

Reviewed for Fire Code Compliance
 Harnett County
 Leslie Jackson
 11/08/2023 2:04:05 PM

Sprinkler Design Data

Project Name: CAPE FEAR MOB - SHELL	System: Wet
Project Street Address: 225 BRIGHTWATER DRIVE	Work Area Sq. Ft.: ± 65,986
Suite: N/A	Floor#: N/A
Designed By: Associated Fire Protection	Phone: (919) 553-4021
Occupancy: SHELL	Hazard: LIGHT

Design Summary

Design Method	System #1
1	1
Design Area #	Calculated
Location	3RD FLOOR
Type of System	Wet
Hazard Class	LIGHT HAZARD
Criteria From	NFPA 13 2013 ED
Design Area	1,512 Sq. Ft.
Sprinkler Spacing	225 Sq. Ft. Max.
Density	10
K-factor	5.6
Hose Allowance	100 GPM
# Design Sprinklers	12
Special Application Spk	N/A
Requirement @ BOR	
G.P.M. Req'd	284.02
P.S.I. Req'd	87.65
Requirement @ TEST	
GPM Required	384.02
PSI Required	104.62
Safety factor @ Test	26.92
Dry Sys. Volume (gal)	N/A

WATER SUPPLY INFORMATION

Tested by	AFP	Date/Time	9.06.23 @ 9:20AM	Pressure Hydrant	N/A
Hydrant Elevation	±172'-0"	Flow Hydrant # 1	N/A	Flow Hydrant #2	N/A
Static (PSI)	133	Residual (PSI)	105	Flow (gpm)	1,894

Copy of Water Test Data Included with Calculation

NOTES:

GENERAL NOTES
 THE FIRE PROTECTION SYSTEM SHALL COMPLY WITH NFPA 13 2013 EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES. FINAL INSPECTION AND APPROVAL OF THE FIRE PROTECTION SYSTEM SHALL BE BY THE LOCAL FIRE DEPARTMENT, AND ARCHITECT/ENGINEER.
 PIPE ROUTING SHOWN INDICATES OUR INTENT DESIGN AND LAYOUT. FINAL ROUTING AND ELEVATIONS SHALL BE BASED ON A FIELD SURVEY TO BE CONDUCTED AND COORDINATED WITH ALL TRADES.
 FIRESTOP ALL PENETRATIONS OF SMOKE/FIRE WALLS, CEILING, FLOORS, ROOFS, ETC. USING UL LISTED FIRESTOP SEALANT.
 PROVIDE ACCESS PANELS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILING AND CHASES.
 A CABINET WITH STOCK OF EXTRA SPRINKLERS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13.
 METHODS OF HANGING PIPES, HEADERS, AND BRANCHES SHALL BE IN ACCORDANCE WITH NFPA 13. NO OTHER PIPING AND/OR DEVICES ARE TO BE ATTACHED TO THE SPRINKLER PIPE HANGER SYSTEM. THIS CONTRACT DOES NOT INCLUDE ANY MATERIAL OR DEVICE TO IMPROVE THE STRUCTURAL STRENGTH OF THE BUILDING TO ENABLE IT TO CARRY THE LOAD OF THE FIRE PROTECTION SYSTEM.
 ALL VALVES FOR FIRE SERVICE SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES, INC.
 ALL POWER WIRING SHALL BE ACCOMPLISHED BY THE FIRE ALARMELECTRICAL CONTRACTOR. ALL CONTROL AND INTERLOCK WIRING SHALL BE ACCOMPLISHED UNDER THE ELECTRICAL SECTION OF THE SPECIFICATIONS IN ACCORDANCE WITH THE REQUIREMENTS IN THE ELECTRICAL DIVISION. COORDINATE ALL ELECTRICAL ITEMS WITH THE ELECTRICAL CONTRACTOR AND INSURE PROPER COORDINATION.
 A HYDRAULIC DATA PLATE SHALL BE PLACED ON THE SYSTEM RISER STATING THE REQUIRED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGNED SYSTEM.
 ALL PORTIONS OF THE BUILDING WHERE WET SYSTEM PIPING IS ROUTED SHALL BE MAINTAINED TO A MINIMUM OF 40 DEG. FAHRENHEIT. THIS TEMPERATURE SHALL BE MAINTAINED BY THE OWNER AT ALL TIMES.
 ALL SPRINKLER HEADS MOUNTED IN THE CEILING SHALL BE A MINIMUM OF 4" AWAY FROM WALLS, CEILING HEIGHT CHANGES, OR ANY OTHER VERTICAL INTERSECTING SURFACE.
 PROVIDE SPRINKLERS ABOVE AND BELOW ANY EXPOSED DUCTWORK 48" OR WIDER.
PIPE MATERIALS
 ALL PIPE TO BE BLACK STEEL WITH BLACK CAST IRON FITTINGS WITH JOINTS AS PER NFPA
 ALL PIPING SHALL AS PER THE FOLLOWING SIZES:
 MAIN PIPING = SCH 40
 RISER PIPING = SCH 10
 LINE PIPING 1 1/2" and larger = SCH 10
 1" RETURN BEND PIPING = SCH 40
HANGERS
 PIPE HANGERS SHALL BE INSTALLED AS REQUIRED BY NFPA FOR SUPPORTING SPRINKLER PIPING.
 NO OTHER PIPING AND/OR DEVICES ARE TO BE ATTACHED TO THE SPRINKLER PIPE HANGER SYSTEM.
 THIS CONTRACT DOES NOT INCLUDE ANY MATERIAL OR DEVICE TO IMPROVE THE STRUCTURAL STRENGTH OF THE BUILDING TO ENABLE IT TO CARRY THE LOAD OF THE FIRE PROTECTION SYSTEM.
STEEL PIPE SIZE
 MAX. DIST BETWEEN HANGERS: 3/4" 1" 1 1/4" 1 1/2" 2" 2 1/2" 3" 3 1/2" 4" 5" 6" 8"
 THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER ON THE LINE SHALL NOT BE GREATER THAN 36" FOR 1", 48" FOR 1 1/4", AND 60" FOR PIPE GREATER THAN 1 1/2".
 THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOR TO A SPRINKLER, SPRINKLER DROP, OR SPRIG-UP SHALL NOT EXCEED 12'



REVISIONS

No.	Date-Description
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SYSTEM SYMBOL DESCRIPTION

SYMBOL	DESCRIPTION
☐	FIRE DEPARTMENT CONNECTION
⊕	HYDRAULIC REFERENCE POINT
⊖	CENTERLINE OF PIPE ABOVE FINISH FLOOR
⊖	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION

SYMBOL	S.I.N.#	SIZE	STYLE	MAKE	FINISH	MODEL	MIN. SPACING	MAX. SPACING	TEMP.	TOTAL	K-FACTOR
⊖	V2708	1/2"	ISSORCP	Victaulic	CHROME	Pendent	6'-0"	15'-0"	155 F	11	5.6
⊖	V2704	1/2"	ISSORCU	Victaulic	BRASS	Upright	6'-0"	15'-0"	155 F	6	5.6
⊖	V8006	1/2"	ISSORCP	Victaulic	WHITE	Concealed	6'-0"	15'-0"	155 F	7	5.6
⊖	V2710	1/2"	ISSORCS	Victaulic	BRASS	Shelwall	6'-0"	15'-0"	200 F	4	5.6
										0	500

TOTAL SPRINKLERS SHOWN IN THIS AREA: 0
 TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT: 500

Seal:

 Andrew King, NICET Level III #152401

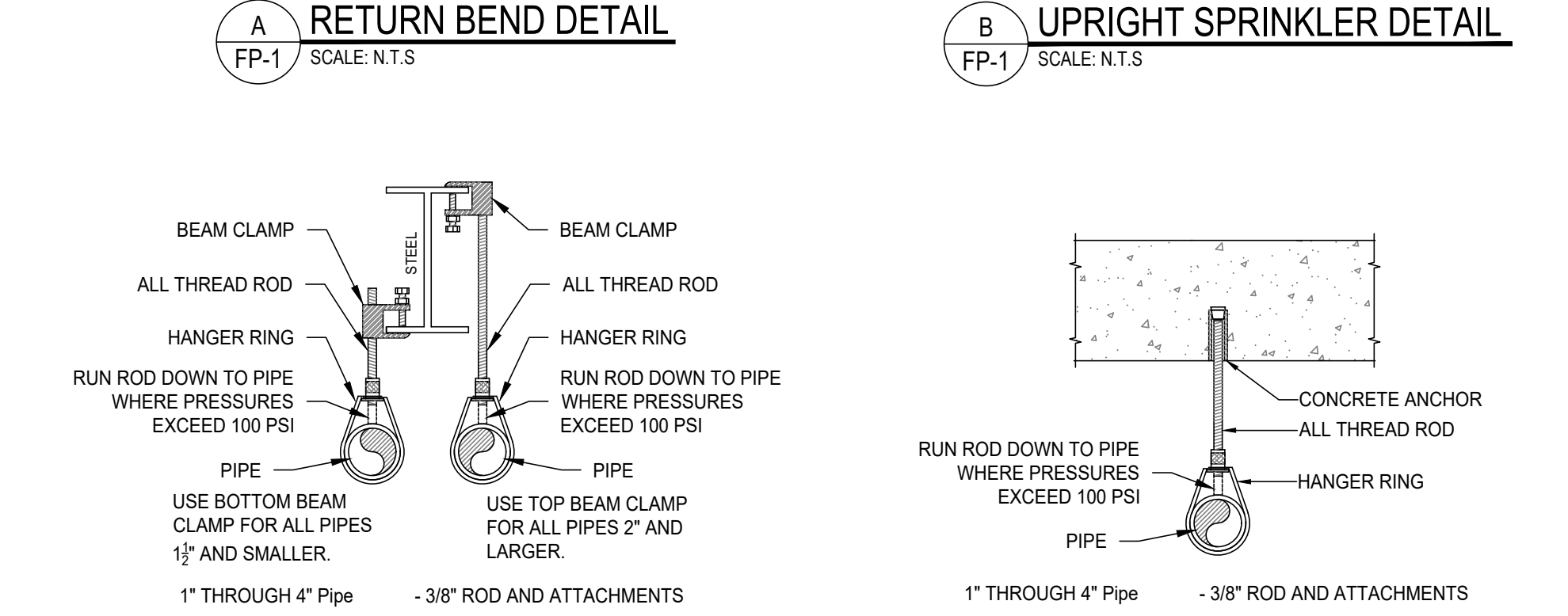
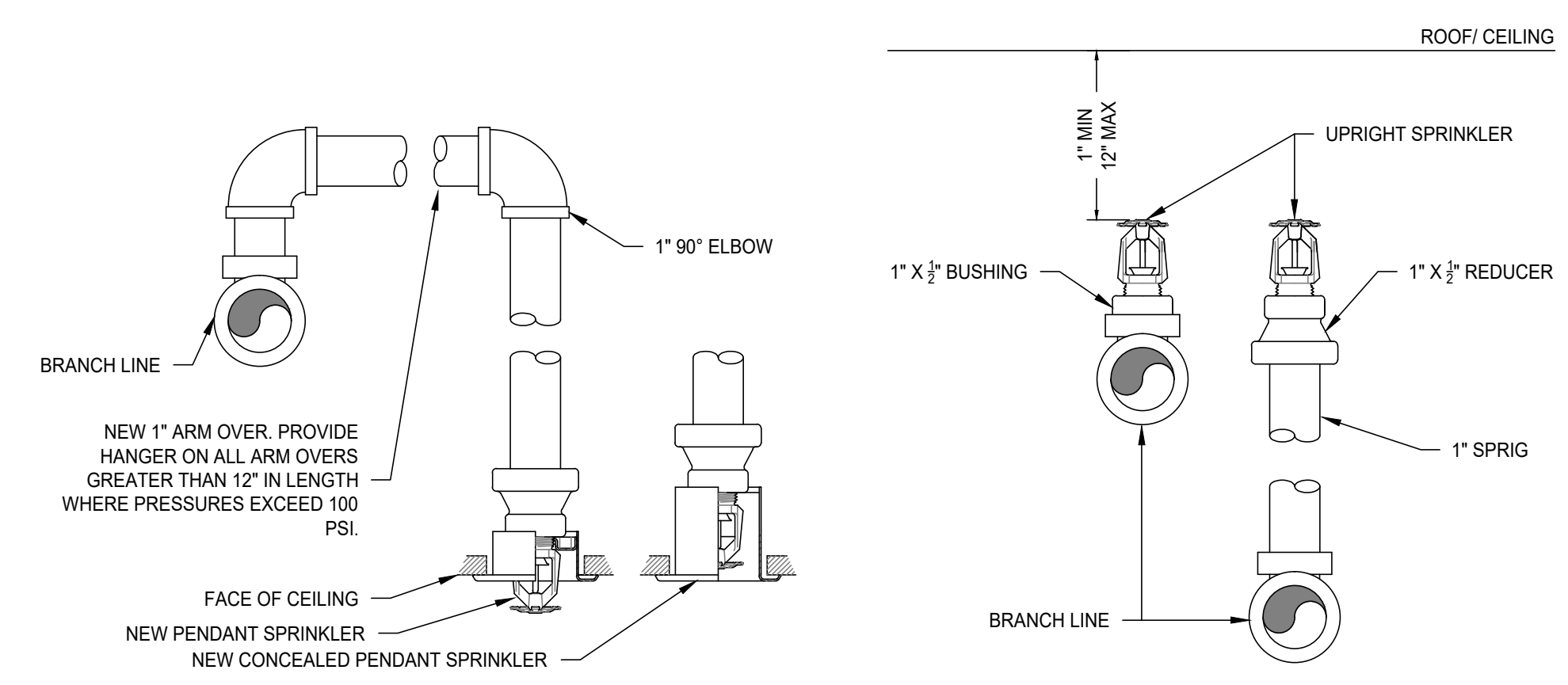
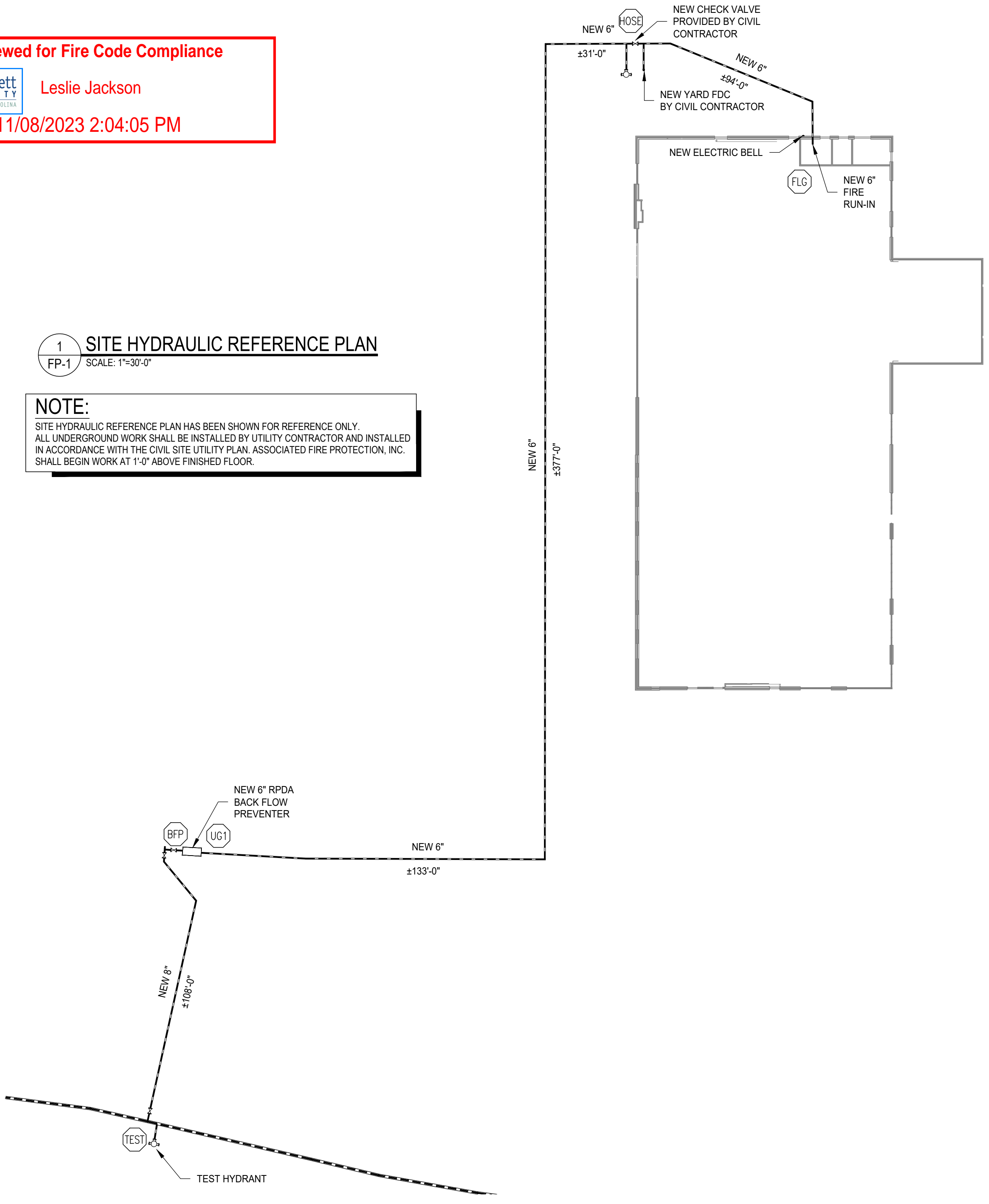
PROJECT:
 CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGTON, NC

Date: 10.19.23
Scale: As Noted
Job No.: EDW-1551
Drawn By: WLH
Sheet Name: NOTES AND DETAILS
Sheet No.: FP-1

This fire sprinkler planning and design drawing has been prepared by AFP as a licensed fire sprinkler contractor under Article 2 of Chapter 87 of the General Statutes for AFP's exclusive use pursuant to G.S. § 89C-2(6)(i), and AFP must perform any and all installation work and other work performed in reliance on this drawing pursuant to G.S. § 55B-15(a)(2). Installation work or any other work performed by any other person or entity in reliance on this drawing or any copy thereof is strictly prohibited.
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1 SITE HYDRAULIC REFERENCE PLAN
 FP-1 SCALE: 1"=30'-0"

NOTE:
 SITE HYDRAULIC REFERENCE PLAN HAS BEEN SHOWN FOR REFERENCE ONLY. ALL UNDERGROUND WORK SHALL BE INSTALLED BY UTILITY CONTRACTOR AND INSTALLED IN ACCORDANCE WITH THE CIVIL SITE UTILITY PLAN. ASSOCIATED FIRE PROTECTION, INC. SHALL BEGIN WORK AT 1'-0" ABOVE FINISHED FLOOR.



FLEXIBLE SPRINKLER CONNECTION

TOTAL EQUIVALENT LENGTH ALLOWED (PER HYD. CALC.)	85 FEET
SUMMARY OF ITEMS TO DETERMINE EQUIVALENT LENGTH OF 1" PIPE	
60" FLEXIBLE CONNECTION	72 FEET
STANDARD 1" 90 DEG. ELBOW	2 FEET
STANDARD 1" STRAIGHT TEE	5 FEET
4'-0" OF 1" SCH. 40 PIPE	4 FOOT

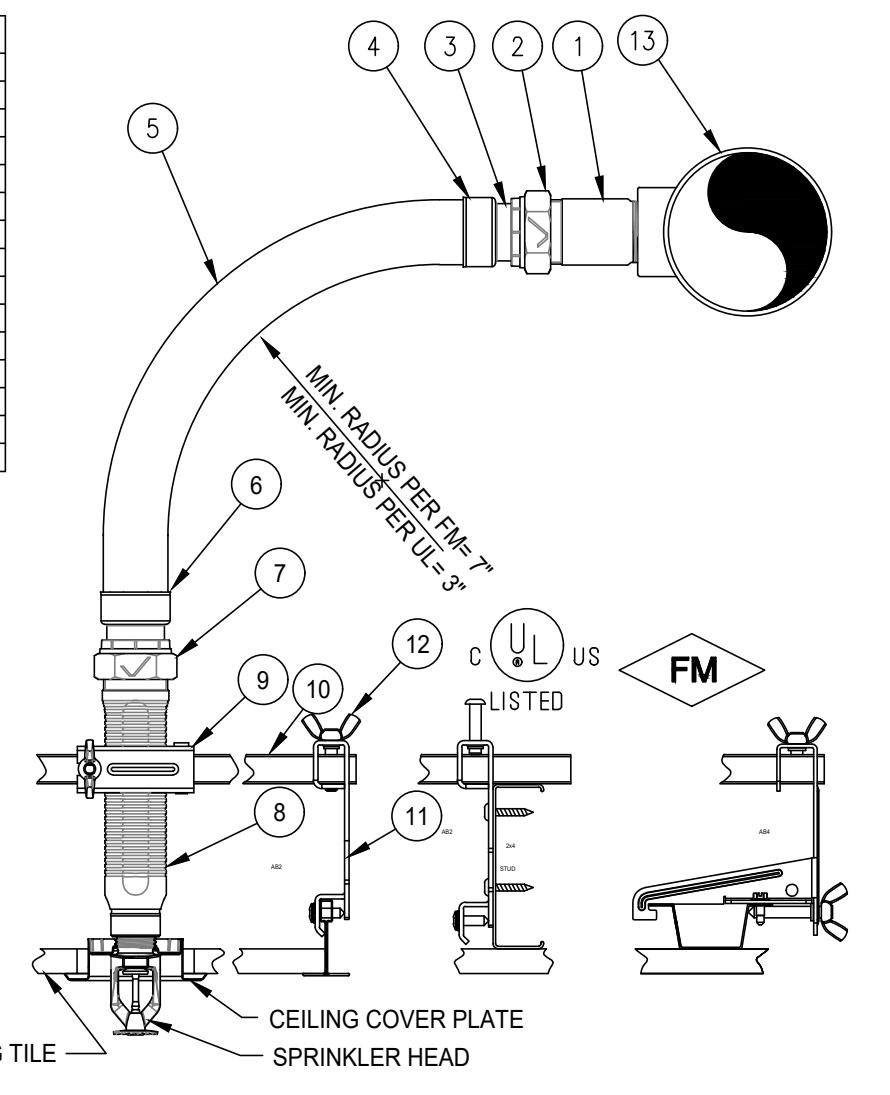
PRODUCT LEGEND

- INLET NIPPLE (1" MPT)
- NUT
- ISOLATION RING
- COLLAR/WELD FITTING
- AH-1 STAINLESS STEEL FLEXIBLE BRAIDED HOSE (1" NOMINAL DIAMETER) (LENGTHS AVAILABLE 31', 36', 48', 60', & 72')
- COLLAR/WELD FITTING
- NUT
- REDUCING OUTLET (AVAILABLE 1/2" OR 3/4" FMP)
- CENTER BRACKET ASSEMBLY
- SQUARE BAR (AVAILABLE IN 24" AND 48" LENGTHS)
- END BRACKET ASSEMBLY
- WING NUT OR SHEET METAL SCREW
- 1" OUTLET (SEE VICTAULIC SUBMITTAL NUMBER 10 95)

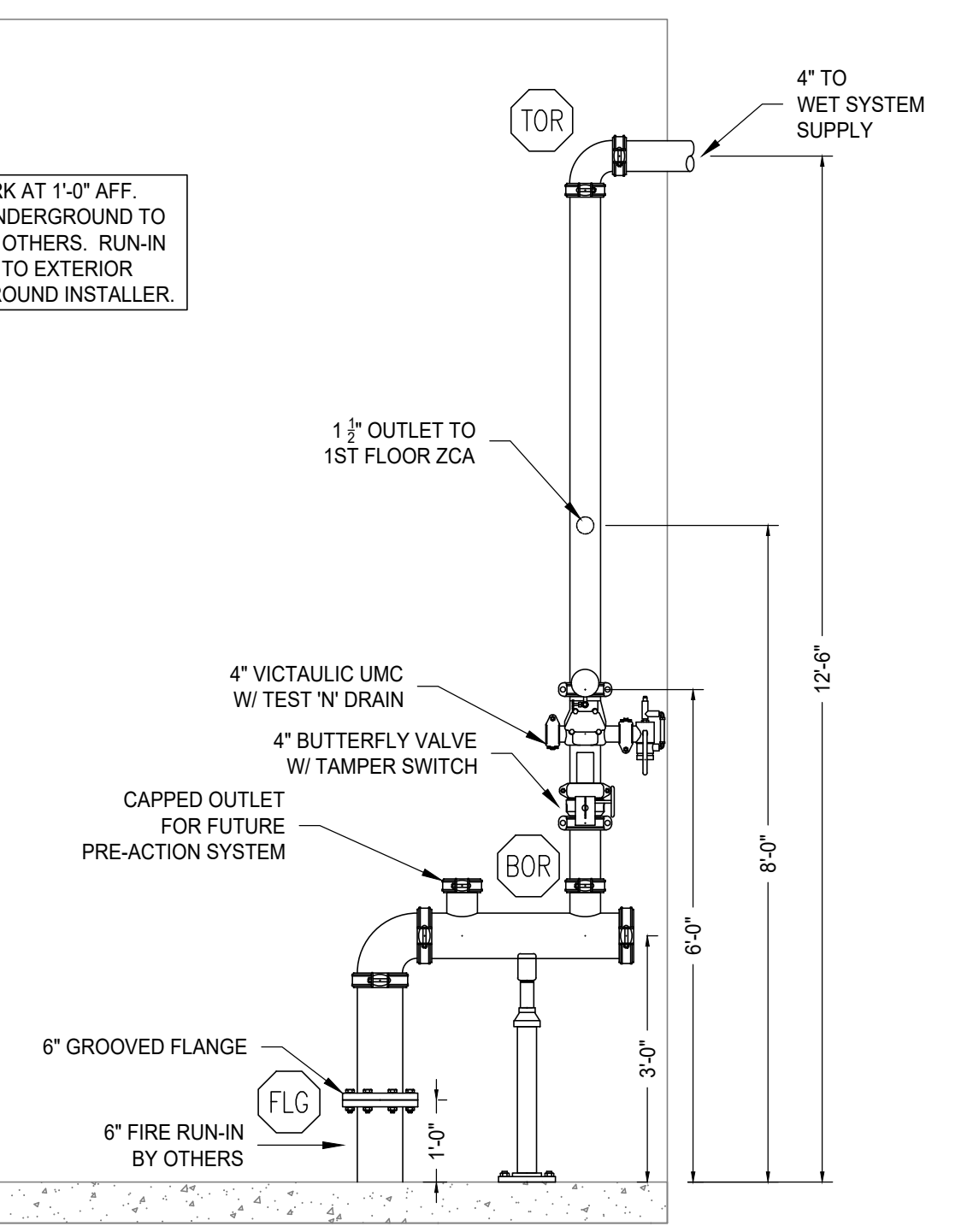
VICFLEX AH1 BRAIDED HOSE FRICTION LOSS DATA

LENGTH	OUTLET CONNECTIONS	MAX # BENDS (UL)	EQUIV. LENGTH OF 1" SCHED 40 PIPE, FT. (UL)
20'	1	3	41
25'	1	3	51
30'	1	3	61
35'	1	3	71
40'	1	3	81
45'	1	3	91
50'	1	3	101
55'	1	3	111
60'	1	3	121
65'	1	3	131
70'	1	3	141
75'	1	3	151
80'	1	3	161
85'	1	3	171
90'	1	3	181
95'	1	3	191
100'	1	3	201

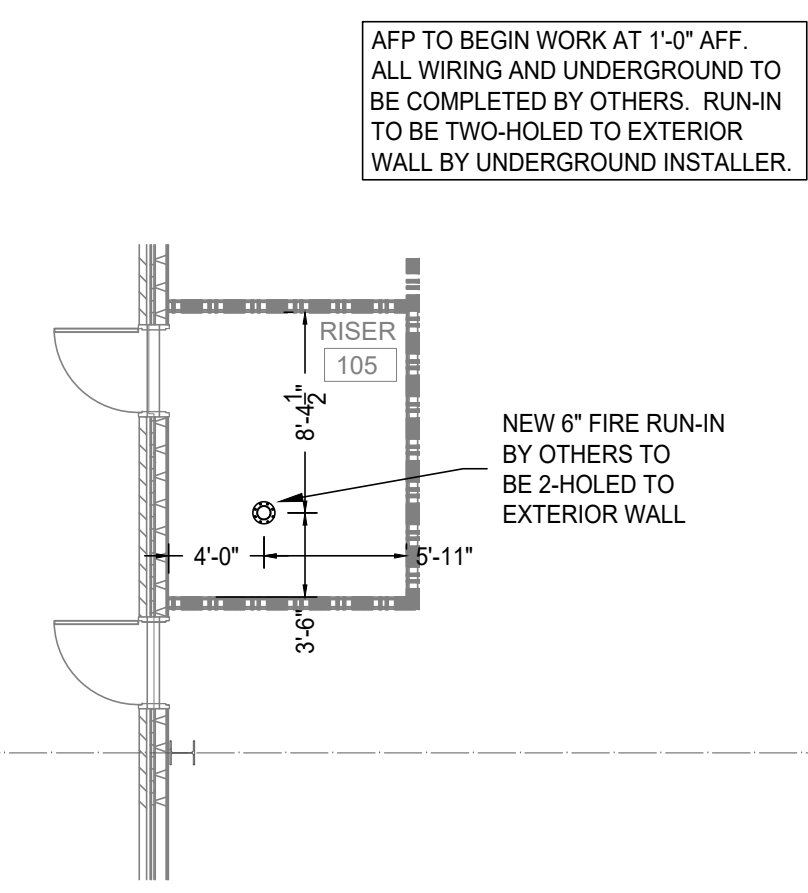
NOTES:
 1. REFER TO VICTAULIC SUBMITTAL 10 95 FOR ADDITIONAL DETAILS.



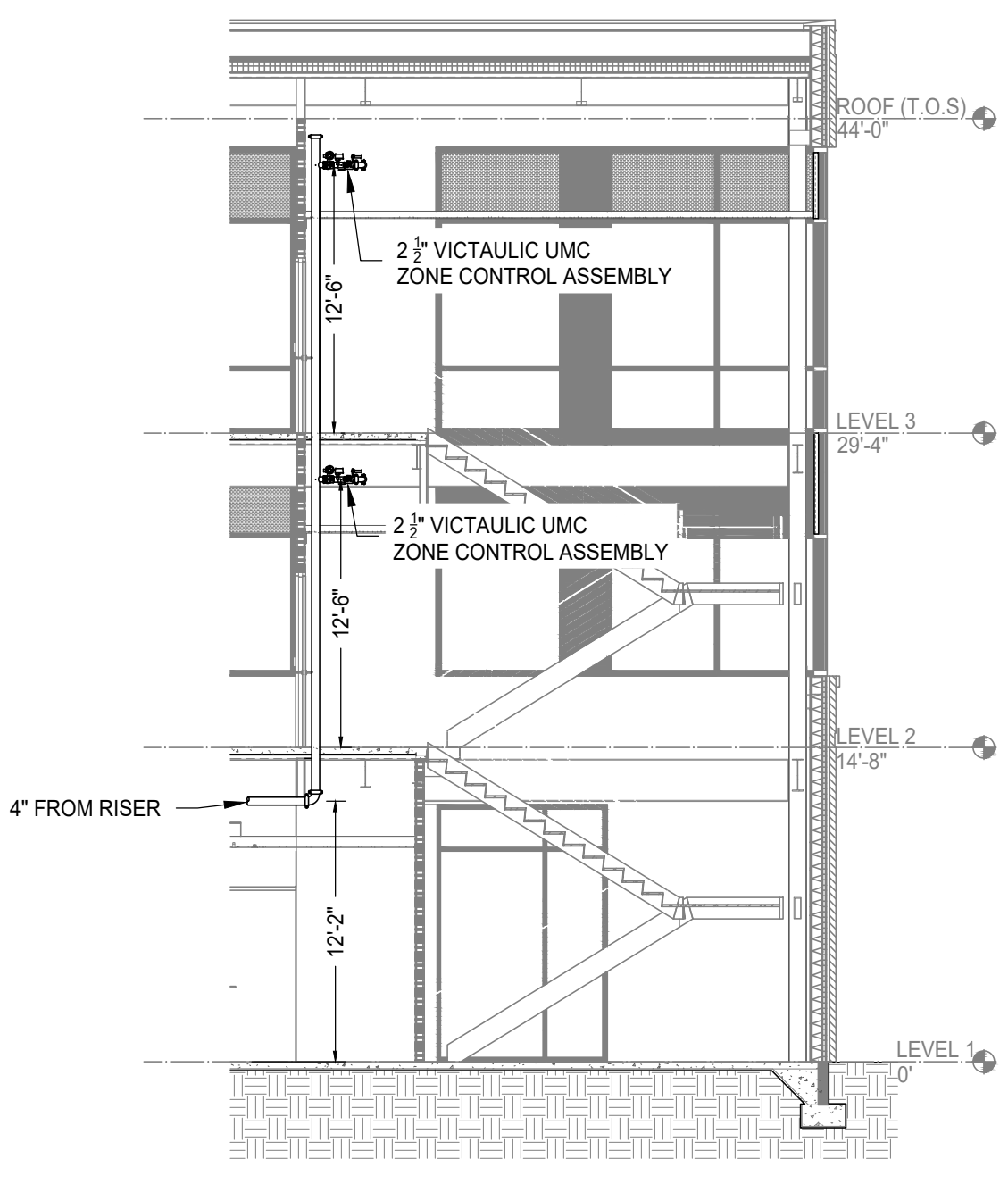
E VICFLEX AH1 FLEXIBLE SPRINKLER DROP DETAIL
 FP-1 SCALE: N.T.S.



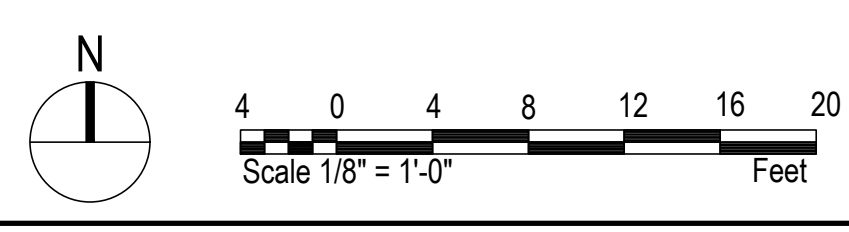
2 RISER DETAIL
 FP-1 SCALE: 1/2"=1'-0"



3 FIRE RUN-IN DETAIL
 FP-1 SCALE: 1/8"=1'-0"



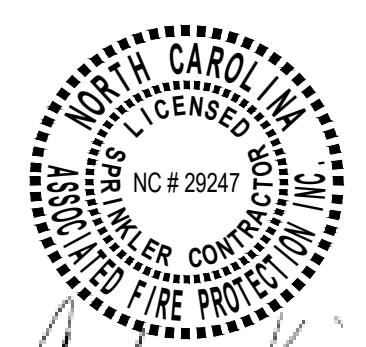
4 STANDPIPE DETAIL
 FP-1 SCALE: 1/8"=1'-0"



REVISIONS	
No.	Date-Description
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SYSTEM SYMBOL DESCRIPTION	
SYMBOL	DESCRIPTION
FD	FIRE DEPARTMENT CONNECTION
HP	HYDRAULIC REFERENCE POINT
7-7	CENTERLINE OF PIPE ABOVE FINISH FLOOR
7-7	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION		TOTAL	
SYMBOL	S.I.N.#	TEMP	K-FACTOR
○	V2708	155 F	5.6
○	V2704	155 F	5.6
○	V2706	155 F	5.6
○	V2710	200 F	5.6
TOTAL SPRINKLERS SHOWN IN THIS AREA		175	520
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT			520

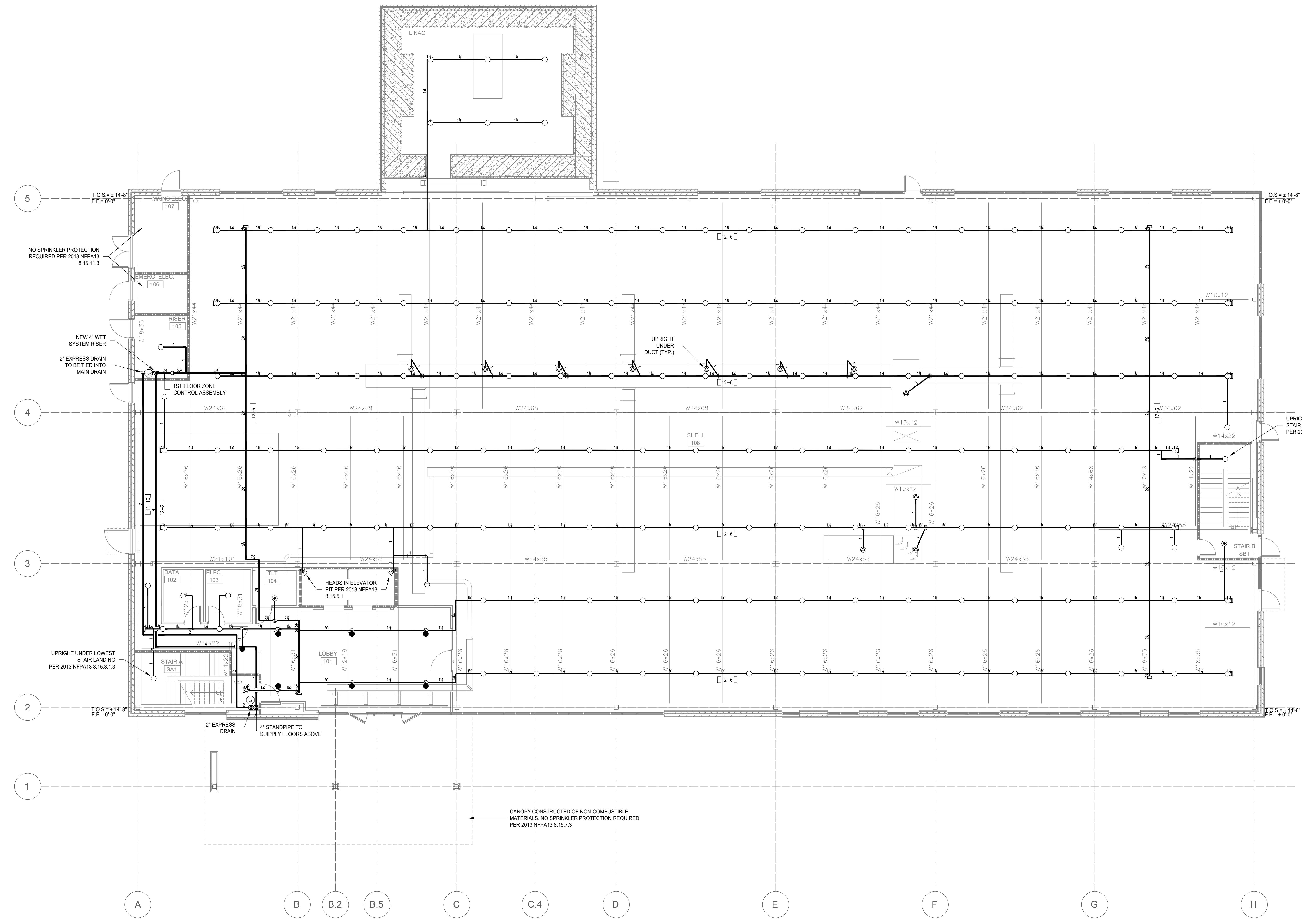
Seal:

 Andrew King, NICET Level III #152401

PROJECT:
CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGTON, NC

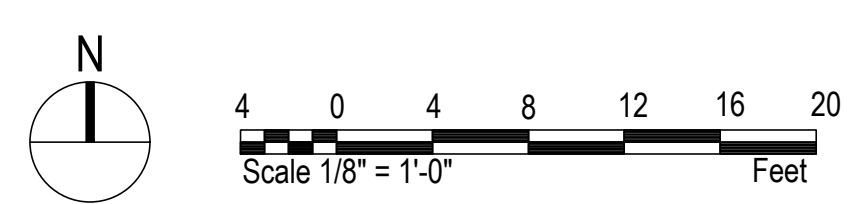
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Date: 10.19.23
 Scale: As Noted
 Job No.: EDW-1551
 Drawn By: WLH
 Sheet Name: **FIRST FLOOR PIPING PLAN**
 Sheet No.: **FP-2**




1 FIRST FLOOR PIPING PLAN
 FP-2 SCALE: 1/8"=1'-0"



REVISIONS	
No.	Date-Description
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SYSTEM SYMBOL DESCRIPTION	
SYMBOL	DESCRIPTION
⊠	FIRE DEPARTMENT CONNECTION
⊞	HYDRAULIC REFERENCE POINT
⊟	CENTERLINE OF PIPE ABOVE FINISH FLOOR
⊠	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION		TOTAL	
SYMBOL	S.I.N.#	TEMP	K-FACTOR
⊙	V2708	155 F	5.6
⊙	V2704	155 F	5.6
⊙	V2710	200 F	5.6
TOTAL SPRINKLERS SHOWN IN THIS AREA		160	520
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT			

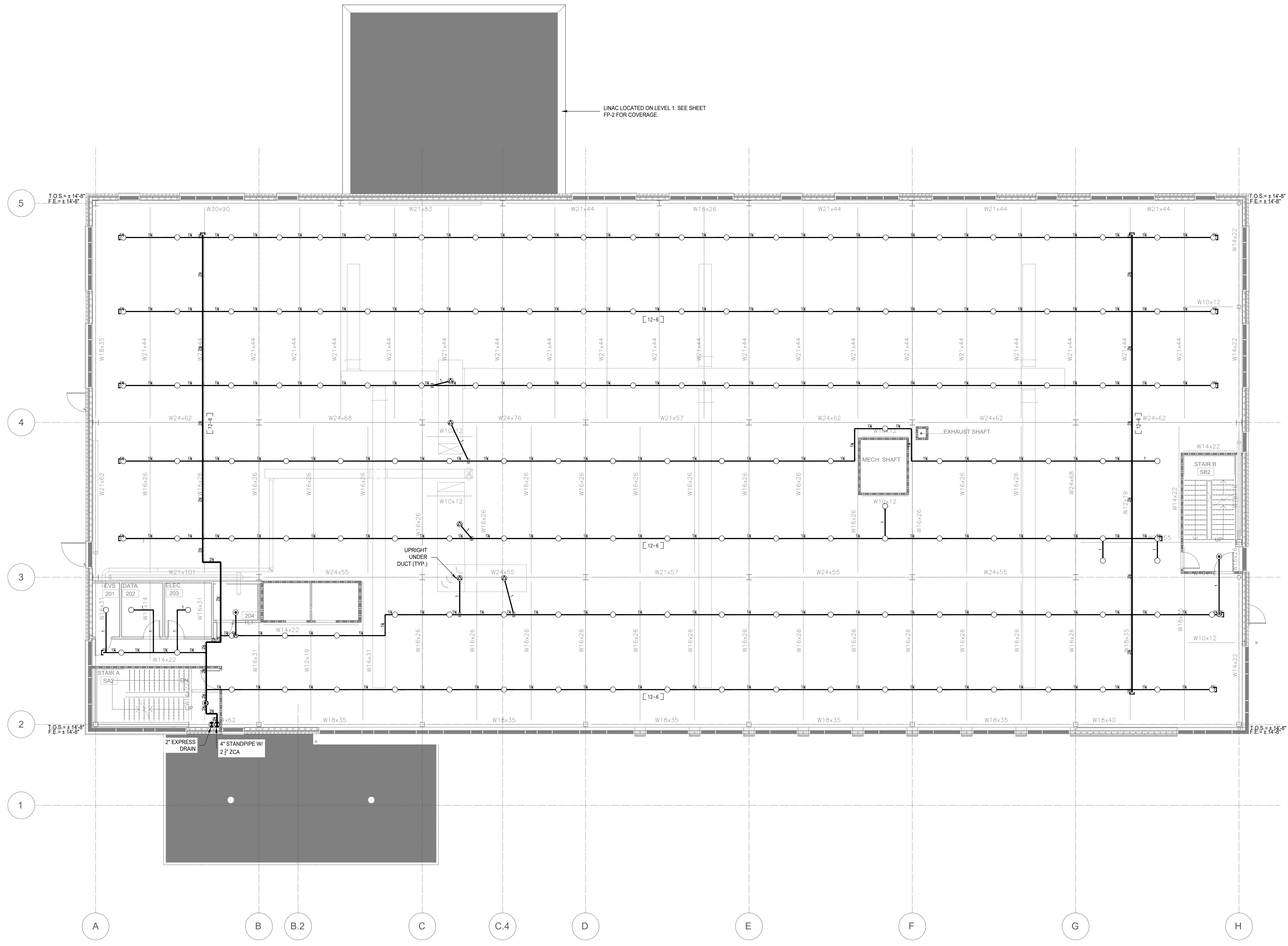
Seal:

 Andrew King, NICET Level III #152401

PROJECT:
CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGTON, NC

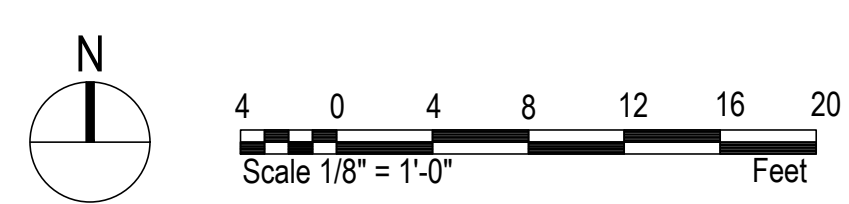
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Date: 10.19.23
 Scale: As Noted
 Job No.: EDW-1551
 Drawn By: WLH
 Sheet Name: SECOND FLOOR PIPING PLAN
 Sheet No.: FP-3




1 SECOND FLOOR PIPING PLAN
 FP-3 SCALE: 1/8"=1'-0"



REVISIONS	
No.	Date-Description
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SYSTEM SYMBOL DESCRIPTION	
SYMBOL	DESCRIPTION
FD	FIRE DEPARTMENT CONNECTION
HP	HYDRAULIC REFERENCE POINT
CP	CENTERLINE OF PIPE ABOVE FINISH FLOOR
CB	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION		TOTAL	
SYMBOL	S.I.N.#	SIZE	TEMP
○	V2708	1/2"	155 F
○	V2704	1/2"	155 F
●	V8006	1/2"	155 F
▽	V2710	1/2"	200 F
TOTAL SPRINKLERS SHOWN IN THIS AREA		175	520
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT			

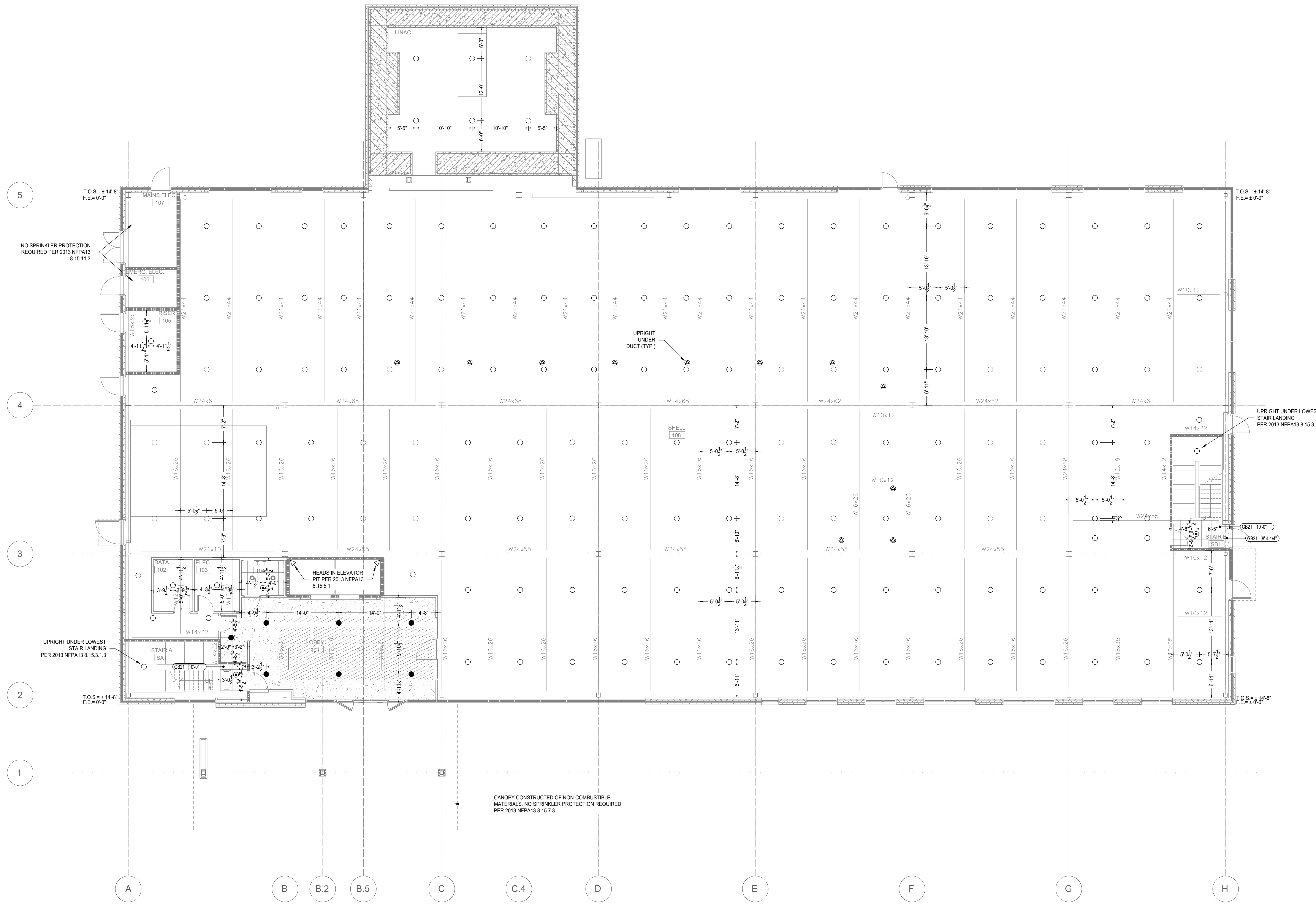
Seal:

 Andrew King, NICET Level III #152401

PROJECT:
CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGSTON, NC

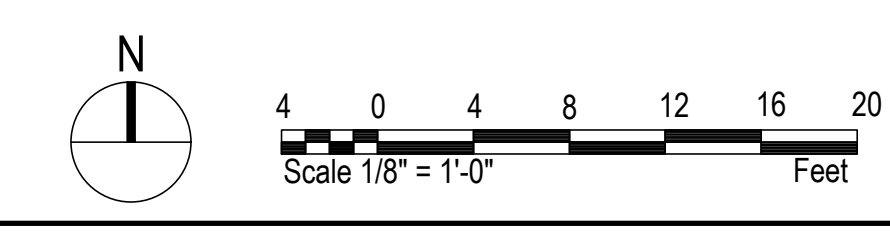
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Date: 10.19.23
 Scale: As Noted
 Job No.: EDW-1551
 Drawn By: WLH
 Sheet Name:
FIRST FLOOR REFLECTED CEILING PLAN
 Sheet No.: FP-5



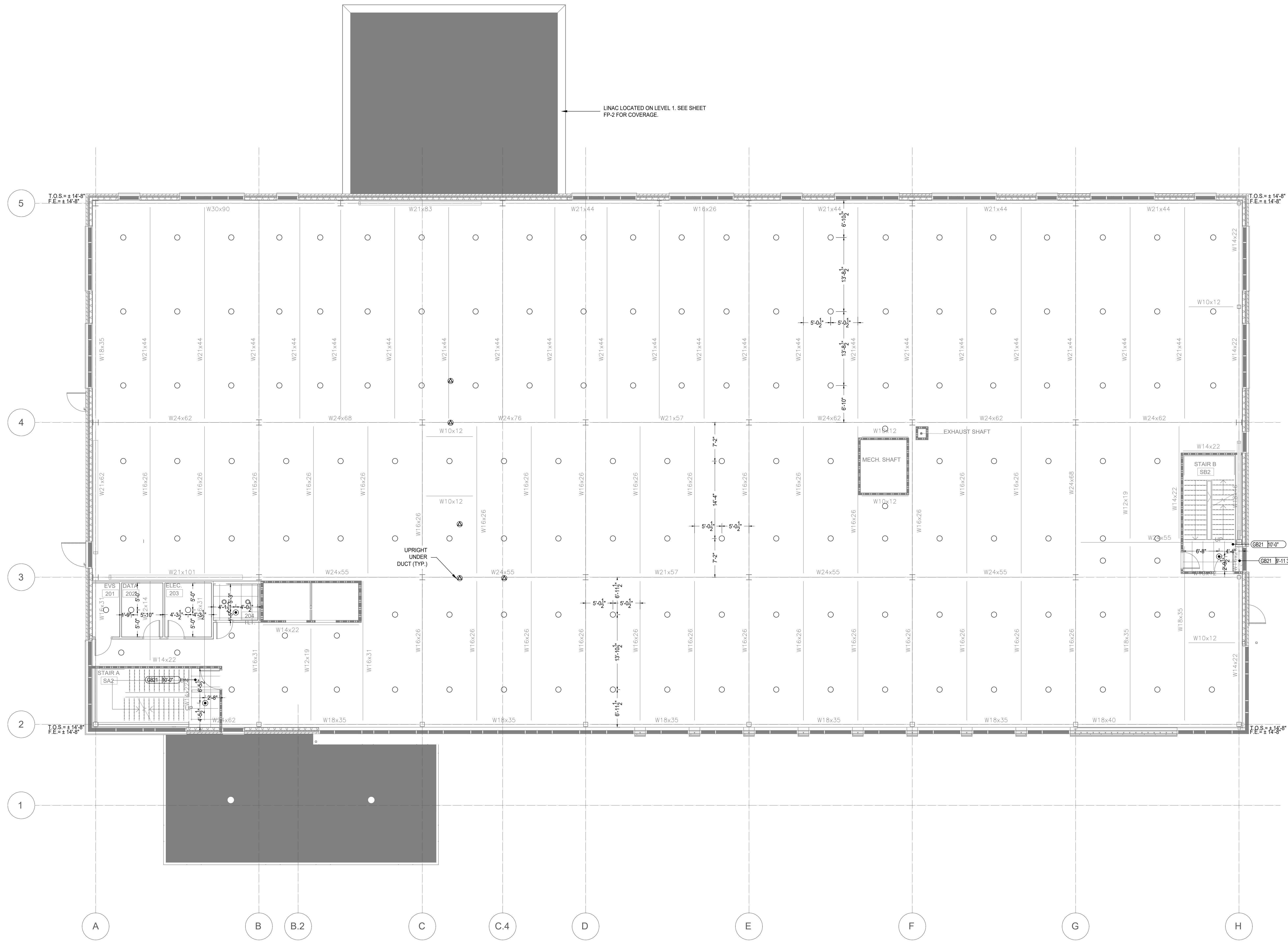
1 FIRST FLOOR REFLECTED CEILING PLAN
 FP-5 SCALE: 1/8"=1'-0"



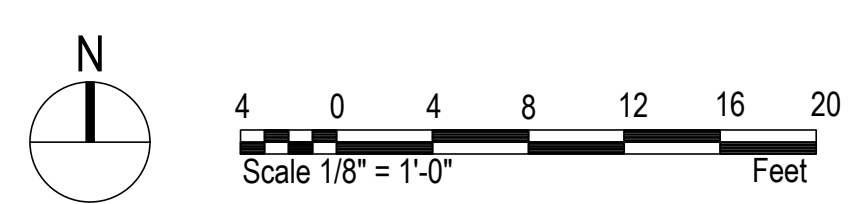
REVISIONS	
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SYSTEM SYMBOL DESCRIPTION	
SYMBOL	DESCRIPTION
⊠	FIRE DEPARTMENT CONNECTION
⊞	HYDRAULIC REFERENCE POINT
⊞	CENTERLINE OF PIPE ABOVE FINISH FLOOR
⊞	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION										
SYMBOL	S.I.N.#	SIZE	STYLE	MAKE	FINISH	MODEL	MIN. SPACING	MAX. SPACING	TEMP.	K-FACTOR
○	V2706	1/2"	ISSORCP	Victaulic	CHROME	Pendent	6'-0"	15'-0"	155 F	5.6
○	V2704	1/2"	ISSORCP	Victaulic	BRASS	Upright	6'-0"	15'-0"	155 F	5.6
○	V9006	1/2"	ISSORCP	Victaulic	WHITE	Concealed	6'-0"	15'-0"	155 F	5.6
○	V2710	1/2"	ISSORCP	Victaulic	BRASS	Stairwall	6'-0"	15'-0"	200 F	5.6
TOTAL SPRINKLERS SHOWN IN THIS AREA										100
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT										500



1
 FP-6
 SECOND FLOOR REFLECTED CEILING PLAN
 SCALE: 1/8"=1'-0"



Seal:

 Andrew King, NICET Level III #152401

PROJECT:
 CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGTON, NC

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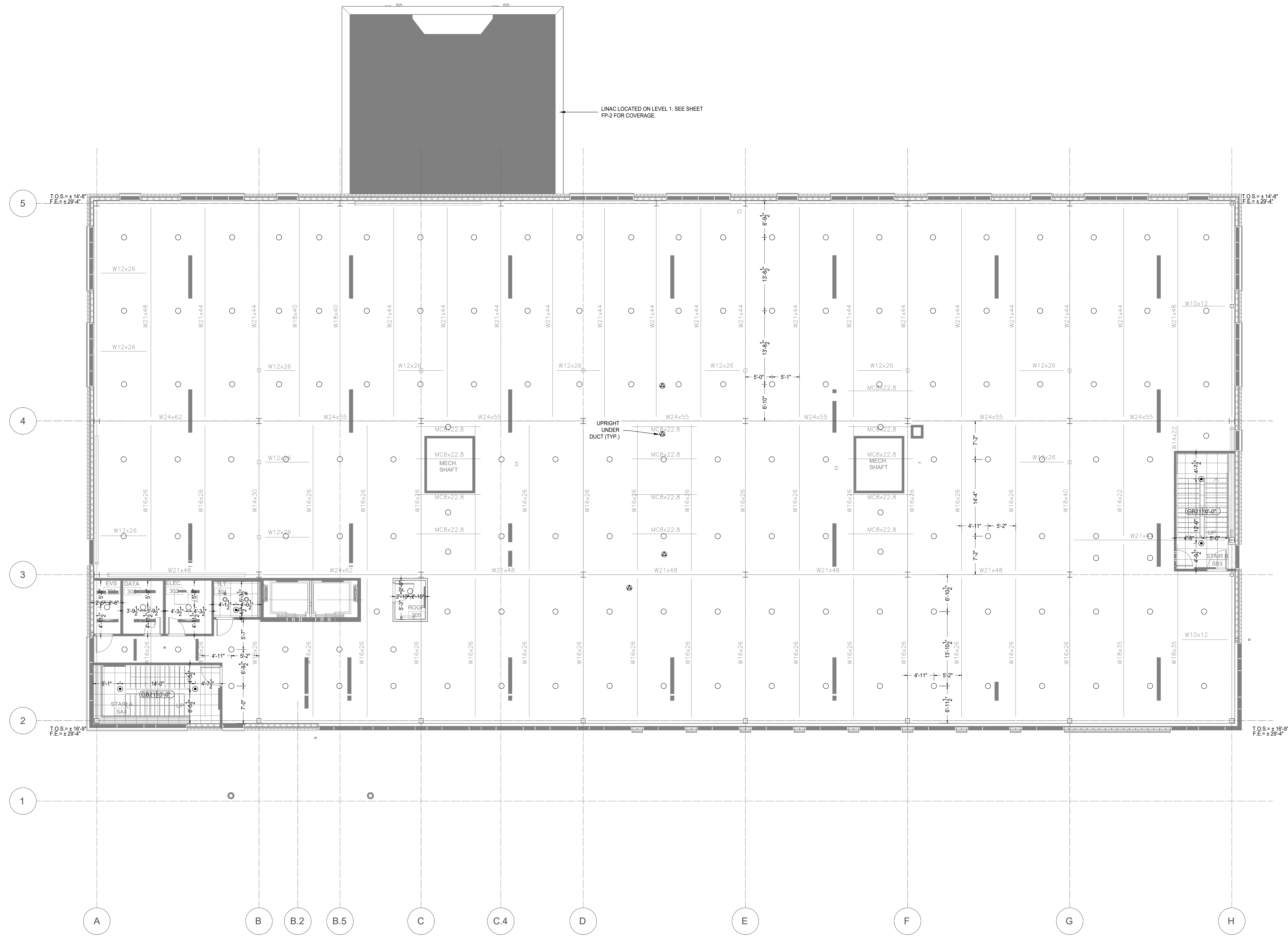
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Date:	10.19.23
Scale:	As Noted
Job No.:	EDW-1551
Drawn By:	WLH
Sheet Name:	SECOND FLOOR REFLECTED CEILING PLAN
Sheet No.:	FP-6

REVISIONS	
No.	Date-Description
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SYSTEM SYMBOL DESCRIPTION	
SYMBOL	DESCRIPTION
⊠	FIRE DEPARTMENT CONNECTION
(H)	HYDRAULIC REFERENCE POINT
[7-7]	CENTERLINE OF PIPE ABOVE FINISH FLOOR
[? m]	CENTERLINE OF PIPE BELOW TOP OF STEEL

SPRINKLER SYMBOL DESCRIPTION										
SYMBOL	S.I.N.#	SIZE	STYLE	MAKE	FINISH	MODEL	MIN. SPACING	MAX. SPACING	TEMP.	K-FACTOR
○	V2708	1/2"	ISSORCP	Victaulic	CHROME	Pendent	6'-0"	15'-0"	155 F	5.6
○	V2704	1/2"	ISSORCP	Victaulic	BRASS	Upright	6'-0"	15'-0"	155 F	5.6
○	V2706	1/2"	ISSORCP	Victaulic	WHITE	Concealed	6'-0"	15'-0"	155 F	5.6
○	V2710	1/2"	ISSORCP	Victaulic	BRASS	Stairwall	6'-0"	15'-0"	200 F	5.6
TOTAL SPRINKLERS SHOWN IN THIS AREA										105
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT										500



Seal:

 Andrew King, NICET Level III #152401

PROJECT:
 CAPE FEAR MOB - SHELL
 215 BRIGHTWATER DRIVE
 LILLINGTON, NC

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Date:	10.19.23
Scale:	As Noted
Job No.:	EDW-1551
Drawn By:	WLH
Sheet Name:	THIRD FLOOR REFLECTED CEILING PLAN
Sheet No.:	FP-7

