

UNDERGROUND PIPE SHOWN FOR REFERENCE ONLY
SEE CIVIL PLAN SET (BY OTHERS) FOR MORE INFORMATION

**City of Puyallup
Fire
REVIEWED
FOR
COMPLIANCE**
DDrake
04/10/2024
9:24:16 AM

Approval of submitted plans is not an approval of omissions or oversight by this office or noncompliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable building codes and regulations of the local government.

THE APPROVED CONSTRUCTION PLANS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

SYMBOLS:

	SWAY BRACING
	PIPE HANGER
	PIPE HANGER W/ BRANCH LINE RESTRAINT
	FLEXIBLE COUPLING
	RIGID COUPLING
	HYDRAULIC NODE
	GATE VALVE-N.R.S. (GV)
	ELECTRIC BELL
	FIRE DEPARTMENT CONNECTION (STANDARD)
	FIRE DEPARTMENT CONNECTION (SIDEWALK)
	EXISTING FIRE HYDRANT
	NEW FIRE HYDRANT
	POST INDICATOR VALVE (PIV)
	THRUST BLOCK
	FLANGED CONNECTION
	EXISTING SPRINKLER PIPING (SITE PLAN)
	NEW SPRINKLER PIPING BY OTHERS (SITE PLAN)
	NEW SPRINKLER PIPING BY SHINN MECH. (SITE PLAN)
	CENTERLINE OF PIPE ABOVE FINISHED
	FLOOR
	SECTION DETAIL ARROW POINTS
	VIEW DIRECTION

SCOPE OF WORK:
SHINN FIRE PROTECTION TO DESIGN AND INSTALL NEW WET AND DRY FIRE SPRINKLER SYSTEMS, WET MANUAL STANDPIPES BASED ON NFPA 14 -2016. SCOPE OF WORK STARTS AT 12" ABOVE FINISHED FLOOR IN THE RISER ROOM

UNDERGROUND NOTES: (BY OTHERS)

- ALL UNDERGROUND TO BE BY OTHERS. CONTRACTOR TO BE STATE LICENSED AND CERTIFIED TO INSTALL UNDERGROUND PIPING PER WAC 212-80.
- THE DESIGN AND INSTALLATION OF THE FIRE PROTECTION UNDERGROUND SHALL BE PERFORMED PER SECTION 212.80.18 OF THE "WASHINGTON ADMINISTRATIVE CODE" (WAC)
- UNDERGROUND PIPING TO BE PROPERLY THRUST BLOCKED PER NFPA 24 WITH A MINIMUM OF 3'-0" BELOW FROST LINE.
- SHINN FIRE PROTECTION'S SCOPE OF WORK STARTS AT 12" ABOVE FINISHED FLOOR IN THE RISER ROOM

SPECIAL FIELD INSTRUCTIONS:

- INSTALL TEMPORARY PROTECTION (RED CAP) AND OR PLASTIC BAGS ON ALL SPRINKLER HEADS AS REQUIRED TO AVOID COLLISION BY OTHER TRADES AND PAINT OVERSPRAY. ALL TEMPORARY PROTECTION MEASURES TO BE REMOVED PRIOR TO SYSTEM BEING PLACED IN SERVICE.

GENERAL NOTES:

- FIRE SPRINKLER SYSTEMS ARE TO BE DESIGNED, INSTALLED & TESTED IN ACCORDANCE WITH NFPA 14 & 25, 2016 EDITION, AS AMENDED BY THE STATE FIRE MARSHALL & THE CITY OF PUYALLUP FIRE DEPT.
- ALL MATERIALS AND EQUIPMENT TO BE INSTALLED SHALL BE UL LISTED OR FM APPROVED.
- IT IS THE OWNER'S RESPONSIBILITY TO ENSURE THAT THE STRUCTURE CAN ADEQUATELY SUPPORT ALL FIRE SPRINKLER PIPE AND SEISMIC LOADS.
- OWNER IS RESPONSIBLE FOR MAINTAINING TEMPERATURES ABOVE 40°F TO PROTECT THE WET FIRE SPRINKLER SYSTEM FROM FREEZING. FIRE SPRINKLER SYSTEM HEATED BY BUILDING CENTRAL HEATING SYSTEM
- ALL WIRING OF FIRE PROTECTION SYSTEM COMPONENTS TO BE DONE BY OTHERS. ALL WIRING AND MATERIAL SHALL BE LISTED IN ACCORDANCE WITH NFPA 70 (NEC) LATEST EDITION ADOPTED.
- CENTRAL STATION MONITORING EQUIPMENT, WIRING AND SERVICES TO BE DONE BY OTHERS.
- HANGERS TO BE PER NFPA 13 AS SHOWN ON THE DRAWINGS
- NOTIFICATIONS: CENTRAL ALARM SYSTEM (BY OTHERS)
- ALL NEW SYSTEMS SHALL BE HYDROSTATICALLY TESTED AT 200PSI OR 50 PSI OVER SYSTEM PRESSURE, WHICHEVER IS GREATER FOR 2 HRS.
- ALL ORDINARY TEMPERATURE SPRINKLERS TO BE LOCATED AT LEAST 12" AWAY FROM EDGE OF DIFFUSER AND 6" AWAY FROM LIGHTS (0-250W)
- ALL ARM OVERS EXCEEDING 24" TO BE PROVIDED WITH A HANGER
- NOTIFICATION IS PROVIDED BY INTERIOR/EXTERIOR HORN & STROBE. ALL SYSTEMS TO BE MONITORED 24 HRS A DAYS BY A CENTRAL STATION. (BY OTHERS)
- EXTERIOR HORN & STROBE TO BE PROVIDED & LOCATED ON SIDE OF BUILDING CLOSEST TO REMOTE FDC (BY OTHERS)
- ACT GRID CEILINGS - ALL SPRINKLER HEADS TO BE CENTER OF 2X2 TILES.

DRAWING INDEX:

FP 0.10	SITE PLAN AND NOTES
FP 1.00	STAND PIPE AND CROSS MAIN DETAIL
FP 2.00	FIRE SPRINKLER PLAN - FLOOR 00 & DETAILS
FP 2.10	FIRE SPRINKLER PLAN - FLOOR 01
FP 2.20	FIRE SPRINKLER PLAN - FLOOR 02
FP 2.30	FIRE SPRINKLER PLAN - FLOOR 03
FP 2.40	FIRE SPRINKLER PLAN - ROOF PLAN

WATER SUPPLY:
SOURCE: PUYALLUP UTILITIES COMPUTER MODEL
STATIC PSI: 64 PSI
RESIDUAL: 20 PSI
FLOW: 1950 GPM
LOCATION: 640 RAILROAD AVE
DATE: 02-11-2022
HYDRANT LOCATION: HYDRANT #SE682

PROJECT HEAD COUNTS: TOTAL FOR ALL PAGES

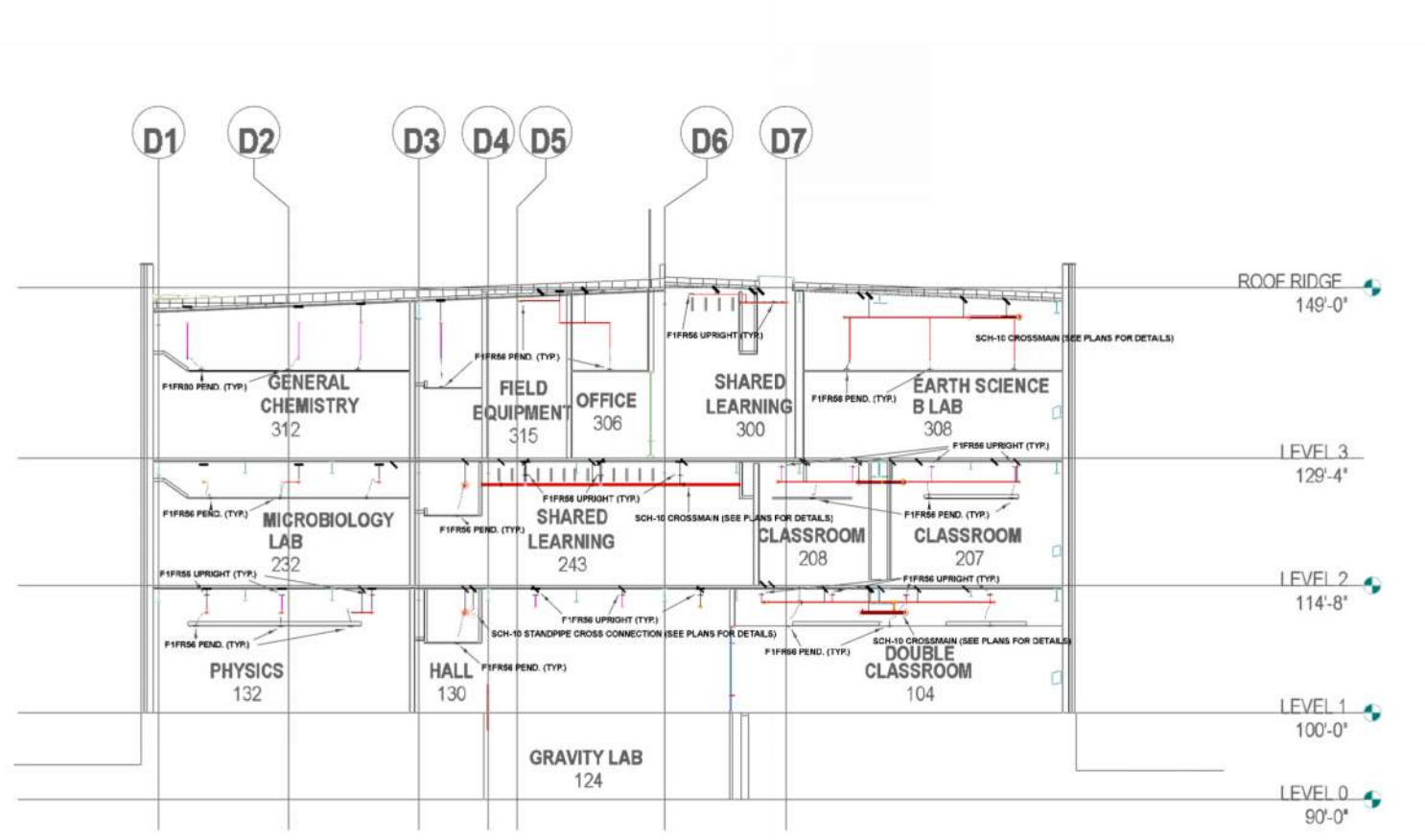
SYM	MFG	TYPE	SIN #	K-FACTOR	THR	TEMP	FINISH	QTY	
○	RELIABLE	UPRIGHT	F1FR56	5.6	1/2"	155°F	BRONZE	309	
●	RELIABLE	PENDENT	F1FR80	8.0	3/4"	155°F	CHROME	165	
⊙	RELIABLE	PENDENT	F1FR56	5.6	1/2"	155°F	CHROME	228	
⊙	RELIABLE	PENDENT	F1FR56	5.6	1/2"	155°F	CHROME	8	
⊙	RELIABLE	PENDENT	F1FR28	2.8	1/2"	200°F	CHROME	4	
⊙	RELIABLE	SIDEWALL	F1FR56	5.6	1/2"	155°F	BRONZE	11	
								TOTAL	725

DESIGN NOTES:

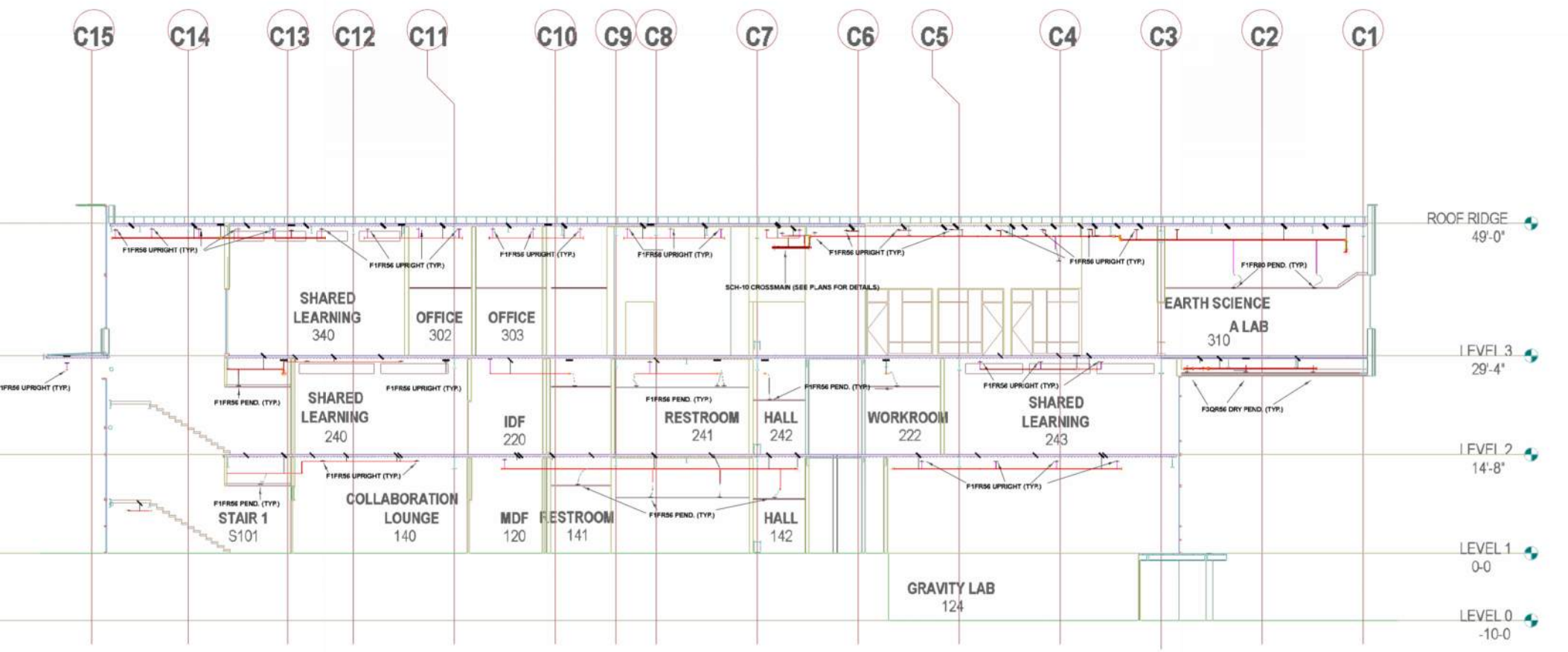
- BUILDING STRUCTURE IS NON-COMBUSTIBLE CONCRETE AND STEEL CONSTRUCTION.
- SPRINKLER DEFLECTOR AND LOCATIONS SHALL BE DESIGNED IN ACCORDANCE WITH NFPA #13 - 2016.
- ALL SEISMIC BRACING AND HANGER ASSEMBLIES TO BE INSTALLED IN ACCORDANCE TO NFPA #13 - 2016. PER NFPA 13 SECTION 9.3.8.5 BRANCHLINES WITH HANGER RODS LESS THAN 6" SHALL NOT REQUIRE BRANCH LINE END OF LINE RESTRAINT AND LATERAL BRACES.
- THREADED PIPE TO BE SCH-40 ANSI, ASTM A53, OR A135, BLACK WET SYSTEM.
- ROLL GROOVED PIPING: 1.5" TO 4" - SCH 10, ANSI/ASTM A795, BLACK WET SYSTEM
- ROLL GROOVED PIPING: 6" & 8" - SCH 10, ASTM A-135, BLACK WET SYSTEM
- THREADED PIPE TO BE SCH-40 ANSI, ASTM A53, OR A135, GALV. DRY SYSTEM.
- ROLL GROOVED PIPING: 1.5" TO 4" - SCH 10, ANSI/ASTM A795, GALV DRY SYSTEM
- ROLL GROOVED PIPING: 6" & 8" - SCH 10, ASTM A-135, GALV DRY SYSTEM
- THREADED FITTINGS TO BE DUCTILE/MALLEABLE IRON, 125#
- GROOVED FITTINGS - VICTAULIC FIRELOCK OR EQUAL
- WELDED OUTLETS - BY MERITS OR EQUAL
- WORKING PRESSURE:
- ALL PIPE FITTINGS TO BE LISTED FOR PRESSURES OVER 200 PSI
- SCH. 10 & 40 PIPE RATED FOR 300 PSI
- FIRELOCK FITTINGS & COUPLINGS ARE RATED FOR 365 PSI
- A REMOTE F.D.C. IS PROVIDED AND INSTALLED BY OTHERS
- LIGHT HAZARD OCCUPANCY (0.1/1500) - CLASSROOMS, OFFICES, RESTROOMS, CORRIDORS/HALLWAYS, CONFERENCE ROOMS, LOUNGE & ATTIC SPACE.
- OH GR I (0.15/1500) MECHANICAL ROOMS
- OH GR II (0.2/1500) - LAB SPACES
- A REDUCTION IN THE REMOTE AREA IS USED WHERE Q.R. SPRINKLER HEADS ARE INSTALLED

DESIGN CRITERIA:
PER NFPA 13 (2016), AND CITY OF PUYALLUP FIRE MARSHAL.

- LEVEL 0 - BOILER ROOM
ORDINARY GROUP I HAZARD
DESIGN DENSITY: 0.15 GPM / 1500 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 10' / 2 + 55 = 40% REDUCTION, 1500 SF * 40% = 600 SF
1500 SF - 600 SF = 900 SF
- LEVEL 1 - FAB LAB
ORDINARY GROUP II HAZARD
DESIGN DENSITY: 0.20 GPM / 1500 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 15' / 2 + 55 = 33% REDUCTION, 1500 SF * 33% = 495 SF
1500 SF - 495 SF = 1005 SF
- LEVEL 1 - CLOSELY SPACED HEADS
LIGHT HAZARD
DESIGN DENSITY: 0.10 GPM / 7 HEADS
WET SYSTEM
- LEVEL 1 - CLASSROOM 101 / 102
LIGHT HAZARD
DESIGN DENSITY: 0.10 GPM / 1555 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 15' / 2 + 55 = 33% REDUCTION, 1500 SF * 33% = 495 SF
1500 SF - 495 SF = 1005 SF
- LEVEL 2 - EAST ENTRY - HIGH BAY AREA
LIGHT HAZARD
DESIGN DENSITY: 0.10 GPM / 1335 SF
WET SYSTEM
- LEVEL 2 - GENERAL BIOLOGY LAB
ORDINARY GROUP II HAZARD
DESIGN DENSITY: 0.20 GPM / 1005 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 10' / 2 + 55 = 40% REDUCTION, 1500 SF * 40% = 600 SF
1500 SF - 600 SF = 900 SF
- LEVEL 2 - CLASSROOM 201 / 202
LIGHT HAZARD
DESIGN DENSITY: 0.10 GPM / 1555 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 15' / 2 + 55 = 33% REDUCTION, 1500 SF * 33% = 495 SF
1500 SF - 495 SF = 1005 SF
- LEVEL 2 - EAST DOOR OVER HANG
LIGHT HAZARD
DESIGN DENSITY: 0.10 GPM / FULL SYSTEM
ANTI-FREEZE SYSTEM 51.76 GAL. TOTAL
- LEVEL 3 - ORGANIC CHEMISTRY LAB
ORDINARY GROUP II HAZARD
DESIGN DENSITY: 0.20 GPM / 978 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 10' / 2 + 55 = 40% REDUCTION, 1500 SF * 40% = 600 SF
1500 SF - 600 SF = 900 SF
- LEVEL 3 - EARTH SCIENCE LAB B
ORDINARY GROUP II HAZARD
DESIGN DENSITY: 0.20 GPM / 978 SF
WET SYSTEM, QR HEADS
DESIGN AREA REDUCTION PER NFPA 13 (2016) SECTION 11.2.3.2.3.1
-3' * 10' / 2 + 55 = 40% REDUCTION, 1500 SF * 40% = 600 SF
1500 SF - 600 SF = 900 SF
- LEVEL 4 - MECHANICAL PENTHOUSE
ORDINARY GROUP I HAZARD
DESIGN DENSITY: 0.15 GPM / 418 SF
WET SYSTEM

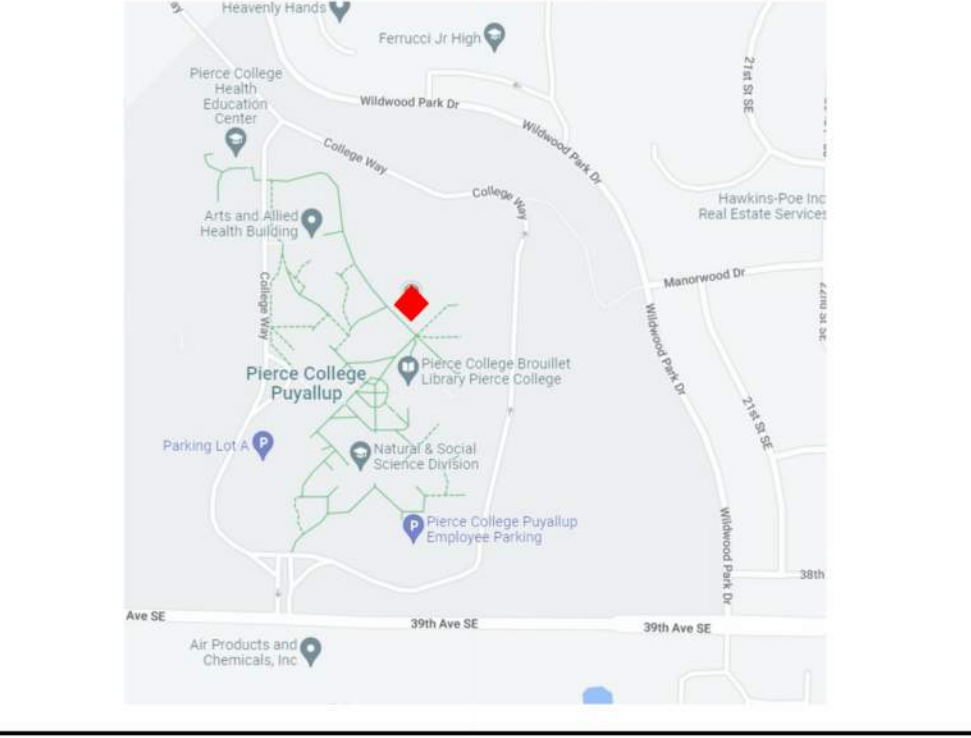


1) FIRE SPRINKLER SECTION VIEW
SCALE 1/8"=1'-0"



2) FIRE SPRINKLER SECTION VIEW
SCALE 1/8"=1'-0"

VICINITY MAP:



SHINN
FIRE PROTECTION

18802 80th Avenue S
Kent, WA 98032

Phone: (425) 203-9800
Fax: (425) 203-9801

WA CL# SHINNM060QP
www.shinnmechanical.com

PROJECT:
PIERCE COLLEGE
PUYALLUP NEW
STEM BUILDING

1601 39th Ave SE
Puyallup, WA 98374

CONTRACTOR:
Absher Construction

P.O. Box 280
Puyallup, WA 98371
PRECON DIRECTOR Blaine Wolfe
Phone: (253) 845-9544

KEY PLAN:

REVISIONS:

1	7-11-23 FM	Review-Notes added
2	7-11-23 FM	Review-Notes added
3	3-26-24	Added Anti-freeze system

AHJ:
CITY OF PUYALLUP

NICET STAMP:
FPET NICET #106245 LEVEL IV, MSME
WASHINGTON STATE
CERTIFICATE OF COMPETENCY
FIRE PROTECTION SPRINKLER SYSTEMS
Hazen A. A. Hobbs
8321-1119-C Level 3
Shinn Mechanical, Inc.
SHINNM060QP
03/26/2024 Date

DATE: 03/26/2024
JOB NUMBER: 22-3688
DESIGNER: Ben Bernard
PM:

SITE PLAN AND NOTES

FP-0.0

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

KEY PLAN:

- REVISIONS:
- 1 7-11-23 FM Review-Notes added
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WASHINGTON STATE
FIRE PROTECTION SPRINKLER SYSTEMS
Haseem A. A. Haseem
8321-1119-C Level 3
Shinn Mechanical, Inc.
SHINNM060QP

Signature: [Signature] Date: 03/26/2024

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JOB NUMBER: 22-3688
DESIGNER: Ben Bernard
PM:

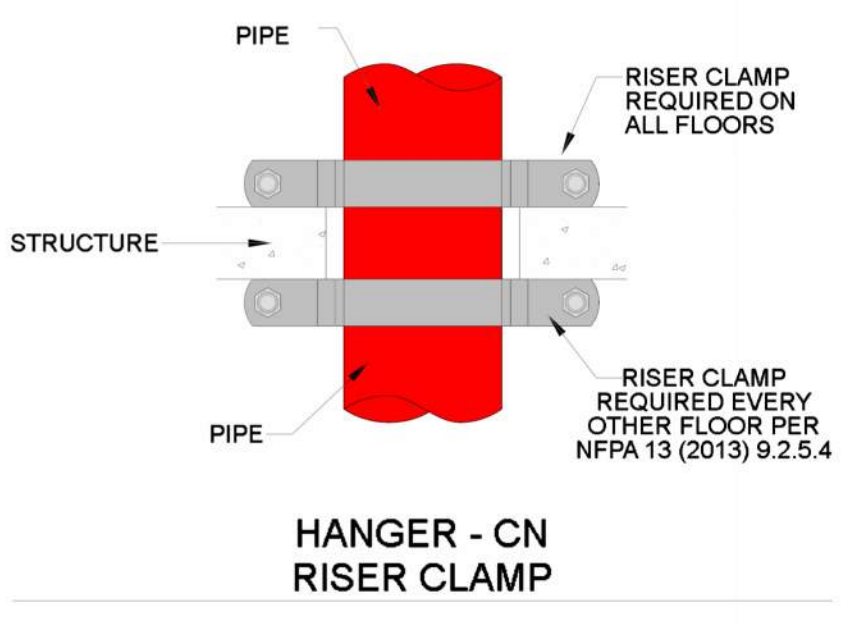
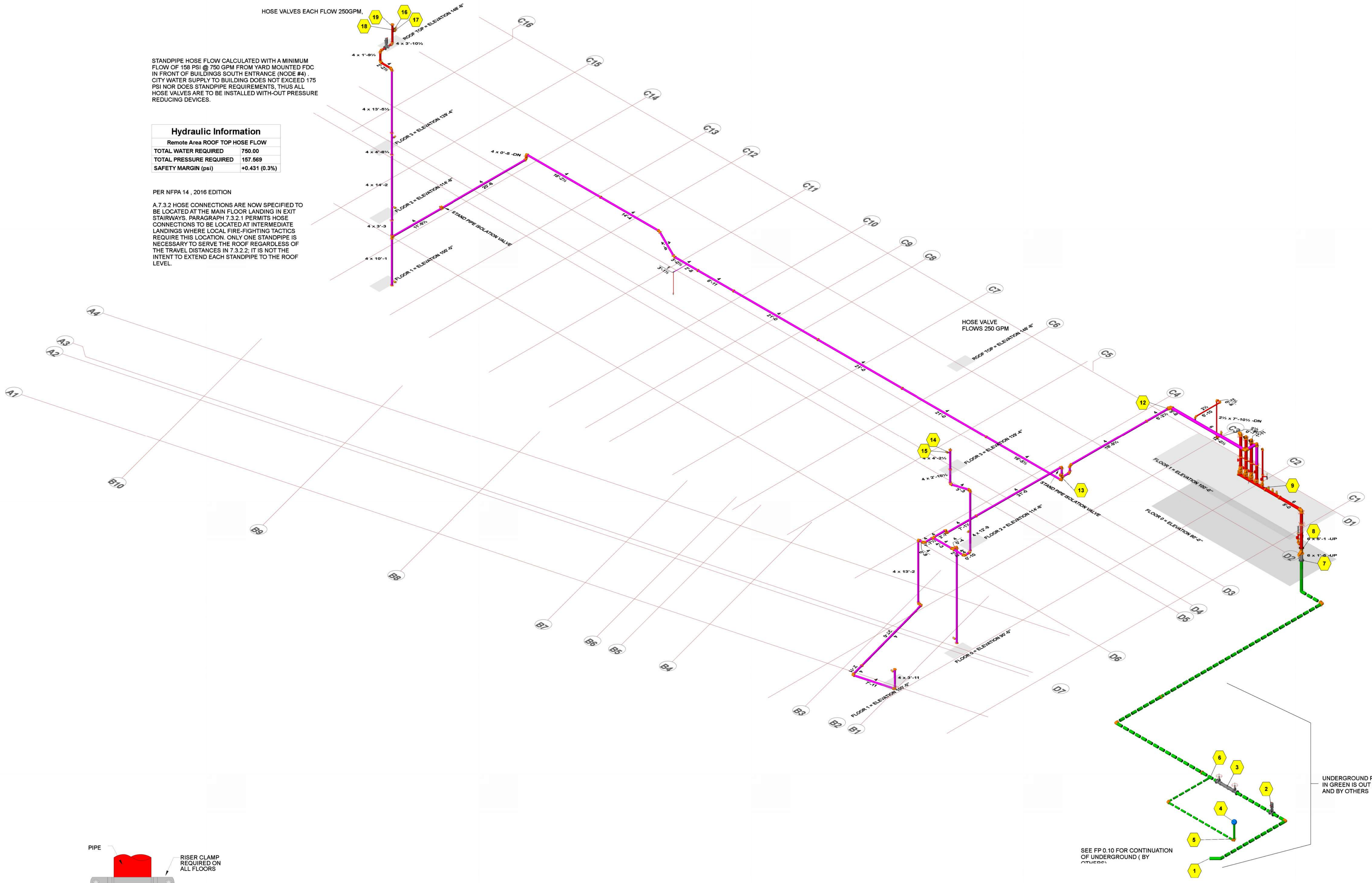
3/4 VIEW STAND PIPE
PLAN AND DETAILS

HOSE VALVES EACH FLOW 250GPM,
STANDPIPE HOSE FLOW CALCULATED WITH A MINIMUM FLOW OF 150 PSI @ 750 GPM FROM YARD MOUNTED FDC IN FRONT OF BUILDINGS SOUTH ENTRANCE (NODE #4). CITY WATER SUPPLY TO BUILDING DOES NOT EXCEED 175 PSI NOR DOES STANDPIPE REQUIREMENTS, THUS ALL HOSE VALVES ARE TO BE INSTALLED WITH-OUT PRESSURE REDUCING DEVICES.

Hydraulic Information

Remote Area ROOF TOP HOSE FLOW	
TOTAL WATER REQUIRED	750.00
TOTAL PRESSURE REQUIRED	157.569
SAFETY MARGIN (psi)	+0.431 (0.3%)

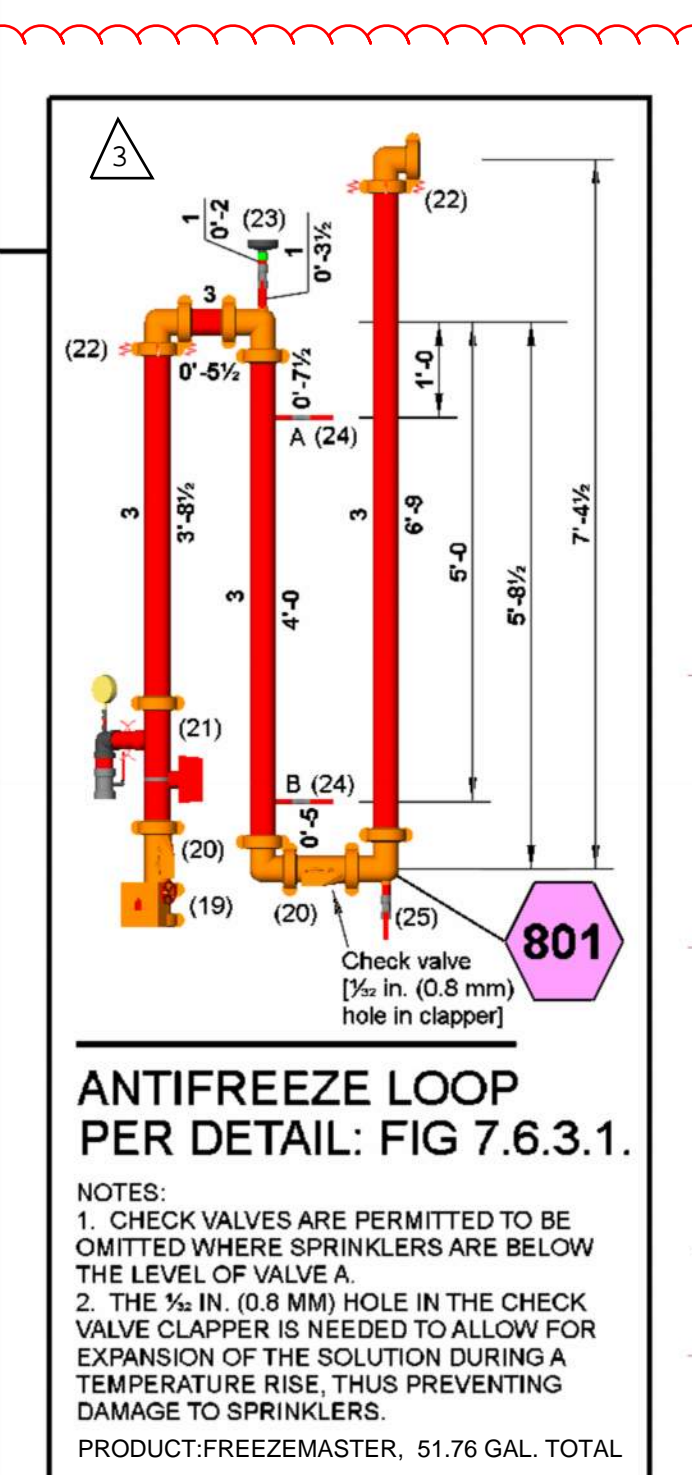
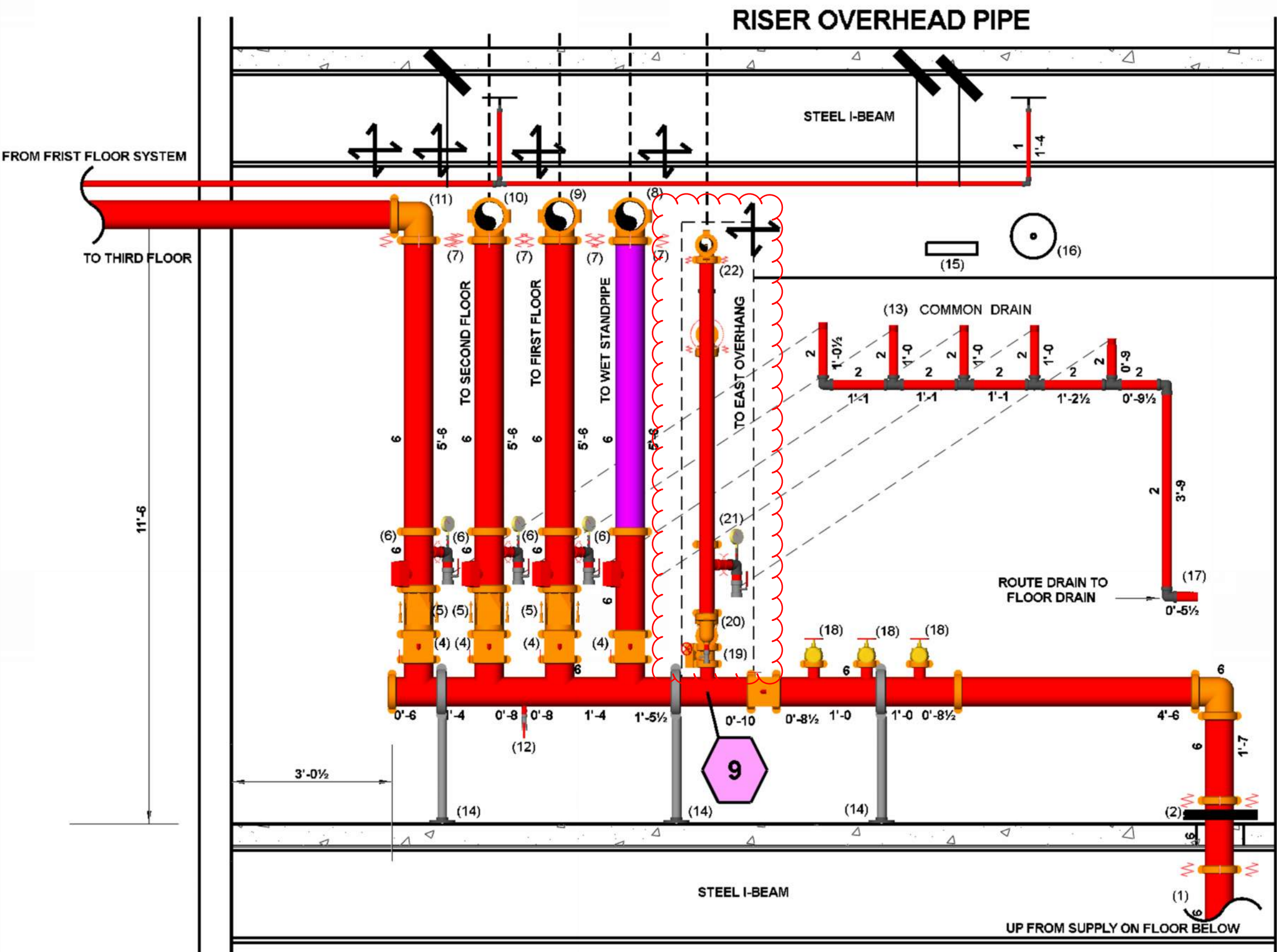
PER NFPA 14, 2016 EDITION
A 7.3.2 HOSE CONNECTIONS ARE NOW SPECIFIED TO BE LOCATED AT THE MAIN FLOOR LANDING IN EXIT STAIRWAYS. PARAGRAPH 7.3.2.1 PERMITS HOSE CONNECTIONS TO BE LOCATED AT INTERMEDIATE LANDINGS WHERE LOCAL FIRE-FIGHTING TACTICS REQUIRE THIS LOCATION. ONLY ONE STANDPIPE IS NECESSARY TO SERVE THE ROOF REGARDLESS OF THE TRAVEL DISTANCES IN 7.3.2.2. IT IS NOT THE INTENT TO EXTEND EACH STANDPIPE TO THE ROOF LEVEL.



↑ FIRE SPRINKLER WET MANUAL STANDPIPE AND RISER LOCATIONS
SCALE 1/8"=1'-0"

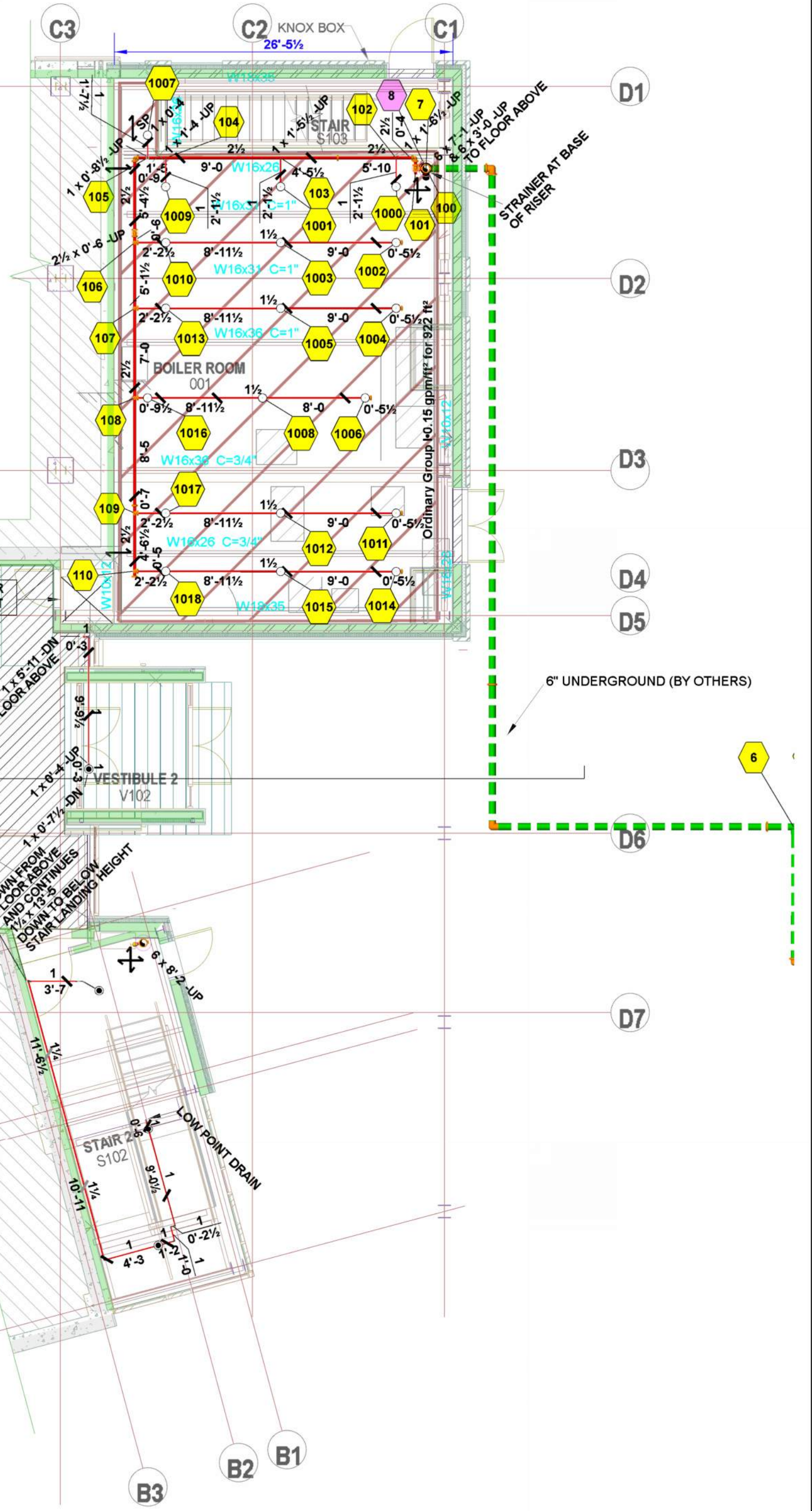
SEE FP 0.10 FOR CONTINUATION OF UNDERGROUND (BY OTHERS)

UNDERGROUND PIPE SHOWN IN GREEN IS OUT OF SCOPE AND BY OTHERS

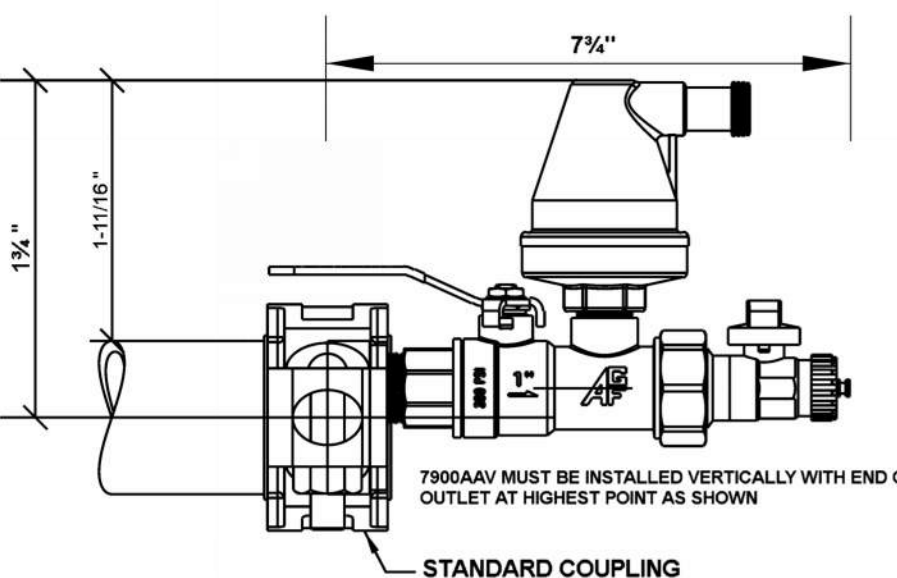
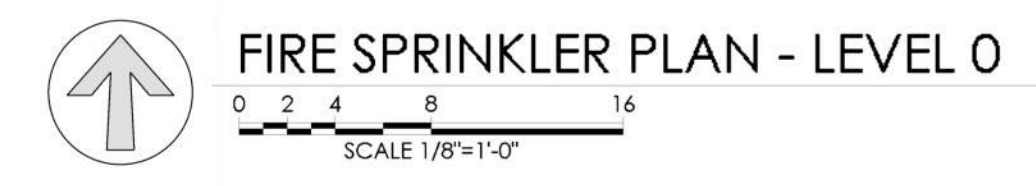
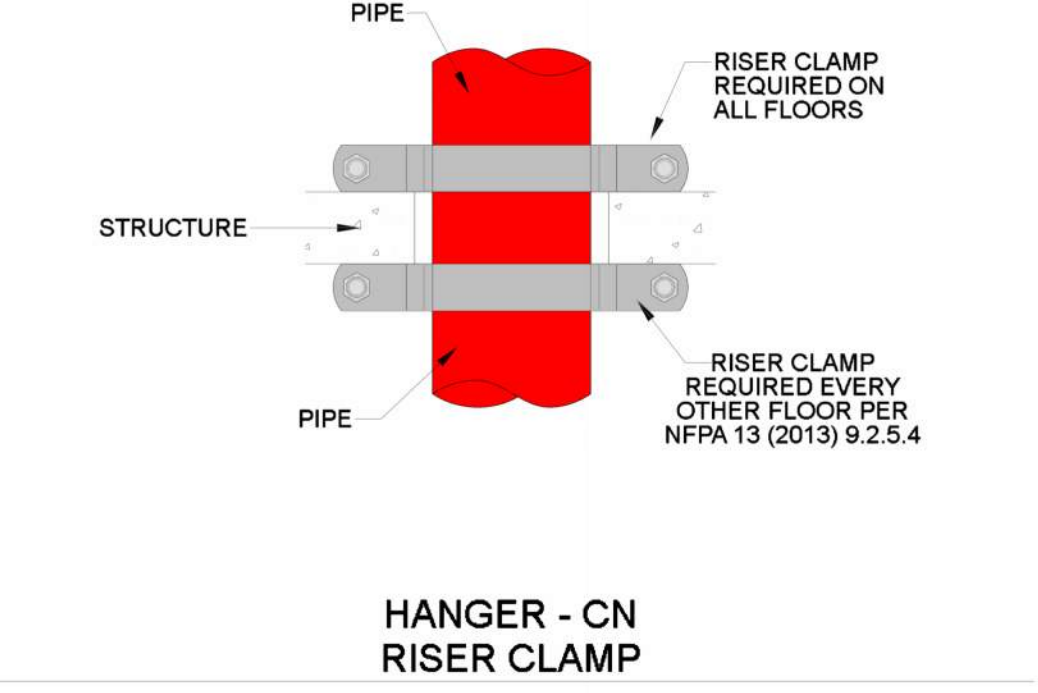
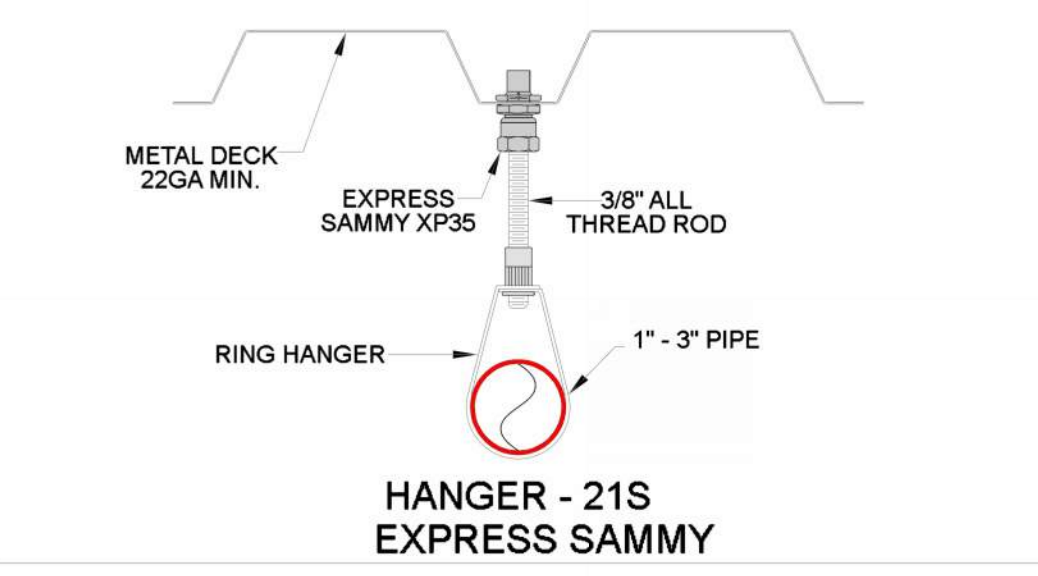
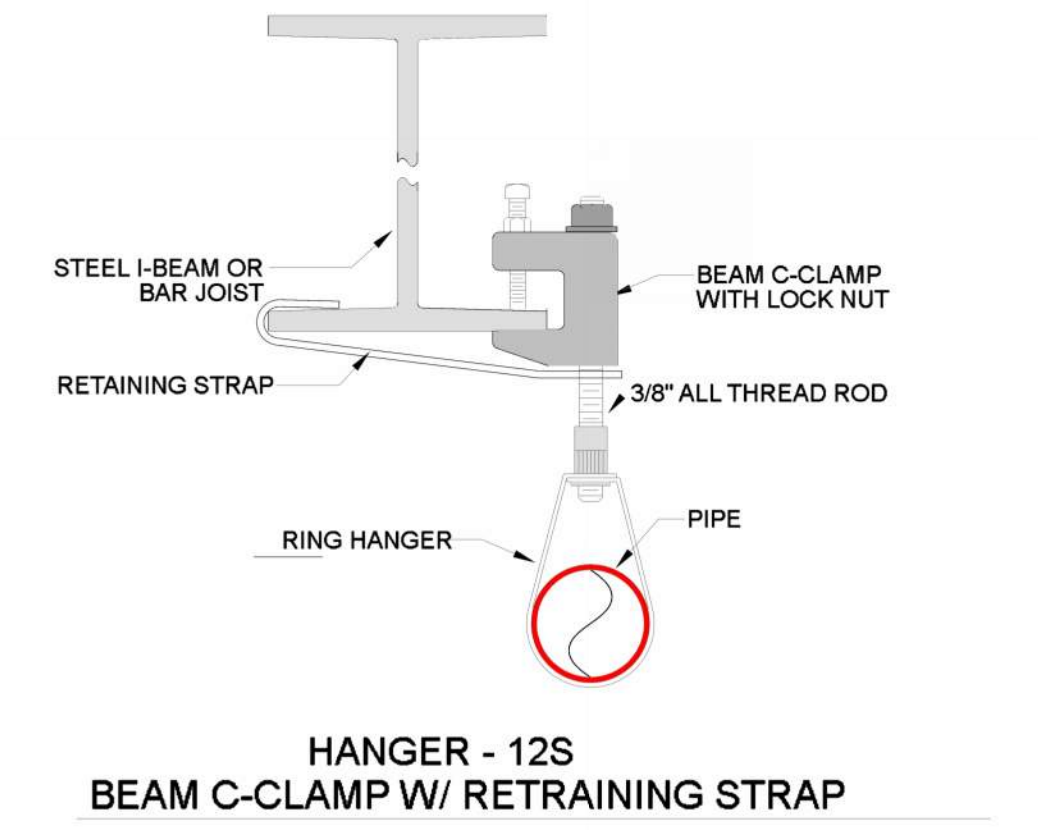
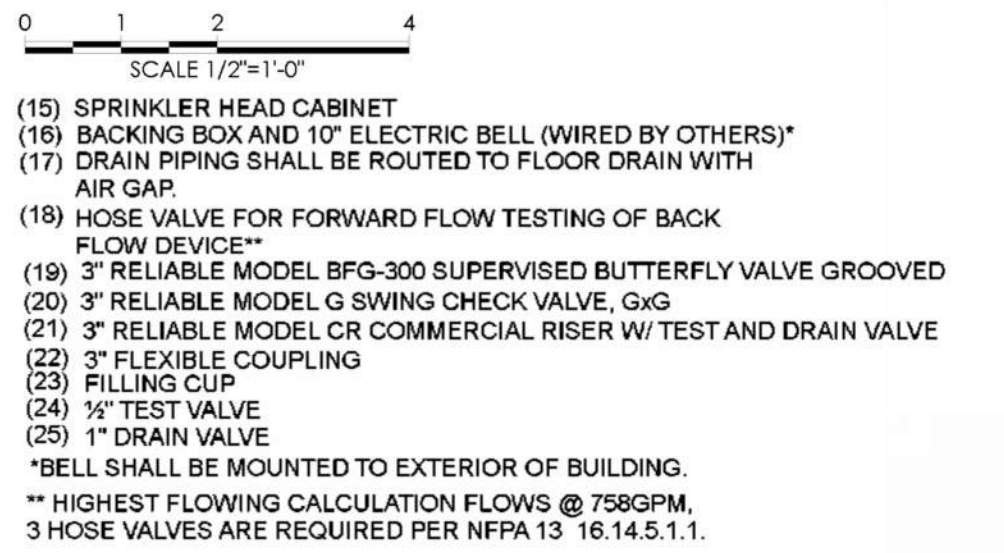


Hydraulic Information

Remote Area 1	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft ²)	0.15 for 1500 ft ² (Actual 922 ft ²)
QUICK RESPONSE REDUCTION	10'-0" Ceiling (40.0%) 900 ft ²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	19
K-FACTOR	5.6
TOTAL WATER REQUIRED	563.54
TOTAL PRESSURE REQUIRED	43.250
BASE OF RISER (ppm)	563.54
BASE OF RISER (psi)	43.250
SAFETY MARGIN (psi)	+16.323 (27.4%)



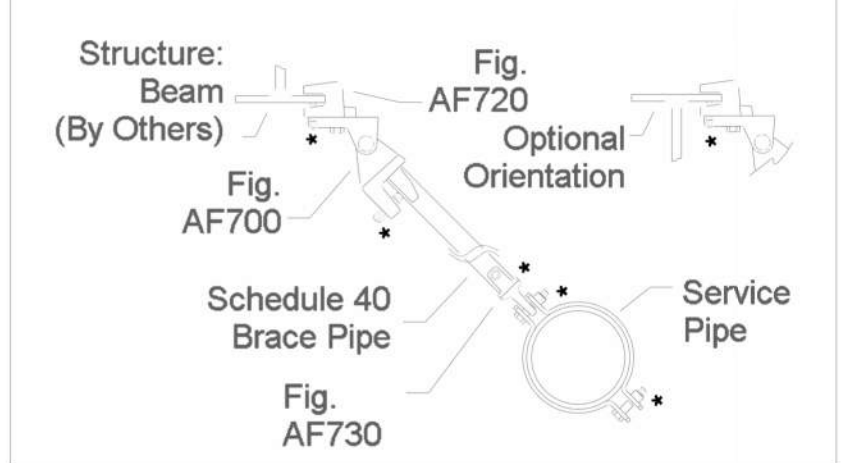
- LEVEL 1 - FS RISER RM.**
- NOTES:
- 6" UNDERGROUND SUPPLY (BY OTHERS)
 - 2" ANNULAR DISTANCE CLEAR AROUND PIPE WITH PIPE CLAMP FLOOR PENETRATION (BY OTHERS)
 - 6" GxG TEE
 - 6" RELIABLE MODEL BFG-300 SUPERVISED BUTTERFLY VALVE GROOVED
 - 6" RELIABLE MODEL G SWING CHECK VALVE, GxG
 - 6" RELIABLE MODEL CR COMMERCIAL RISER W/ TEST AND DRAIN VALVE
 - 6" FLEXIBLE COUPLING
 - 6" BLACK STEEL PIPE TO MANUAL WET STANDPIPE
 - 6" BLACK STEEL PIPE TO WET SYSTEM ON FLOOR 0 & 1
 - 6" BLACK STEEL PIPE TO WET SYSTEM ON FLOOR 2
 - 6" BLACK STEEL PIPE TO WET SYSTEM ON FLOOR 3
 - 1" BALL VALVE W/ SQUARE HEAD PLUG
 - 2" SCH-40 BLACK PIPE MAIN DRAIN
 - 2" SCH-40 PIPE STAND W/ 4 CONC. ANCHORS IN FLOOR
 - SPRINKLER HEAD CABINET
 - BACKING BOX AND 10" ELECTRIC BELL (WIRED BY OTHERS)
 - DRAIN PIPING SHALL BE ROUTED TO FLOOR DRAIN WITH AIR GAP
 - HOSE VALVE FOR FORWARD FLOW TESTING OF BACK FLOW DEVICE
 - 3" RELIABLE MODEL BFG-300 SUPERVISED BUTTERFLY VALVE GROOVED
 - 3" RELIABLE MODEL G SWING CHECK VALVE, GxG
 - 3" RELIABLE MODEL CR COMMERCIAL RISER W/ TEST AND DRAIN VALVE
 - 3" FLEXIBLE COUPLING
 - FILLING CUP
 - TEST VALVE
 - DRAIN VALVE
- * BELL SHALL BE MOUNTED TO EXTERIOR OF BUILDING.
** HIGHEST FLOWING CALCULATION FLOWS @ 758GPM.
3 HOSE VALVES ARE REQUIRED PER NFPA 13 16.14.5.1.1.



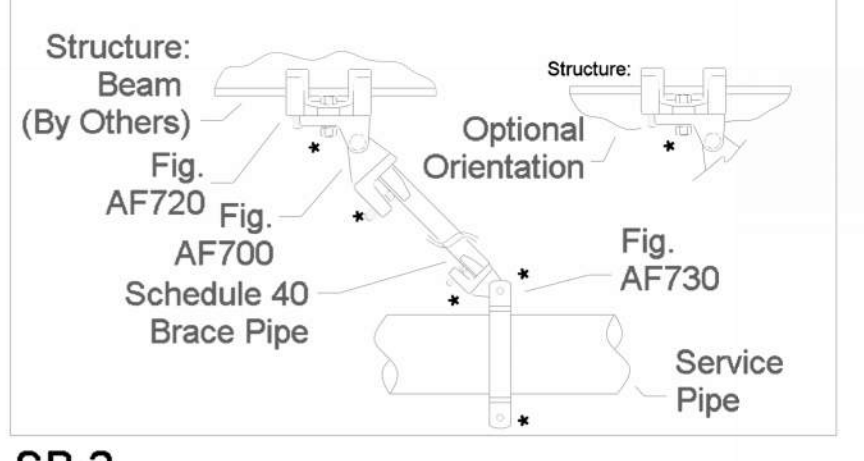
AGF ITEM ID	PIPE Ø	A (mm)	B (mm)
7930ECA-20	2"	6-1/8" (155)	4-7/8" (124)
7930ECA-25	2-1/2"	6-3/8" (161)	4-7/8" (124)
7930ECA-30	3"	6-5/8" (168)	4-7/8" (124)
7930ECA-40	4"	7-1/8" (181)	4-7/8" (124)
7930ECA-60	6"	8-1/8" (207)	4-7/8" (124)
7930ECA-80	8"	9" (230)	4-3/4" (120)

Sprinkler Legend

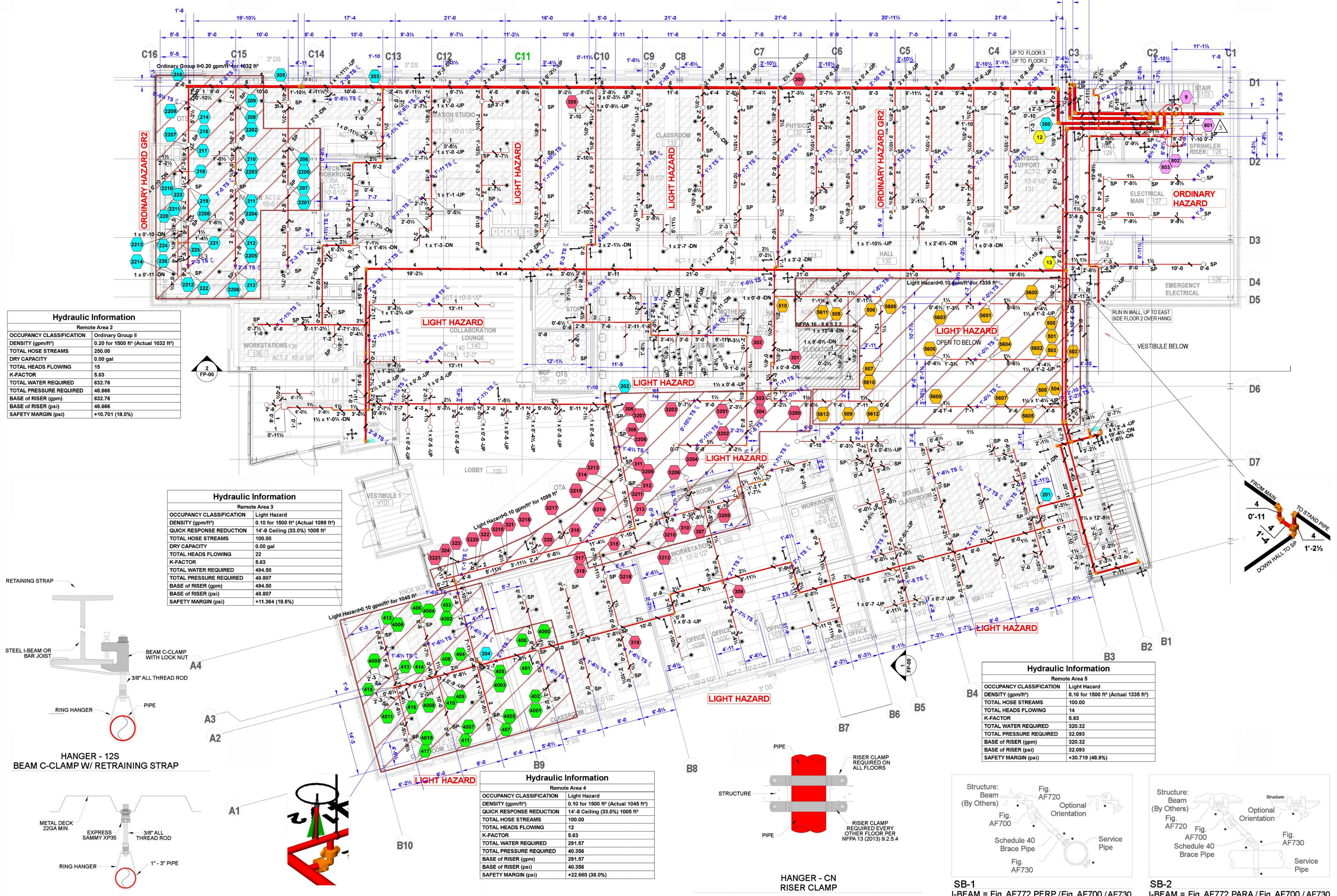
Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Finish	Temperature	Quantity
○	RELIABLE	F1FR56	5.6	Upright	1/2"	Quick	Chrome	155 °F	19
●	RELIABLE	F1FR56	5.6	Pendent	1/2"	Quick	Chrome	155 °F	5
▽	RELIABLE	F1FR56	5.6	Horizontal Sidewall	1/2"	Quick	Chrome	155 °F	1
									Total = 25



SB-1 I-BEAM = Fig. AF772, PERP / Fig. AF700 / AF730



SB-2 I-BEAM = Fig. AF772, PARA / Fig. AF700 / AF730



Hydraulic Information
Remote Area 2

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1032 ft ²)
TOTAL HOSE STREAMS	250.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	15
K-FACTOR	5.63
TOTAL WATER REQUIRED	632.76
TOTAL PRESSURE REQUIRED	48.666
BASE OF RISER (gpm)	632.76
BASE OF RISER (psi)	48.666
SAFETY MARGIN (psi)	+10.701 (18.0%)

Hydraulic Information
Remote Area 3

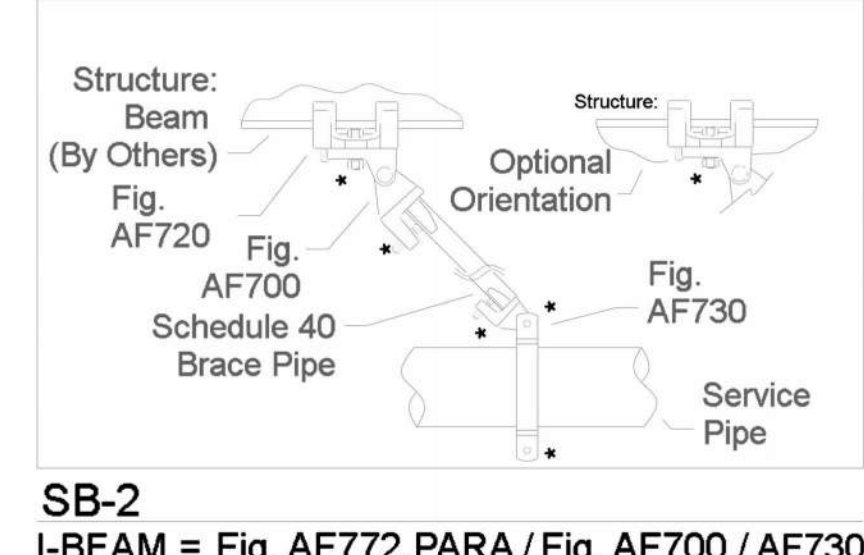
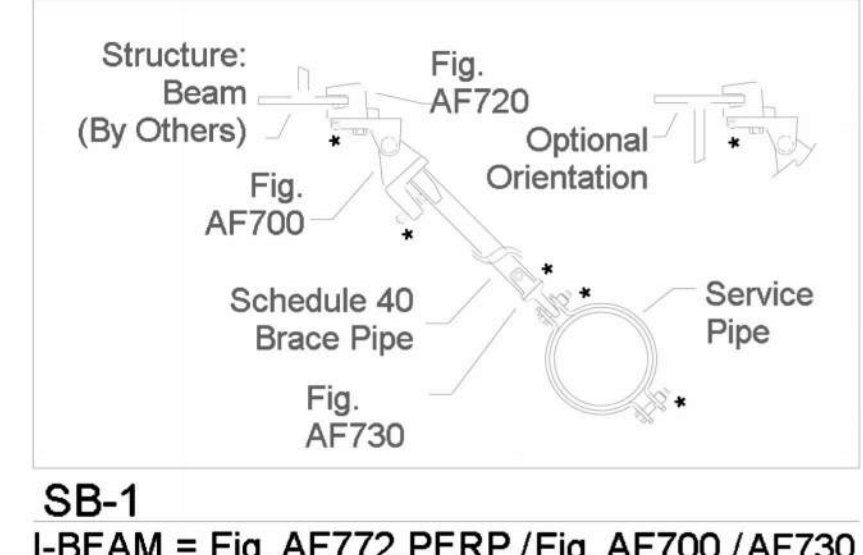
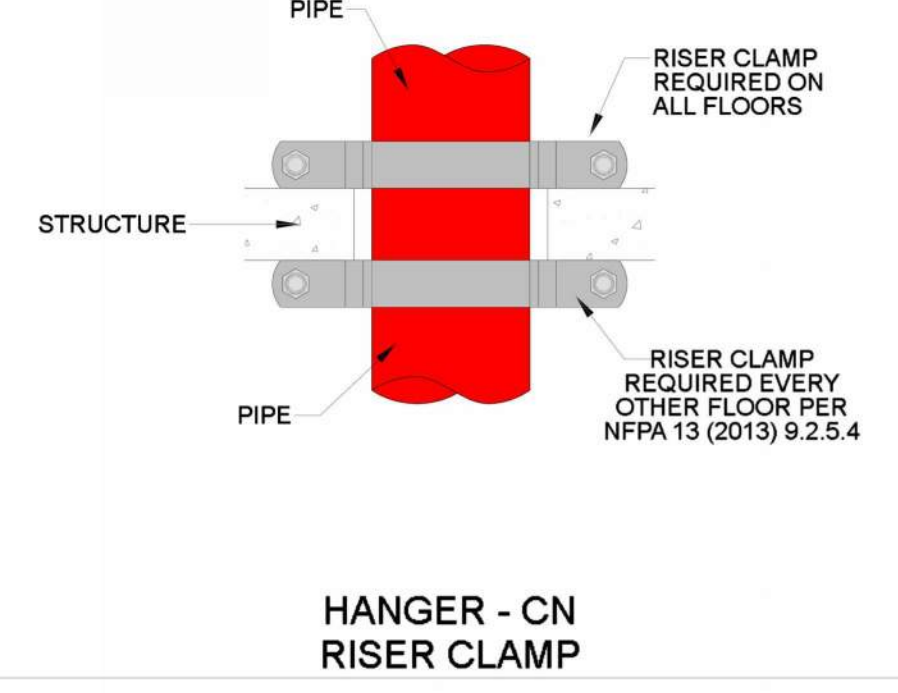
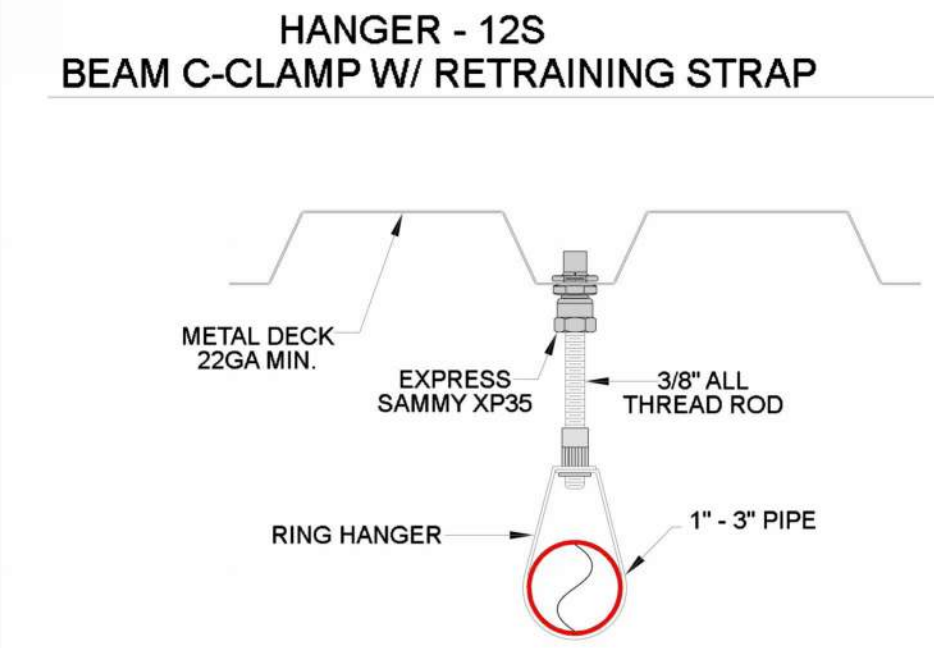
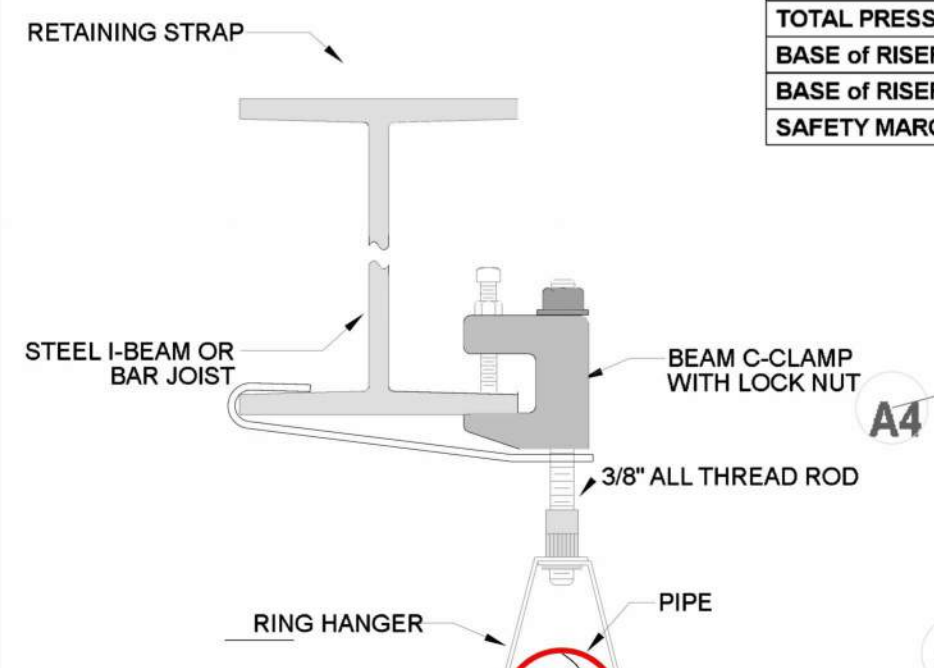
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500 ft ² (Actual 1099 ft ²)
QUICK RESPONSE REDUCTION	14'-8" Ceiling (33.0%) 1005 ft ²
TOTAL HOSE STREAMS	100.00
DRY CAPACITY	0.00 gal
TOTAL HEADS FLOWING	22
K-FACTOR	5.63
TOTAL WATER REQUIRED	494.50
TOTAL PRESSURE REQUIRED	49.807
BASE OF RISER (gpm)	494.50
BASE OF RISER (psi)	49.807
SAFETY MARGIN (psi)	+11.364 (18.6%)

Hydraulic Information
Remote Area 4

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500 ft ² (Actual 1045 ft ²)
QUICK RESPONSE REDUCTION	14'-8" Ceiling (33.0%) 1005 ft ²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	12
K-FACTOR	5.63
TOTAL WATER REQUIRED	291.57
TOTAL PRESSURE REQUIRED	40.356
BASE OF RISER (gpm)	291.57
BASE OF RISER (psi)	40.356
SAFETY MARGIN (psi)	+22.680 (38.0%)

Hydraulic Information
Remote Area 5

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500 ft ² (Actual 1335 ft ²)
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	14
K-FACTOR	5.63
TOTAL WATER REQUIRED	320.32
TOTAL PRESSURE REQUIRED	32.083
BASE OF RISER (gpm)	320.32
BASE OF RISER (psi)	32.083
SAFETY MARGIN (psi)	+30.719 (48.8%)



FIRE SPRINKLER PLAN - SECOND FLOOR
SCALE 1/8"=1'-0"

(1) ELEVATOR SHAFT AND ELEVATOR MECHANICAL ROOM OMITTED BY COMPLYING WITH NFPA 13 8.15.5, FIRE SPRINKLERS LOCATED IN SUMP OF ELEVATOR ONLY

Sprinkler Legend

Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Orifice	Finish	Temperature	Quantity
●	RELIABLE	F1FR56	5.6	Pendent	1/2"	Quick	3/4"	Chrome	155 °F	138
○	RELIABLE	F1FR56	5.6	Upright	1/2"	Quick	3/4"	Brass	155 °F	170
▷	RELIABLE	F1FR56	5.6	Horizontal Sidewall	1/2"	Quick	3/4"	Chrome	155 °F	4
										Total = 312

PROJECT:
PIERCE COLLEGE
PUYALLUP NEW
STEM BUILDING

1601 39th AVE SE
Puyallup, WA 98374

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

CONTRACTOR:
Absher Construction

P.O. Box 280
Puyallup, WA 98371
PRECON DIRECTOR Blaine Wolfe
Phone: (253) 845-9544

KEY PLAN:

- REVISIONS:**
- 7-11-23 FM Review-Notes added
 - 7-11-23 FM Review-Notes added
 - 3-26-24 Added Anti-freeze system

AHJ:
CITY OF PUYALLUP

NICET STAMP:

FPET NICET #106245 LEVEL IV, MSME

WASHINGTON STATE	
CERTIFICATE OF COMPETENCY	
FIRE PROTECTION SPRINKLER SYSTEMS	
Hazen A. A. Nobilia	8321-1119-C Level 3
Shinn Mechanical, Inc.	SHINNM060QP
<i>[Signature]</i>	03/26/2024

DATE: 03/26/2024
JOB NUMBER: 22-3688
DESIGNER: Ben Bernard
PM:

2rd FLOOR FIRE SPRINKLER PLANS

FP-2.2



Hydraulic Information
Remote Area 6

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500 ft ² (Actual 1042 ft ²)
QUICK RESPONSE REDUCTION	10'-0" Ceiling (40.0%) 900 ft ²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	10
K-FACTOR	8.04
TOTAL WATER REQUIRED	518.37
TOTAL PRESSURE REQUIRED	45.581
BASE OF RISER (gpm)	518.37
BASE OF RISER (psi)	45.581
SAFETY MARGIN (psi)	+15.329 (25.2%)

Hydraulic Information Antifreeze System
Remote Area 8

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500 ft ² (Actual 1091 ft ²)
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	8
K-FACTOR	5.34
TOTAL WATER REQUIRED	219.78
TOTAL PRESSURE REQUIRED	38.341
BASE OF RISER (gpm)	219.78
BASE OF RISER (psi)	38.341
SAFETY MARGIN (psi)	+25.100 (39.6%)

FIRE SPRINKLER HEADS ADJUSTED PER INSTALLATION INSTRUCTIONS.
INSTALLED HEADS ARE 5.6K
CALCULATIONS RUN WITH USING FOLLOWING INFO FROM PRODUCT LISTING
TEMPERATURE @ 0° = DENSITY 69.4 LB/FT³ & 55 VISCOSITY CENTIPOISE
ADJUSTED HEAD K-FACTOR: 7.84 x 5.6K / 169.4 = 5.33K
WHILE NOT REQUIRED TO BY PRODUCT INSTALLATION GUIDE.
CALCULATIONS ARE RUN USING A PIPE K-FACTOR FOR DRY SPRINKLERS
SYSTEM USES FREEZEMASTER PRODUCT @ 51.76 GAL. TOTAL

Hydraulic Information
Remote Area 7

OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500 ft ² (Actual 1032 ft ²)
QUICK RESPONSE REDUCTION	14'-8" Ceiling (33.0%) 1005 ft ²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	8
K-FACTOR	5.63
TOTAL WATER REQUIRED	257.37
TOTAL PRESSURE REQUIRED	45.340
BASE OF RISER (gpm)	257.37
BASE OF RISER (psi)	45.340
SAFETY MARGIN (psi)	+17.893 (28.3%)

Sprinkler Legend

Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Orifice	Finish	Temperature	Quantity
●	RELIABLE	F1FR80	8	Pendent	3/4"	Quick	17/32"	Chrome	155 °F	67
○	RELIABLE	F1FR66	5.6	Pendent	3/4"	Quick	1/2"	Chrome	155 °F	62
○	RELIABLE	F1FR66	5.6	Upright	3/4"	Quick	1/2"	Brass	200 °F	76
○	RELIABLE	F1FR66	5.6	Horizontal Sidewall	3/4"	Quick	1/2"	Brass	200 °F	2
▲	RELIABLE	F1FR66	5.33	Pendent	3/4"	Quick	1/2"	Chrome	155 °F	8
										Total = 215

FIRE SPRINKLER PLAN - SECOND FLOOR
SCALE 1/8"=1'-0"

(1) ELEVATOR SHAFT AND ELEVATOR MECHANICAL ROOM OMITTED BY COMPLYING WITH NFPA 13 #8.15.5, FIRE SPRINKLERS LOCATED IN SUMP OF ELEVATOR ONLY.
(2) FIRE SPRINKLERS OMITTED FROM VERTICAL, CONCEALED, NON-COMBUSTIBLE SHAFT AREAS THAT COMPLY WITH NFPA 13 #8.15.1.2

PROJECT:
**PIERCE COLLEGE
PUYALLUP NEW
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1601 39th AVE SE
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City of Puyallup
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Building	Planning
Engineering	Public Works
Fire	Traffic

CONTRACTOR:
Absher Construction

P.O. Box 280
Puyallup, WA 98371
PRECON DIRECTOR Blaine Wolfe
Phone: (253) 845-9544

KEY PLAN:

REVISIONS:

- 1 7-11-23 FM Review-Notes added
- 2 7-11-23 FM Review-Notes added
- 3 3-26-24 Added Anti-freeze system

AHJ:
CITY OF PUYALLUP

NICET STAMP:

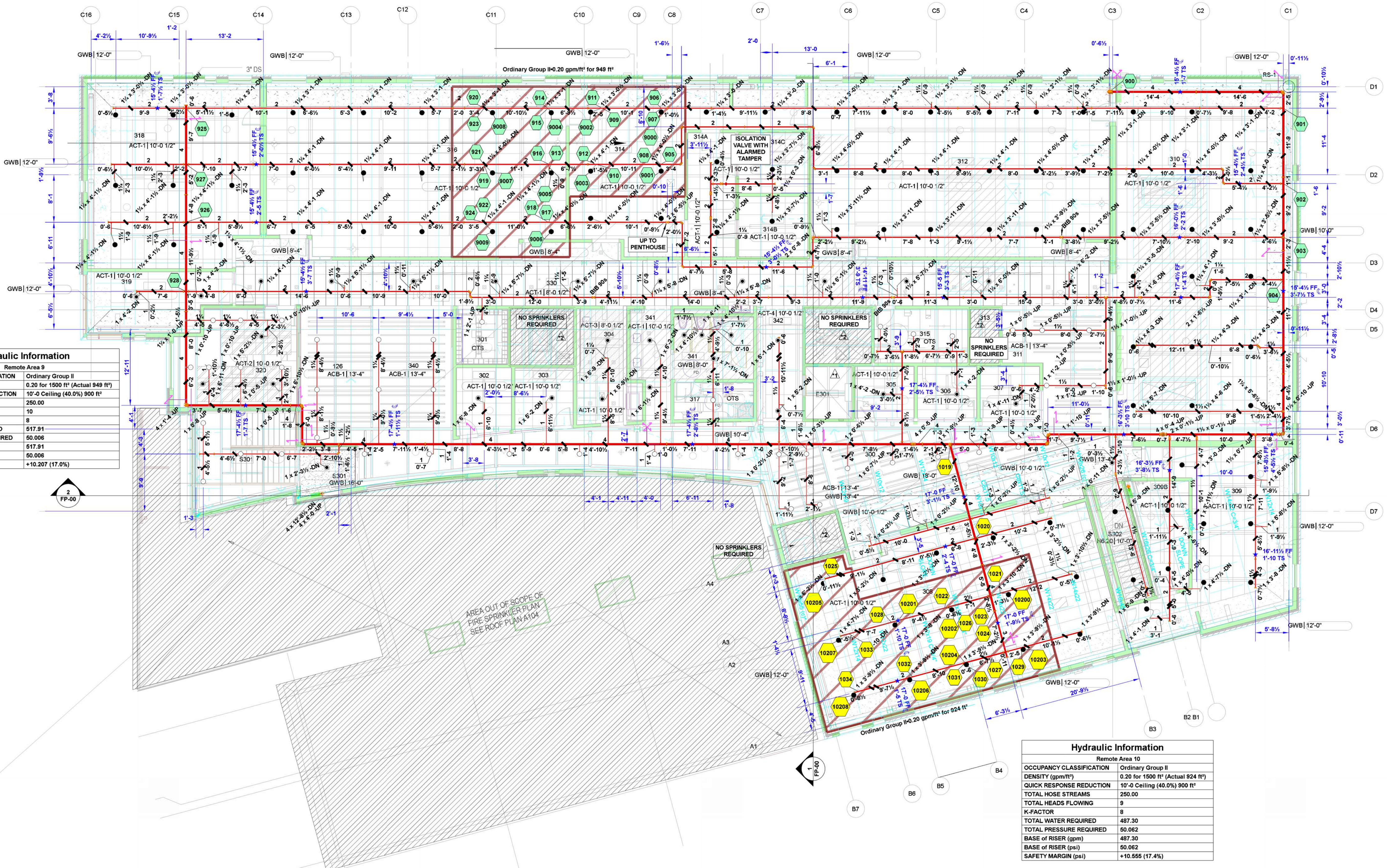
FPET NICET #106245 LEVEL IV, MSME



DATE: 03/26/2024
JOB NUMBER: 22-3688
DESIGNER: Ben Bernard
PM:

**3rd FLOOR FIRE
SPRINKLER PLANS**

FP-2.3



Hydraulic Information
Remote Area 9

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.20 for 1500 ft² (Actual 949 ft²)
QUICK RESPONSE REDUCTION	10'-0" Ceiling (40.0%) 900 ft²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	10
K-FACTOR	8
TOTAL WATER REQUIRED	517.91
TOTAL PRESSURE REQUIRED	50.006
BASE OF RISER (gpm)	517.91
BASE OF RISER (psi)	50.006
SAFETY MARGIN (psi)	+10.207 (17.0%)

Hydraulic Information
Remote Area 10

OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.20 for 1500 ft² (Actual 924 ft²)
QUICK RESPONSE REDUCTION	10'-0" Ceiling (40.0%) 900 ft²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	9
K-FACTOR	8
TOTAL WATER REQUIRED	487.30
TOTAL PRESSURE REQUIRED	50.062
BASE OF RISER (gpm)	487.30
BASE OF RISER (psi)	50.062
SAFETY MARGIN (psi)	+10.555 (17.4%)

FIRE SPRINKLER PLAN - THIRD FLOOR
SCALE 1/8"=1'-0"

(1) ELEVATOR SHAFT AND ELEVATOR MECHANICAL ROOM OMITTED BY COMPLYING WITH NFPA 13 #8.15.5, FIRE SPRINKLERS LOCATED IN SUMP OF ELEVATOR ONLY.
(2) FIRE SPRINKLERS OMITTED FROM VERTICAL, CONCEALED, NON-COMBUSTIBLE SHAFT AREAS THAT COMPLY WITH NFPA 13 #8.15.1.2

Sprinkler Legend

Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Finish	Temperature	Quantity
○	RELIABLE	F1FR56	5.6	Horizontal Sidewall	1/2"	Quick	Chrome	155 °F	4
○	RELIABLE	F1FR56	5.6	Pendent	1/2"	Quick	Chrome	155 °F	30
○	RELIABLE	F1FR56	5.6	Upright	1/2"	Quick	Chrome	155 °F	44
○	RELIABLE	F1FR80	8	Pendent	3/4"	Quick	Chrome	155 °F	98
									Total = 176

PROJECT:
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PUYALLUP NEW
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1601 39th AVE SE
Puyallup, WA 98374

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PRECON DIRECTOR Blaine Wolfe
Phone: (253) 845-9544

KEY PLAN:

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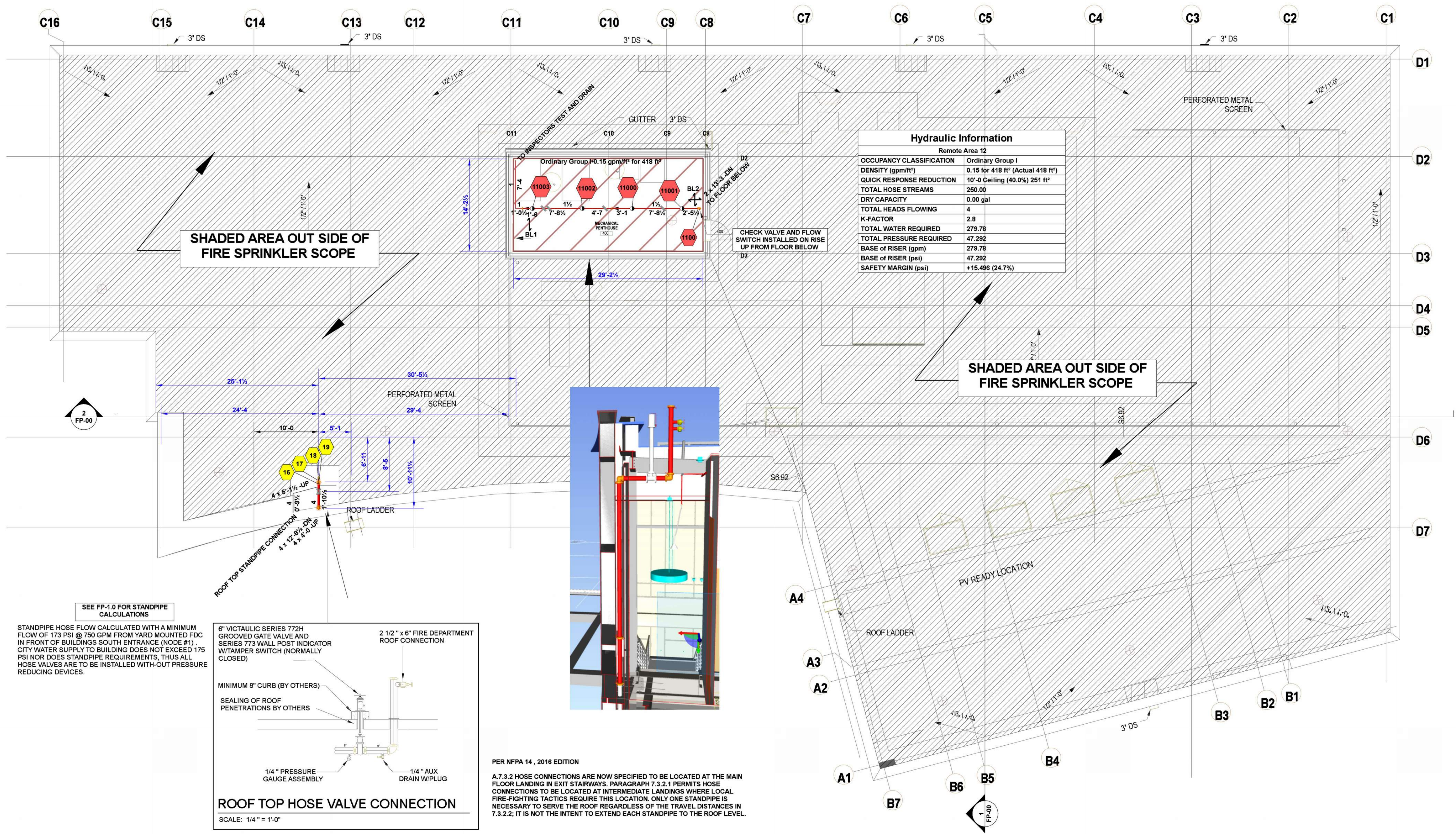
Haseem A. A. Haddad
8321-1119-C Level 3
Shinn Mechanical, Inc.
SHINNM060QP

Signature: [Signature] Date: 03/26/2024

DATE: 03/26/2024
JOB NUMBER: 22-3688
DESIGNER: Ben Bernard
PM:

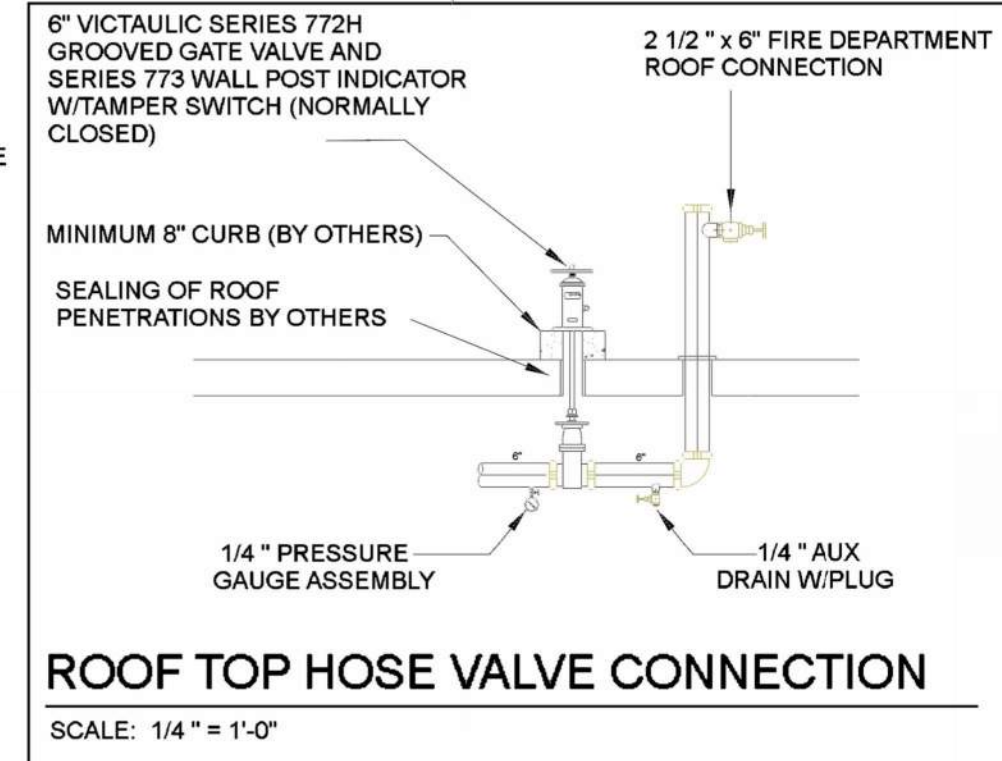
ROOF TOP FIRE
SPRINKLER PLANS

FP-2.4



SEE FP-1.0 FOR STANDPIPE CALCULATIONS

STANDPIPE HOSE FLOW CALCULATED WITH A MINIMUM FLOW OF 173 PSI @ 750 GPM FROM YARD MOUNTED FDC IN FRONT OF BUILDINGS SOUTH ENTRANCE (NODE #1) CITY WATER SUPPLY TO BUILDING DOES NOT EXCEED 175 PSI NOR DOES STANDPIPE REQUIREMENTS, THUS ALL HOSE VALVES ARE TO BE INSTALLED WITH-OUT PRESSURE REDUCING DEVICES.



PER NFPA 14, 2016 EDITION
A.7.3.2 HOSE CONNECTIONS ARE NOW SPECIFIED TO BE LOCATED AT THE MAIN FLOOR LANDING IN EXIT STAIRWAYS. PARAGRAPH 7.3.2.1 PERMITS HOSE CONNECTIONS TO BE LOCATED AT INTERMEDIATE LANDINGS WHERE LOCAL FIRE-FIGHTING TACTICS REQUIRE THIS LOCATION. ONLY ONE STANDPIPE IS NECESSARY TO SERVE THE ROOF REGARDLESS OF THE TRAVEL DISTANCES IN 7.3.2.2. IT IS NOT THE INTENT TO EXTEND EACH STANDPIPE TO THE ROOF LEVEL.

FIRE SPRINKLER PLAN - ROOF TOP
SCALE 1/8"=1'-0"

Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Finish	Temperature	Quantity
●	RELIABLE	F1FR28	2.8	Pendent	1/2"	Quick	Chrome	155 °F	4
									Total = 4