

GENERAL NOTES:

- ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13 AND ALL LOCAL AUTHORITIES.
- ALL SPRINKLER WORK SHALL COMPLY WITH FIRE PROTECTION STANDARDS AND REQUIREMENTS.
- DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
- ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE HYDROSTATICALLY TESTED AT 200 PSI AND SHALL MAINTAIN THAT PRESSURE WITHOUT LOSS FOR 2 HOURS. PORTIONS OF SYSTEMS NORMALLY SUBJECTED TO SYSTEM WORKING PRESSURES IN EXCESS OF 150 PSI SHALL BE TESTED AT A PRESSURE OF 50 PSI IN EXCESS OF SYSTEM WORKING PRESSURE.
- G.C. SHALL BE RESPONSIBLE FOR ALL FINAL TESTS AND INSPECTIONS OF COMPLETED WORK REQUIRED BY THE PROPERTY MANAGEMENT PRIOR TO OCCUPANCY OF SPACE.
- ALL SPRINKLER WORK SHALL BE TESTED AND MADE OPERATIONAL PRIOR TO FINAL OCCUPANCY. G.C. SHALL REPAIR AND/OR REPLACE ALL FINISHES DAMAGED BY DEFECTIVE SPRINKLER WORK AT HIS EXPENSE.
- ALL BURNING, CUTTING, SOLDERING AND WELDING SHALL BE COORDINATED WITH FIRE SYSTEMS WITH PROPERTY MANAGEMENT, AS REQUIRED.
- G.C. SHALL BE RESPONSIBLE FOR OBTAINING PERMITS AND APPROVALS REQUIRED BY INSPECTOR AND FIRE MARSHALL.
- REFER TO CABINET MANUFACTURER DRAWINGS / DOCUMENTS FOR SPRINKLER HEADS, LIGHT SENSORS AND FIRE DETECTION DEVICES.
- ALL WORK TO BE DONE DURING THE HOURS DESIGNATED BY OWNER/PROPERTY MANAGEMENT.
- G.C. SHALL COORDINATE ARRANGEMENTS FOR TEMPORARY DISCONNECTIONS AND RECONNECTIONS WITH MANAGEMENT PRIOR TO COMMENCEMENT OF WORK.
- ALL SERVICE SHUTDOWN SHALL BE BY OWNER / PROPERTY MANAGEMENT MINIMUM OF 48 HOURS NOTICE IS REQUIRED TO THE OWNER / MANAGEMENT OFFICE PRIOR TO SHUT DOWN.
- UPON COMPLETION OF ALL SPRINKLER WORK, CONTRACTOR SHALL TEST AND INSPECT ENTIRE SPRINKLER SYSTEM. ENTIRE SYSTEM SHALL BE FULLY OPERATIONAL AND APPROVED IN COMPLIANCE WITH ALL AHJ.
- UPON SUCCESSFUL COMPLETION OF ALL TESTING, CONTRACTOR SHALL PRIME AND PAINT ALL EXPOSED SPRINKLER PIPING. COLOR AND FINISH SHALL BE AS PER G.C./OWNER.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK ACCORDINGLY.
- DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
- COMPOSITE DRAWINGS

CONTRACTOR SHALL BE GIVEN A SEPIA TRANSPARENCIES TO IMPOSE THEIR WORK FOR A COORDINATED ALLOCATION OF SPACE. PROCEDURE SHALL INCLUDE PIPING, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL DETAILS. SEPIAS SHALL BE GIVEN TO ALL TRADES WHO WILL DRAW HIS WORK ON DRAWINGS. G.C. SHALL HOLD A COORDINATION MEETING WITH ALL CONTRACTORS TO ELIMINATE INTERFERENCE OR CONFLICTS IN INSTALLING WORK. IF UNABLE TO EACH AGREEMENT ISSUE, G.C. SHALL MAKE BINDING DECISION.

SPRINKLER NOTES

- THE COMPONENTS INSTALLATION, SIZING, SPACING, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFIRM TO THE MASSACHUSETTS BUILDING CODE 2015 CHAPTER 9, MASSACHUSETTS FIRE CODE 2015 CHAPTER 9 AND MASSACHUSETTS FIRE SPRINKLER CODE 2013 / NFPA 13, 2013 .
- ONLY APPROVED MATERIALS SHALL BE USED AS PER NFPA 13 CHAPTER 6 & CHAPTER 10.
- DIRECT CONNECTION OF SPRINKLERS TO THE PUBLIC WATER SYSTEM SHALL CONFIRM TO MASSACHUSETTS BUILDING CODE SECTION 903.3.5
- SPRINKLER SHALL BE PROTECTED AGAINST FREEZING AND INJURY AS PER NFPA 13 CHAPTER 7 SECTION 7.6 & CHAPTER 9 SECTION 9.3.
- INSPECTION AND TESTS OF SPRINKLERS SHALL BE CONDUCTED AS PER NFPA-13 ACCORDANCE WITH NFPA-25, CHAPTER 27 SECTION 27.1 AND 27.2.
- THE OCCUPANCY OF THE AREAS TO BE SPRINKLERD IN ACCORDANCE WITH NFPA-13 CHAPTER 5.
- PIPING, FITTINGS, SPECIFICATIONS, PIPE SCHEDULES, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE, VALVES, HANGERS, SPRINKLERS GUARDS AND SHIELDS SHALL BE AS PER MASSACHUSETTS BUILDING CODE CHAPTER 9, MASSACHUSETTS FIRE CODE CHAPTER 9 & NFPA 13, 2013.
- STOCK OF SPARE SPRINKLERS WILL BE FURNISHED AS PER NFPA 13, 2013 SECTION 6.2.9.
- SPRINKLER ALARM SHALL BE IN ACCORDANCE WITH MASSACHUSETTS BUILDING CODE 2015 SECTION 903.4 & NFPA 13, 2013 SECTION 6.9.
- SPACING, LOCATION AND POSITION OF SPRINKLER WILL BE AS PER NFPA-13 2013 CHAPTER 8 SECTION 8.5.
- ALL BLIND SPACES EXCEEDING 6" IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL WILL BE SPRINKLERD.
- ALL PIPE PASSING THROUGH WALLS WILL COMPLY WITH MASSACHUSETTS BUILDING CODE 2015 SECTION 714.
- DISTANCE OF SPRINKLERS FROM HEAT SOURCE SHALL BE IN AS PER NFPA-13 2013 TABLES 8.3.2.5.
- AS PER NFPA-13 2013 SECTION 23.2 PROVIDE DEPARTMENT OF WATER SUPPLY LETTER WITH FLOW TEST DATE IF THERE IS A DIRECT CONNECTION TO THE STREET WATER SUPPLY.
- ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY NFPA-13 2013 CHAPTER 6 SECTION 6.7.4.
- DRAINAGE SHALL CONFORM TO NFPA-13 2013 SECTION 8.16.2.
- A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHOULD BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE, AS PER SECTION 6.4.7 OF NFPA-13 2013.
- ALL VALVES ON CONNECTIONS TO WATER SUPPLIES TO SPRINKLER SHALL BE APPROVED O.S. & Y. OR APPROVED INDICATOR TYPE.
- DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER SECTION 6.7.3 OF CHAPTER 6 OF NFPA-13 2013.
- HANGERS SHOULD BE SUPPORTED BY WROUGHT IRON U TYPE OR APPROVED ADJUSTABLE HANGERS. HANGERS SHALL BE OF THE TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, AS PER NFPA-13 2013 CHAPTER 9, SECTION 9.1.
- PROVISIONS SHOULD BE MADE TO FACILITATE FLUSHING SYSTEM PIPING BY PROVIDING FLUSHING CONNECTIONS CONSISTING OF A CAPPED NIPPLE 4" LONG ON END OF A CROSS MAIN AS PER SECTION 8.16.3 OF NFPA-13 2013.
- SPRINKLER SHALL BE AN APPROVED TYPE AS PER SECTION 6.2 OF NFPA-13 2013.
- TEMPERATURE RATING SHALL COMPLY WITH SECTION 8.3.2 OF CHAPTER 8 OF NFPA-13 2013.
- 18" MINIMUM CLEARANCE TO BELOW SPRINKLER DEFLECTOR AS PER CHAPTER 8 SECTION 8.5.6. OF NFPA-13 2013.
- SPACING AND LOCATION OF SPRINKLERS SHALL COMPLY WITH CHAPTER 8 SECTION 8.5 OF NFPA-13 2013.
- PIPE SCHEDULE SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA-13 2013 CHAPTER 23 SECTION 23.5.
- HYDRAULICALLY DESIGNED SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA-13 2013 CHAPTER 23 SECTION 23.3 AND 23.4.
- MINIMUM BRANCH PIPE SIZE TO BE ONE INCH (1").
- THIS APPLICATION IS MADE ONLY FOR WORK INDICATED ON THE SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

SPECIAL INSPECTION SPRINKLER NOTE:

- SPECIAL INSPECTION OF SPRINKLER SYSTEM TO BE PERFORMED IN ACCORDANCE WITH MASSACHUSETTS BUILDING CODE SECTION BC 1704.2 & 1704.3
- FINAL INSPECTION IN ACCORDANCE WITH MASSACHUSETTS BUILDING CODE 2015 BC 110.3.10 AND AUTHORITY HAVING JURISDICTION.

HYDRAULIC CALCULATION SUMMARY

HYDRAULIC CALCULATIONS FOR COMMERCIAL AREA BASED ON NFPA 13-2013 SECTION 11.2.3 FOLLOWING :

OCCUPANCY: EXTRA HAZARD 1
 MINIMUM DESIGN DENSITY: 0.30 GPM/SQ. FT.
 DESIGN AREA OF APPLICATION: AS PER NFPA 13
 HYDRAULICALLY REMOTEST AREA (45 SQ.FT. AREA)
 NUMBER OF HEADS CALCULATED: 2
 K-FACTOR: 5.6

SPRINKLER SCHEDULE

SYMBOL	NAME	COVERAGE	METAL	TEMPERATURE (°F)	RESPONSE	K-FACTOR	NPT	MFG	MODEL#	APPROVALS
●	PENDENT	STANDARD	BRASS	155	STANDARD	5.6	½"	TYCO	TY325	cJLus

SPRINKLER SPECIFICATIONS

PART 1 – GENERAL

1.01 REQUIREMENTS

- THE SPRINKLER CONTRACTOR SHALL BE A LICENSED, AUTHORIZED INSTALLER OF SPRINKLER SYSTEMS AND SHALL HAVE HAD A MINIMUM OF FIVE YEARS EXPERIENCE IN THE INSTALLATION OF SPRINKLER SYSTEMS IN THE STATE OF MASSACHUSETTS.
- BEFORE SUBMITTING HIS BID, THE SPRINKLER CONTRACTOR SHALL VISIT THE SITE AND SHALL FULLY FAMILIARIZE HIMSELF WITH, AND BECOME FAMILIAR WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. CONTRACTOR SHALL PERFORM THIS PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- UPON REVIEW OF THE DRAWINGS AND SPECIFICATIONS, PRIOR TO SUBMITTING HIS PROPOSAL, THE SPRINKLER CONTRACTOR SHALL INFORM TO G.C. OF ANY DISCREPANCIES OR REQUEST CLARIFICATION IN WRITING, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE SPRINKLER SYSTEM INSTALLATION. LATER CLAIMS WILL NOT BE FOLLOWED.
- THE SCHEDULING OF THE SPRINKLER WORK SHALL BE COORDINATED WITH PROPERTY MANAGEMENT, WITH OTHER CONTRACTORS AND WITH THE ENGINEER.
- NECESSARY SHUT-DOWNS OF BASE BUILDING SPRINKLER SYSTEM MUST BE COORDINATED WITH PROPERTY MANAGEMENT. SHUT-DOWNS OF BASE SYSTEMS SHALL TAKE PLACE AFTER OR BEFORE NORMAL BUSINESS HOURS AND SHALL BE CONSIDERED OVERTIME WORK. THE CONTRACTOR MUST GIVE PROPERTY MANAGEMENT AND FIRE DEPARTMENT 48 HOURS NOTICE PRIOR TO SHUT-DOWN OF SPRINKLER, OR OTHER SYSTEMS.

1.02 WORK INCLUDED

- WORK SHALL INCLUDE ALL SPRINKLER WORK FURNISHED AND INSTALLED AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN.
- ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE MASSACHUSETTS BUILDING CODE, NFPA-13, STATE FIRE DEPARTMENT AND OWNERS INSURANCE RATING ORGANIZATION.
- THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF WORK. SCALED DIMENSIONS SHALL NOT BE USED. ANY DIMENSIONS NOT SHOWN SHALL BE OBTAINED FROM FIELD MEASUREMENTS.

1.03 SHOP DRAWINGS AND SUBMITTALS

- THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED. CONTRACTOR SHALL SUBMIT CALCULATIONS WITH SHOP DRAWINGS. CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF NFPA #13, AND MASSACHUSETTS BUILDING CODE.

1.04 BUILDING DEPARTMENT FILING, PERMITS AND CERTIFICATES

- THE SPRINKLER CONTRACTOR SHALL FILE ALL REQUIRED DRAWINGS AND HYDRAULIC CALCULATIONS WITH THE BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVAL.
- ARRANGE FOR INSPECTION AND TESTS OF ANY AND ALL PARTS OF THE WORK AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY ALL CHARGES FOR SAME.

PART 2 – MATERIALS

2.01 GENERAL

- THE SPRINKLER SYSTEM SHALL BE COMPLETE WITH ALL PIPE, FITTINGS, VALVES, DRAINAGE SYSTEM AND VALVES, HANGERS AND SUPPORTS. ALSO, MISCELLANEOUS WORK ITEMS, SUCH AS, SIGNS AS REQUIRED, VALVE TAGS, ETC., AND ALL OTHER RELATED EQUIPMENT, APPARATUS AND MATERIAL ITEMS NECESSARY FOR COMPLETE, APPROVED TYPE SYSTEM, READY FOR FUTURE EXTENSION.
- ALL PIPE, FITTINGS, HANGERS, SUPPORTS, SPRINKLER HEADS, ETC., SHALL CONFORM TO THE MASSACHUSETTS BUILDING CODE AND NATIONAL FIRE PROTECTION ASSOCIATION'S REQUIREMENTS AS TO TYPES OF MATERIALS, ARRANGEMENT, SIZES AND INSTALLATION. PIPING PENETRATING FIRE RATED PARTITIONS SHALL HAVE OPENING SEALED WITH U.L. APPROVED FIREPROOF SEALANT.

2.03 CUTTING AND PATCHING

- DO ALL CUTTING AND CORE DRILLING NECESSARY FOR THE INSTALLATION OF SPRINKLER WORK. ACCURATELY LAYOUT WORK FOR WHICH CUTTING IS REQUIRED. PATCH AND RESTORE ANY DAMAGE WORK TO LIKE NEW CONDITION.
- FOR REPLACEMENT OF THE WORK REMOVED, MATCH EXISTING IN NATURE, CONSTRUCTION AND FINISH.
- MAINTAIN THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH COVERED BY THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS ETC. AND LEAVE PREMISES CLEAN.

2.04 FIRE STOPPING

INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURERS PUBLISHED DIRECTIONS AND PER FIRE TESTED DESIGNS THAT HAVE BEEN ACCEPTED BY THE APPROPRIATE CODE AUTHORITY HAVING JURISDICTION.

2.05 PHASING

PHASING SHALL BE COORDINATED BETWEEN THE SPRINKLER CONTRACTOR AND GENERAL CONTRACTOR. SPRINKLER INSTALLATION SHALL BE PHASED IN A MANNER WHICH WILL ALLOW FULL OCCUPANCY OF THE EXISTING FACILITY WHILE THE INSTALLATION IS IN PROGRESS.

2.06 ALTERNATES/SUBSTITUTIONS

CONTRACTOR SHALL STATE IN THEIR PROPOSAL ANY CONTRACTOR PROPOSED SUBSTITUTIONS OF THE MATERIALS OR METHODS OF INSTALLATION FROM THAT SPECIFIED. THESE ALTERATIONS SHALL BE LISTED ON THE PROPOSAL AS CONTRACTOR ALTERNATIVE.

2.07 LEAK DAMAGE

THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE DURING THE INSTALLATION AND TESTING PERIODS OF THE SPRINKLER SYSTEM FOR ANY LOSS OR DAMAGE TO THE WORK OF OTHERS, TO THE PROPERTY, IT'S CONTENTS ETC. CAUSED BY LEAKS IN THE EQUIPMENT. BY UNPLUGGED OR DISCONNECTED PIPES, FITTINGS ETC. OR BY OVERFLOW, AND SHALL PAY FOR THE NECESSARY REPLACEMENTS OR REPAIRS TO THE WORK OF OTHERS, DAMAGED BY SUCH LEAKAGE.

2.08 INSERTS, HANGERS, ETC.

- ALL SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED AND SHALL COMPLY WITH THE STANDARDS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION FOR THE INSTALLATION OF SPRINKLER SYSTEMS AND AS REQUIRED BY THE MASSACHUSETTS BUILDING CODE.
- HANGERS AND THEIR COMPONENTS SHALL BE FERROUS. HANGERS SHALL BE ADJUSTABLE FLAT IRON TYPE OF CLEVIS TYPE.
- SPRINKLER PIPING OR HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS.
- SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE CABINET STRUCTURE WHICH MUST SUPPORT THE ADDED LOAD OF THE WATER-FILLED PIPE PLUS A MINIMUM OF 250 LBS. APPLIED AT THE POINT OF HANGING. CONTRACTOR SHALL SUBMIT DETAIL OF SUPPORT FOR REVIEW AND APPROVAL.
- SPRINKLER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CABINET STRUCTURE. ALTERNATIVELY ADD ADDITIONAL SUPPORT IF REQUIRED.
- MAXIMUM DISTANCE BETWEEN PIPE SUPPORTS SHALL NOT EXCEED 12 FT. FOR 1 AND 1-1/4" SIZES NOR 15" FOR SIZES 1-1/2" AND LARGER.
- EXPANSION SHIELDS FOR SUPPORTING PIPES UNDER CONCRETE CONSTRUCTION MAYBE USED IN A HORIZONTAL POSITION IN THE SIDES OF BEAMS. IN CONCRETE HAVING GRAVEL OR CRUSHED STONE AGGREGATE, EXPANSION SHIELDS MAY BE USED IN THE VERTICAL POSITION TO SUPPORT PIPES 4" OR LESS IN DIAMETER.

2.09 ESCUTCHEONS

PROVIDE ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, PARTITIONS, FLOORS. ESCUTCHEON SHALL BE HELD IN PLACE BY INTERNAL TENSION OR SET SCREW.

2.10 AS-BUILT DRAWINGS

PREPARE AND SUBMIT "AS BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.

2.11 SPRINKLER HEADS

- SPRINKLERS SHALL BE RATED FOR ORDINARY TEMPERATURES (155 DEG. F) EXCEPT AS REQUIRED NEAR HEATERS OR LOCATIONS WHERE ELEVATED TEMPERATURES MAY NORMALLY BE EXPECTED OR AS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.
- SPRINKLER HEADS SHALL BE AS PER CABINET MANUFACTURER OR UL AND FM APPROVED.

PART 3 – EXECUTION

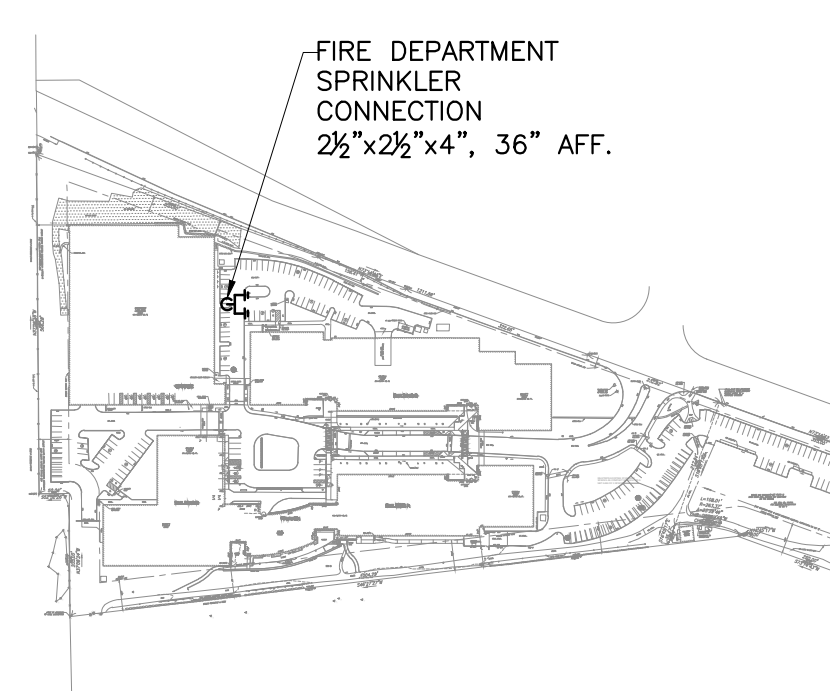
3.01 GUARANTEE

- GUARANTEE FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER, ALL MATERIALS, APPARATUS AND WORKMANSHIP WHETHER FURNISHED BY HIMSELF OR BY HIS SUBCONTRACTORS AND HE SHALL REPLACE OR REPAIR IN A MANNER APPROVED BY THE PROPERTY MANAGEMENT, WITHOUT COST TO THE OWNER, ANY PART OR PARTS OF THE WORK WHICH MAY PROVE DEFECTIVE OR UNSATISFACTORY WITH IN THE PERIOD OF THE GUARANTEE.

3.02 INSTALLATION

A. PIPING

- INSTALL PIPING AS SHOWN ON THE CONTRACT DRAWINGS AND STRAIGHT AND DIRECT AS POSSIBLE, FORMING RIGHT ANGLES OR PARALLEL LINES WITH WALLS, NEATLY SPACED, WITH RISERS PLUMB AND TRUE.
 - SPRINKLER PIPING SHALL BE INSTALLED SO THAT THE SYSTEM CAN BE DRAINED.
 - PIPE SHALL BE REMOVED BY REAMING.
 - BEFORE INSTALLING PIPE, THOROUGHLY CLEAN THE INSIDE FREE OF CUTTING AND FOREIGN MATTER. CUT ALL PIPE SQUARE AND SMOOTH AND MAKE UP ALL JOINTS TO REQUIRED LIMITS.
- B. PIPE JOINTS**
- THREADED JOINTS SHALL BE MADE UP OF TIGHT USING PIPE JOINT TEFLON COMPOUND OR TAPE, APPLIED ON THE MALE THREADS ONLY.



NO. DATE ISSUE DESCRIPTION

NY ENGINEERS
 NEARBY ENGINEERS
 382 NE 191ST STREET SUITE
 49674, MIAMI, FL 33179
 PH-914.257.3455
 WWW.NY-ENGINEERS.COM

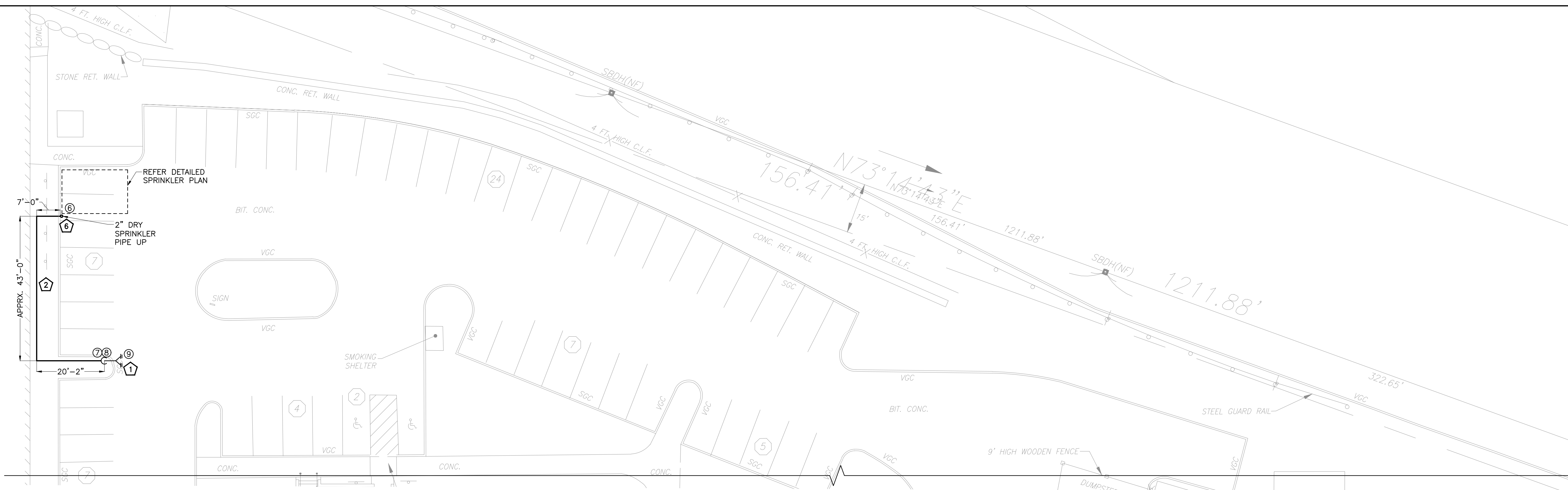
PROJECT NAME

PHYSICAL LOCATION

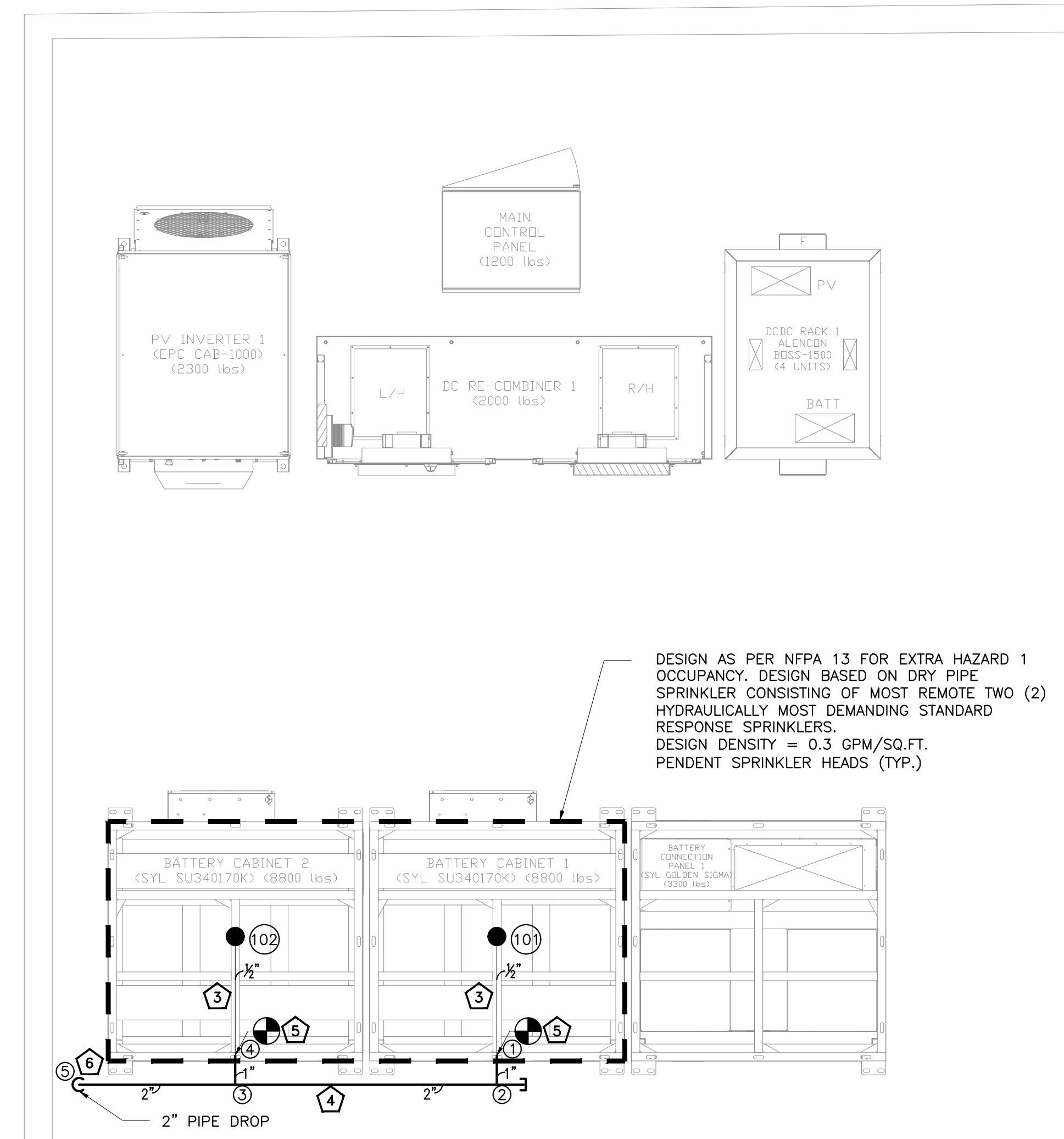
DRAWING TITLE
SPRINKLER GENERAL NOTES, SYMBOLS, ABBREVIATIONS AND SPECIFICATIONS

GRAPHIC SCALE

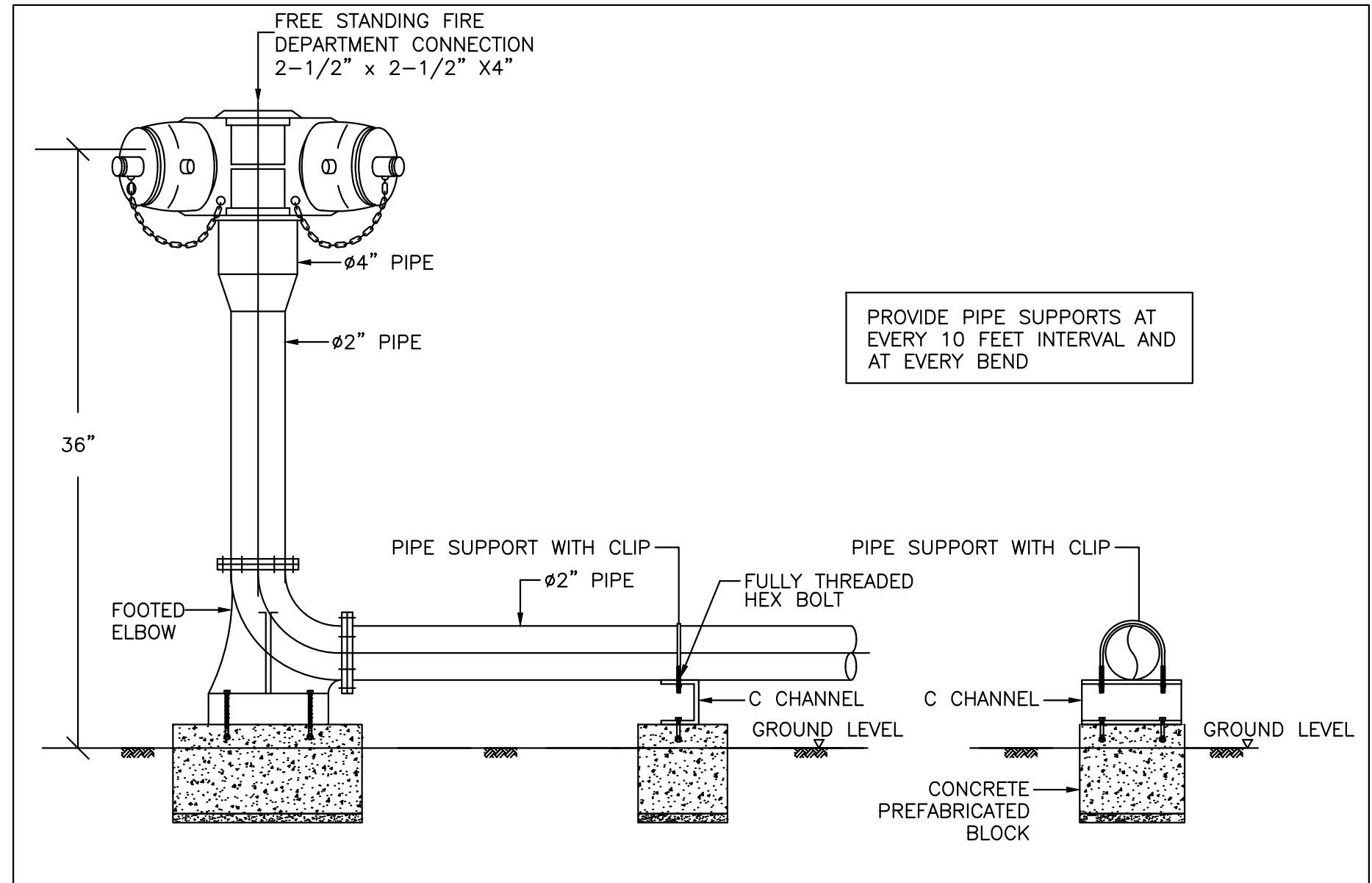
SEAL	PROJECT NO.
	SCALE AS NOTED
	DRAWN BY NYE
	CHECKED BY NYE
	DATE 12/20/2023
	SHEET NUMBER
	SP-001.00



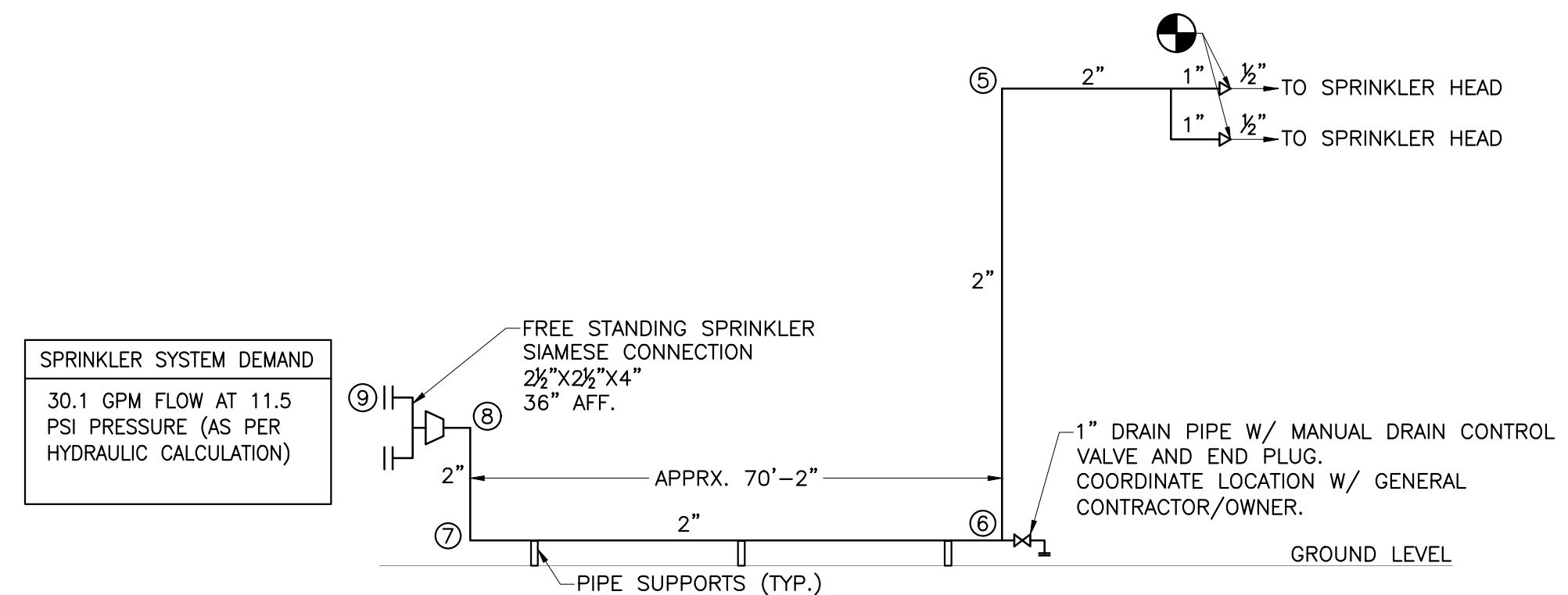
1 SPRINKLER OVERALL PLAN
SCALE: 1/16" = 1'-0"



2 DETAILED SPRINKLER PLAN
SCALE: 1/2" = 1'-0"



3 FIRE DEPARTMENT CONNECTION DETAIL
SCALE: NTS



4 SPRINKLER RISER DIAGRAM
SCALE: NTS

HAZARD CLASSIFICATION AND DESIGN DENSITY:
AREA : BATTERY CABINET

OCCUPANCY: EXTRA HAZARDS-1
MINIMUM DESIGN DENSITY: 0.30 GPM/SQ. FT.

- SPRINKLER LEGEND:**
- ① FIRE DEPARTMENT SPRINKLER CONNECTION 2 1/2" x 2 1/2" x 4", 36" AFF. MAINTAIN MINIMUM 10' EXPOSURE CLEARANCE BETWEEN FIRE DEPARTMENT CONNECTION & THE BESS' CABINET BODY. MAINTAIN MINIMUM 3" CONNECTION CLEARANCE ON FRONT SIDE OF FIRE DEPARTMENT CONNECTION. (PROVIDE SOLID BRONZE MATERIAL FOR FIRE DEPARTMENT CONNECTION). REFER KEY PLAN ON SHEET SP-001 FOR EXACT LOCATION.
 - ② NEW 2" DRY SPRINKLER PIPE RUNNING ABOVE GROUND. COORDINATE PIPING LAYOUT W/ SOLAR CONSULTANT & OTHER TRADES.
 - ③ COORDINATE SPRINKLER LOCATION & PIPING W/ EQUIPMENT CONTRACTOR.
 - ④ COORDINATE WITH CABINET MANUFACTURER AND GC FOR SPRINKLER PIPING SUPPORT FROM THE CABINET. PROVIDE ADD ALTERNATE FOR ANY ADDITIONAL PIPING SUPPORTS IF REQUIRED.
 - ⑤ SPRINKLER PIPING AND SPRINKLER HEAD BY CABINET MANUFACTURER. COORDINATE PIPING CONNECTION WITH CABINET MANUFACTURER.
 - ⑥ 1" DRAIN PIPE W/ MANUAL DRAIN CONTROL VALVE INSTALL VERTICALLY (SEE SPRINKLER RISER DIAGRAM FOR DETAILS). COORDINATE LOCATION W/ GENERAL CONTRACTOR/OWNER.

NO. DATE ISSUE DESCRIPTION

NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE
49674, MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROJECT NAME

PHYSICAL LOCATION

DRAWING TITLE
**SPRINKLER OVERALL PLAN ,
DETAILED SPRINKLER PLAN &
SPRINKLER RISER DIAGRAM**

GRAPHIC SCALE

SEAL	PROJECT NO.
	SCALE AS NOTED
	DRAWN BY NYE
	CHECKED BY NYE
	DATE 12/20/2023
	SHEET NUMBER SP-101.00

Fire Sprinkler Reports

Prepared By:

NY ENGINEERS

12/19/2023

General Project Data Report

General Data

Project Title:	Project File Name:
Designed By:	Date:
Code Reference:	Approving Agency:
Client Name:	Phone:
Address:	City, State Zip Code:
Company Name:	Representative:
Company Address:	City And State:
Phone:	
Building Name:	Building Owner:
Contact at Building:	Phone at Building:
Address Of Building:	City, State Zip Code:

Project Data

Description Of Hazard:	Ex. Haz. Gp. 1	Sprinkler System Type:	Dry
Design Area Of Water Application:	45 ft ²	Maximum Area Per Sprinkler:	50 ft ²
Default Sprinkler K-Factor:	5.60 K	Default Pipe Material:	SCHE 40 WET STEEL
Inside Hose Stream Allowance:	0.00 gpm	Outside Hose Stream Allowance:	0.00 gpm
In Rack Sprinkler Allowance:	0.00 gpm		

Sprinkler Specifications

Make:	TYCO	Model:	TY325
Size:	0.50	Temperature Rating:	155 F

Water Supply Test Data

Source Of Information:		Date Of Test:	
Test Hydrant ID:			
Hydrant Elevation:	0 ft	Static Pressure:	0.00 psi
Test Flow Rate:	0.00 gpm	Test Residual Pressure:	0.00 psi
Calculated System Flow Rate:	30.03 gpm	Calculated Inflow Residual Pressure:	11.53 psi

Calculation Project Data

Calculation Mode:	Demand	Minimum Desired Flow Density:	0.30 gpm/ft ²
HMD Minimum Residual Pressure:	7.00 psi	Number Of Inactive Pipes:	0
Number Of Active Nodes:	11	Number Of Inactive Sprinklers:	0
Number Of Active Pipes:	10		
Number Of Active Sprinklers:	2		

Fire Sprinkler Input Data

Node Input Data

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Stnd Fittings	Node Elev (ft) Branch Non- Std Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
1	No Discharge ----	---- 0.000	N/A 0.0	10.17 ----	6.00 0.0	0.00 0.00
2	No Discharge ----	---- 0.000	N/A 0.0	10.21 ----	6.00 0.0	0.00 0.00
3	No Discharge ----	---- 0.000	N/A 0.0	10.25 ----	6.00 0.0	0.00 0.00
4	No Discharge ----	---- 0.000	N/A 0.0	10.22 ----	6.00 0.0	0.00 0.00
5	No Discharge ----	---- 0.000	N/A 0.0	10.39 ----	6.00 0.0	0.00 0.00
6	No Discharge ----	---- 0.000	N/A 0.0	10.52 ----	6.00 0.0	0.00 0.00
7	No Discharge ----	---- 0.000	N/A 0.0	11.38 ----	6.00 0.0	0.00 0.00
8	No Discharge ----	---- 0.000	N/A 0.0	11.47 ----	6.00 0.0	0.00 0.00
9	No Discharge ----	---- 0.000	N/A 0.0	11.53 ----	6.00 0.0	0.00 0.00
101	Sprinkler ----	---- 0.000	5.60 0.0	7.17 ----	5.50 0.0	0.00 0.00
102	Sprinkler ----	---- 0.000	5.60 0.0	7.20 ----	5.50 0.0	0.00 0.00

Fire Sprinkler Input Data

Pipe Input Data

Beg. Node	End. Node	Pipe Description	Nominal Diameter (inch)	Type Group	Fitting Data	Nominal Length (feet)	Fitting Length (feet)	Total Length (feet)	CFactor (gpm/inc h-psi)
101	1	SCHED 40 WET STEEL	0.500	0	E	2.30	1.00	3.30	120
1	2	SCHED 40 WET STEEL	1.000	0		0.50	0.00	0.50	120
2	3	SCHED 40 WET STEEL	2.000	0	T	5.00	10.00	15.00	120
102	4	SCHED 40 WET STEEL	0.500	0	E	2.30	1.00	3.30	120
4	3	SCHED 40 WET STEEL	1.000	0		0.50	0.00	0.50	120
3	5	SCHED 40 WET STEEL	2.000	0	T	3.00	10.00	13.00	120
5	6	SCHED 40 WET STEEL	2.000	0	E	8.00	5.00	13.00	120
6	7	SCHED 40 WET STEEL	2.000	0	3E	70.00	15.00	85.00	120
7	8	SCHED 40 WET STEEL	2.000	0	E	4.00	5.00	9.00	120
8	9	SCHED 40 WET STEEL	2.000	0	E	0.50	5.00	5.50	120

Fire Sprinkler Output Data

Overall Node Groupings Output Data

Pipe Segment Beg. Node	End. Node	Pipe Type Group	Pipe Flow Rate (gpm)	Sprinkler Flow At Beg. Node (gpm)	Non-Sprinkler Flow Out (+) (gpm)	In (-) (gpm)	Beg. Node Residual Pressure (psi)	Imbalance Flow At Beg. Node (gpm)
1	101	0	15.00	0.00	0.00	0.00	10.17	0.00000
1	2	0	-15.00					
2	1	0	15.00	0.00	0.00	0.00	10.21	0.00000
2	3	0	-15.00					
3	2	0	15.00	0.00	0.00	0.00	10.25	0.00000
3	4	0	15.03					
3	5	0	-30.03					
4	3	0	-15.03	0.00	0.00	0.00	10.22	0.00000
4	102	0	15.03					
5	3	0	30.03	0.00	0.00	0.00	10.39	0.00000
5	6	0	-30.03					
6	5	0	30.03	0.00	0.00	0.00	10.52	0.00000
6	7	0	-30.03					
7	6	0	30.03	0.00	0.00	0.00	11.38	0.00000
7	8	0	-30.03					
8	7	0	30.03	0.00	0.00	0.00	11.47	0.00000
8	9	0	-30.03					
9	8	0	30.03	0.00	0.00	-30.03	11.53	
101	1	0	-15.00	15.00	0.00	0.00	7.17	0.00000
102	4	0	-15.03	15.03	0.00	0.00	7.20	0.00000

Fire Sprinkler Output Data

Overall Pipe Output Data

Beg. End. Node	Nodal KFactor (K)	Elevation (feet)	Spk/Hose Discharge (gpm)	Residual Pressure (psi)	Nom. Dia. Inside Dia. C-Value	q (gpm) Q (gpm) Velocity (fps)	F. L./ft (psi/ft) Fittings Type-Grp	Pipe-Len. Fit-Len. Tot-Len. (ft)	PF-(psi) PE-(psi) PT-(psi)
101	5.60	5.50	15.00	7.17	0.50	15.00	0.97460	2.30	3.216
1	0.00	6.00	0.00	10.17	0.622	15.00	E	1.00	-0.217
	SCHED 40 WET STEEL				120	15.84	0	3.30	3.000
1	0.00	6.00	0.00	10.17	1.00	0.00	0.07646	0.50	0.038
2	0.00	6.00	0.00	10.21	1.049	15.00	----	0.00	0.000
	SCHED 40 WET STEEL				120	5.57	0	0.50	0.038
2	0.00	6.00	0.00	10.21	2.00	0.00	0.00281	5.00	0.042
3	0.00	6.00	0.00	10.25	2.067	15.00	T	10.00	0.000
	SCHED 40 WET STEEL				120	1.43	0	15.00	0.042
4	0.00	6.00	0.00	10.22	1.00	0.00	0.07675	0.50	0.038
3	0.00	6.00	0.00	10.25	1.049	15.03	----	0.00	0.000
	SCHED 40 WET STEEL				120	5.58	0	0.50	0.038
102	5.60	5.50	15.03	7.20	0.50	15.03	0.97833	2.30	3.228
4	0.00	6.00	0.00	10.22	0.622	15.03	E	1.00	-0.217
	SCHED 40 WET STEEL				120	15.87	0	3.30	3.012
3	0.00	6.00	0.00	10.25	2.00	0.00	0.01015	3.00	0.132
5	0.00	6.00	0.00	10.39	2.067	30.03	T	10.00	0.000
	SCHED 40 WET STEEL				120	2.87	0	13.00	0.132
5	0.00	6.00	0.00	10.39	2.00	0.00	0.01015	8.00	0.132
6	0.00	6.00	0.00	10.52	2.067	30.03	E	5.00	0.000
	SCHED 40 WET STEEL				120	2.87	0	13.00	0.132
6	0.00	6.00	0.00	10.52	2.00	0.00	0.01015	70.00	0.863
7	0.00	6.00	0.00	11.38	2.067	30.03	3E	15.00	0.000
	SCHED 40 WET STEEL				120	2.87	0	85.00	0.863
7	0.00	6.00	0.00	11.38	2.00	0.00	0.01015	4.00	0.091
8	0.00	6.00	0.00	11.47	2.067	30.03	E	5.00	0.000
	SCHED 40 WET STEEL				120	2.87	0	9.00	0.091
8	0.00	6.00	0.00	11.47	2.00	0.00	0.01015	0.50	0.056
9	0.00	6.00	0.00	11.53	2.067	30.03	E	5.00	0.000
	SCHED 40 WET STEEL				120	2.87	0	5.50	0.056

Fire - Fire Sprinkler Hydraulics Calculation Program

Fire Sprinkler Output Data

Overall Sprinkler Output Data

Flowing Sprinkler Node No.	Area Group Code	Sprinkler KFactor (K)	Sprinkler Elevation (feet)	Residual Pressure (psi)	Flowing Area (ft ²)	Flowing Density (gpm/ft ²)	Sprinkler Discharge (gpm)
101		5.60	5.50	7.17	50.00	0.300	15.00
Sub Totals For Non-Group					50.00	0.300	15.00
102		5.60	5.50	7.20	50.00	0.301	15.03
Sub Totals For Non-Group					50.00	0.301	15.03
Totals For All Groups					100.00	0.300	30.03

Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	101
HMD Actual Residual Pressure:	7.17 psi
HMD Actual GPM:	15.00 gpm

Sprinkler Summary

Sprinkler System Type:	Dry
Specified Area Of Application:	45.00 ft ²
Adjusted Area Of Application:	58.50 ft ²
Minimum Desired Density:	0.300 gpm/ft ²
Application Average Density:	0.667 gpm/ft ²
Application Adjusted Density (not required by NFPA 13):	0.513 gpm/ft ²
Application Average Area Per Sprinkler:	22.50 ft ²
Adjusted Area Per Sprinkler (not required by NFPA 13):	29.25 ft ²
Sprinkler Flow:	30.03 gpm
Average Sprinkler Flow:	15.02 gpm

Flow Velocity And Imbalance Summary

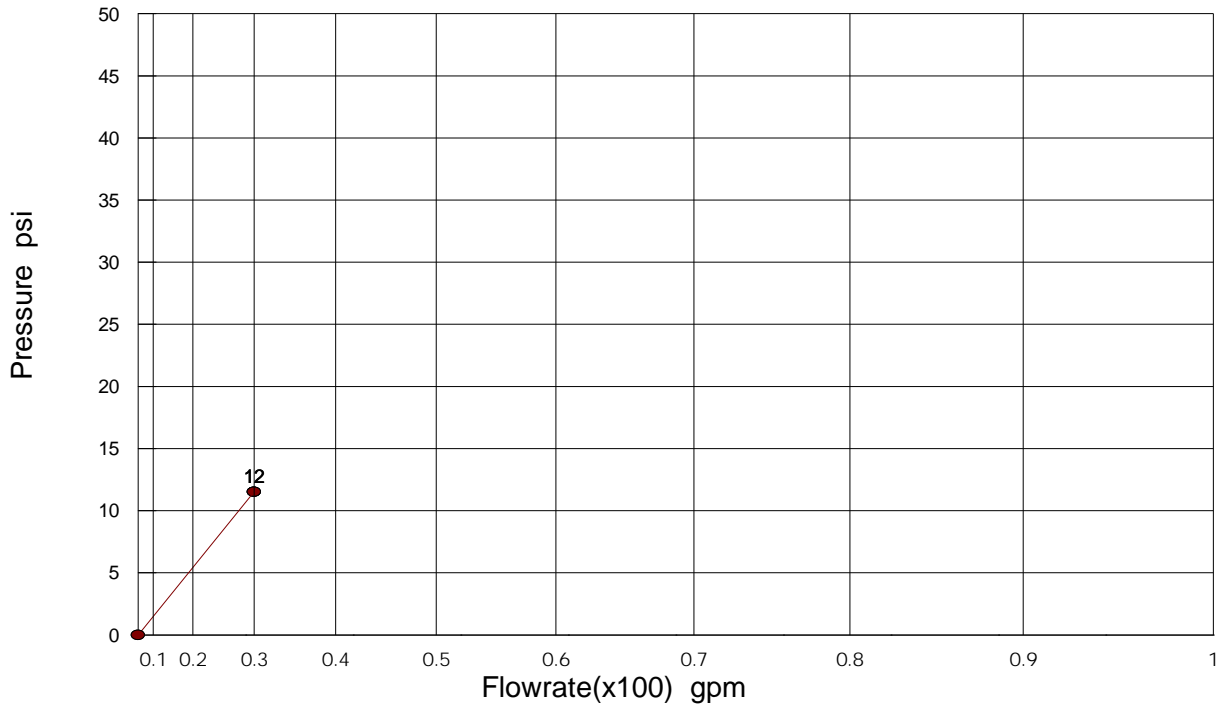
Maximum Flow Velocity (In Pipe 4 - 102)	15.87 ft/sec
Maximum Velocity Pressure (In Pipe 4 - 102)	1.70 psi
Allowable Maximum Nodal Pressure Imbalance:	0.0100 psi
Actual Maximum Nodal Pressure Imbalance:	0.0000 psi
Actual Average Nodal Pressure Imbalance:	0.0000 psi
Actual Maximum Nodal Flow Imbalance:	0.0000 gpm
Actual Average Nodal Flow Imbalance:	0.0000 gpm

Overall Network Summary

Number Of Unique Pipe Sections:	10
Number Of Flowing Sprinklers:	2
Pipe System Water Volume:	15.89 gal
Sprinkler Flow:	30.03 gpm
Non-Sprinkler Flow:	0.00 gpm
Minimum Required Residual Pressure At System Inflow Node:	11.53 psi
Demand Flow At System Inflow Node:	30.03 gpm

Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Demand Curve Data

Calculated Residual Pressure: 11.53 psi

Calculated Flow Rate: 30.03 gpm

Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: 0.00 psi