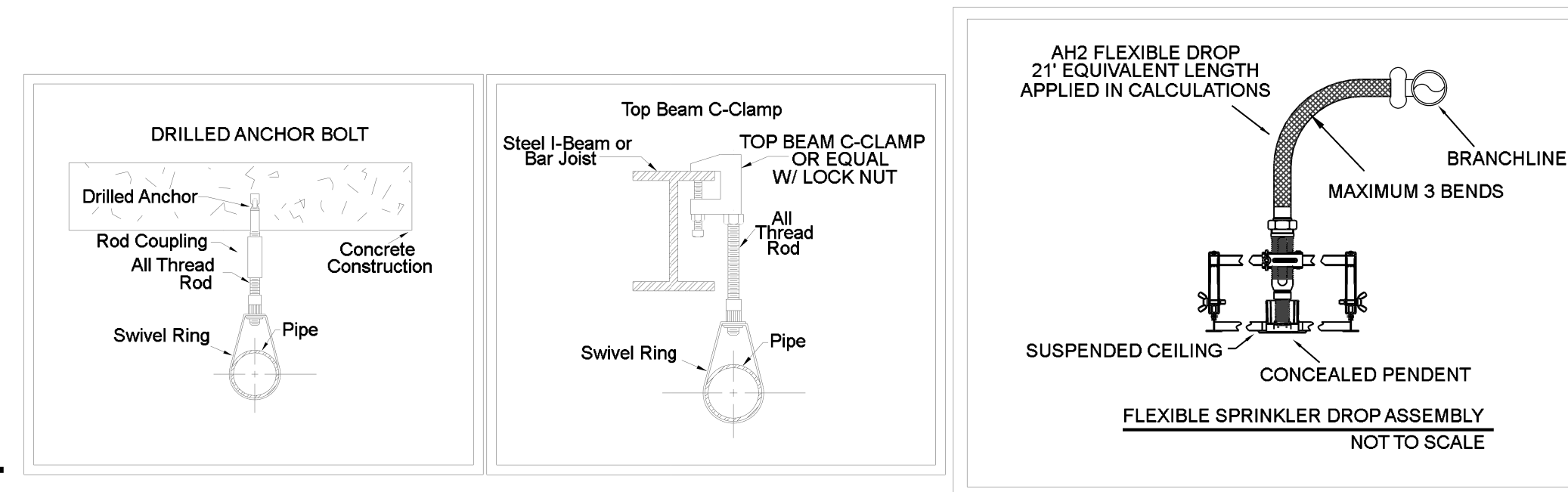


HANGER DETAILS



	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE EXCEPT THREADED LIGHTWALL	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
THREADED LIGHTWALL STEEL PIPE	NA	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA

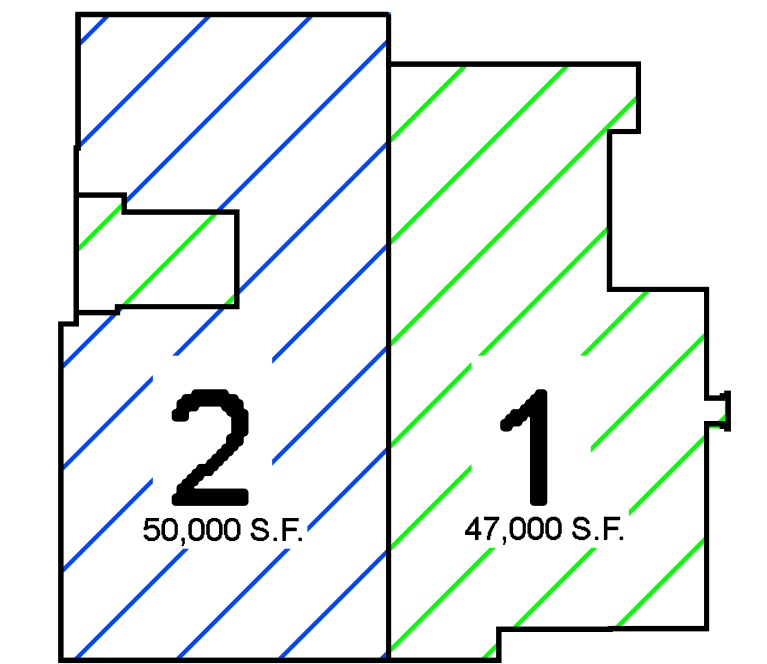
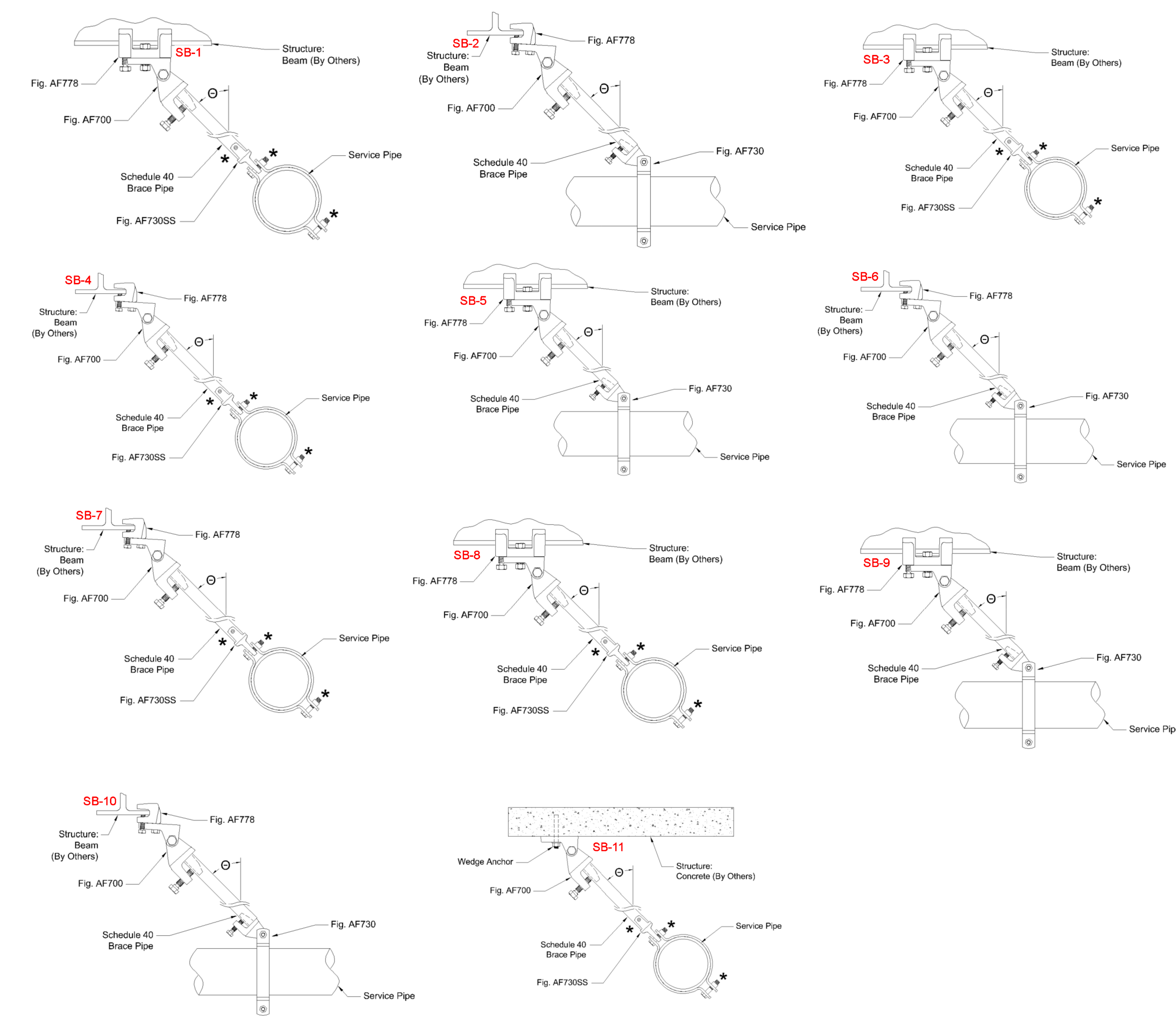
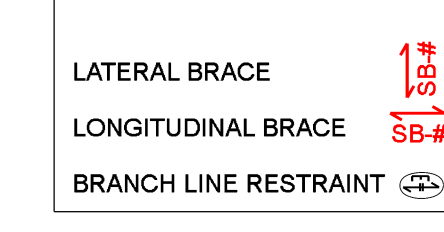
GENERAL INFORMATION

- INTERNATIONAL BUILDING CODE (2018)
 - OCCUPANCY: TYPE B, S-1
 - TYPE OF CONSTRUCTION: II-B (NON-COMBUSTIBLE CONSTRUCTION)
 - SPRINKLERED AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - MAIN FLOOR = 104,632 S.F.
 - MEZZANINES = 4,243 S.F.
 - DESIGN & INSTALLATION STANDARDS: NFPA-13 (2016)
- SPRINKLER PIPE TYPES:
 - WET
 - 1" PIPE TO BE SCHEDULE 40 BLACK STEEL W/ THREADED FITTINGS
 - 2" 1-1/4" THROUGH 4" MAINS & BRANCH LINES TO BE BLK SCHEDULE 10 W/ GROOVED FITTINGS
 - 3" 1" OUTLETS CONNECTED TO FLEXDROPS
 - 4" MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK SCHEDULE 10
 - 2" AND LARGER TO USE GROOVED SHORT RADIUS FITTINGS
- DESIGN CRITERIA:
 - LIGHT HAZARD AREAS INCLUDE OFFICE/ADMINISTRATIVE, RESTROOMS, CORRIDORS, AND CUSTOMER LOUNGE
 - ORDINARY HAZARD GROUP I AREAS INCLUDE MECHANICAL, ELECTRICAL, SERVICE, AND SHOW ROOMS
 - ORDINARY HAZARD GROUP II AREAS INCLUDE FIRE RISER, OIL, STORAGE, FILE, AND TOOL ROOMS, MEZZANINES, PARTS DELIVERY, AND JANITOR CLOSETS
 - REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 11.2.3.2.3
- NOTES:
 - ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
 - HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING
 - SCOPE OF WORK:
 - INSTALL A COMPLETE TWO WET ZONE FIRE SPRINKLER SYSTEM TO COVER ALL AREAS OF BUILDING
 - ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13, 2016 EDITION

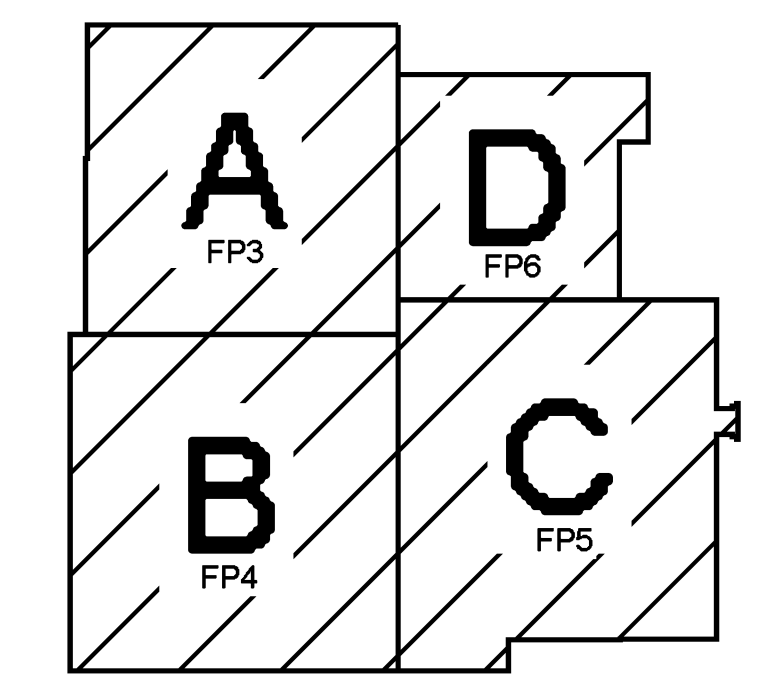
SEISMIC DETAILS

NAME	MAX SPACING	BRACE TYPE	PIPE BRACED	STRUCTURE	ORIENTATION
SB-1	27'-4"	LATERAL	4" SCH 10	BAR JOIST	PARALLEL
SB-2	60'	LONGITUDINAL	4" SCH 10	BAR JOIST	PERPENDICULAR
SB-3	20'	LATERAL	3" SCH 10	BAR JOIST	PARALLEL
SB-4	20'	LATERAL	3" SCH 10	BAR JOIST	PERPENDICULAR
SB-5	80'	LONGITUDINAL	3" SCH 10	BAR JOIST	PARALLEL
SB-6	80'	LONGITUDINAL	3" SCH 10	BAR JOIST	PERPENDICULAR
SB-7	14'-1"	LATERAL	2.5" SCH 10	BAR JOIST	PERPENDICULAR
SB-8	14'-1"	LATERAL	2.5" SCH 10	BAR JOIST	PARALLEL
SB-9	80'	LONGITUDINAL	2.5" SCH 10	BAR JOIST	PARALLEL
SB-10	80'	LONGITUDINAL	2.5" SCH 10	BAR JOIST	PERPENDICULAR
SB-11		LATERAL	3" SCH 10	CONCRETE	

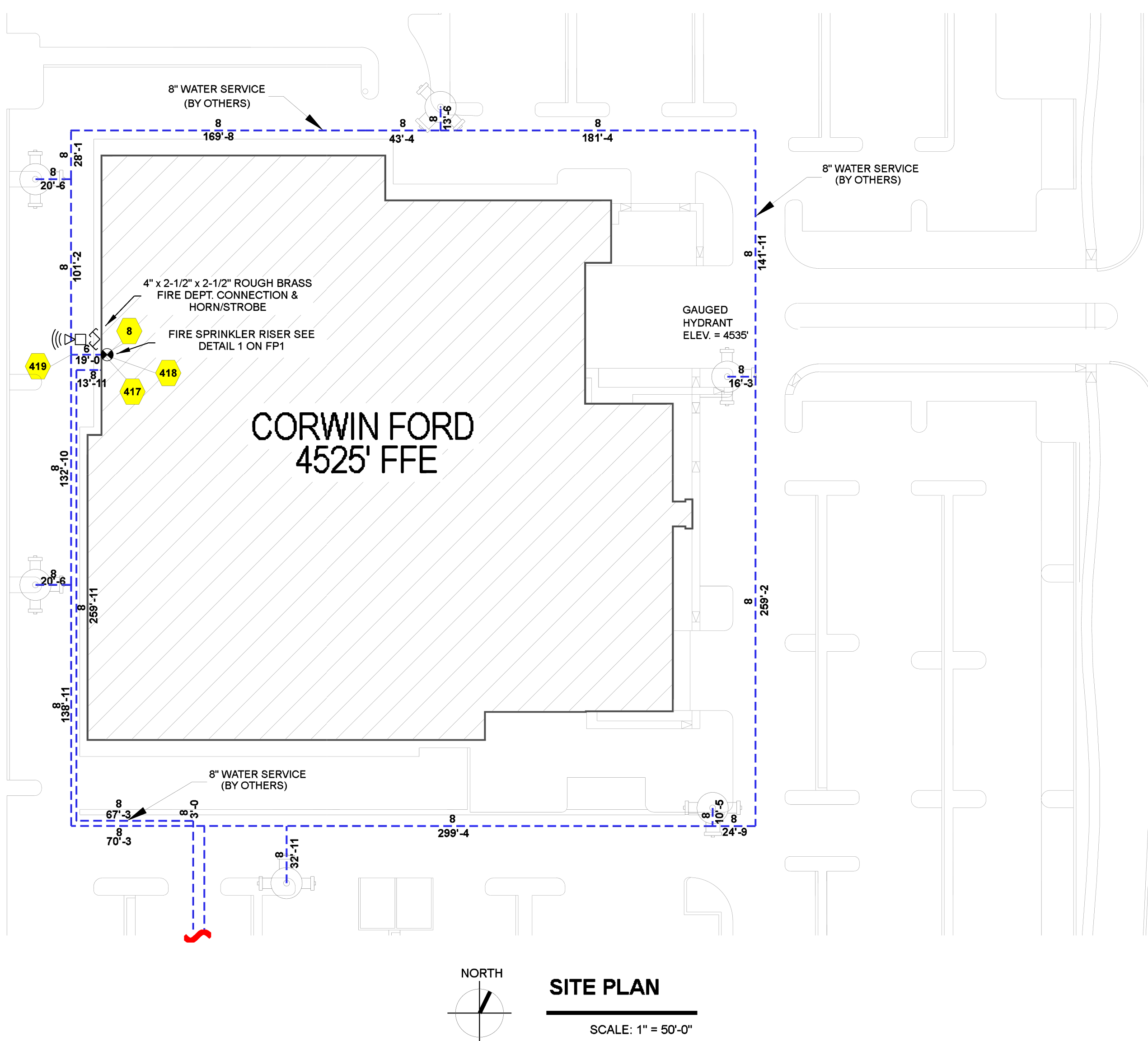
SEISMIC BRANCH LINE RESTRAINT (Cp=0.898):
 1" PIPE = 36'-0" MAX SPACING
 1-1/4" PIPE = 39'-0" MAX SPACING
 1-1/2" PIPE = 41'-0" MAX SPACING
 2" PIPE = 45'-0" MAX SPACING
 *BRANCH LINE RESTRAINT MAY BE OMITTED WITH CRVC HANGERS LISTED TO PROVIDE RESTRAINT PER NFPA 13 SEC. 9.3.6.1(4)



ZONE MAP



KEY PLAN



SITE PLAN

SCALE: 1" = 50'-0"

WATER SUPPLY INFORMATION - FLOW TEST DATA

STATIC PRESS	100	RESIDUAL PRESS	30	FLOOR OPEN	3125	DATE OF FLOW TEST	4/18/2023
FLOW TEST LOCATION	12" MAIN IN SOUTH HILLS						

SYMBOLS AND ABBREVIATIONS

- *x-FF-C PIPE ELEVATION ABOVE FINISH FLOOR
- *x-TS-C PIPE ELEVATION BELOW TOP OF STEEL
- [DHT] ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
- [J] HYDRAULIC CALCULATION JUNCTION POINT
- 9'-0" CEILING HEIGHT
- BAR JOIST
- WET BLACK STEEL PIPE

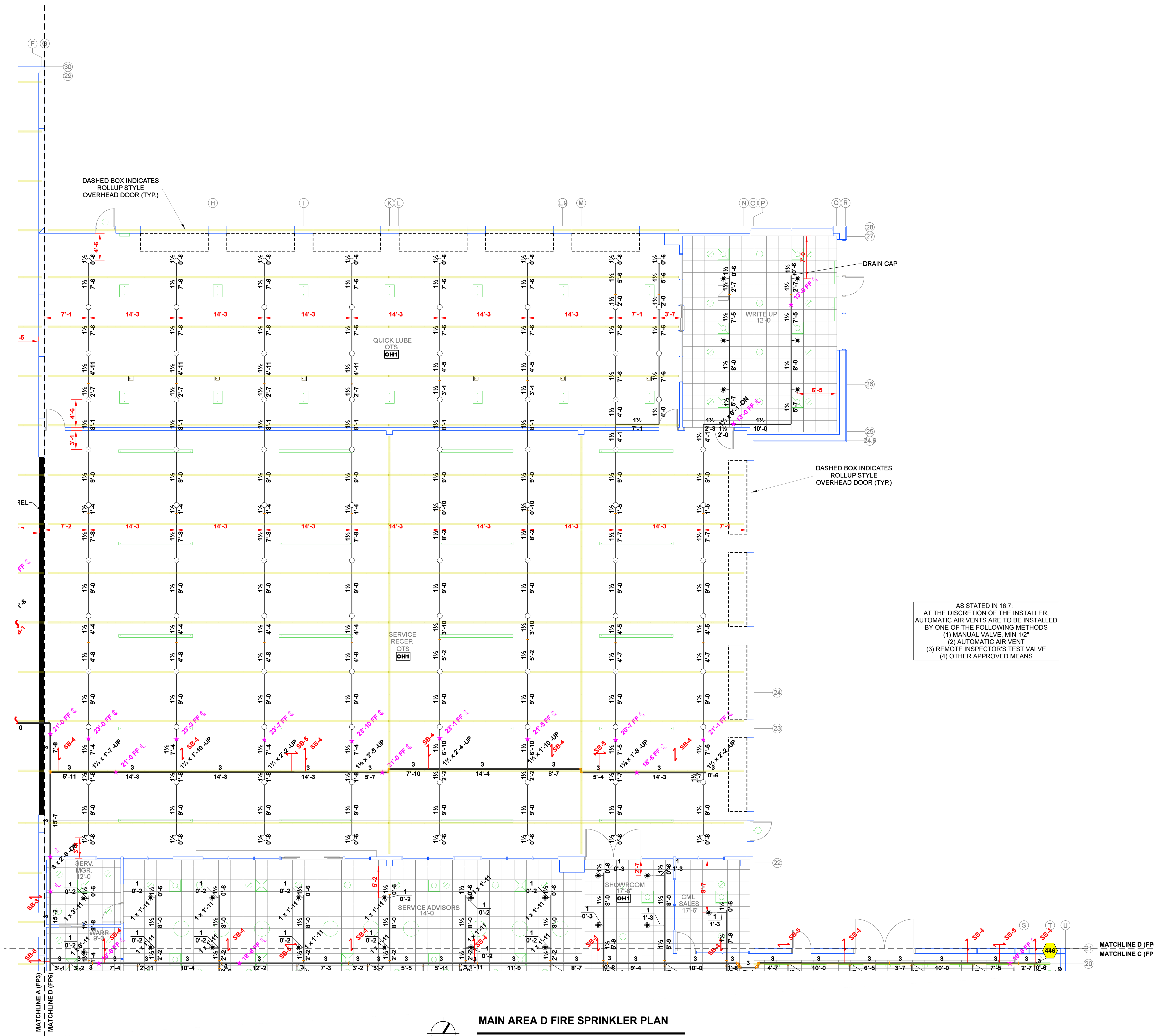
CONTRACTOR

SPRINKLER HEADS

QTY	SYMB.	HEAD TYPE	TEMP.	FINISH	ORIFICE	MODEL	CANOPY	SIN
260	○	PENDENT	200°F	BRASS	5.6 K	RFII	CONCEALED	TY3531
577	○	UPRIGHT	200°F	BRASS	8.0 K	TY-FRB	N/A	TY4131
3	○	SIDEWALL	200°F	BRASS	5.6 K	TY-FRB	HORIZONTAL	TY3331
38	○	PENDENT	200°F	BRASS	8.0 K	TY-FRB	N/A	TY4231
12	○	UPRIGHT	200°F	W. POLY	8.0 K	TY-FRB	N/A	TY4131
5	○	UPRIGHT	200°F	BRASS	8.0 K	TY-FRB	BELOW HVAC	TY4131
895		TOTAL						

CONTRACT RESPONSIBILITIES

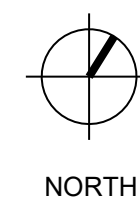
ITEM	OFF	OTHERS
STREET WATER CONNECTION		
UNDERGROUND WATER MAINS		
EXCAVATION		
BACKFILL		
WIRING		
PAINTING		
	NO	DATE
		BY



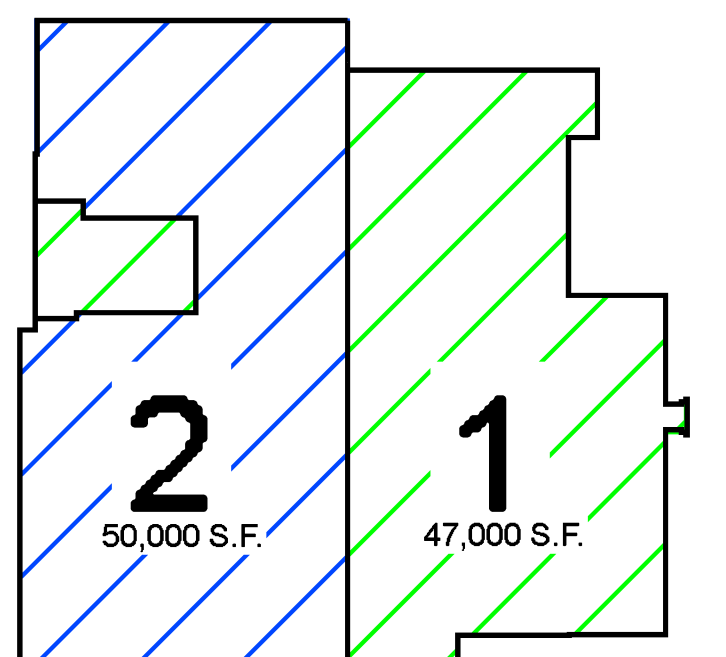
AS STATED IN 16.7:
 AT THE DISCRETION OF THE INSTALLER,
 AUTOMATIC AIR VENTS ARE TO BE INSTALLED
 BY ONE OF THE FOLLOWING METHODS:
 (1) MANUAL VALVE MIN 1/2"
 (2) AUTOMATIC AIR VENT
 (3) REMOTE INSPECTOR'S TEST VALVE
 (4) OTHER APPROVED MEANS

MAIN AREA D FIRE SPRINKLER PLAN

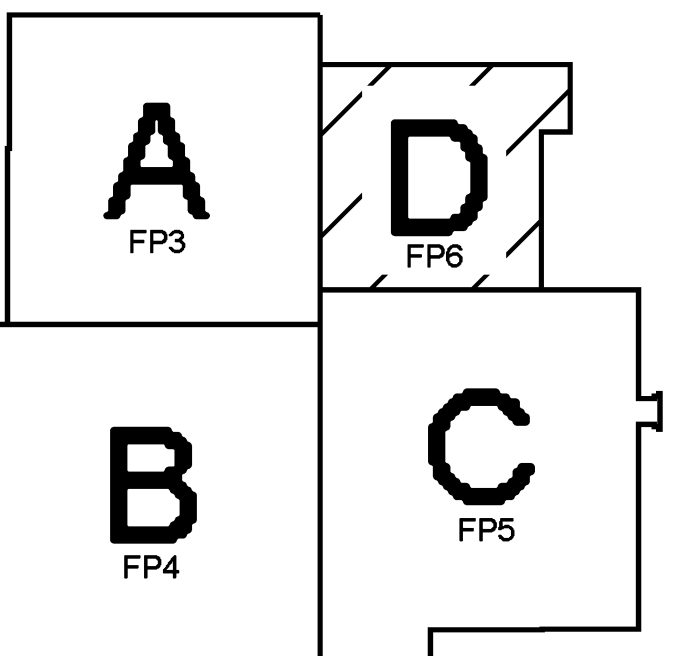
SCALE: 1/8" = 1'-0"



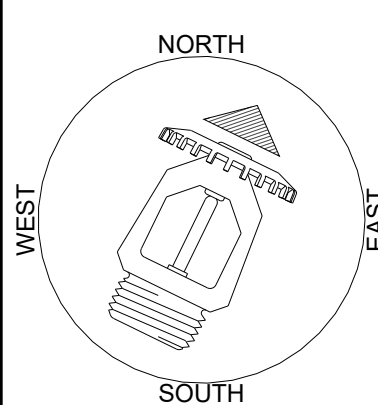
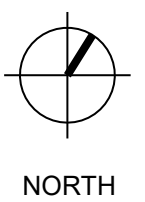
AREA D SPRINKLER LEGEND											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY3531	Royal Flush II	42	5.6	Concealed Pendant	1/2"	Quick	Brass	200 °F	N/A
○	Tyco	TY4131	TY-FRB	96	8	Upright	3/4"	Quick	Natural Brass	200 °F	N/A
				Total = 138							



ZONE MAP



KEY PLAN



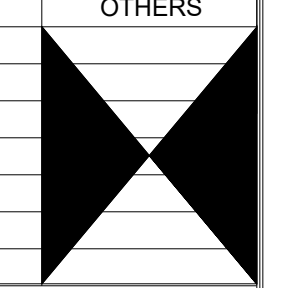
WATER SUPPLY INFORMATION - FLOW TEST DATA				
WATER PRESS	100	RESIDUAL PRESS	30	FLOW TEST DATE
FLOW TEST LOCATION	12" MAIN IN SOUTH HILLS			
		FLOOR	3125	DATE OF FLOW TEST
				4/18/2023

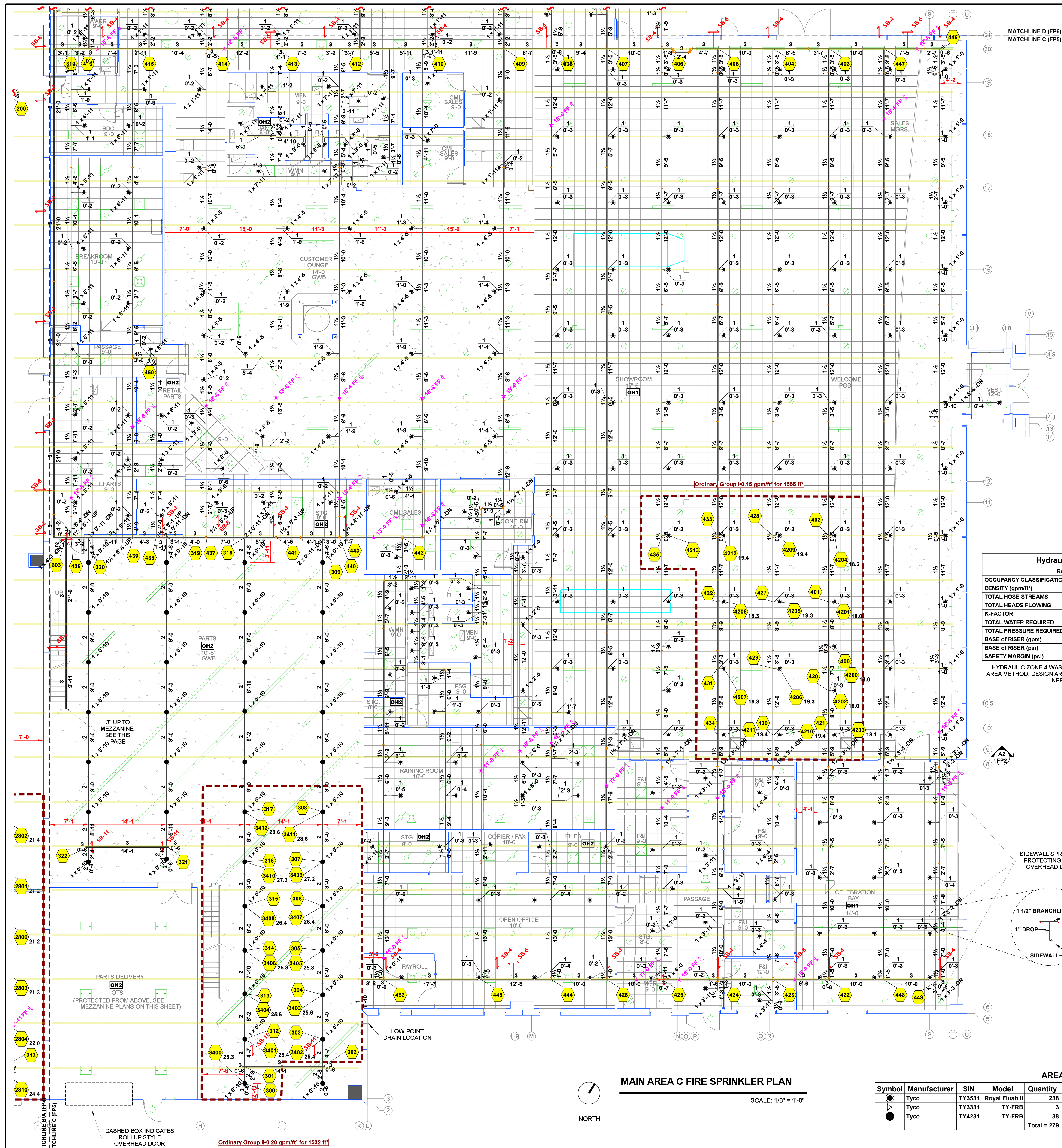
SYMBOLS AND ABBREVIATIONS	
●	PIPE ELEVATION ABOVE FINISH FLOOR
○	PIPE ELEVATION BELOW TOP OF STEEL
DH1	ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
○	HYDRAULIC CALCULATION JUNCTION POINT
9'-0"	CEILING HEIGHT
—	BAR JOIST
—	WET BLACK STEEL PIPE

CONTRACTOR	

SPRINKLER HEADS									
QTY	SYMB.	HEAD TYPE	TEMP.	FINISH	ORIFICE	MODEL	CANOPY	SIN	NOTE
260	●	PENDENT	200 °F	BRASS	5.6 K	RFII	CONCEALED	TY3531	
577	○	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4131	
3	●	SIDEWALL	200 °F	BRASS	5.6 K	TY-FRB	HORIZONTAL	TY3531	
38	○	PENDENT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4231	
12	○	UPRIGHT	200 °F	W. POLY	8.0 K	TY-FRB	N/A	TY4131	
5	○	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	BELOW HVAC	TY4131	
895		TOTAL							

CONTRACT RESPONSIBILITIES			
ITEM	OFF	OTHERS	
STREET WATER CONNECTION			
UNDERGROUND WATER MAINS			
EXCAVATION			
BACKFILL			
WIRING			
PAINTING			
NO.	DATE	BY	





MAIN AREA C FIRE SPRINKLER PLAN
SCALE: 1/8" = 1'-0"

Hydraulic Information

Remote Area 4	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft ²)	0.15 for 1500 ft ² (Actual 1555 ft ²)
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	14
K-FACTOR	5.8
TOTAL WATER REQUIRED	517.1
TOTAL PRESSURE REQUIRED	52.0
BASE OF RISER (gpm)	517.1
BASE OF RISER (psi)	52.0
SAFETY MARGIN (psi)	+45.5 (46.6%)

HYDRAULIC ZONE 4 WAS CALCULATED USING THE DENSITY / AREA METHOD. DESIGN AREA WAS SIZED IN ACCORDANCE WITH NFPA 13, 11.2.3.2.3

MEZZANINE SPRINKLER LEGEND

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Tyco	TY4131	TY-FRB	38	8 Upright	1/2	Quick	Natural Brass	200 °F	N/A	
⊗	Tyco	TY4131	TY-FRB	1	8 Upright	1/2	Quick	Natural Brass	200 °F	N/A	BELOW HVAC
Total = 39											

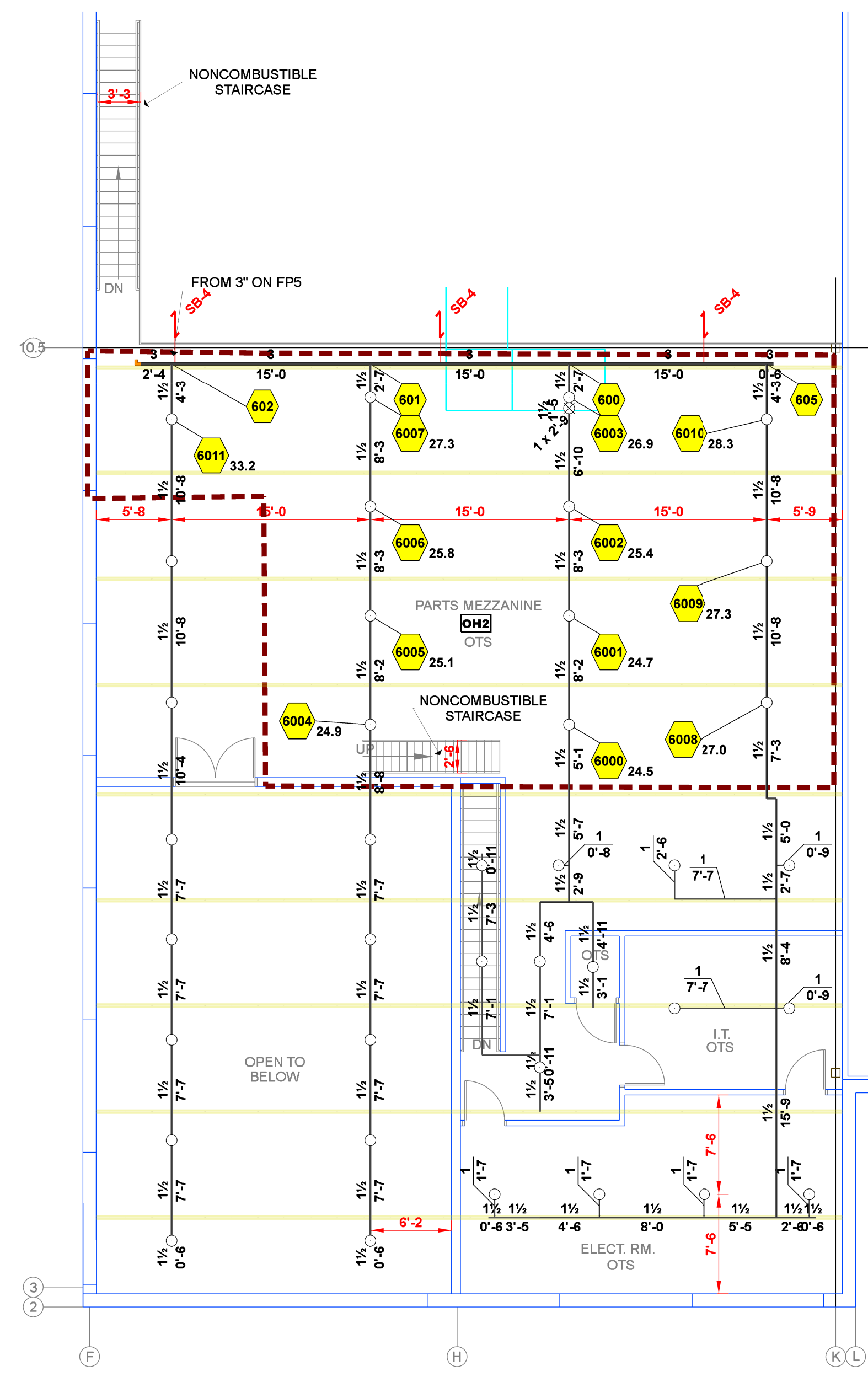
Hydraulic Information

Remote Area 3	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1532 ft ²)
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	13
K-FACTOR	8
TOTAL WATER REQUIRED	593.6
TOTAL PRESSURE REQUIRED	69.7
BASE OF RISER (gpm)	593.6
BASE OF RISER (psi)	69.7
SAFETY MARGIN (psi)	+27.0 (27.9%)

HYDRAULIC ZONE 3 WAS CALCULATED USING THE DENSITY / AREA METHOD. DESIGN AREA WAS SIZED IN ACCORDANCE WITH NFPA 13, 11.2.3.2.3

AREA C SPRINKLER LEGEND

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Tyco	TY3531	Royal Flush II	238	5.6 Concealed Pendant	1/2	Quick	Brass	200 °F	N/A	
○	Tyco	TY3331	TY-FRB	3	5.6 Horizontal Sidewall	1/2	Quick	Natural Brass	200 °F	N/A	
○	Tyco	TY4231	TY-FRB	38	8 Pendant	1/2	Quick	Natural Brass	200 °F	N/A	
Total = 279											

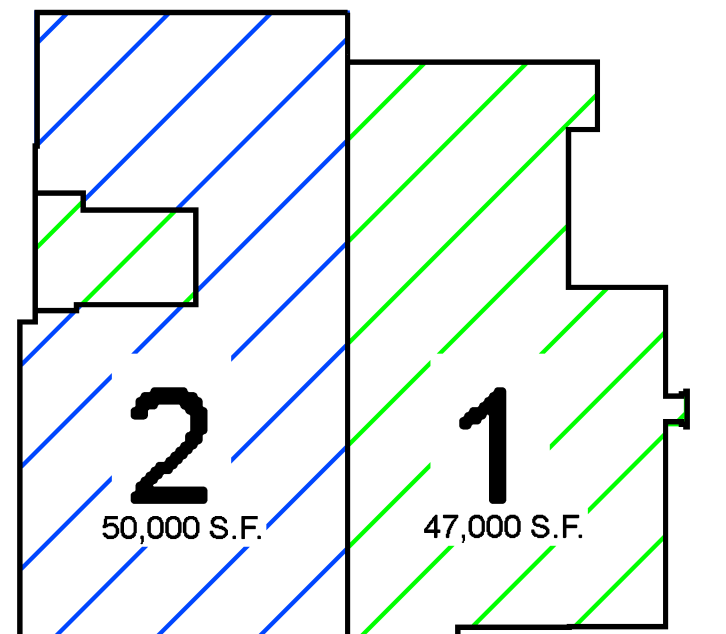


MEZZANINE AREA C FIRE SPRINKLER PLAN
SCALE: 1/8" = 1'-0"

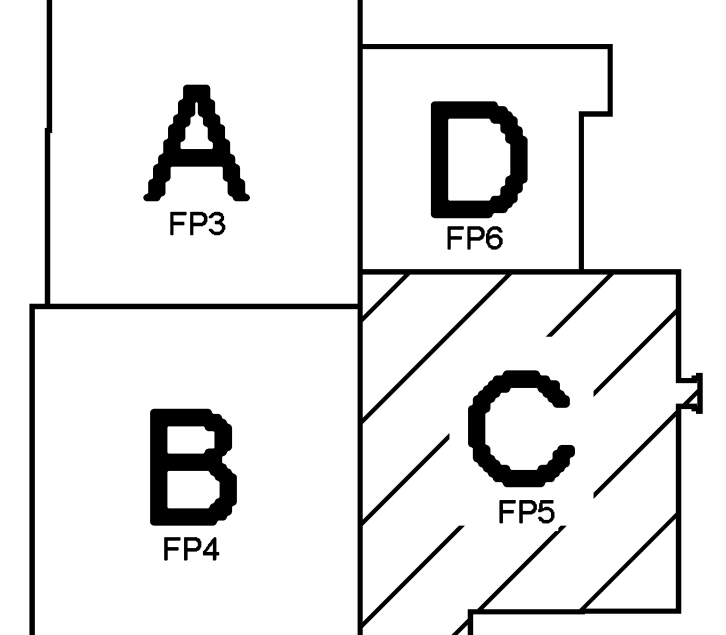
Hydraulic Information

Remote Area 6	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1555 ft ²)
TOTAL HOSE STREAMS	250.0
DRY CAPACITY	0 gpm
TOTAL HEADS FLOWING	12
K-FACTOR	8
TOTAL WATER REQUIRED	570.4
TOTAL PRESSURE REQUIRED	66.0
BASE OF RISER (gpm)	570.4
BASE OF RISER (psi)	66.0
SAFETY MARGIN (psi)	+31.0 (31.9%)

HYDRAULIC ZONE 6 WAS CALCULATED USING THE DENSITY / AREA METHOD. DESIGN AREA WAS SIZED IN ACCORDANCE WITH NFPA 13, 11.2.3.2.3



ZONE MAP



KEY PLAN

WATER SUPPLY INFORMATION - FLOW TEST DATA

DATE	4/18/2023
FLOW TEST	3125
12" MAIN IN SOUTH HILLS	

SYMBOLS AND ABBREVIATIONS

- x FF C PIPE ELEVATION ABOVE FINISH FLOOR
- x TS C PIPE ELEVATION BELOW TOP OF STEEL
- OH1 ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
- HYDRAULIC CALCULATION JUNCTION POINT
- 9'-0" CEILING HEIGHT
- BAR JOIST
- WET BLACK STEEL PIPE

CONTRACTOR

CONTRACT RESPONSIBILITIES	ITEM	OFF	OTHERS
	STREET WATER CONNECTION		
	UNDERGROUND WATER MAINS		
	EXCAVATION		
	BACKFILL		
	WIRING		
	PAINTING		

SPRINKLER HEADS

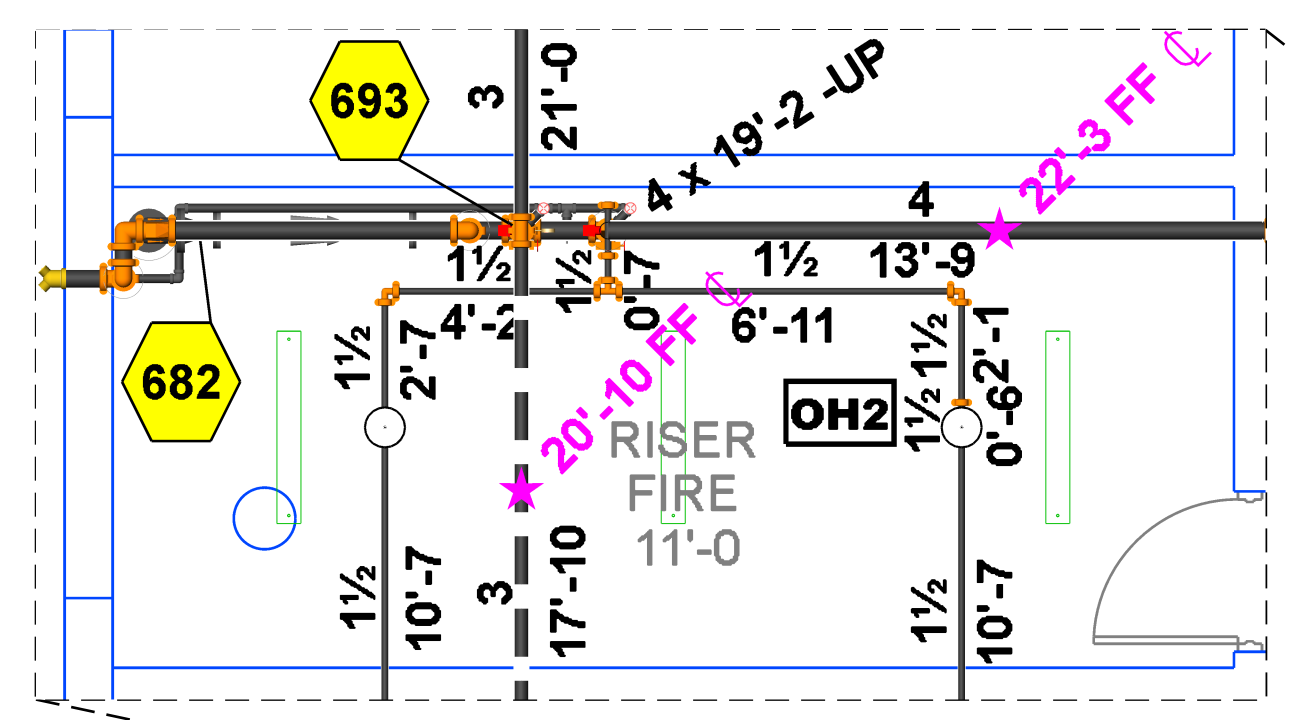
QTY	SYMB.	HEAD TYPE	TEMP.	FINISH	ORIFICE	MODEL	CANOPY	SIN
260	○	PENDENT	200 °F	BRASS	5.6 K	RFII	CONCEALED	TY3531
577	○	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4131
3	○	SIDEWALL	200 °F	BRASS	5.6 K	TY-FRB	HORIZONTAL	TY3331
38	○	PENDENT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4231
12	○	UPRIGHT	200 °F	W. POLY	8.0 K	TY-FRB	N/A	TY4131
5	⊗	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	BELOW HVAC	TY4131
895		TOTAL						

CONTRACT RESPONSIBILITIES

NO.	DATE	BY

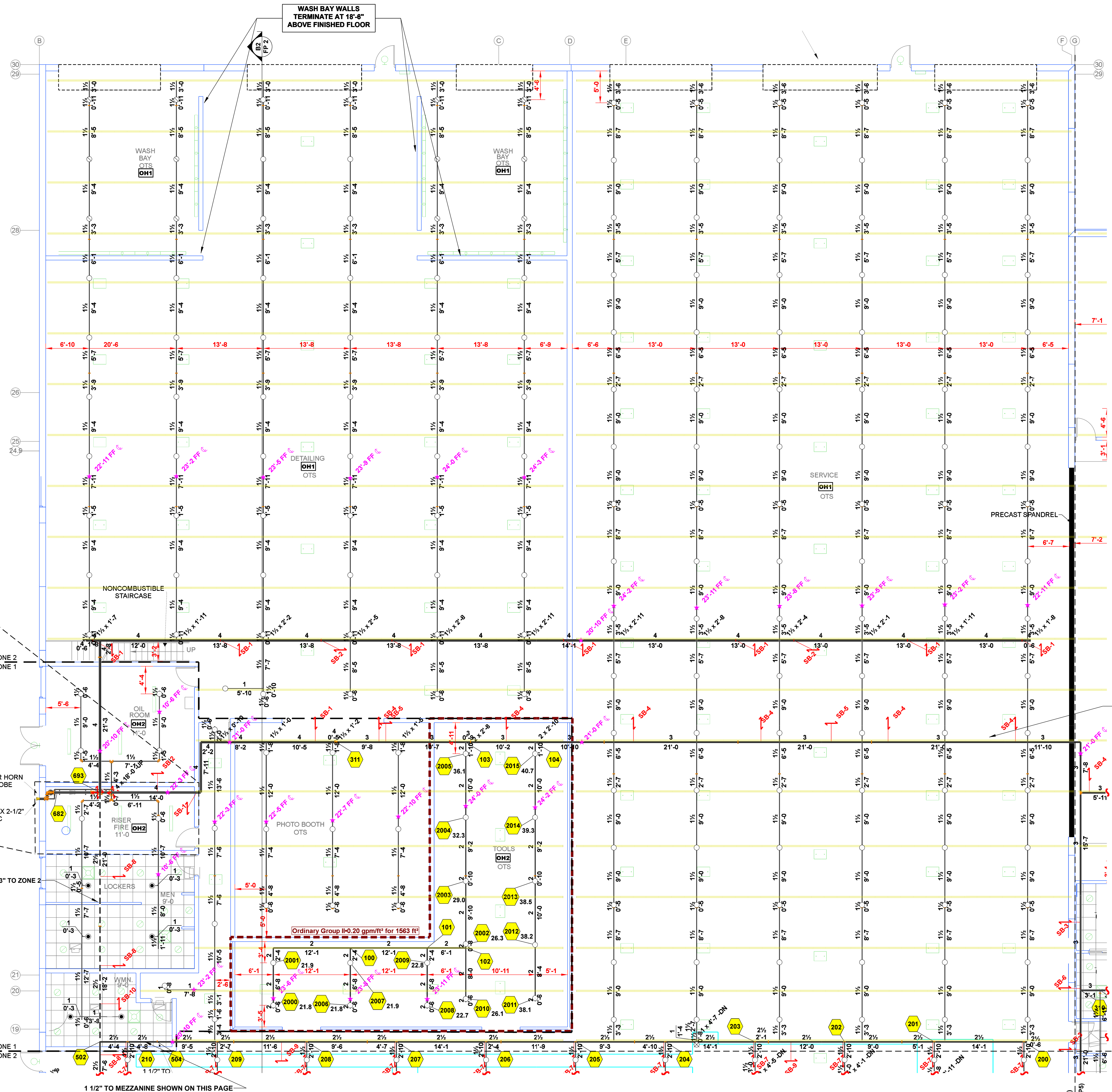
AS STATED IN 16.7:
AT THE DISCRETION OF THE INSTALLER,
AUTOMATIC AIR VENTS ARE TO BE INSTALLED
BY ONE OF THE FOLLOWING METHODS
(1) MANUAL VALVE, MIN 1/2"
(2) AUTOMATIC AIR VENT
(3) REMOTE INSPECTOR'S TEST VALVE
(4) OTHER APPROVED MEANS

1 ENLARGED RISER ROOM PLAN
SCALE: 1/4" = 1'-0"



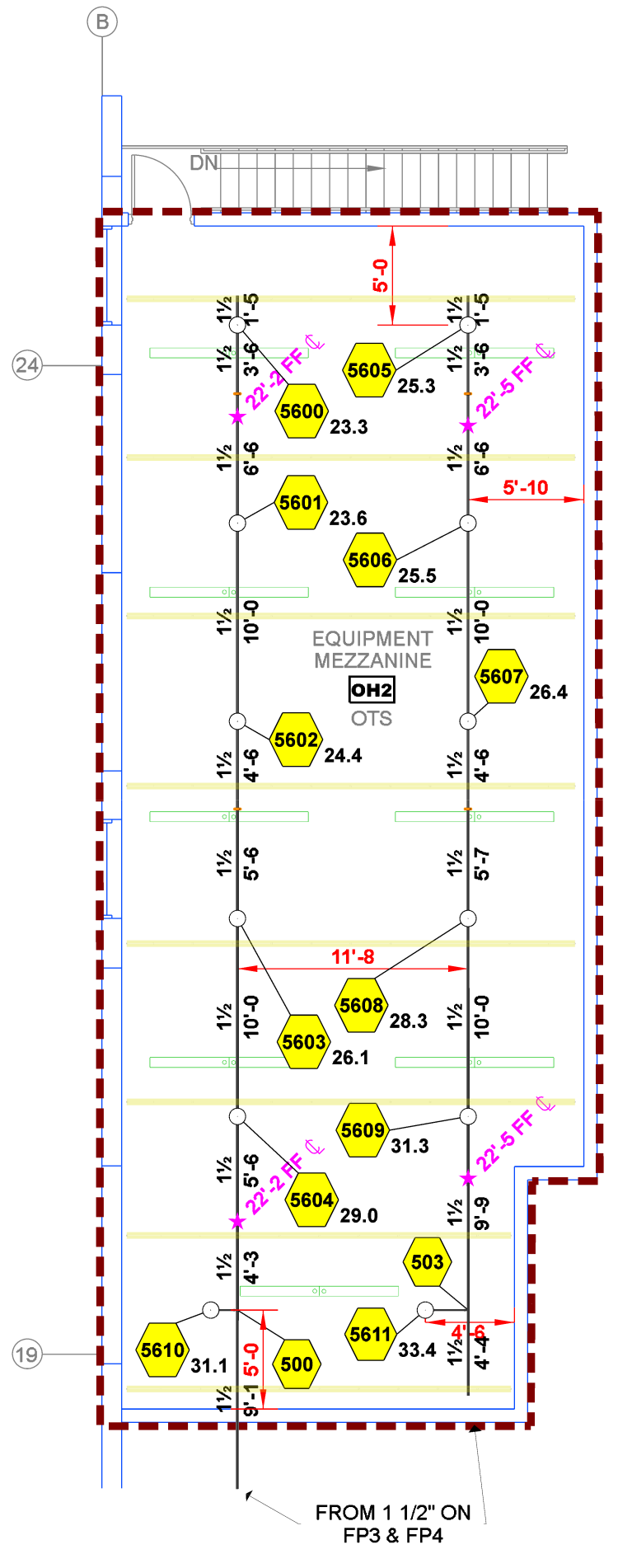
Hydraulic Information	
Remote Area 1	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1563 ft ²)
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	16
K-FACTOR	8
TOTAL WATER REQUIRED	727.4
TOTAL PRESSURE REQUIRED	66.0
BASE OF RISER (gpm)	727.4
BASE OF RISER (psi)	66.0
SAFETY MARGIN (psi)	+29.3 (30.7%)

HYDRAULIC ZONE 1 WAS CALCULATED USING THE DENSITY / AREA METHOD. DESIGN AREA WAS SIZED IN ACCORDANCE WITH NFPA 13, 11.2.3.2.3



MAIN AREA A FIRE SPRINKLER PLAN
SCALE: 1/8" = 1'-0"

AREA A SPRINKLER LEGEND											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY3531	Royal Flush II	6	5.6	Concealed Pendent	1/2"	Quick	Brass	200 °F	N/A
○	Tyco	TY4131	TY-FRB	202	8	Upright	1/2"	Quick	Natural Brass	200 °F	N/A
○	Tyco	TY4131	TY-FRB	12	8	Upright	1/2"	Quick	White RAL 9010	200 °F	N/A
○	Tyco	TY4131	TY-FRB	1	8	Upright	1/2"	Quick	Natural Brass	200 °F	BELOW HVAC
				Total = 221							

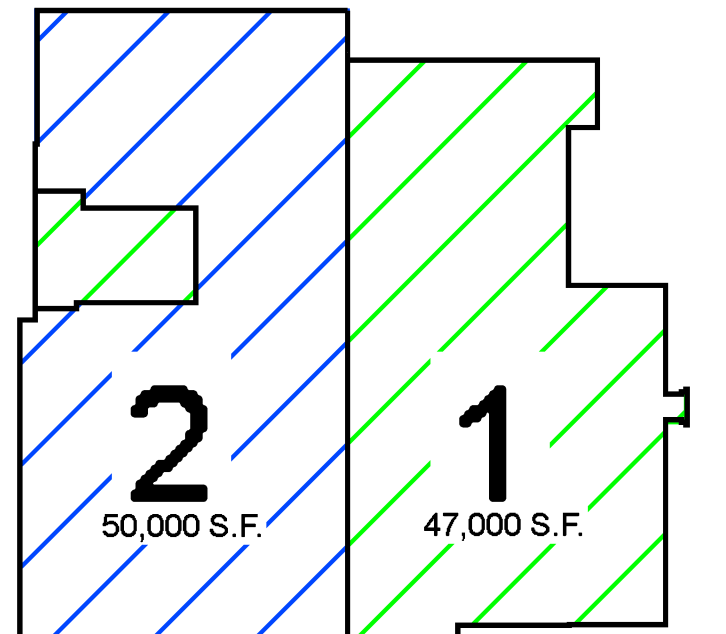


MEZZANINE AREA A FIRE SPRINKLER PLAN
SCALE: 1/8" = 1'-0"

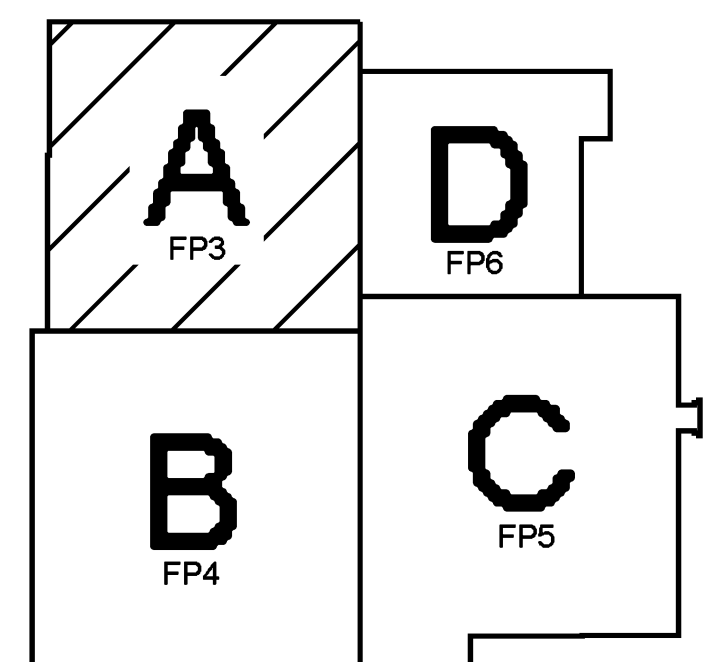
MEZZANINE SPRINKLER LEGEND											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Tyco	TY3131	TY-FRB	12	5.6	Upright	1/2"	Quick	Brass	200 °F	N/A
				Total = 12							

Hydraulic Information	
Remote Area 5	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1505 ft ²)
TOTAL HOSE STREAMS	250.0
DRY CAPACITY	0 gal
TOTAL HEADS FLOWING	12
K-FACTOR	8
TOTAL WATER REQUIRED	577.7
TOTAL PRESSURE REQUIRED	69.9
BASE OF RISER (gpm)	577.7
BASE OF RISER (psi)	69.9
SAFETY MARGIN (psi)	+27.0 (27.9%)

HYDRAULIC ZONE 5 WAS CALCULATED USING THE DENSITY / AREA METHOD. DESIGN AREA WAS SIZED IN ACCORDANCE WITH NFPA 13, 11.2.3.2.3

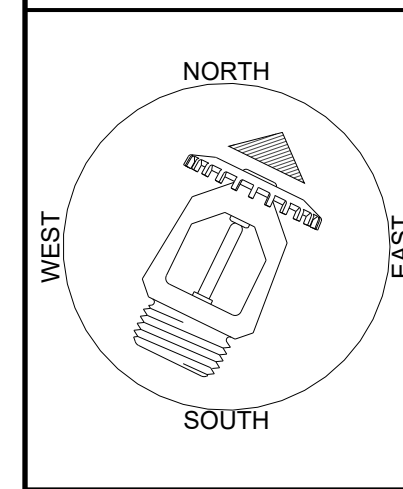
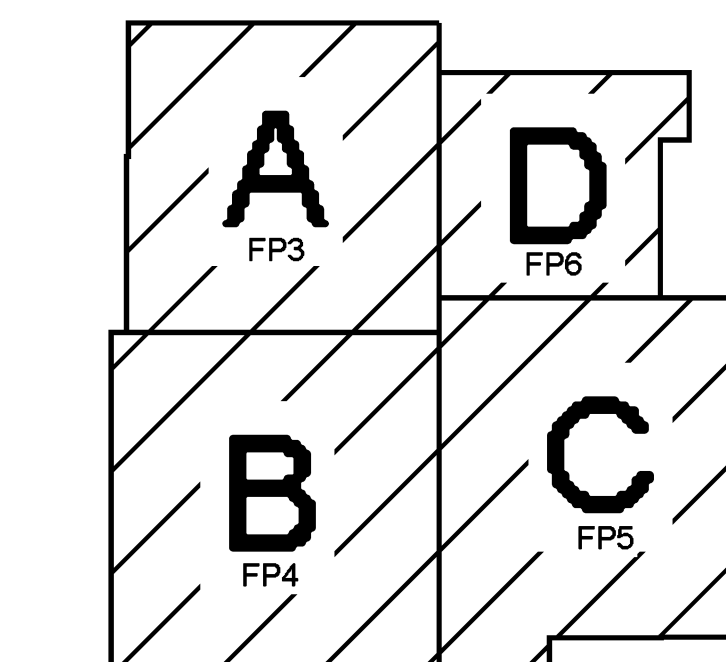
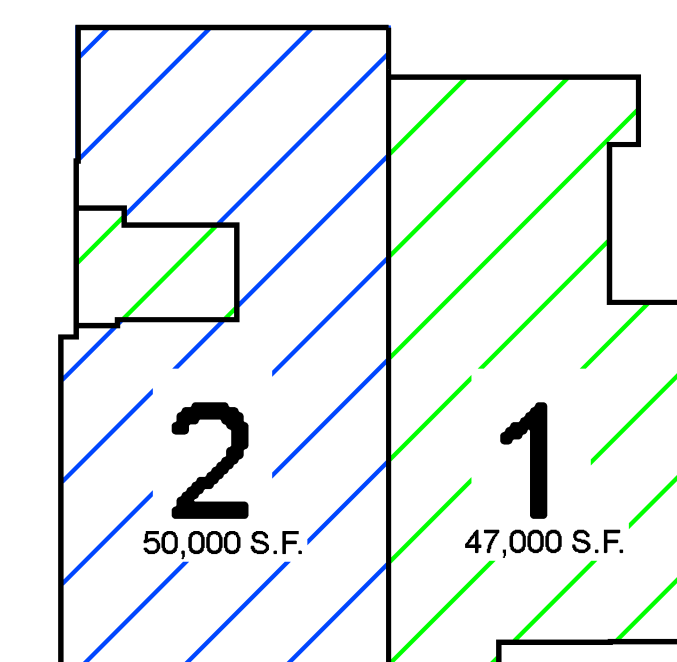
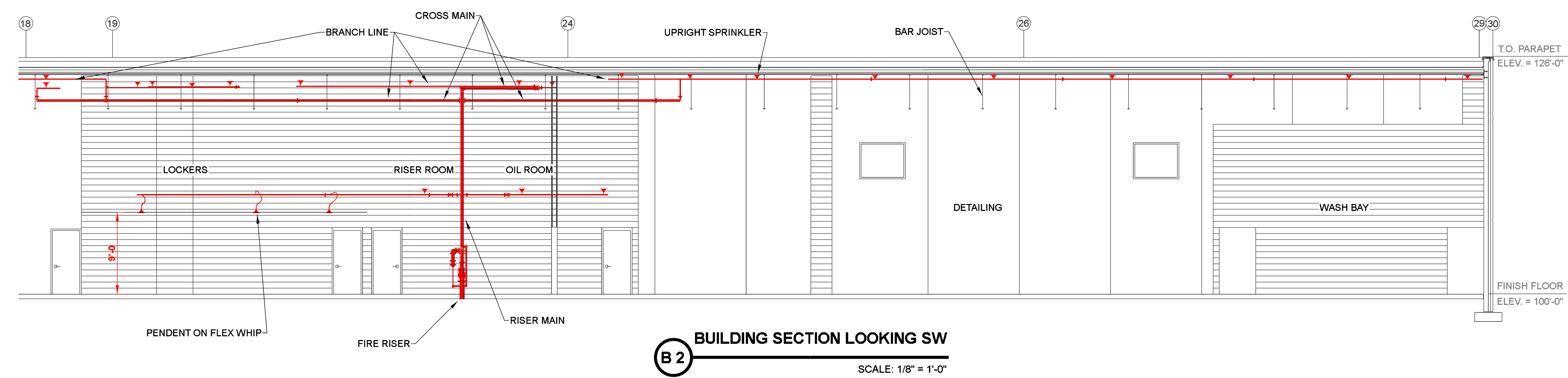
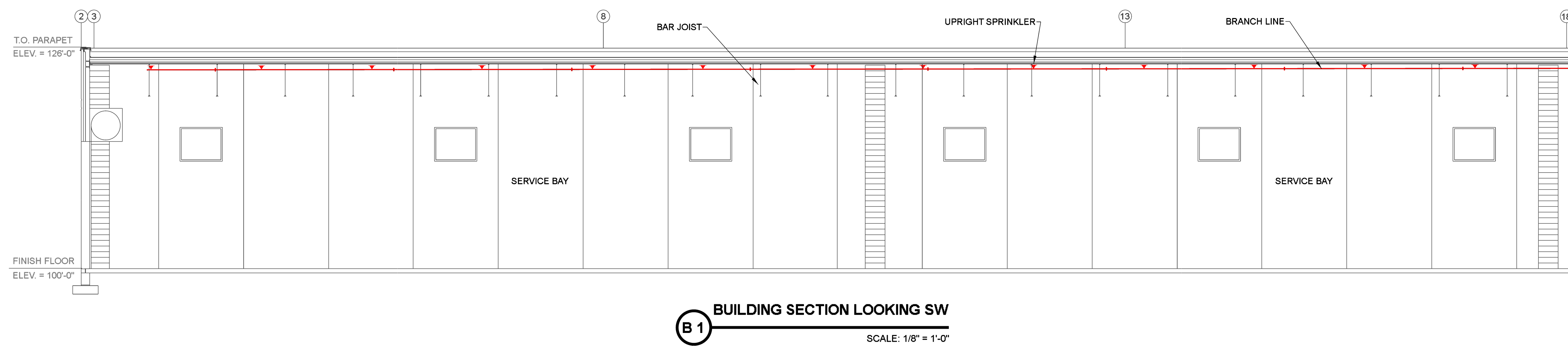
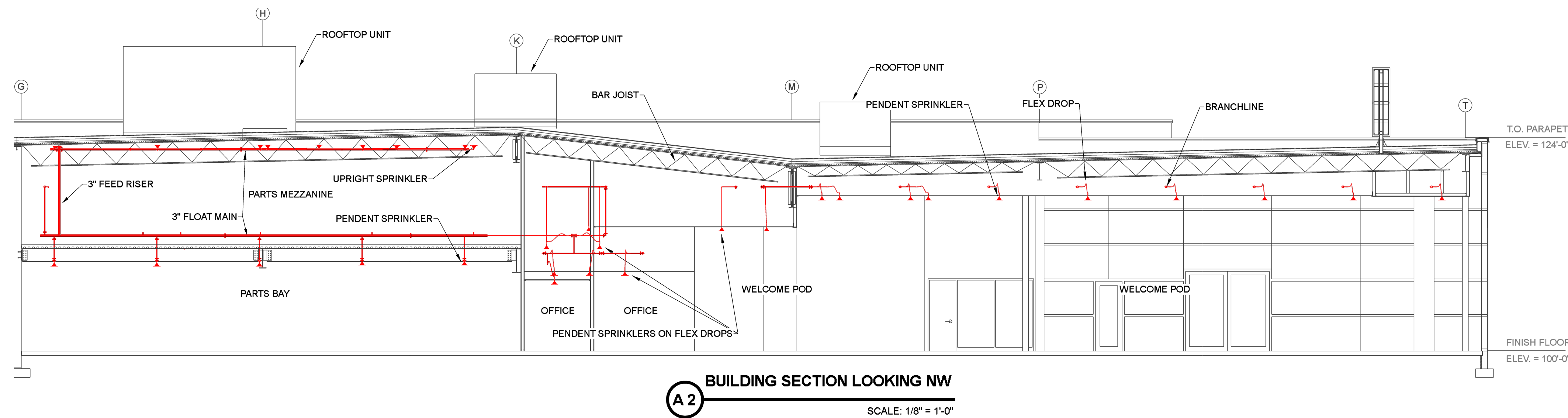
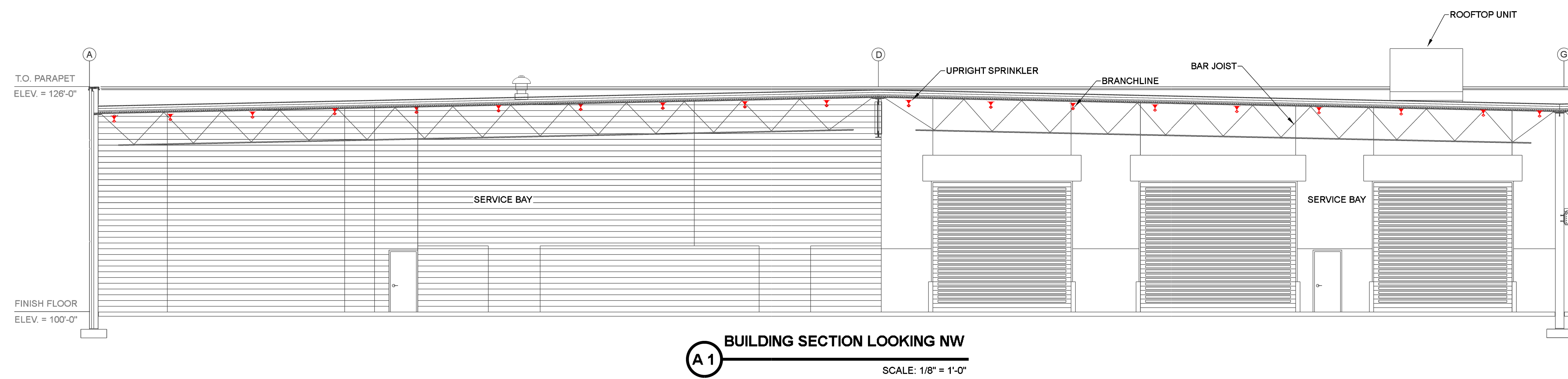


ZONE MAP



KEY PLAN

	WATER SUPPLY INFORMATION - FLOW TEST DATA FLOW TEST LOCATION: 100 FLOW TEST DATE: 4/18/2023 FLOW TEST LOCATION: 12" MAIN IN SOUTH HILLS	SYMBOLS AND ABBREVIATIONS *x*FF C PIPE ELEVATION ABOVE FINISH FLOOR *x*TS C PIPE ELEVATION BELOW TOP OF STEEL OH1 ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.) OH2 HYDRAULIC CALCULATION JUNCTION POINT 9'-0" CEILING HEIGHT BAR JOIST WET BLACK STEEL PIPE	CONTRACTOR	SPRINKLER HEADS QTY SYMB. HEAD TYPE TEMP. FINISH ORIFICE MODEL CANOPY SIN 260 ○ PENDENT 200 °F BRASS 5.6 K RFI1 CONCEALED TY3531 577 ○ UPRIGHT 200 °F BRASS 8.0 K TY-FRB N/A TY4131 3 ○ SIDEWALL 200 °F BRASS 5.6 K TY-FRB HORIZONTAL TY3531 38 ○ PENDENT 200 °F BRASS 8.0 K TY-FRB N/A TY4231 12 ○ UPRIGHT 200 °F W. POLY 8.0 K TY-FRB N/A TY4131 5 ○ UPRIGHT 200 °F BRASS 8.0 K TY-FRB BELOW HVAC TY4131 895 TOTAL	CONTRACT RESPONSIBILITIES ITEM OFF OTHERS STREET WATER CONNECTION UNDERGROUND WATER MAINS EXCAVATION BACKFILL WIRING PAINTING NO. DATE BY



WATER SUPPLY INFORMATION - FLOW TEST DATA

WATER PIPING	100	HYDRANT PIPING	30	FLOOR AREA	3125	DATE OF FLOW TEST	4/18/2023
12" MAIN IN SOUTH HILLS							

SYMBOLS AND ABBREVIATIONS

- *X x FF C PIPE ELEVATION ABOVE FINISH FLOOR
- *X x TS C PIPE ELEVATION BELOW TOP OF STEEL
- OH1 ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
- HYDRAULIC CALCULATION JUNCTION POINT
- 9'-0" CEILING HEIGHT
- BAR JOIST
- WET BLACK STEEL PIPE

CONTRACTOR

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SPRINKLER HEADS

QTY	SYMB.	HEAD TYPE	TEMP.	FINISH	ORIFICE	MODEL	CANOPY	SIN
260	○	PENDENT	200 °F	BRASS	5.6 K	RFII	CONCEALED	TY3531
577	●	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4131
3	○	SIDEWALL	200 °F	BRASS	5.6 K	TY-FRB	HORIZONTAL	TY3331
38	●	PENDENT	200 °F	BRASS	8.0 K	TY-FRB	N/A	TY4231
12	○	UPRIGHT	200 °F	W. POLY	8.0 K	TY-FRB	N/A	TY4131
5	⊗	UPRIGHT	200 °F	BRASS	8.0 K	TY-FRB	BELOW HVAC	TY4131
895		TOTAL						

CONTRACT RESPONSIBILITIES

ITEM	OFF	OTHERS
STREET WATER CONNECTION		
UNDERGROUND WATER MAINS		
EXCAVATION		
BACKFILL		
WIRING		
PAINTING		
NO.	DATE	BY

