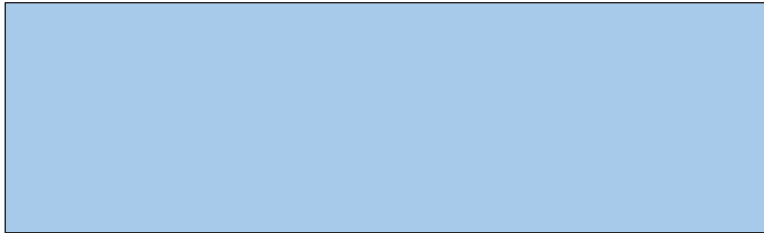


CENTRAL PARK JOB WEST Fire Sprinkler Reports

for



Prepared By:
EJZ Engineering

5/13/2018



General Project Data Report

General Data

Project Title:	Central Park Job West	Project File Name:	474 CPW..fiw
Designed By:	EJZ Engineering	Date:	5/13/2018
Code Reference:	2007-NFPA 13	Approving Agency:	
Client Name:		Phone:	
Address:		City, State Zip Code:	
Company Name:		Representative:	
Company Address:		City And State:	
Phone:			
Building Name:	474 Central Park West	Building Owner:	
Contact at Building:		Phone at Building:	
Address Of Building:		City, State Zip Code:	

Project Data

Description Of Hazard:	Light Hazard	Sprinkler System Type:	Wet
Design Area Of Water Application:	900 ft²	Maximum Area Per Sprinkler:	196 ft²
Default Sprinkler K-Factor:	5.60 K	Default Pipe Material:	SCHED 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:	Model:	
Size:	Temperature Rating:	0 F

Water Supply Test Data

Source Of Information:		Date Of Test:	
Test Hydrant ID:			
Hydrant Elevation:	0 ft	Static Pressure:	89.00 psi
Test Flow Rate:	500.00 gpm	Test Residual Pressure:	88.00 psi
Calculated System Flow Rate:	146.75 gpm	Calculated Inflow Residual Pressure:	54.27 psi
Available Residual Pressure At System Flow:	88.9 psi		

Calculation Project Data

Calculation Mode:	Demand		
HMD Minimum Residual Pressure:	7.00 psi	Minimum Desired Flow Density:	0.10 gpm/ft²
Number Of Active Nodes:	20		
Number Of Active Pipes:	19	Number Of Inactive Pipes:	0
Number Of Active Sprinklers:	7	Number Of Inactive Sprinklers:	0



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- Stnd Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
1	No Discharge ----	---- 0.000	N/A 0.0	54.27 ----	0.00 0.0	0.00 0.00
5	No Discharge ----	---- 0.000	N/A 0.0	46.67 ----	-1.00 0.0	0.00 0.00
6	No Discharge ----	---- 0.000	N/A 0.0	45.67 ----	-1.00 0.0	0.00 0.00
10	No Discharge ----	---- 0.000	N/A 0.0	40.11 ----	3.00 0.0	0.00 0.00
15	No Discharge ----	---- 0.000	N/A 0.0	25.10 ----	3.00 0.0	0.00 0.00
20	No Discharge ----	---- 0.000	N/A 0.0	17.91 ----	9.00 0.0	0.00 0.00
25	No Discharge ----	---- 0.000	N/A 0.0	17.78 ----	9.00 0.0	0.00 0.00
30	No Discharge ----	---- 0.000	N/A 0.0	15.43 ----	9.00 0.0	0.00 0.00
31	Sprinkler ----	A 0.000	5.60 0.0	14.14 ----	9.00 0.0	0.00 0.00
35	No Discharge ----	---- 0.000	N/A 0.0	14.56 ----	9.00 0.0	0.00 0.00
36	Sprinkler ----	A 0.000	5.60 0.0	13.34 ----	9.00 0.0	0.00 0.00
40	No Discharge ----	---- 0.000	N/A 0.0	14.06 ----	9.00 0.0	0.00 0.00
41	Sprinkler ----	A 0.000	5.60 0.0	12.87 ----	9.00 0.0	0.00 0.00
45	No Discharge ----	---- 0.000	N/A 0.0	13.75 ----	9.00 0.0	0.00 0.00
46	Sprinkler ----	A 0.000	5.60 0.0	12.36 ----	9.00 0.0	0.00 0.00
47	Sprinkler ----	A 0.000	5.60 0.0	12.25 ----	9.00 0.0	0.00 0.00
50	No Discharge ----	---- 0.000	N/A 0.0	16.27 ----	9.00 0.0	0.00 0.00



Fire Sprinkler Input Data

Node Input Data (cont'd)

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- Stnd Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
51	Sprinkler ----	A 0.000	5.60 0.0	15.12 ----	9.00 0.0	0.00 0.00
55	No Discharge ----	---- 0.000	N/A 0.0	16.07 ----	9.00 0.0	0.00 0.00
56	Sprinkler ----	A 0.000	5.60 0.0	18.50 ----	0.00 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)
1	5	SCHED 40 WET STEEL	2.000	0	2ET2G	20.00	22.00	42.00	120
5	6	Meter	1.000	Loss					
6	10	SCHED 40 WET STEEL	2.000	0	2E	10.00	10.00	20.00	120
10	15	Backflo Prev	15.000	Loss					
15	20	SCHED 40 WET STEEL	2.000	0	T	14.00	10.00	24.00	120
20	25	SCHED 40 WET STEEL	2.000	0		6.00	0.00	6.00	120
20	30	SCHED 40 WET STEEL	2.000	0	T	16.00	10.00	26.00	120
30	31	SCHED 40 WET STEEL	1.000	0	ET	2.00	7.00	9.00	120
30	35	SCHED 40 WET STEEL	2.000	0		14.00	0.00	14.00	120
35	36	SCHED 40 WET STEEL	1.000	0	ET	2.00	7.00	9.00	120
35	40	SCHED 40 WET STEEL	2.000	0		14.00	0.00	14.00	120
40	41	SCHED 40 WET STEEL	1.000	0	ET	2.00	7.00	9.00	120
40	45	SCHED 40 WET STEEL	2.000	0	E	13.00	5.00	18.00	120
45	46	SCHED 40 WET STEEL	1.000	0	ET	4.00	7.00	11.00	120
45	47	SCHED 40 WET STEEL	1.000	0	ET	5.00	7.00	12.00	120
25	50	SCHED 40 WET STEEL	2.000	0	2ET	48.00	20.00	68.00	120
50	51	SCHED 40 WET STEEL	1.000	0	ET	0.50	7.00	7.50	120
50	55	SCHED 40 WET STEEL	2.000	0	ET	14.00	15.00	29.00	120
55	56	SCHED 40 WET STEEL	1.000	0	ET	1.00	7.00	8.00	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	5	0	146.75	0.00	0.00	-146.75	54.27	
5	1	0	-146.75	0.00	0.00	0.00	46.67	0.00327
5	6	0	146.75					
6	5	0	-146.75	0.00	0.00	0.00	45.67	-0.00327
6	10	0	146.75					
10	6	0	-146.75	0.00	0.00	0.00	40.11	0.00327
10	15	0	146.75					
15	10	0	-146.75	0.00	0.00	0.00	25.10	-0.00327
15	20	0	146.75					
20	15	0	-146.75	0.00	0.00	0.00	17.91	0.00000
20	25	0	45.86					
20	30	0	100.89					
25	20	0	-45.86	0.00	0.00	0.00	17.78	0.00000
25	50	0	45.86					
30	20	0	-100.89	0.00	0.00	0.00	15.43	0.00000
30	31	0	21.06					
30	35	0	79.83					
31	30	0	-21.06	21.06	0.00	0.00	14.14	0.00000
35	30	0	-79.83	0.00	0.00	0.00	14.56	0.00000
35	36	0	20.45					
35	40	0	59.38					
36	35	0	-20.45	20.45	0.00	0.00	13.34	0.00000
40	35	0	-59.38	0.00	0.00	0.00	14.06	0.00000
40	41	0	20.09					
40	45	0	39.29					
41	40	0	-20.09	20.09	0.00	0.00	12.87	0.00000
45	40	0	-39.29	0.00	0.00	0.00	13.75	0.00000
45	46	0	19.69					
45	47	0	19.60					
46	45	0	-19.69	19.69	0.00	0.00	12.36	0.00000
47	45	0	-19.60	19.60	0.00	0.00	12.25	0.00000
50	25	0	-45.86	0.00	0.00	0.00	16.27	0.00000
50	51	0	21.78					
50	55	0	24.08					
51	50	0	-21.78	21.78	0.00	0.00	15.12	0.00000



Fire Sprinkler Output Data

Overall Node Groupings Output Data (cont'd)

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)
55	50	0	-24.08	0.00	0.00	0.00	16.07	0.00000
55	56	0	24.08					
56	55	0	-24.08	24.08	0.00	0.00	18.50	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)
1	0.00	0.00	0.00	54.27	2.00	0.00	0.19117	20.00	8.029
5	0.00	-1.00	0.00	46.67	2.067	146.75	2ET2G	22.00	-0.433
	SCHED 40 WET STEEL				120	14.03	0	42.00	7.596
5	Meter	-1.00		46.67		146.75			
6	1.00 psi	-1.00		45.67					
6	0.00	-1.00	0.00	45.67	2.00	0.00	0.19117	10.00	3.823
10	0.00	3.00	0.00	40.11	2.067	146.75	2E	10.00	1.732
	SCHED 40 WET STEEL				120	14.03	0	20.00	5.555
10	Backflo Prev	3.00		40.11		146.75			
15	15.00 psi	3.00		25.10					
15	0.00	3.00	0.00	25.10	2.00	0.00	0.19117	14.00	4.588
20	0.00	9.00	0.00	17.91	2.067	146.75	T	10.00	2.598
	SCHED 40 WET STEEL				120	14.03	0	24.00	7.186
20	0.00	9.00	0.00	17.91	2.00	0.00	0.02223	6.00	0.133
25	0.00	9.00	0.00	17.78	2.067	45.86	----	0.00	0.000
	SCHED 40 WET STEEL				120	4.38	0	6.00	0.133
20	0.00	9.00	0.00	17.91	2.00	0.00	0.09557	16.00	2.485
30	0.00	9.00	0.00	15.43	2.067	100.89	T	10.00	0.000
	SCHED 40 WET STEEL				120	9.65	0	26.00	2.485
25	0.00	9.00	0.00	17.78	2.00	0.00	0.02223	48.00	1.511
50	0.00	9.00	0.00	16.27	2.067	45.86	2ET	20.00	0.000
	SCHED 40 WET STEEL				120	4.38	0	68.00	1.511
30	0.00	9.00	0.00	15.43	1.00	21.06	0.14318	2.00	1.289
31	5.60	9.00	21.06	14.14	1.049	21.06	ET	7.00	0.000
	SCHED 40 WET STEEL				120	7.82	0	9.00	1.289
30	0.00	9.00	0.00	15.43	2.00	0.00	0.06198	14.00	0.868
35	0.00	9.00	0.00	14.56	2.067	79.83	----	0.00	0.000
	SCHED 40 WET STEEL				120	7.63	0	14.00	0.868
35	0.00	9.00	0.00	14.56	1.00	20.45	0.13566	2.00	1.221
36	5.60	9.00	20.45	13.34	1.049	20.45	ET	7.00	0.000
	SCHED 40 WET STEEL				120	7.59	0	9.00	1.221
35	0.00	9.00	0.00	14.56	2.00	0.00	0.03585	14.00	0.502
40	0.00	9.00	0.00	14.06	2.067	59.38	----	0.00	0.000
	SCHED 40 WET STEEL				120	5.68	0	14.00	0.502



Fire Sprinkler Output Data

Overall Pipe Output Data (cont'd)

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)
40	0.00	9.00	0.00	14.06	1.00	20.09	0.13130	2.00	1.182
41	5.60	9.00	20.09	12.87	1.049	20.09	ET	7.00	0.000
SCHED 40 WET STEEL					120	7.46	0	9.00	1.182
40	0.00	9.00	0.00	14.06	2.00	0.00	0.01670	13.00	0.301
45	0.00	9.00	0.00	13.75	2.067	39.29	E	5.00	0.000
SCHED 40 WET STEEL					120	3.76	0	18.00	0.301
45	0.00	9.00	0.00	13.75	1.00	19.69	0.12648	4.00	1.391
46	5.60	9.00	19.69	12.36	1.049	19.69	ET	7.00	0.000
SCHED 40 WET STEEL					120	7.31	0	11.00	1.391
45	0.00	9.00	0.00	13.75	1.00	19.60	0.12541	5.00	1.505
47	5.60	9.00	19.60	12.25	1.049	19.60	ET	7.00	0.000
SCHED 40 WET STEEL					120	7.28	0	12.00	1.505
50	0.00	9.00	0.00	16.27	1.00	21.78	0.15239	0.50	1.143
51	5.60	9.00	21.78	15.12	1.049	21.78	ET	7.00	0.000
SCHED 40 WET STEEL					120	8.08	0	7.50	1.143
50	0.00	9.00	0.00	16.27	2.00	0.00	0.00675	14.00	0.196
55	0.00	9.00	0.00	16.07	2.067	24.08	ET	15.00	0.000
SCHED 40 WET STEEL					120	2.30	0	29.00	0.196
55	0.00	9.00	0.00	16.07	1.00	24.08	0.18361	1.00	1.469
56	5.60	0.00	24.08	18.50	1.049	24.08	ET	7.00	-3.897
SCHED 40 WET STEEL					120	8.94	0	8.00	-2.428



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 (ft²)	Flowing Density (gpm/ft²)	Sprinkler Discharge (gpm)
31	A	5.60	9.00	14.14	196.00	0.107	21.06
36	A	5.60	9.00	13.34	196.00	0.104	20.45
41	A	5.60	9.00	12.87	196.00	0.103	20.09
46	A	5.60	9.00	12.36	196.00	0.100	19.69
47	A	5.60	9.00	12.25	196.00	0.100	19.60
51	A	5.60	9.00	15.12	196.00	0.111	21.78
56	A	5.60	0.00	18.50	196.00	0.123	24.08
Sub Totals For Group A					1372.00	0.107	146.75
Totals For All Groups					1372.00	0.107	146.75



Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	47
HMD Actual Residual Pressure:	12.25 psi
HMD Actual GPM:	19.60 gpm

Sprinkler Summary

Sprinkler System Type:	Wet
Specified Area Of Application:	900.00 ft ²
Minimum Desired Density:	0.100 gpm/ft ²
Application Average Density:	0.163 gpm/ft ²
Application Average Area Per Sprinkler:	128.57 ft ²
Sprinkler Flow:	146.75 gpm
Average Sprinkler Flow:	20.96 gpm

Flow Velocity And Imbalance Summary

Maximum Flow Velocity (In Pipe 5 - 1)	14.03 ft/sec
Maximum Velocity Pressure (In Pipe 5 - 1)	1.32 psi
Allowable Maximum Nodal Pressure Imbalance:	0.0010 psi
Actual Maximum Nodal Pressure Imbalance:	0.0007 psi
Actual Average Nodal Pressure Imbalance:	0.0001 psi
Actual Maximum Nodal Flow Imbalance:	-0.0033 gpm
Actual Average Nodal Flow Imbalance:	0.0007 gpm

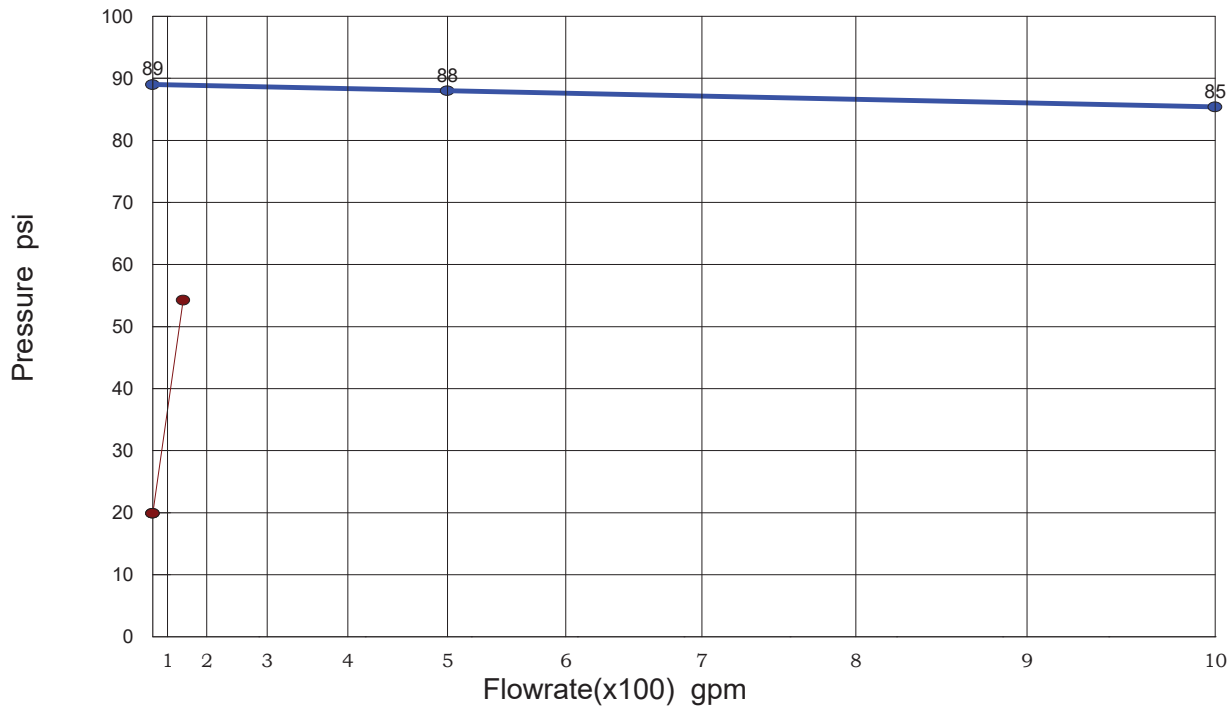
Overall Network Summary

Number Of Unique Pipe Sections:	19
Number Of Flowing Sprinklers:	7
Pipe System Water Volume:	30.20 gal
Sprinkler Flow:	146.75 gpm
Non-Sprinkler Flow:	0.00 gpm
Minimum Required Residual Pressure At System Inflow Node:	54.27 psi
Demand Flow At System Inflow Node:	146.75 gpm



Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Supply Curve Data

Static Pressure: 89 psi

Test Residual Pressure: 88 psi

Test Flow Rate: 500 gpm

Demand Curve Data

Calculated Residual Pressure: 54.27 psi

Calculated Flow Rate: 146.75 gpm

Excess Available Residual Pressure At Calculated Flow: 34.63 psi

Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: 19.90 psi