Sprinkler Design Data

Project Name: OVERHILLS ELEMENTARY	CLASSROOM ADDITION	System: WET
Project Street Address: 2626 RAY ROAD,	SPRING LAKE, NC 28390	Sys. Sq. Ft.: 16,311 +/-
Suite: -	Floor#: 1	Ceiling Height: VARIES
Designed By: J&D SPRINKLER CO., INC.	Phone: 919.553.2356	Total Bldg. Hgt.: 24'-2 +/-
Occupancy: SCHOOL	Hazard: LIGHT HAZARD - CLASSROOM	IS, OH GRP I - MEZZANINE

Design Summary

	System #1	System #2	System #3	System #4	System #5
Design Method	CALCULATED	CALCULATED	CALCULATED		
Design Area #	A	В	С	D	-
Location	COLLABORATION	CLASSROOM	CLASSROOM	MEZZANINE	-
Type of System	WET	WET	WET	WET	· - 1, 1 / 1
Hazard Class	LIGHT	LIGHT	LIGHT	OH GRP I	-
Criteria From	NFPA 13 (2013)	NFPA 13 (2013)	NFPA 13 (2013)	NFPA 13 (2013)	-
Design Area	1500 SF	1500 SF	900 SF	5 HEADS	-
Sprinkler Spacing	324 MAX	324 MAX	324 MAX	130 MAX	•
Density	0.10	.10	.10	.10	•
K-factor	8	8	8	8	
Hose Allowance	100	100	100	250	-
# Design Sprinklers	6	8	6	5	
Special Application Spk.	-				-
Requirement @ TEST					
G.P.M. Req'd	305.79	374.59	301.42	348.13	-
P.S.I. Req'd	109.634	56.241	58.323	28.459	-
Requirement @ BASE					
GPM Required	205.79	274.59	201.42	98.13	-
PSI Required	107.902	54.023	56.618	27.243	
Safety factor @ Test	20.152	69.803	71.679	99.100	
Dry Sys. Volume (gal)		•			

Water Supply Information - Fire Pump Test

Tested by	CAROLINA FIRE PROTECTION	Date/Time	-	Pressure Hydrant	
Hydrant Elevation	•	Flow Hydrant # 1		Flow Hydrant #2	-
Static (PSI)	138	Residiual (PSI)	92	Flow (gpm)	776

Fire Pump Data

Rated G.P.M.	750	Rated Pressure	80	Horsepower	
Diesel/Electric	DIESEL	Churn Pressure		Style of pump	HORIZONTAL
Combined Discharge		150%%% Flow (suction)		150%%% Flow (gpm)	

If Storage is Greater than 12 Feet Complete Commodity Storage Design Information

Cor	nodity Descrip	tion				Storage Type	(Rack,Bin,Pile)			
Comod	ity Class			Storage H	eight _			Clearance		
Stable/	Unstable			Open/Cl Array				Wet/Dry System	_	
Figure #	Curve #		Density	Height	Clear	Afray	Dry Penalty	Design	Minimum	Final
-	-	- 1	Area	Tactor	Pactor	Factor	renaity		Design	Design
		Initial	-	-	-			-		14 1
				-	-	-			-	-
		Secon			•	-	-			
		-dary	-	-						-
Is system	compliant wit	h Chapter 23 (I	FPC)		Is st	torage area layo	ut, rack, and pil	e plan included	?	

	HANG	ER INS	TALLA	TION R	EQUIRI	EMENT	S		
	MA	XIMUM [DISTANC	E BETWE	EN HANG	GERS			
NOMINAL PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
BLAZEMASTER CPVC	5' 6"	6' 0"	6' 6"	7' 0"	8' 0"	9' 0"	10' 0"	N/A	N/A
THREADABLE LIGHTWA	LL N/A	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	N/A	N/A
STEEL PIPE (10/ 40)	N/A	12' 0"	12' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"

100 PSI STATIC PRESSURE ON SYSTEM REQUIRES UP-LIFT RESTRAINT WITHIN 12 INCHES HORIZONTALLY OF HEAD FOR ARM-OVERS AND END OF BRANCH LINE

THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER ON THE LINE SHALL NOT EXCEED 36" FOR 1" PIPE, 48" FOR 1 1/4" PIPE AND 60" FOR 1 1/2" PIPE OR LARGER THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOVER TO A SPRINKLER SPRINKLER DROP, OR SPRIG-UP SHALL NOT EXCEED 24"

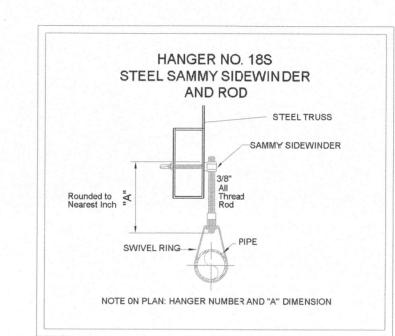
TRAPEZE INSTALLATION REQUIREMENTS

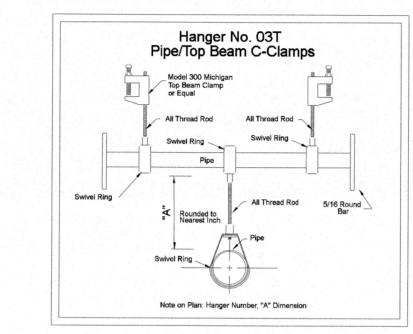
SPAN OF TRAPEZE	NOMINAL PIPE SIZE SUPPORTED										
(Schedule 10)	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"			
1 FT. 6 IN.	1"	1"	1"	1"	1"	1"	1-1/4"	1-1/4"			
2 FT. 0 IN.	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"			
2 FT. 6 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	2"			
3 FT. 0 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"			
4 FT. 0 IN.	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"			
5 FT. 0 IN.	2"	2"	2"	2"	2"	2"	2-1/2"	2-1/2"			
6 FT. 0 IN.	2"	2"	2"	2"	2"	2-1/2"	2-1/2"	3"			
7 FT. 0 IN.	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"			
8 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"			
9 FT. O IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	4"			
10 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	3"	4"			

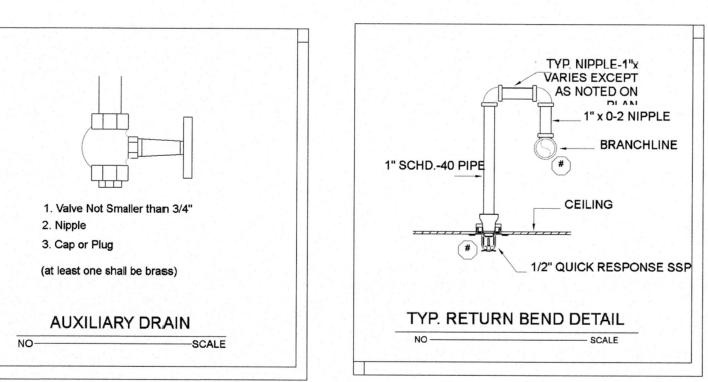
GENERAL NOTES:

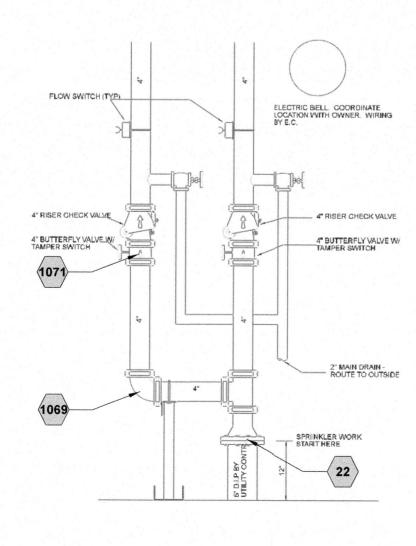
- 1. MATERIALS AND INSTALLATION SHALL COMPLY WITH APPLICABLE NFPA CODES (2013). STATE BUILDING CODE, LOCAL AUTHORITY HAVING JURISDICTION, AND INSURANCE UNDERWRITER'S REQUIREMENTS.
- 2. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UL LISTED FOR THE INTENDED USE AND SHALL BE INSTALLED IN FULL COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 3. ALL NEW SPRINKLER PIPE 11/4" AND SMALLER IS SCHEDULE-40 BLACK STEEL WITH THREADED ENDS AND FITTINGS. ALL NEW SPRINKLER PIPE 11/2" AND LARGER IS SCHEDULE-10 BLACK STEEL WITH GROOVED ENDS AND FITTINGS.
- 4. SPRINKLER HEAD SPACING IN CLASSROOM AREAS ARE BASED ON THE NFPA 13 2013 STANDARDS FOR LIGHT HAZARD OCCUPANCIES ALLOWING A MAXIMUM HEAD SPACING OF 225 S.F. PER HEAD. SPRINKLER HEAD SPACING IN MEZZANINE PLATFORM IS BASED ON THE NFPA 13 2013 STANDARDS FOR ORDINARY HAZARD GROUP I OCCUPANCIES ALLOWING A MAXIMUM HEAD SPACING OF 130 S.F. PER HEAD.
- 5. LOCATIONS OF PIPING AS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD.
- 6. THE WATER TEST INFORMATION HAS BEEN PROVIDED BY CAROLINA FIRE PROTECTION DATED 06.16.2022 INDICATES THE FOLLOWING...

STATIC: 138 PSI RESIDUAL: 92 PSI FLOW: 776 GPM

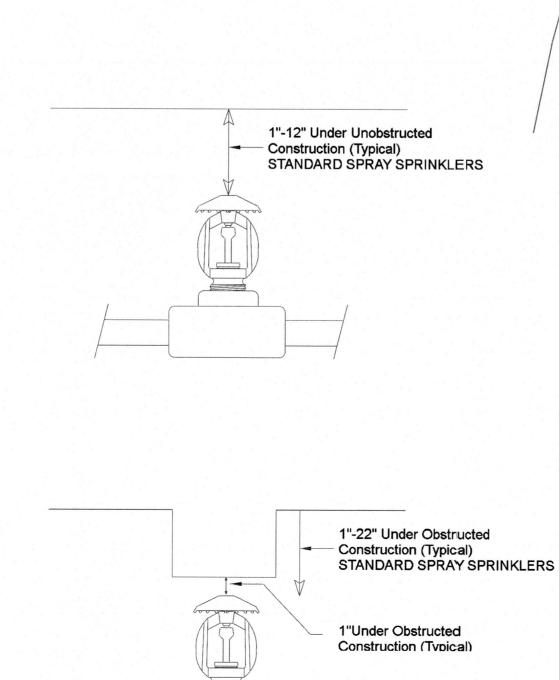












CONTRACTOR System No. W-L-1054 ANSI/UL1479 (ASTM E814) CAN/ULC S115 F Ratings - 1 and 2 Hr (See Items 1 and 3) F Ratings - 1 and 2 Hr (See Items 1 and 3) Rating - 0 Hr FT Rating - 0 Hr L Rating at Ambient - Less Than 1 CFM/sq ft FH Ratings - 1 and 2 Hr (See Items 1 and 3) FTH Rating - 0 Hr L Rating at 400 F - Less Than 1 CFM/sq ft L Rating at Ambient - Less Than 1 CFM/sq ft L Rating at 400 F - Less Than 1 CFM/sq ft

SECTION A-A 1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction

- A. Studs Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.

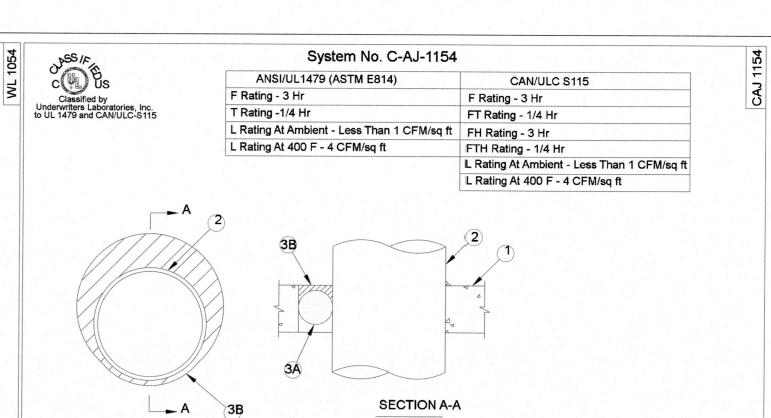
 B. Gypsum Board* - 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of
- layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UIL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls. The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
- 2. Through-Penetrants One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used: A. Steel Pipe - Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe. B. Iron Pipe - Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
- C. Conduit Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit. D. Copper Tubing Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. Copper Pipe Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.

 3. Fill, Void or Cavity Material* Sealant Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada),



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1. Floor or Wall Assembly - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 14 in. (356 mm).

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through-Penetrants - One metallic pipe, conduit or tubing to installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 3-1/4 in. (83 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

R. Conduit - Nom 4 in (254 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.

B. Conduit - Nom 4 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Conduit - Nom 4 in. (254 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.

G. Gopper Tubing - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.

D. Copper Pipe - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

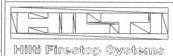
Firestop System - The firestop system shall consist of the following: A. Packing Material - Mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. As an option to the above, backer rod

surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. As all option to the above, backer had and/or foamed plastic backer material may be used.

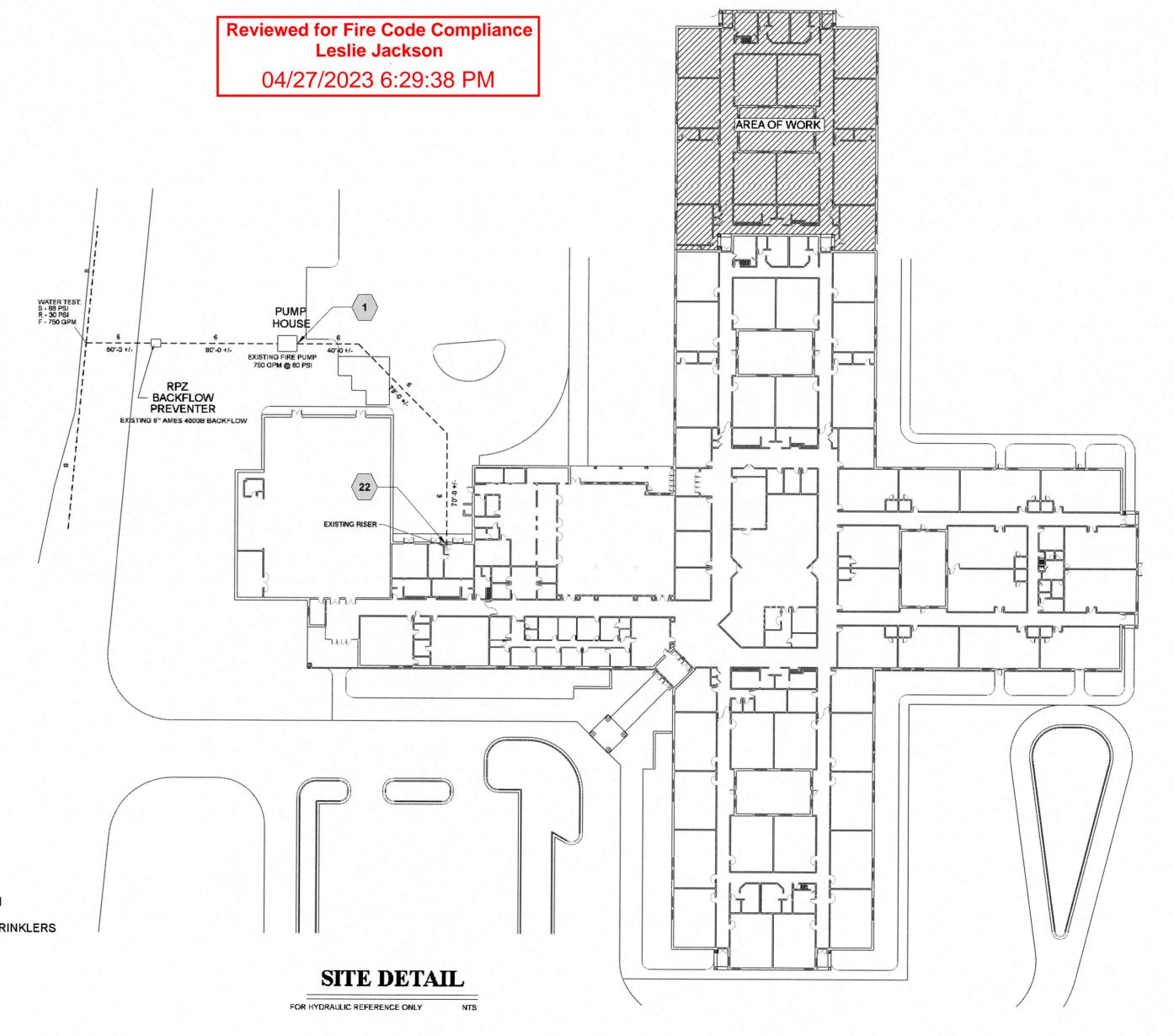
B. Fill, Void or Cavity Material* - Sealant - Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. At the point contact location between pipe and concrete, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC I FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada),



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SHEET TITLE:

SELEMENTAR CO SCHOOLS

ROAD, NC 28

2626 RAY F PRING LAKE,

919-553-2356

DANA GRAHAM

04.05.2023

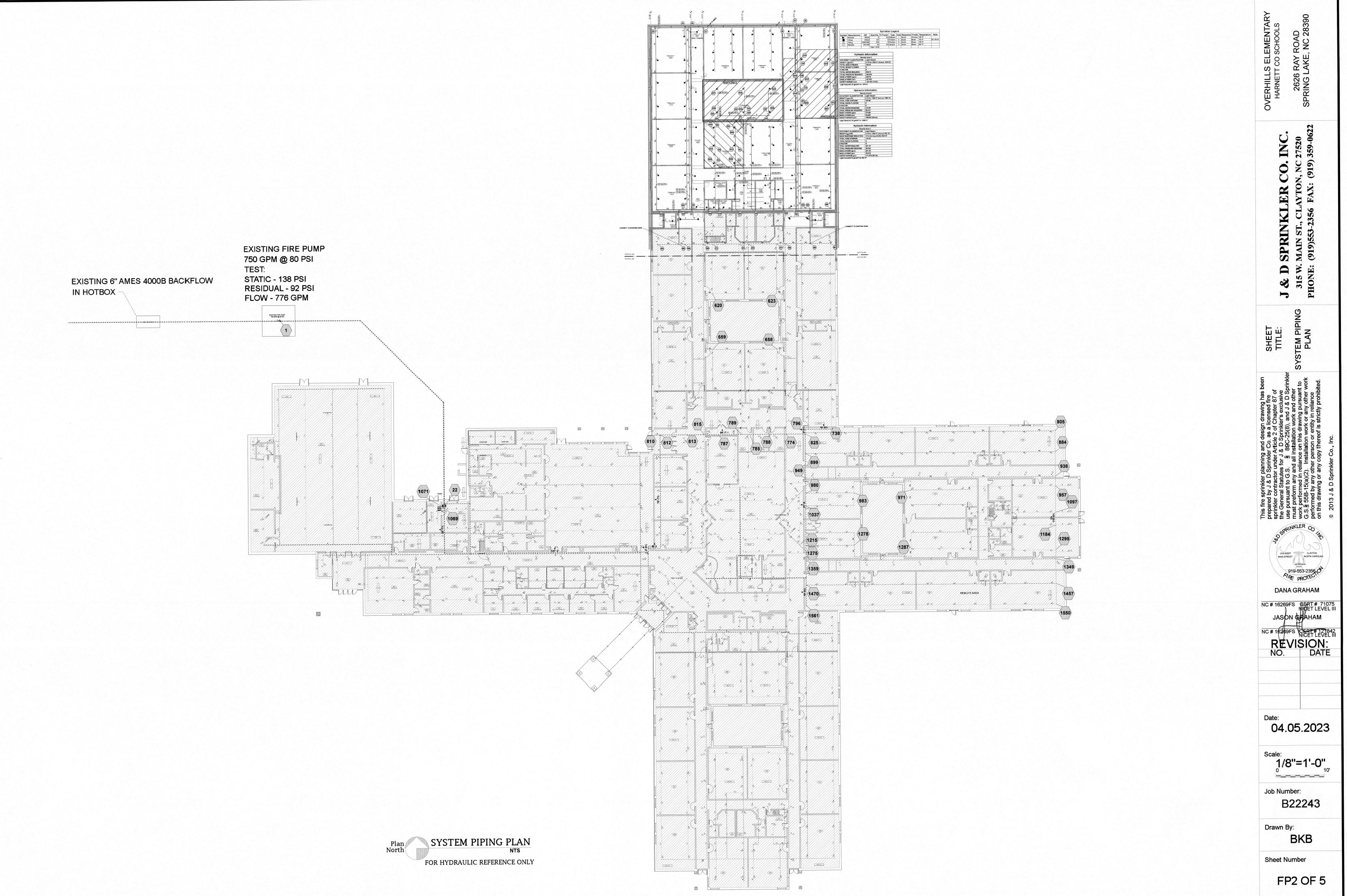
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Sheet Number

FP1 OF 5



2626 RAY ROAD SPRING LAKE, NC 28390

315 WEST CLAYTON NORTH CAROLINA STREET 919-553-2356 OF PROTECTION DANA GRAHAM

NC#16269FS CERT#121842 NICET LEVEL III REVISION: NO. DATE

Date: 04.05.2023

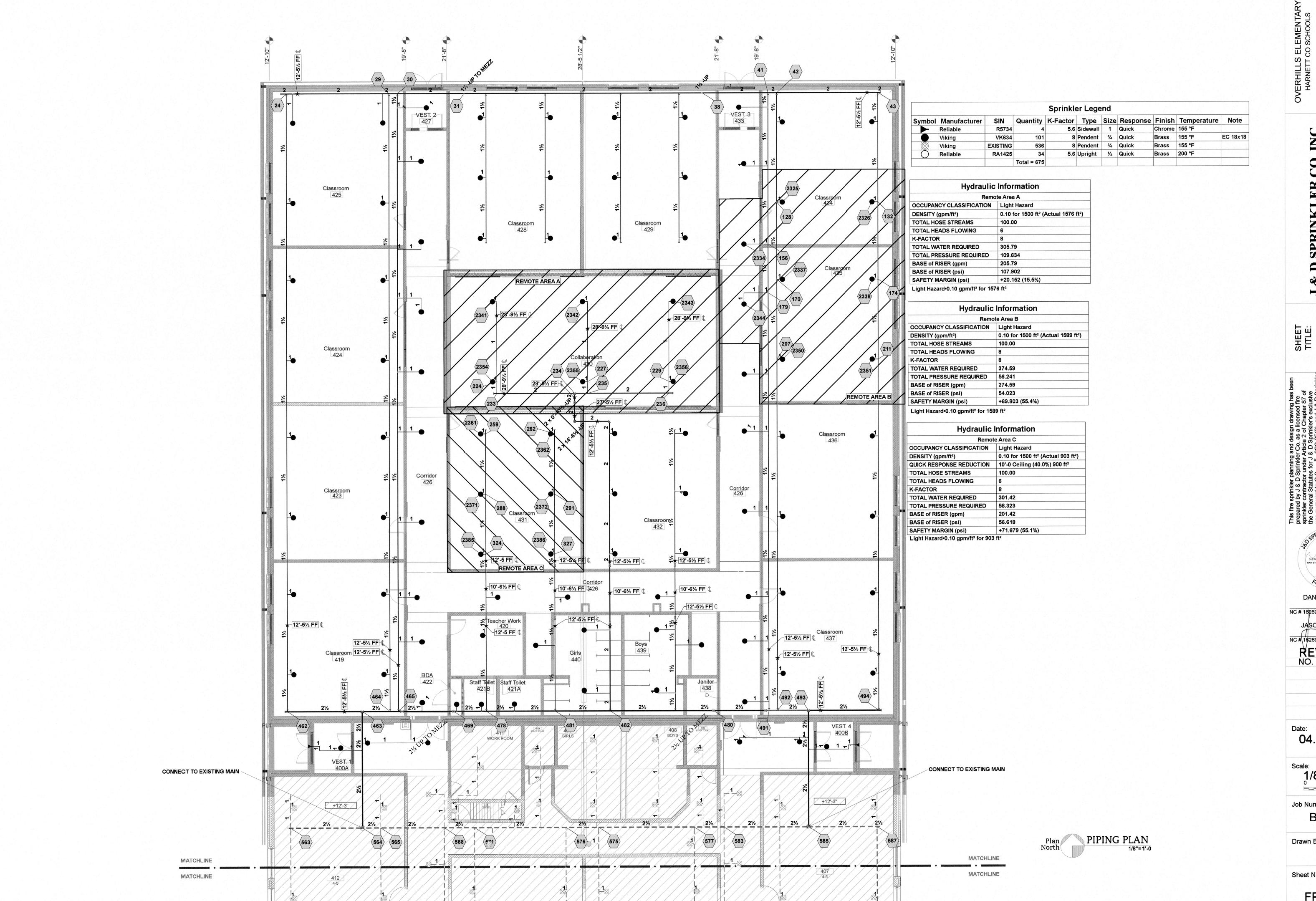
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Sheet Number

FP2 OF 5



404

2626 RAY ROAD SPRING LAKE, NC 28390

SPRINKLER (
. MAIN ST., CLAYTOR
. (919)553-2356 FAX:

919-553-2356 OT ATRE PROTECTION DANA GRAHAM

NC # 16269FS CERT # 71075 NICET LEVEL III JASON GRAHAM NC # 16269FS CERT # 121842 NICET LEVEL III REVISION: NO. DATE

04.05.2023

1/8"=1'-0" CONTROL DESCRIPTION OF THE PROPERTY OF THE PRO

Job Number: B22243

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Sheet Number

FP3 OF 5



J & D SPRINKLER CO. INC. 315 W. MAIN ST., CLAYTON, NC 27520 PHONE: (919)553-2356 FAX: (919) 359-0622

SHEET
TITLE:
MEZZANINE
PIPING AND
CEILING PLAN

by J & D Sprinkler Co. as a licensed fire ontractor under Article 2 of Chapter 87 of all Statutes for J & D Sprinkler's exclusive ant to G.S. § 89C-25(8), and J & D Sprinkler orm any and all installation work and other remed in reliance on this drawing pursuant to 1-15(a)(2). Installation work or any other work by any other person or entity in reliance

315 WEST CLAYTON MAIN STREET NORTH CAROLINA 919-553-2356 O

DANA GRAHAM

NC # 16269FS CERT # 71075
MICET LEVEL III

JASON GRAHAM

NC # 16269FS CERT # 121842
NICET LEVEL III

NC # 16269FS CERT # 121842 NICET LEVEL III REVISION: NO. DATE

Date: 04.05.2023

Scale: 1/8"=1'-0" 10'

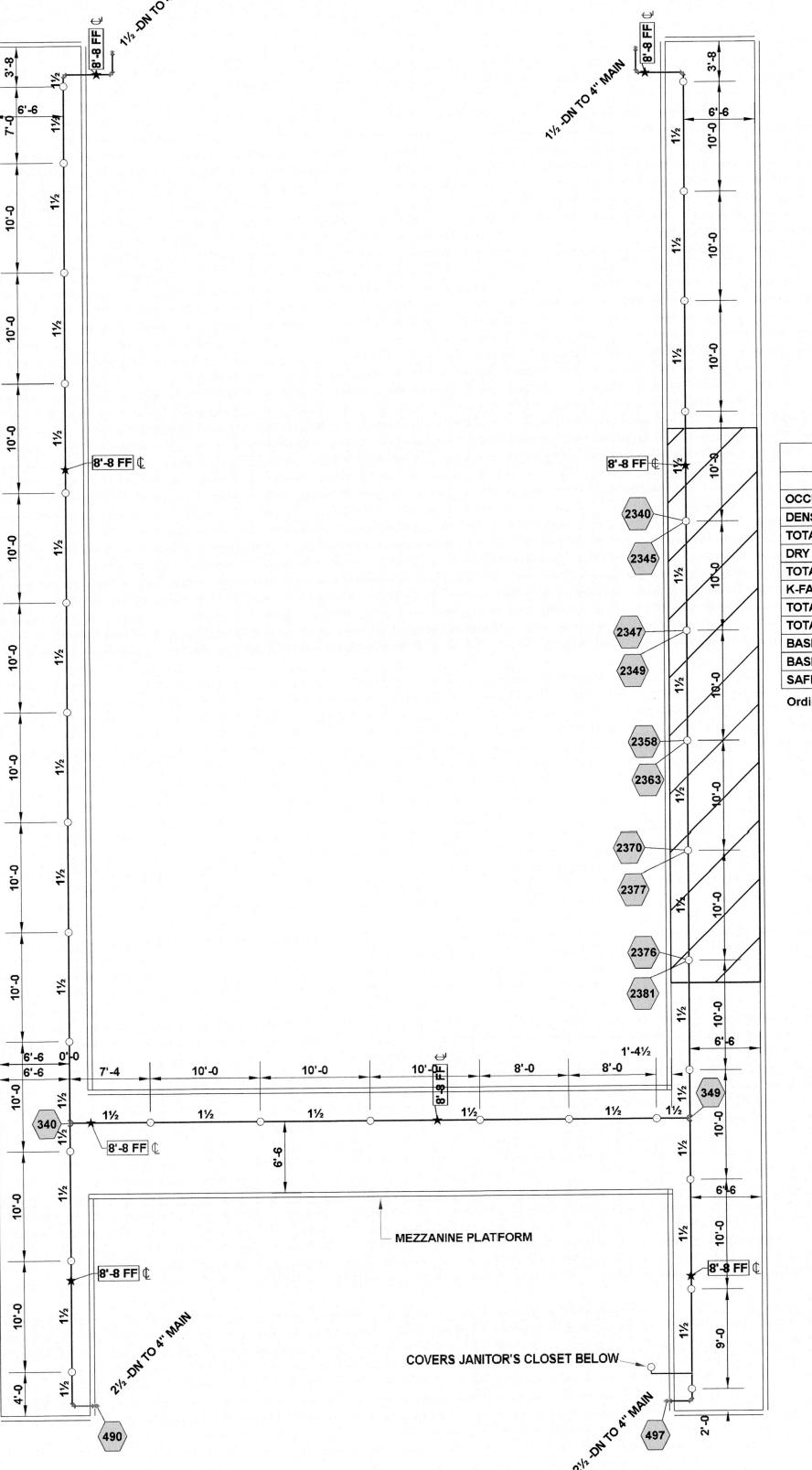
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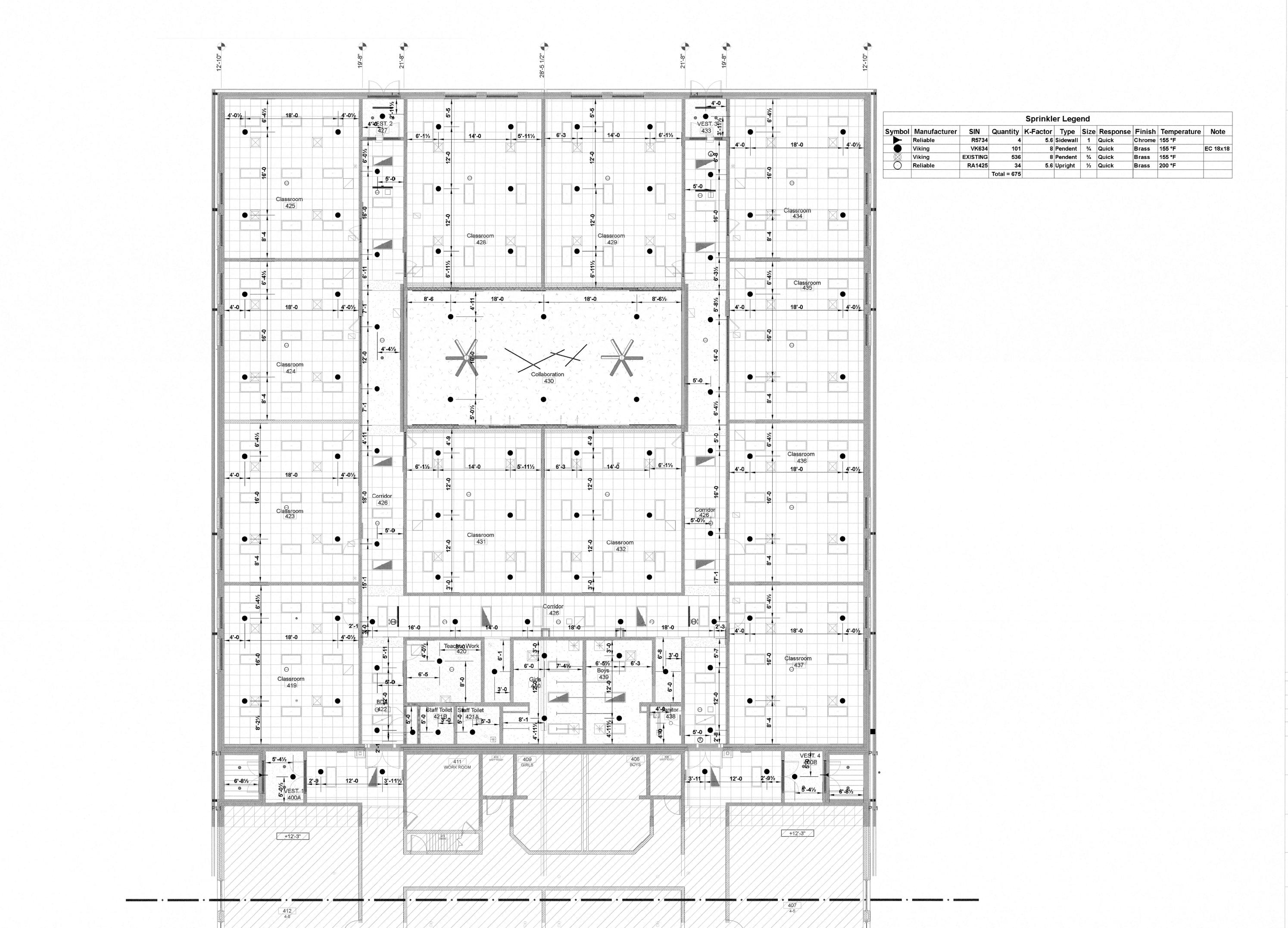


				Sprinkle	er Lege	end				Ader 12 16 Les 15 es
Symbol	Manufacturer	SIN	Quantity	K-Factor	Туре	Size	Response	Finish	Temperature	Note
—	Reliable	R5734	4	5.6	Sidewall	1	Quick	Chrome	155 °F	
	Viking	VK634	101	8	Pendent	3/4	Quick	Brass	155 °F	EG 18x1
	Viking	EXISTING	536	8	Pendent	3/4	Quick	Brass	155 °F	
Ô	Reliable	RA1425	34	5.6	Upright	1/2	Quick	Brass	200 °F	
			Total = 675							

Hydraulic	Information
Remo	te Area D
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft²)	0.15 for 1500 ft ² (Actual 412 ft ²)
TOTAL HOSE STREAMS	250.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	5
K-FACTOR	5.6
TOTAL WATER REQUIRED	348.13
TOTAL PRESSURE REQUIRED	28.459
BASE of RISER (gpm)	98.13
BASE of RISER (psi)	27.243
SAFETY MARGIN (psi)	+99.100 (77.7%)

Ordinary Group I•0.15 gpm/ft² for 412 ft²

Plan North MEZZANINE PIPING AND CEILING PLAN 1/8"=1'-0



Since it it is chapter 87 of TITLE:

J. & D. SPRINKLER CO. INC.

315 W. MAIN ST., CLAYTON, NC 27520

Work and other awing pursuant to k or any other work tity in reliance is strictly prohibited.

OVERHILLS ELEMENTARY HARNETT CO SCHOOLS

2626 RAY ROAD SPRING LAKE, NC 28

the General Statutes for J & D Sprinkler's excluse bursuant to G.S. § 89C-25(8), and J & must preform any and all installation work and work performed in reliance on this drawing pursuant of S.§ 55B-15(a)(2). Installation work or any of performed by any other person or entity in reliance on this drawing or any copy thereof is strictly property.

This fire spring prepared by J sprinkler cont the General S use pursuant must preform work perform work perform G.S.\$ 55B-15 performed by On this drawing the General S on this drawing the Grand B on this drawing the Grand B on this drawing the G.S.\$ 55B-15 performed by J & C.S.\$ 55B-15 performed by J & C.

919-553-2356 O PROTECT DANA GRAHAM # 16269FS) /CERT # 7

DANA GRAHAM

NC # 16269FS CERT # 71075
NICET LEVEL III

JASON GRAHAM

NC # 16269FS CERT # 121842
NICET LEVEL III

REVISION:
NO. DATE

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Date: 04.05.2023

cale: 1/8"=1'-0"

Job Number:

B22243

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Sheet Number

FP5 OF 5