WATER FLOW DETECTOR ON TOP SIDE OF HORIZONTAL PIPE OR ON VERTICAL PIPE. INSTALL MINIMUM SIZE INCHES FROM FITTING OR 24 INCHES FROM A VALVE.
  - LOCATE OUTSIDE ALARM GONG ON BUILDING WALL.
- SPRINKLER SYSTEMS INSTALLATION**
- SPRINKLER PIPING LOAD SHALL INCLUDE AN ADDITIONAL 250 POUND LOAD APPLIED AT POINT OF HANGING AS REQUIRED BY NFPA.
  - PROVIDING MEANS OF DRAINING SPRINKLER SYSTEMS, FOLLOWING NFPA 13.
  - WHERE CHANGE IN PIPE DIRECTION PREVENTS DRAINAGE THROUGH MAIN DRAIN VALVE, PROVIDE AUXILIARY DRAINS FOLLOWING NFPA 13.
  - SIZE DRAIN PIPING FOLLOWING NFPA 13.
  - LOCATE SPRINKLER HEADS AT CENTER OF CEILING UNITS, UNLESS OTHERWISE SHOWN. USE "U" BENDS IF NECESSARY.
  - INSTALL SPRINKLER GUARDS AT LOCATIONS WHERE SPRINKLER HEADS MAY BE SUBJECT TO MECHANICAL INJURY, OR WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION.
  - PROTECT CONCEALED SPRINKLER HEAD COVER PLATES WHERE CEILINGS WILL RECEIVE FIELD PAINT FINISH.

- STANDPIPE SYSTEMS INSTALLATION**
- PROVIDE MEANS OF DRAINING EACH STANDPIPE, FOLLOWING NFPA 14 AND AS SPECIFIED.
  - LOCATE DRAIN VALVE AT LOWEST POINT OF STANDPIPE PIPING, DOWNSTREAM OF ISOLATION VALVE.
  - PIPE DRAIN VALVE TO FLOOR DRAIN OR OTHER APPROVED DISCHARGE LOCATION.
  - SIZE DRAIN PIPING FOLLOWING NFPA 14.
- FLUSHING**
- FLUSH UNDERGROUND MAINS AND LEAD-IN CONNECTIONS TO SYSTEM RISERS BEFORE MAKING CONNECTIONS TO PIPING.
  - INSTALL DRAINAGE PLUGS, TAPS AND VALVES REQUIRED FOR FLUSHING.
  - DISPOSE OF FLUSHING WATER TO OWNER APPROVED LOCATIONS.
  - REPAIR DAMAGE CAUSED BY LEAKS, FLOODING OR DRAINING DURING FLUSHING.
  - GIVE A/E TWO WEEKS WRITTEN NOTIFICATION OF FLUSHING OPERATIONS.
- FIELD TESTING**
- TEST NEW FIRE PROTECTION SYSTEMS.
  - MEASURE HYDROSTATIC PRESSURE AT LOW POINT OF INDIVIDUAL SYSTEM, ZONE OR MAIN BEING TESTED.
  - SHOULD LEAKS OCCUR DURING TESTING, STOP TEST, REPAIR LEAKS, AND REPEAT ENTIRE TEST FROM BEGINNING.
  - REPAIR DAMAGE CAUSED BY LEAKS, FLOODING OR DRAINING DURING TESTING.
  - GIVE A/E TWO WEEKS WRITTEN NOTIFICATION OF TESTING.
  - FOR NEW ABOVE GROUND SYSTEMS:
    - A. HYDROSTATICALLY TEST NEW SYSTEMS AT NOT LESS THAN 200 PSI FOR TWO HOURS, OR AT 50 PSI FOR TWO HOURS ABOVE MAXIMUM STATIC PRESSURE WHEN MAXIMUM STATIC PRESSURE IS GREATER THAN 150 PSI. NO LEAKAGE ALLOWED.
    - B. AFTER HYDROSTATIC TEST, PNEUMATICALLY TEST NEW DRY PIPE SPRINKLER SYSTEMS WITH 40 PSI AIR PRESSURE FOR 24 HOURS. REPAIR LEAKS WHICH ALLOW LOSS OF PRESSURE OVER 1-1/2 PSI FOR 24 HOUR PERIOD, AND REPEAT TEST FROM BEGINNING. IF WEATHER DOES NOT PERMIT HYDROSTATIC TEST, TEST DRY SYSTEMS PNEUMATICALLY, AND CONDUCT HYDROSTATIC TEST WHEN WEATHER PERMITS.
  - SYSTEM START-UP PROVIDE SERVICES OF MANUFACTURER'S REPRESENTATIVE FOR A MINIMUM OF EIGHT HOURS.

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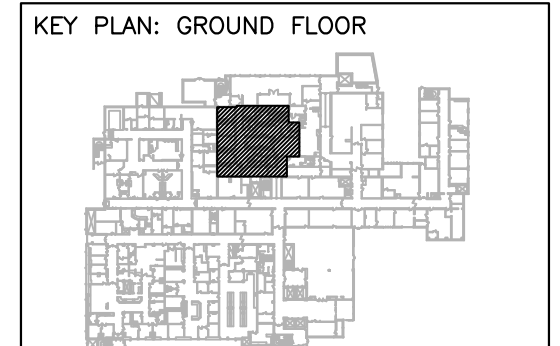
**MAINE MEDICAL CENTER**  
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335 BRIGHTON AVENUE  
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STATE: MAINE

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PROJECT:

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ISSUE DATES:

△ JANUARY 26, 2015	STATE APPROVALS
△ MARCH 20, 2015	BLDG. DEPT. REVIEW
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DRAWN BY:	ECH
CHECKED BY:	BF
SCALE:	AS NOTED
PROJECT NO.:	P14110

SHEET TITLE:  
**FIRE PROTECTION  
DETAILS AND  
SPECIFICATIONS**

DRAWING NO.:  
**FP-3**

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