



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

05/20/2026

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Brown & Brown Insurance Services, Inc. 10151 Deerwood Park Blvd Bldg 100, Ste 500 Jacksonville FL 32256	CONTACT NAME: Sarah Alsamran PHONE (A/C, No, Ext): (904) 565-1952 E-MAIL ADDRESS: Sarah.Alsamran@bbbrown.com FAX (A/C, No): (904) 565-2440
INSURED Star Fire Sprinklers, Inc. 686 Edgewood Avenue N Jacksonville FL 32254	INSURER(S) AFFORDING COVERAGE INSURER A: Hudson Excess Insurance Company INSURER B: Auto-Owners Insurance Company INSURER C: FFVA Select Insurance Co. INSURER D: INSURER E: INSURER F:
	NAIC # 14484 18988 10385

COVERAGES**CERTIFICATE NUMBER:** 25-26 Liab**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☒ Errors & Omissions Included ☒ XCU is not excluded GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC OTHER:			FSL000152-07	10/06/2025	10/06/2026	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Errors & Omissions \$ Included
B	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			53-052-643-00	10/06/2025	10/06/2026	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ PIP-Basic \$ 10,000
A	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$ 10,000			FSLU000075-07	10/06/2025	10/06/2026	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N ☒ N	N / A	WC840-0035201-2025	10/06/2025	10/06/2026	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER**CANCELLATION**Columbia County Building Department
135 NE Hernando Ave

Lake City

FL 32055

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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Blaise Ingoglia
CHIEF FINANCIAL OFFICER
JoAnne Rice
DIVISION DIRECTOR



Catherine Thrasher
BUREAU CHIEF
Ronald Dilworth
SAFETY PROGRAM MANAGER

FLORIDA DEPARTMENT OF FINANCIAL SERVICES
DIVISION OF STATE FIRE MARSHAL
200 EAST GAINES STREET - Tallahassee, Florida 32399-0342
Tel. 850-413-3644

CERTIFICATE OF COMPETENCY
OFFICIAL COPY

THIS CERTIFIES THAT: Shawn D. Tittle
 686 Edgewood Ave N
 Jacksonville FL 32254
BUSINESS ORGANIZATION: Star Fire Sprinklers, Inc.

Contractor I includes the execution of contracts requiring the ability, experience, knowledge, science, and skill to intelligently layout, fabricate, install, inspect, alter, repair, or service all types of Fire Protection Systems, excluding Pre-Engineered Systems.

Issue Date: 07/01/2026
Type: 07
Class: 10
County: Duval
License/Permit #: FPC25-000154
Expiration Date: 06/30/2028



Subcontractor Verification Form

APPLICATION/PERMIT # _____

JOB NAME Christ Central Church

THIS FORM MUST BE SUBMITTED BEFORE A PERMIT WILL BE ISSUED

Columbia County issues combination permits. One permit will cover all trades doing work at the permitted site. It is **REQUIRED** that we have records of the subcontractors who actually did the trade specific work under the General Contractor's permit.

NOTE: It shall be the responsibility of the general contractor to make sure that all of the subcontractors are licensed with the Columbia County Building Department.

NOTE: If this should change prior to completion of the project, it is your responsibility to have a corrected form submitted to our office, before that work has begun.

Violations will result in stop work orders and/or fines.

ELECTRICAL

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____

MECHANICAL / A/C

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____

PLUMBING / GAS

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____

ROOFING

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____

FIRE SYSTEM /
SPRINKLER

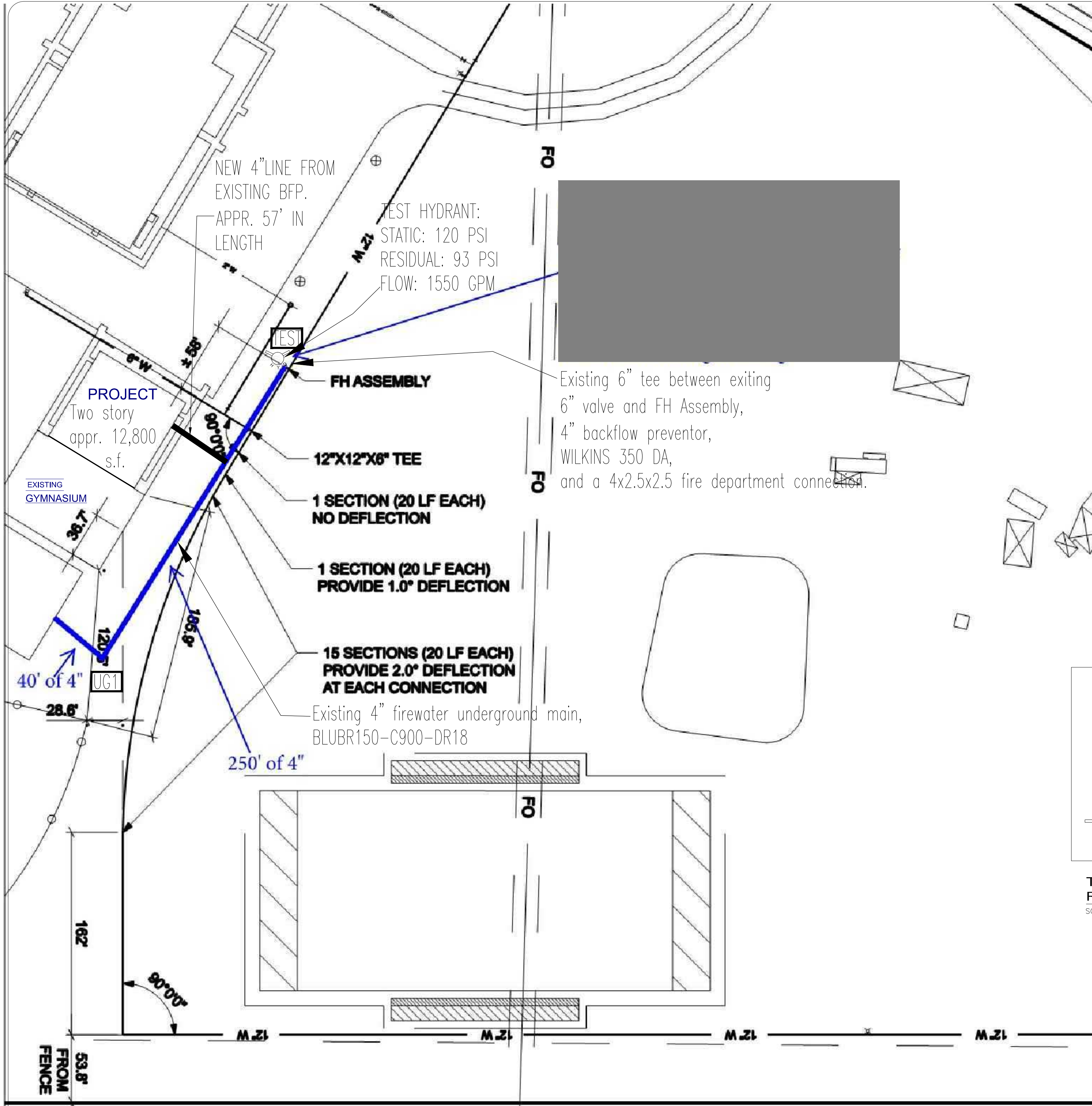
Printed Name: Shawn Tittle Signature: Shawn Tittle
Company Name: Star Fire Sprinklers, Inc. Owner ☐
License #: FPC-25-000154 Phone #: 904-384-1066

SOLAR

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____

STATE SPECIALTY

Printed Name: _____ Signature: _____
Company Name: _____ Owner ☐
License #: _____ Phone #: _____



FIRE SPRINKLER PLAN - FLOOR PLAN
SCALE: N.T.S.

FIRE PROTECTION WATER SUPPLY	
☒ PUBLIC	☐ PUBLIC + PUMP
☐ FIRE PUMP	☐ TANK
PUBLIC FLOW TEST: 120 PSI STATIC; 93 PSI RESIDUAL; 1550 GPM FLOW	
SOURCE OF TEST:	
DATE OF TEST: 05-08-2026 AT 9:30 AM	
TEST LOCATION: HYDRANT AT THE PROPERTY	
FIRE PUMP DATA: CAPACITY :	
STORAGE TANK SIZE:	MISC. NOTES:

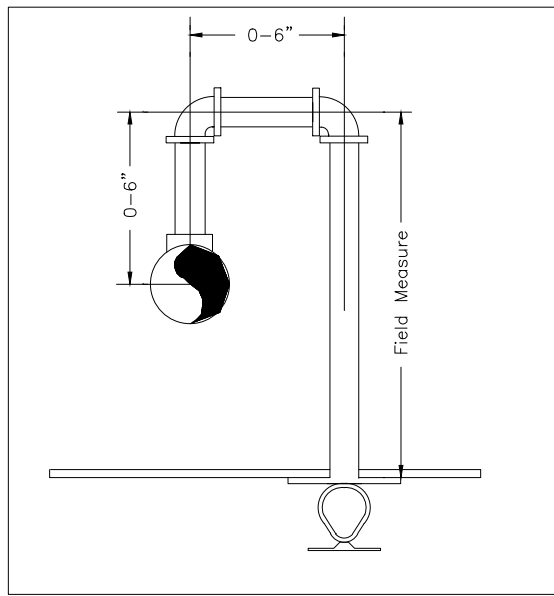
FIRE PROTECTION DESIGN CRITERIA	
1. THE EXISTING BUILDING USE IS PRIVATE SCHOOL WITH NON-COMBUSTIBLE CONSTRUCTION. THE BUILDING IS TWO STORY AND WILL RECEIVE NEW ADDITIONS AND RENOVATIONS.	
2. THE SYSTEM PROTECTION AREA LIMITATION IS 52,000 SQ. FT. PER SYSTEM.	
3. TOTAL PROTECTED AREA IS APP. 12,800 sq.ft. (WHOLE PROJECT) AND IT CONSISTS OF 1 WET SPRINKLER RISER.	
4. CALCULATION METHOD USED IS AREA/DENSITY PER NFPA 13.	
5. HAZEN-WILLIAMS COEFFICIENT USED IS C-120/150 (INSIDE), C-150 (UNDERGROUND).	
6. WET PIPE SYSTEM (STANDARD COVERAGE HEADS, QUICK RESPONSE).	
LIGHT HAZARD:	
DESIGN DENSITY:	0.10 GPM/SQ.FT.
DESIGN AREA:	PER NFPA 13
PROTECTION AREA PER SPRINKLER:	225 SQ. FT. MAXIMUM
HEAD SPACING:	15'-0" MAXIMUM
OUTSIDE HOSE ALLOWANCE:	100 GPM
ORDINARY HAZARD GROUP I:	
DESIGN DENSITY:	0.15 GPM/SQ.FT.
DESIGN AREA:	PER NFPA 13
PROTECTION AREA PER SPRINKLER:	130 SQ. FT. MAXIMUM
HEAD SPACING:	15'-0" MAXIMUM
OUTSIDE HOSE ALLOWANCE:	250 GPM
COMBUSTIBLE CONCEALED ARCES:	
DESIGN DENSITY:	0.10 GPM/SQ.FT.
DESIGN AREA:	PER NFPA 13
PROTECTION AREA PER SPRINKLER:	196 SQ. FT. MAXIMUM
HEAD SPACING:	14'x14' MAXIMUM
OUTSIDE HOSE ALLOWANCE:	100 GPM

SYMBOL DESCRIPTION	
	NEW CONNECTION
	ELEVATION - FINISHED FLOOR TO CENTER LINE OF THE PIPE
	CEILING HEIGHT
	ROOM NUMBER
	ELEVATION- FINISH FLOOR TO BOTTOM OF THE STEEL
	HANGER
	HYDRAULIC POINT
	HYDRAULICALLY CALCULATED REMOTE AREA
	1x4 RECESSED FLUORESCENT LIGHT
	DOWNLIGHT, SCONE FIXTURE
	2x4 RECESSED FLUORESCENT LIGHT
	SWITCH, OCCUPANCY SENSOR, CEILING MOUNTED
	SWITCH, DAYLIGHT SENSOR, CEILING MOUNTED
	LIGHTING FIXTURE, FLUORESCENT, WALL MOUNTED
	1'x4' LIGHTING FIXTURE, RECESSED, CEILING MOUNTED
	EXIT/AREA REFUGE LIGHT, UNIVERSAL MOUNTED
	SMOKE DETECTOR, CEILING MOUNTED
	DIFFUSER GRILLE
	RETURN AIR GRILLE
	GYPSUM WALLBOARD CEILING
	2x2 LAY-IN ACOUSTICAL CEILING

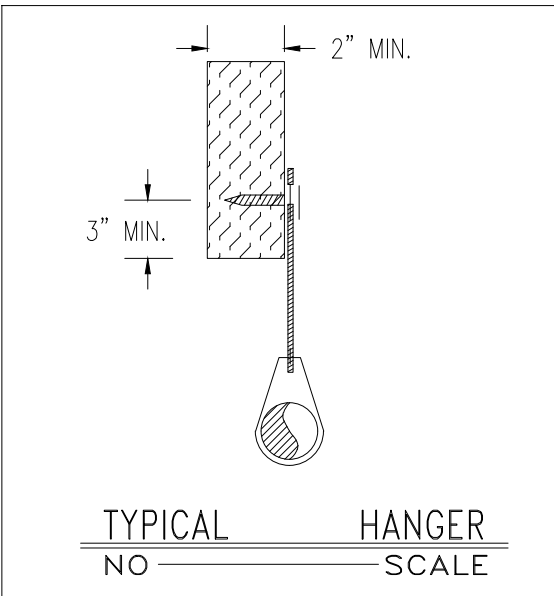
FIRE PROTECTION GENERAL NOTES	
1.	FIRE PROTECTION SYSTEM(S) TO COMPLY WITH NFPA 13 (2022)
2.	ADHERE TO AND OBTAIN ALL PERMITS, LICENSES
3.	FINAL INSPECTION AND APPROVAL BY FIRE MARSHAL AND ARCHITECT/ENGINEER.
4.	CUTTING OF STRUCTURAL AND/OR ARCHITECTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE ARCHITECT.
5.	PIPE ROUTING SHOWN SHALL BE USED AND ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES, AND/OR TO MAINTAIN PROPER CLEARANCES SHALL BE PROVIDED. VERIFY STRUCTURAL, MECHANICAL, ELECTRICAL INSTALLATIONS.
6.	PIPE SHALL BE REAMED AND CLEANED BEFORE ASSEMBLY.
7.	METHODS OF HANGING PIPES, HEADERS, AND BRANCHES SHALL BE IN ACCORDANCE WITH NFPA 13.
8.	PROTECT ALL PENETRATIONS OF SMOKE/FIRE WALLS, CEILINGS, FLOORS, ETC. (SEE DETAIL).
9.	PROVIDE ACCESS PANELS AND SIGNS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS (BY OTHERS).
10.	SPRINKLER HEADS ARE TO BE COORDINATED WITH ALL DIFFUSERS, SPEAKERS, LIGHTING FIXTURES, AND CEILING SYSTEMS.
11.	PROVIDE HEAD GUARDS ON SPRINKLER HEADS ALL LOCATIONS WHERE SPRINKLERS ARE SUBJECT TO DAMAGE.
12.	AUTOMATIC SPRINKLER TEMPERATURE RATINGS TO BE IN ACCORDANCE WITH NFPA 13.
13.	ALL COMPONENTS SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL)
14.	ALL COMPONENTS SHALL BE LISTED FOR THE MAXIMUM SYSTEM PRESSURE, 175 PSI MINIMUM.
15.	VALVES ON THE FIRE PROTECTION SYSTEM TO BE ELECTRICALLY SUPERVISED. TYPE AND EXACT LOCATION OF FLOW, PRESSURE, AND SUPERVISORY SWITCHES SHALL BE COORDINATED BETWEEN THE DIFFERENT RESPONSIBLE TRADES. ADDITIONAL WIRING OR DEVICES REQUIRED SHALL BE PROVIDED.
16.	ALL POWER WIRING SHALL BE ACCOMPLISHED UNDER THE ELECTRICAL DIVISION.
17.	SPRINKLERS SHALL COVER THE ENTIRE AREA OF THE ROOM INCLUDING ALCOVES.
18.	PROVIDE SPRINKLERS ABOVE AND BELOW EXPOSED DUCTWORK OR OBSTRUCTIONS 4 FEET OR LARGER.
19.	SPRINKLERS TO BE LOCATED IN THE CENTER-OF-TILE IN ALL AREAS WITH ACOUSTICAL CEILING TILES.
20.	PROVIDE HYDRAULIC DESIGN INFORMATION SIGNS AT EACH SYSTEM RISER.
21.	ALL UPRIGHT SPRINKLERS (EXCLUDING SPRINKLERS BELOW THE DUCT) TO HAVE A DISTANCE OF 1" TO 12" BELOW THE BOTTOM OF DECK.
22.	ALL SYSTEMS TO HYDROSTATICALLY TESTED AT 200PSI FOR 2 HOURS AND THE MATERIAL TEST CERTIFICATE SHALL BE PROVIDED TO THE OWNER
23.	PROVIDE LOW POINT DRAINS FOR ALL PORTIONS OF SYSTEMS WITH 5 GALLONS OR MORE OF TRAPPED WATER
24.	PROVIDE STOCK OF SPARE SPRINKLERS AND HEAD WRENCH IN A MOUNTED CABINET AS REQUIRED.

FIRE PROTECTION PIPE TYPE	
WET PIPE SYSTEM(S):	
1" - 1 1/2" PIPING (IF THREADED)	BLACK STEEL, SCHEDULE 40
1 1/2" - 2" PIPING (IF GROOVED OR WELDED)	BLACK STEEL, SCHEDULE 10
1" - 2 1/2" PIPING	CPVC
UNDERGROUND PIPE (INSTALLED BY OTHERS):	
4" PIPING (NEW)	BLUBR150-C900-DR18
4", 6" & 8" PIPING (EXISTING)	BLUBR150-C900-DR18

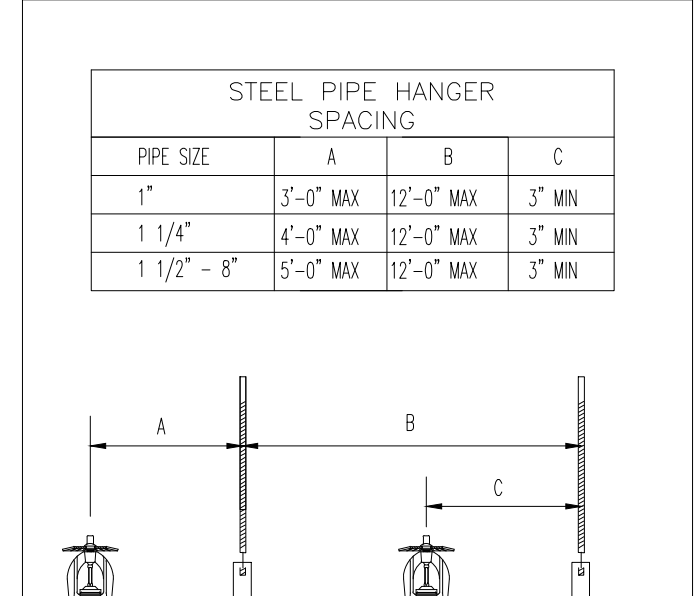
HANGER SPACING TABLE									
MAXIMUM DISTANCE BETWEEN HANGERS IN ACCORDANCE TO NFPA 13									
PIPE SIZE	1"	1 1/2"	2"	2 1/2"	3"	4"	4 1/2"	6"	8"
SCH. 10 - 40	12'-0"	12'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
CPVC	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	10'-0"	NA	NA	NA



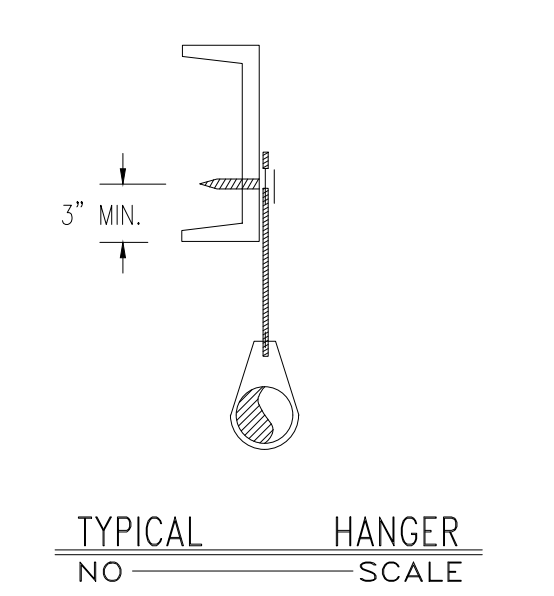
TYPICAL RETURN BEND
SCALE: NOT TO SCALE



SIDE SAMMY HANGER - WOOD
SCALE: NOT TO SCALE



STEEL PIPE HANGER LOCATION DETAIL
SCALE: NOT TO SCALE



SIDE SAMMY HANGER - STEEL
SCALE: NOT TO SCALE

FLEXIBLE SPRINKLER DROP HOSE UNBRAIDED CONNECTIONS

•Save Time & Money
•No cutting, no welding, no threading
•Perfect for retrofit applications
•Easy to move for layout changes

TECHNICAL DATA
•UL Approved for Unbraided
•Rated Pressure: 200 PSI (14 Bar)
•Max. Burst Pressure: 875 PSI (70 Bar)
•Maximum Ambient Temperature: 225°F (107°C)
•Maximum Sprinkler K-factor for 1/2" outlet: 8.0 gal/min/(psi)^{1/2}
•Maximum Sprinkler K-factor for 3/4" outlet: 14.0 gal/min/(psi)^{1/2}
•Designed for use in wet and dry systems
•Flexibility Type: Limited
•Hose Diameter: O.D. 1-1/16" / Flow 7/8"

ARGCO

UNBRAIDED		1/2" NPT		3/4" NPT		Max. # of Bends	Min. Bending Radius
Length	ITEM #	Equivalent Length of 1 ft Sch. 40 Pipe*	ITEM #	Equivalent Length of 1 ft Sch. 40 Pipe*	ITEM #		
AR-UB FLEX-07	28' (0.6 m)	6530160	18 ft	6530170	24 ft	1	4"
AR-UB FLEX-10	40' (0.9 m)	6530161	33 ft	6530171	41 ft	2	4"
AR-UB FLEX-12	48' (1.2 m)	6530162	43 ft	6530172	46 ft	2	4"
AR-UB FLEX-15	60' (1.5 m)	6530163	63 ft	6530173	64 ft	3	4"
AR-UB FLEX-18	72' (1.8 m)	6530164	78 ft	6530174	80 ft	4	4"

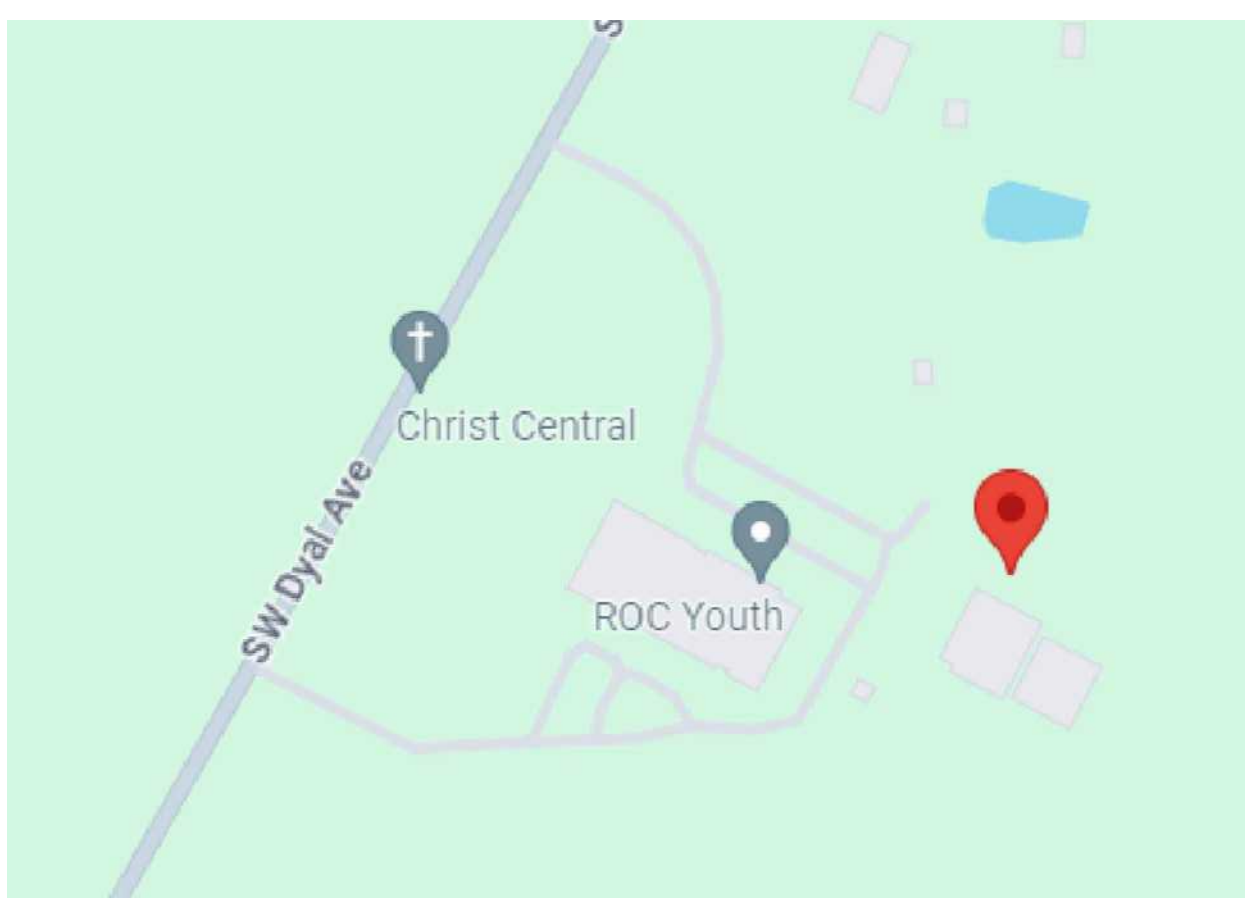
COMPONENT LIST		GTY	
NO	Part Name	Material	
1	Completed Tube	3/4" Stainless Steel	1
2	Nut	Galv Steel (ASTM283)	2
3	Isolator Ring	Nylon 66	1
4	O-Ring	EPDM	1
5	Preform	Zinc Plated Steel	1
6	Nipple	Galv Steel (ASTM283)	1
7	Center Bracket	Galv Steel (ASTM283)	1
8	End Bracket	Galv Steel (ASTM283)	2
9	Square Bar	Galv Steel (ASTM283)	1
System No.		Location	
Submitted By		Date	
Spec Section		Paragraph	
Approved		Date	

ARGCO.com
Updated 12/12/2019 © ARGCO

FLEXIBLE CONNECTION - 2nd FL ONLY

SCALE: N.T.S.

ARGCO



LOCATION MAP
SCALE: N.T.S.

FIRE PROTECTION DRAWING LEGEND	
SHEET NUMBER	SHEET TITLE
FP - 1	FIRE SPRINKLER PLAN - SITE PLAN, DETAILS AND NOTES
FP - 2	FIRE SPRINKLER PLAN - 1st FLOOR PLAN AND RISER DETAIL
FP - 3	FIRE SPRINKLER PLAN - 2nd FLOOR PLAN AND SECTION

STAR

Star Fire Sprinklers, Inc.

FIRE SPRINKLERS

ENGINEERING
DESIGNING
FABRICATION
INSTALLATION
INSPECTION
BFP TESTING

686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254

TEL: 904 384-1066

E-MAIL:
INFO@STARFIRESPRINKLERS.COM

CHRIST CENTRAL

STUDENT LIFE BUILDING RENOVATION

359 SW DYAL AVE LAKE CITY, FL 32024

PROJECT NAME:

SHEET TITLE:

FIRE SPRINKLER PLAN - SITE PLAN, DETAILS AND NOTES

SEAL:

REVISION:

DATE: 05-19-2026

DESIGNED BY: DESIGNER

DRAWN BY: DESIGNER

SCALE: AS NOTED

JOB No: NA

SHEET OF: 1 OF 3

SHEET No: FP - 1



Star Fire Sprinklers, Inc.

ENGINEERING
DESIGNING
FABRICATION
INTALLATION
INSPECTION
BFP TESTING:

TEL: 904 384-1066

CHRIST CENTRAL

STUDENT LIFE BUILDING RENOVATION

359 SW DYAL AVE LAKE CITY, FL 32024

TITLE

SPRINKLER PLAN - FLOOR PLAN AND RISER DETAIL

359 SW DYAL AVE LAKE CITY, FL 32024

SHEET TITLE:

FIRE SPRINKLER PLAN - FLOOR PLAN AND RISER DETAIL

PROJECT NAME:

SEAL:

REVISION:

DATE: 05-19-2026

DESIGNED BY: DESIGNER

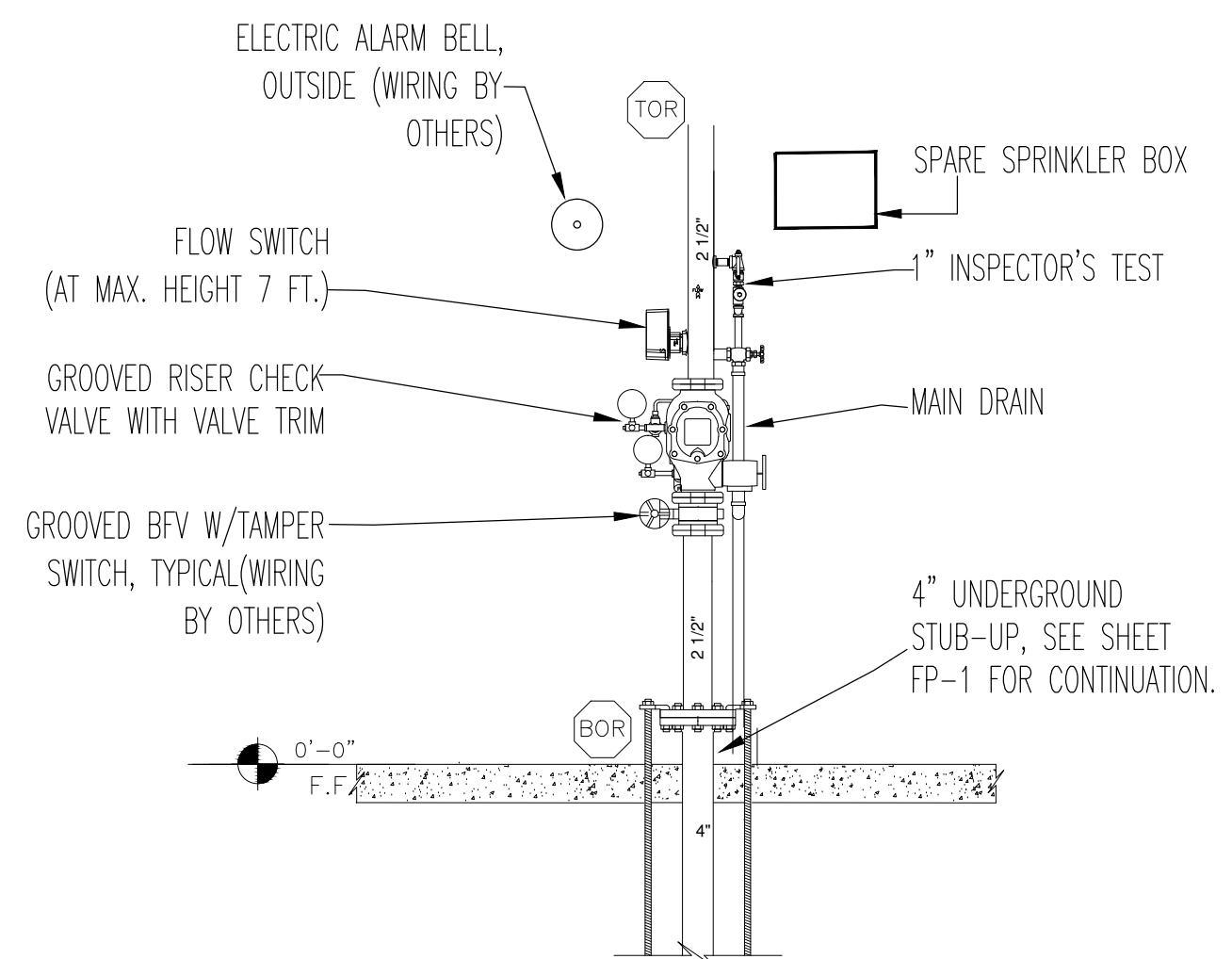
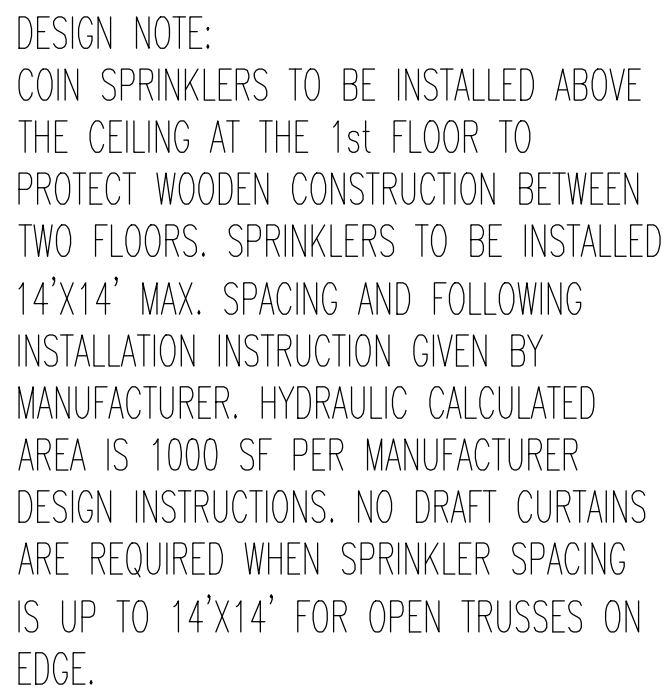
DRAWN BY: DESIGNER

SCALE: AS NOTED

JOB No: NA

SHEET OF: 2 OF 3

SHEET No: **FP - 2**



WET PIPE SYSTEM RISER DETAIL

SCALE: N.T.S.

Sprinkler Head Schedule						
Symbol	Count	Thread	K-Factor	Description	Note	
	50	1/2"	5.6	VK3021 1/2 QR 155 CE PDR	on Drop	
	36	1/2"	5.6	VK950 COIN 1/2 FR 200 B UP	14x14 max spacing	
	1	1/2"	5.6	VK3001 1/2 QR 155 B UP	on Sprig	
87 = Total Number of Heads this floor						



FIRE
SPRINKLERS

ENGINEERING
DESIGNING
FABRICATION
INSTALLATION
INSPECTION
BFP TESTING

686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254

TEL: 904 384-1066

E-MAIL:
INFO@STARFIRESPRINKLERS.COM

CHRIST CENTRAL
STUDENT LIFE BUILDING RENOVATION

359 SW DYAL AVE LAKE CITY, FL 32024

FIRE SPRINKLER PLAN - FLOOR PLAN AND SECTION

PROJECT NAME:

SHEET TITLE:

SEAL:

REVISION:

DATE: 05-19-2026

DESIGNED BY: DESIGNER

DRAWN BY: DESIGNER

SCALE: AS NOTED

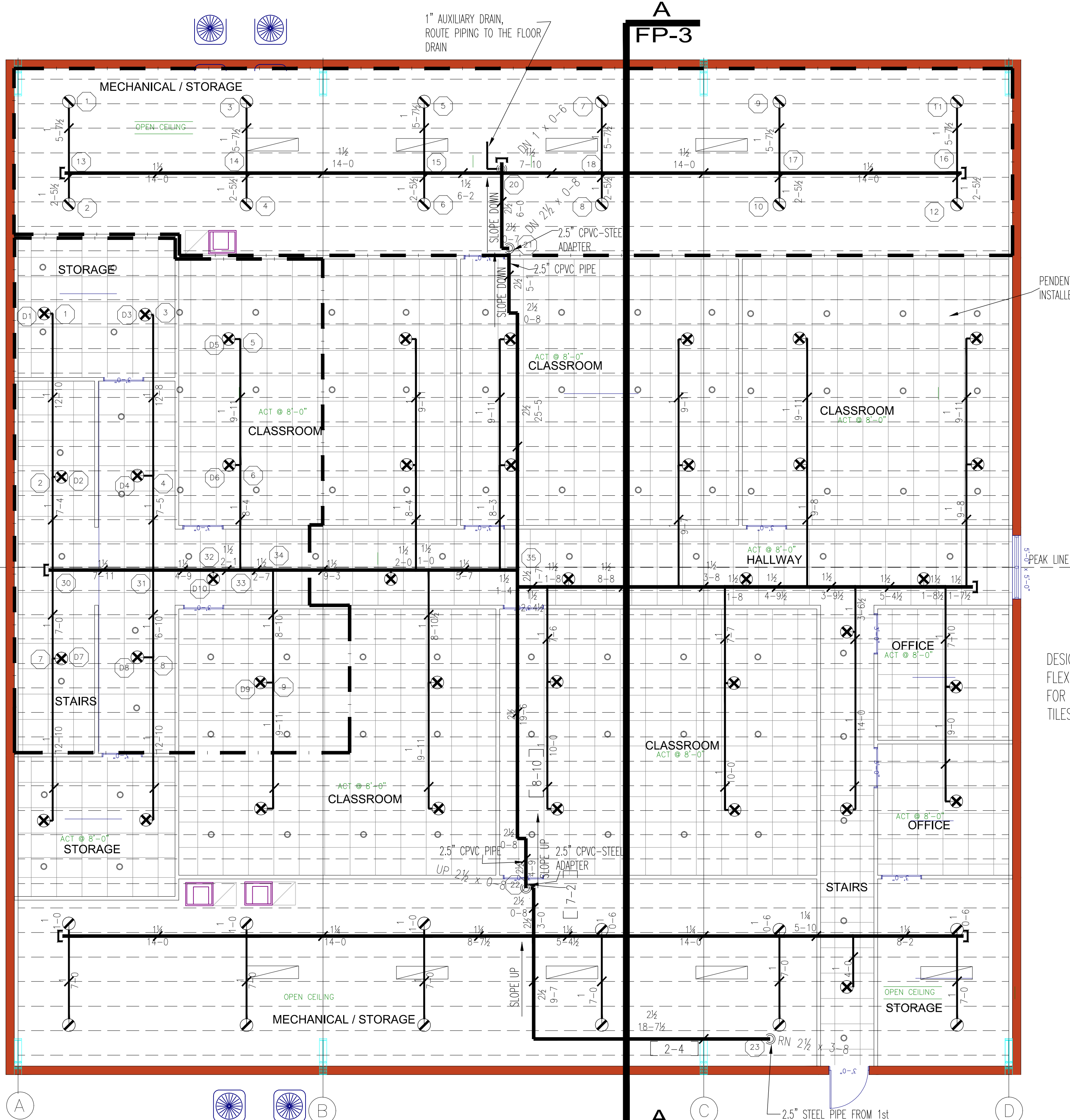
JOB No: NA

SHEET OF: 3 OF 3

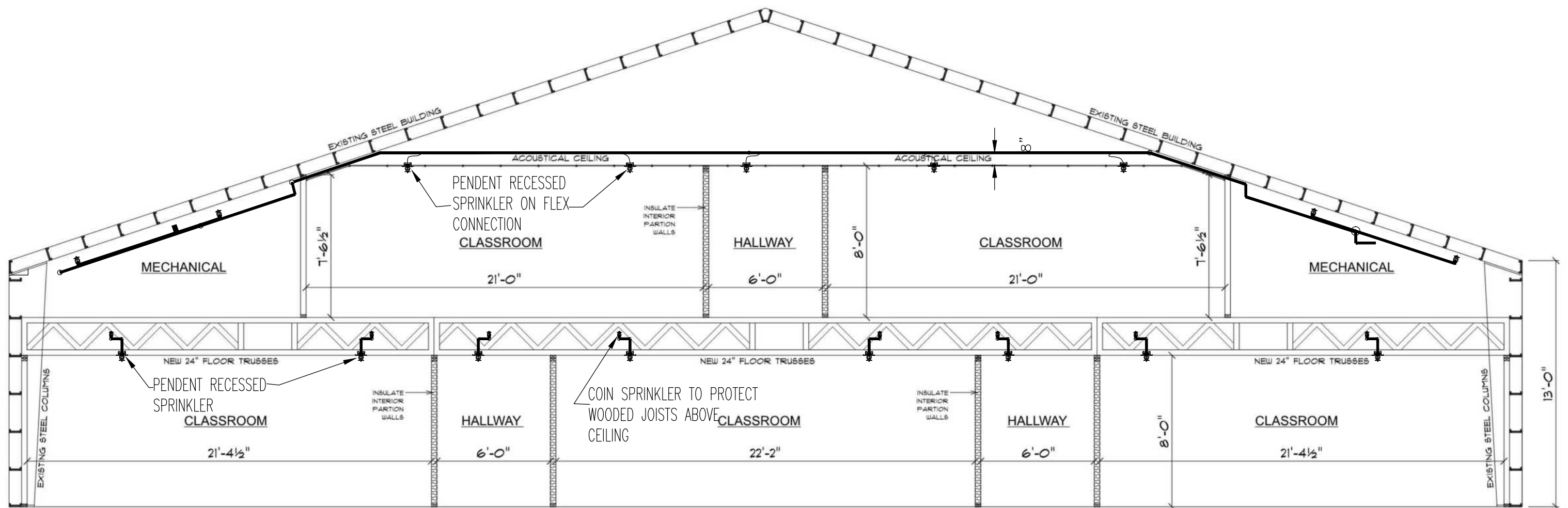
SHEET No: FP - 3

Design Area No. MECH. R. OH I
Density 0.15 Area ENTIRE R. 1138 SF
Flow 508.0 gpm @ 97.5 psi
Includes 250 gpm Hose allowance

Design Area No. 2nd fl classr. LH
Density 0.10 Area Aactual: 984 s.f.
Flow 278.0 gpm @ 68.6 psi
Includes 100 gpm Hose allowance



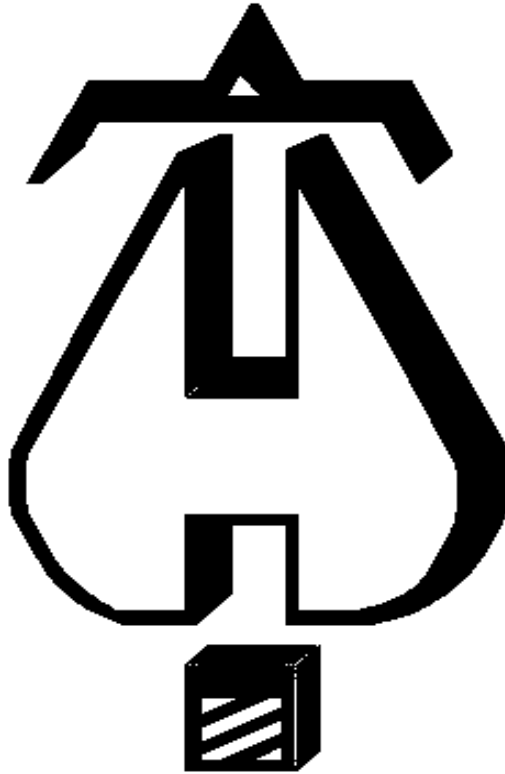
FIRE SPRINKLER PLAN - 2nd FLOOR PLAN
SCALE: 3/16" = 1'-0"



FIRE SPRINKLER PLAN - BUILDING CROSS SECTION A-A
SCALE: 3/16" = 1'-0"

DESIGN NOTE:
FLEXIBLE CONNECTIONS TO BE USED ONLY
FOR SPRINKLERS IN ACOUSTICAL
TILES.

Sprinkler Head Schedule					
Symbol	Count	Thread	K-Factor	Description	Note
⊗	38	1/2"	5.6	VK3021 1/2 QR 155 CE PDR	on Drop
⊙	24	1/2"	5.6	VK3001 1/2 QR 200 B UP	
62 = Total Number of Heads this floor					



. . . Fire Protection by Computer Design

STAR FIRE SPRINKLERS
686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254
9043841066

Job Name : CHRIST CENTRAL - 2ND FL CLASSROOMS
Building : 2ND FL CLASSROOM
Location : 359 SW DYAL AVE LAKE CITY, FL 32024
System : WET
Contract : NA
Data File : CHRIST CENTRAL - 2ND FL CLASSROOMS.WXF

Hydraulic Design Information Sheet

Name - CHRIST CENTRAL STUDENT LIFE BUILDING RENOVATION Date - 05/25/2026
Location - 359 SW DYAL AVE LAKE CITY, FL 32024
Building - 2ND FL CLASSROOM System No. - WET
Contractor - Star Fire Sprinklers Contract No. - NA
Calculated By - Drawing No. - FP-2
Construction: () Combustible (X) Non-Combustible Ceiling Height - 8'
Occupancy - LH

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 984	System Type	Sprinkler/Nozzle
	Density	- 0.10	(x) Wet	Make
D	Area Per Sprinkler	- VERIES	() Dry	Model PENDENT
E	Elevation at Highest Outlet	- 8'	() Deluge	Size 1/2
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155
G	Hose Allowance - Outside	- 100		

N Note

Calculation Flow Required - 278.0 Press Required - 68.6
Summary C-Factor Used: 150 Overhead 150 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05/08/2026		Cap. -
T	Time of Test - 9:30 AM	Rated Cap.-	Elev.-
E	Static Press - 120	@ Press -	
R	Residual Press - 93	Elev. -	Well
	Flow - 1550		Proof Flow
S	Elevation - NA		

U Location - HYDRANT AT THE PROPERTY, ABOUT 200' AWAY FROM THE BUILDING

P Source of Information -

Y

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R	K	Flue Spacing	Clearance:Storage to Ceiling
A		Longitudinal	Transverse

E Horizontal Barriers Provided:

Water Supply Curve C

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

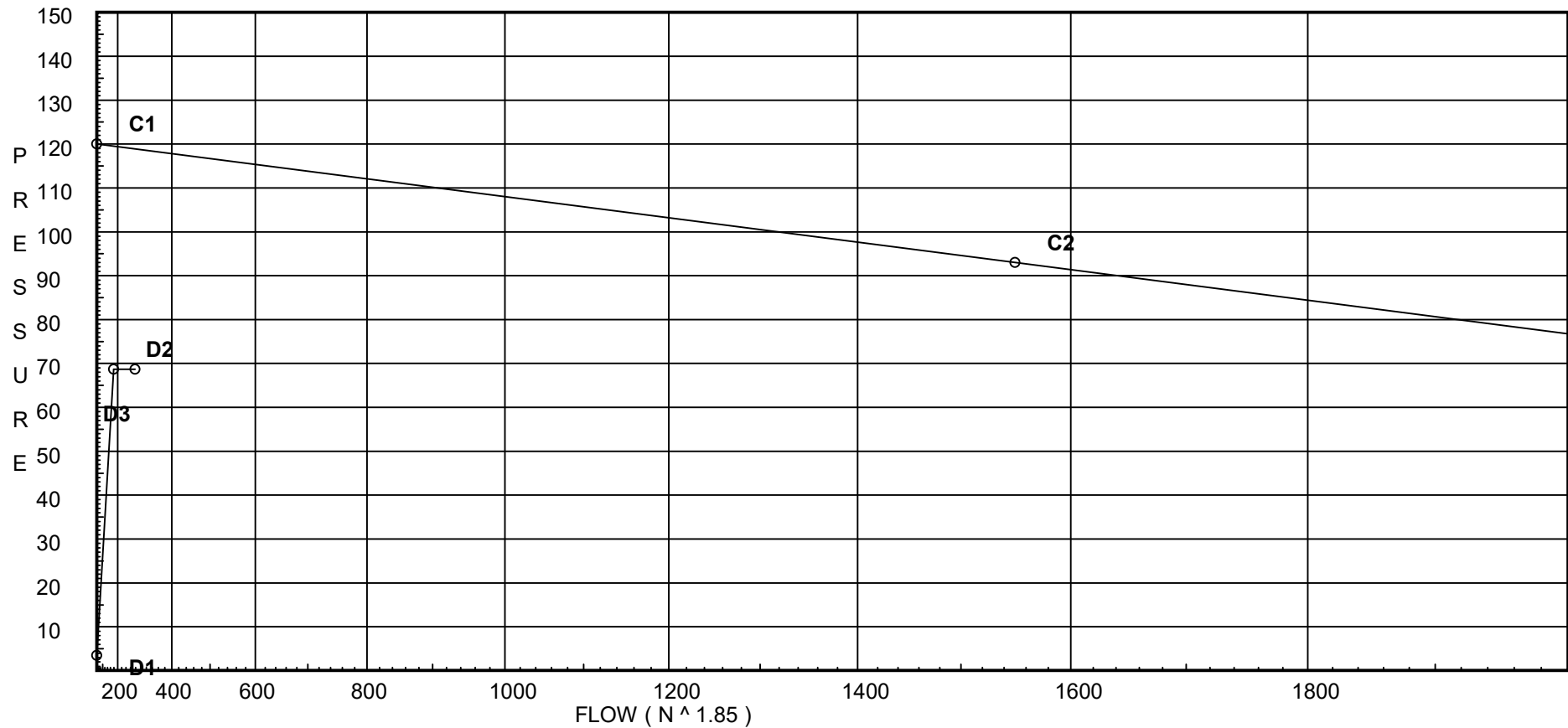
Page 2
Date 05/25/2026

City Water Supply:

C1 - Static Pressure : 120
C2 - Residual Pressure: 93
C2 - Residual Flow : 1550

Demand:

D1 - Elevation : 3.465
D2 - System Flow : 178.002
D2 - System Pressure : 68.677
Hose (Demand) : 100
D3 - System Demand : 278.002
Safety Margin : 50.199



Fittings Used Summary

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

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Date 05/25/2026

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zid	Wilkins 350DA	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D1	8.0	5.6	8.55	na	16.37	0.15	96	7.0
D2	8.0	5.6	8.96	na	16.76	0.1	90	7.0
D3	8.0	5.6	8.82	na	16.63	0.15	90	7.0
D4	8.0	5.6	9.24	na	17.02	0.1	90	7.0
D5	8.0	5.6	9.77	na	17.5	0.1	175	7.0
D6	8.0	5.6	10.13	na	17.82	0.1	175	7.0
D7	8.0	5.6	10.68	na	18.31	0.1	90	7.0
D8	8.0	5.6	10.66	na	18.28	0.1	90	7.0
D9	8.0	5.6	12.57	na	19.86	0.1	175	7.0
D10	8.0	5.6	12.06	na	19.45	0.1	112	7.0
1	8.83		12.5	na				
2	8.83		13.11	na				
3	8.83		12.9	na				
4	8.83		13.51	na				
5	8.83		14.29	na				
6	8.83		14.81	na				
7	8.83		15.63	na				
8	8.83		15.59	na				
9	8.83		18.38	na				
30	8.83		16.03	na				
31	8.83		16.54	na				
32	8.83		17.64	na				
33	8.83		18.3	na				
34	8.83		19.61	na				
35	19.83		34.4	na				
22	17.42		38.98	na				
23	12.58		47.14	na				
24	8.66		49.86	na				
TOR	8.66		52.38	na				
BOR	1.0		63.13	na				
UG1	-3.0		65.39	na				
TEST	0.0		68.68	na	100.0			

The maximum velocity is 28.47 and it occurs in the pipe between nodes 34 and 35

Final Calculations - Hazen-Williams - 2007

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
D1 to 1	16.37 16.37	1.049 120.0 0.0899	1T	5.0 0.0 0.0	43.000 5.000 48.000	8.549 -0.359 4.314			K Factor = 5.60	
	0.0 16.37						12.504		K Factor = 4.63	
D2 to 2	16.76 16.76	1.049 120.0 0.0939	1T	5.0 0.0 0.0	43.000 5.000 48.000	8.961 -0.359 4.505			K Factor = 5.60	
	0.0 16.76						13.107		K Factor = 4.63	
D3 to 3	16.63 16.63	1.049 120.0 0.0925	1T	5.0 0.0 0.0	43.000 5.000 48.000	8.819 -0.359 4.439			K Factor = 5.60	
	0.0 16.63						12.899		K Factor = 4.63	
D4 to 4	17.02 17.02	1.049 120.0 0.0965	1T	5.0 0.0 0.0	43.000 5.000 48.000	9.237 -0.359 4.633			K Factor = 5.60	
	0.0 17.02						13.511		K Factor = 4.63	
D5 to 5	17.50 17.5	1.049 120.0 0.1016	1T	5.0 0.0 0.0	43.000 5.000 48.000	9.766 -0.359 4.878			K Factor = 5.60	
	0.0 17.50						14.285		K Factor = 4.63	
D6 to 6	17.82 17.82	1.049 120.0 0.1051	1T	5.0 0.0 0.0	43.000 5.000 48.000	10.126 -0.359 5.045			K Factor = 5.60	
	0.0 17.82						14.812		K Factor = 4.63	
D7 to 7	18.31 18.31	1.049 120.0 0.1105	1T	5.0 0.0 0.0	43.000 5.000 48.000	10.685 -0.359 5.302			K Factor = 5.60	
	0.0 18.31						15.628		K Factor = 4.63	
D8 to 8	18.28 18.28	1.049 120.0 0.1102	1T	5.0 0.0 0.0	43.000 5.000 48.000	10.660 -0.359 5.291			K Factor = 5.60	
	0.0 18.28						15.592		K Factor = 4.63	
D9 to 9	19.86 19.86	1.049 120.0 0.1284	1T	5.0 0.0 0.0	43.000 5.000 48.000	12.572 -0.359 6.163			K Factor = 5.60	
	0.0 19.86						18.376		K Factor = 4.63	
D10 to 32	19.45 19.45	1.049 120.0 0.1236	1T	5.0 0.0 0.0	43.000 5.000 48.000	12.063 -0.359 5.932			K Factor = 5.60	
									Vel = 7.22	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

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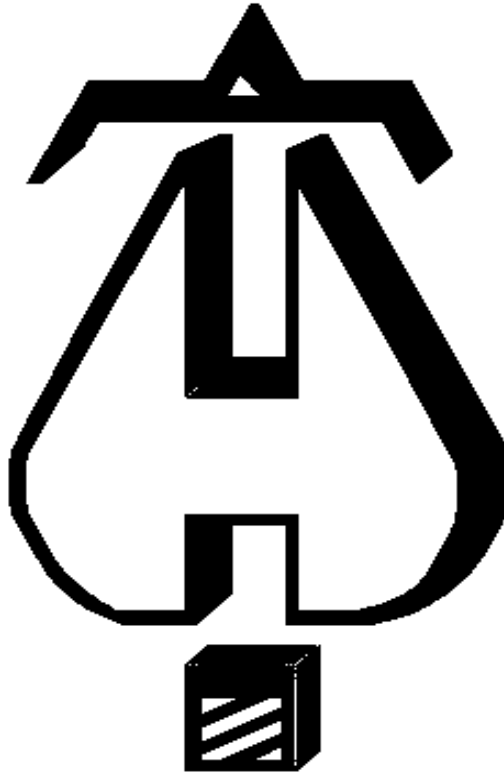
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 19.45					17.636			K Factor = 4.63	
1 to 2	16.37	1.101 150.0		0.0 0.0	12.830 0.0	12.504 0.0				
	16.37	0.0470		0.0	12.830	0.603			Vel = 5.52	
2 to 30	16.77	1.101 150.0	1T	9.563 0.0	7.330 9.562	13.107 0.0				
	33.14	0.1732		0.0	16.892	2.925			Vel = 11.17	
	0.0 33.14					16.032			K Factor = 8.28	
3 to 4	16.63	1.101 150.0		0.0 0.0	12.660 0.0	12.899 0.0				
	16.63	0.0483		0.0	12.660	0.612			Vel = 5.60	
4 to 31	17.02	1.101 150.0	1T	9.563 0.0	7.420 9.562	13.511 0.0				
	33.65	0.1781		0.0	16.982	3.025			Vel = 11.34	
	0.0 33.65					16.536			K Factor = 8.28	
5 to 6	17.50	1.101 150.0		0.0 0.0	9.920 0.0	14.285 0.0				
	17.5	0.0531		0.0	9.920	0.527			Vel = 5.90	
6 to 33	17.82	1.101 150.0	1T	9.563 0.0	8.330 9.562	14.812 0.0				
	35.32	0.1949		0.0	17.892	3.487			Vel = 11.90	
	0.0 35.32					18.299			K Factor = 8.26	
7 to 30	18.31	1.101 150.0		0.0 0.0	7.000 0.0	15.628 0.0				
	18.31	0.0577		0.0	7.000	0.404			Vel = 6.17	
	0.0 18.31					16.032			K Factor = 4.57	
8 to 31	18.28	1.101 150.0	1T	9.563 0.0	6.830 9.562	15.592 0.0				
	18.28	0.0576		0.0	16.392	0.944			Vel = 6.16	
	0.0 18.28					16.536			K Factor = 4.50	
9 to 34	19.86	1.101 150.0	1T	9.563 0.0	8.830 9.562	18.376 0.0				
	19.86	0.0671		0.0	18.392	1.234			Vel = 6.69	
	0.0 19.86					19.610			K Factor = 4.48	
30 to 31	51.44	1.598 150.0		0.0 0.0	7.920 0.0	16.032 0.0				
	51.44	0.0636		0.0	7.920	0.504			Vel = 8.23	
31 to 32	51.94	1.598 150.0		0.0 0.0	4.750 0.0	16.536 0.0				
	103.38	0.2316		0.0	4.750	1.100			Vel = 16.54	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 2ND FL CLASSROOMS

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Date 05/25/2026

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
32 to 33	19.45 122.83	1.598 150.0 0.3188		0.0 0.0 0.0	2.080 0.0 2.080	17.636 0.0 0.663			Vel = 19.65	
33 to 34	35.32 158.15	1.598 150.0 0.5081		0.0 0.0 0.0	2.580 0.0 2.580	18.299 0.0 1.311			Vel = 25.30	
34 to 35	19.85 178.0	1.598 150.0 0.6328	1T	11.656 0.0 0.0	19.250 11.656 30.906	19.610 -4.764 19.556			Vel = 28.47	
35 to 22	0.0 178.0	2.635 150.0 0.0554	3E	37.34 0.0 0.0	26.500 37.340 63.840	34.402 1.044 3.536			Vel = 10.47	
22 to 23	0.0 178.0	2.635 120.0 0.0837	5E	41.186 0.0 0.0	31.250 41.186 72.436	38.982 2.096 6.064			Vel = 10.47	
23 to 24	0.0 178.0	2.635 120.0 0.0837	1E	8.237 0.0 0.0	4.000 8.237 12.237	47.142 1.698 1.024			Vel = 10.47	
24 to TOR	0.0 178.0	2.635 120.0 0.0837	3E	24.711 0.0 0.0	5.330 24.711 30.041	49.864 0.0 2.514			Vel = 10.47	
TOR to BOR	0.0 178.0	2.635 120.0 0.0837	1T 1Fsp 1B 1S	16.474 0.0 9.61 19.22	7.660 45.304 52.964	52.378 6.318 4.433		** Fixed Loss = 3	Vel = 10.47	
BOR to UG1	0.0 178.0	4.23 150.0 0.0055	1T	38.446 0.0 0.0	57.000 38.446 95.446	63.129 1.732 0.528			Vel = 4.06	
UG1 to TEST	0.0 178.0	4.23 150.0 0.0055	1G 1T 1Zid	3.845 38.446 0.0	195.000 42.290 237.290	65.389 1.977 1.311		** Fixed Loss = 3.276	Vel = 4.06	
	100.00 278.00					68.677		Qa = 100.00 K Factor = 33.55		



. . . Fire Protection by Computer Design

STAR FIRE SPRINKLERS
686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254
9043841066

Job Name : CHRIST CENTRAL - COIN SPR
Building : 1ST FLOOR ABOVE CEILING
Location : 359 SW DYAL AVE LAKE CITY, FL 32024
System : WET
Contract : NA
Data File : CHRIST CENTRAL - COIN SPR.WXF

Hydraulic Design Information Sheet

Name - CHRIST CENTRAL STUDENT LIFE BUILDING RENOVATION Date - 05-19-2026
Location - 359 SW DYAL AVE LAKE CITY, FL 32024
Building - 1ST FLOOR ABOVE CEILING System No. - WET
Contractor - Star Fire Sprinklers Contract No. - NA
Calculated By - Drawing No. - FP-2
Construction: (X) Combustible () Non-Combustible Ceiling Height - EXP
Occupancy - LH

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

E
M Area of Sprinkler Operation - 1138 System Type Sprinkler/Nozzle
Density - 0.10 (x) Wet Make COIN
D Area Per Sprinkler - VERIES () Dry Model UPRIGHT
E Elevation at Highest Outlet - 9' () Deluge Size 1/2
S Hose Allowance - Inside - () Preaction K-Factor 5.6
I Rack Sprinkler Allowance - () Other Temp.Rat.155
G Hose Allowance - Outside - 100
N

Note

Calculation Flow Required - 297.4 Press Required - 73.1
Summary C-Factor Used: 150 Overhead 150 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 05/08/2026 Cap. -
T Time of Test - 9:30 AM Rated Cap.- Elev.-
E Static Press - 120 @ Press -
R Residual Press - 93 Elev. - Well
Flow - 1550 Proof Flow
S Elevation - NA

U
P Location - HYDRANT AT THE PROPERTY, ABOUT 200' AWAY FROM THE BUILDING

P
L Source of Information -
Y

C Commodity Class Location
O Storage Ht. Area Aisle W.
M Storage Method: Solid Piled % Palletized % Rack
M
() Single Row () Conven. Pallet () Auto. Storage () Encap.
S R () Double Row () Slave Pallet () Solid Shelf () Non
T A () Mult. Row () Open Shelf
O C

R K Flue Spacing Clearance:Storage to Ceiling
A Longitudinal Transverse
G

E Horizontal Barriers Provided:

Water Supply Curve C

STAR FIRE SPRINKLERS
CHRIST CENTRAL - COIN SPR

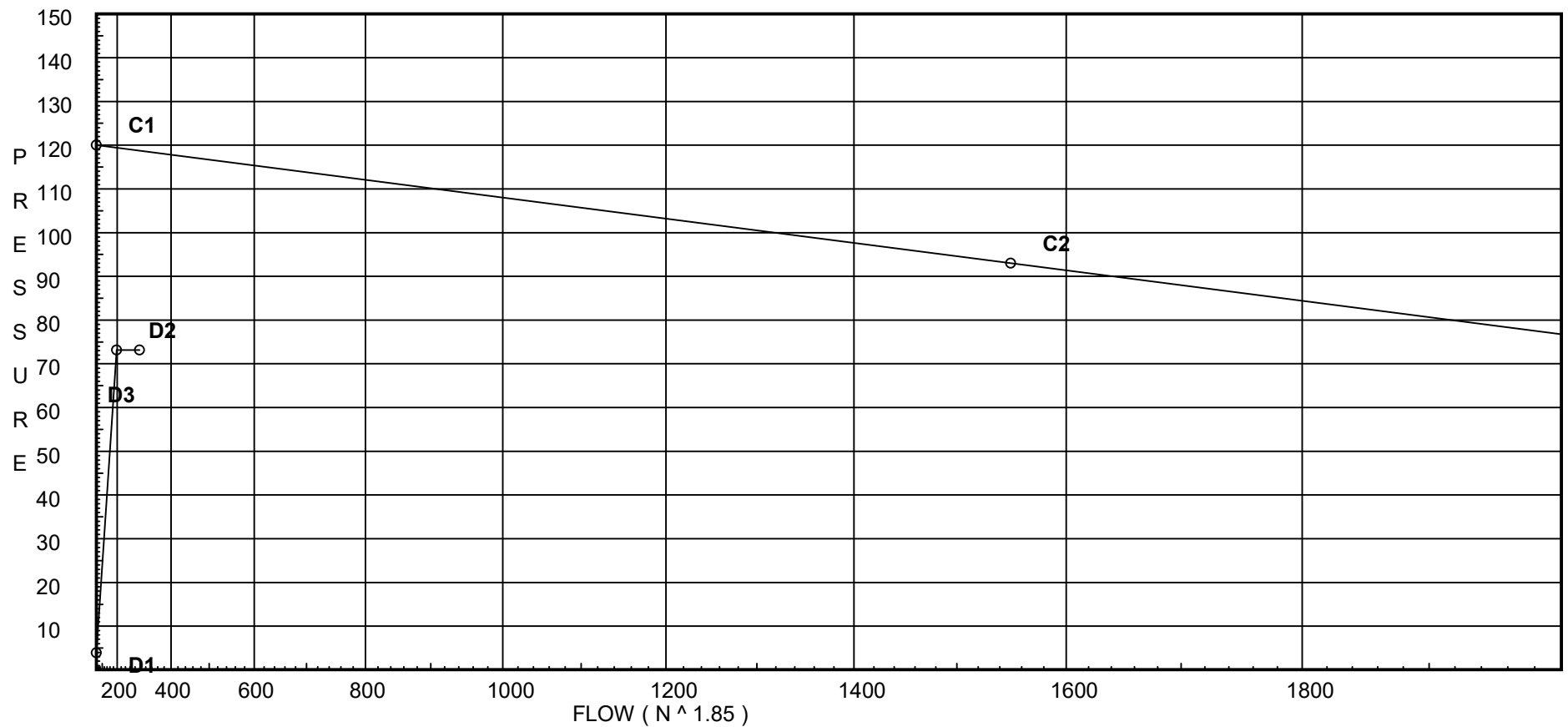
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City Water Supply:

C1 - Static Pressure : 120
C2 - Residual Pressure: 93
C2 - Residual Flow : 1550

Demand:

D1 - Elevation : 3.898
D2 - System Flow : 197.46
D2 - System Pressure : 73.136
Hose (Demand) : 100
D3 - System Demand : 297.46
Safety Margin : 45.590



Fittings Used Summary

STAR FIRE SPRINKLERS
CHRIST CENTRAL - COIN SPR

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Date 05/25/2026

Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zid	Wilkins 350DA	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

STAR FIRE SPRINKLERS
CHRIST CENTRAL - COIN SPR

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Date 05/25/2026

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	9.0	5.6	21.22	na	25.79	0.1	196	7.0
2	9.0	5.6	22.64	na	26.65	0.1	196	7.0
3	9.0	5.6	27.56	na	29.4	0.15	196	7.0
4	9.0	5.6	21.69	na	26.08	0.1	196	7.0
5	9.0	5.6	23.14	na	26.94	0.1	196	7.0
6	9.0	5.6	28.17	na	29.72	0.1	196	7.0
7	9.0	5.6	34.47	na	32.88	0.1	196	7.0
20	9.0		31.76	na				
21	9.0		32.45	na				
22	9.0		34.94	na				
24	9.0		54.13	na				
TOR	9.0		55.37	na				
BOR	1.0		67.21	na				
UG1	-3.0		69.58	na				
TEST	0.0		73.14	na	100.0			

The maximum velocity is 20.11 and it occurs in the pipe between nodes 22 and 24

Final Calculations - Hazen-Williams - 2007

STAR FIRE SPRINKLERS
CHRIST CENTRAL - COIN SPR

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Date 05/25/2026

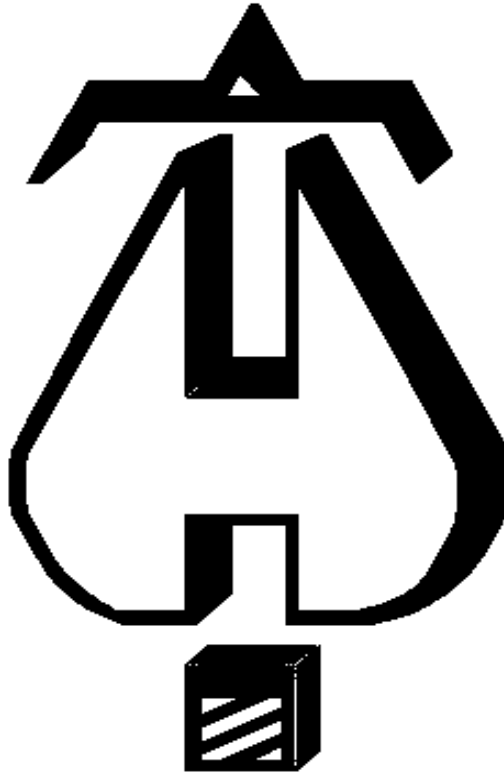
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1 to 2	25.79	1.101 150.0		0.0 0.0	13.080 0.0	21.215 0.0			K Factor = 5.60	
2 to 3	25.79	0.1089		0.0	13.080	1.425			Vel = 8.69	
2 to 3	26.65	1.101 150.0		0.0 0.0	12.160 0.0	22.640 0.0			K Factor = 5.60	
3 to 20	52.44	0.4048		0.0	12.160	4.922			Vel = 17.67	
3 to 20	29.40	1.394 150.0	1T	9.523 0.0	4.830 9.523	27.562 0.0			K Factor = 5.60	
	81.84	0.2923		0.0	14.353	4.196			Vel = 17.20	
	0.0 81.84					31.758			K Factor = 14.52	
4 to 5	26.08	1.101 150.0		0.0 0.0	13.080 0.0	21.690 0.0			K Factor = 5.60	
5 to 6	26.08	0.1112		0.0	13.080	1.454			Vel = 8.79	
5 to 6	26.94	1.101 150.0		0.0 0.0	12.160 0.0	23.144 0.0			K Factor = 5.60	
6 to 21	53.02	0.4132		0.0	12.160	5.024			Vel = 17.87	
6 to 21	29.72	1.394 150.0	1T	9.523 0.0	4.830 9.523	28.168 0.0			K Factor = 5.60	
	82.74	0.2983		0.0	14.353	4.281			Vel = 17.39	
	0.0 82.74					32.449			K Factor = 14.52	
7 to 22	32.88	1.394 150.0		0.0 0.0	8.660 0.0	34.470 0.0			K Factor = 5.60	
	32.88	0.0540		0.0	8.660	0.468			Vel = 6.91	
	0.0 32.88					34.938			K Factor = 5.56	
20 to 21	81.84	2.003 150.0		0.0 0.0	13.830 0.0	31.758 0.0				
21 to 22	81.84	0.0500		0.0	13.830	0.691			Vel = 8.33	
21 to 22	82.74	2.003 150.0		0.0 0.0	13.660 0.0	32.449 0.0				
22 to 24	164.58	0.1822		0.0	13.660	2.489			Vel = 16.76	
22 to 24	32.88	2.003 150.0	2E	12.965 0.0	62.250 12.965	34.938 0.0				
	197.46	0.2552		0.0	75.215	19.192			Vel = 20.11	
24 to TOR	0.0	2.635 120.0	1E	8.237 0.0	4.000 8.237	54.130 0.0				
TOR to BOR	197.46	0.1014		0.0	12.237	1.241			Vel = 11.62	
TOR to BOR	0.0	2.635 120.0	1T 1Fsp	16.474 0.0	7.660 45.304	55.371 6.465			** Fixed Loss = 3	
	197.46	0.1014	1B 1S	9.61 19.22	52.964	5.371			Vel = 11.62	
BOR to UG1	0.0	4.23 150.0	1T	38.446 0.0	57.000 38.446	67.207 1.732				
UG1 to TEST	197.46	0.0067		0.0	95.446	0.639			Vel = 4.51	
UG1 to TEST	0.0	4.23 150.0	1G 1T	3.845 38.446	195.000 42.290	69.578 1.969			** Fixed Loss = 3.268	
	197.46	0.0067	1Zid	0.0	237.290	1.589			Vel = 4.51	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - COIN SPR

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	100.00								
	297.46				73.136			Qa = 100.00 K Factor = 34.78	



. . . Fire Protection by Computer Design

STAR FIRE SPRINKLERS
686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254
9043841066

Job Name : CHRIST CENTRAL - MECH. ROOM
Building : MECHANICAL ROOM
Location : 359 SW DYAL AVE LAKE CITY, FL 32024
System : WET
Contract : NA
Data File : CHRIST CENTRAL - MECH ROOM.WXF

Hydraulic Design Information Sheet

Name - CHRIST CENTRAL STUDENT LIFE BUILDING RENOVATION Date - 05/25/2026
Location - 359 SW DYAL AVE LAKE CITY, FL 32024
Building - MECHANICAL ROOM System No. - WET
Contractor - Star Fire Sprinklers Contract No. - NA
Calculated By - Drawing No. - FP-3
Construction: () Combustible (X) Non-Combustible Ceiling Height - EXP
Occupancy - OH I

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. (X) 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 960	System Type	Sprinkler/Nozzle
	Density	- 0.15	(x) Wet	Make
D	Area Per Sprinkler	- 130 SF	() Dry	Model UPRIGHT
E	Elevation at Highest Outlet	- 15.5'	() Deluge	Size 1/2
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155
G	Hose Allowance - Outside	- 250		

N Note

Calculation Flow Required - 508 Press Required - 97.5
Summary C-Factor Used: 150 Overhead 150 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05-08-2026		Cap. -
T	Time of Test - 9:30 AM	Rated Cap.-	Elev.-
E	Static Press - 120	@ Press -	
R	Residual Press - 93	Elev. -	Well
	Flow - 1550		Proof Flow
S	Elevation - NA		

U Location - HYDRANT AT THE PROPERTY, ABOUT 200' AWAY FROM THE BUILDING

P Source of Information -

Y

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R	K	Flue Spacing	Clearance:Storage to Ceiling
A		Longitudinal	Transverse

E Horizontal Barriers Provided:

Water Supply Curve C

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

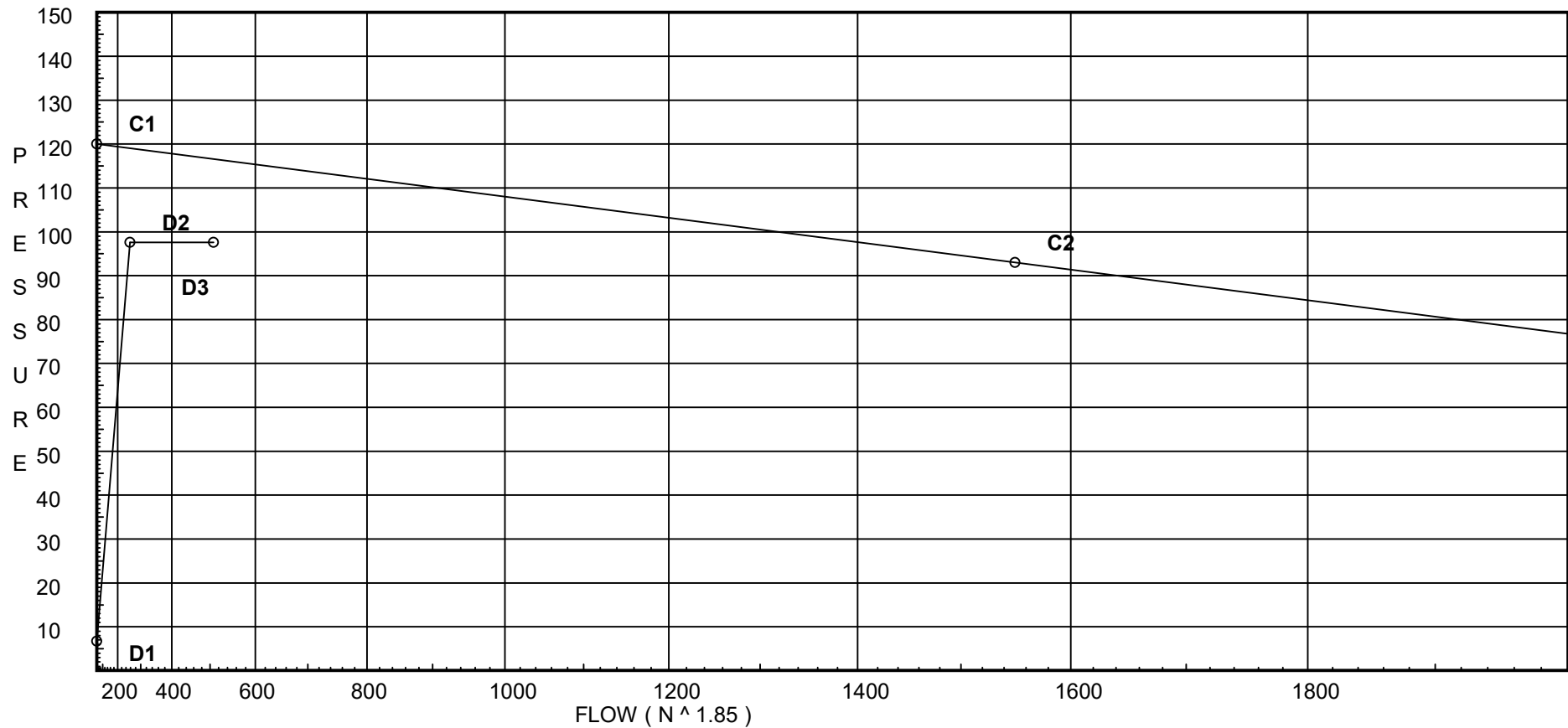
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City Water Supply:

C1 - Static Pressure : 120
C2 - Residual Pressure: 93
C2 - Residual Flow : 1550

Demand:

D1 - Elevation : 6.713
D2 - System Flow : 258.057
D2 - System Pressure : 97.576
Hose (Demand) : 250
D3 - System Demand : 508.057
Safety Margin : 18.995



Fittings Used Summary

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zid	Wilkins 350DA	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	13.0	5.6	12.75	na	20.0	0.15	130	7.0
2	15.5	5.6	12.13	na	19.5	0.15	130	7.0
3	13.0	5.6	13.99	na	20.95	0.15	130	7.0
4	15.5	5.6	13.4	na	20.5	0.15	130	7.0
5	13.0	5.6	18.67	na	24.2	0.15	130	7.0
6	15.5	5.6	18.2	na	23.89	0.15	130	7.0
7	13.0	5.6	18.67	na	24.2	0.15	130	7.0
8	15.5	5.6	18.2	na	23.89	0.15	130	7.0
9	13.0	5.6	13.99	na	20.95	0.15	130	7.0
10	15.5	5.6	13.4	na	20.5	0.15	130	7.0
11	13.0	5.6	12.75	na	20.0	0.15	130	7.0
12	15.5	5.6	12.13	na	19.5	0.15	130	7.0
13	14.75		13.38	na				
14	14.75		14.74	na				
15	14.75		19.88	na				
16	14.75		13.38	na				
17	14.75		14.74	na				
18	14.75		19.88	na				
20	14.75		31.69	na				
21	17.33		35.87	na				
35	19.83		42.69	na				
22	17.42		52.23	na				
23	12.58		66.38	na				
24	8.66		70.12	na				
TOR	8.66		75.12	na				
BOR	1.0		90.25	na				
UG1	-3.0		93.03	na				
TEST	0.0		97.58	na	250.0			

The maximum velocity is 25.35 and it occurs in the pipe between nodes 15 and 20

Final Calculations - Hazen-Williams - 2007

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1 to 13	20.00 20.0	1.049 120.0 0.1301	1T	5.0 0.0 0.0	5.625 5.000 10.625	12.752 -0.758 1.382			K Factor = 5.60	
	0.0 20.00						13.376		K Factor = 5.47	
2 to 13	19.50 19.5	1.049 120.0 0.1242	1T	5.0 0.0 0.0	2.458 5.000 7.458	12.125 0.325 0.926			K Factor = 5.60	
	0.0 19.50						13.376		K Factor = 5.33	
3 to 14	20.95 20.95	1.049 120.0 0.1418	1T	5.0 0.0 0.0	5.625 5.000 10.625	13.990 -0.758 1.507			K Factor = 5.60	
	0.0 20.95						14.739		K Factor = 5.46	
4 to 14	20.50 20.5	1.049 120.0 0.1362	1T	5.0 0.0 0.0	2.458 5.000 7.458	13.398 0.325 1.016			K Factor = 5.60	
	0.0 20.50						14.739		K Factor = 5.34	
5 to 15	24.20 24.2	1.049 120.0 0.1851	1T	5.0 0.0 0.0	5.625 5.000 10.625	18.667 -0.758 1.967			K Factor = 5.60	
	0.0 24.20						19.876		K Factor = 5.43	
6 to 15	23.89 23.89	1.049 120.0 0.1809	1T	5.0 0.0 0.0	2.458 5.000 7.458	18.202 0.325 1.349			K Factor = 5.60	
	0.0 23.89						19.876		K Factor = 5.36	
7 to 18	24.20 24.2	1.049 120.0 0.1851	1T	5.0 0.0 0.0	5.625 5.000 10.625	18.667 -0.758 1.967			K Factor = 5.60	
	0.0 24.20						19.876		K Factor = 5.43	
8 to 18	23.89 23.89	1.049 120.0 0.1809	1T	5.0 0.0 0.0	2.458 5.000 7.458	18.202 0.325 1.349			K Factor = 5.60	
	0.0 23.89						19.876		K Factor = 5.36	
9 to 17	20.95 20.95	1.049 120.0 0.1418	1T	5.0 0.0 0.0	5.625 5.000 10.625	13.990 -0.758 1.507			K Factor = 5.60	
	0.0 20.95						14.739		K Factor = 5.46	
10 to 17	20.50 20.5	1.049 120.0 0.1362	1T	5.0 0.0 0.0	2.458 5.000 7.458	13.398 0.325 1.016			K Factor = 5.60	
									Vel = 7.61	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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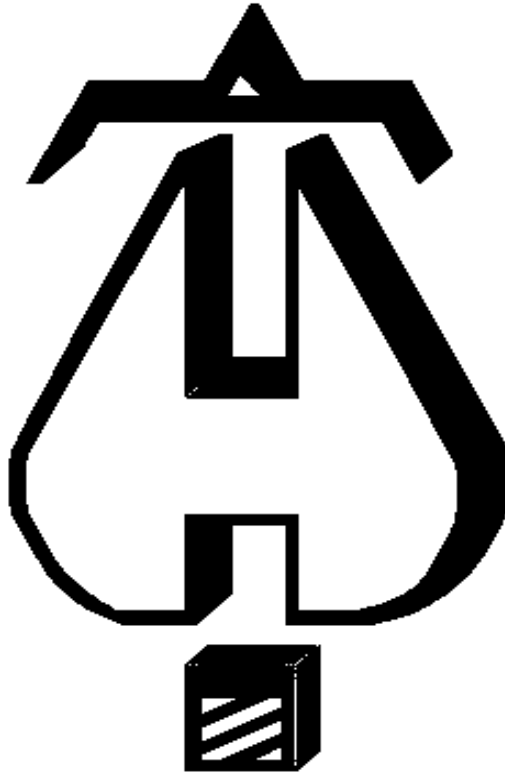
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 20.50					14.739			K Factor = 5.34	
11 to 16	20.00 20.0	1.049 120.0 0.1301	1T	5.0 0.0 0.0	5.625 5.000 10.625	12.752 -0.758 1.382			K Factor = 5.60 Vel = 7.42	
	0.0 20.00					13.376			K Factor = 5.47	
12 to 16	19.50 19.5	1.049 120.0 0.1242	1T	5.0 0.0 0.0	2.458 5.000 7.458	12.125 0.325 0.926			K Factor = 5.60 Vel = 7.24	
	0.0 19.50					13.376			K Factor = 5.33	
13 to 14	39.50 39.5	1.442 120.0 0.0974		0.0 0.0 0.0	14.000 0.0 14.000	13.376 0.0 1.363			Vel = 7.76	
14 to 15	41.44 80.94	1.442 120.0 0.3669		0.0 0.0 0.0	14.000 0.0 14.000	14.739 0.0 5.137			Vel = 15.90	
15 to 20	48.09 129.03	1.442 120.0 0.8695	1T	7.432 0.0 0.0	6.160 7.432 13.592	19.876 0.0 11.818			Vel = 25.35	
	0.0 129.03					31.694			K Factor = 22.92	
16 to 17	39.50 39.5	1.442 120.0 0.0974		0.0 0.0 0.0	14.000 0.0 14.000	13.376 0.0 1.363			Vel = 7.76	
17 to 18	41.44 80.94	1.442 120.0 0.3669		0.0 0.0 0.0	14.000 0.0 14.000	14.739 0.0 5.137			Vel = 15.90	
18 to 20	48.09 129.03	1.442 120.0 0.8695	1T	7.432 0.0 0.0	6.160 7.432 13.592	19.876 0.0 11.818			Vel = 25.35	
20 to 21	129.03 258.06	2.635 120.0 0.1664	3E	24.711 0.0 0.0	7.080 24.711 31.791	31.694 -1.117 5.289			Vel = 15.18	
21 to 35	0.0 258.06	2.423 150.0 0.1657	2E	16.546 0.0 0.0	31.170 16.546 47.716	35.866 -1.083 7.905			Vel = 17.96	
35 to 22	0.0 258.06	2.423 150.0 0.1657	3E	24.819 0.0 0.0	26.500 24.819 51.319	42.688 1.044 8.502			Vel = 17.96	
22 to 23	0.0 258.06	2.635 120.0 0.1664	5E	41.186 0.0 0.0	31.250 41.186 72.436	52.234 2.096 12.053			Vel = 15.18	
23 to 24	0.0 258.06	2.635 120.0 0.1664	1E	8.237 0.0 0.0	4.000 8.237 12.237	66.383 1.698 2.036			Vel = 15.18	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Date 05/25/2026

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
24 to TOR	0.0 258.06	2.635 120.0 0.1664	3E 24.711 0.0 0.0	5.330 24.711 30.041	70.117 0.0 4.999			Vel = 15.18	
TOR to BOR	0.0 258.06	2.635 120.0 0.1664	1T 16.474 0.0 1Fsp 9.61 1S 19.22	7.660 45.304 52.964	75.116 6.318 8.812			** Fixed Loss = 3 Vel = 15.18	
BOR to UG1	0.0 258.06	4.23 150.0 0.0110	1T 38.446 0.0 0.0	57.000 38.446 95.446	90.246 1.732 1.048			Vel = 5.89	
UG1 to TEST	0.0 258.06	4.23 150.0 0.0110	1G 3.845 1T 38.446 1Zid 0.0	195.000 42.290 237.290	93.026 1.943 2.607			** Fixed Loss = 3.243 Vel = 5.89	
	250.00 508.06				97.576			Qa = 250.00 K Factor = 51.43	



. . . Fire Protection by Computer Design

STAR FIRE SPRINKLERS
686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254
9043841066

Job Name : CHRIST CENTRAL - MECH. ROOM
Building : MECHANICAL ROOM
Location : 359 SW DYAL AVE LAKE CITY, FL 32024
System : WET
Contract : NA
Data File : CHRIST CENTRAL - MECH ROOM.WXF

Hydraulic Design Information Sheet

Name - CHRIST CENTRAL STUDENT LIFE BUILDING RENOVATION Date - 05/25/2026
Location - 359 SW DYAL AVE LAKE CITY, FL 32024
Building - MECHANICAL ROOM System No. - WET
Contractor - Star Fire Sprinklers Contract No. - NA
Calculated By - Drawing No. - FP-3
Construction: () Combustible (X) Non-Combustible Ceiling Height - EXP
Occupancy - OH I

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. (X) 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 960	System Type	Sprinkler/Nozzle
	Density	- 0.15	(x) Wet	Make
D	Area Per Sprinkler	- 130 SF	() Dry	Model UPRIGHT
E	Elevation at Highest Outlet	- 15.5'	() Deluge	Size 1/2
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155
G	Hose Allowance - Outside	- 250		

N Note

Calculation Flow Required - 508 Press Required - 97.5
Summary C-Factor Used: 150 Overhead 150 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05-08-2026		Cap. -
T	Time of Test - 9:30 AM	Rated Cap.-	Elev.-
E	Static Press - 120	@ Press -	
R	Residual Press - 93	Elev. -	Well
	Flow - 1550		Proof Flow
S	Elevation - NA		

U Location - HYDRANT AT THE PROPERTY, ABOUT 200' AWAY FROM THE BUILDING

P Source of Information -

Y

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R	K	Flue Spacing	Clearance:Storage to Ceiling
A		Longitudinal	Transverse

E Horizontal Barriers Provided:

Water Supply Curve C

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

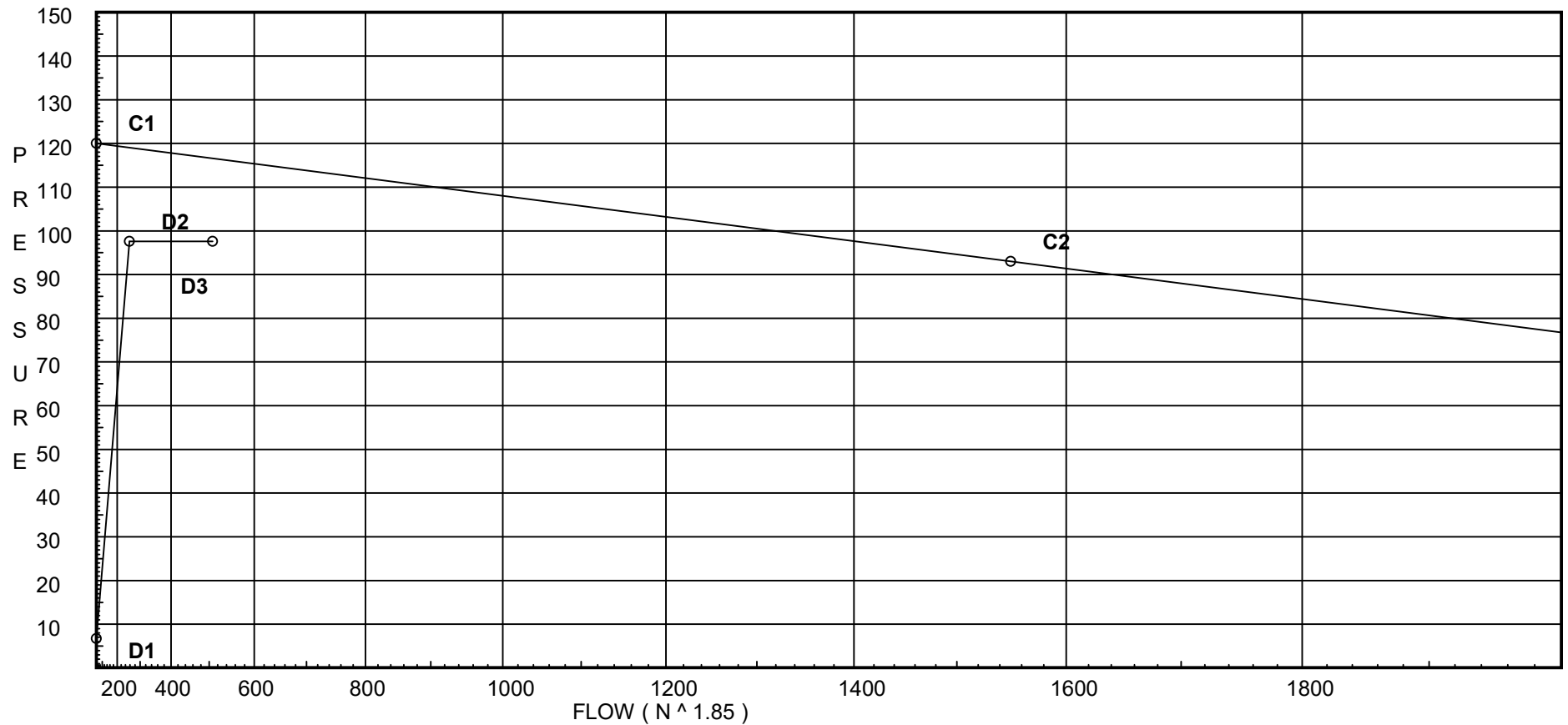
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Date 05/25/2026

City Water Supply:

C1 - Static Pressure : 120
C2 - Residual Pressure: 93
C2 - Residual Flow : 1550

Demand:

D1 - Elevation : 6.713
D2 - System Flow : 258.057
D2 - System Pressure : 97.576
Hose (Demand) : 250
D3 - System Demand : 508.057
Safety Margin : 18.995



Fittings Used Summary

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zid	Wilkins 350DA	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	13.0	5.6	12.75	na	20.0	0.15	130	7.0
2	15.5	5.6	12.13	na	19.5	0.15	130	7.0
3	13.0	5.6	13.99	na	20.95	0.15	130	7.0
4	15.5	5.6	13.4	na	20.5	0.15	130	7.0
5	13.0	5.6	18.67	na	24.2	0.15	130	7.0
6	15.5	5.6	18.2	na	23.89	0.15	130	7.0
7	13.0	5.6	18.67	na	24.2	0.15	130	7.0
8	15.5	5.6	18.2	na	23.89	0.15	130	7.0
9	13.0	5.6	13.99	na	20.95	0.15	130	7.0
10	15.5	5.6	13.4	na	20.5	0.15	130	7.0
11	13.0	5.6	12.75	na	20.0	0.15	130	7.0
12	15.5	5.6	12.13	na	19.5	0.15	130	7.0
13	14.75		13.38	na				
14	14.75		14.74	na				
15	14.75		19.88	na				
16	14.75		13.38	na				
17	14.75		14.74	na				
18	14.75		19.88	na				
20	14.75		31.69	na				
21	17.33		35.87	na				
35	19.83		42.69	na				
22	17.42		52.23	na				
23	12.58		66.38	na				
24	8.66		70.12	na				
TOR	8.66		75.12	na				
BOR	1.0		90.25	na				
UG1	-3.0		93.03	na				
TEST	0.0		97.58	na	250.0			

The maximum velocity is 25.35 and it occurs in the pipe between nodes 15 and 20

Final Calculations - Hazen-Williams - 2007

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1 to 13	20.00 20.0	1.049 120.0 0.1301	1T	5.0 0.0 0.0	5.625 5.000 10.625	12.752 -0.758 1.382			K Factor = 5.60 Vel = 7.42	
	0.0 20.00						13.376		K Factor = 5.47	
2 to 13	19.50 19.5	1.049 120.0 0.1242	1T	5.0 0.0 0.0	2.458 5.000 7.458	12.125 0.325 0.926			K Factor = 5.60 Vel = 7.24	
	0.0 19.50						13.376		K Factor = 5.33	
3 to 14	20.95 20.95	1.049 120.0 0.1418	1T	5.0 0.0 0.0	5.625 5.000 10.625	13.990 -0.758 1.507			K Factor = 5.60 Vel = 7.78	
	0.0 20.95						14.739		K Factor = 5.46	
4 to 14	20.50 20.5	1.049 120.0 0.1362	1T	5.0 0.0 0.0	2.458 5.000 7.458	13.398 0.325 1.016			K Factor = 5.60 Vel = 7.61	
	0.0 20.50						14.739		K Factor = 5.34	
5 to 15	24.20 24.2	1.049 120.0 0.1851	1T	5.0 0.0 0.0	5.625 5.000 10.625	18.667 -0.758 1.967			K Factor = 5.60 Vel = 8.98	
	0.0 24.20						19.876		K Factor = 5.43	
6 to 15	23.89 23.89	1.049 120.0 0.1809	1T	5.0 0.0 0.0	2.458 5.000 7.458	18.202 0.325 1.349			K Factor = 5.60 Vel = 8.87	
	0.0 23.89						19.876		K Factor = 5.36	
7 to 18	24.20 24.2	1.049 120.0 0.1851	1T	5.0 0.0 0.0	5.625 5.000 10.625	18.667 -0.758 1.967			K Factor = 5.60 Vel = 8.98	
	0.0 24.20						19.876		K Factor = 5.43	
8 to 18	23.89 23.89	1.049 120.0 0.1809	1T	5.0 0.0 0.0	2.458 5.000 7.458	18.202 0.325 1.349			K Factor = 5.60 Vel = 8.87	
	0.0 23.89						19.876		K Factor = 5.36	
9 to 17	20.95 20.95	1.049 120.0 0.1418	1T	5.0 0.0 0.0	5.625 5.000 10.625	13.990 -0.758 1.507			K Factor = 5.60 Vel = 7.78	
	0.0 20.95						14.739		K Factor = 5.46	
10 to 17	20.50 20.5	1.049 120.0 0.1362	1T	5.0 0.0 0.0	2.458 5.000 7.458	13.398 0.325 1.016			K Factor = 5.60 Vel = 7.61	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Date 05/25/2026

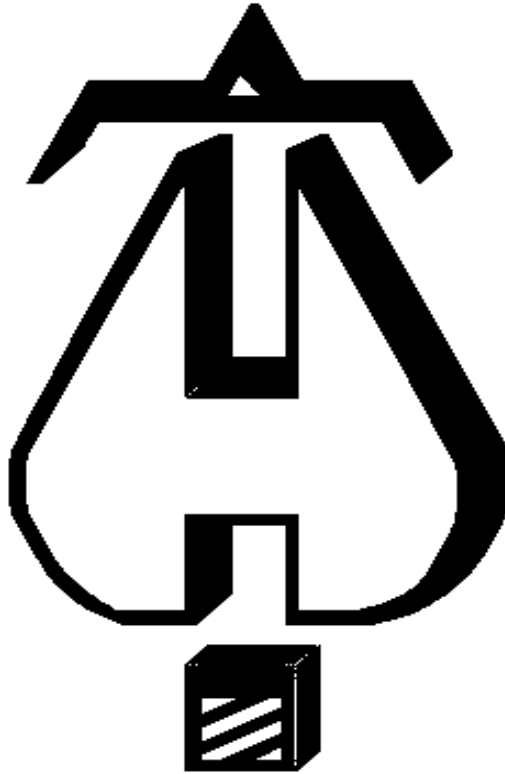
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 20.50					14.739			K Factor = 5.34	
11 to 16	20.00 20.0	1.049 120.0 0.1301	1T	5.0 0.0 0.0	5.625 5.000 10.625	12.752 -0.758 1.382			K Factor = 5.60 Vel = 7.42	
	0.0 20.00					13.376			K Factor = 5.47	
12 to 16	19.50 19.5	1.049 120.0 0.1242	1T	5.0 0.0 0.0	2.458 5.000 7.458	12.125 0.325 0.926			K Factor = 5.60 Vel = 7.24	
	0.0 19.50					13.376			K Factor = 5.33	
13 to 14	39.50 39.5	1.442 120.0 0.0974		0.0 0.0 0.0	14.000 0.0 14.000	13.376 0.0 1.363			Vel = 7.76	
14 to 15	41.44 80.94	1.442 120.0 0.3669		0.0 0.0 0.0	14.000 0.0 14.000	14.739 0.0 5.137			Vel = 15.90	
15 to 20	48.09 129.03	1.442 120.0 0.8695	1T	7.432 0.0 0.0	6.160 7.432 13.592	19.876 0.0 11.818			Vel = 25.35	
	0.0 129.03					31.694			K Factor = 22.92	
16 to 17	39.50 39.5	1.442 120.0 0.0974		0.0 0.0 0.0	14.000 0.0 14.000	13.376 0.0 1.363			Vel = 7.76	
17 to 18	41.44 80.94	1.442 120.0 0.3669		0.0 0.0 0.0	14.000 0.0 14.000	14.739 0.0 5.137			Vel = 15.90	
18 to 20	48.09 129.03	1.442 120.0 0.8695	1T	7.432 0.0 0.0	6.160 7.432 13.592	19.876 0.0 11.818			Vel = 25.35	
20 to 21	129.03 258.06	2.635 120.0 0.1664	3E	24.711 0.0 0.0	7.080 24.711 31.791	31.694 -1.117 5.289			Vel = 15.18	
21 to 35	0.0 258.06	2.423 150.0 0.1657	2E	16.546 0.0 0.0	31.170 16.546 47.716	35.866 -1.083 7.905			Vel = 17.96	
35 to 22	0.0 258.06	2.423 150.0 0.1657	3E	24.819 0.0 0.0	26.500 24.819 51.319	42.688 1.044 8.502			Vel = 17.96	
22 to 23	0.0 258.06	2.635 120.0 0.1664	5E	41.186 0.0 0.0	31.250 41.186 72.436	52.234 2.096 12.053			Vel = 15.18	
23 to 24	0.0 258.06	2.635 120.0 0.1664	1E	8.237 0.0 0.0	4.000 8.237 12.237	66.383 1.698 2.036			Vel = 15.18	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - MECH. ROOM

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
24 to TOR	0.0 258.06	2.635 120.0 0.1664	3E 24.711 0.0 0.0	5.330 24.711 30.041	70.117 0.0 4.999			Vel = 15.18	
TOR to BOR	0.0 258.06	2.635 120.0 0.1664	1T 16.474 0.0 1Fsp 9.61 1S 19.22	7.660 45.304 52.964	75.116 6.318 8.812			** * Fixed Loss = 3 Vel = 15.18	
BOR to UG1	0.0 258.06	4.23 150.0 0.0110	1T 38.446 0.0 0.0	57.000 38.446 95.446	90.246 1.732 1.048			Vel = 5.89	
UG1 to TEST	0.0 258.06	4.23 150.0 0.0110	1G 3.845 1T 38.446 1Zid 0.0	195.000 42.290 237.290	93.026 1.943 2.607			** * Fixed Loss = 3.243 Vel = 5.89	
	250.00 508.06				97.576			Qa = 250.00 K Factor = 51.43	



. . . Fire Protection by Computer Design

STAR FIRE SPRINKLERS
686 EDGEWOOD AVE N
JACKSONVILLE, FL 32254
9043841066

Job Name : CHRIST CENTRAL - 1ST FL CLASSROOMS
Building : 1st FL CLASSROOM
Location : 359 SW DYAL AVE LAKE CITY, FL 32024
System : WET
Contract : NA
Data File : CHRIST CENTRAL - 1ST FL CLASSROOMS.WXF

Hydraulic Design Information Sheet

Name - CHRIST CENTRAL STUDENT LIFE BUILDING RENOVATION Date - 05-19-2026
Location - 359 SW DYAL AVE LAKE CITY, FL 32024
Building - 1st FL CLASSROOM System No. - WET
Contractor - Star Fire Sprinklers Contract No. - NA
Calculated By - Drawing No. - FP-2
Construction: () Combustible (X) Non-Combustible Ceiling Height - 8'
Occupancy - LH

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 937	System Type	Sprinkler/Nozzle
	Density	- 0.10	(x) Wet	Make
D	Area Per Sprinkler	- VERIES	() Dry	Model PENDENT
E	Elevation at Highest Outlet	- 8'	() Deluge	Size 1/2
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155
G	Hose Allowance - Outside	- 100		

N Note

Calculation Flow Required - 305.7 Press Required - 78.4
Summary C-Factor Used: 150 Overhead 150 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05/08/2026		Cap. -
T	Time of Test - 9:30 AM	Rated Cap.-	Elev.-
E	Static Press - 120	@ Press -	
R	Residual Press - 93	Elev. -	Well
	Flow - 1550		Proof Flow
S	Elevation - NA		

U Location - HYDRANT AT THE PROPERTY, ABOUT 200' AWAY FROM THE BUILDING

P Source of Information -

Y

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R	K	Flue Spacing	Clearance:Storage to Ceiling
A		Longitudinal	Transverse

E Horizontal Barriers Provided:

Water Supply Curve C

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

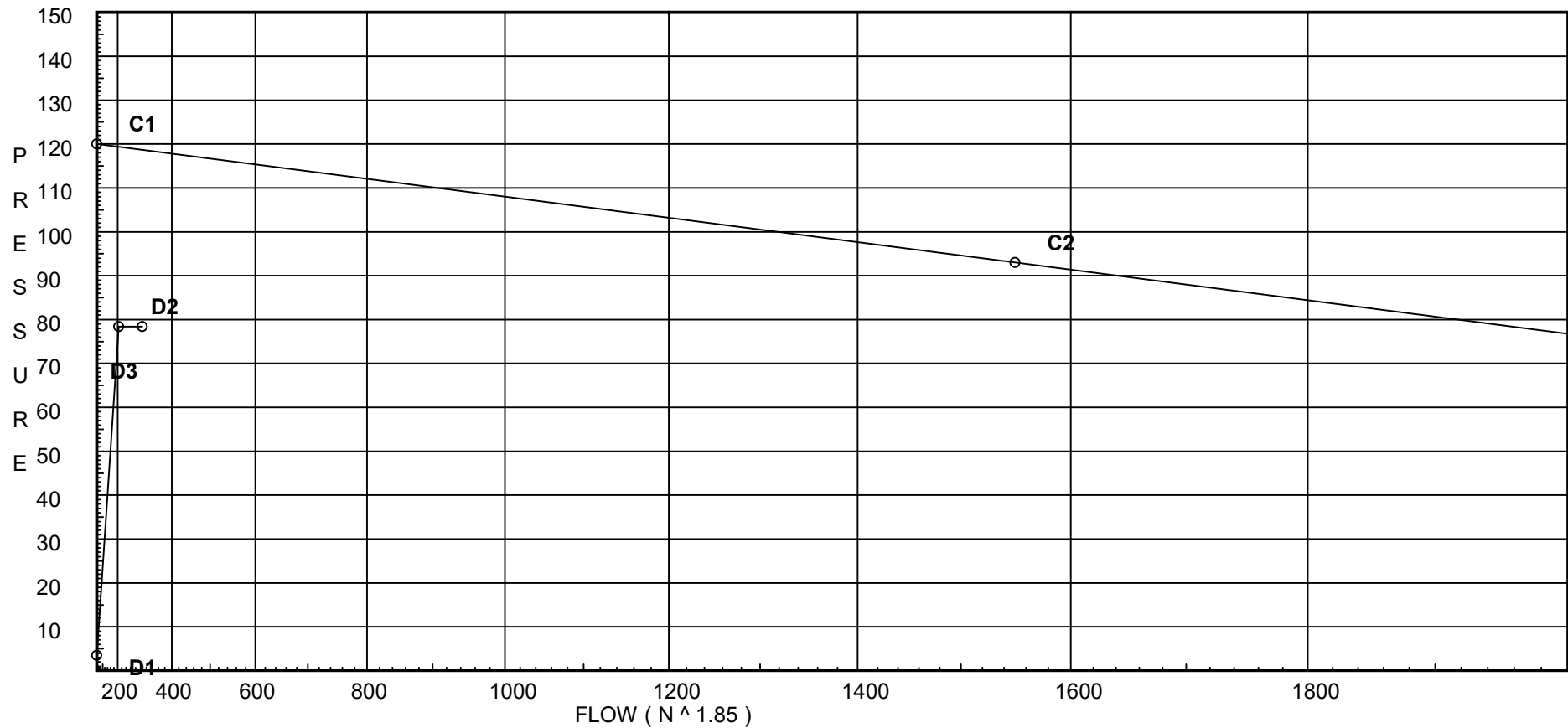
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City Water Supply:

C1 - Static Pressure : 120
C2 - Residual Pressure: 93
C2 - Residual Flow : 1550

Demand:

D1 - Elevation : 3.465
D2 - System Flow : 205.753
D2 - System Pressure : 78.419
Hose (Demand) : 100
D3 - System Demand : 305.753
Safety Margin : 40.241



Fittings Used Summary

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

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Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zid	Wilkins 350DA	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D1	8.0	5.6	12.13	na	19.5	0.1	195	7.0
D2	8.0	5.6	12.54	na	19.83	0.1	86	7.0
D3	8.0	5.6	14.27	na	21.16	0.15	72	7.0
D4	8.0	5.6	14.59	na	21.39	0.1	134	7.0
D5	8.0	5.6	22.13	na	26.34	0.1	172	7.0
D6	8.0	5.6	15.76	na	22.23	0.1	100	7.0
D7	8.0	5.6	16.31	na	22.62	0.1	136	7.0
D8	8.0	5.6	19.38	na	24.65	0.1	134	7.0
D9	8.0	5.6	25.05	na	28.03	0.1	172	7.0
1	9.0		12.68	na				
2	9.0		13.19	na				
3	9.0		15.0	na				
4	9.0		15.39	na				
5	9.0		23.85	na				
6	9.0		16.58	na				
7	9.0		17.3	na				
8	9.0		20.4	na				
9	9.0		26.62	na				
20	9.0		33.09	na				
21	9.0		34.25	na				
22	9.0		38.01	na				
24	9.0		58.72	na				
TOR	9.0		60.06	na				
BOR	1.0		72.32	na				
UG1	-3.0		74.74	na				
TEST	0.0		78.42	na	100.0			

The maximum velocity is 27.59 and it occurs in the pipe between nodes 4 and 5

Final Calculations - Hazen-Williams - 2007

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
D1 to 1	19.50 19.5	1.101 150.0 0.0650	1E 1T	3.825 9.563 0.0	1.820 13.387 15.207	12.125 -0.433 0.988			K Factor = 5.60	
	0.0 19.50						12.680		K Factor = 5.48	
D2 to 2	19.83 19.83	1.101 150.0 0.0670	1E 1T	3.825 9.563 0.0	2.820 13.387 16.207	12.541 -0.433 1.086			K Factor = 5.60	
	0.0 19.83						13.194		K Factor = 5.46	
D3 to 3	21.16 21.16	1.101 150.0 0.0755	1E 1T	3.825 9.563 0.0	1.910 13.387 15.297	14.274 -0.433 1.155			K Factor = 5.60	
	0.0 21.16						14.996		K Factor = 5.46	
D4 to 4	21.39 21.39	1.101 150.0 0.0770	1E 1T	3.825 9.563 0.0	2.660 13.387 16.047	14.588 -0.433 1.236			K Factor = 5.60	
	0.0 21.39						15.391		K Factor = 5.45	
D5 to 5	26.34 26.34	1.101 150.0 0.1132	2E 1T	7.65 9.563 0.0	1.750 17.212 18.962	22.132 -0.433 2.147			K Factor = 5.60	
	0.0 26.34						23.846		K Factor = 5.39	
D6 to 6	22.23 22.23	1.101 150.0 0.0827	1E 1T	3.825 9.563 0.0	1.660 13.387 15.047	15.764 -0.433 1.245			K Factor = 5.60	
	0.0 22.23						16.576		K Factor = 5.46	
D7 to 7	22.62 22.62	1.101 150.0 0.0854	1E 1T	3.825 9.563 0.0	3.250 13.387 16.637	16.309 -0.433 1.421			K Factor = 5.60	
	0.0 22.62						17.297		K Factor = 5.44	
D8 to 8	24.65 24.65	1.101 150.0 0.1002	1E 1T	3.825 9.563 0.0	1.160 13.387 14.547	19.380 -0.433 1.457			K Factor = 5.60	
	0.0 24.65						20.404		K Factor = 5.46	
D9 to 9	28.03 28.03	1.101 150.0 0.1270	1E 1T	3.825 9.563 0.0	2.410 13.387 15.797	25.051 -0.433 2.006			K Factor = 5.60	
	0.0 28.03						26.624		K Factor = 5.43	
1 to 2	19.50 19.5	1.101 150.0 0.0649		0.0 0.0 0.0	7.920 0.0 7.920	12.680 0.0 0.514				Vel = 6.57

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
2 to 3	19.83 39.33	1.101 150.0 0.2377		0.0 0.0 0.0	7.580 0.0 7.580	13.194 0.0 1.802				
								Vel =	13.25	
3 to 4	21.16 60.49	1.101 150.0 0.5267		0.0 0.0 0.0	0.750 0.0 0.750	14.996 0.0 0.395				
								Vel =	20.38	
4 to 5	21.39 81.88	1.101 150.0 0.9230		0.0 0.0 0.0	9.160 0.0 9.160	15.391 0.0 8.455				
								Vel =	27.59	
5 to 20	26.34 108.22	1.394 150.0 0.4902	1T	9.523 0.0 0.0	9.330 9.523 18.853	23.846 0.0 9.241				
	0.0 108.22									
						33.087		K Factor =	18.81	
6 to 7	22.23 22.23	1.101 150.0 0.0828		0.0 0.0 0.0	8.708 0.0 8.708	16.576 0.0 0.721				
								Vel =	7.49	
7 to 8	22.62 44.85	1.101 150.0 0.3031		0.0 0.0 0.0	10.250 0.0 10.250	17.297 0.0 3.107				
								Vel =	15.11	
8 to 9	24.65 69.5	1.101 150.0 0.6816		0.0 0.0 0.0	9.125 0.0 9.125	20.404 0.0 6.220				
								Vel =	23.42	
9 to 21	28.03 97.53	1.394 150.0 0.4043	1T	9.523 0.0 0.0	9.330 9.523 18.853	26.624 0.0 7.623				
	0.0 97.53									
						34.247		K Factor =	16.67	
20 to 21	108.22 108.22	2.003 150.0 0.0839		0.0 0.0 0.0	13.830 0.0 13.830	33.087 0.0 1.160				
								Vel =	11.02	
21 to 22	97.53 205.75	2.003 150.0 0.2753		0.0 0.0 0.0	13.660 0.0 13.660	34.247 0.0 3.761				
								Vel =	20.95	
22 to 24	0.0 205.75	2.003 150.0 0.2753	2E	12.965 0.0 0.0	62.250 12.965 75.215	38.008 0.0 20.710				
								Vel =	20.95	
24 to TOR	0.0 205.75	2.635 120.0 0.1094	1E	8.237 0.0 0.0	4.000 8.237 12.237	58.718 0.0 1.339				
								Vel =	12.11	
TOR to BOR	0.0 205.75	2.635 120.0 0.1094	1T 1Fsp 1B 1S	16.474 0.0 9.61 19.22	7.660 45.304 52.964	60.057 6.465 5.796		** Fixed Loss = 3		
								Vel =	12.11	
BOR to UG1	0.0 205.75	4.23 150.0 0.0072	1T	38.446 0.0 0.0	57.000 38.446 95.446	72.318 1.732 0.690				
								Vel =	4.70	
UG1 to TEST	0.0 205.75	4.23 150.0 0.0072	1G 1T 1Zid	3.845 38.446 0.0	195.000 42.290 237.290	74.740 1.965 1.714		** Fixed Loss = 3.264		
								Vel =	4.70	

Final Calculations - Hazen-Williams

STAR FIRE SPRINKLERS
CHRIST CENTRAL - 1ST FL CLASSROOMS

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	100.00								
	305.75				78.419			Qa = 100.00 K Factor = 34.53	