PIPING SYMBOLS

- UNION
- FLANGE
- GROOVED COUPLING
- PIPE ANCHOR
- PIPE GUIDE OR SLEEVES
- PIPE ELBOW TURNED DOWN
- PIPE ELBOW TURNED UP
- PIPING TEE-DOWN
- PIPING TEE-UP
- PIPE RISER
- CO CLEAN OUT
- PIPE PITCHES DOWN
- GENERIC VALVE, SEE SPECIFICATIONS FOR TYPE
- GATE VALVE
- BALL VALVE
- BUTTERFLY VALVE (MANUAL)
- CHECK VALVE
- GLOBE VALVE
- K OS&Y GATE VALVE
- BACK FLOW PREVENTER
- PRESSURE RELIEF VALVE
- STRAINER
- STRAINER W/BLOWDOWN
- PS PRESSURE SWITCH
- FS FLOW SWITCH
- TS VALVE WITH TAMPER SWITCH
- PG PRESSURE GAUGE AND COCK
- HOSE END DRAIN VALVE WITH CAP
- CONCENTRIC REDUCER/INCREASER
- ECCENTRIC REDUCER/INCREASER
- DIRECTION OF FLOW
- SIAMESE FIRE DEPARTMENT CONNECTION
- S STORZ FIRE DEPARTMENT CONNECTION
- WATER MOTOR GONG
- F ELECTRIC BELL
- FIRE PUMP TEST HEADER
- FREE-STANDING FIRE PUMP TEST HEADER
- FIRE DEPARTMENT VALVE
- FIRE DEPARTMENT VALVE CABINET
- FHC FIRE HOSE CABINET
- FHCC COMBINATION FIRE HOSE/VALVE CABINET
- FLOOR CONTROL VALVE ASSEMBLY
- ALARM CHECK VALVE
- PENDENT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- EC UPRIGHT SPRINKLER HEAD - EXTENDED COVERAGE
- CONCEALED SPRINKLER HEAD
- RECESSED SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- EC SIDEWALL SPRINKLER HEAD - EXTENDED COVERAGE
- DS DRY SIDEWALL SPRINKLER HEAD
- W VERTICAL PENDENT SIDEWALL WINDOW SPRINKLER
- DP DRY PENDENT SPRINKLER HEAD
- 1234 HYDRAULIC REFERENCE POINT
- HYDRANT

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
CFF	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	VCFF	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		

PIPING SYSTEMS

- CA — CLEAN AGENT
- D — DRY PIPE SPRINKLER
- DR — DRAIN
- F — FIRE SERVICE
- FP — COMBINATION FIRE PROTECTION
- G — DELUGE SPRINKLER
- PA — PRE-ACTION SPRINKLER
- SPK — WET-PIPE SPRINKLER
- SP — STAND PIPE

SPECIFICATIONS

21 00 00 - GENERAL REQUIREMENTS

1. THE FOLLOWING APPLIES TO FIRE PROTECTION PIPING TRADES.
2. OBTAIN ALL PERMITS AND APPROVALS TO PERFORM THE WORK.
3. 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.
4. INSTALL ALL NEW AND RELOCATED EXISTING COMPONENTS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, APPLICABLE CODES AND STANDARDS.
5. COORDINATE WITH OWNER FURNISHED EQUIPMENT AND SYSTEMS.
6. 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.
7. SEAL INTERIOR PIPE PENETRATIONS WITH FIRE SEALANT. SEAL EXTERIOR WALL PIPE PENETRATIONS WATER TIGHT.
8. CUT AND PATCH SURFACES, RESTORING ORIGINAL FINISHES.
9. EQUIPMENT LISTED IS THE BASIS OF DESIGN, OR APPROVED EQUAL.
10. SUBMITTALS, PRE-CONSTRUCTION: SUBMIT CATALOG CUT SHEETS OF PROPOSED EQUIPMENT FOR ENGINEER REVIEW AND APPROVAL PRIOR TO PURCHASE AND INSTALLATION.
11. SUBMITTALS, DURING CONSTRUCTIONS: SUBMIT COPIES OF PIPE ROUGH-IN PRESSURE TESTS AS COMPLETED.
12. SUBMITTALS, POST CONSTRUCTION: SUBMIT COPIES OF FINAL PRESSURE TEST, FLUSHING AND PLUMBING DISINFECTION REPORTS. SUBMIT COPIES OF COMPLETED MANUFACTURER START UP REPORTS FOR EQUIPMENT.
13. 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.
14. 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.
15. 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.
16. 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

1. DESIGN AND PERFORM FIRE SPRINKLER WORK PER THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (WITH MAINE AMENDMENTS), AND NFPA 13.
2. 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 AS REQUIRED. COORDINATE SYSTEM SUPERVISION WITH THE FIRE ALARM CONTRACTOR.
3. PROVIDE SUPPORTS PER NFPA 13, INCLUDING SEISMIC BRACING.
4. PROVIDE AUTOCAD GENERATED SHOP/LAYOUT DRAWINGS AND HYDRAULIC CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
5. DESIGN CRITERIA - HOSPITALS AND OFFICE SPACE: LIGHT HAZARD OCCUPANCY: 0.1 GPM OVER 1500 SF PLUS 100 GPM HOSE STREAM.
6. WATER SUPPLY PERFORMANCE: OBTAIN FLOW TEST DATA AS NECESSARY TO SERVE AS THE BASIS FOR HYDRAULICALLY CALCULATED SYSTEMS.
7. HYDRAULIC DESIGN CRITERIA, GENERAL:
   A. MAXIMUM PIPE LINE VELOCITY: 25 FPS
   B. MINIMUM CUSHION BETWEEN AVAILABLE WATER SUPPLY AND SYSTEM REQUIREMENTS (FACTOR OF SAFETY) 10 PSIG.
9. INSTALL SYSTEM AS TIGHT TO STRUCTURE AS POSSIBLE TO MAXIMIZE AVAILABLE HEADROOM. ARRANGE SPRINKLERS IN LOGICAL PATTERNS. CENTER HEADS IN CEILING TILES.
10. 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.

21 10 00 - FIRE PROTECTION SPRINKLER PIPING SYSTEMS

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

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	4-25-17

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4-25-17
CURRENT ISSUE STATUS:

STATE OF MAINE
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4/25/17

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PORTLAND, MAINE

FIRE PROTECTION
LEGEND, ABBREVIATIONS
& SPECIFICATIONS
SHEET TITLE:

0 1/8" 1/2" 1" 2" 3"
SCALE: NOT TO SCALE

PROJECT MANAGER:	DJV	PROJECT NO:	17027
A/E OF RECORD:	RMW		
JOB CAPTAIN:	CAH		
DRAWN BY:	CWF		
SMRT FILE:	FP001-17027	SHEET No.	FP001

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