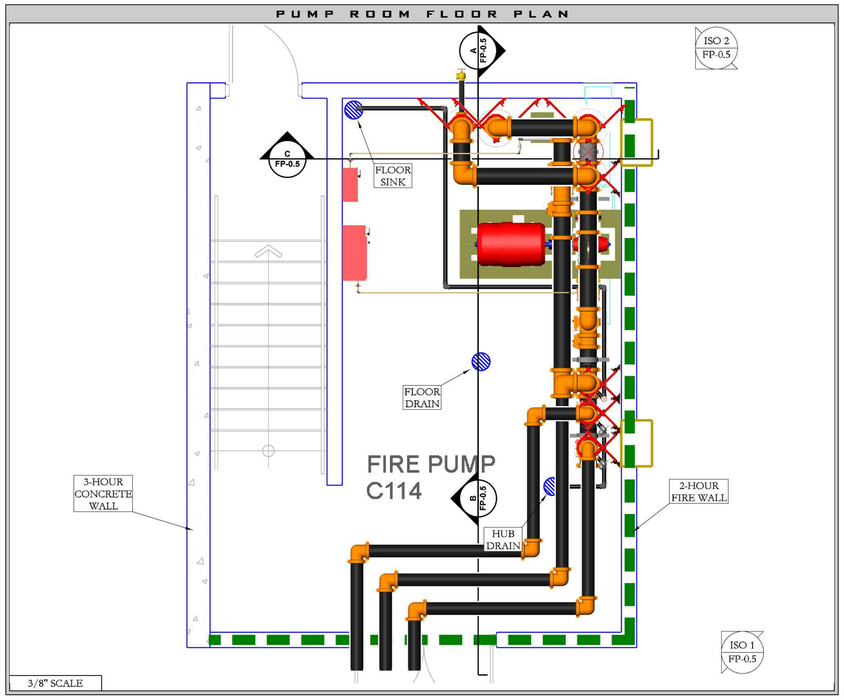
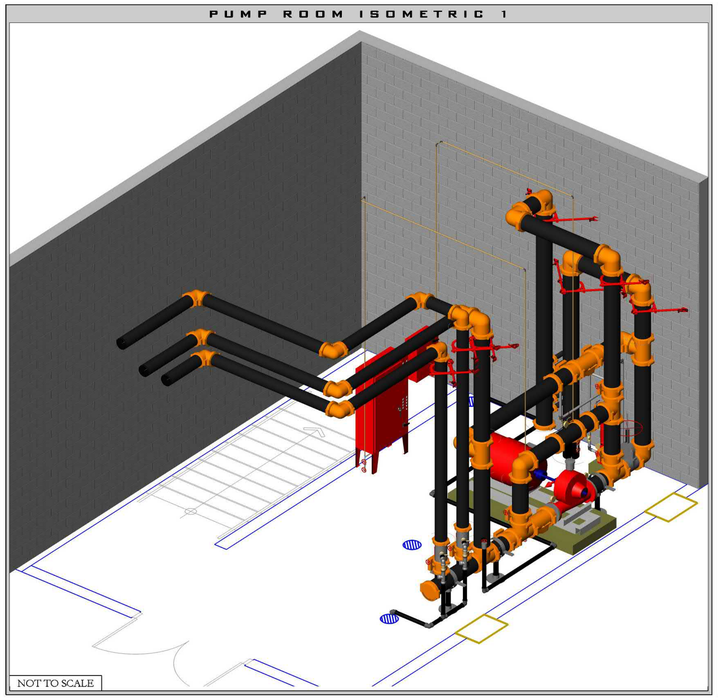
PUMP ROOM FLOOR PLAN



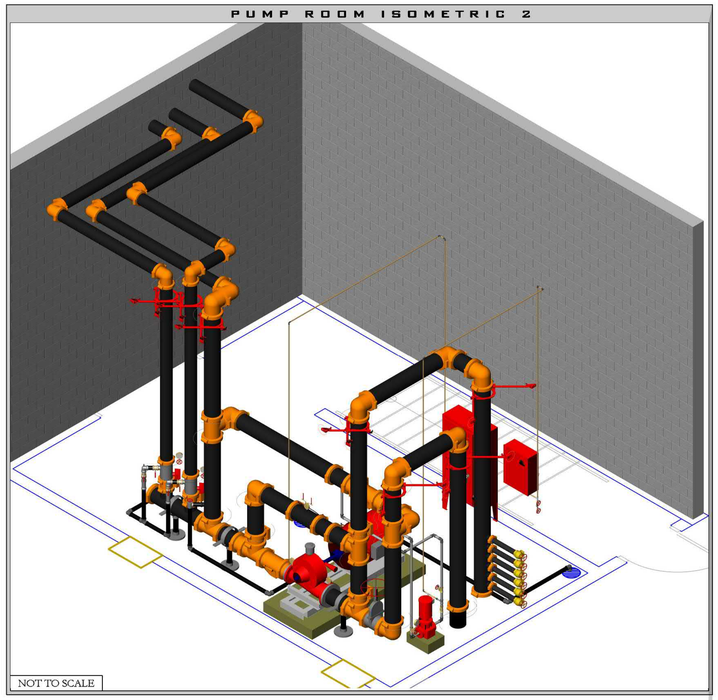
3/8" SCALE

PUMP ROOM ISOMETRIC 1



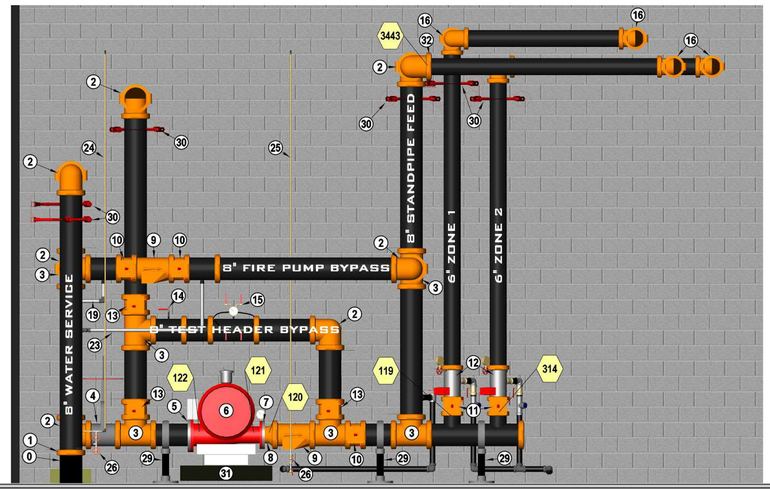
NOT TO SCALE

PUMP ROOM ISOMETRIC 2

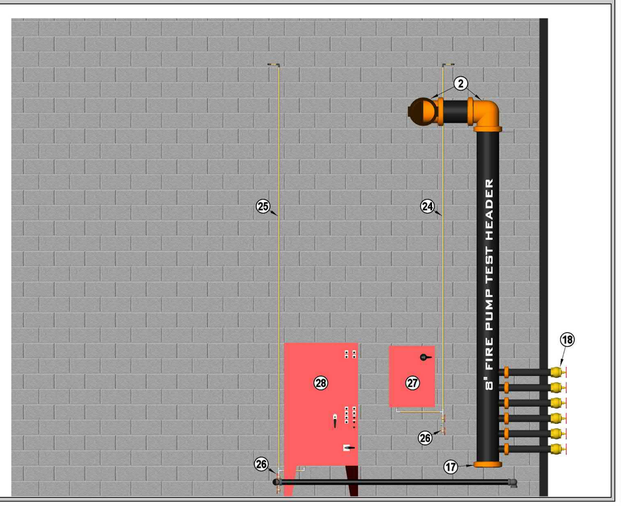


NOT TO SCALE

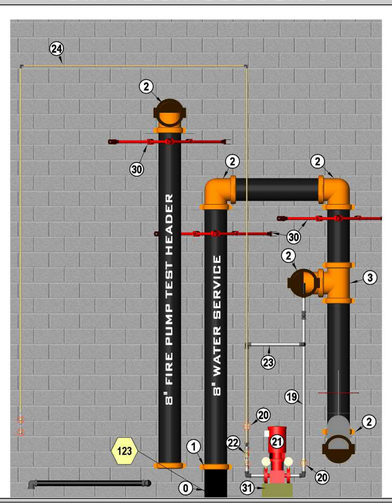
PUMP ROOM SECTION A



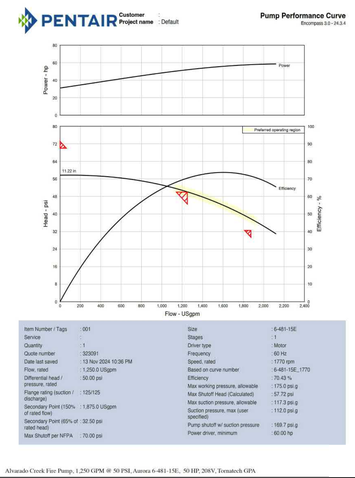
PUMP ROOM SECTION B



PUMP ROOM SECTION C



FIRE PUMP CURVE



PUMP ROOM LEGEND

#	DESCRIPTION	REMARKS
0	8" UNDERGROUND	
1	8" COUPLING (TIE IN POINT)	
2	8" GROOVED ELBOW 90	
3	8" GROOVED TEE	
4	8" GROOVED OS&Y VALVE WITH TAMPER	
5	8" GROOVED FLANGE	
6	FIRE PUMP & DRIVER, SEE INFORMATION TABLE	
7	6" GROOVED FLANGE	
8	8" X 6" GROOVED CONCENTRIC REDUCER	
9	8" GROOVED SWING CHECK VALVE	
10	8" GROOVED BUTTERFLY CONTROL VALVE, NORMALLY OPEN	
11	6" GROOVED BUTTERFLY CONTROL VALVE, NORMALLY OPEN	
12	6" GROOVED RISER MANIFOLD	
13	8" GROOVED BUTTERFLY CONTROL VALVE, NORMALLY CLOSED	
14	1/2" BALL VALVE	
15	FIRE PUMP TEST METER	
16	6" GROOVED ELBOW 90	
17	8" GROOVED DRAIN CAP	
18	2-1/2" HOSE VALVE	
19	1-1/4 JOCKEY PUMP SUCTION PIPING	
20	1-1/4" OS&Y CONTROL VALVE WITH TAMPER	
21	JOCKEY PUMP, SEE INFORMATION TABLE	
22	1-1/4" CHECK VALVE	
23	1-1/4 JOCKEY PUMP DISCHARGE PIPING	
24	JOCKEY PUMP SENSING LINE	
25	FIRE PUMP SENSING LINE	
26	TEST ASSEMBLY PER NFPA 20	
27	JOCKEY PUMP CONTROLLER	
28	FIRE PUMP CONTROLLER	
29	PIPE STAND	
30	SEISMIC BRACE	
31	CONCRETE PAD BY OTHERS	
32	8" X 6" REDUCING COUPLING	
33		
34		
35		
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EQUIPMENT PROTECTION (BY OTHERS)

FIRE PUMP ROOM TO BE PROTECTED IN ACCORDANCE WITH NFPA 20, 4.14.1.1.2.

SYSTEM MONITORING

VALVE MONITORING, WATER-FLOW ALARM, AND TROUBLE SIGNALS SHALL BE AUTOMATICALLY TRANSMITTED TO AN APPROVED CENTRAL STATION.
THIS WORK IS BY OTHERS.

TEST HEADER GREATER THAN 15'-0

TEST HEADER HAS BEEN SIZED PER HYDRAULIC CALCULATIONS PER NFPA 20, SECTION 4.21.3.4 (2).

TEST HEADER CALCULATION INFORMATION	
PUMP RATING IN GPM	1250
150% OF PUMP RATING	1875
NUMBER OF TEST HOSE STREAMS	6
SIZE OF FIRE HOSE	2.5"

DISCHARGE NOZZLE

$$P = \left(\frac{Q}{29.84 \cdot C \cdot D^2}\right)^2$$

WHERE: P = PITOT PRESSURE IN PSI
Q = FLOW RATE IN GPM
C = NOZZLE DISCHARGE COEFFICIENT
D = NOZZLE DIAMETER IN INCHES

FLOW RATE IN GPM (150% RATING / NUMBER OF STREAMS)	Q =	313
NOZZLE DISCHARGE COEFFICIENT	C =	0.97
NOZZLE DIAMETER IN INCHES	D =	1.75
PITOT PRESSURE REQUIRED	P =	**12.47**

FIRE HOSE FRICTION LOSS

$$FL = C \cdot \left(\frac{Q}{100}\right)^2 \cdot \left(\frac{L}{100}\right)$$

WHERE: FL = FRICTION LOSS IN PSI
C = FRICTION LOSS COEFFICIENT
Q = FLOW RATE IN GPM
L = HOSE LENGTH

FRICTION LOSS COEFFICIENT	C =	2
FLOW RATE IN GPM (150% RATING / NUMBER OF STREAMS)	Q =	313
HOSE LENGTH	L =	50
FRICTION LOSS IN PSI	FL =	**4.75**
TEST HEADER HOSE VALVE DISCHARGE:		**313 GPM @ 17.22 PSI**

FIRE PUMP DATA

MAKE & MODEL	6-481-15E
TYPE	HORIZONTAL SPLIT CASE
SIZE	8" X 6"
RATING	1250 GPM @ 50 PSI
RPM	1770
ROTATION	RIGHT HANDED
SUCTION SIZE	8.00 IN
DISCHARGE SIZE	6.00 IN
IMPELLER	11.16 IN
ESTIMATED WEIGHT	752 LB
START PRESSURE (FIELD VERIFY)	154 PSI
STOP PRESSURE (FIELD VERIFY)	169 PSI

DRIVER DATA

TYPE	ELECTRIC
POWER	60.00 HP
PHASE	3 PHASE
HERTZ	60 Hz
VOLTS	200 V
RPM	1800
ESTIMATED WEIGHT	630 LB

JOCKEY PUMP DATA

MAKE & MODEL	PVM1-8
RATING	12.5 GPM @ 60 PSI
SUCTION & DISCHARGE SIZE	1.25 IN
POWER	1.00 HP
PHASE	3 PHASE
VOLTS	208 V
START PRESSURE (FIELD VERIFY)	159 PSI
STOP PRESSURE (FIELD VERIFY)	169 PSI

FIRE PUMP CONTROL PANEL DATA

MAKE & MODEL	TORNATECH GPA SERIES
VOLTAGE	208V
HP RANGE	5-150
SOFT START	NO
AUTOMATIC TRANSFER SWITCH	NO
REMOTE ALARMS	PHASE REVERSAL, MOTOR RUN, FAIL TO START

KEY NOTES

1. TYPICAL SYSTEM RISER
SEE DETAIL ON SHEET FP-D2
2. TYPICAL COMBINATION STANDPIPE
SEE DETAIL ON SHEET FP-D2
3. TYPICAL STANDPIPE
SEE DETAIL ON SHEET FP-D2
4. 6" TYPICAL STANDPIPE & HOSE VALVE CABINET
SEE DETAIL ON SHEET FP-D2
5. 6" DOWN TO FLOOR BELOW
ANNULAR CLEARANCE PER NFPA 13
6. 6" UP TO FLOOR ABOVE
ANNULAR CLEARANCE PER NFPA 13
7. 2" DRAIN UP TO FLOOR ABOVE
ANNULAR CLEARANCE PER NFPA 13
8. 2" DRAIN DOWN TO FLOOR BELOW
ANNULAR CLEARANCE PER NFPA 13
9. 2" DRAIN TO SANITARY CONNECTION
10. 1" AUXILIARY DRAIN
NIPPLE, VALVE & PLUG
11. 1" AUXILIARY DRAIN
PIPE TO SANITARY DRAIN
12. 9'-0 MAX. IN SMALL ROOMS
SEE DESIGN NOTE #1 ON SHEET FP-0.1
13. SPRINKLER OMITTED FROM BATHROOM
SEE DESIGN NOTE #2 ON SHEET FP-0.1
14. SPRINKLERS OMITTED FROM OVERHANG
SEE DESIGN NOTE #3 ON SHEET FP-0.1
15. SPRINKLERS OMITTED FROM VERTICAL SHAFT
SEE DESIGN NOTE #4 ON SHEET FP-0.1
16. LAUNDRY OR GARBAGE CHUTE SPRINKLER
PRE-INSTALLED & CONNECTED BY AEGIS
17. CPVC TO STEEL PIPE ADAPTER
THREADED OR GROOVED AS APPLICABLE

PIPING NOTES

1. BRANCHLINE PIPING TO BE INSTALLED 6" FROM BOTTOM OF SLAB TO CENTER OF PIPE, TYPICAL.
2. BULK MAINS TO BE INSTALLED 1-0" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
3. SYSTEM MAINS TO BE INSTALLED 1-8" FROM BOTTOM OF DECK TO CENTER OF PIPE, TYPICAL.
4. ALL EXPOSED PIPING SHALL BE STEEL PIPE PER GENERAL NOTE # 17 ON SHEET FP-0.1.

CONCEALED SPACES

1. ALL CONCEALED COMBUSTIBLE SPACES SHALL BE ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION.
2. SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.

AIR VENT NOTE

AS STATED IN NFPA 13 SECTION 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

HATCH LEGEND

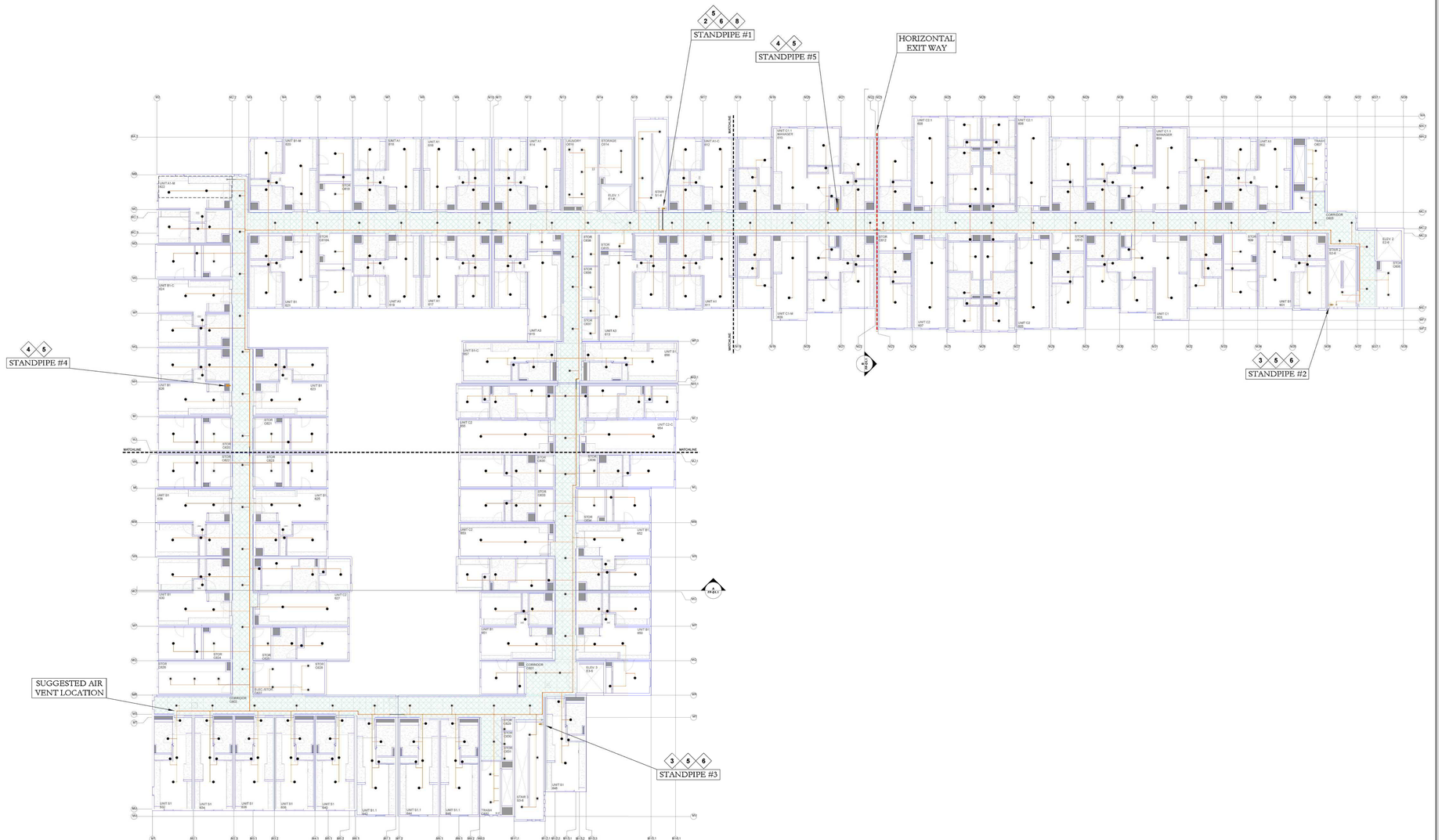
SITE SCOPE OF WORK

PIPE LEGEND

WET CPVC
WET STEEL

SPRINKLER LEGEND

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Notes
◉	Tyco	TY3531	RFII	125	5.6	Concealed Pendent	½	Quick	White	200°F	
●	Tyco	TY2534	LFII	349	4.9	Concealed Pendent	½	Fast	White	200°F	Max Spacing 18 x 18
				Total = 474							



BUILDING SECTION



SECTION A

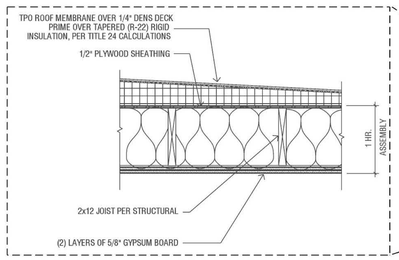
CONCEALED SPACES

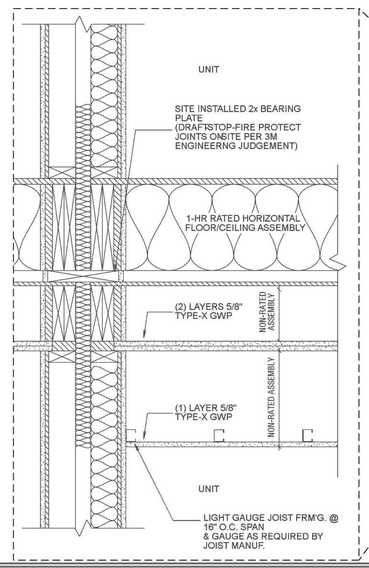
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2. SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.
3. SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES FORMED BY CEILINGS ATTACHED DIRECTLY TO OR WITHIN 6" OF WOOD JOIST OR SIMILAR SOLID MEMBER CONSTRUCTION PER NFPA 13, 9.2.1.5

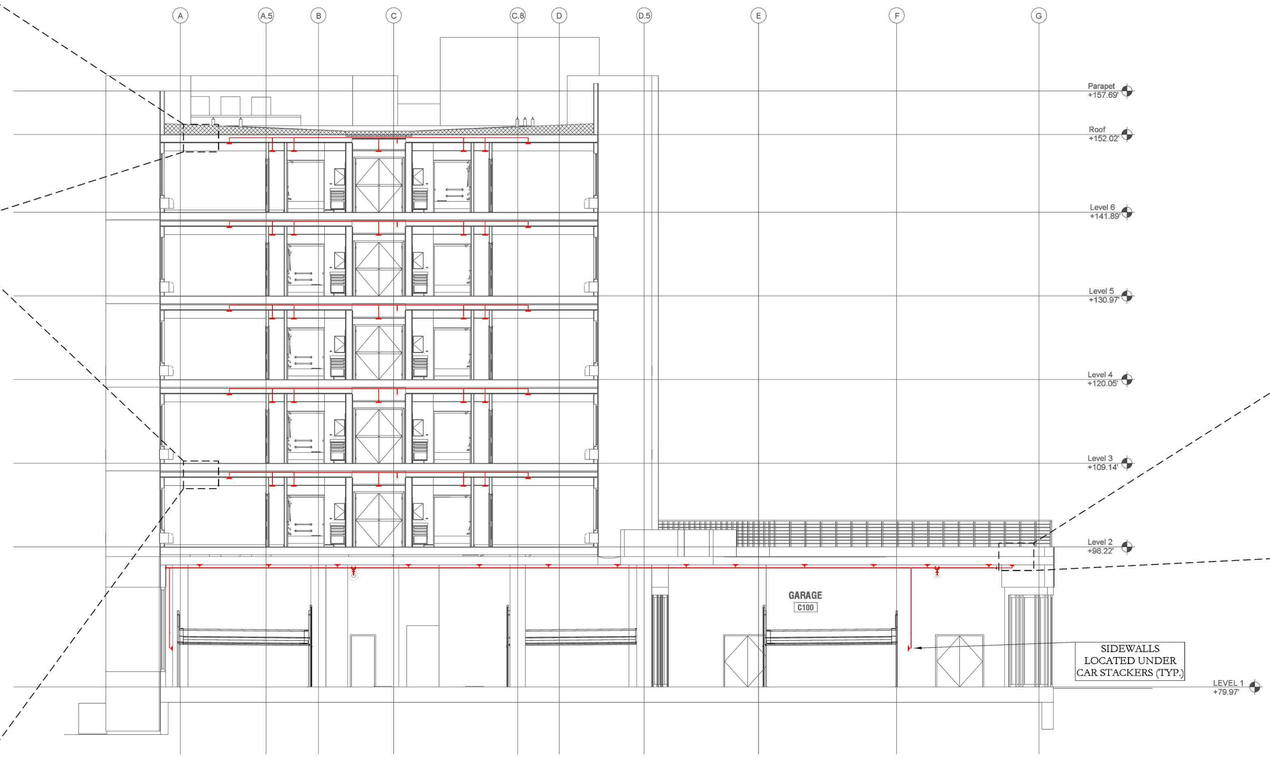
SPRINKLER NOTE

SPRINKLER SYMBOLS IN SECTION DETAIL ARE FOR CLARITY ONLY. SEE SYSTEM PIPING PLANS FOR ACCURATE SPRINKLER SYMBOLS.

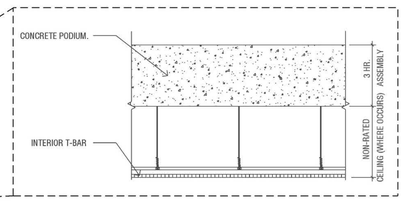
BUILDING SECTION







SECTION B



CONCEALED SPACES

1. ALL CONCEALED COMBUSTIBLE SPACES SHALL BE ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION.
2. SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES ENTIRELY FILLED WITH NONCOMBUSTIBLE INSULATION PER NFPA 13, 9.2.1.7.
3. SPRINKLERS SHALL BE OMITTED FROM CONCEALED COMBUSTIBLE SPACES FORMED BY CEILINGS ATTACHED DIRECTLY TO OR WITHIN 6" OF WOOD JOIST OR SIMILAR SOLID MEMBER CONSTRUCTION PER NFPA 13, 9.2.1.5

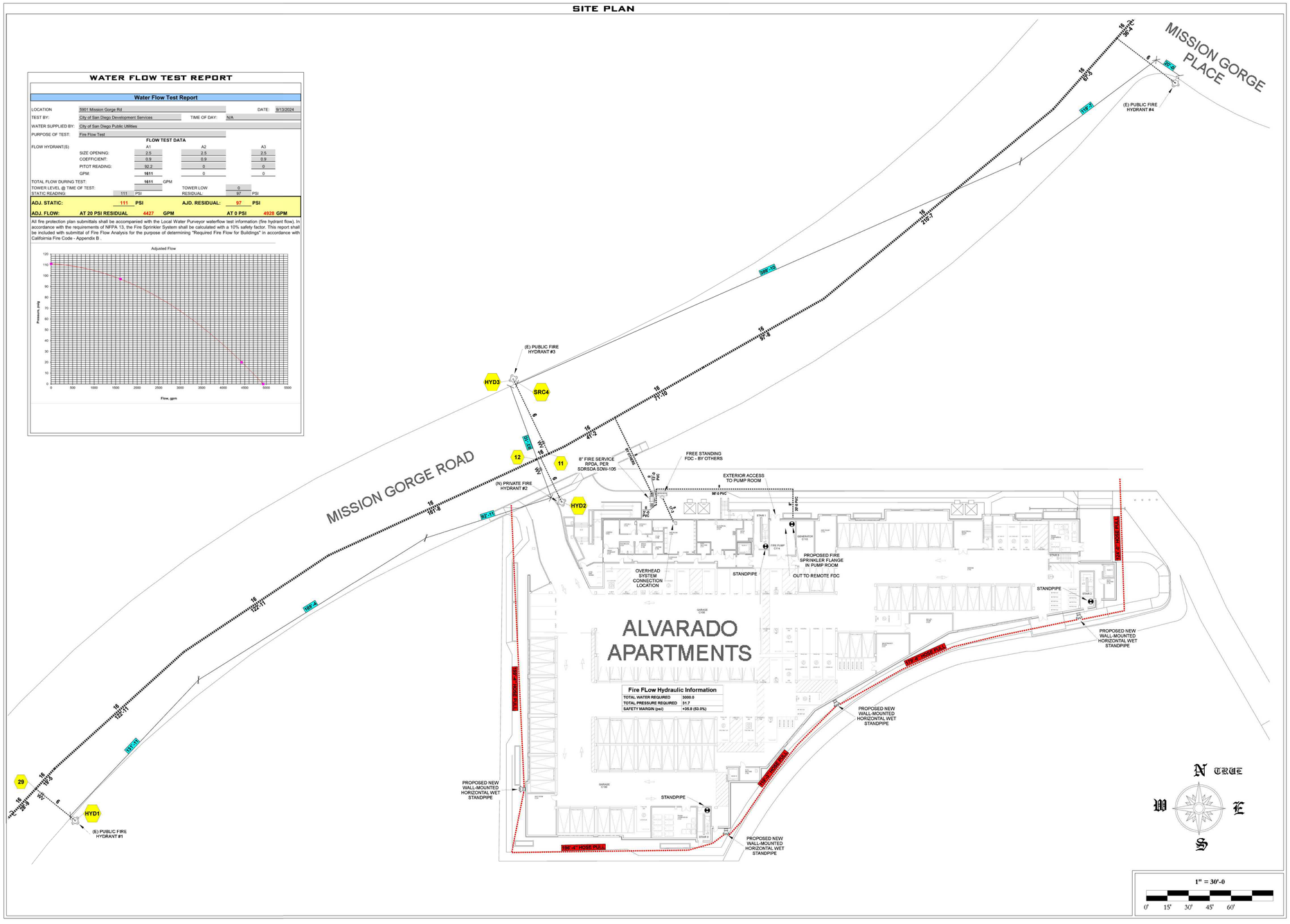
SPRINKLER NOTE

SPRINKLER SYMBOLS IN SECTION DETAIL ARE FOR CLARITY ONLY. SEE SYSTEM PIPING PLANS FOR ACCURATE SPRINKLER SYMBOLS.

ASSEMBLY DETAIL NOTE

ASSEMBLY DETAILS ARE FOR REFERENCE ONLY. FOR MORE INFORMATION PLEASE SEE ARCHITECTURAL DRAWINGS.

SITE PLAN



WATER FLOW TEST REPORT

Water Flow Test Report

LOCATION	5901 Mission Gorge Rd	DATE:	9/13/2024
TEST BY:	City of San Diego Development Services	TIME OF DAY:	N/A
WATER SUPPLIED BY:	City of San Diego Public Utilities		
PURPOSE OF TEST:	Fire Flow Test		

FLOW TEST DATA

FLOW HYDRANT(S)	A1	A2	A3
SIZE OPENING:	2.5	2.5	2.5
COEFFICIENT:	0.9	0.9	0.9
PITOT READING:	92.2	0	0
GPM:	1611	0	0

TOTAL FLOW DURING TEST: 1611 GPM
TOWER LEVEL @ TIME OF TEST: TOWER LOW 0
STATIC READING 111 PSI RESIDUAL 97 PSI

ADJ. STATIC: 111 PSI **AJD. RESIDUAL: 97 PSI**

ADJ. FLOW: AT 20 PSI RESIDUAL 4427 GPM AT 0 PSI 4928 GPM

All fire protection plan submittals shall be accompanied with the Local Water Purveyor waterflow test information (fire hydrant flow). In accordance with the requirements of NFPA 13, the Fire Sprinkler System shall be calculated with a 10% safety factor. This report shall be included with submittal of Fire Flow Analysis for the purpose of determining "Required Fire Flow for Buildings" in accordance with California Fire Code - Appendix B .

FIRE HYDRANT SPACING

HYDRANT	HYDRANT	DISTANCE
1	2	414'-2
2	3	83'-10
3	4	528'-5
	AVERAGE	342'-0

SYMBOL LEGEND

- BACKFLOW PREVENTER
- FIRE HYDRANT
- PROPOSED NEW YARD HYDRANT
- WV — WATER VALVE

AVAILABLE FLOW & PRESSURE INFORMATION

City of San Diego
Development Services
Attention: **Hydrant Flow Request**
1222 First Ave., MS-401
San Diego, CA 92101
(619) 446-5000

Hydrant Flow Request — FORM **DS-160** Octoss 2016

Please draw an accurate map for fire hydrant data

Water Flow Data for this Hydrant: H534869



Printed on recycled paper. Visit our web site at www.sandiego.gov/development-services
Upon request, this information is available in alternative formats for persons with disabilities.
DS-160 (10-16)

BUILDING AREA SUMMARY

BUILDING CONSTRUCTION TYPE:
5 STORY TYPE III-A OVER ONE STORY TYPE I-A

TOTAL BUILDING AREAS:
LEVEL 1: 57,105 SF
LEVEL 2: 41,534 SF
LEVEL 3: 41,534 SF
LEVEL 4: 41,534 SF
LEVEL 5: 41,534 SF
LEVEL 6: 41,534 SF

TOTAL: 264,775 SF

SUMMARY FIRE FLOW REQUIREMENTS

WATER FLOW INFORMATION OBTAINED FROM
SAN DIEGO DEVELOPMENT SERVICES

STATIC: 111.1 PSI
RESIDUAL: 97.3 PSI
FLOW: 1,611.33 GPM
FLOW LETTER DATED: SEPTEMBER 13, 2024

BUILDING CONSTRUCTION TYPE:
5 STORY TYPE III-A OVER
ONE STORY TYPE I-A

REQUIRED FIRE FLOW: 5,892 GPM
ADJUSTED FIRE FLOW: 2,946 GPM
(USING 50% REDUCTION PER SDFD STANDARDS)

FOR SPRINKLERED BLDG MINIMUM: 6 FIRE HYDRANTS
AVERAGE SPACING: 250 FT
ADJUSTED SPACING: 375 FT
(USING 50% INCREASE PER CFC TABLE C102.1, FOOTNOTE F.)

FIRE FLOW CALCULATIONS

Building Area by Construction Type:

• Type IA	Level 1	=	57,105	FT²
• Type IIIA	Levels 2-6	=	207,670	FT²
Total Square Feet (for purposes of fire flow)		=	264,775	FT²

Fire Flow by Construction Type - Table B105.1(2):

• Type IA at 264,775	=	5,500	GPM
• Type IIIA at 264,775	=	6,000	GPM

Percentage of Building by Construction Type:

• Type IA	-	57,105 / 264,775.00 X 100	=	21.57%
• Type IIIA	-	207,670 / 264,775.00 X 100	=	78.43%

Fire Flow by Construction Type as Percentage of Building:

• 0.2157 (5500) + 0.7843 (6000)			
• 1,186 + 4,706			
• Required Fire Flow (prior to sprinkler reduction)	=	5,892	GPM

Fire Flow Reduction – Appendix B, Table B105.2 (Automatic Sprinkler System - 903.3.1.1)

• **5,892 GPM with 50% reduction**	=	**2,946**	**GPM**
• MINIMUM allowed Fire Flow	=	1,000	GPM
• Minimum fire flow duration	=	4	HRS

Fire Hydrant Locations & Distribution – Appendix C, Table C102.1

• Fire Flow Requirement	=	5,892	GPM
• Minimum Number of Hydrants	=	6	
• Average Hydrant Spacing	=	250	
• Average spacing with reduction for dead end streets (0 FT)	=	250	
• Average spacing with increase for sprinkler system (50%)	=	375	FT

VICINITY MAP



UNDERGROUND NOTE

ALL UNDERGROUND PIPING IS BY OTHERS
AND SHOWN FOR HYDRAULIC REFERENCE ONLY.
SEE ARCHITECTURAL & UTILITY DRAWINGS.

ALVARADO CREEK APARTMENTS
5901 MISSION GORGE ROAD
SAN DIEGO, CA 91320

CONTRACT NO.	SCALE: 1"= 30'-0"	DRAWN BY:SCH	DATE: 12/6/24

FIRE FLOW AND FIRE HYDRANT SPACING PLAN

FF-1 of 1