

PIPING SYMBOLS

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

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

SPECIFICATIONS AND NOTES

GENERAL

1. VERIFY ALL MEASUREMENTS AND EXISTING CONDITIONS IN THE FIELD.
2. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND PAY ASSOCIATED FEES.
3. INSTALL ALL NEW AND RELOCATED EXISTING COMPONENTS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, ALL LOCAL CODES AND STANDARDS.
4. DRAWINGS ARE DIAGRAMMATIC ONLY; COORDINATE INSTALLATIONS WITH OTHER TRADES.
5. THIS RENOVATION WORK WILL TAKE PLACE IN AN UNOCCUPIED BUILDING.
6. SEAL ALL PIPE PENETRATIONS WITH FIRE SEALANT.
7. EQUIPMENT LISTED IS THE BASIS OF DESIGN, OR APPROVED EQUAL.
8. THE INTENTION OF THESE CONTRACT DOCUMENTS IS TO CALL FOR FINISHED WORK, FULLY TESTED AND READY FOR OPERATION. ANY COMPONENTS OR LABOR NOT MENTIONED IN THE CONTRACT DOCUMENTS BUT REQUIRED FOR FUNCTIONING SYSTEMS SHALL BE PROVIDED. SHOULD THERE APPEAR TO BE ANY DISCREPANCIES OR QUESTIONS OF INTENT, THE CONTRACTOR SHALL REFER THE MATTER TO THE ARCHITECT FOR DECISION BEFORE START OF ANY RELATED WORK.

SUBMITTALS

1. PRODUCT DATA: SUBMIT MANUFACTURERS PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR EACH MATERIAL AND PRODUCT USED.
2. OPERATION AND MAINTENANCE DATA: SUBMIT MANUFACTURERS OPERATION AND MAINTENANCE DATA, INCLUDING OPERATION INSTRUCTIONS, LIST OF SPARE PARTS AND MAINTENANCE SCHEDULE.

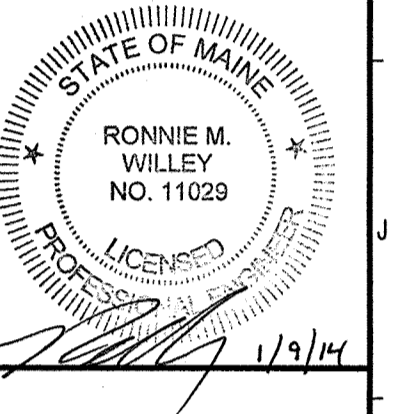
FIRE PROTECTION

1. OBTAIN ALL REQUIRED PERMITS AND APPROVALS FOR THE WORK. PERFORM ALL DESIGN, COORDINATION, INSTALLATION AND TESTING TO YIELD COMPLETE AND OPERATIONAL FIRE SPRINKLER SYSTEMS.
2. MAINTAIN PROTECTION DURING CONSTRUCTION TO THE EXTENT REQUIRED BY AUTHORITIES HAVING JURISDICTION, (AHJ). PROVIDE A FIRE WATCH IF NEEDED.
3. GENERATE AND SUBMIT SHOP DRAWINGS, (PLANS AND DETAILS) AND HYDRAULIC CALCULATIONS FOR REVIEW BY SMRT, THE OWNER, THE OWNERS INSURANCE CARRIER AND AUTHORITIES HAVING JURISDICTION. SUBMIT PROPOSED PRODUCT DATA ALONG WITH SHOP DRAWINGS FOR APPROVAL PRIOR TO COMMENCING WITH THE WORK.
4. DESIGNS, (DRAWINGS AND CALCULATIONS) TO BE STAMPED AND SIGNED BY A REGISTERED FIRE PROTECTION ENGINEER (ME REGISTRATION) OR NICET LEVEL III.
5. SUBMIT AS-BUILT DRAWINGS, CALCULATIONS, PRODUCT DATA AND MAINTENANCE DATA FOR THE WORK ONCE COMPLETE. THESE DRAWINGS SHALL REFLECT ANY CHANGES MADE SINCE TIME OF ORIGINAL DESIGN.
6. DESIGNS AND INSTALLATIONS SHALL COMPLY WITH THE 2009 INTERNATIONAL BUILDING CODE AND NFPA 13, 2007 EDITION.
7. PERFORM A HYDRANT FLOW TEST TO SERVE AS THE BASIS FOR HYDRAULICALLY CALCULATED SYSTEM DESIGNS.
8. 2-INCH AND SMALLER PIPING TO BE SCHEDULE 40 STEEL WITH THREADED FITTINGS. 2-1/2-INCH AND LARGER PIPING TO BE SCHEDULE 10 STEEL WITH ROLLED GROOVE FITTINGS.
9. PROVIDE WET PIPE SPRINKLER COVERAGE ABOVE AND BELOW THE CEILING IN THE RENOVATED CLEANROOM AREA IN ACCORDANCE WITH NFPA 13. PROVIDE LIGHT HAZARD OCCUPANCY IN OFFICE AREAS, ORDINARY HAZARD 1 OCCUPANCY IN STORAGE AREAS AND MECHANICAL EQUIPMENT AREA. PROVIDE PIPED ARM-OVERS OR FLEXIBLE WHIPS TO DROPS IN THE NEW CEILING.
 - 9.1. LIGHT HAZARD: 0.10 GPM/SF OVER 1,500 SF AREA. 225 SF SPACING MAX.
 - 9.2. ORDINARY HAZARD 1: 0.15 GPM/SF OVER 1,500 SF AREA. 130 SF SPACING MAX.
 - 9.3. CLEANROOMS: 0.2 GPM/SF OVER 3,000 SF AREA. 120 SF SPACING MAX.
10. NEW SPRINKLER HEADS TO BE CONCEALED/GASKETED TYPE IN CLEANROOM AREA. IN NON-CLEANROOM AREAS, PROVIDE UPRIGHT SPRINKLERS IN AREAS WITHOUT CEILINGS AND ABOVE CLEAN ROOM CEILING, CONCEALED SPRINKLER HEADS IN HARD (GYF) CEILINGS, AND SEMI-RECESSED IN ACT CEILING. ALL SPRINKLER TO MATCH EXISTING RESPONSE TYPE IN THE AREA. PROVIDE WITH WHITE FINISH IN FINISHED SPACE.
11. ALL SYSTEMS, TAMPER SWITCHES AND FLOW SWITCHES TO BE SUPERVISED BY THE EXISTING FACILITY FIRE ALARM SYSTEM. COORDINATE WITH ELECTRICAL CONTRACTOR.
12. HANGERS: PROVIDE SUPPORTS PER NFPA 13. SUPPORT MATERIALS AND SPACING SHALL BE COMPATIBLE WITH MATERIALS BEING SUPPORTED
13. INSTALLATIONS SHALL BE SEISMICALLY BRACED PER NFPA 13 AND THE INTERNATIONAL BUILDING CODE.
14. SYSTEM COMPONENTS TO BE UL LISTED OR FM APPROVED AND SHALL MEET THE REQUIREMENTS OF THE OWNER'S INSURANCE CARRIER.
15. WARRANTY: PROVIDE AT MINIMUM A ONE YEAR WARRANTY FOR THE WORK, STARTING FROM TIME OF SUBSTANTIAL COMPLETION. COORDINATE ADDITIONAL WARRANTY REQUIREMENTS WITH THE OWNER.
16. 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.
17. CENTER CEILING-MOUNTED ELEMENTS IN CENTER OF CEILING TILES AS APPLICABLE.
18. RESTORE DAMAGED FINISHES. TEST ALL SYSTEMS FOR PROPER OPERATION IN ACCORDANCE WITH NFPA 13. CLEAN AND PROTECT WORK FROM DAMAGE.

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CAD FILE: 13157-M-001
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LEGEND AND ABBREVIATIONS

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