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
- CLEAN OUT
- PIPE PITCHES DOWN
- GENERIC VALVE, SEE SPECIFICATIONS FOR TYPE
- GATE VALVE
- BALL VALVE
- BUTTERFLY VALVE (MANUAL)
- CHECK VALVE
- GLOBE VALVE
- OS&Y GATE VALVE
- BACK FLOW PREVENTER
- PRESSURE RELIEF VALVE
- STRAINER
- STRAINER W/BLOWDOWN
- PS — PRESSURE SWITCH
- FS — FLOW SWITCH
- 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
- UPRIGHT SPRINKLER HEAD – EXTENDED COVERAGE
- CONCEALED SPRINKLER HEAD
- RECESSED SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- 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

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 (X) — WET–PIPE SPRINKLER (ZONE X)
- SP — STAND PIPE

ABBREVIATIONS

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

FIRE PROTECTION NOTES:

1. MODIFY AND REWORK EXISTING SPRINKLER SYSTEM THROUGHOUT AREA OF RENOVATION IN CONFORMANCE WITH NFPA 13 , FM GLOBAL AND AUTHORITY WITH JURISDICTION REQUIREMENTS AS REQUIRED TO HAVE COMPLETE SPRINKLER COVERAGE THROUGHOUT.
2. PREPARE WORKING PLANS FOR APPROVAL BY THE STATE FIRE MARSHALL'S OFFICE, LOCAL FIRE DEPARTMENT, AND THE OWNER'S INSURANCE CARRIER (FM GLOBAL).
3. COORDINATE ANY SYSTEM IMPAIRMENTS BEFORE SHUTTING OFF A SECTION OF THE SPRINKLER SYSTEM TO MAKE SPRINKLER TIE–INS, NOTIFY THE LOCAL FIRE DEPARTMENT, PLAN THE WORK CAREFULLY, AND ASSEMBLE ALL MATERIALS TO ENABLE COMPLETION IN THE SHORTEST TIME POSSIBLE. WORK STARTED ON CONNECTIONS SHOULD BE COMPLETED WITHOUT INTERRUPTION AND PROTECTION RESTORED AS PROMPTLY AS POSSIBLE. DURING THE IMPAIRMENT, PROVIDE EMERGENCY HOSE EXTINGUISHERS AND MAINTAIN EXTRA WATCH SERVICE IN THE AFFECTED AREAS.
4. PROVIDE RECORD DRAWINGS AND CALCULATIONS TO THE OWNER UPON COMPLETION OF THE WORK.

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. 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. SEAL INTERIOR PIPE PENETRATIONS WITH FIRE SEALANT. SEAL EXTERIOR WALL PIPE PENETRATIONS WATER TIGHT.
7. CUT AND PATCH SURFACES, RESTORING ORIGINAL FINISHES.
8. EQUIPMENT LISTED IS THE BASIS OF DESIGN, OR APPROVED EQUAL.
9. SUBMITTALS, PRE–CONSTRUCTION: SUBMIT CATALOG CUT SHEETS OF PROPOSED EQUIPMENT FOR ENGINEER REVIEW AND APPROVAL PRIOR TO PURCHASE AND INSTALLATION.
10. SUBMITTALS, DURING CONSTRUCTIONS: SUBMIT COPIES OF PIPE ROUGH–IN PRESSURE TESTS AS COMPLETED.
11. SUBMITTALS, POST CONSTRUCTION: SUBMIT COPIES OF FINAL PRESSURE TEST, FLUSHING AND PLUMBING DISINFECTION REPORTS. SUBMIT COPIES OF COMPLETED MANUFACTURER START UP REPORTS FOR EQUIPMENT.
12. 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.
13. 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.
14. 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.
15. 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), NFPA 13 AND PER FACTORY MUTUAL STANDARDS.
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. COORDINATE SYSTEM SUPERVISION WITH THE FIRE ALARM CONTRACTOR.
3. PROVIDE SUPPORTS PER NFPA 13, INCLUDING SEISMIC BRACING.
4. PROVIDE AUTOCAD GENERATED SHOP/LAYOUT DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
5. DESIGN CRITERIA – OFFICE SPACE PER FM HC–1. SYSTEM TO BE MODIFICATION OF AN EXISTING SYSTEM. 0.1 GPM OVER 2500 SF PLUS 250 GPM HOSE STREAM WITH A SPRINKLER K–FACTOR OF 5.6.
6. HYDRAULIC DESIGN CRITERIA, GENERAL:
   A. MAXIMUM PIPE LINE VELOCITY: 25 FPS
7. INSTALL SYSTEM AS TIGHT TO STRUCTURE AS POSSIBLE TO MAXIMIZE AVAILABLE HEADROOM. ARRANGE SPRINKLERS IN LOGICAL PATTERNS. CENTER HEADS IN CEILING TILES WHERE APPLICABLE.
8. 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

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 AND 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.
4. 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.
5. FIRE SPRINKLERS: RELIABLE QUICK RESPONSE, FM APPROVED SPRINKLERS THROUGHOUT. NON QUICK RESPONSE SPRINKLERS MUST BE APPROVED BY FM GLOBAL.
   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.
6. FIRE SPRINKLER SYSTEM TESTING: TEST SYSTEMS PER NFPA 13 AND FM REQUIREMNTS, AND AS DIRECTED BY THE AHJ. MAKE CORRECTIONS AND RETEST AS NECESSARY. PROVIDE NFPA 13 AND FM STANDARD ABOVE–GRADE TEST REPORTS.

A1	FLOOR PLAN
1/16" = 1'–0"	

REV.	DESCRIPTION	DATE
1	CONFORMED SET	4–21–15
0	ISSUED FOR CONSTRUCTION	3–3–15

CONFORMED SET
4–21–15

CURRENT ISSUE STATUS:

PROJECT NORTH

STATE OF MAINE
CALEB J. MILLIKEN
No. 12274
LICENSED
PROFESSIONAL ENGINEER
4/21/15

SMRT
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CHESHIRE BUILDING RENOVATIONS
PORTLAND, MAINE

FIRE PROTECTION PLAN

SHEET TITLE:

SCALE:	1/16"=1'–0"	DATE:	3–3–15
PROJECT MANAGER:	JLH	GRAPHIC SCALE:	0" 1"
JOB CAP/DRAWN:	CAH/KPB		
A/E OF RECORD:	CJM	SHEET No.	
SMRT CAD FILE:	FP101–14199	FP101	
PROJECT No.	14199–00		

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