

GARAGE FIRE SPRINKLER PLAN

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

Design Area # 10	HAZARD: OH1	System Type: WET
Zone: 1	System Type: WET	Location: PARKING GARAGE 001, SUMP, BIKES, & ELEC 005.
Flowing Outlets: 7	Remote Area: 1629	Flowing Outlets: 7
Density: 0.15	Remote Area: 1549	Density: 0.15
Req'd @ Base of Riser	Req'd @ Base of Riser	Req'd @ Base of Riser
Flow 472 gpm @ 96.3 psi	Flow 456.6 gpm @ 88.5 psi	Flow 472 gpm @ 96.3 psi
Req'd @ Pump Discharge	Req'd @ Pump Discharge	Req'd @ Pump Discharge
Flow 475 gpm @ 98.4 psi	Flow 456.6 gpm @ 98.1 psi	Flow 475 gpm @ 98.4 psi
Calculation Safety: 7.7 psi	Calculation Safety: 9.5 psi	Calculation Safety: 7.7 psi
Includes 250 gpm Hose allowance	Includes 250 gpm Hose allowance	Includes 250 gpm Hose allowance
1500 S.F. REMOTE AREA USED DUE TO THE USE OF STANDARD RESPONSE SPRINKLERS.		

PUMP DETAIL

SCALE= 1/2" : 1'-0"

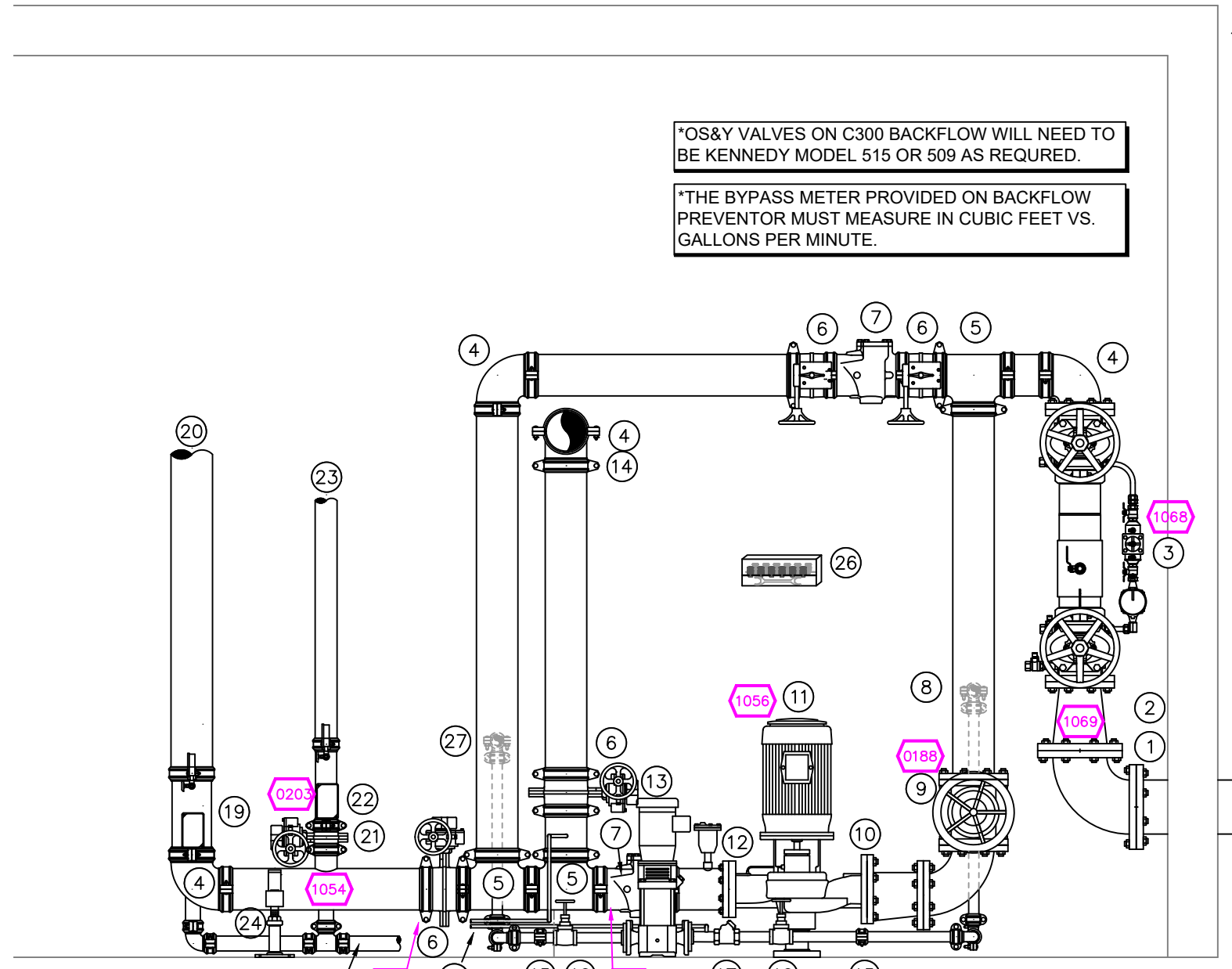
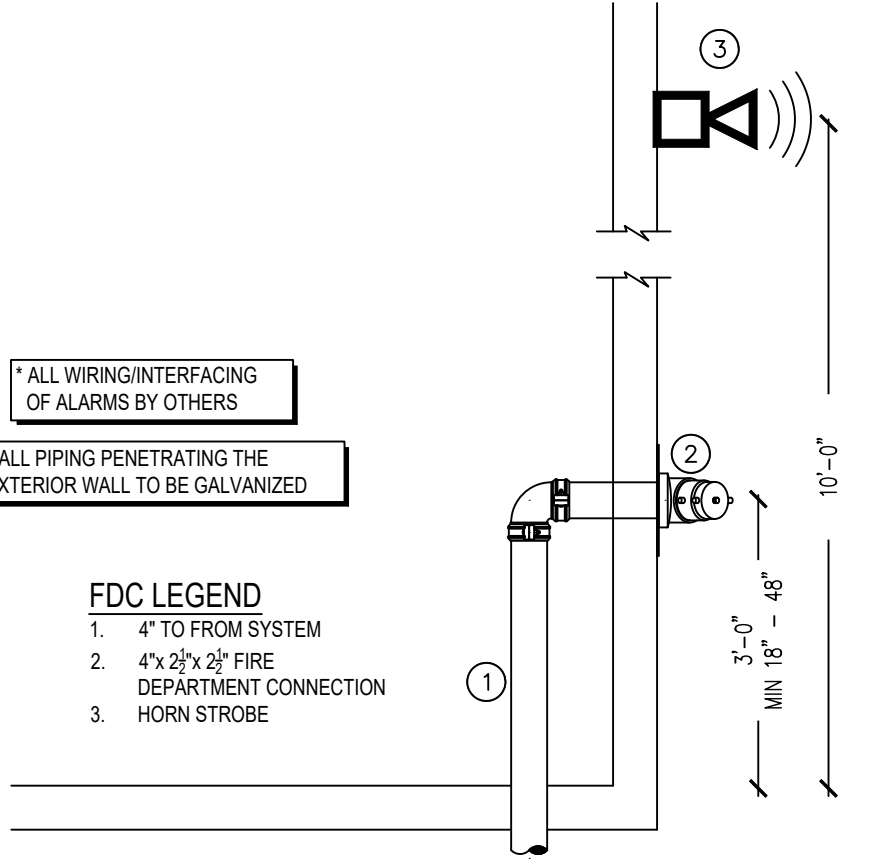


GENERAL NOTES

- INTERNATIONAL BUILDING CODE (2015)
 - OCCUPANCY MIXED TYPE R-2; RESIDENTIAL TYPE A-3; ASSEMBLY, TYPE S-2; LOW HAZARD STORAGE
 - TYPE OF CONSTRUCTION: I-A
 - SPRINKLER AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - LOWER LEVEL = 15,914 S.F. (ZONE #1)
 - GROUND LEVEL = 15,922 S.F. (ZONE #2)
 - LEVEL 2 = 16,030 S.F. (ZONE #3)
 - LEVEL 3 = 16,030 S.F. (ZONE #4)
 - LEVEL 4 = 16,030 S.F. (ZONE #5)
 - LEVEL 5 = 16,030 S.F. (ZONE #6)
 - LEVEL 6 = 16,030 S.F. (ZONE #6)
 - TOTAL = 111,986 S.F.
 - INSTALLATION STANDARDS: SPRINKLER SYSTEM DESIGNED AND INSTALLED PER NFPA-13, NFPA-14, NFPA-20 (2016)
- SPRINKLER PIPE TYPES:
 - 2.1 1" BRANCH LINES TO BE BLAZEMASTER CPVC PIPING WITH CEMENTED FITTINGS
 - 2.2 1" THROUGH 1 1/2" MAIN & BRANCH LINES TO BE BLAZEMASTER CPVC PIPING WITH CEMENTED FITTINGS
 - 2.3 1" BRANCH LINES TO BE MEGA-THREAD PIPING WITH THREADED FITTINGS
 - 2.4 1 1/2" THROUGH 4" MAIN & BRANCH LINES TO BE MEGA-FLOW PIPING WITH GROOVED FITTINGS
- DESIGN CRITERIA
 - L.L. GARAGE, MECHANICAL, ELECTRICAL, STORAGE, JANITOR, TRASH ROOMS & SIMILAR AREAS ARE DESIGNED TO ORDINARY HAZARD GROUP 1
 - RESIDENTIAL UNITS, OFFICES, FITNESS ROOM & SIMILAR AREAS ARE DESIGNED TO LIGHT HAZARD
 - 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 (2016) - SEE PLAN FOR HANGING REQ.
- SYMBOLS USED ON DRAWINGS:
 - 12W PIPE ELEVATION A.F.F.
 - 42W PIPE ELEVATION BELOW B.O.D.
 - ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
 - HYDRAULIC CALCULATION JUNCTION POINT
 - CEILING HEIGHT
- SCOPE OF WORK:
 - INSTALL A NEW FIRE PUMP, STANDPIPE AND FIRE SPRINKLER SYSTEM IN THE MARSHALL AVENUE FLATS BUILDING. THE NEW SYSTEM WILL INCLUDE A MANUAL WET STANDPIPE SYSTEM. THE FIRE SPRINKLER SYSTEM WILL BE ZONED PER FLOOR WITH 6TH & 6TH ZONE. COMBINED BLACK STEEL PIPING WILL BE USED IN THE LOWER LEVEL PARKING AREAS. RESIDENTIAL FLOORS ARE FED WITH CPVC. PENDENT SPRINKLERS WILL BE INSTALLED ON 1ST - 6TH FLOORS. THE TOP FLOOR WILL BE "BIRDCAGED" UP THROUGH INTERIOR WALLS WITH SIDEWALLS ON THE 6TH FLOOR.
 - ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13 (2016)

FDC DETAIL

SCALE= 1/2" : 1'-0"



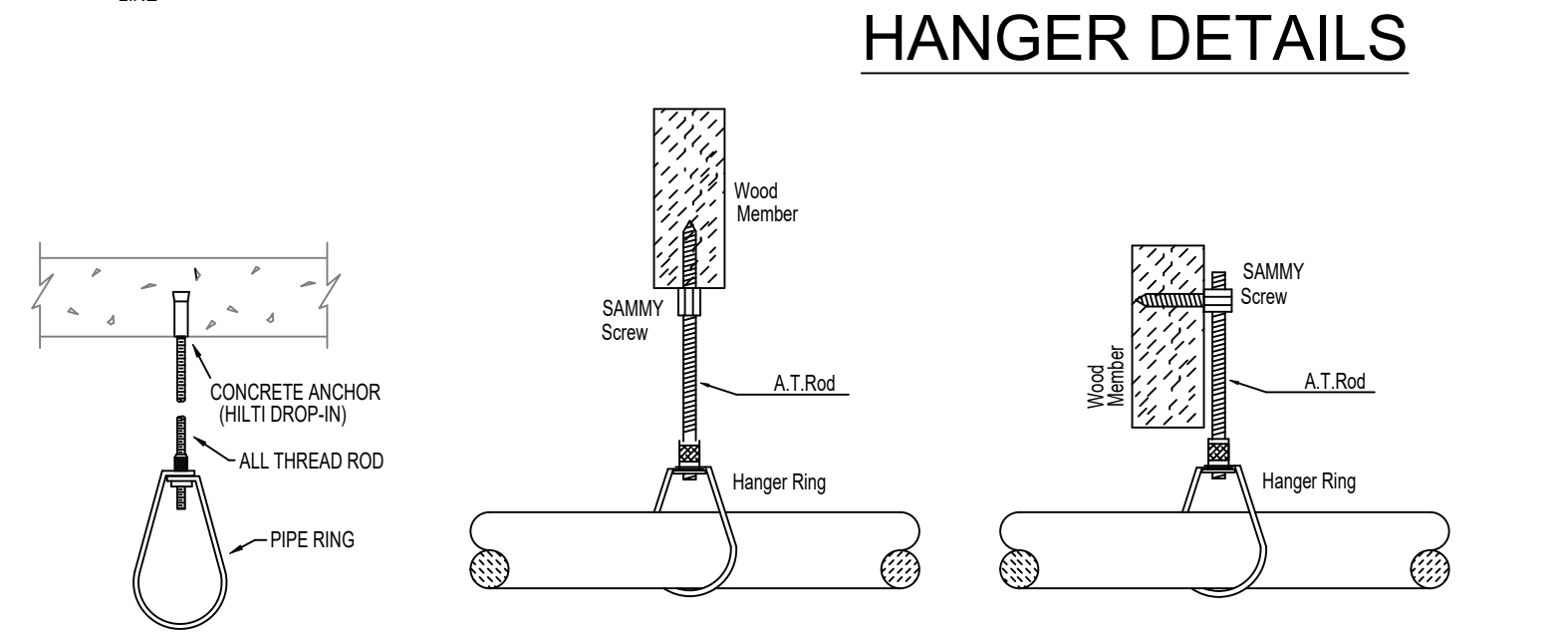
- #### FIRE PUMP & RISER LEGEND
- 6" FLANGED 90 ELL.
 - 6" X 4" FLANGED REDUCER
 - 4" C300 BACKFLOW w/SUPRISSED GATE VALVES
 - 4" GROOVED 90 ELL.
 - 4" GROOVED TEE
 - 4" GROOVED SUPERVISED BUTTERFLY VALVE
 - 4" GROOVED CHECK VALVE
 - 1-1/4" SUPPLY PIPING
 - 4" FLANGED GATE VALVE w/TAMPERS
 - 4" X 5" FLANGED ECCENTRIC REDUCER
 - 400 GPM @ 80 PSI VERTICAL IN-LINE FIRE PUMP
 - 4" FUG SPOOL, PIECE w/ CASING RELIEF
 - JOCKY PUMP
 - 4" OUT TO FIRE PUMP TEST HEADER
 - 1-1/4" THREADED COUPLING
 - 1-1/4" THREADED CHECK VALVE
 - 1-1/4" THREADED GATE VALVE
 - 1-1/4" THREADED CHECK VALVE
 - 1/2" JOCKY AND FIRE PUMP SENSING LINES TO PUMP CONTROLLERS
 - GROOVED COMMERCIAL RISER MANIFOLD w/FLOW SWITCH, PRESSURE GAUGE, TEST & DRAIN AND PRESSURE RELIEF VALVE.
 - 4" OUT TO STANDPIPE SYSTEM
 - 4" GROOVED BUTTERFLY VALVE
 - GROOVED COMMERCIAL RISER MANIFOLD w/FLOW SWITCH, PRESSURE GAUGE, TEST & DRAIN AND PRESSURE RELIEF VALVE.
 - 3" OUT TO GARAGE (ZONE 1)
 - PIPE STAND
 - 2" MAIN DRAIN PIPED TO APPROVED LOCATION
 - SPARE HEAD BOX
 - 1-1/4" DISCHARGE PIPING
 - FIRE PUMP CONTROLLER
 - JOCKY PUMP CONTROLLER

NFPA 13 STEEL PIPE HANGER SPACING

NOMINAL SIZE inches	MAX SPACING feet
1"	12'-0"
1-1/4"	12'-0"
1-1/2"	15'-0"
2"	15'-0"
2-1/2"	15'-0"
3"	15'-0"
4" & LARGER	15'-0"

NFPA 13 CPVC PIPE HANGER SPACING

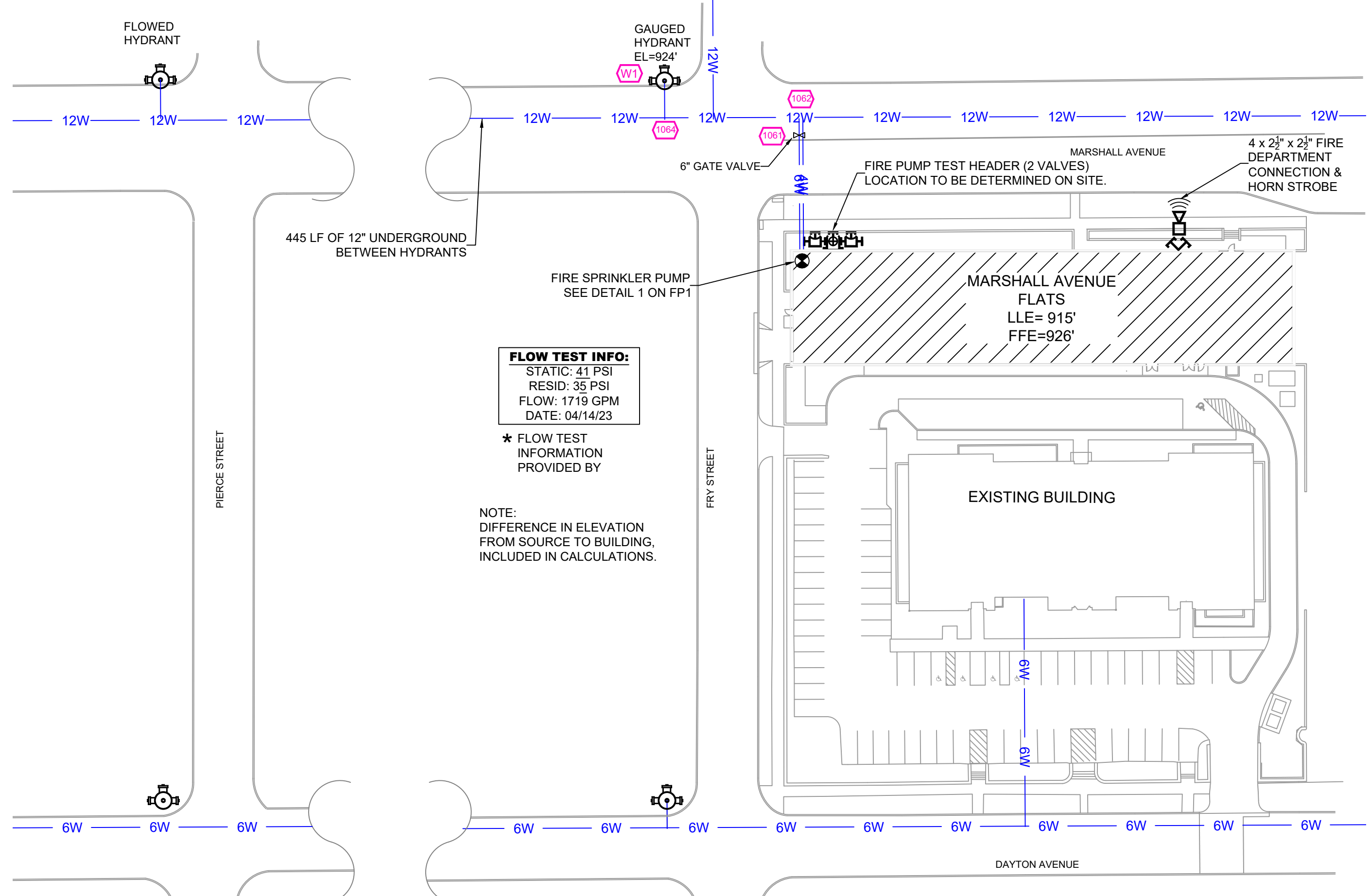
NOMINAL SIZE inches	MAX SPACING feet
1"	6'-0"
1-1/4"	6'-0"
1-1/2"	7'-0"
2"	8'-0"
2-1/2"	9'-0"
3"	10'-0"



SPRINKLER HEAD LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SN	MPG	MODEL#	ESCUTCHEON	SPACING
107	PENDENT	WHITE	155	4.80	1/2"	TY2324	TYCO	LPI	SEM-REC	20' X 20'	
214	PENDENT	WHITE	200	5.60	1/2"	TY323	TYCO	TY-FRB	SEM-REC	15' X 15' L.H. 130 S.F. OH1	
12	SIDEWALL	WHITE	155	8.00	3/4"	TY4332	TYCO	TY-FRB	SEM-REC	14' X 20'	
138	SIDEWALL	WHITE	155	4.40	1/2"	TY2334	TYCO	LPI	SEM-REC	16' X 16'	
47	SIDEWALL	WHITE	200	5.60	1/2"	TY3331	TYCO	TY-FRB	NONE	10' X 10'	
12	UPRIGHT	BRASS	200	5.60	1/2"	TY313	TYCO	TY-FRB	NONE	15' X 15' L.H. 130 S.F. OH1	
63	UPRIGHT	BRASS	200	14.00	1"	VX625	VICTALCAL	FL-ECOH	NONE	20' X 20'	
1,113		TOTAL									

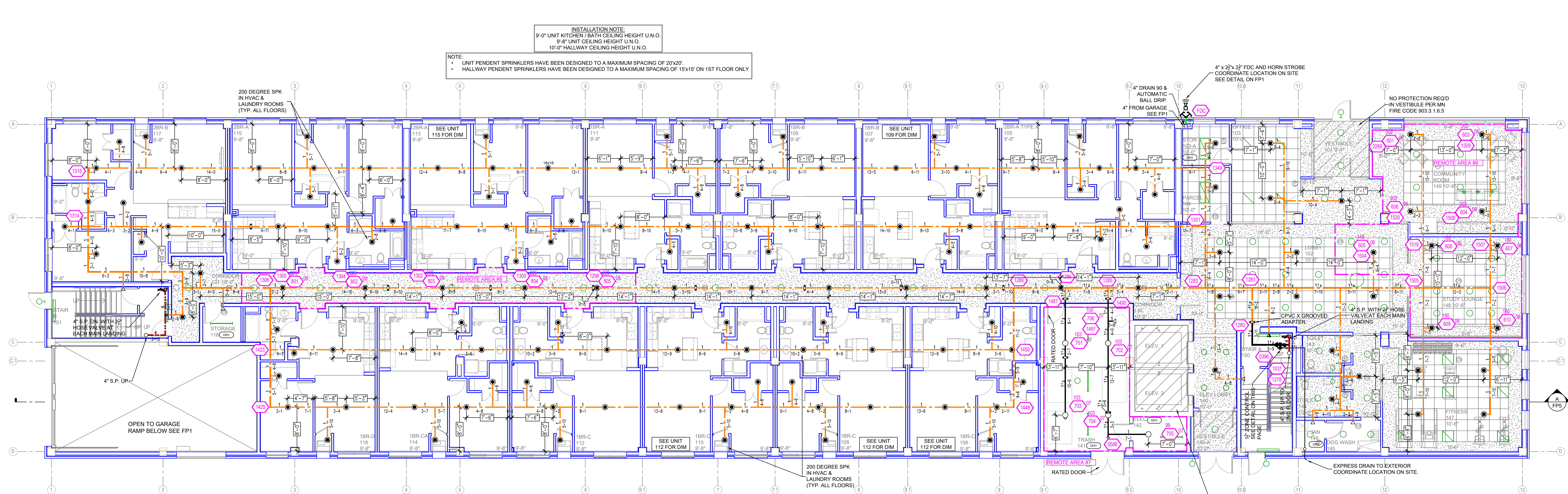
MANUAL WET STANDPIPE
 LOCATION: 6TH FLOOR STAIR B
 REQUIRED FLOW: 500GPM
 OUTLET PSI: 100
 REQUIRED INLET PSI: 149.6



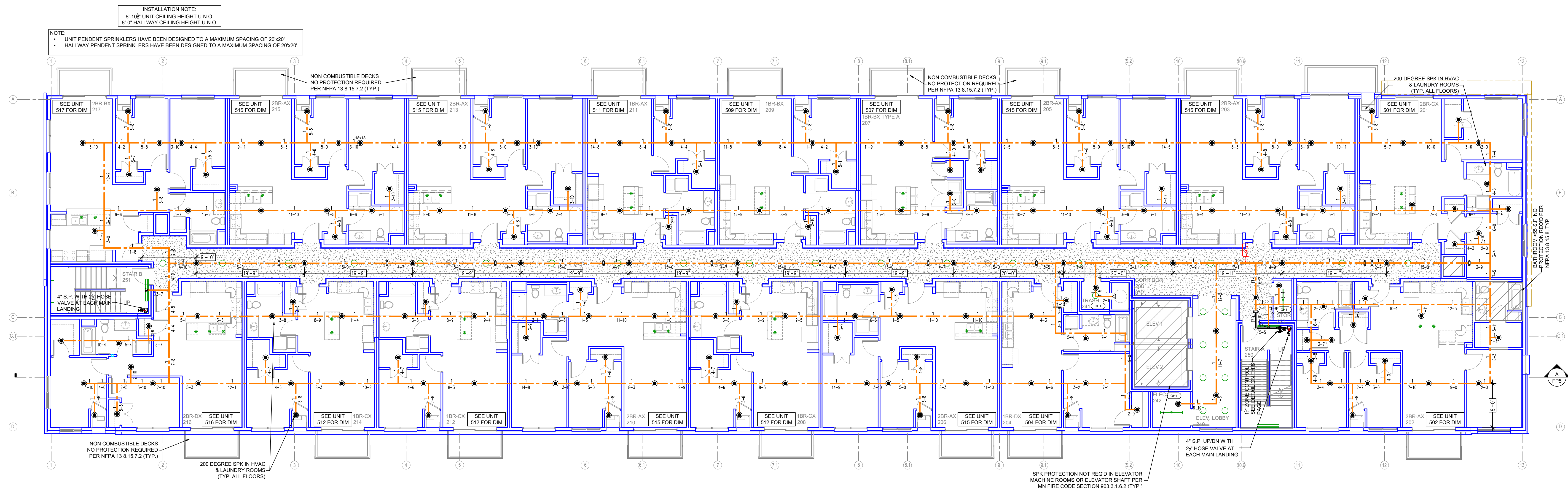
SITE PLAN

SCALE: 1" = 50'-0"

	GENERAL NOTES	REVISIONS	DATE	APPROVAL STAMPS	
	1. SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL				
	2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED				
	3. MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE				
<h2 style="margin: 0;">MARSHALL AVENUE FLATS</h2> <p style="margin: 0;">1606 MARSHALL AVENUE ST. PAUL, MN 55104</p>					
Drawing Title: FIRE PROTECTION PLAN Contract No: C24-14 Drawing Date: 04-19-24 Scale: 1/8" = 1'-0" Drawn By: JVG Approved By: STATE FIRE MARSHAL DIV. SHEET NO: FP 1 of 5					



GROUND LEVEL FIRE SPRINKLER PLAN
 SCALE = 1/8" = 1'-0"

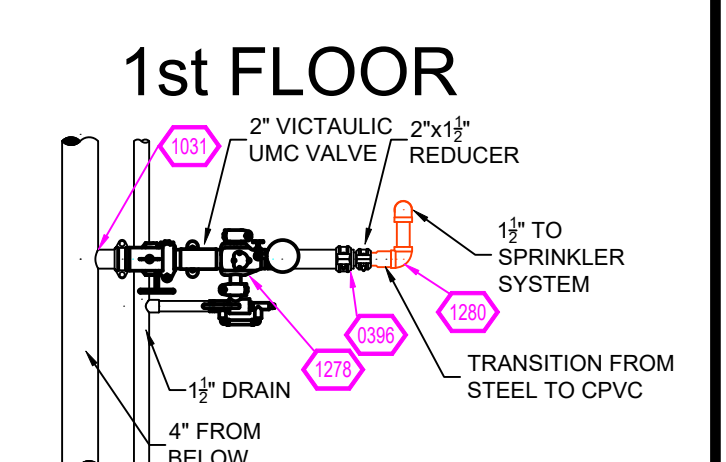


LEVEL 2 FIRE SPRINKLER PLAN
 SCALE = 1/8" = 1'-0"

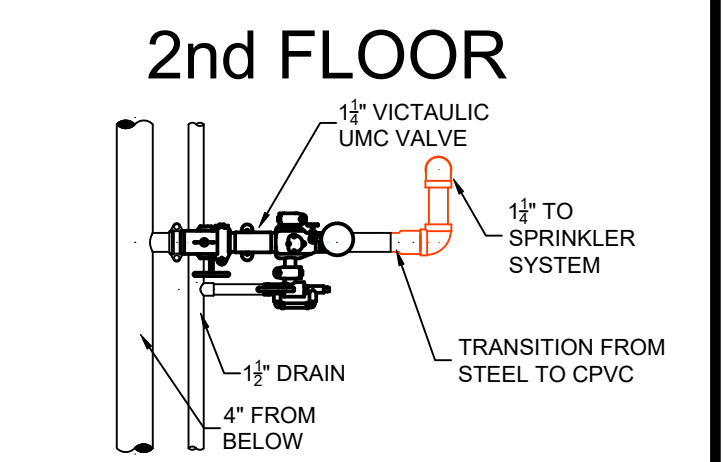
Design Area # 06 HAZARD: LIGHT
 Zone: 2 System Type: WET
 Location: 1ST FLOOR COMMON
 Flowing Outlets: 10
 Density: 0.10 Remote Area: 1010
 Req'd @ Base of Riser Flow 211.5 gpm @ 75.6 psi
 Req'd @ Pump Discharge Flow 211.5 gpm @ 100.4 psi
 Calculation Safety: 27 psi
 Includes 100 gpm Hose allowance
 NOTE: 1500' REDUCED BY 40% TO 900' DUE TO CEILING HEIGHT PER NFPA 13 FIG. 11.2.3.2.3.1

Design Area # 07 HAZARD: OH1
 Zone: 2 System Type: WET
 Location: 1ST FLOOR TRASH 141 / ELEC 142
 Flowing Outlets: 6
 Density: 0.15 Remote Area: 473
 Req'd @ Base of Riser Flow 96.1 gpm @ 20.2 psi
 Req'd @ Pump Discharge Flow 96.1 gpm @ 32.2 psi
 Calculation Safety: 34.9 psi
 Includes 250 gpm Hose allowance
 CALCULATED PER ROOM DESIGN METHOD 11.2.3.3.5(3)
 THE WALLS FOR THE STORAGE ROOM ARE RATED AT 1 HOUR WHILE THE DOORS ARE RATED AT 90 MINUTES & ARE SELF-CLOSING.

Design Area # 08 HAZARD: LIGHT
 Zone: 2 System Type: WET
 Location: 1ST FLOOR CORRIDOR 130
 Flowing Outlets: 5
 Density: 0.10 Remote Area: 413
 Req'd @ Base of Riser Flow 117.9 gpm @ 63.5 psi
 Req'd @ Pump Discharge Flow 117.9 gpm @ 77.2 psi
 Calculation Safety: 51.4 psi
 Includes 100 gpm Hose allowance
 CALCULATED 5 SPRINKLERS PER NFPA 11.2.3.3.6



ZONE CONTROL
 SCALE = 1/2" = 1'-0"



ZONE CONTROL
 SCALE = 1/2" = 1'-0"

PIPE LEGEND

- BLACK STEEL FIRE SPRINKLER PIPING
- CPVC FIRE SPRINKLER PIPING
- FIRE SPRINKLER STANDPIPE PIPING
- FIRE SPRINKLER FDC PIPING

SPRINKLER HEAD LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	RPT	SN	MPD	MODEL#	ESCUTCHION	SPACING
●	627	PENDENT	WHITE	155	4.90	1/2"	TY2234	TYCO	SEMI-REC	20' X 20'	
●	214	PENDENT	WHITE	200	5.60	1/2"	TY2923	TYCO	TY-FRB	SEMI-REC	15' X 15' L.H. 130 S.F. OH1
◄	12	SIDEWALL	WHITE	155	6.00	3/4"	TY4332	TYCO	TY-FRB	SEMI-REC	14' X 20'
◄	138	SIDEWALL	WHITE	155	4.40	1/2"	TY2334	TYCO	LFJI	SEMI-REC	16' X 16'
◄	47	SIDEWALL	WHITE	200	5.60	1/2"	TY3331	TYCO	TY-FRB	NONE	10' X 10'
○	12	UPRIGHT	BRASS	200	5.60	1/2"	TY313	TYCO	TY-FRB	NONE	15' X 15' L.H. 130 S.F. OH1
○	63	UPRIGHT	BRASS	200	14.00	1"	V5425	VICTALUC	F-LECOH	NONE	20' X 20'
1,113 TOTAL											

GENERAL NOTES

- SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
- ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
- MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
- ALL SCH-40 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
- ALL WELDING PER NFPA-54(2)
- NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
- ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
- ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
- HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
- PROVIDE ON SPRINKLER HEAD CABINET WITH HEADS & HEAD WRENCH
- MAKERS ARE TO BE U.L. LISTED AND I.M. APPROVED
- ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
- OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

NO	REVISIONS	DATE	APPROVAL STAMPS

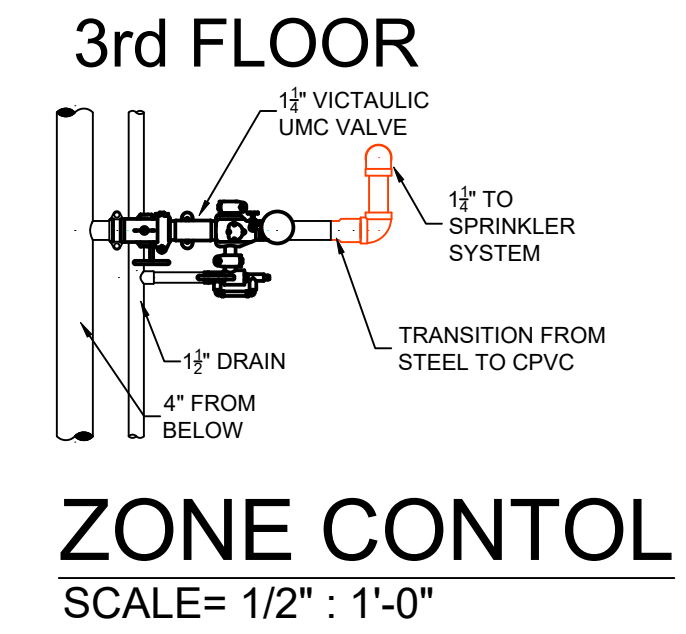
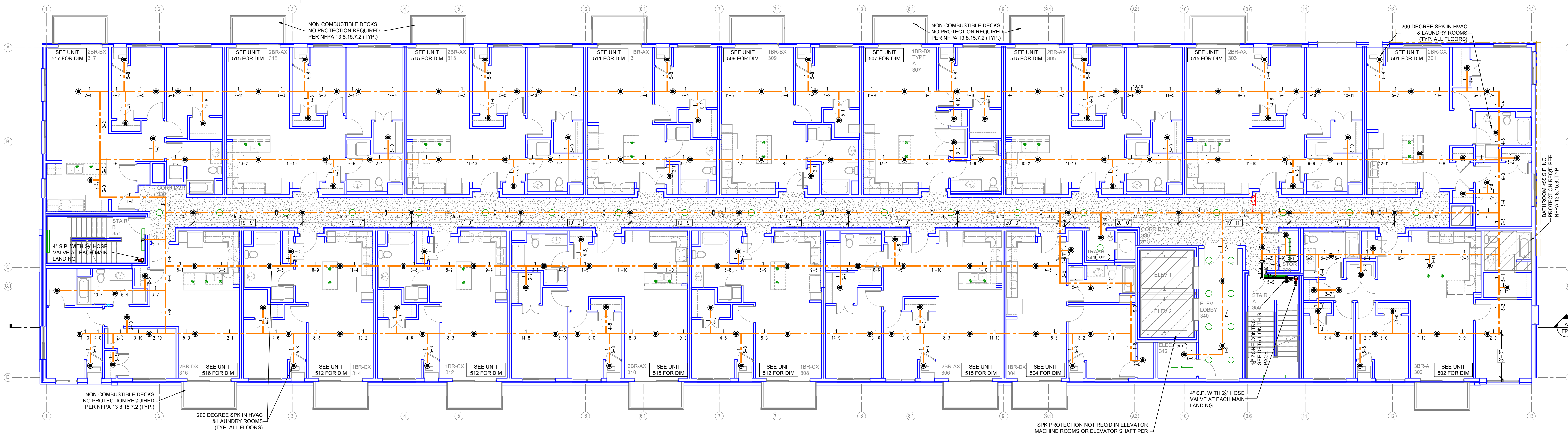
Drawing Title: **FIRE PROTECTION PLAN**

MARSHALL AVENUE FLATS
 1606 MARSHALL AVENUE
 ST. PAUL, MN 55104

Contract No: **C24-14**
 Drawing Date: 04-19-24
 Scale: 1/8" = 1'-0"
 Drawn By: JVG
 Approval By: STATE FIRE MARSHAL DIV.
 SHEET NO: **FP 2 of 5**

INSTALLATION NOTE:
 8'-10" UNIT CEILING HEIGHT U.N.O.
 8'-0" HALLWAY CEILING HEIGHT U.N.O.

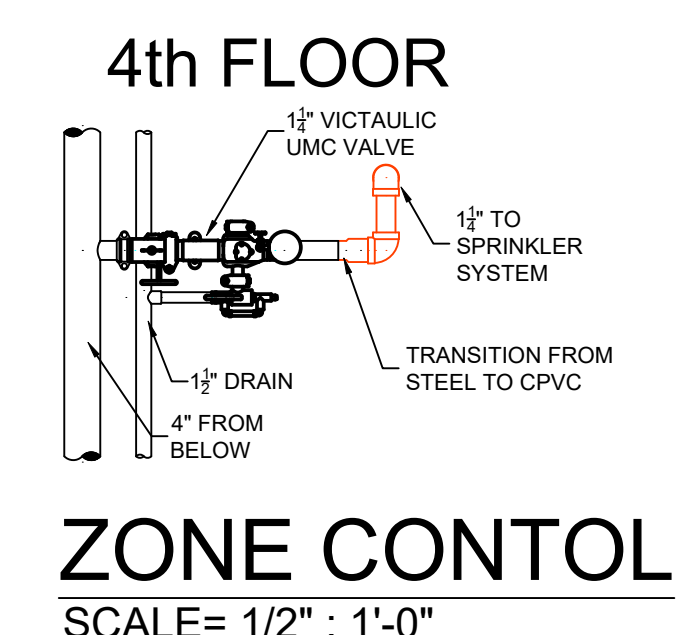
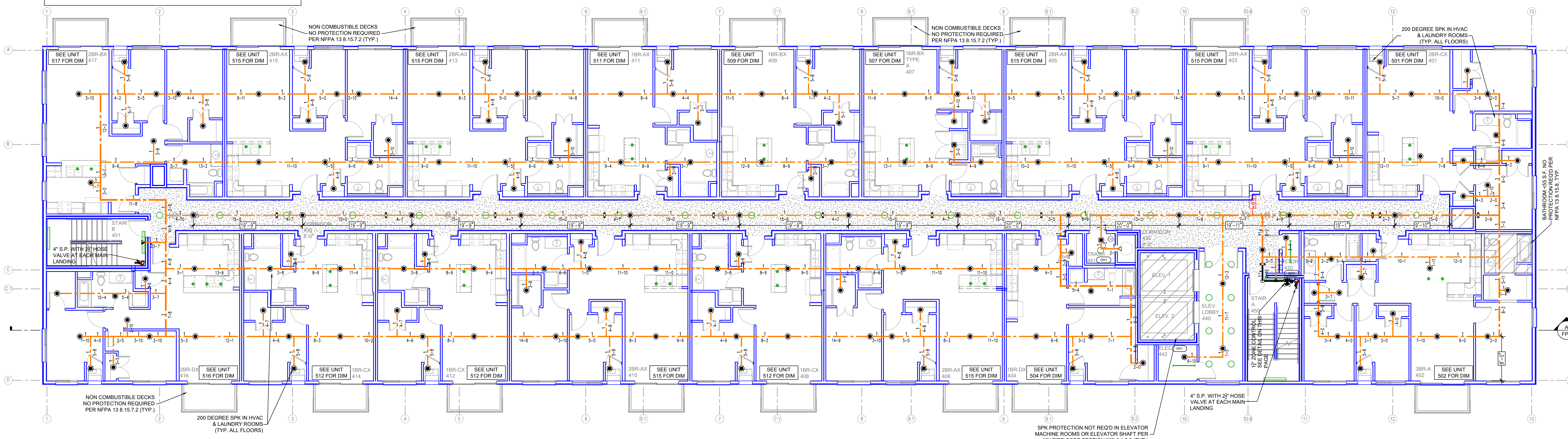
NOTE:
 • UNIT PENDENT SPRINKLERS HAVE BEEN DESIGNED TO A MAXIMUM SPACING OF 20'x20'
 • HALLWAY PENDENT SPRINKLERS HAVE BEEN DESIGNED TO A MAXIMUM SPACING OF 20'x20'



LEVEL 3 FIRE SPRINKLER PLAN
 SCALE = 1/8" : 1'-0"

INSTALLATION NOTE:
 8'-10" UNIT CEILING HEIGHT U.N.O.
 8'-0" HALLWAY CEILING HEIGHT U.N.O.

NOTE:
 • UNIT PENDENT SPRINKLERS HAVE BEEN DESIGNED TO A MAXIMUM SPACING OF 20'x20'
 • HALLWAY PENDENT SPRINKLERS HAVE BEEN DESIGNED TO A MAXIMUM SPACING OF 20'x20'



LEVEL 4 FIRE SPRINKLER PLAN
 SCALE = 1/8" : 1'-0"

PIPE LEGEND

- BLACK STEEL FIRE SPRINKLER PIPING
- CPVC FIRE SPRINKLER PIPING
- FIRE SPRINKLER STANDPIPE PIPING
- FIRE SPRINKLER FDC PIPING

SPRINKLER HEAD LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SN	MFG	MODEL#	ESLUTCHEOM	SPACING
●	627	PENDENT	WHITE	155	4.50	1/2"	TY2234	TYCO	LFI	SEMI-REC	20' X 20'
●	214	PENDENT	WHITE	200	5.60	1/2"	TY323	TYCO	TY-FRB	SEMI-REC	15' X 15' L.H. 130 S.F. OH1
●	12	SIDEWALL	WHITE	155	8.00	3/4"	TY432	TYCO	TY-FRB	SEMI-REC	14' X 20'
●	138	SIDEWALL	WHITE	155	4.40	1/2"	TY234	TYCO	LFI	SEMI-REC	16' X 16'
●	47	SIDEWALL	WHITE	200	5.60	1/2"	TY331	TYCO	TY-FRB	NONE	10' X 10'
●	12	UPRIGHT	BRASS	200	5.60	1/2"	TY313	TYCO	TY-FRB	NONE	15' X 15' L.H. 130 S.F. OH1
●	63	UPRIGHT	BRASS	200	14.00	1"	V3425	VICTALUC	FL-ECH	NONE	20' X 20'
1,113 TOTAL											

GENERAL NOTES

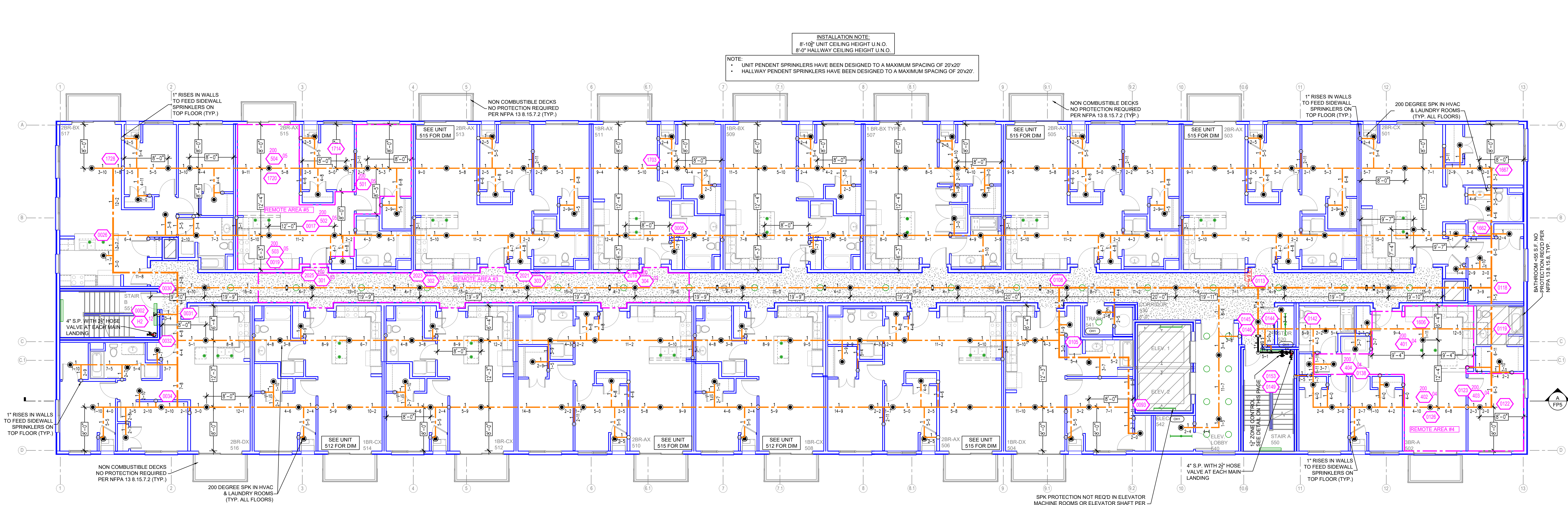
- SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
- ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
- MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
- ALL SCH-40 & LIGHTWALL PIPING HAS WELDED OUTLETS & APPROVED SHOP DRAWINGS
- ALL WELDING PER NFPA-54(2)
- NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
- ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
- ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
- HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
- PROVIDE ON SPINE HEAD CABINET WITH HEADS & 1 HEAD WRENCH
- MAKERS ARE TO BE U.L. LISTED AND I.M. APPROVED
- ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
- OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

NO.	REVISIONS	DATE	APPROVAL STAMPS

Drawing Title: FIRE PROTECTION PLAN

MARSHALL AVENUE FLATS
 1606 MARSHALL AVENUE
 ST. PAUL, MN 55104

Contract No. **C24-14**
 Drawing Date: 04-19-24
 Scale: 1/8" = 1'-0"
 Drawn By: JVG
 Approval By: STATE FIRE MARSHAL DIV.
 SHEET NO. FP 3 of 5

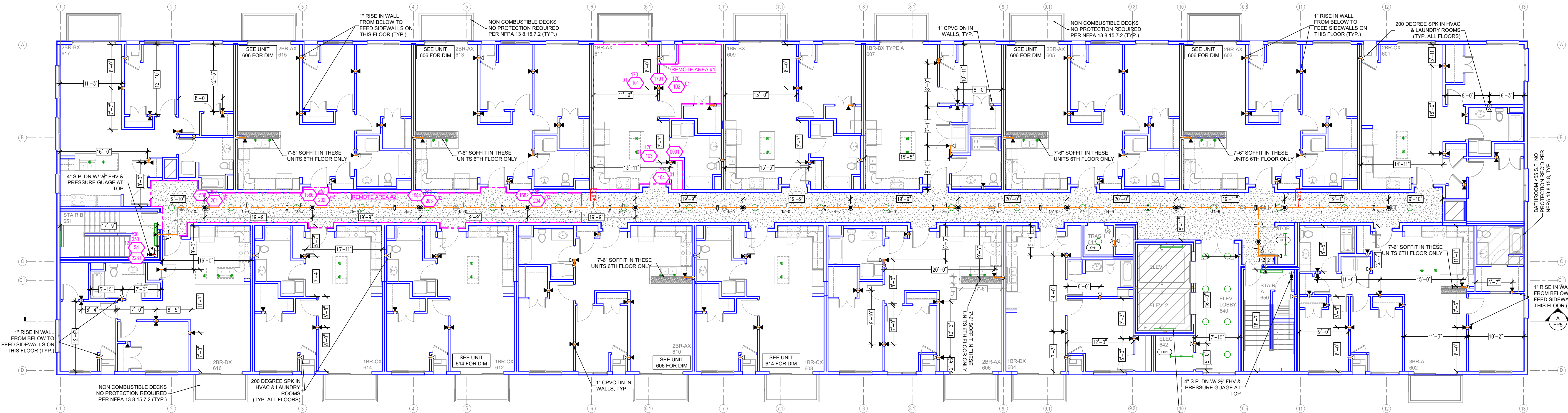
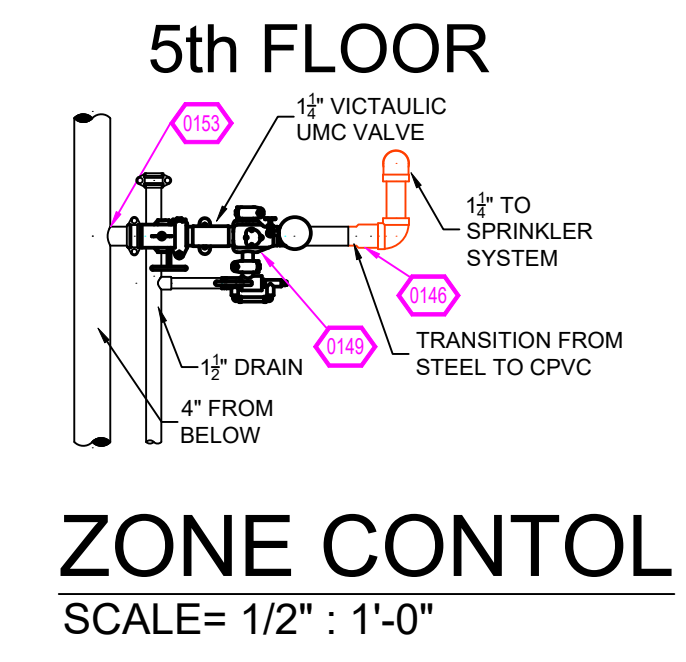


LEVEL 5 FIRE SPRINKLER PLAN
SCALE = 1/8" : 1'-0"

Design Area # 03 HAZARD: RES
Zone: 6 System Type: WET
Location: 5TH FLOOR
CORRIDOR 530
Flowing Outlets: 4
Density: 0.10 Remote Area: 454
Req'd @ Base of Riser
Flow 81.9 gpm @ 49.3 psi
Req'd @ Pump Discharge
Flow 81.9 gpm @ 83.4 psi
Calculation Safety: 43.9 psi
Includes 100 gpm Hose allowance
FOUR MOST DEMANDING RESIDENTIAL
SPRINKLERS CALCULATED PER NFPA 13 11.3.1.1.

Design Area # 04 HAZARD: RES
Zone: 6 System Type: WET
Location: 5TH FLOOR
3BR-A 502
Flowing Outlets: 4
Density: 0.10 Remote Area: 572
Req'd @ Base of Riser
Flow 81.7 gpm @ 31.8 psi
Req'd @ Pump Discharge
Flow 81.7 gpm @ 65.8 psi
Calculation Safety: 61.5 psi
Includes 100 gpm Hose allowance
FOUR MOST DEMANDING RESIDENTIAL
SPRINKLERS CALCULATED PER NFPA 13 11.3.1.1.

Design Area # 05 HAZARD: RES
Zone: 6 System Type: WET
Location: 5TH FLOOR
2BR-A 515
Flowing Outlets: 4
Density: 0.10 Remote Area: 568
Req'd @ Base of Riser
Flow 81.4 gpm @ 45.3 psi
Req'd @ Pump Discharge
Flow 81.4 gpm @ 79.3 psi
Calculation Safety: 48 psi
Includes 100 gpm Hose allowance
FOUR MOST DEMANDING RESIDENTIAL
SPRINKLERS CALCULATED PER NFPA 13 11.3.1.1.



LEVEL 6 FIRE SPRINKLER PLAN
SCALE = 1/8" : 1'-0"

SPRINKLER HEAD LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MFG	MODEL#	ESCLUTCHEOM	SPACING
●	627	PENDENT	WHITE	155	4.90	1/2"	TY2234	TYCO	LFI	SEMI-REC	20' X 20'
●	214	PENDENT	WHITE	200	5.60	1/2"	TY3231	TYCO	LFI	SEMI-REC	15' X 15' L.H. 130 S.F. OH1
◀	12	SIDEWALL	WHITE	155	8.00	3/4"	TY4332	TYCO	TY-FRB	SEMI-REC	14' X 20'
◀	138	SIDEWALL	WHITE	155	4.40	1/2"	TY2334	TYCO	LFI	SEMI-REC	16' X 16'
◀	47	SIDEWALL	WHITE	200	5.60	1/2"	TY3331	TYCO	TY-FRB	NONE	10' X 10'
◀	12	UPRIGHT	BRASS	200	5.60	1/2"	TY3131	TYCO	TY-FRB	NONE	15' X 15' L.H. 130 S.F. OH1
◀	63	UPRIGHT	BRASS	200	14.00	1"	V3425	VICTAULIC	FL-ECON	NONE	20' X 20'
1,113 TOTAL											

PIPE LEGEND

—	BLACK STEEL FIRE SPRINKLER PIPING
—	CPVC FIRE SPRINKLER PIPING
—	FIRE SPRINKLER STANDPIPE PIPING
—	FIRE SPRINKLER FDC PIPING

Design Area # 01 HAZARD: RES
Zone: 6 System Type: WET
Location: 6TH FLOOR
CORRIDOR
Flowing Outlets: 4
Density: 0.10 Remote Area: 471
Req'd @ Base of Riser
Flow 68.7 gpm @ 43 psi
Req'd @ Pump Discharge
Flow 68.7 gpm @ 74.9 psi
Calculation Safety: 32.7 psi
Includes 100 gpm Hose allowance
FOUR MOST DEMANDING RESIDENTIAL
SPRINKLERS CALCULATED PER NFPA 13 11.3.1.1.

Design Area # 02 HAZARD: RES
Zone: 6 System Type: WET
Location: 6TH FLOOR
CORRIDOR
Flowing Outlets: 4
Density: 0.10 Remote Area: 468
Req'd @ Base of Riser
Flow 82 gpm @ 60 psi
Req'd @ Pump Discharge
Flow 82 gpm @ 94.1 psi
Calculation Safety: 33.2 psi
Includes 100 gpm Hose allowance
FOUR MOST DEMANDING RESIDENTIAL
SPRINKLERS CALCULATED PER NFPA 13 11.3.1.1.

GENERAL NOTES

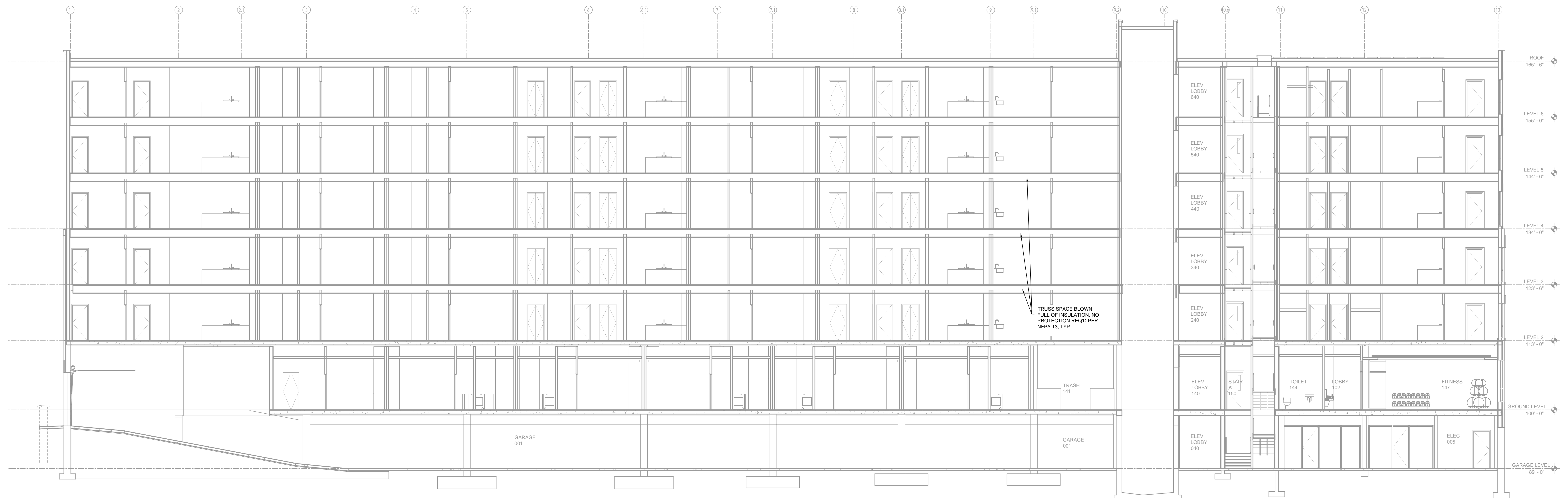
- SYSTEM INSTALLED PER NFPA 13 (2016 EDITION) AND STATE FIRE MARSHAL
- ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
- MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
- ALL SCH-40 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
- ALL WELDING PER NFPA 54 (2011)
- NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
- ALL FIRE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
- ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
- HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
- PROVIDE ON SPRINKER HEAD CABINET WITH HEADS & HEAD WRENCH
- MAKERS ARE TO BE U.L. LISTED AND I.M. APPROVED
- ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
- OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

NO	REVISIONS	DATE	APPROVAL STAMPS

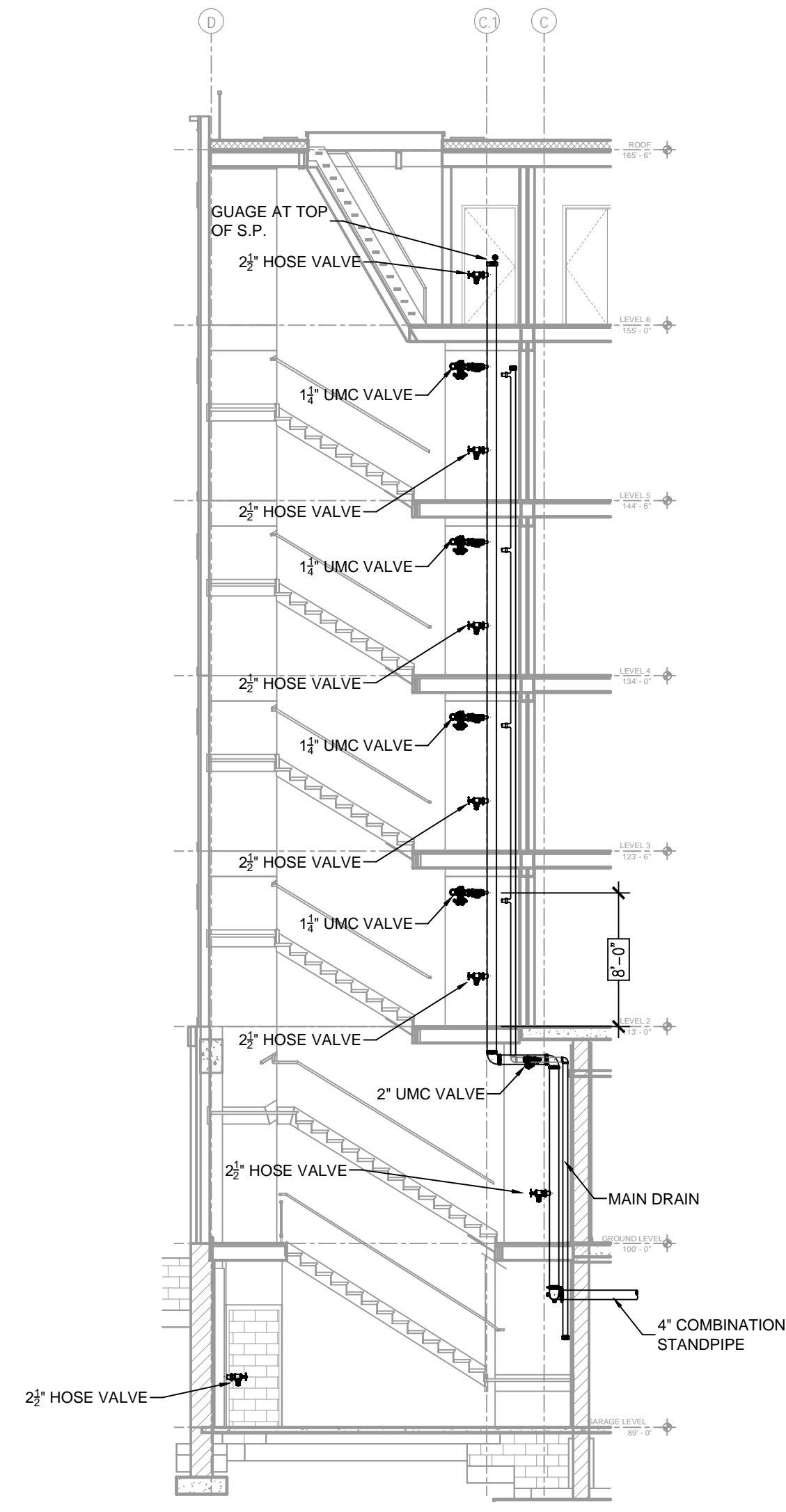
Drawing Title: **FIRE PROTECTION PLAN**

MARSHALL AVENUE FLATS
1606 MARSHALL AVENUE
ST. PAUL, MN 55104

Contract No: **C24-14**
Drawing Date: 04-19-24
Scale: 1/8" = 1'-0"
Drawn By: JVG
Approved By: STATE FIRE MARSHAL DIV.
SHEET NO: **FP 4 of 5**



A BUILDING SECTION
SCALE = 1/8" : 1'-0"

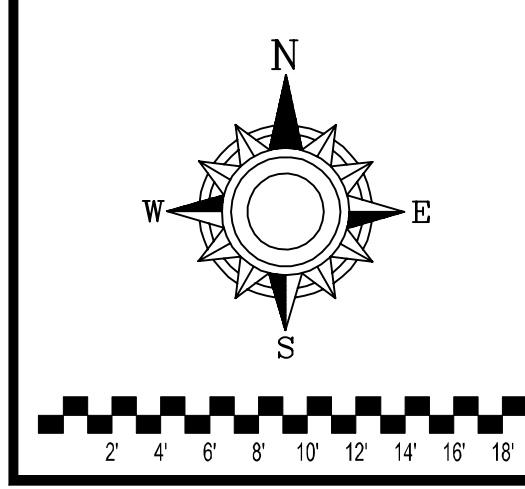


B STAIR SECTION
SCALE = 1/4" : 1'-0"

PIPE LEGEND	
	BLACK STEEL FIRE SPRINKLER PIPING
	CIVIC FIRE SPRINKLER PIPING
	FIRE SPRINKLER STANDPIPE PIPING
	FIRE SPRINKLER FDC PIPING

SPRINKLER HEAD LEGEND

SYM	CNT	POSITION	FINISH	TEMP	K	NPT	SIN	MPG	MODEL#	ESCUCHION	SPACING
●	627	PENDENT	WHITE	155	4.30	1/2"	TY234	TYCO	LFR	SEMI-REC	20' X 20'
●	214	PENDENT	WHITE	200	5.60	1/2"	TY323	TYCO	TY-FRB	SEMI-REC	15' X 15' L.H. 130 S.F. OH1
◀	12	SIDEWALL	WHITE	155	8.00	3/4"	TY4332	TYCO	TY-FRB	SEMI-REC	14' X 20'
◀	138	SIDEWALL	WHITE	155	4.40	1/2"	TY234	TYCO	LFR	SEMI-REC	16' X 16'
◀	47	SIDEWALL	WHITE	200	5.60	1/2"	TY331	TYCO	TY-FRB	NONE	10' X 10'
○	12	UPRIGHT	BRASS	200	5.60	1/2"	TY313	TYCO	TY-FRB	NONE	15' X 15' L.H. 130 S.F. OH1
⊠	63	UPRIGHT	BRASS	200	14.00	1"	V3425	VICTAULIC	FL-ECH	NONE	20' X 20'
1,113 TOTAL											



- GENERAL NOTES
1. SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
 2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
 3. MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
 4. ALL SCH-10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
 5. ALL WELDING PER NFPA-514(2)
 6. NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
 7. ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
 8. ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
 9. HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
 10. PROVIDE ON SPINE HEAD CABINET W/ HEADS & 1 HEAD WRENCH
 11. HANGERS ARE TO BE U.L. LISTED AND I.M. APPROVED
 12. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
 13. OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

NO	REVISIONS	DATE	APPROVAL STAMPS

Contract No. **C24-14**
 Drawing Date: 04-19-24
 Scale: 1/8" = 1'-0"
 Drawing Title: **FIRE PROTECTION PLAN**
MARSHALL AVENUE FLATS
 1606 MARSHALL AVENUE
 ST. PAUL, MN 55104
 Drawing By: JVG
 Approval By: STATE FIRE MARSHAL DIV.
 SHEET NO. **FP 5 of 5**