

CONSTRUCT A ONE FAMILY TWO STORY Fire Sprinkler Reports

for

JSHAS REALTY CORP
387 GRIMSBY STREET
STATEN ISLAND NY 10306



Prepared By:

AS

DESIGN BUILD S.I., INC
503 MOSELY AVENUE SUITE 1
Staten Island NY 10312
718-996-4558
03/06/2017



General Project Data Report

General Data

Project Title:	CONSTRUCT A ONE FAMILY TWO STORY	Project File Name:	Hydraulic_Cal.031617..fiw
Designed By:	AS	Date:	03/06/2017
Code Reference:	2007 NFPA 13D AS AMENDED BY APPENDIX 'Q'	Approving Agency:	NYC D.O.B.
Client Name:	JSHAS REALTY CORP	Phone:	718-442-6800
Address:	387 GRIMSBY STREET	City, State Zip Code:	STATEN ISLAND NY 10306
Company Name:	DESIGN BUILD S.I., INC	Representative:	GIUSEPPE BONOMO
Company Address:	503 MOSELY AVENUE SUITE 1	City And State:	Staten Island NY 10312
Phone:	718-996-4558		
Building Name:	387 GRIMSBY STREET	Building Owner:	JSHAS REALTY CORP
Contact at Building:	ANDREW CALCAGNO, OWNER	Phone at Building:	718-442-6800
	718-442-6800		
Address Of Building:	387 GRIMSBY STREET	City, State Zip Code:	STATEN ISLAND NY 10306

Project Data

Description Of Hazard:	Light Hazard	Sprinkler System Type:	Wet
Design Area Of Water Application:	137 ft ²	Maximum Area Per Sprinkler:	225 ft ²
Default Sprinkler K-Factor:	4.30 K	Default Pipe Material:	SCHED 40 WET STEEL
Inside Hose Stream Allowance:	0.00 gpm	Outside Hose Stream Allowance:	250.00 gpm
In Rack Sprinkler Allowance:	0.00 gpm		
Sprinkler Specifications			
Make:	RELIABLE	Model:	RFC43
Size:	.5	Temperature Rating:	165 F

Water Supply Test Data

Source Of Information:	NYCDEP		
Test Hydrant ID:	File:FT2017-0254-514482	Date Of Test:	02/28/2017 10:20 AM
Hydrant Elevation:	0 ft	Static Pressure:	67.00 psi
Test Flow Rate:	500.00 gpm	Test Residual Pressure:	64.00 psi

Calculation Project Data

Calculation Mode:	Supply		
System Inflow Number:	8.00	Specified Inflow Node Residual Pressure:	67.00 psi
Number Of Active Nodes:	8		
Number Of Active Pipes:	7	Number Of Inactive Pipes:	0
Number Of Active Sprinklers:	1	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	Sprinkler ----	---- 0.000	4.30 0.0	47.91 ----	22.00 0.0	0.00 0.00
2	No Discharge ----	---- 0.000	N/A 0.0	53.19 ----	22.00 0.0	0.00 0.00
3	No Discharge ----	---- 0.000	N/A 0.0	53.54 ----	22.00 0.0	0.00 0.00
4	No Discharge ----	---- 0.000	N/A 0.0	62.16 ----	4.00 0.0	0.00 0.00
5	No Discharge ----	---- 0.000	N/A 0.0	62.77 ----	4.00 0.0	0.00 0.00
6	No Discharge ----	---- 0.000	N/A 0.0	64.66 ----	0.00 0.0	0.00 0.00
7	No Discharge ----	---- 0.000	N/A 0.0	65.66 ----	0.00 0.0	0.00 0.00
8	No Discharge ----	---- 0.000	N/A 0.0	67.00 ----	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	2	SCHED 40 WET STEEL	1.000	0		19.42	0.00	19.42	120
2	3	SCHED 40 WET STEEL	1.250	0		4.92	0.00	4.92	120
3	4	SCHED 40 WET STEEL	1.500	0		24.42	0.00	24.42	120
4	5	SCHED 40 WET STEEL	1.500	0		18.00	0.00	18.00	120
5	6	SCHED 40 WET STEEL	1.500	0		4.75	0.00	4.75	120
6	7	Backflo Prev	1.000	Loss					
7	8	SCHED 40 WET STEEL	1.500	0		39.83	0.00	39.83	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	2	0	-29.77	29.76	0.00	0.00	47.91	
2	1	0	29.77	0.00	0.00	0.00	53.19	-0.00001
2	3	0	-29.77					
3	2	0	29.77	0.00	0.00	0.00	53.54	0.00000
3	4	0	-29.77					
4	3	0	29.77	0.00	0.00	0.00	62.16	0.00000
4	5	0	-29.77					
5	4	0	29.77	0.00	0.00	0.00	62.77	0.00001
5	6	0	-29.77					
6	5	0	29.77	0.00	0.00	0.00	64.66	-0.00001
6	7	0	-29.77					
7	6	0	29.77	0.00	0.00	0.00	65.66	0.00003
7	8	0	-29.77					
8	7	0	29.77	0.00	0.00	-29.77	67.00	



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	4.30	22.00	29.76	47.91	1.00	29.76	0.27168	19.42	5.276
2	0.00	22.00	0.00	53.19	1.049	29.77	-----	0.00	0.000
SCHED 40 WET STEEL					120	11.05	0	19.42	5.276
2	0.00	22.00	0.00	53.19	1.25	0.00	0.07145	4.92	0.352
3	0.00	22.00	0.00	53.54	1.380	29.77	-----	0.00	0.000
SCHED 40 WET STEEL					120	6.38	0	4.92	0.352
3	0.00	22.00	0.00	53.54	1.50	0.00	0.03373	24.42	0.824
4	0.00	4.00	0.00	62.16	1.610	29.77	-----	0.00	7.794
SCHED 40 WET STEEL					120	4.69	0	24.42	8.618
4	0.00	4.00	0.00	62.16	1.50	0.00	0.03373	18.00	0.607
5	0.00	4.00	0.00	62.77	1.610	29.77	-----	0.00	0.000
SCHED 40 WET STEEL					120	4.69	0	18.00	0.607
5	0.00	4.00	0.00	62.77	1.50	0.00	0.03373	4.75	0.160
6	0.00	0.00	0.00	64.66	1.610	29.77	-----	0.00	1.732
SCHED 40 WET STEEL					120	4.69	0	4.75	1.892
6	Backflo Prev	0.00		64.66		29.77			
7	1.00 psi	0.00		65.66					
7	0.00	0.00	0.00	65.66	1.50	0.00	0.03373	39.83	1.343
8	0.00	0.00	0.00	67.00	1.610	29.77	-----	0.00	0.000
SCHED 40 WET STEEL					120	4.69	0	39.83	1.343



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)
1		4.30	22.00	47.91	225.00	0.132	29.76
Sub Totals For Non-Group					225.00	0.132	29.76
Totals For All Groups					225.00	0.132	29.76



Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	1
HMD Actual Residual Pressure:	47.91 psi
HMD Actual GPM:	29.76 gpm

Sprinkler Summary

Sprinkler System Type:	Wet
Specified Area Of Application:	137.00 ft ²
Minimum Desired Density:	0.050 gpm/ft ²
Application Average Density:	0.217 gpm/ft ²
Application Average Area Per Sprinkler:	137.00 ft ²
Sprinkler Flow:	29.76 gpm
Average Sprinkler Flow:	29.76 gpm

Flow Velocity And Imbalance Summary

Maximum Flow Velocity (In Pipe 1 - 2)	11.05 ft/sec
Maximum Velocity Pressure (In Pipe 1 - 2)	0.82 psi
Allowable Maximum Nodal Pressure Imbalance:	0.0100 psi
Actual Maximum Nodal Pressure Imbalance:	0.0056 psi
Actual Average Nodal Pressure Imbalance:	0.0034 psi
Actual Maximum Nodal Flow Imbalance:	0.0000 gpm
Actual Average Nodal Flow Imbalance:	0.0000 gpm

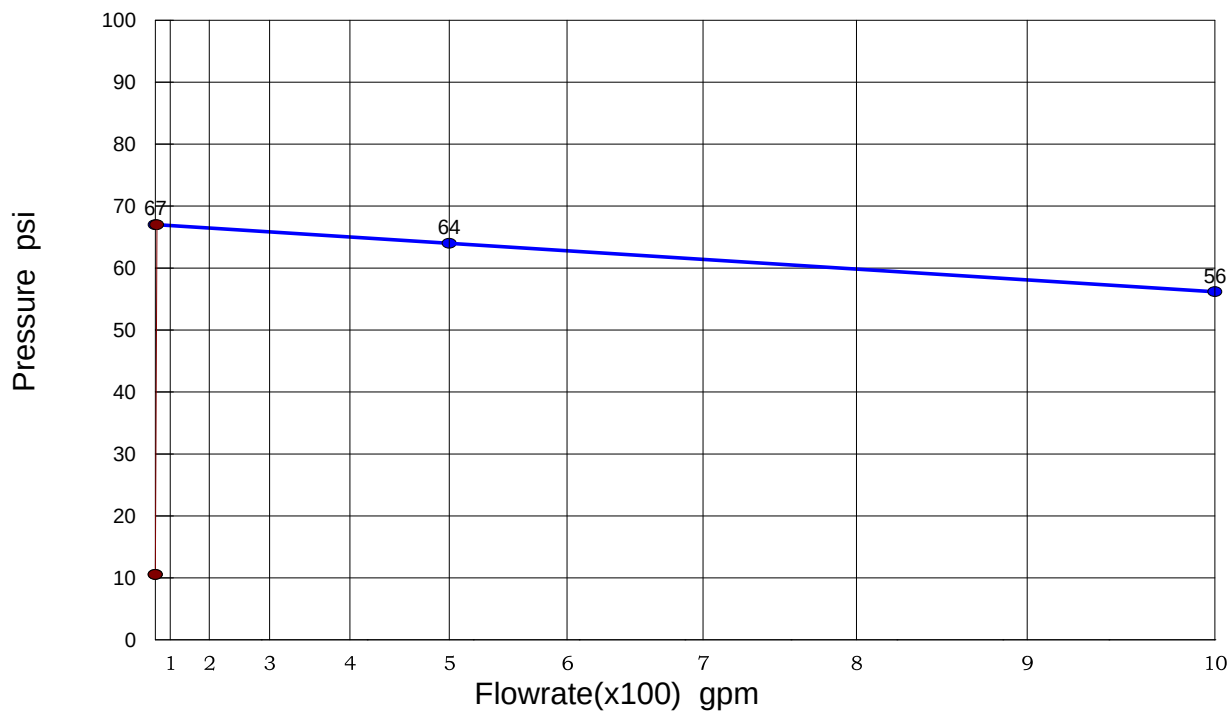
Overall Network Summary

Number Of Unique Pipe Sections:	7
Number Of Flowing Sprinklers:	1
Pipe System Water Volume:	15.10 gal
Sprinkler Flow:	29.76 gpm
Non-Sprinkler Flow:	0.00 gpm
Specified Residual Pressure At System Inflow Node:	67.00 psi
Demand Flow At System Inflow Node:	29.77 gpm



Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Supply Curve Data

Static Pressure: 67 psi
Test Residual Pressure: 64 psi
Test Flow Rate: 500 gpm

Demand Curve Data

Calculated Residual Pressure: 67.00 psi
Calculated Flow Rate: 29.77 gpm
Excess Available Residual Pressure At Calculated Flow: -0.02 psi
Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: 10.53 psi



Giuseppe Bonomo