

SPRINKLER SCHEDULE & LEGEND												
SYMBOL	MANUF.	MODEL	SIZE	TEMP	FINISH	POSITION	PLATE	K FACTOR	QUICK RESPONSE	EXT. COVERAGE	SN#	NOTES
⊙	RELIABLE	F1FR98	1/2"	200	WHITE	PENDENT	RECESSED	5.8	Y	N	RA1414	①
⊗	RELIABLE	G6-66	1/2"	165G12	AS SELECTED BY ARCHITECT	PENDENT	FLAT PLATE CONCEALED	5.8	Y	N	RA3415	①②
⊕	RELIABLE	F1FR98	1/2"	200	BRASS	UPRIGHT	N/A	5.8	Y	N	RA1426	③

① UNLESS NOTED OTHERWISE ON PLANS OR HIGHER IF REQUIRED BY NFPA 13. ② UNLESS NOTED OTHERWISE ON PLANS. ③ PROVIDE SPRINKLER GUARD WHERE NOTED. SPRINKLER GUARD SHALL BE SELECTED FOR INSTALLATION TYPE AND HAVE WHITE POWDER COAT FINISH AS MANUFACTURED BY SPRINKLERS. SPRINKLER SHALL BE UL LISTED FOR USE WITH FIRE SPRINKLER GUARDS AS MANUFACTURED BY SPRINKLERS.

④ PUSH ON/THEAD OFF ESCUTCHEON/COVER PLATE. ⑤ ESCUTCHEON TEMPERATURE RATING/SPRINKLER TEMPERATURE RATING. ⑥ FINISH MAY BE A CUSTOM COLOR AND NOT A STANDARD COLOR OFFERED BY MANUFACTURER. ⑦ LISTED AS QUICK RESPONSE FOR LIGHT AND ORDINARY HAZARD PER LISTED SPACING REQUIREMENTS.

⑧ SPRINKLER MANUFACTURER LISTED IS THE BASIS OF DESIGN. OTHER MANUFACTURERS ARE ACCEPTABLE AS NOTED IN SPECIFICATION SECTION 21.1300.

FIRE PROTECTION ABBREVIATIONS			
AFB	ABOVE FINISHED FLOOR	GPM	GALLONS PER MINUTE
AFG	ABOVE FINISH GRADE	MAX	MAXIMUM
AP	ACCESS PANEL	M/N	MINIMUM
B/PFC	BACKFLOW PREVENTER TEST CONNECTION	NC	NORMALLY CLOSED
D	DRAIN	NO	NORMALLY OPEN
DIA	DIAMETER	OC	ON CENTER
ELEV	ELEVATION	OSF	OFFICE OF SCHOOL FACILITIES
FC	FLEXIBLE COUPLING	PFD	PIPE TO FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION	PV	POST INDICATOR VALVE
FP	FIRE PROTECTION	TS	TAMPER SWITCH
FS	FLOW SWITCH	TYP	TYPICAL
FT	FEET	UNO	UNLESS NOTED OTHERWISE

DESIGN CRITERIA NOTES

A. REFER TO PART 3, SPECIFICATION SECTION 21.1300 FOR FIRE PROTECTION SPRINKLER SYSTEM SPECIFICATION SHEET

B. LIGHT HAZARD AREAS: MINIMUM 0.10 GPM PER SQUARE FOOT OVER THE MOST HYDRAULICALLY REMOTE 1,500 SQUARE FEET WITH A MAXIMUM SPRINKLER SPACING OF 225 SQUARE FEET PER SPRINKLER OR PROVIDE BY HYDRAULICALLY CALCULATED WET SPRINKLER SYSTEMS AS FOLLOWS:

- PER UL LISTING, REDUCTION IN REMOTE AREA SIZE IS ALLOWED WHEN USING QUICK RESPONSE SPRINKLERS PER PARAGRAPH 11.2.3.2.3 OF NFPA 13 (2015 EDITION). CALCULATIONS SHALL INCLUDE A 100 GPM HOSE STREAM ALLOWANCE.
 - A. OFFICE/ADMINISTRATION AREAS
 - B. CLASSROOMS
 - C. AS NOTED ON PLANS
- ORDINARY HAZARD (GROUP 1) AREAS: MINIMUM 0.15 GPM PER SQUARE FOOT OVER THE MOST HYDRAULICALLY REMOTE 1,500 SQUARE FEET WITH A MAXIMUM SPRINKLER SPACING OF 130 SQUARE FEET PER SPRINKLER OR PER UL LISTING, REDUCTION IN REMOTE AREA SIZE IS ALLOWED WHEN USING QUICK RESPONSE SPRINKLERS PER PARAGRAPH 11.2.3.2.3 OF NFPA 13 (2015 EDITION). CALCULATIONS SHALL INCLUDE A 250 GPM HOSE STREAM ALLOWANCE.
 - A. WORK ROOMS
 - B. MECHANICAL ROOMS
 - C. ELECTRICAL ROOMS
 - D. JANITOR'S CLOSETS
 - E. STORAGE AREAS
 - F. AS NOTED ON PLANS

D. DIVISION 21 CONTRACTOR SHALL FURNISH AND INSTALL ALL TAMPER SWITCHES, PRESSURE SWITCHES, FLOW SWITCHES, ETC. AS NOTED IN THESE DRAWINGS AND THE SPECIFICATIONS. DIVISION 21 CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING AND APPURTENANCES REQUIRED TO CONNECT TO THE BUILDING FIRE ALARM SYSTEM.

E. ALL AREAS OF THE BUILDING SHALL BE FULLY SPRINKLED UNLESS SPECIFICALLY NOTED OTHERWISE.

F. SPRINKLER PIPING SHALL BE CONCEALED IN CEILINGS, CHASES, WALLS, ETC. TO THE EXTENT PRACTICAL.

G. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND MECHANICAL AND ELECTRICAL PLANS FOR LOCATION OF CEILING, DIFFUSERS, LIGHT AND OTHER CEILING ORNAMENTATION.

H. ALL SYSTEM PIPING SHALL BE INSTALLED TO ALLOW DRAINAGE BACK TO SYSTEM RISER WHEN POSSIBLE. WHERE THIS IS NOT POSSIBLE, AUXILIARY DRAINS SHALL BE INSTALLED AND DRAINED TO A DRAINAGE LOCATION AGREED TO BY THE ARCHITECT, ENGINEER AND OWNER.

I. SPRINKLER SYSTEMS SHALL BE LAID OUT BY THE ARCHITECT AS INDICATED IN DRAWINGS.

J. THIS CONCEPT DRAWING IS FOR INFORMATION ONLY TO SHOW POTENTIAL SYSTEM ARRANGEMENT. CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION CONTAINED IN THIS DRAWING AND IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF THE SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.

K. SEE CIVIL DRAWING AND SPECIFICATION FOR LIMIT OF CONTRACT WORK.

L. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SEISMIC DESIGN REQUIREMENTS.

M. STATE FIRE MARSHAL APPROVAL OF CONTRACTOR'S SUBMITTAL DOCUMENTS REQUIRED PRIOR TO START OF FIRE SPRINKLER SYSTEM INSTALLATION.

FIRE PROTECTION GENERAL NOTES

- SEE SITE PLAN FOR CONTINUATION OF UTILITIES. COORDINATE INVERTS WITH SITE UTILITIES PRIOR TO INSTALLING UNDERGROUND UTILITIES.
- DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS, FIXTURE LOCATIONS, ETC.
- COORDINATE FIRE PROTECTION WORK WITH THE WORK OF OTHER TRADES TO AVOID INTERFERENCE AND CONFLICT.
- FIRE STOPPING PENETRATIONS ARE SPECIFIED UNDER DIVISION 7. REFER TO SECTION 07810 OF THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SPRINKLER SUPPORTS AND BRACING

- CONTRACTOR SHALL PROVIDE FIRE PROTECTION SHOP DRAWINGS TO STRUCTURAL JOIST DESIGNER/MANUFACTURER FOR COORDINATION OF ACCEPTABLE PIPING LAYOUT, ASSOCIATED LOADS ON BEAM/TRUSSES AND ATTACHMENT METHODS FOR HANGERS AND SEISMIC BRACING.
- REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- FIRE PROTECTION EQUIPMENT AND/OR PIPING SHALL NOT BE SUPPORTED FROM STRUCTURAL BRACING OR UNREINFORCED METAL DECK (I.E. METAL DECK WITHOUT CONCRETE) WITHOUT STRUCTURAL ENGINEER'S WRITTEN APPROVAL.
- HANGERS SHALL BE ATTACHED TO BAR JOISTS AT PANEL POINTS (EITHER TOP OR BOTTOM CHORD). CONCRETE ANCHORS SHALL BE IN COMPLIANCE WITH NFPA 13, IBC AND ASCE 7-10 AND SHALL BE QUALIFIED FOR SEISMIC APPLICATION WHEN INSTALLED IN BUILDINGS WHERE SEISMIC PROTECTION IS REQUIRED (I.E. STANDARD DROP IN ANCHORS ARE NOT ACCEPTABLE).

MAX. SPACING OF STEEL BRANCH LINE RESTRAINTS (FT.)

PIPE (IN.)	SEISMIC COEFFICIENT, Cp		
	Cp ≤ 0.50	0.50 < Cp ≤ 0.71	Cp > 0.71
1"	43	37	27
1 1/4"	46	39	27
1 1/2"	49	41	29
2"	53	45	31

SEISMIC DESIGN CRITERIA

SEISMIC DESIGN CATEGORY (a): C

RISK CATEGORY (b): III

Ss (0.2 SECOND SEISMIC ACCELERATION) (a): .337

Cp (SEISMIC COEFFICIENT PER NFPA 13/2013): .353

NOTES:
 (a) INFORMATION PROVIDED BY STRUCTURAL ENGINEER
 (b) INFORMATION PROVIDED BY ARCHITECT

FIRE PROTECTION LEGEND

- FIRE LINE
- FIRE LINE ZONE No.1
- FDC DEPARTMENT CONNECTION LINE
- OS&Y VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- END OF LINE AND BRANCH LINE RESTRAINT
- FLOW SWITCH
- TAMPER SWITCH
- RISER CHECK VALVE
- LIGHT HAZARD OCCUPANCY
- ORDINARY HAZARD GROUP 1 OCCUPANCY
- PRESSURE GAUGE WITH GAUGE COCK
- LONGITUDINAL SWAY BRACE
- LATERAL SWAY BRACE
- 4 WAY SWAY BRACE

SEISMIC NOTES

MAINS:

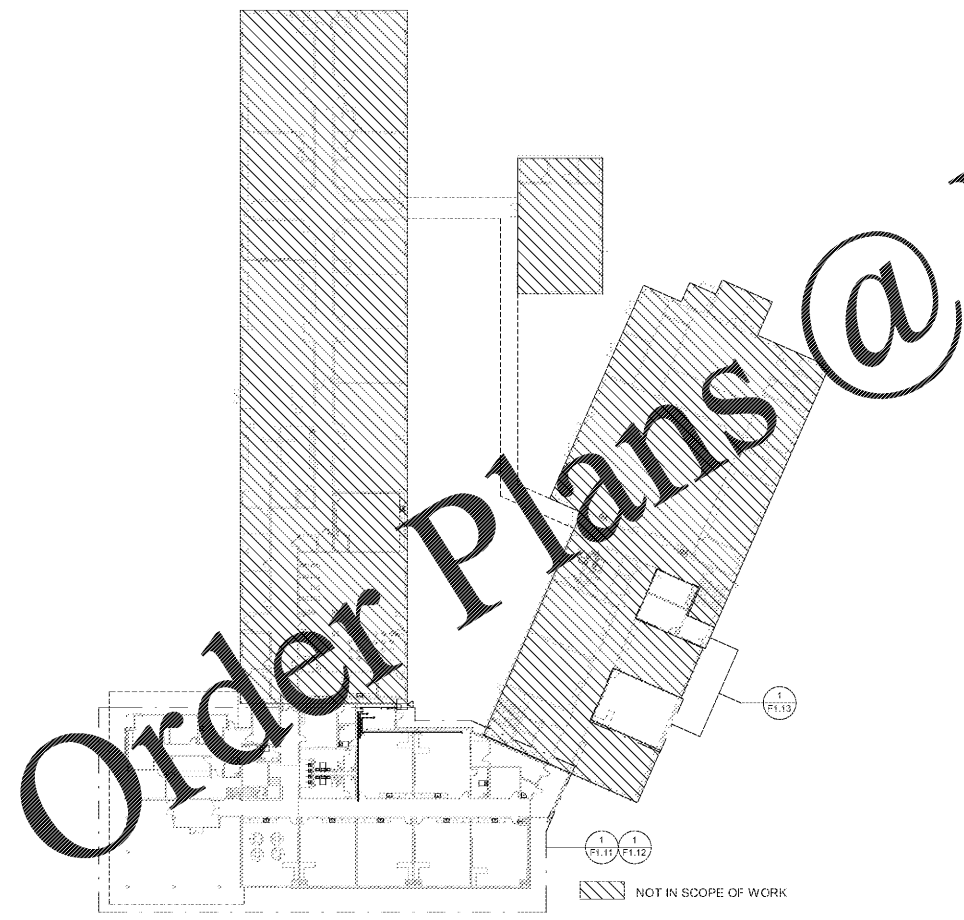
- INSTALL FLEXIBLE COUPLING WITHIN 24" OF THE TOP AND BOTTOM OF ALL MAIN RISERS OVER 7'-0".
- INSTALL ONE FLEXIBLE COUPLING IN RISERS WITHIN 24" OF THE TOP OR BOTTOM IF BETWEEN 3'-0" AND 7'-0".
- NO FLEXIBLE COUPLING IS REQUIRED IF RISER IS LESS THAN 3'-0".
- A FLEXIBLE COUPLING IS REQUIRED WITHIN 12" OF BOTH SIDES OF A MASONRY WALL UNLESS CLEARANCE IS PROVIDED AS NOTED BELOW.
- A FLEXIBLE COUPLING IS REQUIRED WITHIN 12" ABOVE AND WITHIN 24" BELOW THE FLOOR IN MULTISTORY.
- A FLEXIBLE COUPLING IS REQUIRED WITHIN 24" OF BUILDING EXPANSION JOINTS.
- A FLEXIBLE COUPLING IS REQUIRED WITHIN 24" OF THE TOP OF DROPS EXCEEDING 16'-0" IN LENGTH TO PORTIONS OF SYSTEMS SUPPLYING MORE THAN ONE SPRINKLER, REGARDLESS OF PIPE SIZE.
- A FLEXIBLE COUPLING IS REQUIRED WITHIN 24" ABOVE AND 24" BELOW ANY INTERMEDIATE POINTS OF SUPPORT FOR A RISER OR OTHER VERTICAL PIPE.
- 4-WAY SWAY BRACE REQUIRED AT THE TOP OF ALL RISERS EXCEEDING 3'-0" IN LENGTH. LATERAL BRACES (PERPENDICULAR TO PIPE) TO BE SPACED MAXIMUM OF 40'-0" (BRACES MAY BE REQUIRED AT LESSER INTERVALS BASED ON CALCULATIONS).
- "EXCEPTION" LATERAL BRACES ARE NOT REQUIRED WHERE HANGER ROD IS LESS THAN 6" LONG MEASURED BETWEEN THE TOP OF THE PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE.
- LONGITUDINAL BRACES (PARALLEL TO PIPE) TO BE SPACED MAXIMUM OF 80'-0".
- A LATERAL BRACE MUST BE LOCATED WITHIN 6'-0" OF THE END OF PIPE AND MUST BE ON THE LAST PIECE OF PIPE. BRACES MAY BE REQUIRED AT LESSER INTERVALS BASED ON CALCULATIONS.
- A LONGITUDINAL BRACE MUST BE LOCATED WITHIN 40'-0" OF THE END OF MAINS.
- LATERAL AND LONGITUDINAL BRACES SHALL BE ATTACHED TO TOP CHORD PANEL POINTS OF JOISTS.
- LATERAL AND LONGITUDINAL BRACES SHALL BE ATTACHED TO THE TOP OF BEAM FLANGE.

LINE:

- THE END OF ALL LINES SHALL BE RESTRAINED FROM VERTICAL MOTION. ONE METHOD OF ACCOMPLISHING THIS IS BY THE USE OF A SURGE RESTRAINER AS MANUFACTURED BY TOLCO OR ATCON.
- THE END OF ALL LINES TO BE RESTRAINED FROM HORIZONTAL MOTION BY INSTALLING AN APPROVED METHOD OF RESTRAINT (A NORMAL HANGER INSTALLED AT 45 DEGREE ANGLE WITH SURGE RESTRAINER IS ACCEPTABLE).
- BRANCH LINE RESTRAINTS SHALL BE INSTALLED AND SPACED AT INTERVALS AS REQUIRED BY NFPA 13, 2013 EDITION 9.3.6.

CLEARANCE NOTES:

- CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING EXTENDING THROUGH WALLS, FLOORS, PLATFORMS AND FOUNDATIONS, INCLUDING DRAINS, FIRE DEPARTMENT CONNECTIONS, AND OTHER AUXILIARY PIPING UNLESS THE REQUIREMENTS OF A THROUGH ARE MET. WHERE PIPE PASSES THROUGH HOLES IN PLATFORMS, FOUNDATIONS, WALLS OR FLOORS, THE HOLES SHALL BE SIZED SUCH THAT THE DIAMETER OF THE HOLES IS NOMINALLY 2 IN. LARGER THAN THE PIPE FOR PIPE 1 IN. NOMINAL TO 3 1/2" NOMINAL AND 4 IN. LARGER THAN THE PIPE FOR PIPE 4 IN. NOMINAL AND LARGER.
 - a. WHERE CLEARANCE IS PROVIDED BY A PIPE SLEEVE, A NOMINAL DIAMETER 2 IN. LARGER THAN THE NOMINAL DIAMETER OF THE PIPE SHALL BE ACCEPTABLE FOR PIPE SIZES 1 IN. THROUGH 3 1/2 IN. AND THE CLEARANCE PROVIDED BY A PIPE SLEEVE OF NOMINAL DIAMETER 4 IN. LARGER THAN THE NOMINAL DIAMETER OF THE PIPE SHALL BE ACCEPTABLE FOR PIPE SIZES 4 IN. AND LARGER.
 - b. NO CLEARANCE SHALL BE REQUIRED FOR PIPING PASSING THROUGH GYPSUM BOARD OR EQUALLY FRANGIBLE CONSTRUCTION THAT IS NOT REQUIRED TO HAVE FIRE RESISTANCE RATING.
 - c. NO CLEARANCE SHALL BE REQUIRED IF FLEXIBLE COUPLINGS ARE LOCATED WITHIN 1 FT. OF EACH SIDE OF A WALL, FLOOR, PLATFORM, OR FOUNDATION.
 - d. NO CLEARANCE SHALL BE REQUIRED WHERE HORIZONTAL PIPING PASSES PERPENDICULARLY THROUGH SUCCESSIVE STUDS OR JOISTS THAT FORM A WALL OR FLOOR/CEILING ASSEMBLY.
- THE CLEARANCE SHALL BE FILLED WITH A FLEXIBLE ELASTOMERIC OR SILICONE CAULK THAT IS COMPATIBLE WITH THE PIPING MATERIAL.
- CLEARANCE FROM STRUCTURAL MEMBERS NOT PENETRATED OR USED, COLLECTIVELY OR INDEPENDENTLY, TO SUPPORT THE PIPING SHALL BE AT LEAST 2 IN.



19 FIRST FLOOR - RENOVATION
 F0.01 NTS

GMC

1219 Wayne
 Columbia, SC
 T
 GMCNETWORK.CO

SOUTH CAROLINA
 REGISTERED PROFESSIONAL ENGINEER
 BUFORD GOFF & ASSOCIATES, INC.
 No. 000022
 DATE OF AUTHORIZATION

SOUTH CAROLINA
 REGISTERED PROFESSIONAL ARCHITECT
 MARK L. WATTS
 No. 12514

ISSUE DATE: 10.24.19
 BID DOCUMENTS

MILLBROOK ELEMENTARY SCHOOL - ADDITIONS AND RENOVATIONS
 255 E PINE LOG RD, AIKEN, SC 29803
 GMC # ACOL180004

NOTES, LEGENDS, & SCHEDULES - FIRE PROTECTION
F0.01

DRAWN BY: BKT
 CHECKED BY: MLW