Sprinkler Design Data

Project Name:	CAROLINA DIESEL TRUCK	System:	WET
Project Street Address:	62 PROGRESS DR., FUQUAY-VARINA, NC 27526	Sys. Sq. Ft.:	14191 +/-
Suite: -	Floor#: 1 + MEZZANINE	Ceiling Height:	VARIES
Designed By: J&D SPRINKLER CO., INC.	Phone: 919.553.2356	Total Bldg. Hgt.:	25'-0 +/-
Occupancy: BUISNESS	Hazard: ORDINARY HAZARD GRP II - SHOP LIGHT HAZARD - OFFICE		

Design Summary

	System #1	System #2	System #3	System #4	System #5
Design Method	CALCULATED	-	-	CALCULATED	CALCULATED
Design Area #	A	-	-	-	-
Location	OFFICE	-	-	-	-
Type of System	WET	-	-	-	-
Hazard Class	LIGHT	-	-	-	-
Criteria From	NFPA 13 (2013)	-	-	-	-
Design Area	1500 SF	-	-	-	-
Sprinkler Spacing	225 MAX	-	-	-	-
Density	0.10	-	-	-	-
K-factor	5.6	-	-	-	-
Hose Allowance	100	-	-	-	-
# Design Sprinklers	6	-	-	-	-
Special Application Spk.	-	-	-	-	-
Requirement @ BASE					
G.P.M. Req'd	122.36	-	-	-	-
P.S.I. Req'd	23.894	-	-	-	-
Requirement @ TEST					
GPM Required	222.36	-	-	-	-
PSI Required	41.656	-	-	-	-
Safety factor @ Test	15.266	-	-	-	-
Dry Sys. Volume (gal)	-	-		-	-

Water Supply Information

Tested by	J&D SPRINKLER CO.	Date/Time	08.03.2022 @ 10AM	Pressure Hydrant	-
Hydrant Elevation	-	Flow Hydrant # 1	-	Flow Hydrant #2	-
Static (PSI)	57.1	Residual (PSI)	53.5	Flow (gpm)	1130
Copy of Water Test Data Included with Calculation is required					

Fire Pump Data

Rated G.P.M.	----	Rated Pressure	----	Horsepower	----
Diesel/Electric	----	Churn Pressure	-	Style of pump	-
Combined Discharge	-	150%% Flow (suction)	----	150%% Flow (gpm)	----
Certified pump curve required					

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

Comodity Description	-	Storage Type (Rack,Bin,Pile)	-		
Comodity Class	-	Storage Height	-	Clearance	-
Stable/Unstable	-	Open/Close Array	-	Wet/Dry System	-

Figure #	Curve #		Density / Area	Height Factor	Clear Factor	Array Factor	Dry Penalty	Design	Minimum Design	Final Design
-	-	-								
		Initial	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-
		Secon	-	-	-	-	-	-	-	-
		-dary	-	-	-	-	-	-	-	-

Is system compliant with Chapter 23 (FPC) - | Is storage area layout, rack, and pile plan included? -

HANGER INSTALLATION REQUIREMENTS

MAXIMUM DISTANCE BETWEEN HANGERS

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 LIGHTWALL	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 (Schedule 10)	NOMINAL PIPE SIZE SUPPORTED							
	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. 0 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.

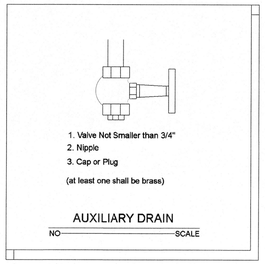
3. ALL NEW SPRINKLER PIPE 1¼" AND SMALLER IS SCHEDULE-40 BLACK STEEL WITH THREADED ENDS AND FITTINGS. ALL NEW SPRINKLER PIPE 1½" AND LARGER IS SCHEDULE-10 BLACK STEEL WITH GROOVED ENDS AND FITTINGS.

4. SPRINKLER HEAD SPACING IN SHOP AREA IS BASED ON THE NFPA 13 2013 STANDARDS FOR ORDINARY HAZARD GROUP II OCCUPANCIES ALLOWING A MAXIMUM HEAD SPACING OF 130 S.F. PER HEAD. SPRINKLER HEAD SPACING IN OFFICE AREA IS BASED ON NFPA 13 2013 STANDARDS FOR LIGHT HAZARD OCCUPANCIES ALLOWING A MAXIMUM HEAD SPACING OF 225 S.F. PER HEAD.

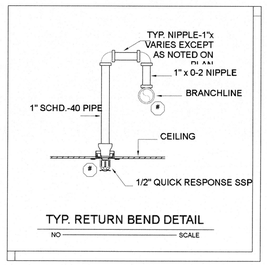
5. LOCATIONS OF PIPING AS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD.

6. THE WATER TEST INFORMATION HAS BEEN PROVIDED BY J&D SPRINKLER CO. DATED 08.03.2022 INDICATES THE FOLLOWING...

STATIC: 57.1 PSI
RESIDUAL: 53.5 PSI
FLOW: 1130 GPM



AUXILIARY DRAIN
NO SCALE



TYP. RETURN BEND DETAIL
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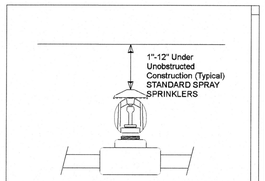

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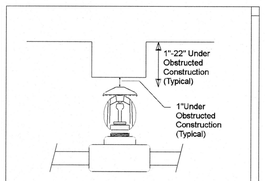

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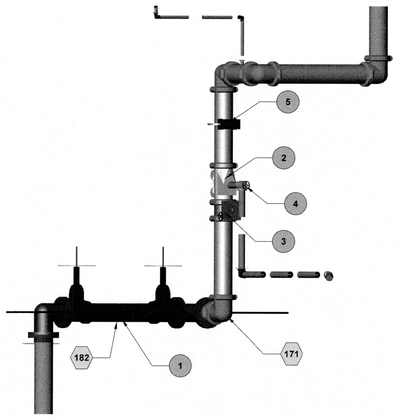


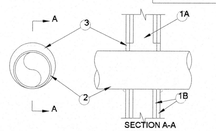
EXISTING RISER DETAIL
1/2"=1'-0

System No. W-L-1054

CLASSIFIED cULus — Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

WL 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)
T 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)
L Rating at 400 F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	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 features:
   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 UL 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 joint 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 interface on both surfaces of 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), respectively.

HILTI Firestop Systems

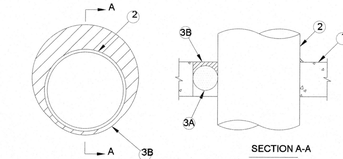
Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. October 14, 2015

System No. C-AJ-1154

CLASSIFIED cULus — Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

CAJ 1154

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 3 Hr	F Rating - 3 Hr
T Rating -1/4 Hr	FT Rating - 1/4 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Rating - 3 Hr
L Rating At 400 F - 4 CFM/sq ft	FTH Rating - 1/4 Hr
	L Rating At Ambient - Less Than 1 CFM/sq ft
	L Rating At 400 F - 4 CFM/sq ft



SECTION A-A

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.
   B. Conduit - Nom 4 in. (254 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
   C. Copper 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.
3. 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 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 | 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), respectively.

HILTI Firestop Systems

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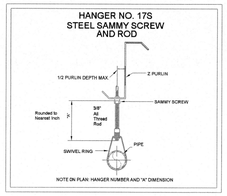
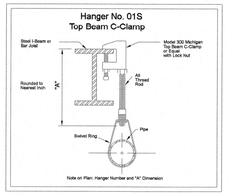
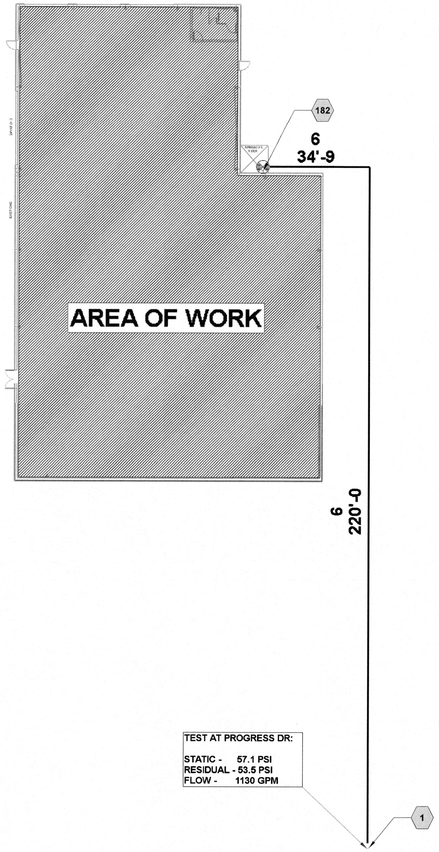




Riser Parts Legend

Key Note	Size	Description
1	6	Backflow, Wilkins 375ASTDA Flanged
2	6	Valve, G-G Riser Check (Viking Easy Riser w/ Trim)
3	6	Valve, G-G Butterfly
4	2	Valve, T-T Angle (Main Drain)
5	6 x 2	Waterflow Detector

Review For Fire Code Compliance
Harnett County North Carolina
Leslie Jackson
02/06/2023 6:39:50 AM



SITE PLAN
FOR HYDRAULIC REFERENCE ONLY

CAROLINA DIESEL TRUCKS
LOBBY RENOVATION
62 PROGRESSIVE DR.
FUQUAY VARINA, NC 27562

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

SHEET TITLE: NOTES AND DETAILS

J&D SPRINKLER CO INC — 315 WEST MAIN STREET CLAYTON NORTH CAROLINA — 919-553-2356 — FIRE PROTECTION

DANA GRAHAM
NC # 16269FS CERT # 71075 NICET LEVEL III
JASON GRAHAM
NC # 16269FS CERT # 121842 NICET LEVEL III

REVISION:

NO.	DATE

Date: 01.27.2023

Scale: 1/8"=1'-0" (0 — 10')

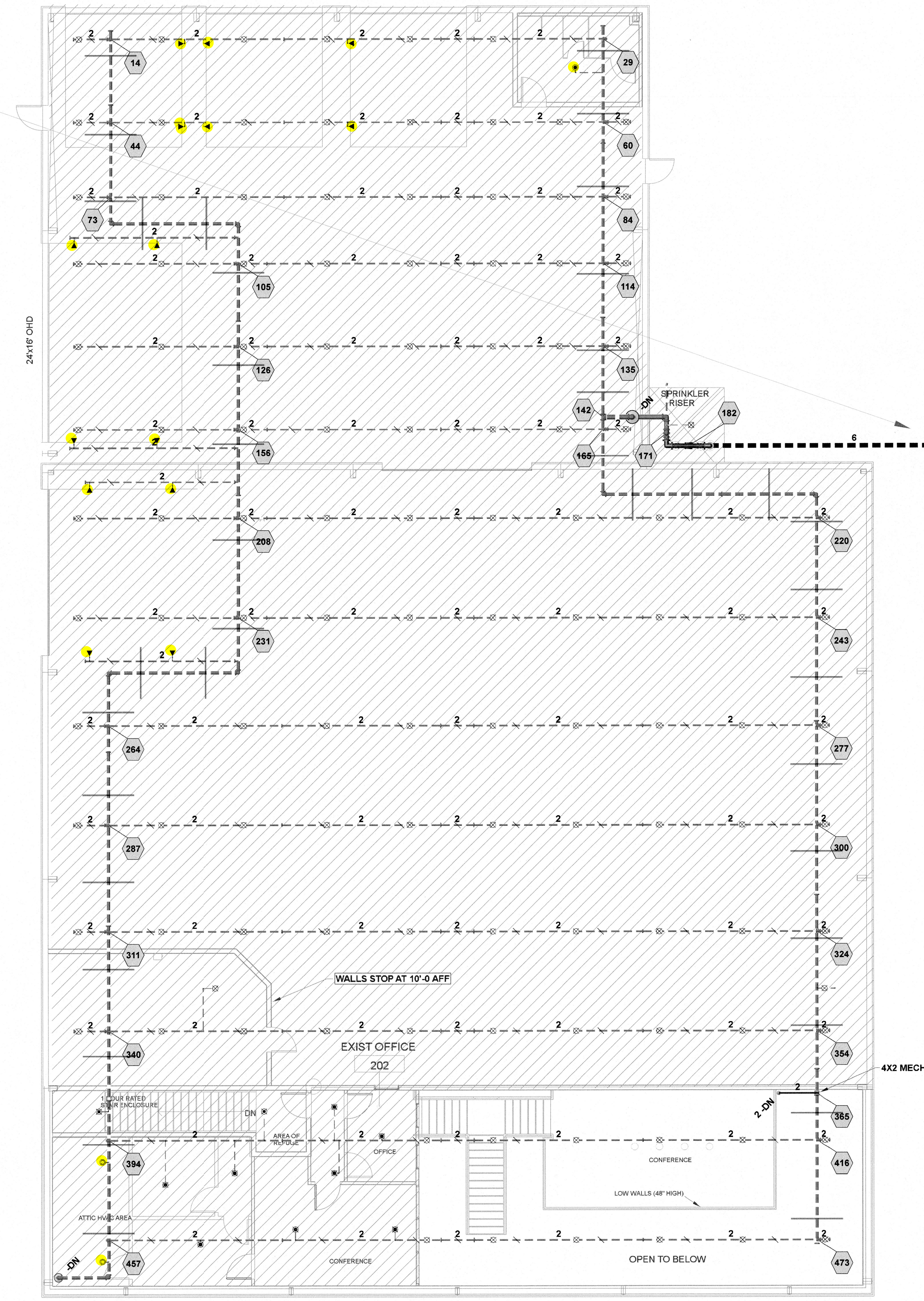
Job Number: JM22197

Drawn By: BKB

Sheet Number: FP1 OF 3

EXISTING TO REMAIN

Plan North **PIPING PLAN BOTTOM LEVEL**
1/8"=1'-0



EXISTING TO REMAIN

Plan North **PIPING PLAN TOP LEVEL**
1/8"=1'-0

Hydraulic Information

Remote Area A	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.10 for 1500 ft² (Actual 580 ft²)
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	6
K-FACTOR	5.6
TOTAL WATER REQUIRED	222.36
TOTAL PRESSURE REQUIRED	41.656
BASE of RISER (gpm)	122.36
BASE of RISER (psi)	23.894
SAFETY MARGIN (psi)	+15.266 (26.8%)

ENTIRE AREA CALCULATED

Sprinkler Legend

Symbol	Manufacturer	SIN	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
⊗	Viking	VK350	121	8	Upright	¾	Quick	Brass	155 °F	EXISTING
⊗ (filled)	Viking	VK3021	8	5.6	Pendent	½	Quick	White Polyester	155 °F	EXISTING
◎	Viking	VK3001	9	5.6	Upright	½	Quick	Brass	155 °F	
⊗ (diamond)	Viking	VK534	2	11.2	Pendent	¾	Quick	White Polyester	155 °F	EXISTING
▶	Viking	VK305	15	5.6	Sidewall	½	Quick	Brass	155 °F	
◉	Viking	VK3021	11	5.6	Pendent	½	Quick	White Polyester	155 °F	
			Total = 166							

CAROLINA DIESEL TRUCKS
LOBBY RENOVATION
62 PROGRESSIVE DR.
FUQUAY VARINA, NC 27562

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

SHEET TITLE: PIPING PLAN

DANA GRAHAM
NC # 16269FS CERT # 71075 NICET LEVEL III

JASON GRAHAM
NC # 16269FS CERT # 121842 NICET LEVEL III

REVISION:

NO.	DATE

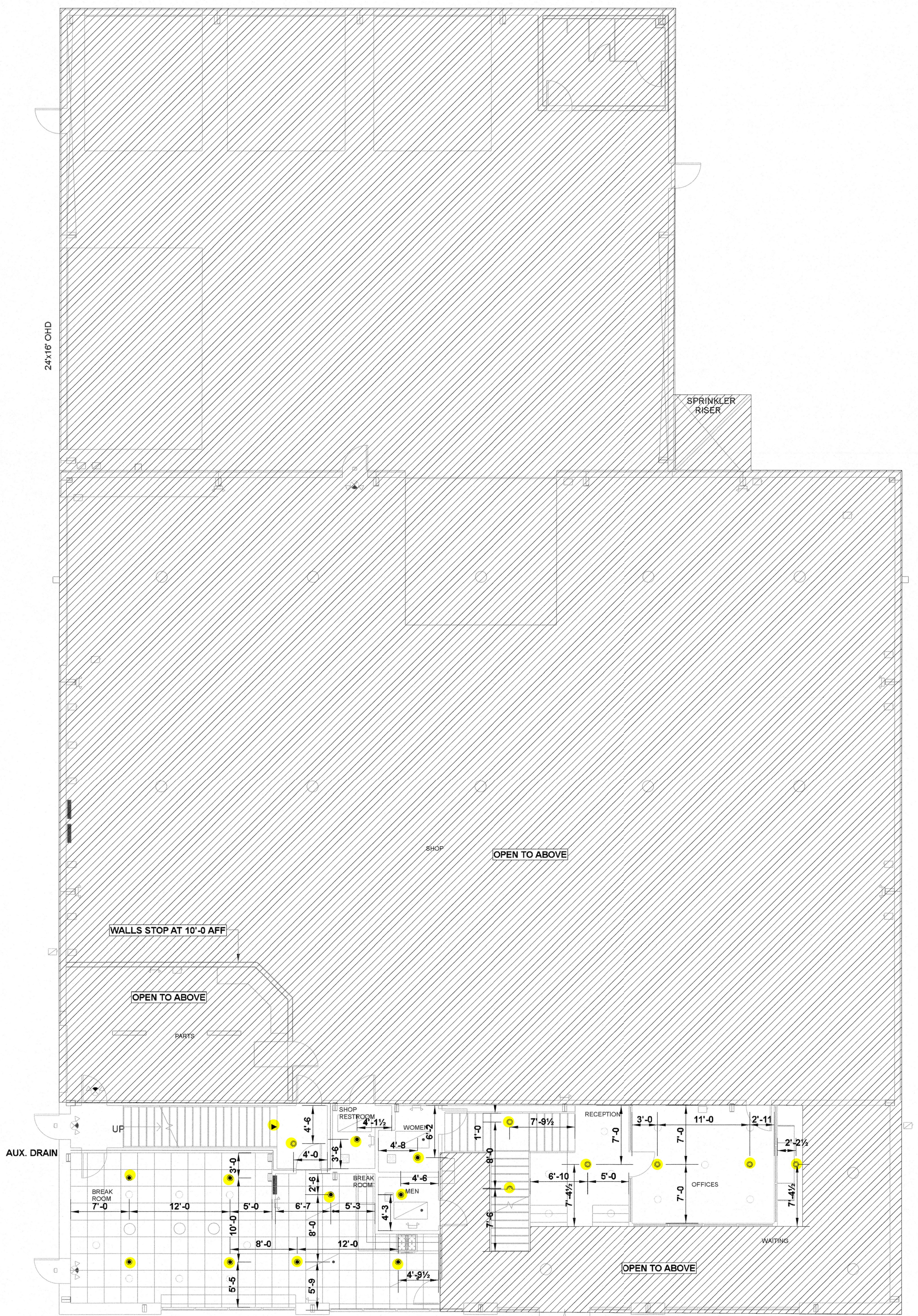
Date: 01.27.2023

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

Job Number: JM22197

Drawn By: BKB

Sheet Number: FP2 OF 3



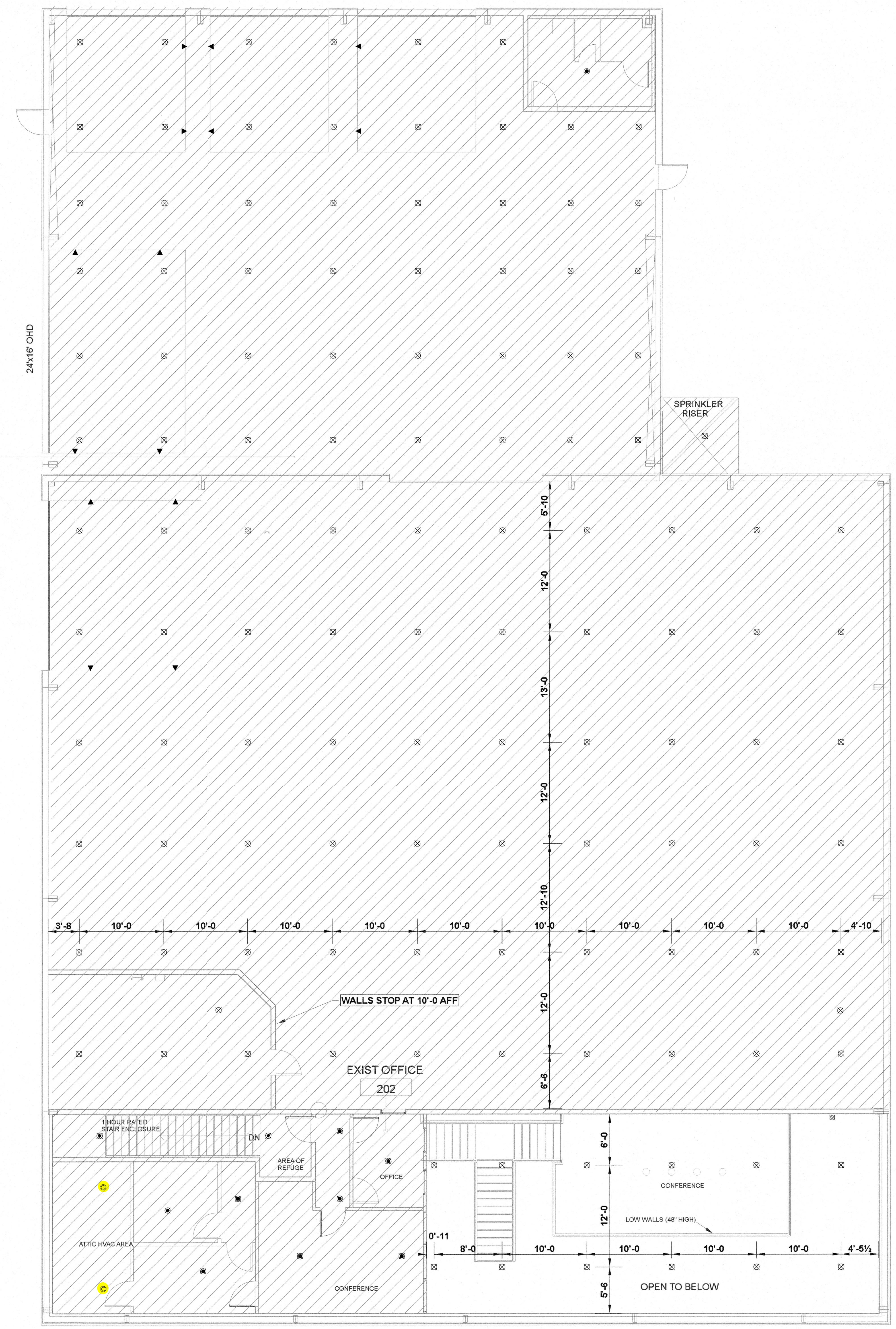
CEILING PLAN BOTTOM LEVEL
1/8"=1'-0
Plan North

Hydraulic Information	
Remote Area A	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.10 for 1500 ft² (Actual 580 ft²)
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	6
K-FACTOR	5.6
TOTAL WATER REQUIRED	222.36
TOTAL PRESSURE REQUIRED	41.656
BASE of RISER (gpm)	122.36
BASE of RISER (psi)	23.894
SAFETY MARGIN (psi)	+15.266 (26.8%)

ENTIRE AREA CALCULATED

Sprinkler Legend

Symbol	Manufacturer	SIN	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Viking	VK350	121	8	Upright	¾	Quick	Brass	155 °F	EXISTING
	Viking	VK3021	8	5.6	Pendent	½	Quick	White Polyester	155 °F	EXISTING
	Viking	VK3001	9	5.6	Upright	½	Quick	Brass	155 °F	
	Viking	VK534	2	11.2	Pendent	¾	Quick	White Polyester	155 °F	EXISTING
	Viking	VK305	15	5.6	Sidewall	½	Quick	Brass	155 °F	
	Viking	VK3021	11	5.6	Pendent	½	Quick	White Polyester	155 °F	
			Total = 166							



CEILING PLAN TOP LEVEL
1/8"=1'-0
Plan North

CAROLINA DIESEL TRUCKS
LOBBY RENOVATION
62 PROGRESSIVE DR.
FUQUAY VARINA, NC 27562

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

SHEET TITLE: CEILING PLAN

J&D SPRINKLER CO INC · 315 WEST MAIN STREET · CLAYTON NORTH CAROLINA · 919-553-2356 · FIRE PROTECTION

DANA GRAHAM
NC # 16269FS CERT # 71075 NICET LEVEL III
JASON GRAHAM
NC # 16269FS CERT # 121842 NICET LEVEL III

REVISION:	
NO.	DATE

Date: 01.27.2023

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

Job Number: JM22197

Drawn By: BKB

Sheet Number: FP3 OF 3