

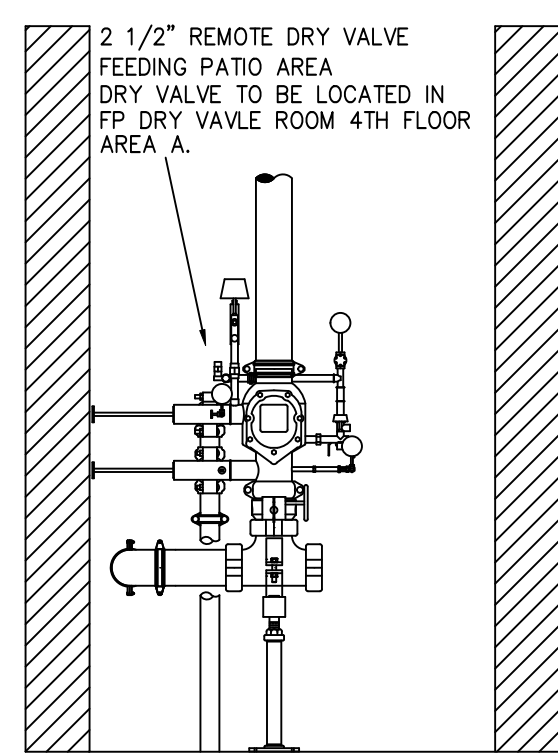
PIPE LEGEND

STEEL PIPE SHOWN SOLID
CPVC PIPE SHOWN DASHED

SYM	QTY	POSITION	FINISH	TEMP	K	RP	SN	MFG.	MODEL#
1379	UPR		BRASS	200	5.60	1/2"	WK300	VIKING	MICROFA
79	PEND		CHROME	155	5.60	1/2"	WK302	VIKING	MICROFA
12	SIDE		CHROME	155	5.60	1/2"	WK305	VIKING	MICROFA
93	PEND		CHROME	200	5.60	1/2"	WK302	VIKING	MICROFA
1112	PEND		CHROME	155	4.90	1/2"	WK488	VIKING	FREEDOM
14	SIDE		CHROME	155	5.60	1/2"	WK156	VIKING	MICROFA
1445	SIDE		CHROME	155	4.00	1/2"	WK488	VIKING	FREEDOM
45	SIDE		CHROME	200	5.60	1/2"	WK305	VIKING	MICROFA
9	SIDE		CHROME	155	8.00	3/4"	WK630	VIKING	WKEC
2	PEND		CHROME	205	5.60	1"	WK176	VIKING	VK-DRY
72	SIDE		CHROME	200	5.60	1"	WK182	VIKING	VK-DRY
114	PEND		CHROME	200	5.60	1/2"	WK305	VIKING	23819

2266 TOTAL SPRINKLERS
HEAD CABINET AND WRENCHES PROVIDED

SPRINKLER HEAD LEGEND



INTERNAL PIPE DIAMETERS

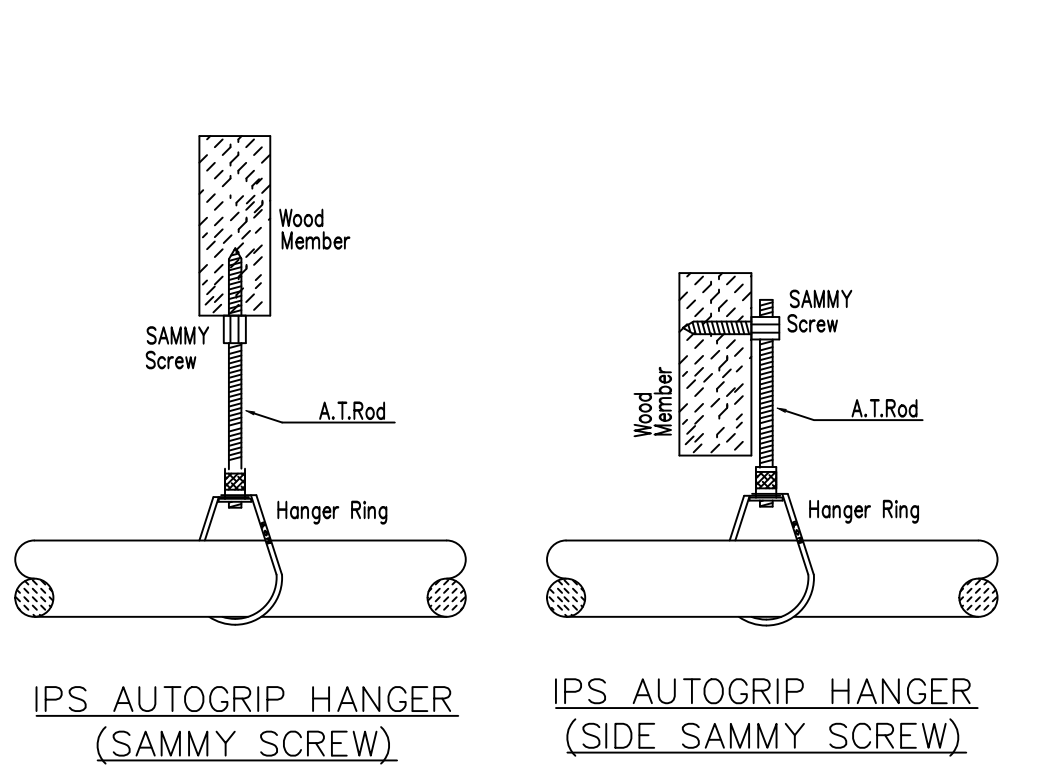
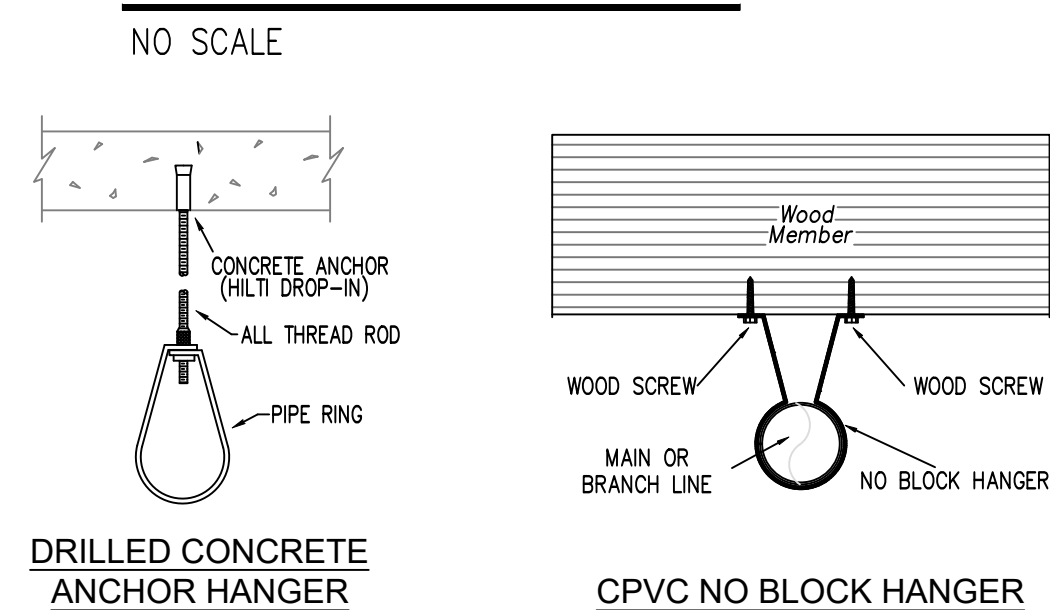
NOM. PIPE SIZE	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
SCH-10	1.097	1.442	1.682	2.157	2.635	3.280	4.260	6.371	8.249
DYNALOW	1.191	1.536	1.778	2.253	2.733	3.314	4.31	N/A	N/A

MAXIMUM DISTANCE BETWEEN HANGERS

NOM. PIPE SIZE	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
CPVC	5'-0"	6'-0"	6'-0"	7'-0"	8'-0"	10'-0"	N/A	N/A	N/A	N/A
STEEL PIPE	N/A	12'-0"	12'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
LIGHTWALL	N/A	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	N/A	N/A	N/A	N/A
UNSUPPORTED ENDS	38 in. 48 in. 60 in.									
1" ARM-OVERS	12 in.									

NOTE:
- ALL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE NFPA CODEBOOKS, FIRST AND FOREMOST REGARDLESS OF ACTUAL HANGER SPACING ON THESE DRAWINGS.

DRY VALVE DETAIL



HANGER DETAILS

ZONE CONTROL DETAIL

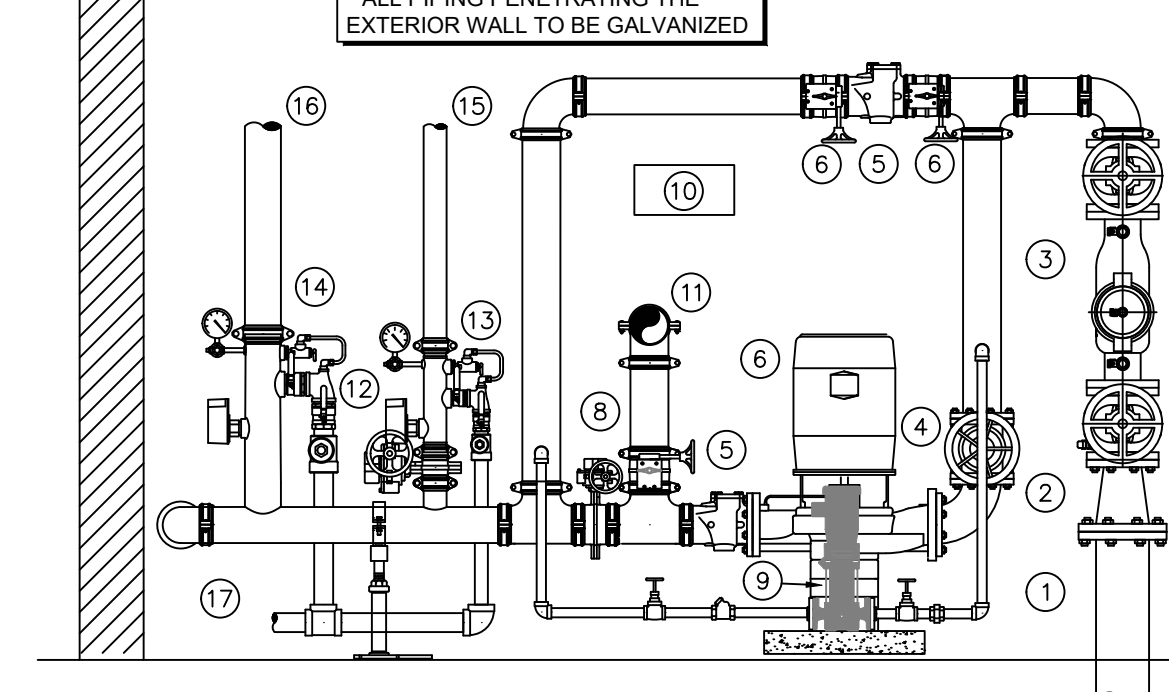
NO SCALE

RISER & FIRE PUMP LEGEND

- 6" UNDERGROUND WATER SERVICE (BY OTHERS)
- 6"x4" REDUCER
- 4" DERINGER 200 BACKFLOW w/ SUPERVISED GATE VALVES
- 4" GATE VALVE w/TAMPER
- 4" GROOVED CHECK VALVE
- 88PSI @ 400 GPM FIRE PUMP
- FLANGED CONCENTRIC INCREASER
- 4" GROOVED BUTTERFLY VALVE w/TAMPER
- JOCKEY PUMP
- SPARE HEAD BOX
- 4" OUT TO PUMP TEST HEADER
- 2-1/2" BUTTERFLY VALVE w/TAMPER
- 2-1/2" GROOVED COMMERCIAL RISER MANIFOLD w/ SUPERVISED BUTTERFLY VALVE, FLOW SWITCH, TEST & DRAIN, PRESSURE RELIEF, & PRESSURE GAUGE
- 4" GROOVED COMMERCIAL RISER MANIFOLD, FLOW SWITCH, TEST & DRAIN, PRESSURE RELIEF, & PRESSURE GAUGE
- 2-1/2" TO WET SYSTEM GARAGE ZONE
- 4" OUT TO COMBINED STANDPIPE & FIRE DEPARTMENT CONNECTION
- 2" MAIN DRAIN PIPED TO EXTERIOR COORDINATE EXACT LOCATION W/ G.C. AND OWNER

* ALL WIRING/INTERFACING OF ALARMS BY OTHERS

* ALL PIPING PENETRATING THE EXTERIOR WALL TO BE GALVANIZED

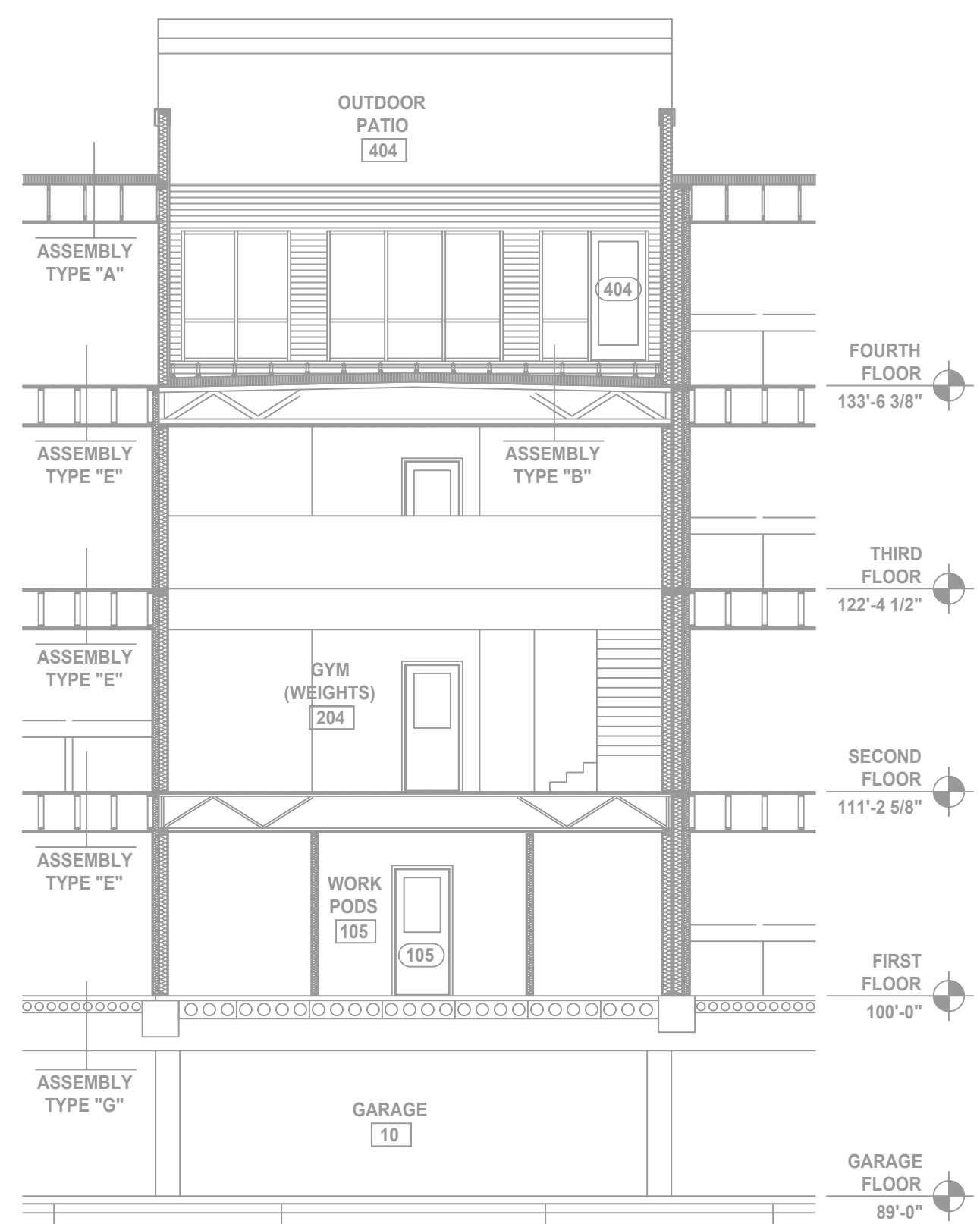


1 RISER DETAIL

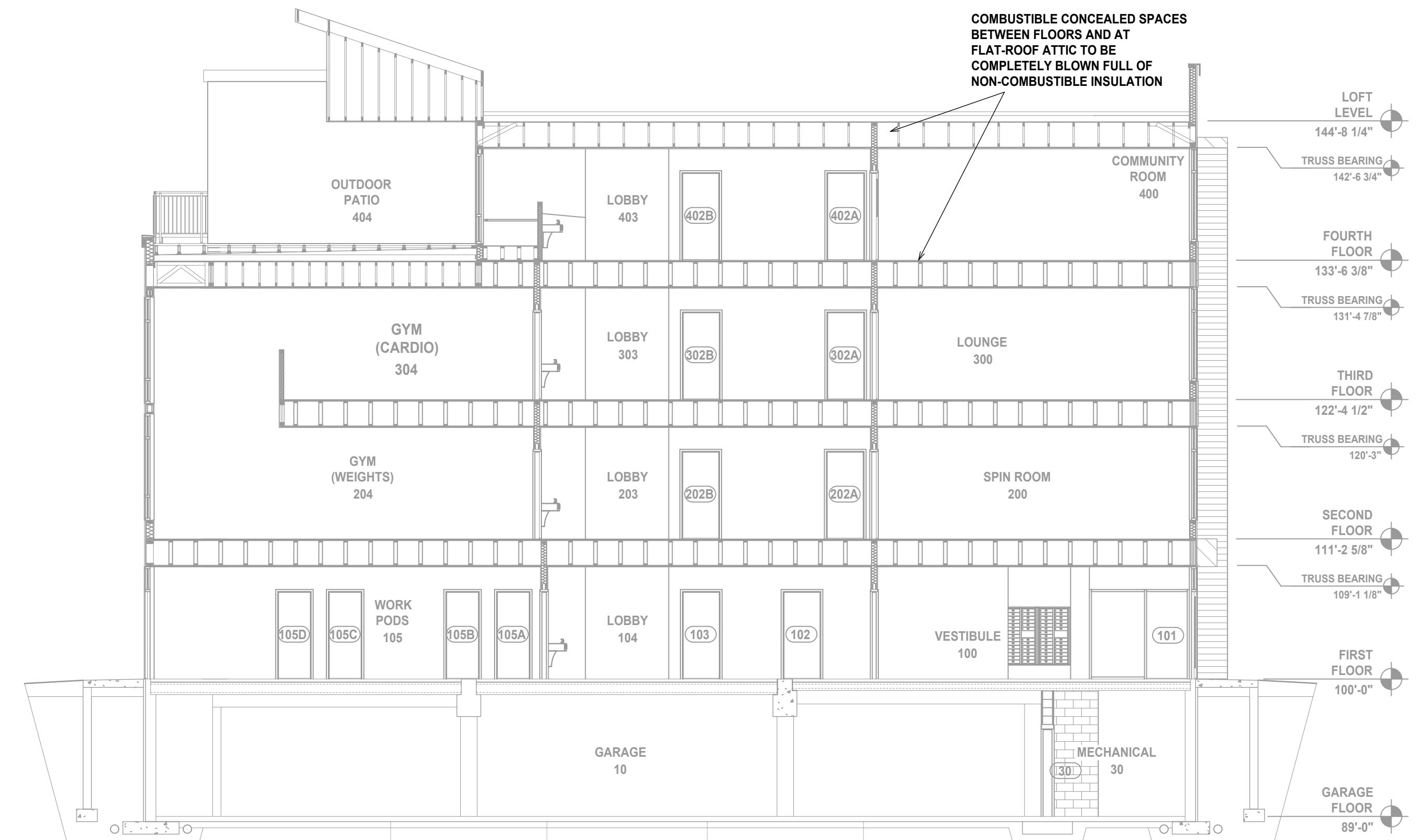
SCALE: 1/2" = 1'-0"

MANUAL WET STANDPIPE
LOCATION: BUILDING A - WEST
REQUIRED FLOW: 750GPM
OUTLET PSI: 100
REQUIRED INLET PSI: 165.3

MANUAL WET STANDPIPE
LOCATION: BUILDING B - EAST
REQUIRED FLOW: 500 GPM
OUTLET PSI: 100
REQUIRED INLET PSI: 164.2



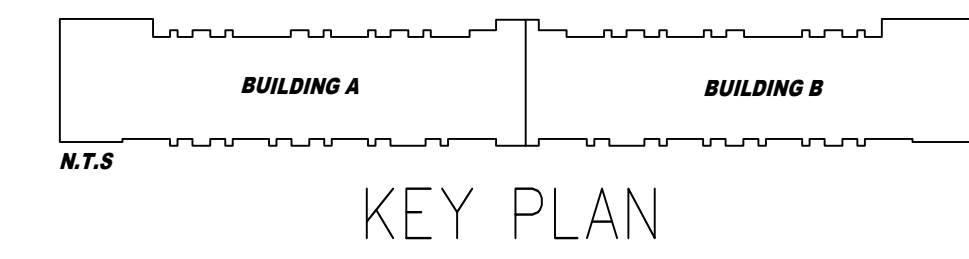
A BUILDING SECTION
SCALE: 1/8" = 1'-0"



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

FLOW TEST INFO:
STATIC = 45 PSI
RESID = 42 PSI
FLOW = 1922 GPM

* FLOW TEST INFORMATION



KEY PLAN

GENERAL NOTES

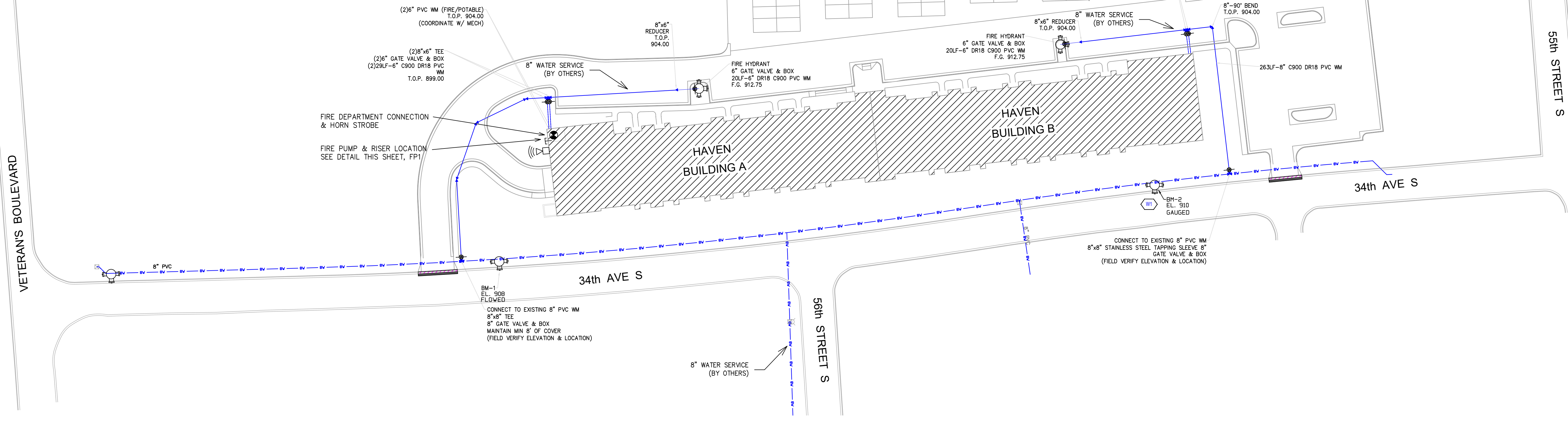
BUILDING DESCRIPTION: SIX-STORY APARTMENT BUILDING, CONSTRUCTION TYPE V.
STANDARD REFERENCE: NFPA 13 (2019), NFPA 14, NFPA 20
PIPE SCHEDULE: STEEL PIPE IN PARKING GARAGE AND RETAIL SPACE:
1" = SCHEDULE 30 w/ THREADED ENDS & FITTINGS
1 1/2" - 4" = SCHEDULE 7 w/ GRVD ENDS & FITTINGS & WELDED OUTLETS
CPVC PIPE ON LEVELS 1 THROUGH LOFT RESIDENTIAL AREAS
SYSTEM DESIGN:
PARKING GARAGE IS DIVIDED INTO TWO WET ZONES:
FLOOR 1 IS DIVIDED INTO 2 WET ZONES PER BUILDING A AND BUILDING B
FLOOR 2 IS DIVIDED INTO 2 WET ZONES PER BUILDING A AND BUILDING B
FLOOR 3 IS DIVIDED INTO 2 WET ZONES PER BUILDING A AND BUILDING B
FLOOR 4 IS DIVIDED INTO 2 WET ZONES PER BUILDING A AND BUILDING B
FLOOR 5 AND LOFT ARE COMBINED AND DIVIDED INTO 2 WET ZONES PER BUILDING A AND BUILDING B
PARKING GARAGE IS PROTECTED TO ORDINARY HAZARD GROUP 1.
RESIDENTIAL AREAS ARE PROTECTED TO LIGHT HAZARD AND RESIDENTIAL CRITERIA PER NFPA 13.

SPRINKLER SYSTEMS ARE AS FOLLOWS:

ZONE 1: PARKING GARAGE BUILDING A	22,710 S.F.
ZONE 2: PARKING GARAGE BUILDING B	20,450 S.F.
ZONE 3: FLOOR 1 BUILDING A	22,710 S.F.
ZONE 4: FLOOR 1 BUILDING B	20,450 S.F.
ZONE 5: FLOOR 2 BUILDING A	22,710 S.F.
ZONE 6: FLOOR 2 BUILDING B	20,450 S.F.
ZONE 7: FLOOR 3 BUILDING A	22,710 S.F.
ZONE 8: FLOOR 3 BUILDING B	20,450 S.F.
ZONE 9: FLOOR 4 AND 5 BUILDING A	25,600 S.F.
ZONE 10: FLOOR 4 AND 5 BUILDING B	23,150 S.F.
TOTAL:	221,390 S.F.

- ALL MATERIAL TO BE NEW AND TO MEET U.L. LISTING CRITERIA.
- ALL PIPING TO BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS. ALL TESTS TO BE WITNESSED BY FIRE DEPARTMENT.
- G.C. AND OWNER TO ENSURE THAT ALL CONDITIONED SPACES CONTAINING WET SYSTEM PIPING ARE MAINTAINED AT A MINIMUM OF 40°F AT ALL TIMES.
- A STOCK OF SPARE SPRINKLERS WILL BE PROVIDED PER NFPA 13.
- HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13.
- AUXILIARY DRAINS WILL BE IN ACCORDANCE WITH NFPA 13.
- ALL LIGHT HAZARD AREAS SHALL HAVE QUICK RESPONSE HEADS.

- SYMBOLS USED ON DRAWINGS:
- (H) HYDRAULIC CALCULATION JUNCTION POINT
 - (-9.9') PIPE ELEVATION ABOVE FINISHED FLOOR
 - (-12') PIPE ELEVATION BELOW OVERHEAD DECK
 - (LH) ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
 - CPVC PIPE SHOWN DASHED
 - STEEL PIPE SHOWN SOLID



SITE PLAN

SCALE: 1" = 50'-0"

General Notes

- System installed per NFPA-13 (2019 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-10 & Eddy Flow piping has welded outlets & grooved fittings all welding per NFPA-13 (5-8.2).
- No installations or fabrication to begin without approved shop dwgs.
- All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
- All Dimensions Shows are Center to Center.
- High Temperature Heads are to be Field Located Where Required.
- Provide one spare head cabinet w/ 6 hds. & one hd wrench.
- Hangers are to be U.L. Listed and P.M. Approved.
- Electrical wiring, alarm, detection and supervisory by owner.
- Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

SYMBOLS

- (-9.9') Ceiling Height
- (-10.0') Elev. Below Top of Slab
- (-10.0') Elev. Above Finished Floor
- (H) Hydraulic Reference Points
- (C) Common Connection Point
- (LH) Detected Hanger Location
- (U) Rise up or down
- (L) Electrical Light
- (LH) Room Hazard Classification
- (H) Sprinkler Head Code

APPROVAL STAMPS

Blank area for approval stamps.

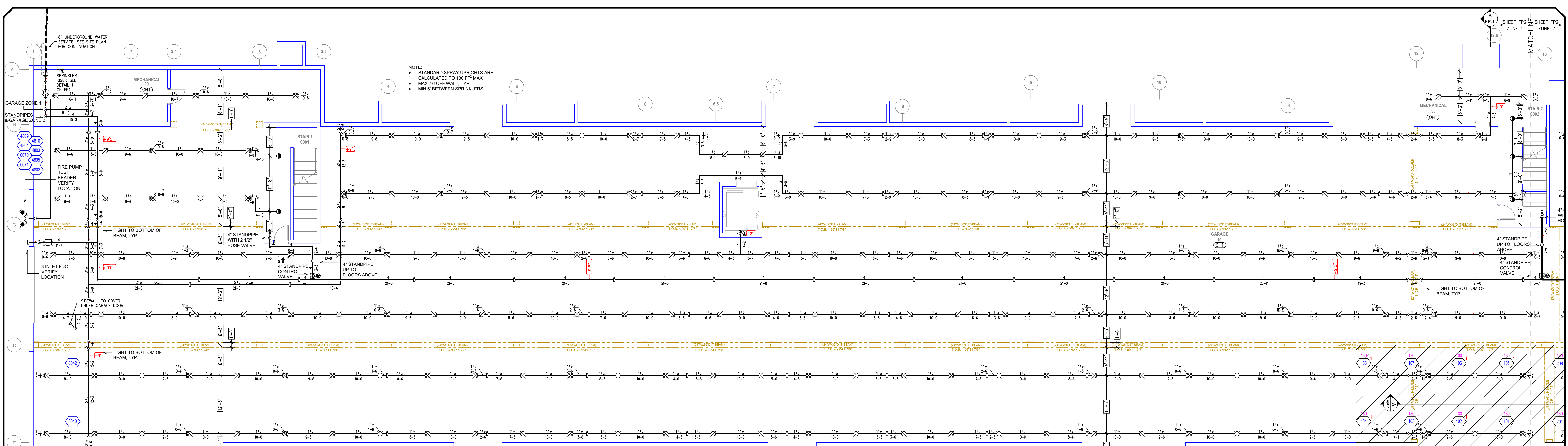
REVISIONS

NO.	DATE	DESCRIPTION
10/25/2021	ADDITION OF WINDOW HEADS IN COMMON AREA'S, UNITS WITH LOFTS COVERAGE UNDER STAIRWAYS & COMBUSTIBLE DECK COVERAGE	

FIRE PROTECTION PLAN

THE HAVEN ON VETERANS
EAGLERIDGE DEVELOPMENT
FARGO, ND

Contract No. _____
Drawing Date: 5/25/2021
Scale: 1/8" = 1'-0"
Drawing Type: Submittal
SHEET NO. **1 of 7**



GARAGE FLOOR AREA A
SCALE: 1/8" = 1'-0"

SYM	QTY	POSITION	FINISH	TEMP	K	RPY	ISN	MFG.	MODEL#	ES/DESCRIPTION
⊙	0	PEND	CHROME	200	5.60	1/2"	WK302	WIKING	MICROFA	SEMI RECESSED
⊙	0	PEND	CHROME	155	4.90	1/2"	WK468	WIKING	FREEDOM	SEMI RECESSED
◁	0	SIDE	CHROME	155	4.00	1/2"	WK486	WIKING	FREEDOM	SEMI RECESSED
⊙	0	SIDE	CHROME	200	5.60	1/2"	WK305	WIKING	MICROFA	SEMI RECESSED
⊙	374	UPR	BRASS	200	5.60	1/2"	WK300	WIKING	MICROFA	NONE
◁	2	SIDE	CHROME	155	8.00	3/4"	WK630	WIKING	VK	SEMI RECESSED
◁	1	SIDE	CHROME	155	8.00	3/4"	WK630	WIKING	VK	SEMI RECESSED
⊙	0	PEND	CHROME	200	5.60	1"	WK176	WIKING	DRY PEN	SEMI RECESSED
⊙	7	PEND	CHROME	200	5.60	1/2"	WK302	WIKING	MICROFA	SEMI RECESSED
⊙	14	PEND	CHROME	155	5.60	1/2"	WK156	WIKING	MICROFA	SEMI RECESSED
⊙	14	PEND	CHROME	200	5.60	1/2"	WK660	WIKING	23808 1/4"	SEMI RECESSED

388 TOTAL SPRINKLERS THIS FLOOR
HEAD CABINET AND WRENCHES PROVIDED

Design Area #1 HAZARD: OH1
Zone: 1 System Type: WET
Location: PARKING LEVEL AREA A
Flowing Outlets: 8 Remote Area: 960
Density: 0.15 gpm @ 44.8 psi
Flow 412.1 gpm @ 44.8 psi
Calculation Safety: 74.1 psi
Includes 250 gpm hose allowance
REMOTE AREA REDUCTION USED WITH AN 11" CEILING HEIGHT AND/OR SPRINKLER HEADS FOR A 945 SQ. FT. MINIMUM REMOTE AREA.

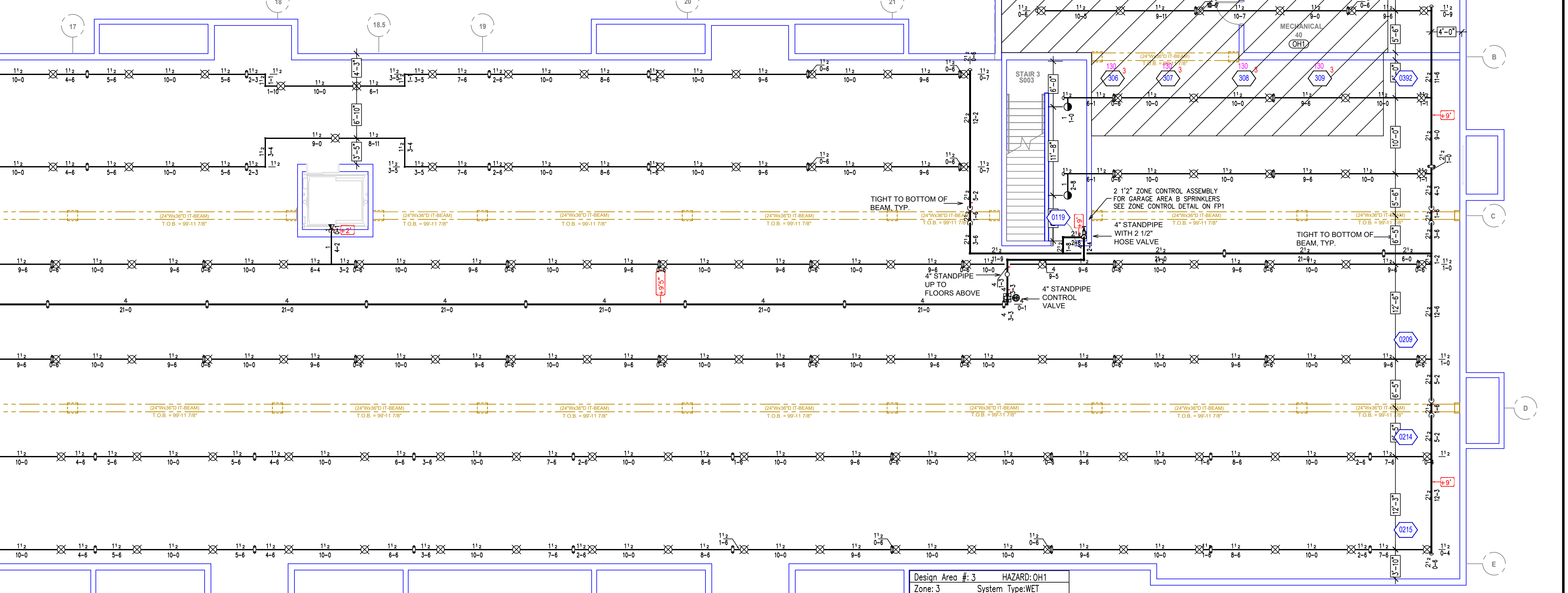
DA Name: 1
DA Area: 965.01

Design Area #2 HAZARD: OH1
Zone: 2 System Type: WET
Location: PARKING LEVEL AREA B
Flowing Outlets: 8 Remote Area: 972
Density: 0.15 gpm @ 44.8 psi
Flow 445.4 gpm @ 44.8 psi
Calculation Safety: 88.3 psi
Includes 250 gpm hose allowance
REMOTE AREA REDUCTION USED WITH AN 11" CEILING HEIGHT AND/OR SPRINKLER HEADS FOR A 945 SQ. FT. MINIMUM REMOTE AREA.

DA Name: 2
DA Area: 944.51

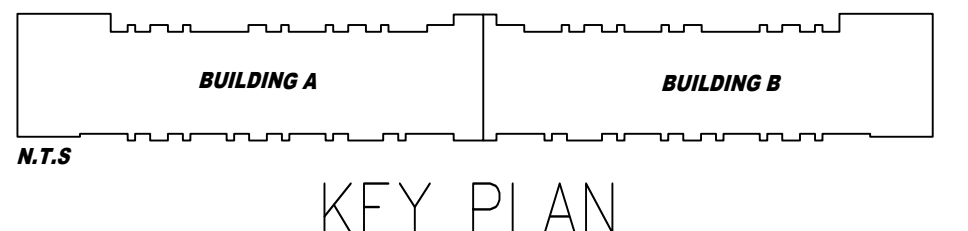
Design Area #3 HAZARD: OH1
Zone: 3 System Type: WET
Location: PARKING LEVEL AREA B - TREE
Flowing Outlets: 8 Remote Area: 960
Density: 0.15 gpm @ 44.8 psi
Flow 438.4 gpm @ 44.8 psi
Calculation Safety: 100.4 psi
Includes 250 gpm hose allowance
REMOTE AREA REDUCTION USED WITH AN 11" CEILING HEIGHT AND/OR SPRINKLER HEADS FOR A 945 SQ. FT. MINIMUM REMOTE AREA.

DA Name: 3
DA Area: 983.26



GARAGE FLOOR AREA B
SCALE: 1/8" = 1'-0"

PIPE LEGEND
— STEEL PIPE SHOWN SOLID
- - - CPVC PIPE SHOWN DASHED



1. System installed per NFPA-13 (2019 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 & Extra Flow piping has welded outlets & grooved fittings all welding per NFPA-13 (3-8-2).
5. No installation or fabrication to begin without approved shop dwgs.
6. All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
7. All Dimensions Shown are Center to Center.
8. High Temperature Heads are to be Field Located Where Required.
9. Provide one spare head cabinet w/ 6 hds. & one hd wrench.
10. Hangers are to be U.L. Listed and P.M. Approved.
11. Electrical wiring, alarm, detection and supervisory by owner.
12. Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

SYMBOLS

- Ceiling Height
- Elev. Below Top of Slab
- Elev. Above Finished Floor
- Hydraulic Reference Point
- Common Connection Point
- Detached Hanger Location
- Rise up or down
- Electrical Light
- Room Hazard Classification
- Sprinkler Head Code

APPROVAL STAMPS

REVISIONS

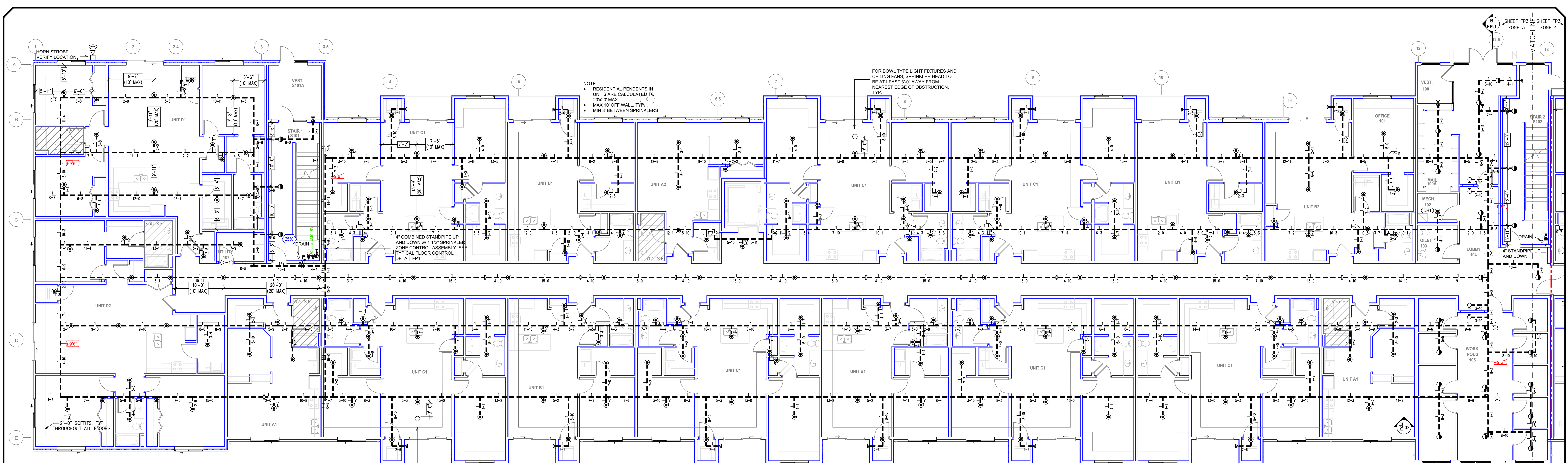
10/25/2021	- ADDITION OF WINDOW HEADS IN COMMON AREA'S, UNITS WITH LOFTS COVERAGE UNDER STAIRWAYS & COMBUSTIBLE DECK COVERAGE
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910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

FIRE PROTECTION PLAN

THE HAVEN ON VETERANS
EAGLERIDGE DEVELOPMENT
FARGO, ND

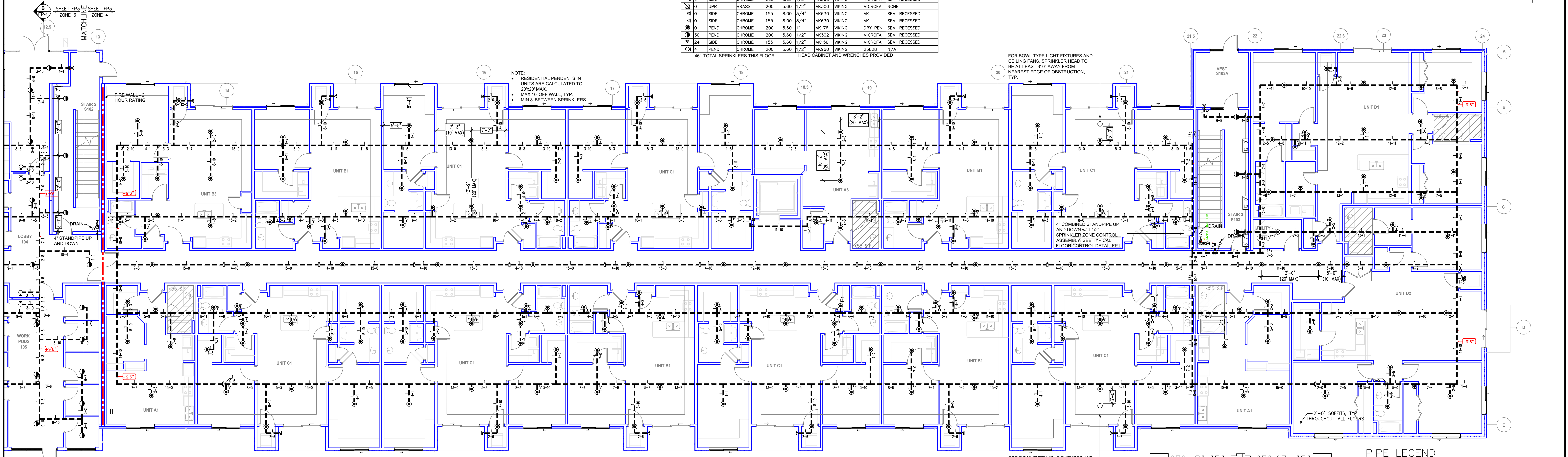
Contract No.
Drawing Date: 5/25/2021
Scale: 1/8" = 1'-0"
Drawn By:
Drawing Type: Submittal
SHEET NO. 2 of 7



SYM	QTY	POSITION	FINISH	TEMP	K	RPT	SN	MFG	MODEL#	ESCU/CHRON
31	PEND		CHROME	200	5.60	1/2"	WK302	VIKING	MICROFA	SEMI RECESSED
372	PEND		CHROME	155	4.90	1/2"	WK468	VIKING	FREEDOM	SEMI RECESSED
0	SIDE		CHROME	155	4.90	1/2"	WK488	VIKING	FREEDOM	SEMI RECESSED
0	SIDE		CHROME	200	5.60	1/2"	WK302	VIKING	MICROFA	SEMI RECESSED
0	UPR		BRASS	200	5.60	1/2"	WK300	VIKING	MICROFA	NONE
0	SIDE		CHROME	155	8.00	3/4"	WK630	VIKING	VK	SEMI RECESSED
0	SIDE		CHROME	155	8.00	3/4"	WK830	VIKING	VK	SEMI RECESSED
0	PEND		CHROME	200	5.60	1"	WK176	VIKING	DRY PEN	SEMI RECESSED
330	PEND		CHROME	200	5.60	1/2"	WK302	VIKING	MICROFA	SEMI RECESSED
24	SDZ		CHROME	155	5.60	1/2"	WK156	VIKING	MICROFA	SEMI RECESSED
0	PEND		CHROME	200	5.60	1/2"	WK960	VIKING	23828	N/A

461 TOTAL SPRINKLERS THIS FLOOR
HEAD CABINET AND WRENCHES PROVIDED

FIRST FLOOR AREA A
SCALE: 1/8" = 1'-0"



FIRST FLOOR AREA B
SCALE: 1/8" = 1'-0"

General Notes

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- No installation or fabrication to begin without approved shop dwgs.
- 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 one spare head cabinet w/ 6 hds. & one hd wrench.
- Hangers are to be U.L. Listed and P.E. Approved.
- Electrical wiring, alarm, detection and supervisory by owner.
- Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

SYMBOLS

- Ceiling Height
- Elev. Below Top of Steel
- Elev. Above Finished Floor
- Hydraulic Reference Points
- Common Connection Point
- Designated Hanger Location
- Rise up or down
- Electrical Light
- Room Hazard Classification
- Sprinkler Head Code

APPROVAL STAMPS

REVISIONS

10/25/2021	ADDITION OF WINDOW HEADS IN COMMON AREA'S, UNITS WITH LOFTS COVERAGE UNDER STAIRWAYS & COMBUSTIBLE DECK COVERAGE
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PIPE LEGEND

- STEEL PIPE SHOWN SOLID
- - - CPVC PIPE SHOWN DASHED

KEY PLAN

FIRE PROTECTION PLAN

THE HAVEN ON VETERANS
EAGLERIDGE DEVELOPMENT
FARGO, ND

Contract No. _____
Drawing Date: 5/25/2021
Scale: 1/8" = 1'-0"
Drawing Type: Submittal
SHEET NO. **3 of 7**