

PIPE, FITTING AND HANGER SCHEDULE									
SERVICE	MAXIMUM SERVICE OPERATING LIMITS			PIPE SIZE RANGE					
	LEGEND	PRESS. (PSIG)	TEMP (°F)	1" TO 1½"			1½" AND LARGER		
				PIPE	FITTINGS	HOLE CUT OUTLETS	PIPE	FITTINGS	HOLE CUT OUTLETS
Sprinkler (Wet Pipe)	SPR	175	70	UL 852, ASTM A53 welded and seamless carbon steel, schedule 40 threaded and coupled.	ANSI/ASME B16.4 cast iron class 125 threaded.	UL 213 two-piece ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.	UL 852, ASTM A53 welded and seamless carbon steel, schedule 40 threaded and coupled or, schedule 10 roll grooved ends.	ANSI/ASME B16.4 cast iron class 125 threaded or, UL 213, ASTM A536 ductile iron grooved.	UL 213 two-piece ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.
ACCEPTABLE MANUFACTURERS									
Pipe Support	UL 203 band hanger with threaded steel rod and UL 203 beam clamp. Acceptable manufacturers: Afcon Inc; Cooper B-Line Inc; Erco Inc; PHD Manufacturing Inc; Tolco (Nibco Co.)								
Seismic Restraint	UL 203A rigid sway brace assembly with attachment fittings appropriate to building structure. Acceptable manufacturers: Afcon Inc; Erco Inc; Tolco (Nibco Co.)								
GENERAL MATERIAL NOTES:									
1. Pipe and fittings shall conform to the latest standards per relevant sections of ANSI, ASTM, AWWA and NFPA. In addition, adhere to state and local plumbing and fire codes.									
2. Rate system components for the maximum working pressure to which they are exposed but not less than 175 psig.									
3. Pipe and fittings shall meet or exceed ASTM/ANSI standards listed in the National Fire Codes and specifically in NFPA 13.									
4. All threaded piping and fittings shall conform to thread cuts listed in ANSI/ASME B1.20.1.									
5. Welding methods shall comply with all the requirements listed in American Welding Society document B2.1.									
6. Each length of pipe, each pipe fitting, material or device used in the respective system shall have cast, stamped or indelibly marked the maker's name or mark, weight and quality of the product when such marking is required by the approved standards to which it applies.									
7. All fire service piping shall be seismically braced per applicable sections of the state building code. Standards for braces and seismic joints shall be installed per the National Fire Prevention Code NFPA 13 as referenced by the state building code.									
8. Fittings into which sprinklers, drop nipples or riser nipples are screwed shall be threaded type. Plain end fittings with mechanical couplings, fittings which use steel gripping devices to bite into the pipe and segmented welded fittings shall not be used.									
9. On threaded pipe joints, apply joint compound or teflon tape to male pipe threads.									

SPECIFICATIONS	
GENERAL	
1. SCOPE	2. IMPAIRMENTS & TEMPORARY PROTECTION
A. PROJECT SCOPE INCLUDES THE RENOVATION OF BANK OF AMERICA HOME LOANS AT 1 MONUMENT SQUARE IN PORTLAND, MAINE.	A. COORDINATE SYSTEM IMPAIRMENTS WITH THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION.
B. THE WORK UNDER THIS SECTION INCLUDES ALL LABOR, MATERIALS, FEES AND ACTIVITIES NECESSARY TO INSTALL, TEST AND COMMISSION A FULLY FUNCTIONAL AND CODE COMPLIANT AUTOMATIC WET-PIPE SPRINKLER SYSTEM FOR THE AREAS SHOWN.	B. PROVIDE TEMPORARY FIRE SPRINKLER PROTECTION, TEMPORARY HOSE VALVE INSTALLATION AND/OR SIMILAR PROVISIONS IN ACCORDANCE WITH LOCAL AUTHORITIES HAVING JURISDICTION REQUIREMENTS.
C. SUBMITTALS SHALL BE PREPARED AND FORWARDED TO THE ARCHITECT/ENGINEER FOR REVIEW. SUCCESSFULLY COMPLETING THE SUBMITTAL AND REVIEW PROCESS OF FIRE SPRINKLER SYSTEM PRODUCT DATA, SHOP DRAWINGS, CALCULATIONS, AS-BUILT DRAWINGS AND TEST CERTIFICATES SHALL BE A PREREQUISITE TO ISSUING FINAL ENGINEER APPROVAL CERTIFICATION FOR OCCUPANCY.	3. COORDINATION
C.A. WORKING PLANS AND HYDRAULIC CALCULATIONS SHALL BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER OR PREPARED BY A NICET CERTIFIED LEVEL III OR IV AUTOMATIC SPRINKLER SYSTEM ENGINEERING TECHNICIAN. WORKING PLANS SHALL BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION.	A. COORDINATE INSTALLATION WITH OTHER SECTIONS OF THE WORK.
D. THE WORK SHALL BE AS DESCRIBED DIRECTLY BY THESE DRAWINGS AND RELATED DOCUMENTS UNDER THIS SECTION AND AS AFFECTED BY RELATED DOCUMENTS NOT EXCLUSIVE TO THE WORK OF THIS SECTION.	B. COORDINATE FIRE ALARM MONITORING DEVICE TESTING WITH THE FIRE ALARM PORTION OF THE WORK.
2. PURPOSE OF ENGINEERING DRAWINGS	4. GENERAL SYSTEM INSTALLATION
A. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED FOR PURPOSES OF OBTAINING A BUILDING PERMIT AND AS THE BASIS OF DESIGN FOR PREPARATION OF DETAILED SHOP DRAWINGS (WORKING PLANS). THE DRAWINGS ARE NOT INTENDED TO SHOW EXACT LOCATIONS, BUT TO DEMONSTRATE THE CONFIGURATION OF MAJOR SYSTEM COMPONENTS AND APPROXIMATE SPRINKLER LOCATIONS. FIELD VERIFY LOCATIONS OF ALL SPRINKLERS AND SYSTEM PIPING.	A. INSTALL PIPING IN A NEAT AND WORKMANLIKE MANNER WITH PIPING PARALLEL OR PERPENDICULAR TO INTERIOR BUILDING FEATURES.
B. ALL COMPONENTS SHOWN ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING.	B. INSTALL PIPE WITH PROPER PITCH FOR DRAINAGE. INSTALL AUXILIARY DRAIN VALVES AND PLUGS AS REQUIRED BY NFPA 13 WHERE TRAPPED SECTIONS OF PIPING CANNOT BE AVOIDED.
3. RELATED DOCUMENTS	C. SUPPORT PIPE WITH HANGERS SPACED IN ACCORDANCE WITH NFPA 13. ALL ATTACHMENTS SHALL BE TO BUILDING STRUCTURAL ELEMENTS.
A. ARCHITECTURAL, STRUCTURAL & ENGINEERING DRAWINGS & SPECIFICATIONS	D. PROTECT SYSTEM FROM EARTHQUAKE DAMAGE VIA SWAY-BRACING INSTALLED IN ACCORDANCE WITH NFPA 13.
B. OWNER AND/OR TENANT CONSTRUCTION STANDARDS OF PRACTICE	E. INSTALL FIRE ALARM MONITORING DEVICES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ADJUST WATERFLOW SWITCH RETARD FEATURE TO 30-SECONDS.
C. FIRE SPRINKLER SYSTEM SPECIFICATIONS	5. INSTALLATION OF SPRINKLERS
D. FIRE PROTECTION SYSTEMS NARRATIVE REPORT	A. DETERMINE FINAL SPRINKLER LOCATIONS VIA FIELD MEASUREMENT.
4. CODES & STANDARDS	B. LOCATE SPRINKLERS WITH RESPECT TO, AND WITH SUFFICIENT CLEARANCE FROM CEILING OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13 AND ANY SPECIAL LISTING REQUIREMENTS OF THE SPRINKLER.
A. BUILDING CODE: 2009 IBC w/ MAINE UNIFORM BUILDING & ENERGY CODE AMMENDMENTS	C. UNLESS OTHERWISE NOTED ON THE DRAWINGS, PENDENT SPRINKLERS SHALL BE LOCATED IN THE CENTER OF THE CEILING TILE. CENTER-OF-TILE SHALL REFER TO BOTH AXIS OF DIRECTION, WHERE A CEILING TILE IS PROVIDED WITH A CUT-GROOVE TO SIMULATE SECTIONS OF TILE, THE SPRINKLER SHALL BE INSTALLED IN THE CENTER OF THE AREA DEFINED BY THE CUT-GROOVE. THIS REQUIREMENT SHALL SUPERSEDE ANY GRAPHICAL REPRESENTATION SHOWN ON THE DRAWINGS. SEEK APPROVAL FROM THE ENGINEER PRIOR TO INSTALLATION WHERE CUT-GROOVE TILES ARE PROVIDED.
B. FIRE CODE: THE MAINE LIFE SAFETY STANDARD (2012 REVISION)	D. DO NOT INSTALL SPRINKLERS IN LOCATIONS SUBJECT TO MECHANICAL DAMAGE OR IMPACT, WHERE SUCH INSTALLATION IS UNAVOIDABLE, PROVIDE GUARDS LISTED FOR USE WITH THE SPRINKLER.
C. SPRINKLER STANDARD: NFPA 13 (2016)	E. INSTALL SPRINKLERS WITH APPROPRIATE NFPA 13 TEMPERATURE CLASSIFICATION BASED ON THE MAXIMUM CEILING TEMPERATURE OF THE SPACE.
D. FIRE ALARM CODE: NFPA 72 (2007)	F. REFER TO THE ARCHITECT'S REFLECTED CEILING PLAN FOR COORDINATION OF CEILING FIXTURES AND OBSTRUCTIONS. UTILIZE BOTH THE ARCHITECT'S SPRINKLER LAYOUT AND ENGINEER'S SPRINKLER LAYOUT FOR FINAL PLACEMENT OF SPRINKLERS. WHERE CONFLICTS EXIST BETWEEN ARCHITECT'S PROPOSED LOCATION AND ENGINEER'S PROPOSED LOCATION, ASK BOTH THE ARCHITECT AND ENGINEER FOR DIRECTION AND FINAL APPROVAL.
5. DESIGN CRITERIA	G. ADD SPRINKLERS WHERE CEILING OBSTRUCTIONS INTERFERE WITH HEAD SPRAY PATTERNS AND ARE INTERRUPTED PER NFPA-13 OBSTRUCTION RULES.
A. LIGHT HAZARD OCCUPANCIES: PUBLIC AREAS, OFFICES AND SIMILAR DESIGNED FOR APPLICATION OF 0.10-GPM/SQFT OVER THE MOST REMOTE 1,500-SQFT WITH 250-GPM HOSE ALLOWANCE.	H. IN ALL OPEN AREAS WHERE ELECTRICAL EQUIPMENT IS LOCATED, PROVIDE SHIELDS TO KEEP WATER OFF THE ELECTRICAL EQUIPMENT.
6. QUALITY ASSURANCE	I. SPRINKLERS SHALL BE MANUFACTURED BY VIKING, VICTAULIC, RELIABLE, TYCO OR APPROVED EQUAL UNLESS SPECIFICALLY NOTED HEREIN.
A. PRODUCTS: DOMESTICALLY MANUFACTURED, UL LISTED & FM APPROVED FOR USE WITH FIRE SPRINKLER SYSTEMS.	6. CLEANING
B. INSTALLERS: LICENSED IN GOOD STANDING AS SPRINKLER PIPE FITTERS IN MAINE.	A. CLEAN INSTALLATION THOROUGHLY UPON COMPLETION TO REMOVE GREASE, METAL CUTTINGS, DIRT AND OTHER FOREIGN MATERIALS.
7. WARRANTY	B. REPAIR STOPPAGES, DISCOLORATION AND DAMAGE THAT RESULT FROM FAILURE TO CLEAN PIPING PROPERLY WITHIN CONTRACT PRICE.
A. WARRANTY WORK OF THIS SECTION IN WRITING FOR ONE YEAR FROM DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THE PERIOD, PROMPTLY AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.	7. TESTING
8. INSPECTION OF SITE CONDITIONS	A. HYDROSTATICALLY TEST SYSTEM AS REQUIRED BY NFPA 13. EXISTING SYSTEM RETROFITS WHERE NEW WORK CANNOT BE ISOLATED FROM EXISTING PIPING SHALL BE TESTED AT NORMAL SYSTEM PRESSURE. MONITOR FOR LEAKS FOR A PERIOD OF TWO (2) HOURS. REMOVE DEFECTIVE MATERIALS, REPLACE WITH NEW AND REPEAT TESTS AS NECESSARY.
A. AT THE TIME OF BID, ALL EXCEPTIONS TAKEN TO THESE DRAWINGS AND RELATED DOCUMENTS, VARIANCES FROM SAME AND ALL SUBSTITUTIONS OF EQUIPMENT SPECIFIED SHALL BE LISTED IN WRITING AND INCLUDED IN THE BID FOR REVIEW. ANY SUCH EXCEPTIONS, VARIANCES, OR SUBSTITUTIONS, WHICH WERE NOT LISTED AT THE TIME OF BID SHALL NOT BE APPROVED OR CONSIDERED.	B. COORDINATE FIRE ALARM MONITORING DEVICE TESTING WITH FIRE ALARM PORTION OF WORK. OPERATE AND ADJUST SWITCHES TO ACHIEVE SATISFACTORY RESULTS.
9. UNIT PRICES	PROJECT CLOSEOUT
A. INCLUDE IN BID, FOR EACH TYPE OF SPRINKLER SPECIFIED, UNIT PRICE TO FURNISH AND INSTALL ONE SPRINKLER INCLUDING 10-FT OF PIPE, ASSOCIATED FITTINGS, AND HANGERS.	1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH PROJECT CLOSEOUT. ALLOW SUFFICIENT TIME IN THE CONSTRUCTION SCHEDULE TO ENSURE THAT THE INSTALLATION IS SUBSTANTIALLY COMPLETE AND ALL REQUIRED TESTING AND ACCURATELY COMPLETED DOCUMENTATION IS DELIVERED TO THE ENGINEER AT LEAST TWO WEEKS PRIOR TO ENGINEER'S SUBSTANTIAL COMPLETION SITE VISIT. FAILURE TO ADEQUATELY PLAN OR SUBMISSION OF INCOMPLETE/INCORRECT DOCUMENTATION WILL RESULT IN BACK CHARGES OF ALL COSTS ASSOCIATED WITH ADDED WORK PERFORMED BY RDK ENGINEERS.
10. CUTTING AND PATCHING: INCLUDE ALL CORING, CUTTING, PATCHING AND FIREPROOFING NECESSARY FOR THE EXECUTION OF THE WORK OF THIS SECTION. STRUCTURAL ELEMENTS SHALL NOT BE CUT WITHOUT WRITTEN APPROVAL OF THE ARCHITECT. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL PRECAUTIONS REQUIRED TO IDENTIFY HIDDEN PIPING, CONDUITS, ETC. BEFORE ANY CORE DRILLING AND/OR CUTTING OF SLABS COMMENCES, INCLUDING X-RAYING THE AFFECTED SLABS. PROVIDE FIRE STOPPING TO MAINTAIN THE FIRE RATING OF THE FIRE RESISTANCE-RATED ASSEMBLY. ALL PENETRATIONS AND ASSOCIATED FIRE STOPPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FIRE STOPPING MANUFACTURER'S LISTED INSTALLATION DETAILS AND BE LISTED BY UL OR FM.	2. PROVIDE THE CONTRACTOR CERTIFICATE OF COMPLETION IN ACCORDANCE WITH THE STATE BUILDING CODE INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. PROVIDE CERTIFICATION FROM BOTH THE GENERAL CONTRACTOR AND ASSOCIATED TRADE CONTRACTOR FOR COMPLIANCE WITH THE STATE BUILDING CODE.
PRODUCTS	3. PROVIDE FIRE PROTECTION SYSTEMS DOCUMENTATION IN ACCORDANCE WITH THE STATE BUILDING CODE RECORD DRAWINGS MUST BE PRODUCED BY THE CONTRACTOR AND SUBMITTED ON CONTRACTOR'S TITLE-BLOCK WITH ACCURATE DEPICTION OF THE FINAL INSTALLED SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR ACCURATELY REPRESENTING THE FINAL INSTALLED SYSTEMS. ANY INACCURACIES BETWEEN THE INSTALLED CONDITION AND THE RECORD DRAWINGS WILL BE CAUSE FOR RETURNED RECORD DRAWINGS FOR CORRECTION BY THE CONTRACTOR. THE ADDITIONAL TIME INCURRED BY RDK TO RE-REVIEW THE RECORD DRAWINGS WILL RESULT IN BACK CHARGES.
1. REFER TO PRODUCT SCHEDULES.	4. PROVIDE NFPA 13 CONTRACTOR'S MATERIAL AND TEST CERTIFICATES FOR ABOVE GROUND PIPING.
EXECUTION OF WORK	5. NO LIFE SAFETY DEFICIENCIES IN THE SPRINKLER OR THE STANDPIPE SYSTEM SHALL BE PRESENT WHEN REQUESTING SUBSTANTIAL COMPLETION SITE VISIT.
1. PREPARATION, PRIOR TO BEGINNING WORK	6. SUBSTANTIAL COMPLETION SITE VISIT BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT AND REVIEW OF THE CONTRACTORS CERTIFICATE OF COMPLETION AND ALL CODE MANDATED TEST REPORTS AND SUBMISSIONS LISTED ABOVE. SUBSTANTIAL COMPLETION SITE VISITS SHALL NOT BE REQUESTED UNTIL THE PROJECT IS SUBSTANTIALLY COMPLETE.
A. SITE VISIT: VISIT AND EXAMINE SITE FOR CONNECTION POINTS TO EXISTING FIRE SPRINKLER SYSTEM, PARTITIONS TO BE PENETRATED, CLEARANCES TO OBSTRUCTIONS, AND OTHER EXISTING FACILITY FEATURES THAT WILL AFFECT THE WORK.	7. PREMATURE REQUESTS THAT REQUIRE ADDITIONAL/FOLLOW UP SITE VISITS BY THE ENGINEER OF DEFICIENT ITEMS (AREAS INCOMPLETE, SYSTEMS NOT OPERATIONAL, ETC.) WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH ANY ADDED VISITS.
B. PERFORM HYDRANT FLOW TEST OR, WHERE APPLICABLE, SECURE MOST RECENT FIRE PUMP TEST OR PRESSURE REGULATING VALVE TEST RESULTS FROM THE OWNER.	
C. SUBMITTALS: PRIOR TO BEGINNING WORK, PREPARE AND SUBMIT FOR REVIEW AND IN ONE COMPLETE PACKAGE PRODUCT DATA "CUT-SHEETS" FOR EACH PRODUCT SPECIFIED AND SHOP DRAWINGS INCLUSIVE OF INFORMATION REQUIRED BY NFPA 13 FOR WORKING PLANS WITH HYDRAULIC CALCULATIONS PREPARED IN ACCORDANCE WITH NFPA 13. CALCULATION SAFETY FACTOR SHALL BE 10% OF AVAILABLE SUPPLY AT DEMAND FLOW; MINIMUM TOTAL HOSE STREAM ALLOWANCE SHALL BE 250 GPM.	
D. OBTAIN NECESSARY PERMITS AND APPROVALS FROM LOCAL AUTHORITIES HAVING JURISDICTION.	



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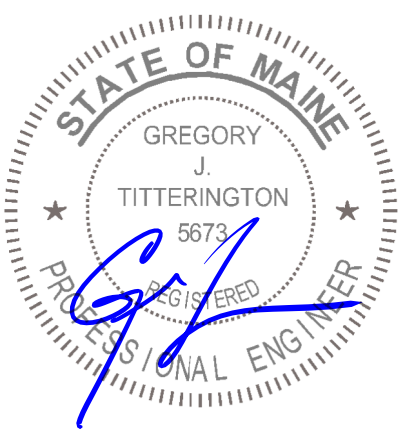
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REVISIONS

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**TITLE
FIRE PROTECTION SPECIFICATIONS**

DATE 06/29/17 **JOB NO.** 20170237

DRAWING NO.

FP-1

ISSUED FOR CONSTRUCTION