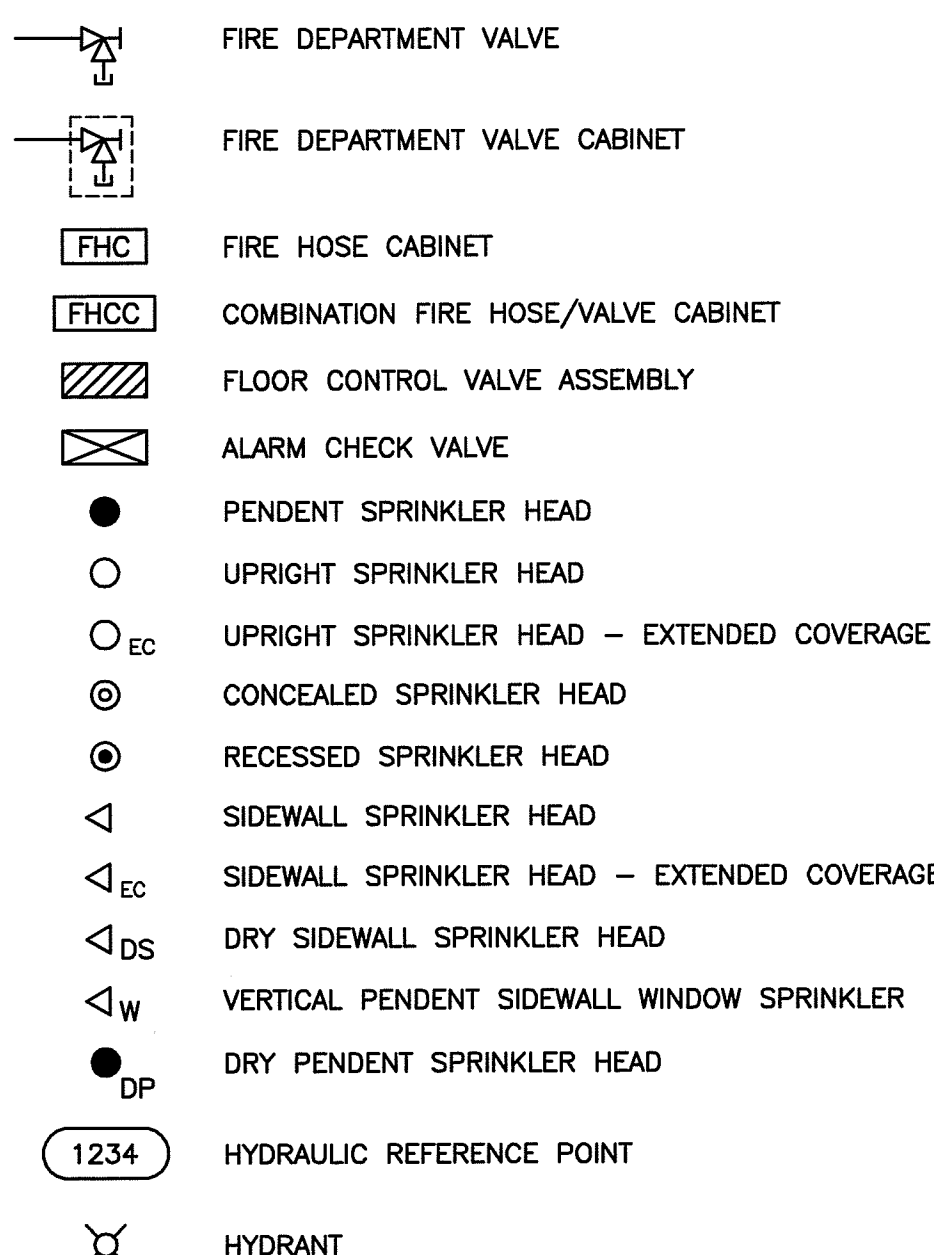
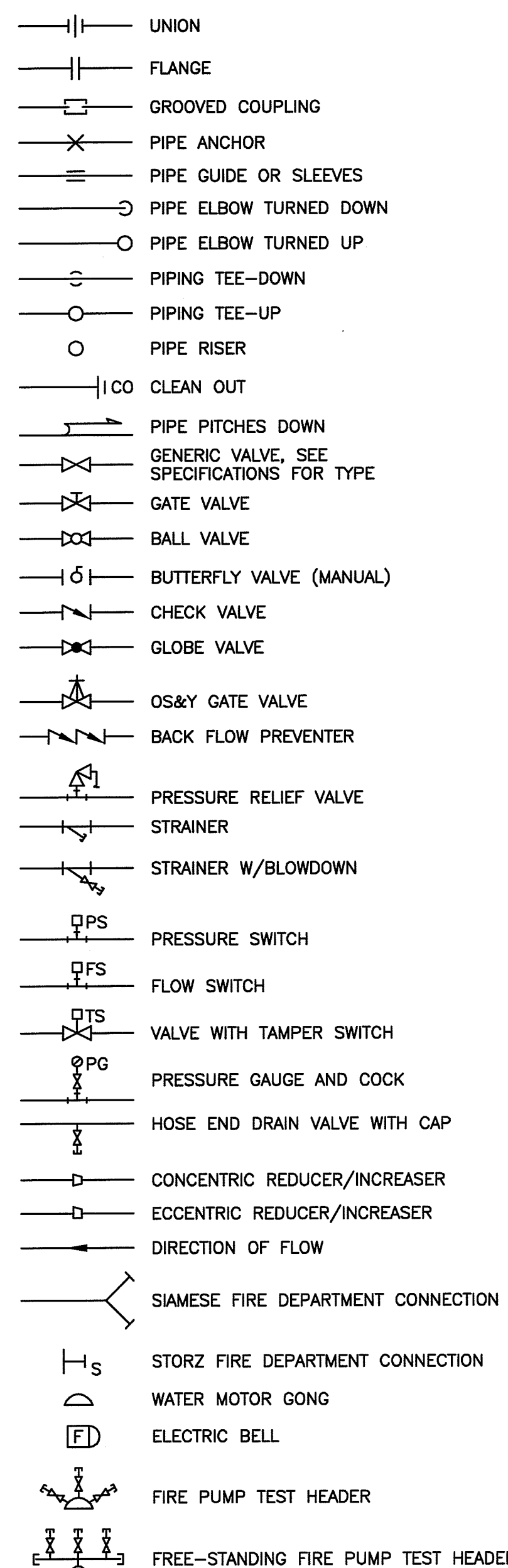
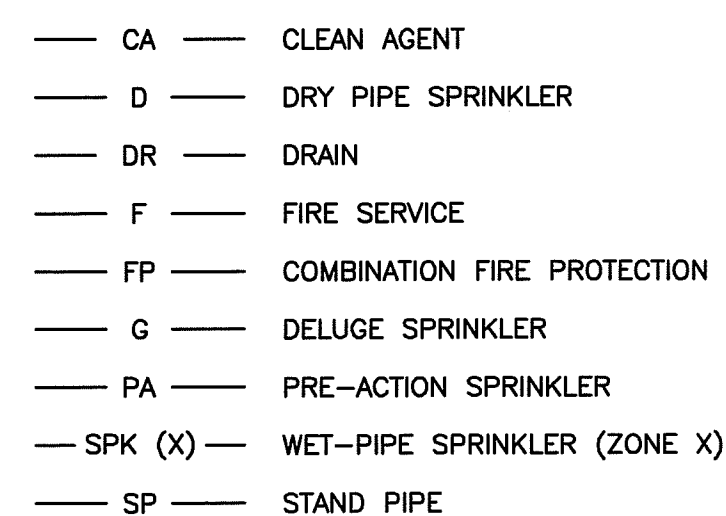


PIPING SYMBOLS



PIPING SYSTEMS



ABBREVIATIONS

AD	ACCESS DOOR	MIN	MINIMUM
AHJ	AUTHORITY HAVING JURISDICTION	MTD	MOUNTED
AP	ACCESS PANEL	NTS	NOT TO SCALE
BFP	BACKFLOW PREVENTER	PACV	PRE-ACTION ALARM CHECK VALVE
BLDG	BUILDING	PC	(FIRE DEPARTMENT) PUMPER CONNECTION
BOP	BOTTOM OF PIPE	PIV	POST INDICATING VALVE
CA	CLEAN AGENT	PLBG	PLUMBING
CFE	CAPPED FOR FUTURE	PRV	PRESSURE REDUCING VALVE
CLG	CEILING	PS	PRESSURE SWITCH
CONT	CONTINUATION	(R)	REMOVE
COORD	COORDINATE	(REL.)	RELOCATED
CTE	CONNECT TO EXISTING	RM	ROOM
CU	COPPER	RPZ	REDUCED PRESSURE ZONE BFP
CW	COLD WATER	RV	RELIEF VALVE
DACV	DRY PIPE ALARM CHECK VALVE	SACV	(WET PIPE) SPRINKLER ALARM CHECK VALVE
DIA	DIAMETER	SD	SMOKE DETECTOR
DIC	DOWN IN CHASE	SP	STAND PIPE
DIW	DOWN IN WALL	SPK	SPRINKLER
DCVA	DOUBLE CHECK VALVE ASSEMBLY	TH	(FIRE DEPARTMENT) TEST HEADER
DN	DOWN	TOP	TOP OF PIPE
DR	DRAIN	TS	TAMPER SWITCH
DS	DOWNSPOUT	TTS	TIGHT TO STEEL
DT	DROP AND TRANSITION	TYP	TYPICAL
DWG	DRAWING	UIC	UP IN CHASE
ENC	ENCLOSURE	UIW	UP IN WALL
(E)	EXISTING	UL	UNDERWRITER'S LABORATORY
EXIST.	EXISTING	VCCF	VALVED AND CAPPED FOR FUTURE
FBO	FURNISHED BY OWNER	W/	WITH
FC	FLEXIBLE CONNECTION	WIV	WALL INDICATING VALVE
FCVA	FLOOR CONTROL VALVE ASSEMBLY	WMG	WATER MOTOR GONG
FDC	FIRE DEPARTMENT CONNECTION		
FDV	FIRE DEPARTMENT VALVE		
FDVC	FIRE DEPARTMENT VALVE CABINET		
FEX	FIRE EXTINGUISHER		
FH	FIRE HOSE		
FHC	FIRE HOSE CABINET		
FM	FACTORY MUTUAL		
FS	FLOW SWITCH		
GC	GENERAL CONTRACTOR		
GPM	GALLONS PER MINUTE		
HVAC	HEATING, VENTILATING AND AIR CONDITIONING		
ITS	INSPECTOR'S TEST STATION		
LFPC	LIMIT OF FIRE PROTECTION CONTRACT		
MAX	MAXIMUM		
MFR	MANUFACTURER		

SPECIFICATIONS

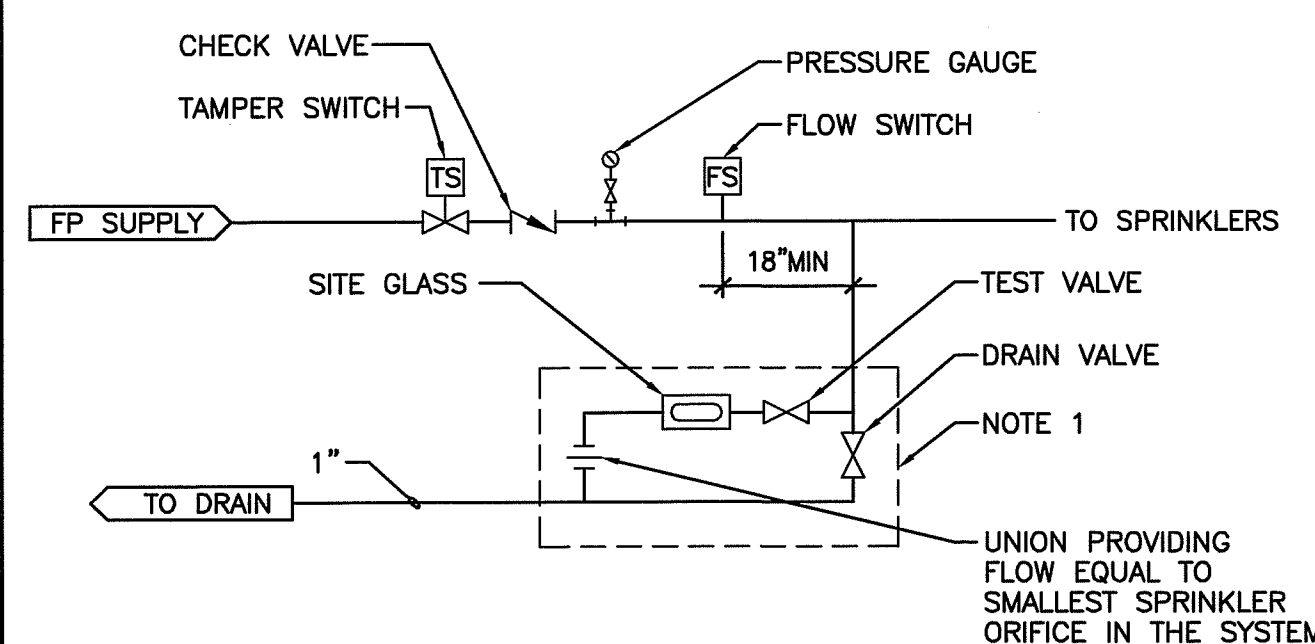
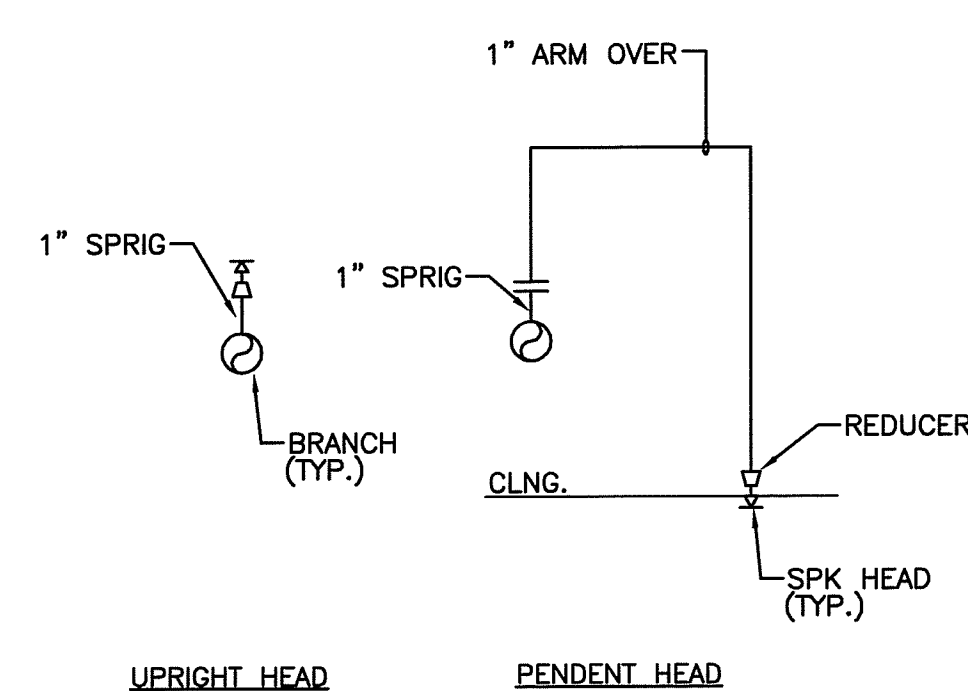
- 21 00 00 - GENERAL REQUIREMENTS**
- THE FOLLOWING APPLIES TO FIRE PROTECTION PIPING TRADES.
 - OBTAIN ALL PERMITS AND APPROVALS TO PERFORM THE WORK.
 - VERIFY ALL MEASUREMENTS AND EXISTING CONDITIONS IN THE FIELD. GENERAL SCHEMATIC LAYOUT IS INDICATED; ALL OFFSETS OBSTRUCTIONS, AND EXISTING CONFIGURATIONS AND CONSTRAINTS MUST BE FIELD VERIFIED.
 - INSTALL ALL NEW AND RELOCATED EXISTING COMPONENTS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, APPLICABLE CODES AND STANDARDS.
 - COORDINATE ELECTRICAL POWER REQUIREMENTS FOR ALL MOTORS.
 - COORDINATE WITH OWNER FURNISHED EQUIPMENT AND SYSTEMS.
 - THIS RENOVATION WORK WILL TAKE PLACE IN OCCUPIED SPACE. INSTALLATIONS SHALL NOT AFFECT ONGOING OPERATIONS. COORDINATE HOURS AVAILABLE TO PERFORM WORK WITH THE OWNER AND GENERAL CONTRACTOR.
 - SEAL INTERIOR PIPE PENETRATIONS WITH FIRE SEALANT. SEAL EXTERIOR WALL PIPE PENETRATIONS WATER TIGHT.
 - CUT AND PATCH SURFACES, RESTORING ORIGINAL FINISHES.
 - EQUIPMENT LISTED IS THE BASIS OF DESIGN, OR APPROVED EQUAL.
 - SUBMITTALS, PRE-CONSTRUCTION: SUBMIT CATALOG CUT SHEETS OF PROPOSED EQUIPMENT FOR ENGINEER REVIEW AND APPROVAL PRIOR TO PURCHASE AND INSTALLATION.
 - SUBMITTALS, DURING CONSTRUCTIONS: SUBMIT COPIES OF PIPE ROUGH-IN PRESSURE TESTS AS COMPLETED.
 - SUBMITTALS, POST CONSTRUCTION: SUBMIT COPIES OF FINAL PRESSURE TEST, FLUSHING AND PLUMBING DISINFECTION REPORTS. SUBMIT COPIES OF COMPLETED MANUFACTURER START UP REPORTS FOR EQUIPMENT.
 - OPERATIONS AND MAINTENANCE MANUALS: SUBMIT ALL TESTING DATA AND COPIES OF APPROVED PRODUCT DATA, INCLUDING MAINTENANCE INFORMATION IN A TABBED, NEATLY ORGANIZED THREE RING BINDER. INCLUDE VALVE IDENTIFICATION CHARTS PROVIDE 3 COPIES TO THE OWNER.
 - PIPE IDENTIFICATION; LABELING SHALL APPEAR AT INTERVALS OF NOT MORE THAN 20 FEET AND AT LEAST ONCE IN EACH ROOM AND EACH STORY TRAVERSED BY THE PIPING SYSTEM. ALL PIPING SHALL BE CLEARLY IDENTIFIED SPECIFICALLY FOR TYPE OF SERVICE WITH COILED PLASTIC PIPE MARKERS AND FLOW DIRECTION ARROWS.
 - VALVE IDENTIFICATION; PROVIDE A CIRCULAR BRASS TAG AND CHAIN ON EACH VALVE. TAG TO INCLUDE A DISCRETE NUMBER AND SHALL BE COORDINATED WITH ANY CURRENT FACILITY NUMBERING SCHEME OR STANDARD.
 - RECORD DRAWINGS; MAINTAIN A CURRENT SET OF MARKED UP CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES. PROVIDE A COMPLETE SET OF THESE RECORD MARK-UPS TO THE ARCHITECT AT THE END OF THE PROJECT.

21 05 00 - SPRINKLER SYSTEM DESIGN AND GENERAL REQUIREMENTS

- DESIGN AND PERFORM FIRE SPRINKLER WORK PER THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (WITH MAINE AMENDMENTS), NFPA 13 AND PER FACTORY MUTUAL STANDARDS.
- DESIGN AND INSTALL COMPLETE SYSTEMS, INCLUDING BUT NOT LIMITED TO: PIPE, FITTINGS, SPRINKLERS AND ACCESSORIES (ESCUTCHEONS AT THRU-WALL PENETRATIONS). PROVIDE FLOW, PRESSURE AND SUPERVISORY DEVICES. COORDINATE SYSTEM SUPERVISION WITH THE FIRE ALARM CONTRACTOR.
- PROVIDE SUPPORTS PER NFPA 13, INCLUDING SEISMIC BRACING.
- PROVIDE AUTOCAD GENERATED SHOP/LAYOUT DRAWINGS AND HYDRAULIC CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- DESIGN CRITERIA - HOSPITALS, HOSPITAL LABORATORIES AND OFFICE SPACE: PROVIDE SYSTEMS PER FM HC-1: 0.1 GPM OVER 2500 SF PLUS 250 GPM HOSE STREAM WITH A SPRINKLER K-FACTOR OF 5.6.
- DESIGN CRITERIA - MECHANICAL EQUIPMENT ROOM: PROVIDE SYSTEMS PER NFPA 13 ORDINARY HAZARD / GROUP 2 (FM SPEC HC-2/MODIFIED): 0.20 GPM/SF OVER 2,500 SF PLUS 250 GPM HOSE DEMAND WITH A SPRINKLER K-FACTOR OF 8.0
- WATER SUPPLY PERFORMANCE: OBTAIN FLOW TEST DATA AS NECESSARY TO SERVE AS THE BASIS FOR HYDRAULICALLY CALCULATED SYSTEMS.
- HYDRAULIC DESIGN CRITERIA, GENERAL:
 - MAXIMUM PIPE LINE VELOCITY: 25 FPS
 - MINIMUM CUSHION BETWEEN AVAILABLE WATER SUPPLY AND SYSTEM REQUIREMENTS (FACTOR OF SAFETY) 10 PSIG.
- INSTALL SYSTEM AS TIGHT TO STRUCTURE AS POSSIBLE TO MAXIMIZE AVAILABLE HEADROOM. ARRANGE SPRINKLERS IN LOGICAL PATTERNS. CENTER HEADS IN CEILING TILES WHERE APPLICABLE.
- PROVIDE NEW SPRINKLER HEADS WITHIN SCOPE OF WORK AREA. COORDINATE BRANCH PIPE ROUTING WITH ALL MEP SYSTEMS. COORDINATE SPRINKLER HEAD LOCATION WITH CEILING MOUNTED DIFFUSERS, LIGHTS AND OTHER CEILING MOUNTED DEVICES AND PER NFPA 13 AND FM GLOBAL REQUIREMENTS.

22 10 00 - FIRE PROTECTION SPRINKLER PIPING SYSTEMS

- PROVIDE COMPONENTS AND INSTALLATIONS CAPABLE OF PRODUCING PIPING SYSTEMS WITH THE FOLLOWING MINIMUM WORKING PRESSURE RATINGS, UNLESS OTHERWISE NOTED:
 - FIRE PROTECTION SPRINKLER SYSTEMS: 175 PSIG.
- SYSTEM COMPONENTS TO BE UL LISTED AND FM APPROVED.
- ABOVE GRADE WET SYSTEM SPRINKLER PIPING (SPK)
 - PIPING 2-INCH AND SMALLER: SCHEDULE 40 STEEL WITH THREADED IRON FITTINGS.
 - PIPING 2-1/2-INCH AND LARGER: SCHEDULE 10 STEEL WITH GROOVED FITTINGS.
- ABOVE GRADE PRE-ACTION SYSTEM SPRINKLER PIPING (SPK)
 - PIPING 2-INCH AND SMALLER: SCHEDULED 40 INTERNALLY GALVANIZED STEEL WITH THREADED GALVANIZED FITTINGS.
 - PIPING 2-1/2-INCH AND LARGER: SCHEDULE 10 INTERNALLY GALVANIZED STEEL WITH GALVANIZED GROOVED FITTINGS.
 - INSTALL PRE-ACTION SYSTEMS IN ACCORDANCE WITH FM DATA SHEET 2.0, SECTION 2.4.4.
- SPRINKLER SYSTEM VALVES AND SPECIALTIES: PROVIDE VALVES, INSPECTOR'S TEST STATIONS AND TRIM AS NECESSARY.
 - INCLUDE HYDRAULIC PLACCARDS AND OTHER SIGNAGE AS REQUIRED BY NFPA 13.
 - BUTTERFLY CONTROL VALVES UP TO 2-1/2" VICTAULIC #706 - 300 PSI SERIES.
- FIRE SPRINKLERS: RELIABLE QUICK RESPONSE, FM APPROVED SPRINKLERS THROUGHOUT. NON QUICK RESPONSE SPRINKLERS MUST BE APPROVED BY FM GLOBAL.
 - ROOMS WITH SUSPENDED CEILING: SEMI-RECESS TYPE SPRINKLERS WITH WHITE FINISH.
 - ROOMS WITHOUT CEILING: UPRIGHT WITH SPRINKLER GUARDS FOR SPRINKLERS SUBJECT TO MECHANICAL DAMAGE.
 - ROOMS WITH HARD DRYWALL CEILING: CONCEALED TYPE SPRINKLERS.
 - PROVIDE SPRINKLERS WITH TEMPERATURE RATINGS IN ACCORDANCE WITH NFPA 13.
- FIRE SPRINKLER SYSTEM TESTING: TEST SYSTEMS PER NFPA 13 AND FM REQUIREMENTS, AND AS DIRECTED BY THE AHJ. MAKE CORRECTIONS AND RETEST AS NECESSARY. PROVIDE NFPA 13 AND FM STANDARD ABOVE-GRADE TEST REPORTS.



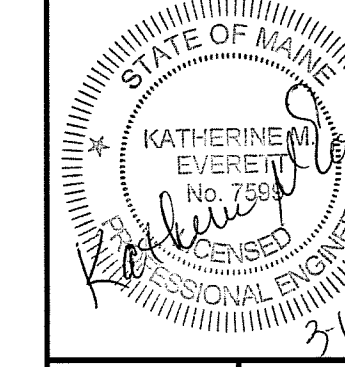
- NOTES:**
- COMBINATION DRAIN AND TEST VALVE IS ACCEPTABLE IN LIEU OF INDIVIDUAL COMPONENTS, VICTAULIC STYLE 718 OR EQUAL.
 - TEST VALVE TO BE LOCATED NO MORE THAN 7 FEET ABOVE FINISHED FLOOR, IN AN ACCESSIBLE LOCATION.
 - WHERE COMPONENTS ARE INSTALLED ABOVE AND ACCESSIBLE CEILING OR BEHIND AN ACCESS PANEL, PROVIDE APPROPRIATE SIGNAGE.
 - LOCATE AND PIPE ITEMS TO MINIMIZE IMPACT AND ACCESS IMPINGMENT TO SURROUNDING AREAS.

A1 TYPICAL SPRINKLER INSTALLATION DETAILS

A4 FLOOR CONTROL VALVE ASSEMBLY (FCVA)

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3-13-14**

CURRENT ISSUE STATUS:

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0			3-13-14

GRAPHIC SCALE:
0" 1"

SCALE: NO SCALE
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SHEET TITLE:
**FIRE PROTECTION
SPECIFICATIONS,
ABBREVIATIONS
LEGEND & DETAILS**

SHEET No.
FP001
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