

FLAMMABLE LIQUIDS STORED IN PLASTIC CONTAINERS AT VISION INVESTMENTS PER OWNER			
PRODUCT	CLASSIFICATION	QUANTITY & CONTAINER (PLASTIC)	STORAGE LOCATION
BLACKFIRE PRO ULTRA HD CLEANER	CLASS III	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
2-140 CARPET & UPHOLSTERY CLEANER #2	CLASS III	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO ADHESIVE REMOVER	CLASS II	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
3-110 BLACKFIRE PRO GLASS CLEANER	CLASS III	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO WHEEL ACID	CLASS IIIA	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO NON-ACID WHEEL & TIRE CLEANER	CLASS III	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO RTU WHEEL ACID	CLASS IIIA	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO PREMIUM TIRE DRESSING	CLASS II	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO TIRE DRESSING	CLASS II	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3
BLACKFIRE PRO CONCENTRATE CLEAR SHINE DRESSING	CLASS II	10 CARTBENCAP - 5G PLASTIC BUCKET	RACK STORAGE AREA SP3

FLAMMABLE LIQUIDS STORED IN METAL CONTAINERS AT VISION INVESTMENTS PER OWNER			
PRODUCT	CLASSIFICATION	QUANTITY & CONTAINER (METAL)	STORAGE LOCATION
BLACKFIRE PRO ULTRA HD CLEANER	CLASS III	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO ADHESIVE REMOVER	CLASS II	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
3-110 BLACKFIRE PRO GLASS CLEANER	CLASS III	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO WHEEL ACID	CLASS IIIA	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO NON-ACID WHEEL & TIRE CLEANER	CLASS III	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO RTU WHEEL ACID	CLASS IIIA	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO PREMIUM TIRE DRESSING	CLASS II	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO TIRE DRESSING	CLASS II	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1
BLACKFIRE PRO CONCENTRATE CLEAR SHINE DRESSING	CLASS II	55G DRUM WITH RELEAVING	RACK STORAGE AREA SP1

AEROSOL PRODUCTS STORED AT VISION INVESTMENTS PER OWNER			
PRODUCT	CLASSIFICATION	QUANTITY & CONTAINER	STORAGE LOCATION
BLACKFIRE PRO-CONCENTRATE INTERIOR DETAILER CHEROKEE SCENT	AEROSOL LEVEL 3	12 OZ/13.5 OZ	CAGED RACK STORAGE AREA SP2
BLACKFIRE PRO-CONCENTRATE NON-SILICONE DRESSING SPRAY - 5-250-99	AEROSOL LEVEL 3	12 OZ / 11 OZ	CAGED RACK STORAGE AREA SP2
BLACKFIRE PRO-CONCENTRATE UNDERCOATING SPRAY	AERO LEVEL 2	12OZ / 16OZ	CAGED RACK STORAGE AREA SP2

\*\*\*STORAGE OF PRODUCTS OUTSIDE THE BILL OF GOODS PROVIDED OR OUTSIDE THE CONTAINER TYPE AND SIZES PROVIDED TO US ARE STRICTLY EXCLUDED FROM OUR DESIGN APPROACH. THE DESIGN PROVIDED IS SPECIFIC TO THE PRODUCTS LISTED TO BE STORED IN THE SPECIFIC CONTAINER TYPE AND SIZE.\*\*\*

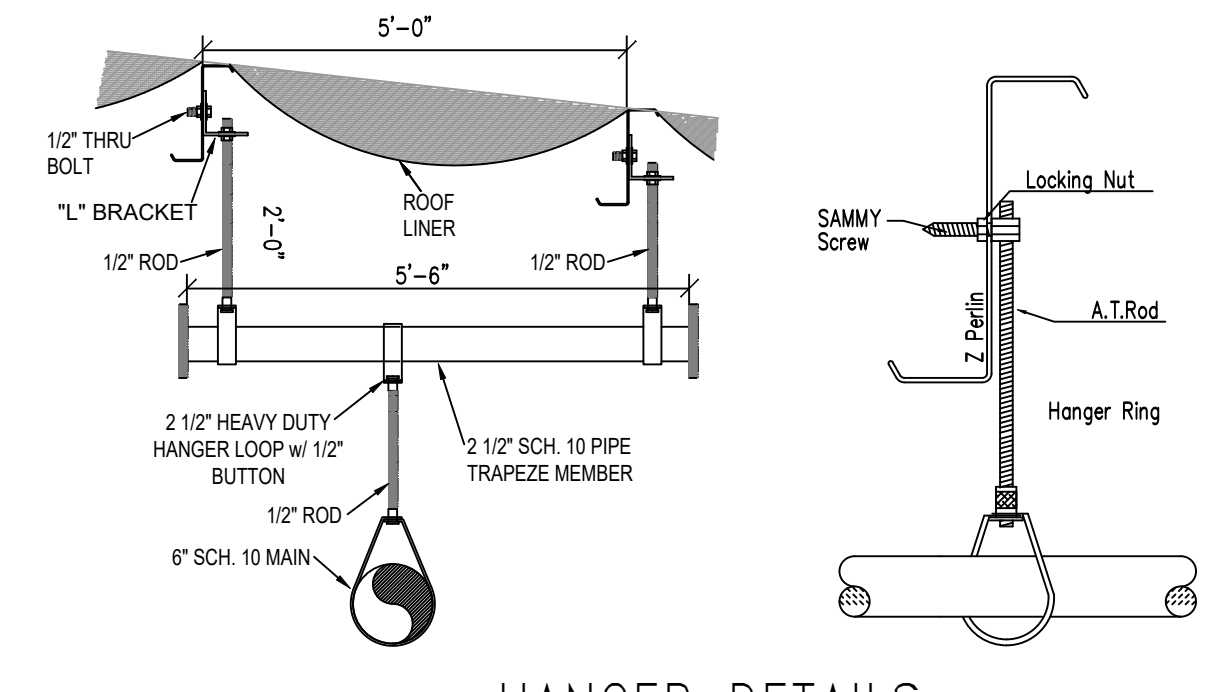
VISION INVESTMENTS PROVIDED BILL OF GOODS TO BE STORED IN FACILITY

SYM	QTY	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#	SR/OR	ESCUTCHEON	HEAD BOX (2 min)
262	UPR	BRASS	286	11.20	3/4"	TY151	TYco	ELO-231	SR	N/A		2
4	SIDE	BRASS	200	5.60	1/2"	TY331	TYco	TY-FRB	QR	N/A		2
2	IPND	CHROME	200	5.60	1/2"	TY323	TYco	TY-FRB	QR	SEM-RECESS		2
1830	UPR	BRASS	155	8.00	3/4"	TY431	TYco	TY-FRB	QR	N/A		12
10	UPR	BRASS	286	8.00	3/4"	TY431	TYco	TY-FRB	QR	N/A		2
62	UPR	BRASS	286	16.60	3/4"	TY7151	TYco	K17-231	SR	N/A		2
79	UPR	BRASS	155	5.60	1/2"	TY313	TYco	TY-FRB	QR	N/A		2



SPRINKLER LEGEND

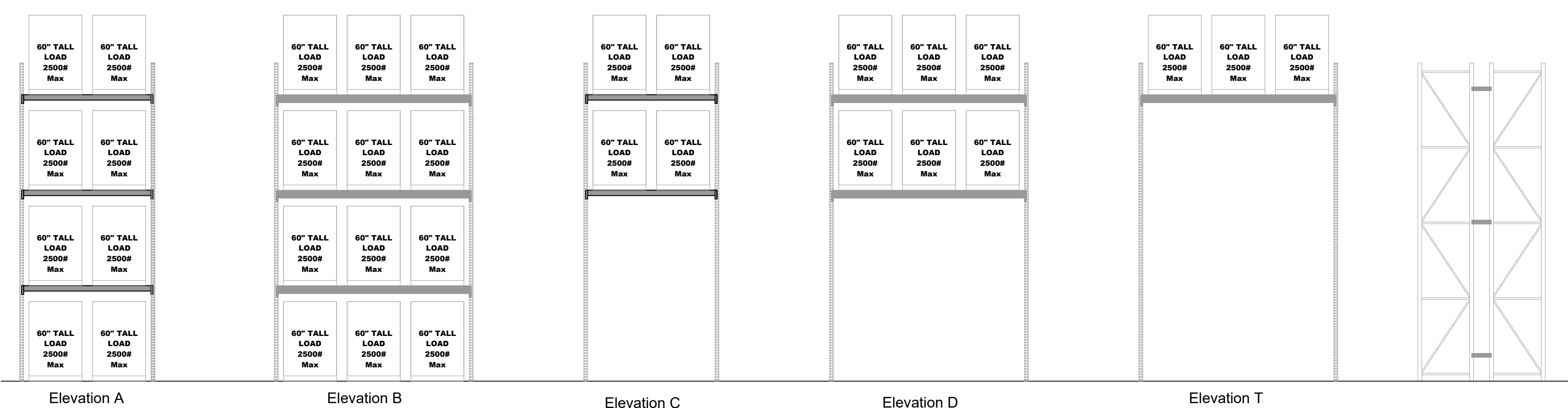
- (SP1) CEILING SPRINKLERS TO CALCULATED AT 0.66/3000
- 16.8K HIGH TEMP STANDARD RESPONSE SPRINKLERS AT CEILING
- 2 LEVELS OF IN-RACK SPRINKLERS PROVIDED
- 5.6K ORDINARY TEMP QUICK RESPONSE SPRINKLERS WITH WATER SHIELDS AT IN-RACK
- 8 SPRINKLER ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM
- 500 GPM HOSE DEMAND INCLUDED AT HYDRANT CLOSEST TO BUILDING
- CALCULATION OF CEILING AND IN-RACK SPRINKLERS NOT REQUIRED TO BE BALANCED
- SEE "STORAGE RACKS NORTH WALL" FOR MORE INFO
- (SP2) CEILING SPRINKLERS TO CALCULATED AT 0.66/2500
- 16.8K HIGH TEMP STANDARD RESPONSE SPRINKLERS AT CEILING
- 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED
- 5.6K ORDINARY TEMP QUICK RESPONSE SPRINKLERS WITH WATER SHIELDS AT IN-RACK
- 8 SPRINKLER ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM
- 500 GPM HOSE DEMAND INCLUDED AT HYDRANT CLOSEST TO BUILDING
- CALCULATION OF CEILING AND IN-RACK SPRINKLERS NOT REQUIRED TO BE BALANCED
- SEE "STORAGE RACKS AEROSOL CAGE" FOR MORE INFO
- (SP3) CEILING SPRINKLERS TO CALCULATED AT 0.485/2000
- 11.2K HIGH TEMP STANDARD RESPONSE SPRINKLERS AT CEILING
- 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED
- 5.6K ORDINARY TEMP QUICK RESPONSE SPRINKLERS AT IN-RACK
- HORIZONTAL BARRIERS REQUIRED AT EACH LEVEL OF IN-RACK THE HYDRAULICALLY MOST REMOTE 8 SPRINKLERS (4 ON 2 LINES) TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM
- 500 GPM HOSE DEMAND INCLUDED AT HYDRANT CLOSEST TO BUILDING
- CALCULATION OF CEILING AND IN-RACK SPRINKLERS IS REQUIRED TO BE BALANCED
- SEE "STORAGE RACKS AEROSOL CAGE" FOR MORE INFO



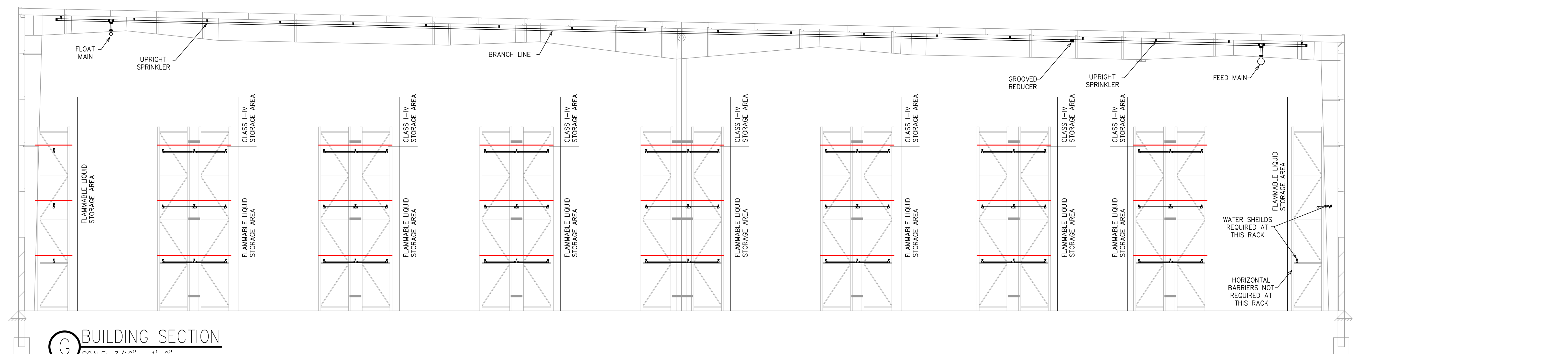
HANGER DETAILS

STEEL PIPE EXCEPT THREADED LIGHTWALL THREADED LIGHTWALL STEEL PIPE	NOMINAL PIPE SIZE (N)							
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)	12-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0
	NA	NA	NA	NA	NA	NA	NA	NA

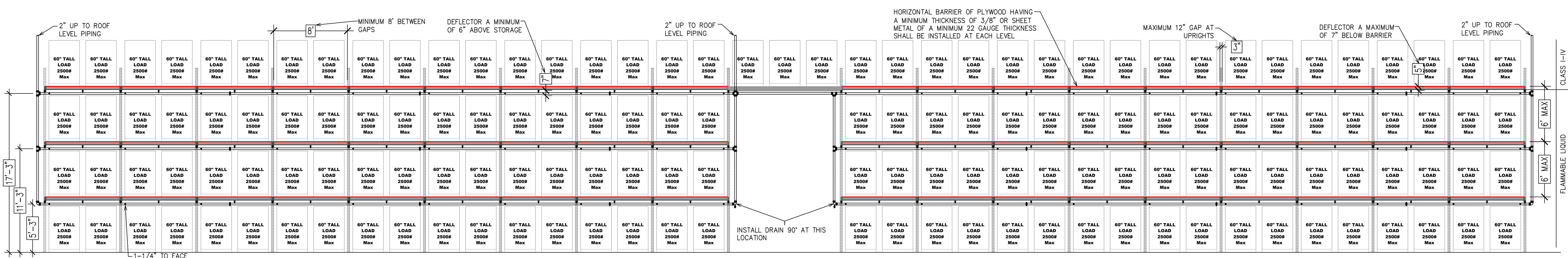
NFPA 13 HANGER SPACING



A RACK ELEV. SCALE: 3/16" = 1'-0" B RACK ELEV. SCALE: 3/16" = 1'-0" C RACK ELEV. SCALE: 3/16" = 1'-0" D RACK ELEV. SCALE: 3/16" = 1'-0" E RACK ELEV. SCALE: 3/16" = 1'-0" F RACK ELEV. SCALE: 3/16" = 1'-0"



G BUILDING SECTION SCALE: 3/16" = 1'-0"



H RACKING SECTION SCALE: 3/16" = 1'-0"



CLIENT PROJECT

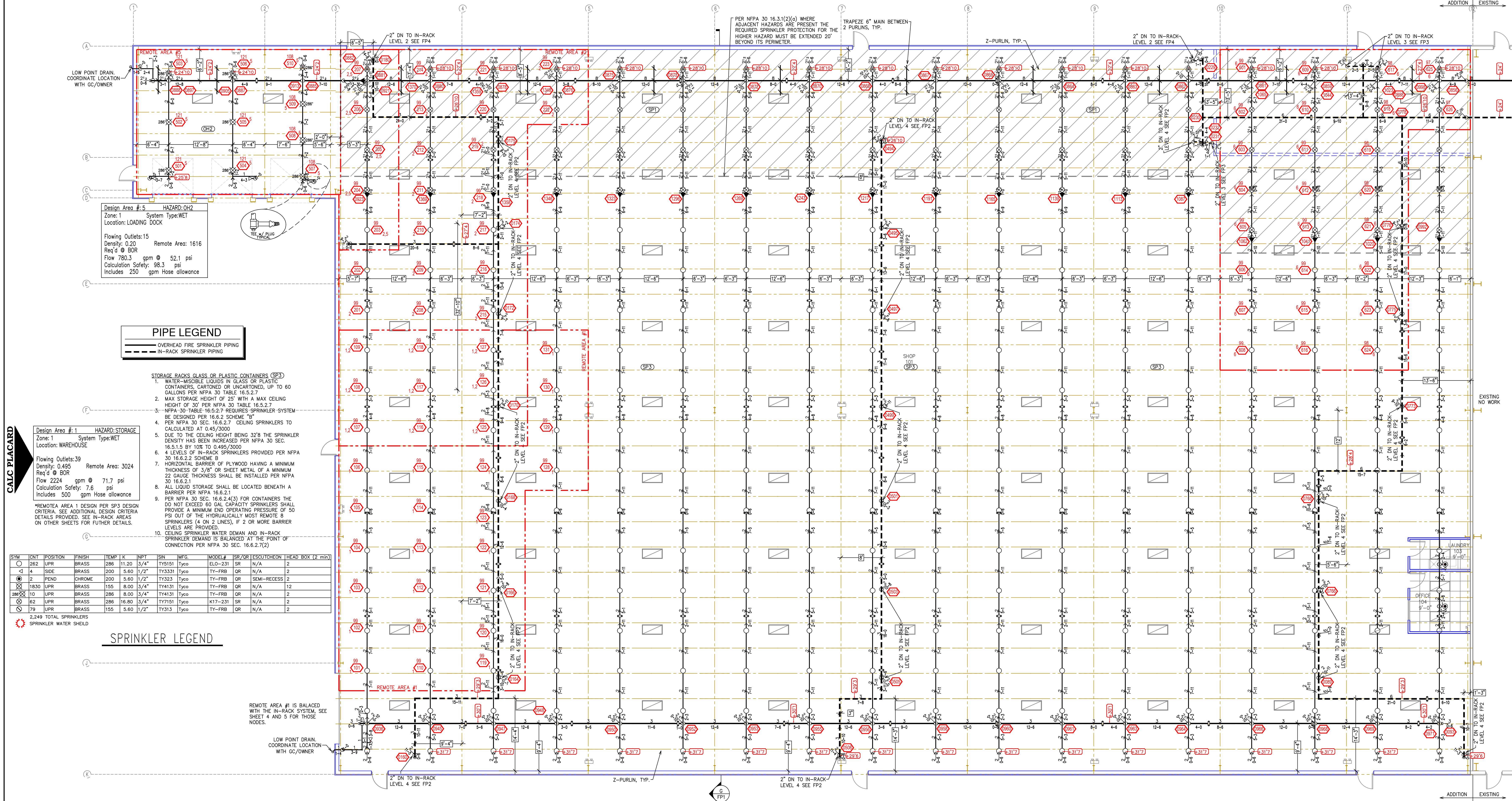
REVISIONS:

NO:	
DATE:	

DATE: 06/09/2021  
 DRAWN BY: JASON B.  
 DESIGNED BY: JASON B.  
 SCALE: 1/8"=1'-0"  
 JOB NUMBER:

SHEET  
**1 OF 5**





**Design Area #1** HAZARD: STORAGE  
 Zone: 1 System Type: WET  
 Location: WAREHOUSE  
 Flowing Outlets: 39  
 Density: 0.495  
 Req'd @ 50R  
 Flow 2224 gpm @ 71.7 psi  
 Calculation Safety: 7.6 psi  
 Includes 500 gpm Hose allowance

\*REMOTE AREA 1 DESIGN PER SP2 DESIGN CRITERIA. SEE ADDITIONAL DESIGN CRITERIA DETAILS PROVIDED. SEE IN-RACK AREAS ON OTHER SHEETS FOR FURTHER DETAILS.

SYM	ENT	POSITION	FINISH	TEMP	K	RFT	SN	MFG.	MODEL	SP/RQ	ES/OUT/COIN	HEAD BOX (2 min)
○	282	UPR	BRASS	286	11.20	3/4"	TY151	TYCO	TY-FRB	QR	N/A	2
◁	4	SIDE	BRASS	200	5.60	1/2"	TY333	TYCO	TY-FRB	QR	N/A	2
●	2	PEND	CHROME	200	5.60	1/2"	TY323	TYCO	TY-FRB	QR	SEMI-RECESS	2
⊗	1830	UPR	BRASS	155	8.00	3/4"	TY4131	TYCO	TY-FRB	QR	N/A	12
⊗	10	UPR	BRASS	286	8.00	3/4"	TY4131	TYCO	TY-FRB	QR	N/A	2
⊗	62	UPR	BRASS	286	16.80	1/4"	TY151	TYCO	K17-231	SR	N/A	2
⊗	79	UPR	BRASS	155	5.60	1/2"	TY313	TYCO	TY-FRB	QR	N/A	2

2,249 TOTAL SPRINKLERS  
 SPRINKLER WATER SHIELD

**SPRINKLER LEGEND**

○ 282 UPR BRASS 286 11.20 3/4" TY151 TYCO TY-FRB QR N/A 2  
 ◁ 4 SIDE BRASS 200 5.60 1/2" TY333 TYCO TY-FRB QR N/A 2  
 ● 2 PEND CHROME 200 5.60 1/2" TY323 TYCO TY-FRB QR SEMI-RECESS 2  
 ⊗ 1830 UPR BRASS 155 8.00 3/4" TY4131 TYCO TY-FRB QR N/A 12  
 ⊗ 10 UPR BRASS 286 8.00 3/4" TY4131 TYCO TY-FRB QR N/A 2  
 ⊗ 62 UPR BRASS 286 16.80 1/4" TY151 TYCO K17-231 SR N/A 2  
 ⊗ 79 UPR BRASS 155 5.60 1/2" TY313 TYCO TY-FRB QR N/A 2

**Design Area #2** HAZARD: STORAGE  
 Zone: 1 System Type: WET  
 Location: WAREHOUSE  
 Flowing Outlets: 32  
 Density: 0.66  
 Req'd @ 50R  
 Flow 2172.6 gpm @ 74.4 psi  
 Calculation Safety: 6.6 psi  
 Includes 500 gpm Hose allowance

\*REMOTE AREA 2 DESIGN PER SP1 DESIGN CRITERIA. SEE ADDITIONAL DESIGN CRITERIA DETAILS PROVIDED ON OTHER SHEETS.

- STORAGE RACKS NORTH WALL (SP1)**
- CLASS IB, IC, II AND III LIQUIDS IN RELIEVING STYLE METAL CONTAINERS UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.1
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.1
  - PER NFPA 30 TABLE 16.5.2.1 CEILING SPRINKLERS TO BE CALCULATED AT 0.60/3000
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.1.5 BY 10% TO 0.66/2000
  - PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
  - 2 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 TABLE 16.5.2.1 USING LAYOUT F
  - PER NFPA 30 SEC. 16.5.1.10 (6) LAYOUT F REQUIRES 1 LEVEL OF IN-RACK SPRINKLERS BE PROVIDED AT THE 1ST LEVEL WITH IN-RACK SPRINKLERS AT THE FACE OF THE RACK, AND 1 LEVEL OF IN-RACK SPRINKLERS AT THE 2ND LEVEL WITH SPRINKLERS IN THE LONGITUDINAL FILE SPACE
  - PER NFPA 30 TABLE 16.5.2.1 6 SPRINKLERS ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM

**Design Area #6** HAZARD: STORAGE  
 Zone: 1 System Type: WET  
 Location: AEROSOL CASE  
 Flowing Outlets: 26  
 Density: 0.495  
 Req'd @ 50R  
 Flow 1792.2 gpm @ 47.6 psi  
 Calculation Safety: 58.6 psi  
 Includes 500 gpm Hose allowance

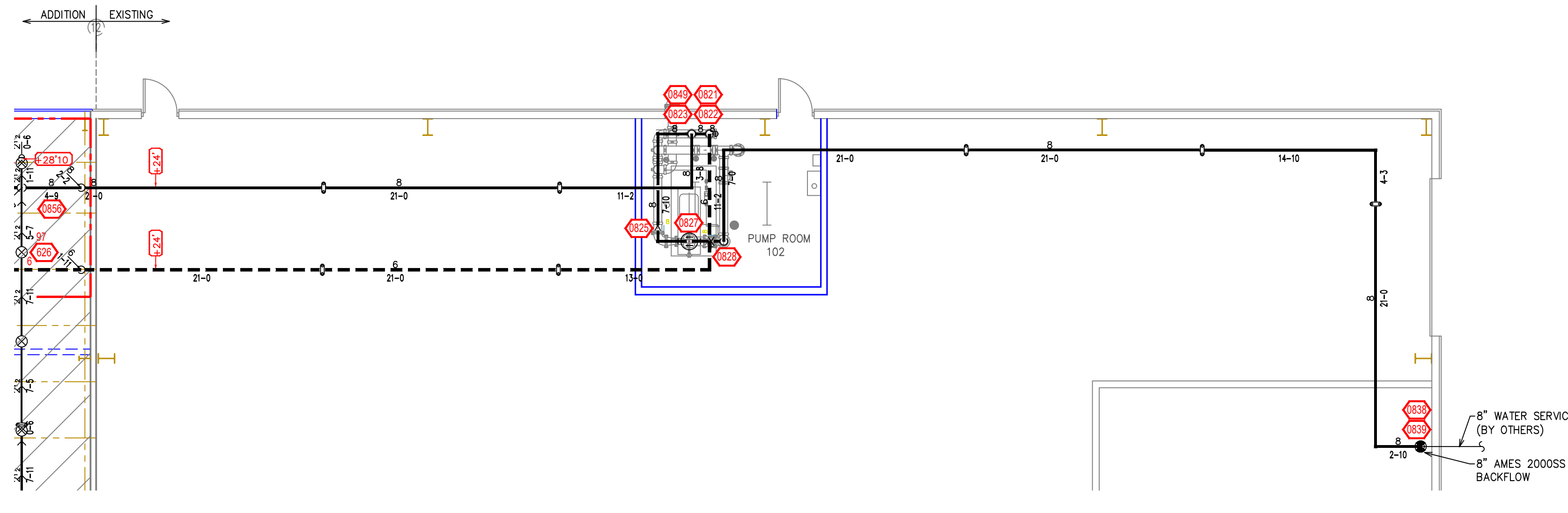
\*REMOTE AREA 6 DESIGN PER SP2 DESIGN CRITERIA. SEE ADDITIONAL DESIGN CRITERIA DETAILS PROVIDED ON OTHER SHEETS.

- STORAGE RACKS AEROSOL CASE (SP2)**
- LEVEL II AND III AEROSOLS CATIONED PER NFPA 30B TABLES 6.3.2.7(i) AND (h)
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30B TABLE 6.3.2.7(i) AND (h)
  - PER NFPA 30B TABLE 6.3.2.7(i) AND (h) CEILING SPRINKLERS TO BE CALCULATED AT 0.60/2500
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30B SEC. 6.3.2.15 BY 10% TO 0.66/2500
  - PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
  - 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30B FIGURE 6.3.2.7(a)
  - PER NFPA 30B SEC. 6.3.2.9.1(5) 18 SPRINKLERS, 6 ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED
  - PER NFPA 30B TABLE 6.3.2.7(i) AND (h) IN-RACKS ARE REQUIRED TO DISCHARGE A MINIMUM OF 30 GPM

**MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)**

	NOMINAL PIPE SIZE (IN.)							
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
STEEL PIPE EXCEPT THREADED LIGHTWALL	NA	12-0	12-0	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

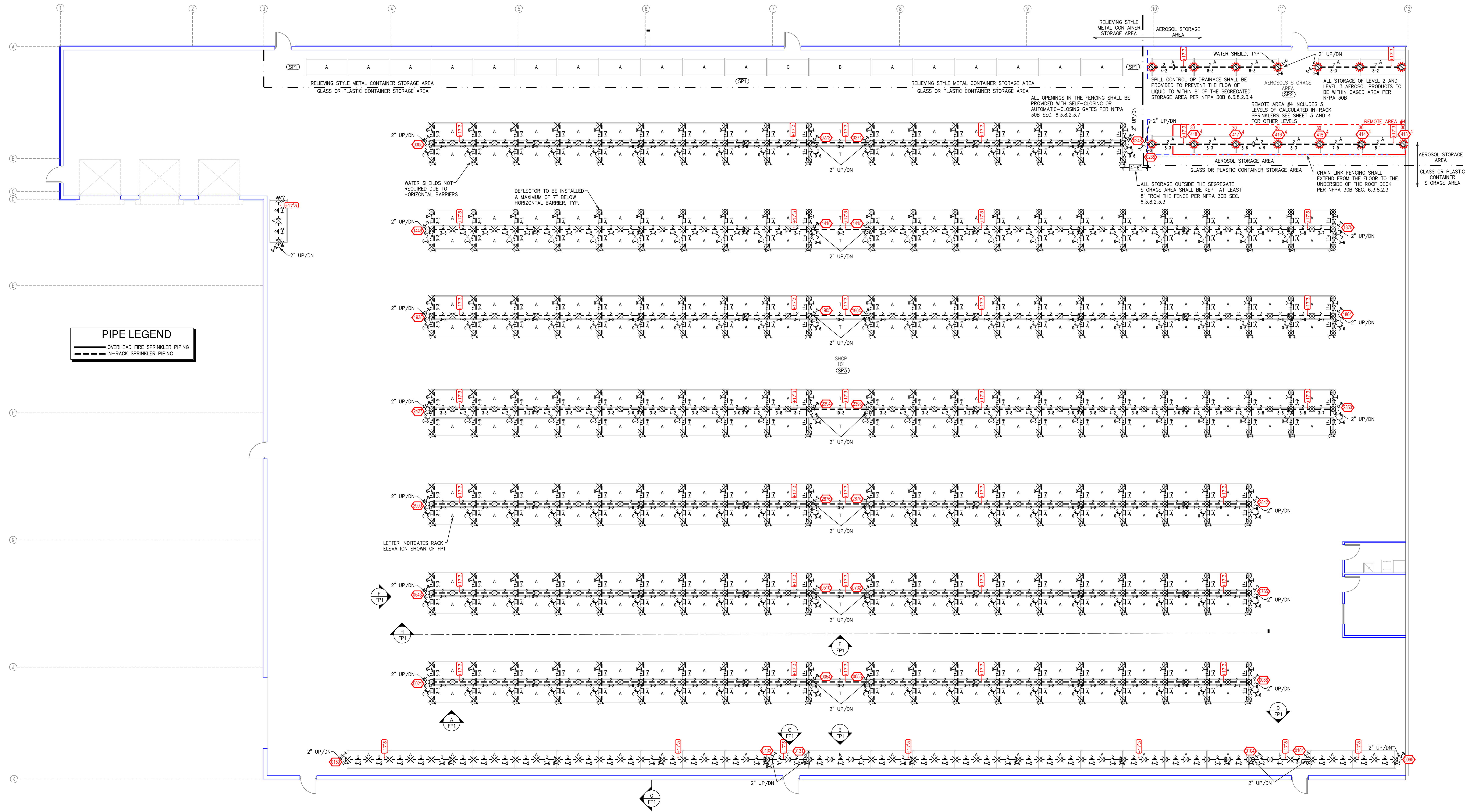
**NFPA 13 HANGER SPACING**



**ROOF LEVEL FIRE SPRINKLER PLAN (EXISTING BUILDING)**  
 SCALE: 1/8" = 1'-0"

REVISIONS:	
NO:	
DATE:	
DATE:	06/09/2021
DRAWN BY:	JASON B.
DESIGNED BY:	JASON B.
SCALE:	1/8"=1'-0"
JOB NUMBER:	
SHEET <b>2 OF 5</b>	





**PIPE LEGEND**

	OVERHEAD FIRE SPRINKLER PIPING
	IN-RACK SPRINKLER PIPING

**IN RACK LEVEL 3 PLAN**  
SCALE: 1/8" = 1'-0"

SYM	QTY	POSITION	FINISH	TEMP	K	NPT	SN	MFIC	MODEL#	SR FOR	TEST/CHECKOUT	HEAD BOX (2 min)
○	262	UPR	BRASS	286	11.20	3/4"	TY9151	Typc	ELC-231	SR	N/A	2
◁	4	SIDE	BRASS	200	5.60	1/2"	TY3331	Typc	TY-FRB	QR	N/A	2
●	2	PEND	CHROME	200	5.60	1/2"	TY323	Typc	TY-FRB	QR	SEMI-RECESS	2
⊗	1830	UPR	BRASS	155	8.00	3/4"	TY4131	Typc	TY-FRB	QR	N/A	12
⊗	10	UPR	BRASS	286	8.00	3/4"	TY4131	Typc	TY-FRB	QR	N/A	2
⊗	82	UPR	BRASS	286	16.80	1/2"	TY7151	Typc	TY-FRB	QR	N/A	2
⊗	79	UPR	BRASS	155	5.60	1/2"	TY313	Typc	TY-FRB	QR	N/A	2

2,249 TOTAL SPRINKLERS  
SPRINKLER WATER SHIELD

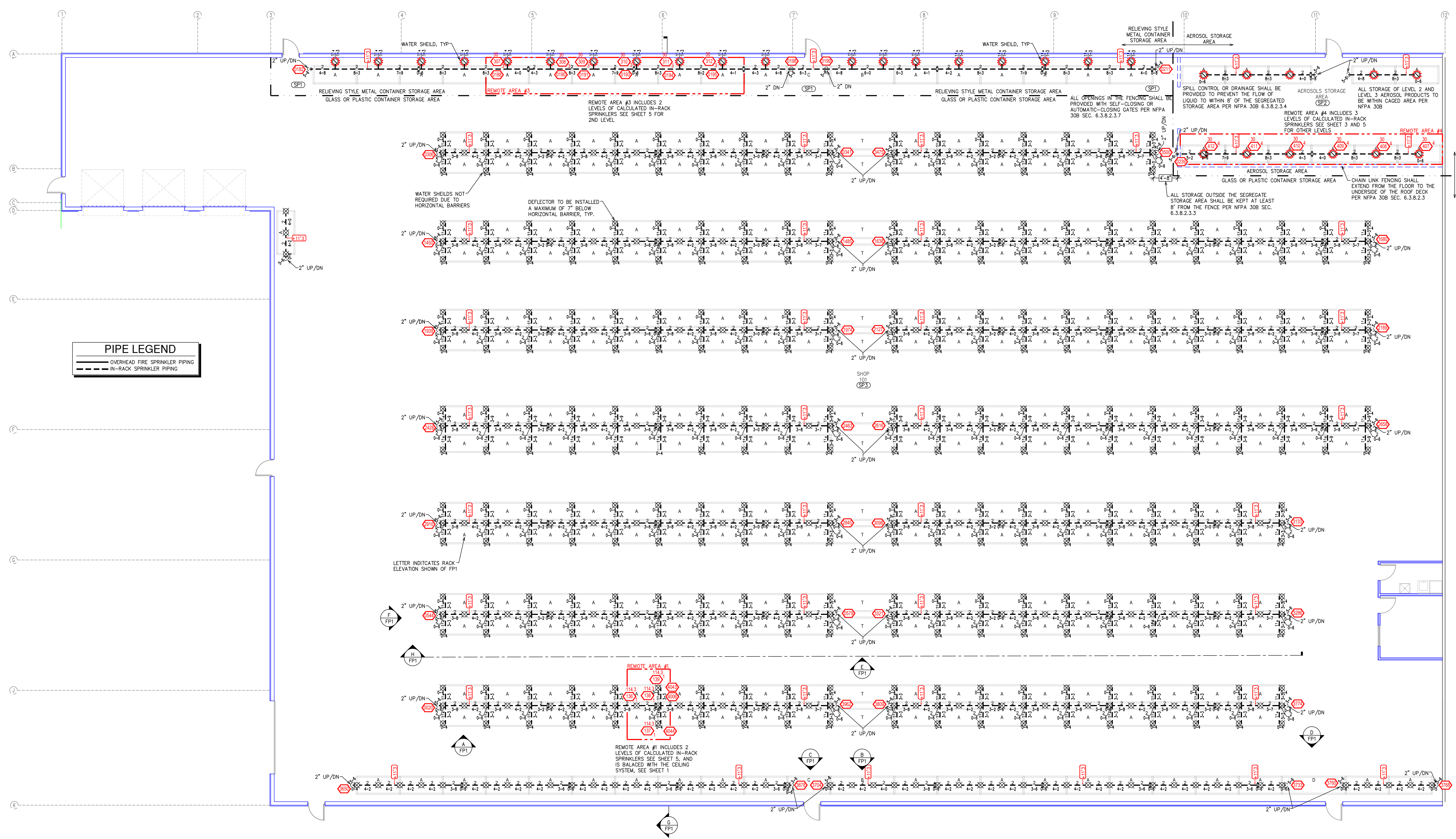
**SPRINKLER LEGEND**

- STORAGE RACKS AEROSOL CARE (SP2)**
- LEVEL II AND III AEROSOLS CATIONED PER NFPA 30B TABLES 6.3.2.7(i) AND (h)
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30B TABLE 6.3.2.7(i) AND (h)
  - PER NFPA 30B TABLE 6.3.2.7(i) AND (h) CEILING SPRINKLERS TO BE CALCULATED AT 0.60/2500
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30B SEC. 6.3.2.15 BY 10% TO 0.66/2500
  - PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
  - 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA JOB FIGURE 6.3.2.7(c)
  - PER NFPA 30B SEC. 6.3.2.9(1)(5) 18 SPRINKLERS, 6 ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED
  - PER NFPA 30B TABLE 6.3.2.7(i) AND (h) IN-RACKS ARE REQUIRED TO DISCHARGE A MINIMUM OF 30 GPM.

- STORAGE RACKS GLASS OR PLASTIC CONTAINERS (SP3)**
- WATER-MISCIBLE LIQUIDS IN GLASS OR PLASTIC CONTAINERS, CARTONED OR UNCARTONED, UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.7
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.7
  - NFPA 30 TABLE 16.5.2.7 REQUIRES SPRINKLER SYSTEM BE DESIGNED PER 16.6.2 SCHEME "B"
  - PER NFPA 30 SEC. 16.6.2.7 CEILING SPRINKLERS TO BE CALCULATED AT 0.45/3000
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.15 BY 10% TO 0.495/3000
  - 4 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 16.6.2.2 SCHEME B
  - HORIZONTAL BARRIER OF PLYWOOD HAVING A MINIMUM THICKNESS OF 3/8" OR SHEET METAL OF A MINIMUM 22 GAUGE THICKNESS SHALL BE INSTALLED PER NFPA 30 16.6.2.1
  - ALL LIQUID STORAGE SHALL BE LOCATED BENEATH A BARRIER PER NFPA 16.6.2.1
  - PER NFPA 30 SEC. 16.6.2.4(3) FOR CONTAINERS THE DO NOT EXCEED 60 GAL CAPACITY SPRINKLERS SHALL PROVIDE A MINIMUM END OPERATING PRESSURE OF 50 PSI OUT OF THE HYDRAULICALLY MOST REMOTE 8 SPRINKLERS (4 ON 2 LINES), IF 2 OR MORE BARRIER LEVELS ARE PROVIDED
  - CEILING SPRINKLER WATER DEMAND AND IN-RACK SPRINKLER DEMAND IS BALANCED AT THE POINT OF CONNECTION PER NFPA 30 SEC. 16.6.2.7(c)

CLIENT	VISION INVESTMENTS
PROJECT	VISION INVESTMENTS ADDITION
REVISIONS:	
NO:	
DATE:	
DATE:	06/09/2021
DRAWN BY:	JASON B.
DESIGNED BY:	JASON B.
SCALE:	1/8"=1'-0"
JOB NUMBER:	
SHEET	<b>3 OF 5</b>





**PIPE LEGEND**

	OVERHEAD FIRE SPRINKLER PIPING
	IN-RACK SPRINKLER PIPING

**IN RACK LEVEL 2 PLAN**  
SCALE: 1/8" = 1'-0"

SYM	QTY	POSITION	FINISH	TEMP	K	RPT	ISN	MFG.	MODEL#	SR/DR	TEST/CHEON	HEAD_BOX (2 min)
○	262	UPR	BRASS	286	11.20	3/4"	TY9151	Typc	ELQ-231	SR	N/A	2
◁	4	SIDE	BRASS	200	5.60	1/2"	TY3331	Typc	TY-FRB	QR	N/A	2
○	2	PEND	CHROME	200	5.60	1/2"	TY323	Typc	TY-FRB	QR	SEMI-RECESS	2
⊗	1830	UPR	BRASS	155	8.00	3/4"	TY4131	Typc	TY-FRB	QR	N/A	12
⊗	10	UPR	BRASS	286	8.00	3/4"	TY4131	Typc	TY-FRB	QR	N/A	2
⊗	62	UPR	BRASS	286	16.80	3/4"	TY7151	Typc	K17-231	SR	N/A	2
⊗	79	UPR	BRASS	155	5.60	1/2"	TY313	Typc	TY-FRB	QR	N/A	2

2,249 TOTAL SPRINKLERS  
SPRINKLER WATER SHIELD

**SPRINKLER LEGEND**

**CALC PLACARD**

**Design Area #4 HAZARD: STORAGE**  
Zone: 2 System Type: WET  
Location: AEROSOL IN-RACKS

Flowing Outlets: 18  
Req'd @ BOR

Flow 356.5 gpm @ 100 psi  
Calculation Safety: 89.9 psi  
Includes 500 gpm Hose allowance

\*REMOTE AREA 4 DESIGN PER SP2 DESIGN CRITERIA. SEE ADDITIONAL DESIGN CRITERIA DETAILS PROVIDED ON OTHER SHEETS.

**STORAGE RACKS AEROSOL CAGE (SP2)**

- LEVEL 1 AND 11 AEROSOLS CAGED PER NFPA 30B TABLES 6.3.2.7(i) AND (h)
- MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30B TABLE 6.3.2.7(i) AND (h)
- PER NFPA 30B TABLE 6.3.2.7(i) AND (h) CEILING SPRINKLERS TO BE CALCULATED AT 0.60/2500
- 6.3.2.15 BY 10% TO 0.66/2500
- PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
- 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30B FIGURE 6.3.2.7(g)
- PER NFPA 30B SEC. 6.3.2.9(15) 18 SPRINKLERS, 6 ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED
- PER NFPA 30B TABLE 6.3.2.7(i) AND (h) IN-RACKS ARE REQUIRED TO DISCHARGE A MINIMUM OF 30 GPM.

**Design Area #3 HAZARD: STORAGE**  
Zone: 2 System Type: WET  
Location: SD IN-RACKS

Flowing Outlets: 12  
Req'd @ BOR

Flow 356.5 gpm @ 45.4 psi  
Calculation Safety: 109.2 psi  
Includes 500 gpm Hose allowance

\*REMOTE AREA 3 DESIGN PER SP1 DESIGN CRITERIA. SEE ADDITIONAL DESIGN CRITERIA DETAILS PROVIDED ON OTHER SHEETS.

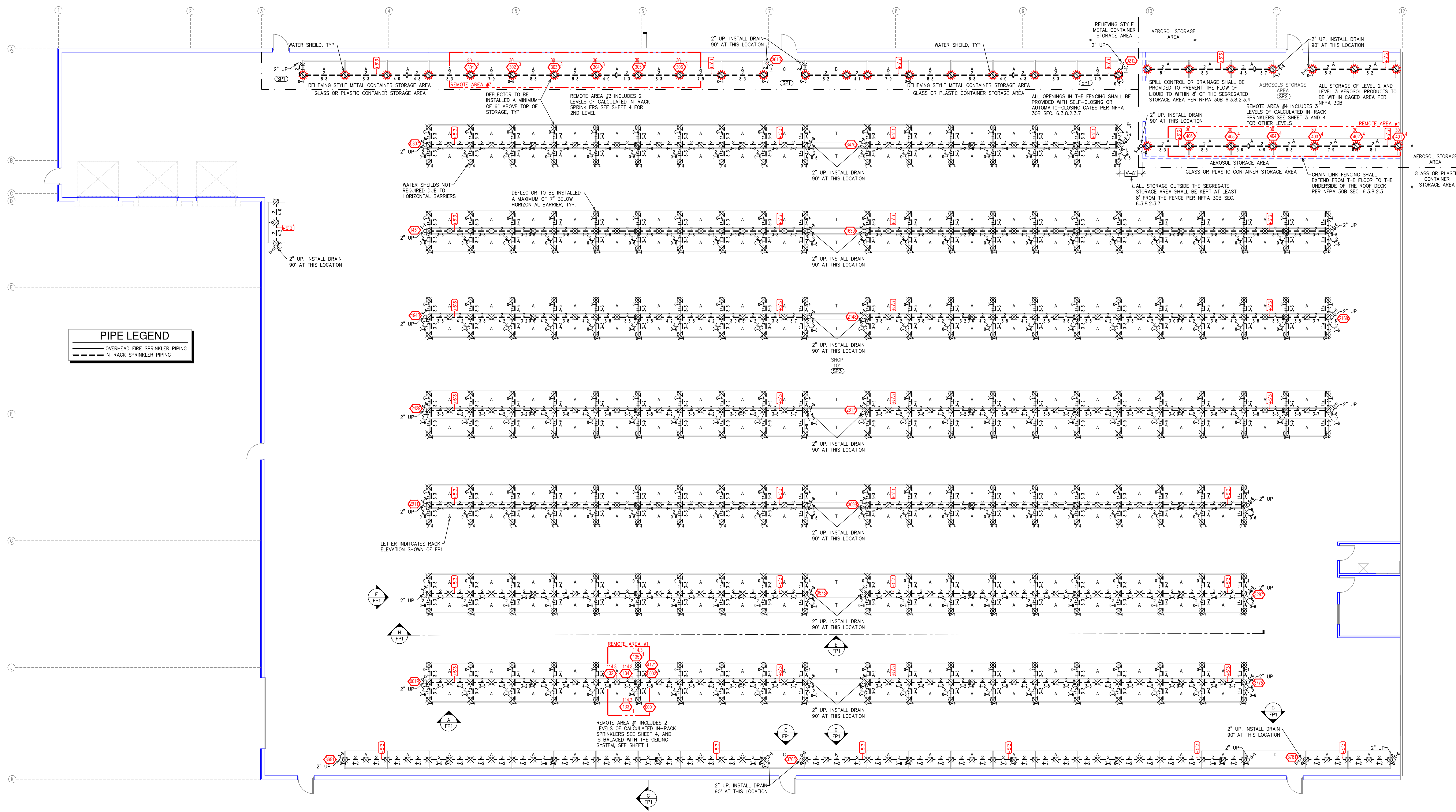
**STORAGE RACKS NORTH WALL (SP1)**

- CLASS 1C, 1F AND 11A LIQUIDS IN GLASS OR PLASTIC CONTAINERS UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.1
- MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.1
- PER NFPA 30 TABLE 16.5.2.1 CEILING SPRINKLERS TO BE CALCULATED AT 0.60/3000
- DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.1.3 BY 10% TO 0.66/3000
- PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER.
- 2 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 TABLE 16.5.2.1 USING LAYOUT F
- PER NFPA 30 SEC. 16.5.1.10 (6) LAYOUT F REQUIRES 1 LEVEL OF IN-RACK SPRINKLERS BE PROVIDED AT THE 1ST LEVEL WITH IN-RACK SPRINKLERS AT THE FACE OF THE RACK AND 1 LEVEL OF IN-RACK SPRINKLERS AT THE 2ND LEVEL WITH SPRINKLERS IN THE LONGITUDINAL FLUE SPACE.
- PER NFPA 30 TABLE 16.5.2.1 6 SPRINKLERS ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM

**STORAGE RACKS GLASS OR PLASTIC CONTAINERS (SP3)**

- CLASS 1C, 1F AND 11A LIQUIDS IN GLASS OR PLASTIC CONTAINERS, CARTONED OR UNCARTONED, UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.7
- MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.7
- PER NFPA 30 TABLE 16.5.2.7 REQUIRES SPRINKLER SYSTEM BE DESIGNED PER 16.6.2 SCHEME "B"
- PER NFPA 30 SEC. 16.6.2.7 CEILING SPRINKLERS TO BE CALCULATED AT 0.45/3000
- DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.1.3 BY 10% TO 0.495/3000
- 4 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 16.6.2.2 SCHEME B
- HORIZONTAL BARRIER OF PLYWOOD HAVING A MINIMUM THICKNESS OF 3/8" OR SHEET METAL OF A MINIMUM 22 GAUGE THICKNESS SHALL BE INSTALLED PER NFPA 30 16.6.2.1
- ALL LIQUID STORAGE SHALL BE LOCATED BENEATH A BARRIER PER NFPA 16.6.2.1
- PER NFPA 30 SEC. 16.6.2.4(3) FOR CONTAINERS THAT DO NOT EXCEED 60 GAL CAPACITY SPRINKLERS SHALL PROVIDE A MINIMUM END OPERATING PRESSURE OF 50 PSI OUT OF THE HYDRAULICALLY MOST REMOTE 8 SPRINKLERS (4 ON 2 LINES), IF 2 OR MORE BARRIER LEVELS ARE PROVIDED.
- CEILING SPRINKLER WATER DEMAND AND IN-RACK SPRINKLER DEMAND IS BALANCED AT THE POINT OF CONNECTION PER NFPA 30 SEC. 16.6.2.7(2)





**PIPE LEGEND**

	OVERHEAD FIRE SPRINKLER PIPING
	IN-RACK SPRINKLER PIPING

**IN RACK LEVEL 1 PLAN**  
SCALE: 1/8" = 1'-0"

SYM	QTY	POSITION	FINISH	TEMP	K	RPT	ISN	MFG	MODEL	BR/GR	TEST/CHEON	HEAD BOX (2 MIN)
○	262	UPR	BRASS	286	11.20	3/4"	TY9151	TYco	ELQ-231	SR	N/A	2
◁	4	SIDE	BRASS	200	5.60	1/2"	TY3331	TYco	TY-FRB	QR	N/A	2
●	2	PEND	CHROME	200	5.60	1/2"	TY323	TYco	TY-FRB	QR	SEMI-RECESS	2
⊗	1830	UPR	BRASS	155	8.00	3/4"	TY4131	TYco	TY-FRB	QR	N/A	12
⊗	10	UPR	BRASS	286	8.00	3/4"	TY4131	TYco	TY-FRB	QR	N/A	2
⊗	62	UPR	BRASS	286	16.80	3/4"	TY7151	TYco	K17-231	SR	N/A	2
⊗	79	UPR	BRASS	155	5.60	1/2"	TY313	TYco	TY-FRB	QR	N/A	2

2,249 TOTAL SPRINKLERS  
SPRINKLER WATER SHIELD

**SPRINKLER LEGEND**

- STORAGE RACKS NORTH WALL (SPT)**
- CLASS II, III AND IIIA LIQUIDS IN RELIEVING STYLE METAL CONTAINERS UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.1
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.1
  - PER NFPA 30 TABLE 16.5.2.1 CEILING SPRINKLERS TO BE CALCULATED AT 0.60/3000
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.1.5 BY 10% TO 0.66/3000
  - PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
  - 2 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 TABLE 16.5.2.1 USING LAYOUT F
  - PER NFPA 30 SEC. 16.5.1.10 (5) LAYOUT F REQUIRES 1 LEVEL OF IN-RACK SPRINKLERS BE PROVIDED AT THE 1ST LEVEL WITH IN-RACK SPRINKLERS AT THE FACE OF THE RACK, AND 1 LEVEL OF IN-RACK SPRINKLERS AT THE 2ND LEVEL WITH SPRINKLERS IN THE LONGITUDINAL FLUE SPACE
  - PER NFPA 30 TABLE 16.5.2.1 6 SPRINKLERS ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED TO DISCHARGE A MINIMUM OF 30 GPM
- STORAGE RACKS AEROSOL CARE (SP2)**
- LEVEL II AND III AEROSOLS CATIONED PER NFPA 30B TABLES 6.3.2.7(1) AND (h)
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30B TABLE 6.3.2.7(1) AND (h)
  - PER NFPA 30B TABLE 6.3.2.7(1) AND (h) CEILING SPRINKLERS TO BE CALCULATED AT 0.60/2500
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30B SEC. 6.3.2.15 BY 10% TO 0.66/2500
  - PER NFPA 13 11.1.2 WHERE ADJACENT HAZARDS ARE PRESENT THE REQUIRED SPRINKLER PROTECTION FOR THE HIGHER HAZARD MUST BE EXTENDED 15' BEYOND ITS PERIMETER
  - 3 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30B FIGURE 6.3.2.7(c)
  - PER NFPA 30B SEC. 6.3.2.9(1)(5) 18 SPRINKLERS, 6 ON THE HYDRAULICALLY MOST REMOTE UPPER 3 IN-RACK LEVELS TO BE CALCULATED
  - PER NFPA 30B TABLE 6.3.2.7(1) AND (h) IN-RACKS ARE REQUIRED TO DISCHARGE A MINIMUM OF 30 GPM
- STORAGE RACKS GLASS OR PLASTIC CONTAINERS (SP3)**
- WATER-MISCIBLE LIQUIDS IN GLASS OR PLASTIC CONTAINERS, CARTONED OR UNCARTONED, UP TO 60 GALLONS PER NFPA 30 TABLE 16.5.2.1
  - MAX STORAGE HEIGHT OF 25' WITH A MAX CEILING HEIGHT OF 30' PER NFPA 30 TABLE 16.5.2.1
  - PER NFPA 30 TABLE 16.5.2.1 CEILING SPRINKLER SYSTEM TO BE DESIGNED PER 16.6.2 SCHEME "B"
  - PER NFPA 30 SEC. 16.6.2.7 CEILING SPRINKLERS TO BE CALCULATED AT 0.45/3000
  - DUE TO THE CEILING HEIGHT BEING 32'8" THE SPRINKLER DENSITY HAS BEEN INCREASED PER NFPA 30 SEC. 16.5.1.5 BY 10% TO 0.495/3000
  - 4 LEVELS OF IN-RACK SPRINKLERS PROVIDED PER NFPA 30 16.6.2.2 SCHEME B
  - HORIZONTAL BARRIER OF PLYWOOD HAVING A MINIMUM THICKNESS OF 3/8" OR SHEET METAL OF A MINIMUM THICKNESS SHALL BE INSTALLED PER NFPA 30 16.6.2.1
  - ALL LIQUID STORAGE SHALL BE LOCATED BENEATH A BARRIER PER NFPA 16.6.2.1
  - PER NFPA 30 SEC. 16.6.2.4(3) FOR CONTAINERS THE DO NOT EXCEED 60 GAL CAPACITY SPRINKLERS SHALL PROVIDE A MINIMUM END OPERATING PRESSURE OF 50 PSI OUT OF THE HYDRAULICALLY MOST REMOTE 8 SPRINKLERS (4 ON 2 LINES), IF 2 OR MORE BARRIER LEVELS ARE PROVIDED
  - CEILING SPRINKLER WATER DEMAND AND IN-RACK SPRINKLER DEMAND IS BALANCED AT THE POINT OF CONNECTION PER NFPA 30 SEC. 16.6.2.7(c)