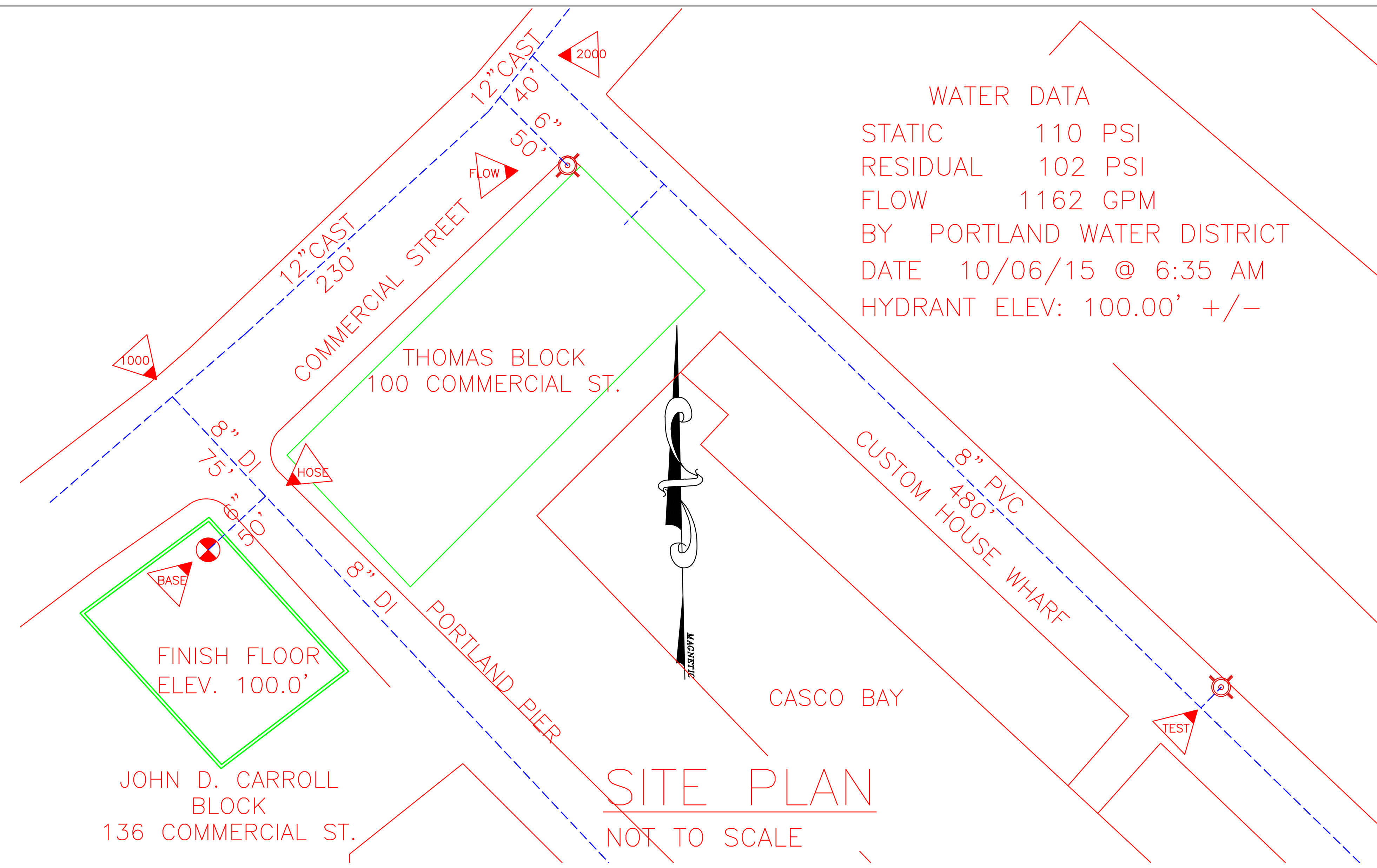


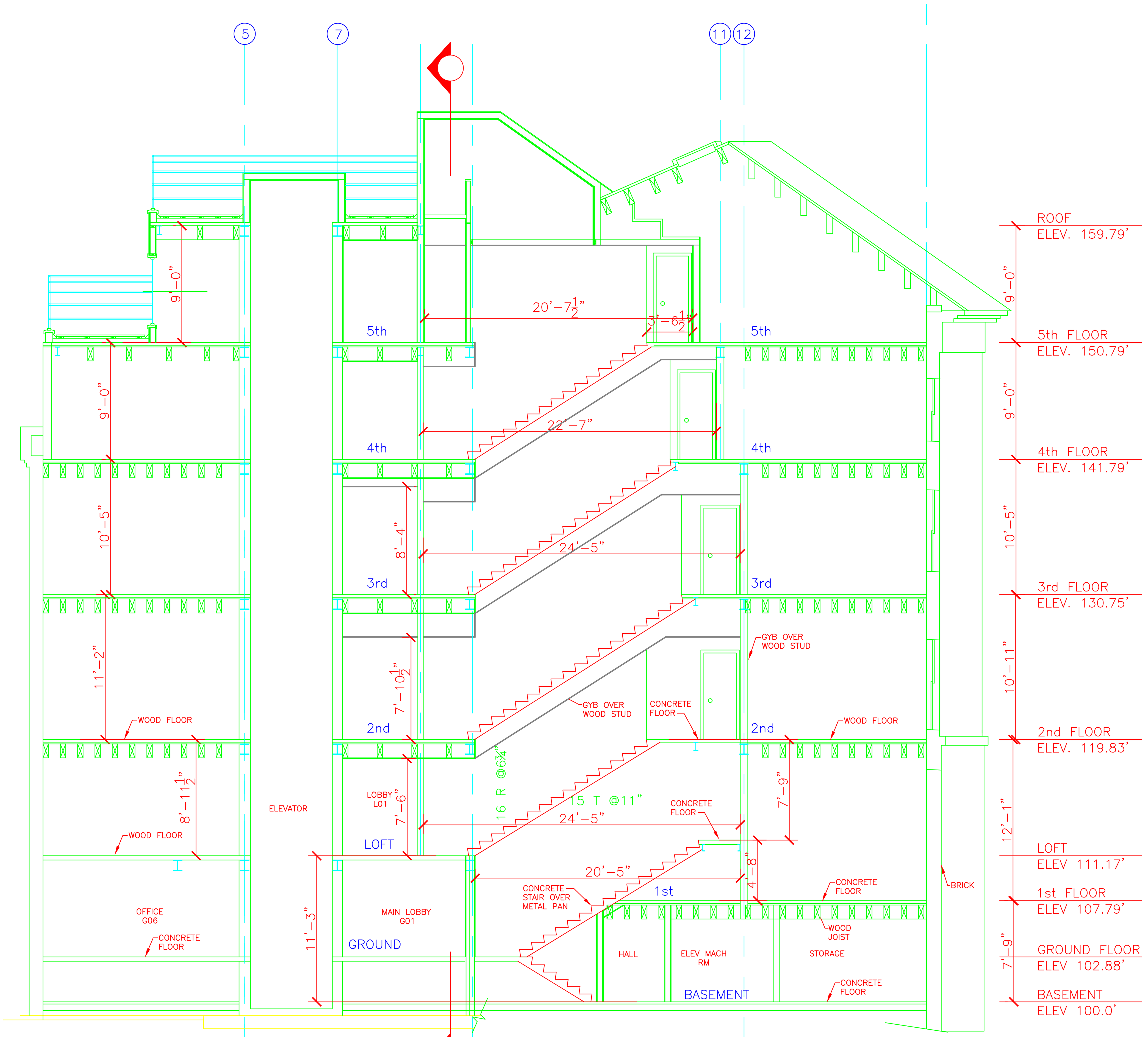
WATER DATA

STATIC 110 PSI
RESIDUAL 102 PSI
FLOW 1162 GPM
BY PORTLAND WATER DISTRICT
DATE 10/06/15 @ 6:35 AM
HYDRANT ELEV: 100.00' +/-

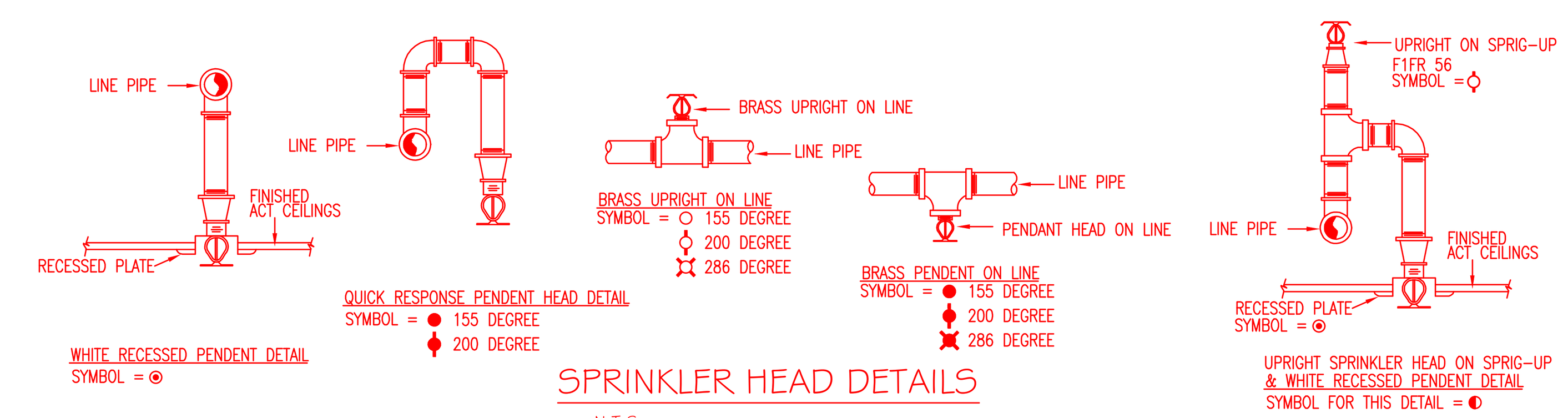
SITE PLAN
NOT TO SCALE

GENERAL NOTES:

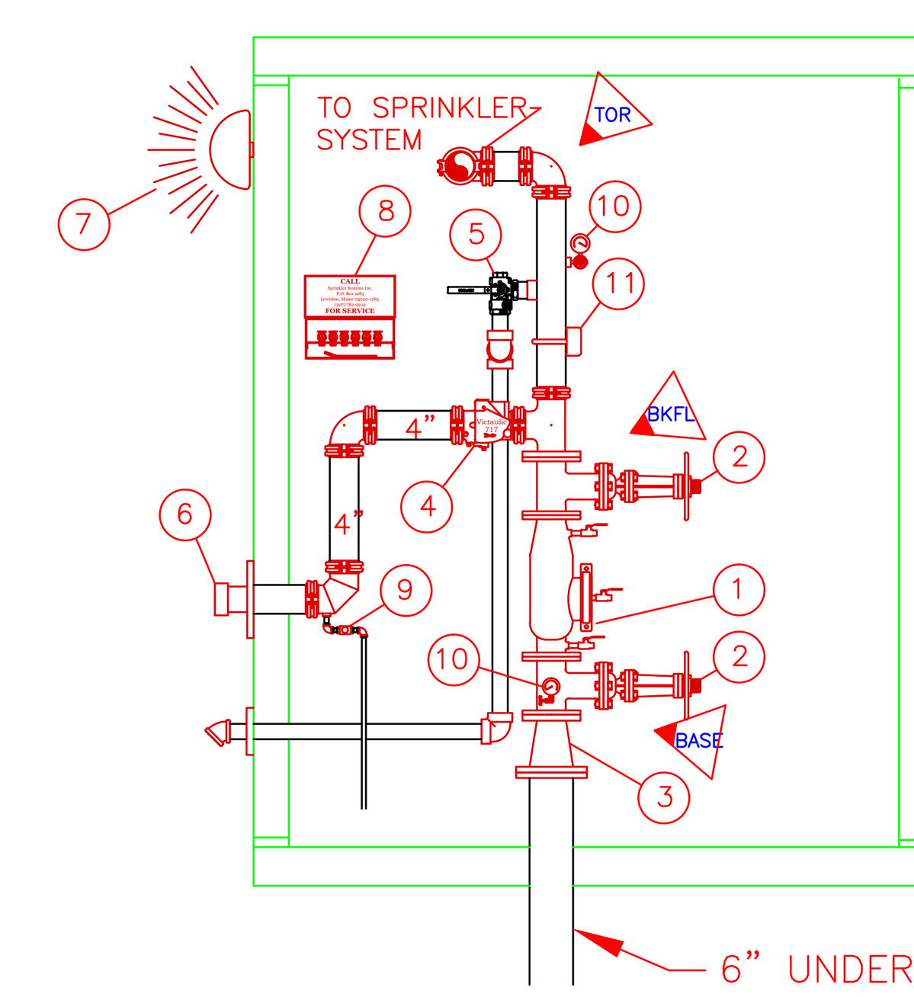
- IT IS THE BUILDING OWNERS RESPONSIBILITY TO PROVIDE ADEQUATE HEAT FOR ALL AREAS IN THE BUILDING PROTECTED BY WET SPRINKLER SYSTEMS AND FOR ALL WATER FILLED SUPPLY PIPES, VALVES AND SYSTEM RISERS IN ALL DRY PIPE SPRINKLER SYSTEMS.
- ALL NEW PIPING IS TO BE HYDROSTATICALLY TESTED AT NOT LESS THAN 200 PSI FOR 2 HOURS, OR AT 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE, WHEN THE MAXIMUM PRESSURE TO BE MAINTAINED IS IN EXCESS OF 150 PSI. (PER NFPA 13)
- WHETHER OR NOT INDICATED ON DRAWINGS, THE FOLLOWING ITEMS ARE TO BE PROVIDED:
  . SPARE HEAD CABINET WITH WRENCH (NFPA 13).
  . PROVISIONS FOR FLUSHING CONNECTIONS AND DRAINING OF ALL PIPE.
  . INSPECTORS TEST CONNECTION SHALL BE PROVIDED FOR EACH SYSTEM
    A) FOR WET PIPE SYSTEMS SEE NFPA 13)
    B) FOR DRY PIPE SYSTEMS SEE NFPA 13)
  . AIR PRESSURE SHALL BE MAINTAINED ON ALL DRY PIPE SYSTEMS BY AN APPROVED AUTOMATIC AIR COMPRESSOR OR PLANT AIR SYSTEM SPECIFICALLY APPROVED FOR AND CAPABLE OF AUTOMATICALLY MAINTAINING THE REQUIRED AIR PRESSURE.
  . WET PIPE SYSTEMS SHALL BE PROVIDED WITH A RELIEF VALVE NOT LESS THAN 1/2" IN SIZE. (NFPA 13).
- ALL PIPE 1" SHALL BE SCHEDULE 40 STEEL WITH MALLEABLE IRON FITTINGS.
- ALL PIPE 1¼" AND LARGER, SHALL BE SCHEDULE 10 STEEL, WITH GROOVED COUPLINGS AND VICTAULIC" MECHANICAL FITTINGS OR EQUIVALENT.
- ALL MECHANICAL TRADES ARE TO COORDINATE THEIR WORK WITH SPRINKLER WORK AS SHOWN ON THESE PLANS.
- ALL HANGERS AND LOCATIONS ARE TO BE IN ACCORDANCE WITH N.F.P.A. 13.
- ALL SPRINKLER HEADS LOCATED IN SUSPENDED CEILING TILES ARE TO BE LOCATED IN AN AESTHETIC PLEASING PATTERN NO CLOSER THAN 3" TO ANY CEILING T-BAR.
- ALL PIPING IS TO BE PITCHED IN ACCORDANCE WITH N.F.P.A. 13.
- HYDRAULIC DATA REFERENCE POINTS: (25) BASE
- CENTER LINE OF PIPE ABOVE FINISH FLOOR 12'-0" BELOW DECK (12")
- PROTECTIVE CAPS ARE TO REMAIN ON THE SPRINKLER HEADS UNTIL AFTER CEILINGS ARE INSTALLED.
- WORK IS LIMITED TO THE WORK SHOWN ON THESE DOCUMENTS.
- PHASE 1 OF THIS PROJECT IS TO COVER VACANT SUITES OF THE BUILDING ON THE LOWER LEVELS UP TO THE SECOND FLOOR, RIGHT HAND SIDE OF BUILDING.



BUILDING SECTION
SCALE: 3/16"= 1'-0"



SPRINKLER HEAD DETAILS
N.T.S.

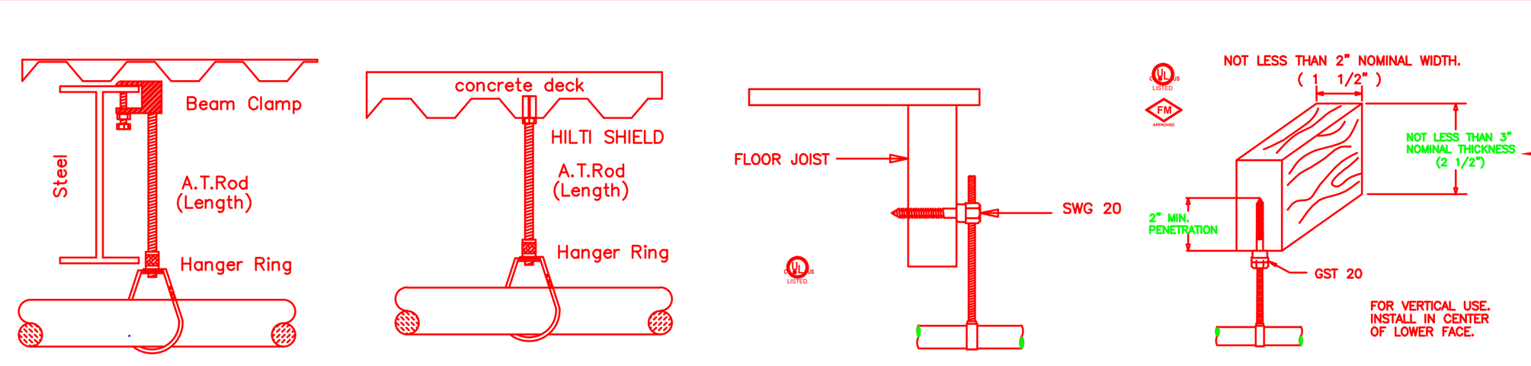


(11) 4" FLOW SWITCH
(10) ¼" THREE WAY VALVE WITH PRESSURE GAUGE
(9) ½" BALL DRIP VALVE
(8) SPARE HEAD AND WRENCH BOX
(7) ELECTRIC ALARM BELL POTTER
(6) 4"x2½ SIEMESE FIRE DEPARTMENT CONNECTION
(5) 2" TEST AND DRAIN WITH ½" ORIFICE & RELIEF VALVE
(4) 4" SWING CHECK VALVE VICTAULIC MODEL 717
(3) 6"x4" CONCENTRIC REDUCER
(2) 4" OS&Y VALVE WITH TAMPER SWITCH
(1) 4" AMES 2000 DOUBLE CHECK BACK FLOW

RISER DETAIL & LEGEND
NOT TO SCALE

SUBMITTAL COPY

1. Type of Hazard LIGHT/ORDINARY 2. Deflector Distance PER SPEC
2. Pipe Type Used BLK SCH 10/40 4. Sprinkler Area PER SPEC
5. Type of Construction COMBUSTIBLE
6. Maximum Spacing Allowed PER NFPA 13
7. PIPE SIZING METHOD: PIPE SCHEDULE ☐ HYDRAULICALLY CALCULATED ■
8. ALL HANGERS AND LOCATIONS TO BE IN ACCORDANCE WITH N.F.P.A. PAMPHLET NO. 13
9. HIGH DEGREE TEMPERATURE SPRINKLER HEADS TO BE INSTALLED IN ACCORDANCE WITH N.F.P.A. PAMPHLET NO. 13



HANGER DETAILS
N.T.S.

HANGERS	
	AS SHOWN IN DETAIL

ABBREVIATIONS

B	Bottom of Beam
D	Bottom of Deck
P	Bottom of Pipe
HV	Hose Valve
N & C	Nipple and Cap
NIC	Not in Contract
NTS	Not to Scale
OBJ	Open Bar Joists
PRV	Pressure Red Valve
RM	Roof Manifold
SP	Standpipe
TOB	Top of Beam
TOP	Top of Pipe
TOS	Top of Steel
UON	Unless Otherwise Noted
CL	Centerline
NAS	No Automatic Sprinklers
OTA	Open to Above

CONTRACT RESPONSIBILITIES

ITEM	FPC	OTHERS
STREET CONN		●
UGD MAIN		●
EXCAVATION		●
FLUSHING		●
WIRING		●
PAINTING		●
TAMPER SWITCHES	●	
FLOW SWITCHES	●	
STREET CONN		●

SPRINKLER HEAD LEGEND

SYMBOL	MAKE	MODEL	SIN	FINISH	TYPE	TEMP	NPT	ORIFICE	K-FACTOR	TOTAL
◉	RELIABLE	F1FR 56	RA1414	WHITE	SEMI-REC PENDENT	155° F	1/2"	1/2"	5.6	7
●	RELIABLE	F1FR 56	RA1414	BRONZE	PENDENT	155° F	1/2"	1/2"	5.6	38
○	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	155° F	1/2"	1/2"	5.6	1
○	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	200° F	1/2"	1/2"	5.6	12
◀	RELIABLE	F1FR 56	RA1435	WHITE	HORIZ SIDE WALL	155° F	1/2"	1/2"	5.6	11
									TOTAL →	69

SUBMITTALS

SENT TO		
DATE SENT 04/27/16		DATE RECEIVED
I S O		
F M		
L M		
I R I		
L A		
STATE FIRE	●	
LOCAL FIRE	●	
LOCAL WATER		
OWNER	●	

LICENSE# 093
R.M.S.# 442
PERMIT # ????

SPRINKLER SYSTEMS INC.
P.O. BOX 1285
LEWISTON MAINE
04243-1285

JOHN D. CARROLL BLOCK
136 COMMERCIAL STREET
PORTLAND, MAINE 04101

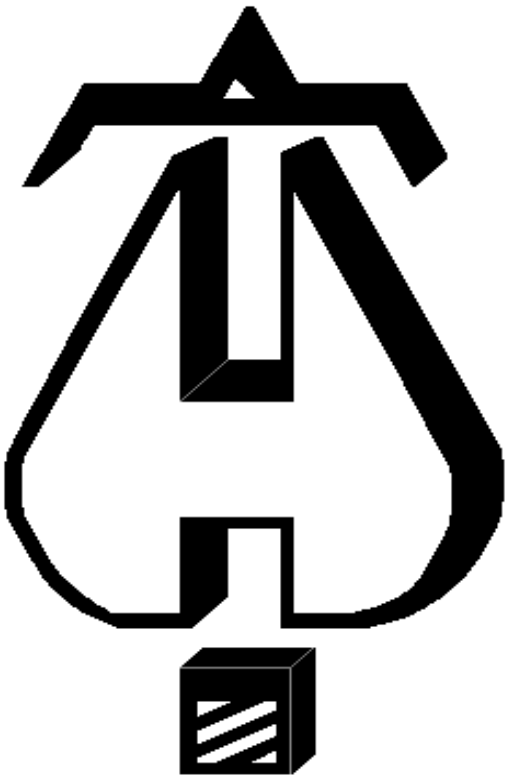
CONTRACT WITH SCOTT LINDSEY

SYSTEM TYPE	
WET	■
DRY	☐
DELUGE	☐
PREACTION	☐
ME. LIFE	☐
HYDRO-PRO	☐

REVISIONS

NO.	DATE	DESCRIPTION

SCALE AS NOTED
DRAWN BY JJP
CHECKED BY CDS
DATE 12/15/2015
TOTAL SPKRS ON JOB 69
SHEET# 1 of 3
JOB# 15142



. . . Fire Protection by Computer Design

SPRINKLER SYSTEMS INC.
4 AVON STREET
P O BOX 1285
LEWISTON, ME. 04243
207-782-0104

Job Name	:	136 Commercial Street Area 1
Building	:	Existing
Location	:	136 Commercial Street Portland, Maine
System	:	1 WET
Contract	:	15-142
Data File	:	136 Commercial Street Area 1.WXF

Hydraulic Design Information Sheet

Name - 136 Commercial Street Area 1 Date - 4-26-16
Location - 136 Commercial Street Portland, Maine
Building - Existing System No. - 1 WET
Contractor - Sprinkler Systems Inc Contract No. - 15-142
Calculated By - CDS Drawing No. - 1-3 of TBD
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - VARIES
Occupancy - OFFICES

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

Area of Sprinkler Operation	- 945	System Type	Sprinkler/Nozzle
Density	- .10	(X) Wet	Make RELIABLE
Area Per Sprinkler	- 196	( ) Dry	Model F1FR56
Elevation at Highest Outlet	- 130	( ) Deluge	Size 1/2" X 1/2"
Hose Allowance - Inside	- 0	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155 DEG.
Hose Allowance - Outside	- 100		

Note

Calculation Summary: Flow Required - 347.99 Press Required - 63.901 AT BASE
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:	
Date of Test	- 10/06/15			Cap. -	
Time of Test	- AM	Rated Cap.-		Elev.-	
Static Press	- 110	@ Press	-		
Residual Press	- 102	Elev.	-		Well
Flow	- 1162				Proof Flow
Elevation	- 100.0'				

Location - ON SITE

Source of Information - OWNER AND WATER DISTRICT

COMMODITY STORAGE RACK

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.	
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non	
( ) Mult. Row		( ) Open Shelf		

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
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
F	NFPA 13 45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
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
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
Zac	Ames 2000SS	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.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
TYP	0.0	5.6	12.25	na	19.6	0.1	196	7.0
ARM1	128.5	5.6	29.85	na	30.59	0.15	120	7.0
20	128.5	5.6	31.33	na	31.34	0.1	196	7.0
23	128.5	5.6	31.58	na	31.47	0.15	120	7.0
24	128.5	K = K @ DROP	31.8	na	30.65			
25	128.5		32.27	na				
26	128.5		34.93	na				
17	130.0	5.6	22.84	na	26.77	0.1	196	7.0
15	130.0	5.6	22.56	na	26.6	0.1	196	7.0
13	130.0	5.6	18.07	na	23.8	0.1	196	7.0
10	130.0	5.6	12.25	na	19.6	0.1	196	7.0
11	130.0	K = K @ DROP	14.0	na	20.34			
7	130.0	5.6	13.68	na	20.71	0.1	196	7.0
8	130.0	K = K @ DROP	14.93	na	21.0			
5	130.0	5.6	16.36	na	22.65	0.1	196	7.0
2	130.0	5.6	14.5	na	21.32	0.1	196	7.0
1	130.0	5.6	14.24	na	21.13	0.1	196	7.0
3	130.0		16.4	na				
4	129.25		20.13	na				
6	129.25		20.2	na				
9	129.25		20.32	na				
12	129.25		20.65	na				
14	129.25		21.27	na				
16	128.5		25.86	na				
18	128.5		27.06	na				
19	128.5		33.87	na				
21	128.5		34.32	na				
22	128.5		34.97	na				
27	128.5		35.0	na				
A	118.25		40.09	na				
B	118.25		41.29	na				
C	118.25		42.53	na				
D	104.0		49.47	na				
TOR	106.0		54.74	na				
BKFL	104.0		58.66	na				
BASE	100.0		63.9	na				
HOSE	100.0		64.31	na	100.0			
1000	100.0		64.48	na				
2000	100.0		64.55	na				
TEST	100.0		65.19	na				

The maximum velocity is 19.66 and it occurs in the pipe between nodes 18 and 19

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
TYP	19.60	1.049	T	5.0	1.000	12.250		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
DROP	19.6	0.1253		0.0	6.000	0.752		Vel = 7.28
	0.0							
	19.60					13.002		K Factor = 5.44
ARM1	30.59	1.049	T	5.0	3.500	29.846		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
25	30.59	0.2856		0.0	8.500	2.428		Vel = 11.36
	0.0							
	30.59					32.274		K Factor = 5.38
20	31.34	1.049	E	2.0	3.000	31.328		K Factor = 5.60
to		120.0	T	5.0	7.000	0.0		
21	31.34	0.2988		0.0	10.000	2.988		Vel = 11.63
	0.0							
	31.34					34.316		K Factor = 5.35
23	31.47	1.682		0.0	7.000	31.584		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
24	31.47	0.0303		0.0	7.000	0.212		Vel = 4.54
24	30.65	1.682		0.0	4.500	31.796		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
25	62.12	0.1062		0.0	4.500	0.478		Vel = 8.97
25	30.60	1.682	T	9.9	2.000	32.274		
to		120.0		0.0	9.900	0.0		
26	92.72	0.2229		0.0	11.900	2.653		Vel = 13.39
26	0.0	2.635		0.0	2.750	34.927		
to		120.0		0.0	0.0	0.0		
27	92.72	0.0251		0.0	2.750	0.069		Vel = 5.46
	0.0							
	92.72					34.996		K Factor = 15.67
17	26.77	1.049	2E	4.0	7.000	22.844		K Factor = 5.60
to		120.0	T	5.0	9.000	0.650		
18	26.77	0.2231		0.0	16.000	3.570		Vel = 9.94
	0.0							
	26.77					27.064		K Factor = 5.15
15	26.60	1.049	2E	4.0	3.000	22.561		K Factor = 5.60
to		120.0	T	5.0	9.000	0.650		
16	26.6	0.2206		0.0	12.000	2.647		Vel = 9.87
	0.0							
	26.60					25.858		K Factor = 5.23
13	23.80	1.049	2E	4.0	7.000	18.069		K Factor = 5.60
to		120.0	T	5.0	9.000	0.325		
14	23.8	0.1796		0.0	16.000	2.873		Vel = 8.84
	0.0							
	23.80					21.267		K Factor = 5.16
10	19.60	1.049	4E	8.0	6.000	12.250		K Factor = 5.60
to		120.0		0.0	8.000	0.0		
11	19.6	0.1254		0.0	14.000	1.755		Vel = 7.28

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
11	20.34	1.049	E	2.0	6.500	14.005		K Factor @ node DROP
to		120.0	T	5.0	7.000	0.325		
12	39.94	0.4679		0.0	13.500	6.316		Vel = 14.83
	0.0							
	39.94					20.646		K Factor = 8.79
7	20.71	1.049	E	2.0	7.000	13.679		K Factor = 5.60
to		120.0		0.0	2.000	0.0		
8	20.71	0.1388		0.0	9.000	1.249		Vel = 7.69
8	21.00	1.049	E	2.0	3.000	14.928		K Factor @ node DROP
to		120.0	T	5.0	7.000	0.325		
9	41.71	0.5069		0.0	10.000	5.069		Vel = 15.48
	0.0							
	41.71					20.322		K Factor = 9.25
5	22.65	1.049	3E	6.0	10.500	16.356		K Factor = 5.60
to		120.0	T	5.0	11.000	0.325		
6	22.65	0.1638		0.0	21.500	3.521		Vel = 8.41
	0.0							
	22.65					20.202		K Factor = 5.04
2	21.32	1.049	E	2.0	6.000	14.498		K Factor = 5.60
to		120.0	T	5.0	7.000	0.0		
3	21.32	0.1465		0.0	13.000	1.904		Vel = 7.91
	0.0							
	21.32					16.402		K Factor = 5.26
1	21.13	1.049	E	2.0	8.000	14.241		K Factor = 5.60
to		120.0	T	5.0	7.000	0.0		
3	21.13	0.1441		0.0	15.000	2.161		Vel = 7.84
3	21.32	1.049	T	5.0	1.500	16.402		
to		120.0		0.0	5.000	0.325		
4	42.45	0.5237		0.0	6.500	3.404		Vel = 15.76
4	0.0	2.157		0.0	4.500	20.131		
to		120.0		0.0	0.0	0.0		
6	42.45	0.0158		0.0	4.500	0.071		Vel = 3.73
6	22.65	2.157		0.0	3.500	20.202		
to		120.0		0.0	0.0	0.0		
9	65.1	0.0343		0.0	3.500	0.120		Vel = 5.72
9	41.72	2.157		0.0	3.750	20.322		
to		120.0		0.0	0.0	0.0		
12	106.82	0.0864		0.0	3.750	0.324		Vel = 9.38
12	39.94	2.157		0.0	4.000	20.646		
to		120.0		0.0	0.0	0.0		
14	146.76	0.1552		0.0	4.000	0.621		Vel = 12.89
14	23.80	2.157	2E	12.307	8.500	21.267		
to		120.0		0.0	12.307	0.325		
16	170.56	0.2050		0.0	20.807	4.266		Vel = 14.97
16	26.60	2.157		0.0	4.500	25.858		
to		120.0		0.0	0.0	0.0		
18	197.16	0.2680		0.0	4.500	1.206		Vel = 17.31

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
18	26.77	2.157	T	12.307	7.750	27.064		
to		120.0		0.0	12.307	0.0		
19	223.93	0.3392		0.0	20.057	6.804		Vel = 19.66
19	0.0	2.635		0.0	3.500	33.868		
to		120.0		0.0	0.0	0.0		
21	223.93	0.1280		0.0	3.500	0.448		Vel = 13.17
21	31.34	2.635		0.0	4.000	34.316		
to		120.0		0.0	0.0	0.0		
22	255.27	0.1630		0.0	4.000	0.652		Vel = 15.02
22	0.0	4.26		0.0	1.750	34.968		
to		120.0		0.0	0.0	0.0		
27	255.27	0.0160		0.0	1.750	0.028		Vel = 5.75
27	92.72	4.26	E	13.167	10.500	34.996		
to		120.0		0.0	13.167	4.439		
A	347.99	0.0279		0.0	23.667	0.660		Vel = 7.83
A	0.0	4.26	E	13.167	3.500	40.095		
to		120.0	T	26.334	39.501	0.0		
B	347.99	0.0279		0.0	43.001	1.199		Vel = 7.83
B	0.0	4.26	2E	26.334	18.000	41.294		
to		120.0		0.0	26.334	0.0		
C	347.99	0.0279		0.0	44.334	1.236		Vel = 7.83
C	0.0	4.26	E	13.167	14.500	42.530		
to		120.0		0.0	13.167	6.172		
D	347.99	0.0279		0.0	27.667	0.771		Vel = 7.83
D	0.0	4.26	10E	131.671	62.000	49.473		
to		120.0	T	26.334	158.005	-0.866		
TOR	347.99	0.0279		0.0	220.005	6.134		Vel = 7.83
TOR	0.0	4.26	Fsp	0.0	2.000	54.741		
to		120.0		0.0	0.0	3.866		* * Fixed Loss = 3
BKFL	347.99	0.0280		0.0	2.000	0.056		Vel = 7.83
BKFL	0.0	4.026	Zac	0.0	0.500	58.663		
to		120.0		0.0	0.0	5.220		* * Fixed Loss = 3.488
BASE	347.99	0.0360		0.0	0.500	0.018		Vel = 8.77
BASE	0.0	6.16	E	20.084	50.000	63.901		
to		140.0	T	43.037	67.425	0.0		
HOSE	347.99	0.0035	G	4.304	117.425	0.409		Vel = 3.75
HOSE	100.00	8.27	T	55.354	75.000	64.310		Qa = 100
to		140.0		0.0	55.354	0.0		
1000	447.99	0.0013		0.0	130.354	0.172		Vel = 2.68
1000	0.0	12.34	F	20.316	270.000	64.482		
to		140.0	T	93.767	114.083	0.0		
2000	447.99	0.0002		0.0	384.083	0.073		Vel = 1.20
2000	0.0	8.27		0.0	480.000	64.555		
to		140.0		0.0	0.0	0.0		
TEST	447.99	0.0013		0.0	480.000	0.634		Vel = 2.68

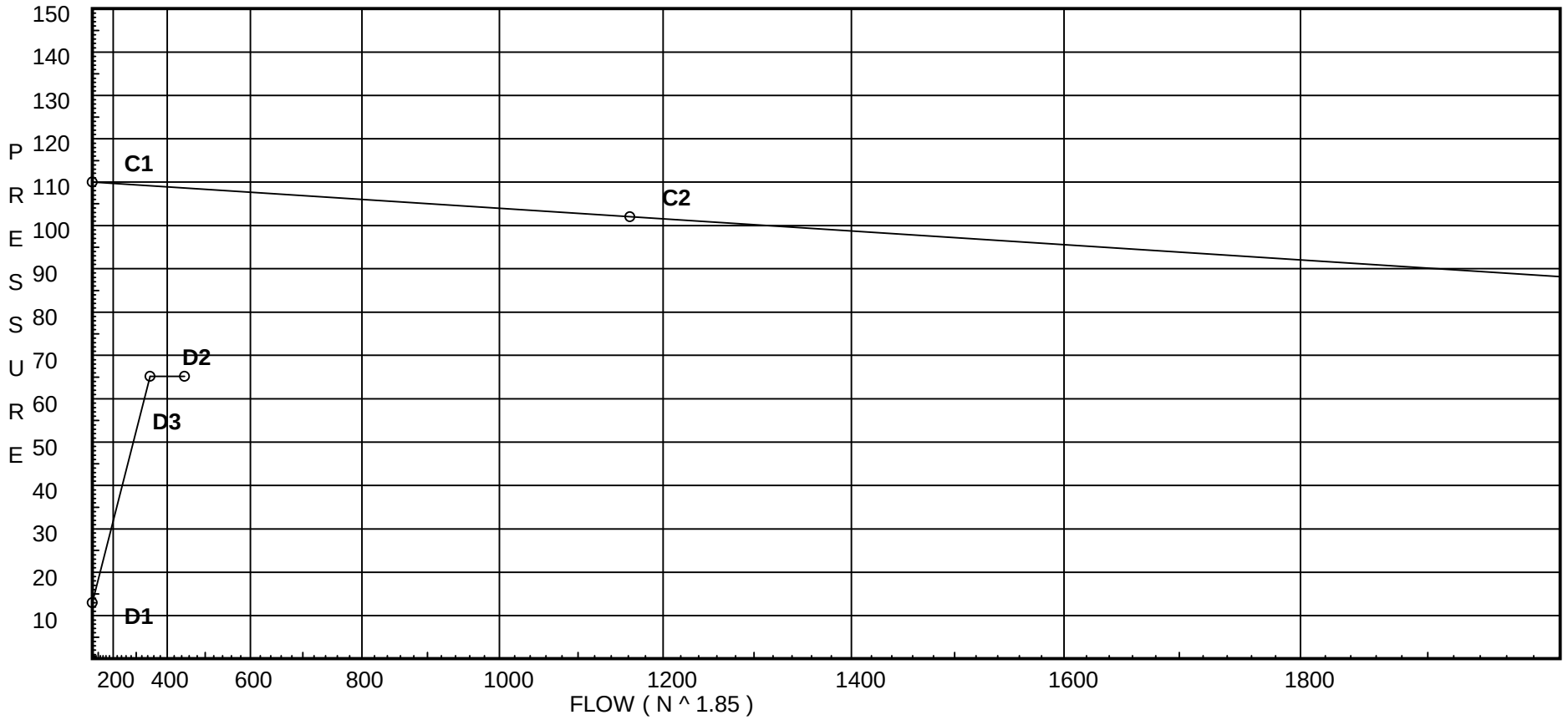
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*******	Notes	******
	0.0									
	447.99					65.189		K Factor = 55.49		

City Water Supply:

C1 - Static Pressure : 110
C2 - Residual Pressure: 102
C2 - Residual Flow : 1162

Demand:

D1 - Elevation	**: 12.993**
D2 - System Flow	**: 347.986**
D2 - System Pressure	**: 65.189**
Hose (Demand)	**: 100**
D3 - System Demand	**: 447.986**
Safety Margin	**: 43.439**



Hydraulic Design Information Sheet

Name - 136 Commercial Street Area 2 Date - 4-26-16
Location - 136 Commercial Street Portland, Maine
Building - Existing System No. - 1 WET
Contractor - Sprinkler Systems Inc Contract No. - 15-142
Calculated By - CDS Drawing No. - 1-3 of TBD
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - VARIES
Occupancy - RETAIL

SYSTEM DESIGN

(X) NFPA 13 ( ) Lt. Haz. Ord.Haz.Gp. ( ) 1 (X) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

Area of Sprinkler Operation	- 945	System Type	Sprinkler/Nozzle
Density	- .20	(X) Wet	Make RELIABLE
Area Per Sprinkler	- 130	( ) Dry	Model F1FR56
Elevation at Highest Outlet	- 119	( ) Deluge	Size 1/2" X 1/2"
Hose Allowance - Inside	- 0	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155 DEG.
Hose Allowance - Outside	- 250		

Note

Calculation Summary: Flow Required - 352.18 Press Required - 50.747 AT BASE
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:	
Date of Test	- 10/06/15			Cap. -	
Time of Test	- AM	Rated Cap.-		Elev.-	
Static Press	- 110	@ Press	-		
Residual Press	- 102	Elev.	-		Well
Flow	- 1162				Proof Flow
Elevation	- 100.0'				

Location - ON SITE

Source of Information - OWNER AND WATER DISTRICT

COMMODITY STORAGE

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.	
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non	
( ) Mult. Row		( ) Open Shelf		

RACK STORAGE

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
TYP	0.0	5.6	21.56	na	26.0	0.2	130	7.0
40	118.25	5.6	24.16	na	27.52	0.1	196	7.0
37	119.0	K = K @ DROP	24.06	na	26.7			
38	119.0	K = K @ DROP	24.27	na	26.81			
35	118.25	5.6	23.57	na	27.19	0.1	196	7.0
33	119.0	5.6	22.83	na	26.76	0.1	196	7.0
31	119.0	K = K @ DROP	22.82	na	26.0			
32	119.0	K = K @ DROP	23.02	na	26.11			
34	118.25		26.17	na				
36	118.25		26.21	na				
39	118.25		26.38	na				
41	118.25		26.86	na				
43	118.25	5.6	25.32	na	28.18	0.1	196	7.0
45	118.25	K = K @ DROP	25.87	na	27.68			
46	118.25	K = K @ DROP	26.09	na	27.8			
48	118.25	K = K @ DROP	24.52	na	26.95			
49	118.25	K = K @ DROP	24.71	na	27.05			
50	118.25	K = K @ DROP	25.4	na	27.42			
51	118.25		28.7	na				
47	118.25		28.75	na				
44	118.25		28.76	na				
42	118.25		28.76	na				
C	118.25		29.2	na				
D	104.0		36.16	na				
TOR	106.0		41.56	na				
BKFL	104.0		45.48	na				
BASE	100.0		50.75	na				
HOSE	100.0		51.16	na	250.0			
1000	100.0		51.46	na				
2000	100.0		51.59	na				
TEST	100.0		52.68	na				

The maximum velocity is 11.76 and it occurs in the pipe between nodes 50 and 51

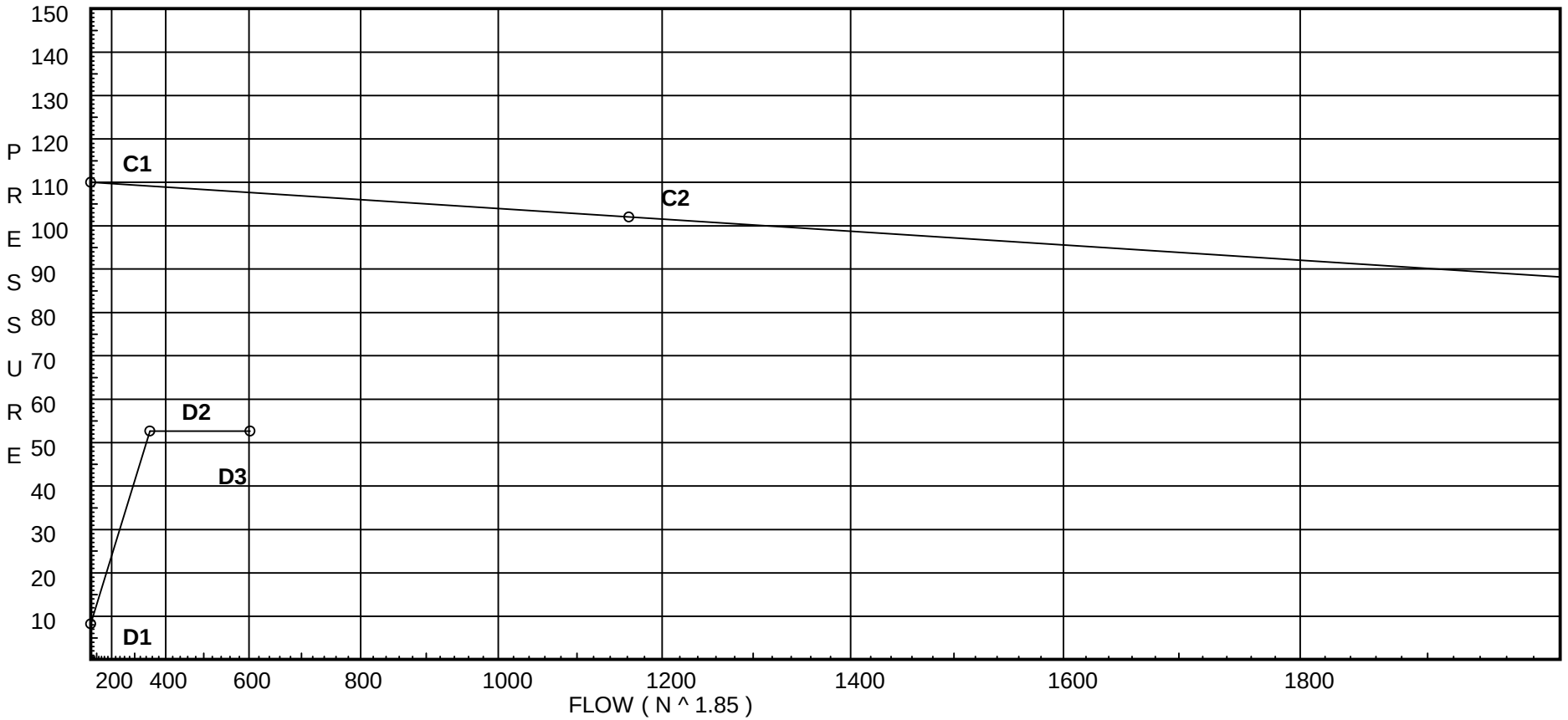
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
TYP	26.00	1.049	T	5.0	1.000	21.556		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
DROP	26.0	0.2115		0.0	6.000	1.269		Vel = 9.65
	0.0							
	26.00					22.825		K Factor = 5.44
40	27.52	1.049	2T	10.0	1.500	24.159		K Factor = 5.60
to		120.0		0.0	10.000	0.0		
41	27.52	0.2350		0.0	11.500	2.702		Vel = 10.22
	0.0							
	27.52					26.861		K Factor = 5.31
37	26.70	1.682		0.0	9.250	24.063		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
38	26.7	0.0223		0.0	9.250	0.206		Vel = 3.86
38	26.81	1.682	E	4.95	7.330	24.269		K Factor @ node DROP
to		120.0	T	9.9	14.850	0.325		
39	53.51	0.0806		0.0	22.180	1.788		Vel = 7.73
	0.0							
	53.51					26.382		K Factor = 10.42
35	27.19	1.049	2T	10.0	1.500	23.572		K Factor = 5.60
to		120.0		0.0	10.000	0.0		
36	27.19	0.2297		0.0	11.500	2.642		Vel = 10.09
	0.0							
	27.19					26.214		K Factor = 5.31
33	26.76	1.049	2E	4.0	4.500	22.832		K Factor = 5.60
to		120.0	T	5.0	9.000	0.325		
34	26.76	0.2230		0.0	13.500	3.010		Vel = 9.93
	0.0							
	26.76					26.167		K Factor = 5.23
31	26.00	1.682		0.0	9.250	22.825		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
32	26.0	0.0212		0.0	9.250	0.196		Vel = 3.75
32	26.11	1.682	3E	14.849	12.000	23.021		K Factor @ node DROP
to		120.0	T	9.9	24.749	0.325		
34	52.11	0.0768		0.0	36.749	2.821		Vel = 7.52
34	26.76	2.635		0.0	2.500	26.167		
to		120.0		0.0	0.0	0.0		
36	78.87	0.0188		0.0	2.500	0.047		Vel = 4.64
36	27.19	2.635		0.0	5.250	26.214		
to		120.0		0.0	0.0	0.0		
39	106.06	0.0320		0.0	5.250	0.168		Vel = 6.24
39	53.50	2.635		0.0	7.000	26.382		
to		120.0		0.0	0.0	0.0		
41	159.56	0.0684		0.0	7.000	0.479		Vel = 9.39
41	27.53	2.635	T	16.474	4.250	26.861		
to		120.0		0.0	16.474	0.0		
42	187.09	0.0918		0.0	20.724	1.902		Vel = 11.01

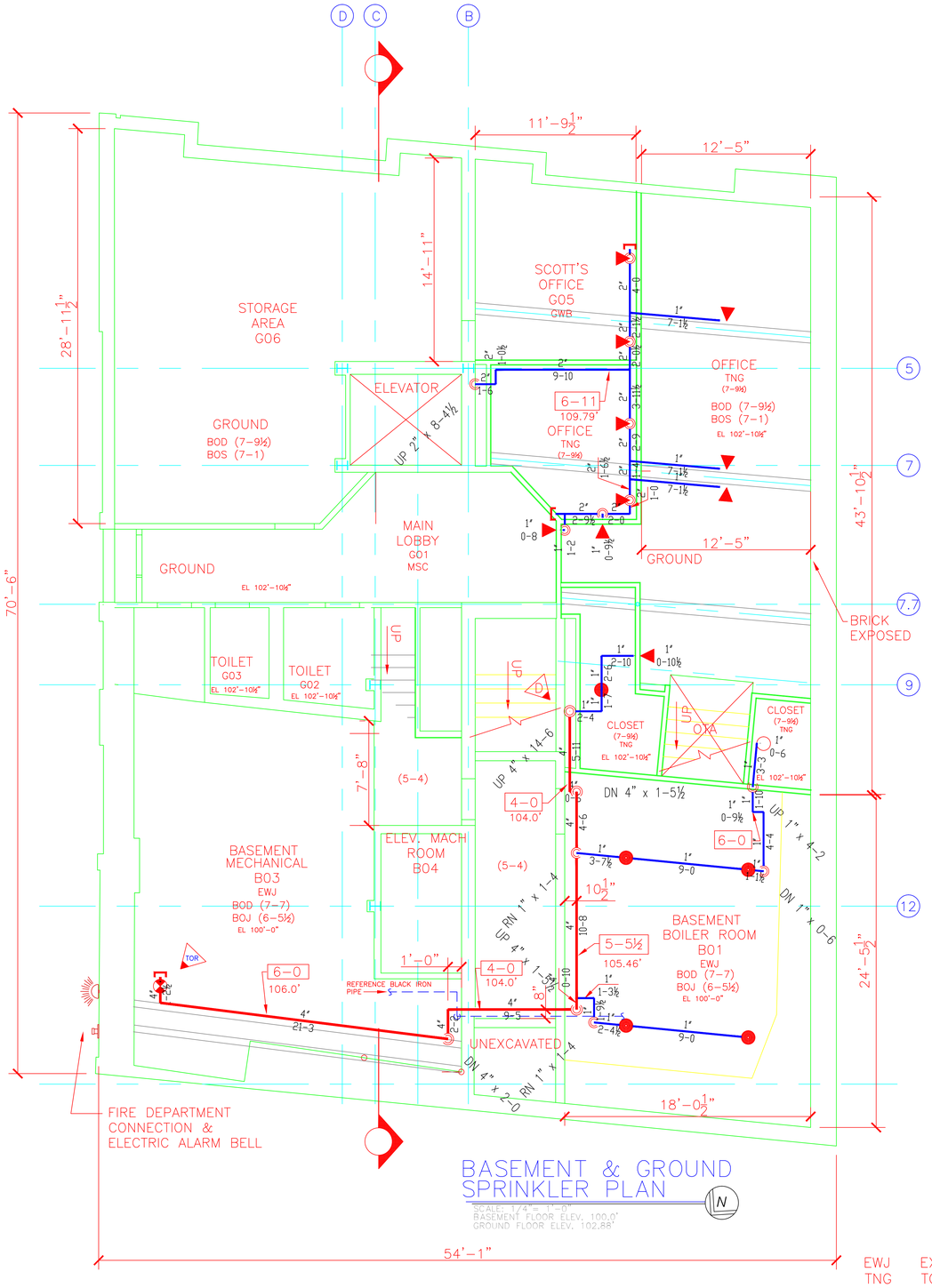
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
	0.0							
	187.09					28.763		K Factor = 34.88
43	28.18	1.049	2T	10.0	4.000	25.322		K Factor = 5.60
to		120.0		0.0	10.000	0.0		
44	28.18	0.2454		0.0	14.000	3.436		Vel = 10.46
	0.0							
	28.18					28.758		K Factor = 5.25
45	27.68	1.682		0.0	9.250	25.872		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
46	27.68	0.0238		0.0	9.250	0.220		Vel = 4.00
46	27.80	1.682	2E	9.9	11.000	26.092		K Factor @ node DROP
to		120.0	T	9.9	19.800	0.0		
47	55.48	0.0862		0.0	30.800	2.656		Vel = 8.01
	0.0							
	55.48					28.748		K Factor = 10.35
48	26.95	1.682		0.0	8.330	24.523		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
49	26.95	0.0227		0.0	8.330	0.189		Vel = 3.89
49	27.05	1.682		0.0	8.330	24.712		K Factor @ node DROP
to		120.0		0.0	0.0	0.0		
50	54.0	0.0820		0.0	8.330	0.683		Vel = 7.80
50	27.43	1.682	E	4.95	4.000	25.395		K Factor @ node DROP
to		120.0	T	9.9	14.850	0.0		
51	81.43	0.1753		0.0	18.850	3.305		Vel = 11.76
51	0.0	4.26	E	13.167	12.000	28.700		
to		120.0		0.0	13.167	0.0		
47	81.43	0.0019		0.0	25.167	0.048		Vel = 1.83
47	55.48	4.26		0.0	2.000	28.748		
to		120.0		0.0	0.0	0.0		
44	136.91	0.0050		0.0	2.000	0.010		Vel = 3.08
44	28.18	4.26		0.0	0.750	28.758		
to		120.0		0.0	0.0	0.0		
42	165.09	0.0067		0.0	0.750	0.005		Vel = 3.72
42	187.09	4.26	E	13.167	2.000	28.763		
to		120.0		0.0	13.167	0.0		
C	352.18	0.0285		0.0	15.167	0.432		Vel = 7.93
C	0.0	4.26	E	13.167	14.500	29.195		
to		120.0		0.0	13.167	6.172		
D	352.18	0.0285		0.0	27.667	0.789		Vel = 7.93
D	0.0	4.26	10E	131.671	62.000	36.156		
to		120.0	T	26.334	158.005	-0.866		
TOR	352.18	0.0285		0.0	220.005	6.271		Vel = 7.93
TOR	0.0	4.26	Fsp	0.0	2.000	41.561		
to		120.0		0.0	0.0	3.866		* * Fixed Loss = 3
BKFL	352.18	0.0285		0.0	2.000	0.057		Vel = 7.93

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
BKFL	0.0	4.026	Zac	0.0	0.500	45.484		
to		120.0		0.0	0.0	5.244		* * Fixed Loss = 3.512
BASE	352.18	0.0380		0.0	0.500	0.019		Vel = 8.88
BASE	0.0	6.16	E	20.084	50.000	50.747		
to		140.0	T	43.037	67.425	0.0		
HOSE	352.18	0.0036	G	4.304	117.425	0.418		Vel = 3.79
HOSE	250.00	8.27	T	55.354	75.000	51.165		Qa = 250
to		140.0		0.0	55.354	0.0		
1000	602.18	0.0023		0.0	130.354	0.298		Vel = 3.60
1000	0.0	12.34	F	20.316	270.000	51.463		
to		140.0	T	93.767	114.083	0.0		
2000	602.18	0.0003		0.0	384.083	0.125		Vel = 1.62
2000	0.0	8.27		0.0	480.000	51.588		
to		140.0		0.0	0.0	0.0		
TEST	602.18	0.0023		0.0	480.000	1.097		Vel = 3.60
	0.0							
	602.18					52.685		K Factor = 82.96

City Water Supply:
- C1 - Static Pressure : 110
- C2 - Residual Pressure: 102
- C2 - Residual Flow : 1162

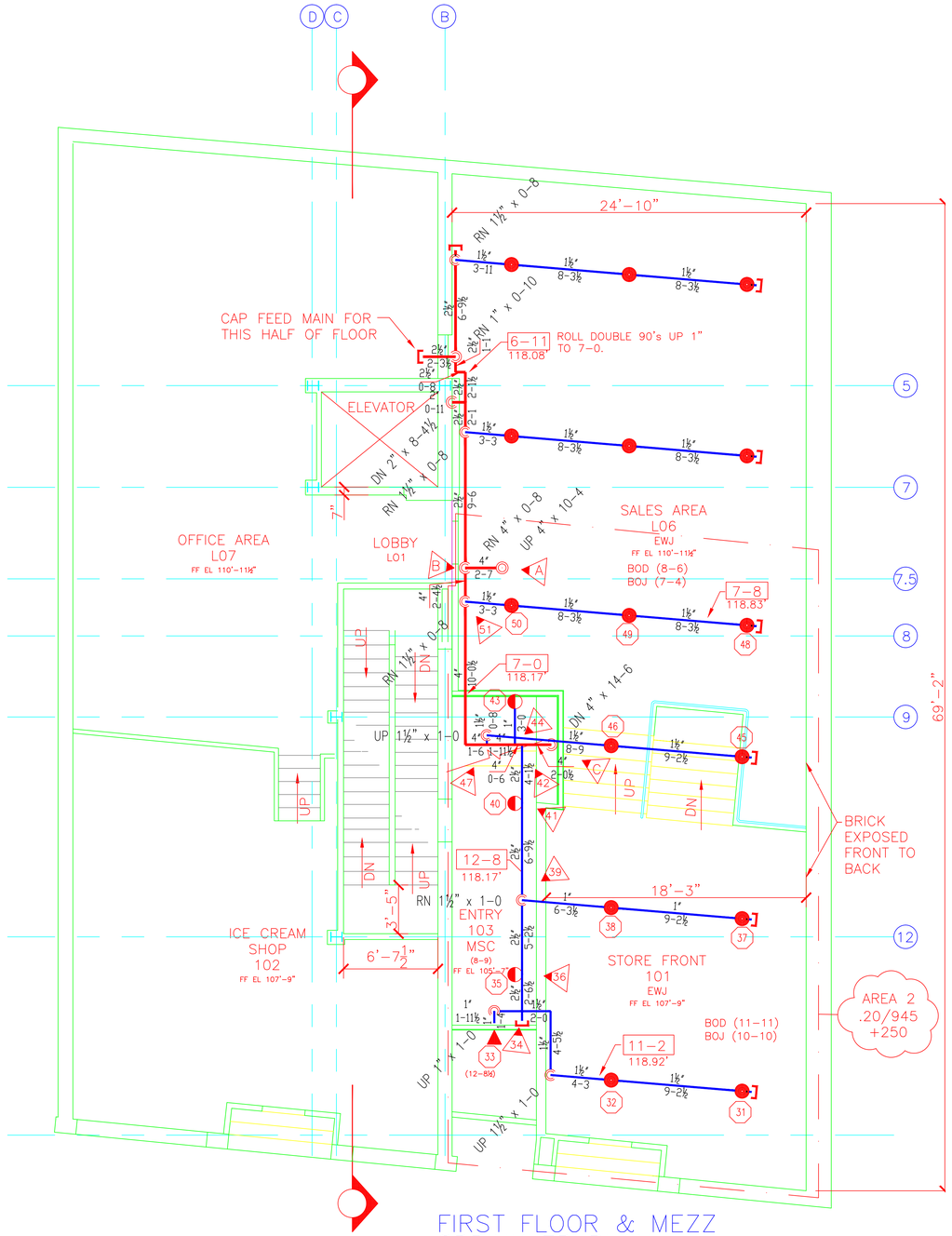
Demand:
- D1 - Elevation : 8.229
- D2 - System Flow : 352.178
- D2 - System Pressure : 52.685
- Hose (Demand) : 250
- D3 - System Demand : 602.178
- Safety Margin : 54.944





BASEMENT & GROUND SPRINKLER PLAN

SCALE: 1/4"= 1'-0"
BASEMENT FLOOR ELEV. 100.0'
GROUND FLOOR ELEV. 102.88'



FIRST FLOOR & MEZZ SPRINKLER PLAN

SCALE: 1/4"= 1'-0"
FIRST FLOOR ELEV. 107.79'
MEZZ. FLOOR ELEV. 111.17'

HYDRAULIC DATA NAMEPLATE

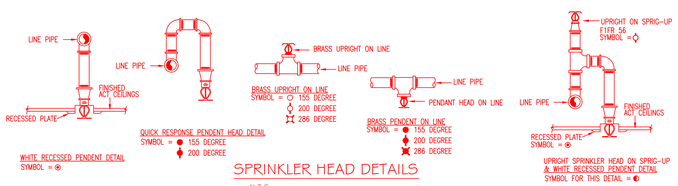
This Building is protected by a hydraulically designed Automatic Sprinkler System

Location AREA-2
No. of Sprinkler 13
Basis of design
1. Density .20 GPM/FT²
2. Design area of discharge 945 FT²
System Demand
1. Water Flow Rate @ Base/Pump 352.18 GPM
2. Residual Pressure @ Base/Pump 50.747 PSI
CUSHION = 54.94 psi

NOT MOST REMOTE

CEILING TYPE

EWJ	EXPOSED WOOD JOIST
TNG	TONGUE AND GROOVE WOOD DECK
MSC	METAL SLAT CEILING
ACT	ACOUSTICAL TILE CEILING
GWB	GYPSUM WALL BOARD



SPRINKLER HEAD DETAILS

N.T.S.

◐ ABOVE AND BELOW COVERAGE, ONE BRONZE UPRIGHT 200° HEAD AND ONE WHITE SEMI-RECESSED PENDENT 155°. SEE SPRINKLER HEAD DETAILS.

SPRINKLER HEAD LEGEND

SYMBOL	MAKE	MODEL	SIN	FINISH	TYPE	TEMP	NPT	ORIFICE	K-FACTOR	TOTAL
◉	RELIABLE	F1FR 56	RA1414	WHITE	SEMI-REC PENDENT	155° F	1/2"	1/2"	5.6	7
●	RELIABLE	F1FR 56	RA1414	BRONZE	PENDENT	155° F	1/2"	1/2"	5.6	38
○	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	155° F	1/2"	1/2"	5.6	1
◇	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	200° F	1/2"	1/2"	5.6	12
◀	RELIABLE	F1FR 56	RA1435	WHITE	HORIZ SIDE WALL	155° F	1/2"	1/2"	5.6	11
									TOTAL →	69

SUBMITTAL COPY

5 4 3 2 1 0 5 10 15 20

LICENSE# 093 442 R.M.S.# PERMIT # ????

SPRINKLER SYSTEMS INC.
P.O. BOX 1285
LEWISTON MAINE
04243-1285

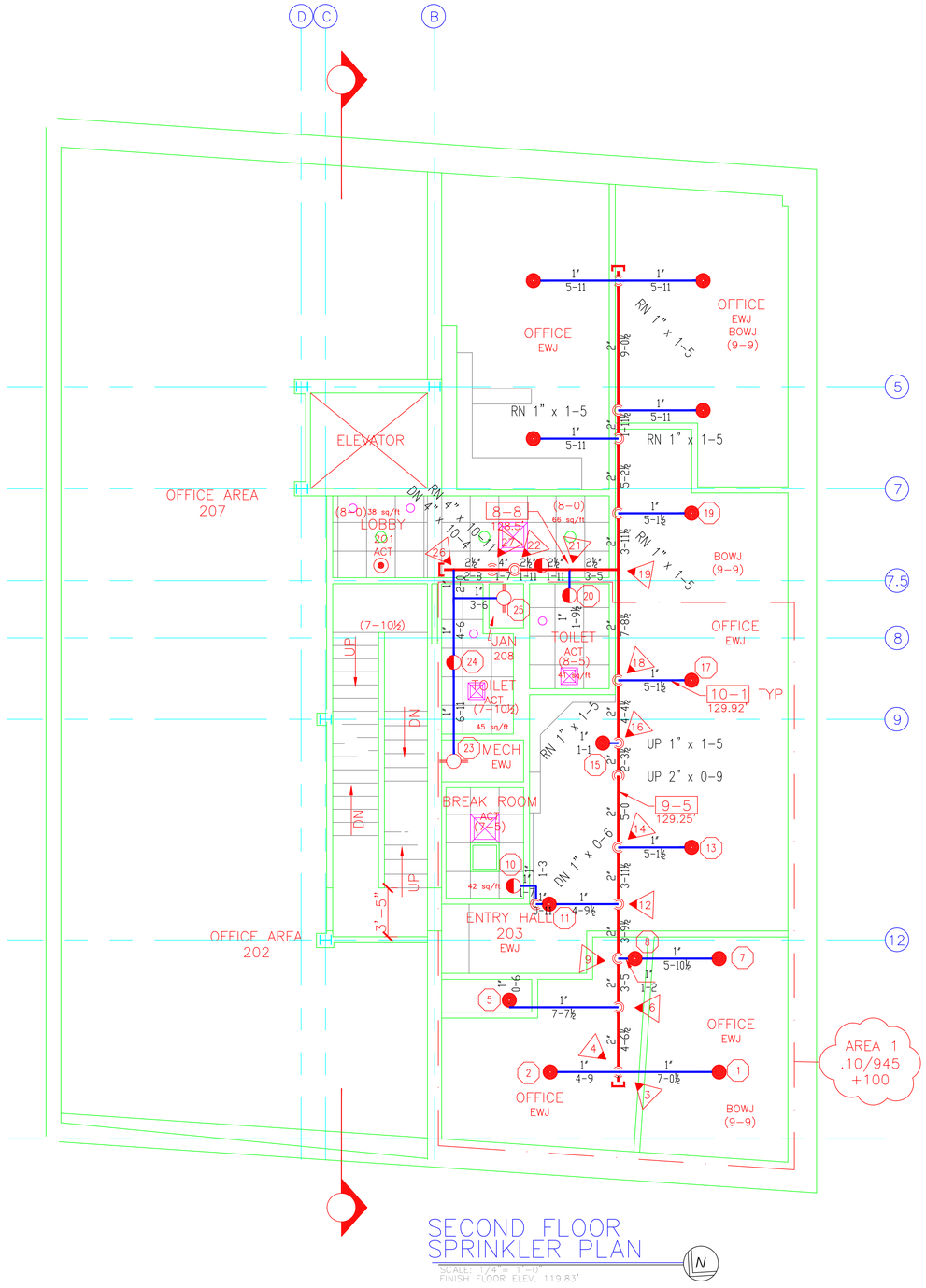
JOHN D. CARROLL BLOCK
136 COMMERCIAL STREET
PORTLAND, MAINE 04101

CONTRACT WITH SCOTT LINDSEY

SYSTEM TYPE	
WET	■
DRY	□
DELUGE	□
PREACTION	□
ME. LIFE	□
HYDRO-PRO	□

REVISIONS		
NO.	DATE	DESCRIPTION

SCALE	AS NOTED
DRAWN BY	JJP
CHECKED BY	CDS
DATE	12/15/2015
TOTAL SPRKS ON JOB	69
SHEET#	2 of 3
JOB#	15142



SECOND FLOOR SPRINKLER PLAN

SCALE: 1/4"= 1'-0"
FINISH FLOOR ELEV. 119.83'

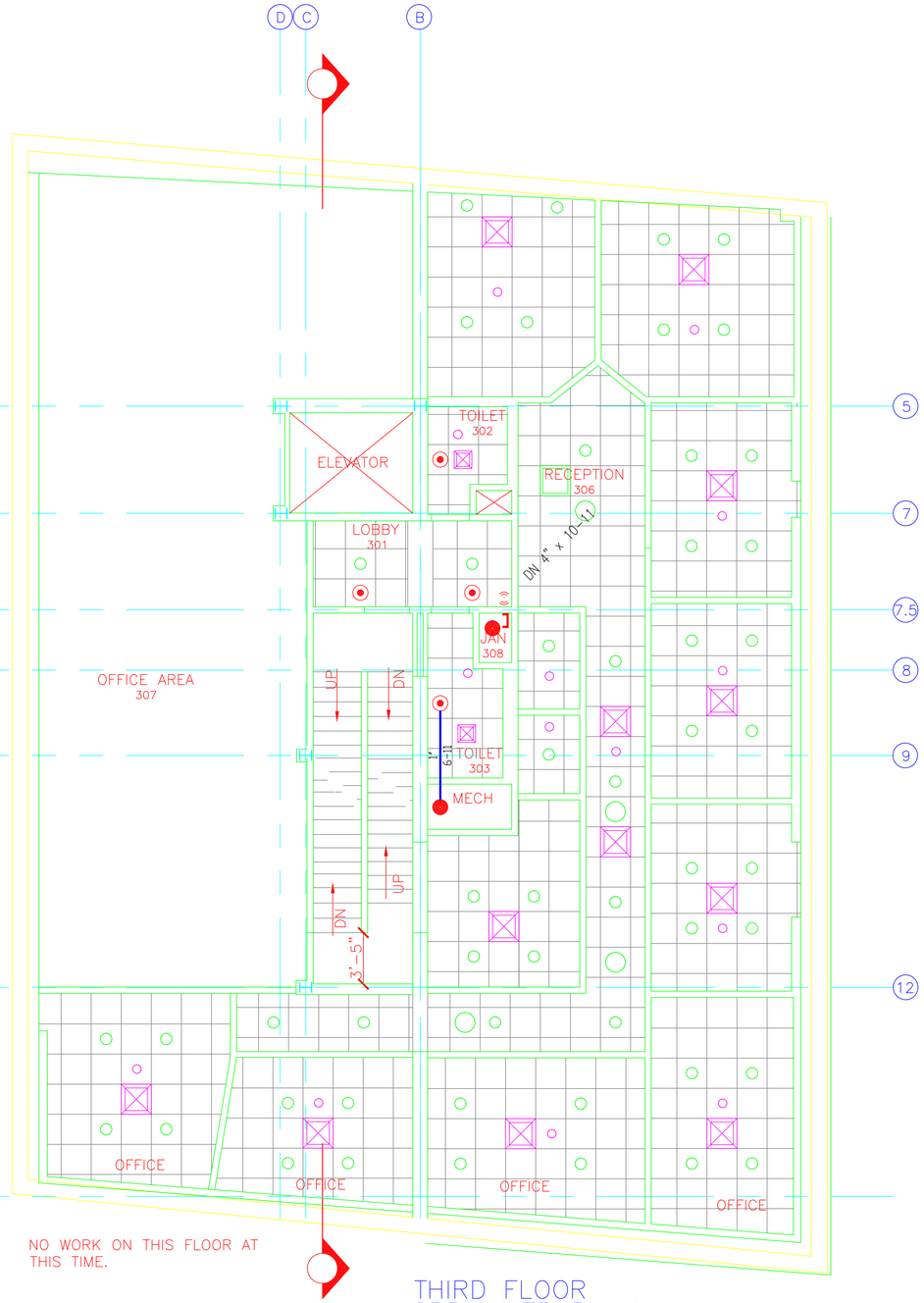
HYDRAULIC DATA NAMEPLATE

This Building is protected by a hydraulically designed Automatic Sprinkler System

Location AREA-1
No. of Sprinkler 14
Basis of design
1. Density .10 GPM/FT²
2. Design area of discharge 945 FT²
System Demand
1. Water Flow Rate @ Base/Pump 347.99 GPM
2. Residual Pressure @ Base/Pump 63.901 PSI

CUSHION = 43.44 psi

MOST REMOTE



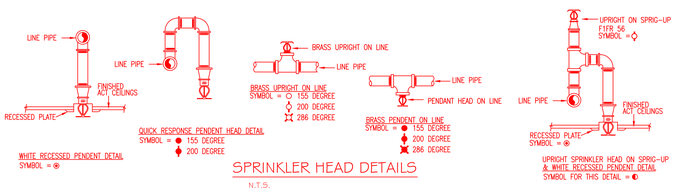
NO WORK ON THIS FLOOR AT THIS TIME.

THIRD FLOOR SPRINKLER PLAN

SCALE: 1/4"= 1'-0"
FINISH FLOOR ELEV. 131.38'

CEILING TYPE

EWJ	EXPOSED WOOD JOIST
TNG	TONGUE AND GROOVE WOOD DECK
MSC	METAL SLAT CEILING
ACT	ACOUSTICAL TILE CEILING



SPRINKLER HEAD DETAILS

N.T.S.

◐ ABOVE AND BELOW COVERAGE, ONE BRONZE UPRIGHT 200° HEAD AND ONE WHITE SEMI-RECESSED PENDENT 155°. SEE SPRINKLER HEAD DETAILS.

5 4 3 2 1 0 5 10 15 20

SPRINKLER HEAD LEGEND

SYMBOL	MAKE	MODEL	SIN	FINISH	TYPE	TEMP	NPT	ORIFICE	K-FACTOR	TOTAL
	RELIABLE	F1FR 56	RA1414	WHITE	SEMI-REC PENDENT	155° F	1/2"	1/2"	5.6	7
	RELIABLE	F1FR 56	RA1414	BRONZE	PENDENT	155° F	1/2"	1/2"	5.6	38
	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	155° F	1/2"	1/2"	5.6	1
	RELIABLE	F1FR 56	RA1425	BRONZE	UPRIGHT	200° F	1/2"	1/2"	5.6	12
	RELIABLE	F1FR 56	RA1435	WHITE	HORIZ SIDE WALL	155° F	1/2"	1/2"	5.6	11
									TOTAL	69

LICENSE# 093
R.M.S.# 442
PERMIT # ????

SPRINKLER SYSTEMS INC.

P.O. BOX 1285
LEWISTON MAINE
04243-1285

SUBMITTAL COPY

JOHN D. CARROLL BLOCK
136 COMMERCIAL STREET
PORTLAND, MAINE 04101

CONTRACT WITH SCOTT LINDSEY

SYSTEM TYPE
WET ■
DRY □
DELUGE □
PREACTION □
ME. LIFE □
HYDRO-PRO □

REVISIONS

NO.	DATE	DESCRIPTION

SCALE AS NOTED
DRAWN BY JJP
CHECKED BY CDS
DATE 12/15/2015
TOTAL SPKRS ON JOB 69
SHEET# 3 of 3
JOB# 15142