

ISELIN NJ

HYDRAULIC CALCULATIONS FOR
DIA GALLERY 1ST FLOOR

DRAWING NUMBER: SP-201

DATE: SEP 3, 2020

-DESIGN DATA-

REMOTE AREA NUMBER:

REMOTE AREA LOCATION: 1ST FLOOR

OCCUPANCY CLASSIFICATION: LIGHT

DENSITY: 0.10 gpm/sq. ft.

AREA OF APPLICATION: 975 sq. ft.

COVERAGE PER SPRINKLER: 90 sq. ft.

TYPE OF SPRINKLERS CALCULATED: QUICK RESPONSE

NUMBER OF SPRINKLERS CALCULATED: 11

*IN-RACK SPRINKLER DEMAND: N/A gpm

HOSE-STREAM DEMAND: N/A gpm

TOTAL WATER REQUIRED (INCLUDING HOSE): 226.2 gpm

FLOW AND PRESSURE (AT BASE OF RISER): 500 gpm @ 95 psi

TYPE OF SYSTEM: WET

*VOLUME OF DRY OR PREACTION SYSTEM: N/A

*DETAILS: N/A

WATER SUPPLY

Source: TANK Test Date: Test By:

Location: ROOF

Static: 100 psi Residual: 99 psi Flow: 500.0 gpm

Source Elevation Relative to Finished Flow Level: 85 ft.

INSTALLING CONTRACTOR

Name:

Address:

Phone: Certification number:

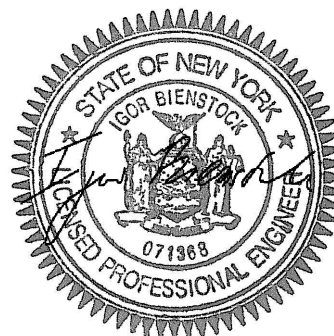
NAME OF DESIGNER: ICOR ASSOCIATES

AUTHORITY HAVING JURISDICTION: NYC DOB

NOTES:

Calculations performed by HASS under license # 64633674 ,
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

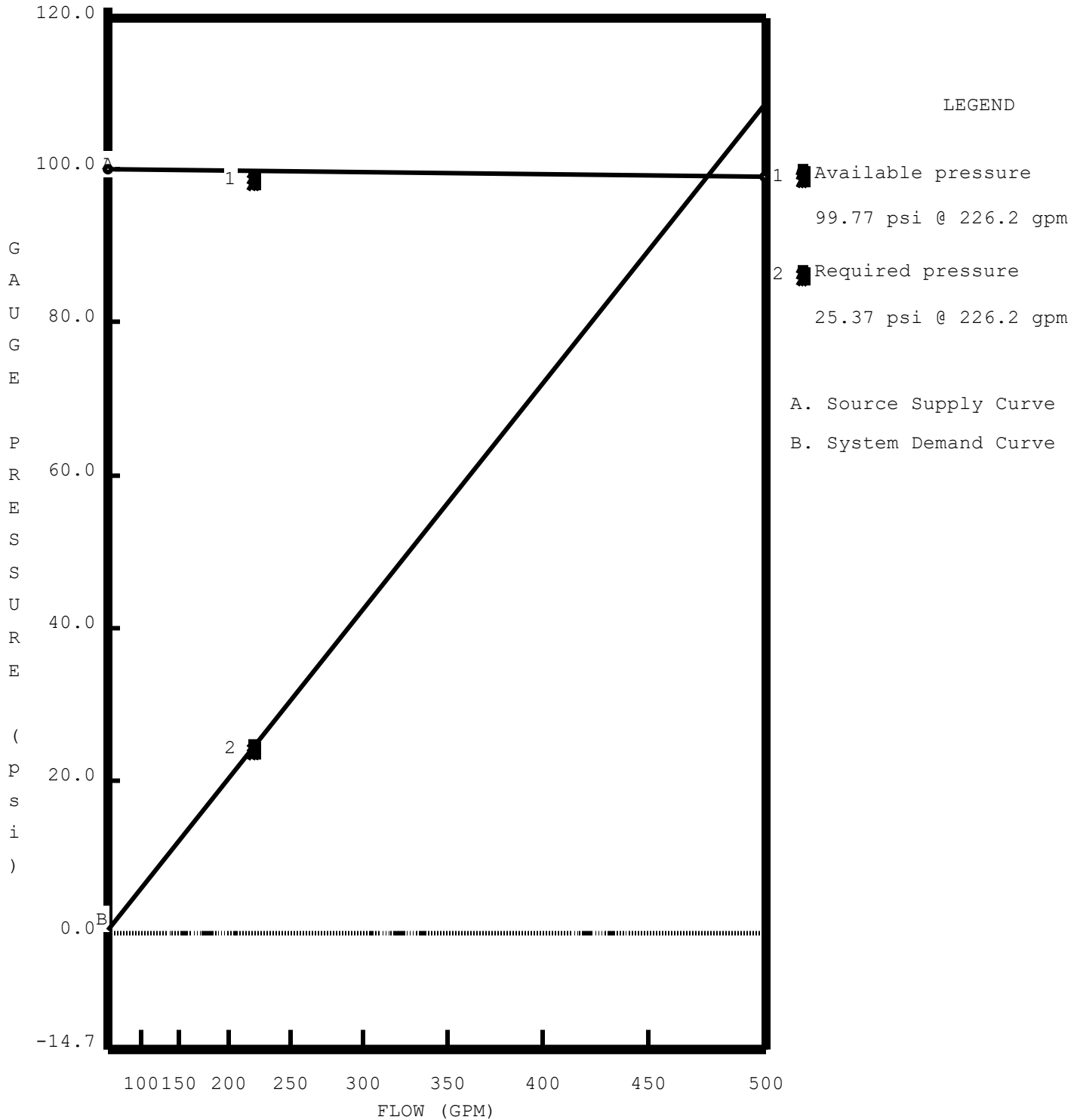


DATE: 9/3/2020TECTION\CALCULATIONS\0639-DIA 1ST FLOOR - FINAL ASBUILT.SDF

JOB TITLE:

WATER SUPPLY ANALYSIS

Static: 100.00 psi Resid: 99.00 psi Flow: 500.0 gpm



Note: (1) Dashed Lines indicate extrapolated values from Test Results

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JOB TITLE:

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SOURCE	100.0	99.0	500.0	99.8	226.2	25.4

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	226.2 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	226.2 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
1	13.5	K= 5.60	8.0	15.8	
2	13.5	K= 5.60	9.0	16.8	
3	13.5	K= 5.60	12.3	19.6	
4	13.5	K= 5.60	13.6	20.7	
5	13.5	K= 5.60	15.4	22.0	
6	13.5	K= 5.60	15.1	21.7	
7	13.5	K= 5.60	15.2	21.8	
8	13.5	K= 5.60	15.7	22.2	
9	13.5	K= 5.60	15.4	22.0	
10	13.5	K= 5.60	15.0	21.7	
11	13.5	K= 5.60	15.2	21.8	
12	12.5	- - - -	10.0	- - -	
13	12.5	- - - -	13.5	- - -	
14	12.5	- - - -	15.0	- - -	
15	12.5	- - - -	16.5	- - -	
16	12.5	- - - -	16.7	- - -	
17	12.5	- - - -	17.4	- - -	
18	12.5	- - - -	16.5	- - -	
19	12.5	- - - -	16.7	- - -	
20	12.5	- - - -	23.9	- - -	
21	12.5	- - - -	24.1	- - -	
22	12.5	- - - -	25.2	- - -	
23	12.5	- - - -	17.3	- - -	
24	12.5	- - - -	17.4	- - -	
25	12.5	- - - -	20.2	- - -	
26	12.5	- - - -	21.3	- - -	
27	12.5	- - - -	18.8	- - -	
28	12.5	- - - -	19.6	- - -	
29	12.5	- - - -	16.5	- - -	
30	12.5	- - - -	16.5	- - -	
SOURCE	12.5	SOURCE	25.4	226.2	

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JOB TITLE:

NFPA3 PIPE DATA

Pipe Tag	K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Eq.Ln.	F	Pf/ft.	(Pe)	Notes
Frm Node	El (ft)	PT	Tot. (Q)	Disch	Act ID	(ft.)	T	(Pf)	
Pipe: 1		5.60	15.8	Disch			16.50	120	8.0
1	13.5	8.0	0.0		1.000	E: 2.0	2.00		0.4
12	12.5	10.0	15.8		1.049		18.50	0.085	1.6
Pipe: 2		5.60	16.8	Disch			1.50	120	9.0
2	13.5	9.0	0.0		1.000	T: 5.0	5.00		0.4
12	12.5	10.0	16.8		1.049		6.50	0.094	0.6
Pipe: 3		0.0	0.0				11.00	120	10.0
12	12.5	10.0	32.6		1.000	----	0.00		0.0
13	12.5	13.5	32.6		1.049		11.00	0.321	3.5
Pipe: 4		5.60	19.6	Disch			1.50	120	12.3
3	13.5	12.3	0.0		1.000	T: 5.0	5.00		0.4
13	12.5	13.5	19.6		1.049		6.50	0.126	0.8
Pipe: 5		0.0	32.6	12			15.00	120	13.5
13	12.5	13.5	19.6	3	1.500	----	0.00		0.0
14	12.5	15.0	52.2		1.610		15.00	0.095	1.4
Pipe: 6		5.60	20.7	Disch			1.50	120	13.6
4	13.5	13.6	0.0		1.000	T: 5.0	5.00		0.4
14	12.5	15.0	20.7		1.049		6.50	0.138	0.9
Pipe: 7		0.0	52.2	13			5.00	120	15.0
14	12.5	15.0	20.7	4	1.500	T: 8.0	8.00		0.0
23	12.5	17.3	72.9		1.610		13.00	0.177	2.3
Pipe: 8		0.0	0.0				2.00	120	17.3
23	12.5	17.3	72.9	14	2.000	----	0.00		0.0
24	12.5	17.4	72.9		2.067		2.00	0.052	0.1
Pipe: 9		5.60	22.0	Disch			2.00	120	15.4
9	13.5	15.4	0.0		1.000	E: 2.0	2.00		0.4
29	12.5	16.5	22.0		1.049		4.00	0.155	0.6
Pipe: 10		0.0	0.0				8.00	120	16.5
29	12.5	16.5	22.0		2.000	----	0.00		0.0
18	12.5	16.5	22.0		2.067		8.00	0.006	0.0
Pipe: 11		5.60	21.7	Disch			2.00	120	15.0
10	13.5	15.0	0.0		1.000	T: 5.0	5.00		0.4
18	12.5	16.5	21.7		1.049		7.00	0.152	1.1
Pipe: 12		0.0	22.0	29			8.00	120	16.5
18	12.5	16.5	21.7	10	2.000	----	0.00		0.0
19	12.5	16.7	43.7		2.067		8.00	0.020	0.2

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JOB TITLE:

Pipe Tag		K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F		(Pe)	Notes
Frm Node	El (ft)	PT	Tot. (Q)	Disch	Act ID	(ft.)	T	Pf/ft.	(Pf)	
Pipe: 13		5.60	21.8	Disch			2.00	120	15.2	
11	13.5	15.2	0.0		1.000	T: 5.0	5.00		0.4	
19	12.5	16.7	21.8		1.049		7.00	0.153	1.1	
Pipe: 14		0.0	43.7	18			5.50	120	16.7	
19	12.5	16.7	21.8	11	2.000	T:10.0	10.00		0.0	
24	12.5	17.4	65.5		2.067		15.50	0.043	0.7	
Pipe: 15		0.0	65.5	19			40.00	120	17.4	
24	12.5	17.4	72.9	23	2.500	----	0.00		0.0	
25	12.5	20.2	138.4		2.469		40.00	0.072	2.9	
Pipe: 16		5.60	22.0	Disch			2.00	120	15.4	
5	13.5	15.4	0.0		1.000	E: 2.0	2.00		0.4	
30	12.5	16.5	22.0		1.049		4.00	0.155	0.6	
Pipe: 17		0.0	0.0				8.00	120	16.5	
30	12.5	16.5	22.0		2.000	----	0.00		0.0	
15	12.5	16.5	22.0		2.067		8.00	0.006	0.0	
Pipe: 18		5.60	21.7	Disch			2.00	120	15.1	
6	13.5	15.1	0.0		1.000	T: 5.0	5.00		0.4	
15	12.5	16.5	21.7		1.049		7.00	0.152	1.1	
Pipe: 19		0.0	22.0	30			8.00	120	16.5	
15	12.5	16.5	21.7	6	2.000	----	0.00		0.0	
16	12.5	16.7	43.7		2.067		8.00	0.020	0.2	
Pipe: 20		5.60	21.8	Disch			2.00	120	15.2	
7	13.5	15.2	0.0		1.000	T: 5.0	5.00		0.4	
16	12.5	16.7	21.8		1.049		7.00	0.153	1.1	
Pipe: 21		0.0	43.7	15			10.50	120	16.7	
16	12.5	16.7	21.8	7	2.000	E: 5.0	5.00		0.0	
17	12.5	17.4	65.6		2.067		15.50	0.043	0.7	
Pipe: 22		5.60	22.2	Disch			3.00	120	15.7	
8	13.5	15.7	0.0		1.000	T: 5.0	5.00		0.4	
17	12.5	17.4	22.2		1.049		8.00	0.158	1.3	
Pipe: 23		0.0	65.6	16			19.00	120	17.4	
17	12.5	17.4	22.2	8	2.000	----	0.00		0.0	
27	12.5	18.8	87.7		2.067		19.00	0.074	1.4	
Pipe: 24		0.0	0.0				13.50	120	18.8	
27	12.5	18.8	87.7	17	2.500	T:12.0	12.00		0.0	
28	12.5	19.6	87.7		2.469		25.50	0.031	0.8	
Pipe: 25		0.0	0.0				48.00	120	19.6	
28	12.5	19.6	87.7	27	3.000	T:15.0	15.00		0.0	
25	12.5	20.2	87.7		3.068		63.00	0.011	0.7	

Notes

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JOB TITLE:

Pipe Tag	K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)	Notes
Frm Node	El (ft)	PT	Tot. (Q)	Disch	Act ID	(ft.)	T	Pf/ft.	(Pf)
Pipe: 26		0.0	87.7	28			1.50	120	20.2
25	12.5	20.2	138.4	24	3.000	T:15.0	15.00		0.0
26	12.5	21.3	226.2		3.068		16.50	0.062	1.0
Pipe: 27		0.0	0.0				21.00	120	21.3
26	12.5	21.3	226.2	25	3.000	E: 7.0	22.00		0.0
20	12.5	23.9	226.2		3.068	T:15.0	43.00	0.062	2.7
Pipe: 28		0.0	0.0				2.00	120	23.9
20	12.5	23.9	226.2	26	3.000	----	0.00		0.0
21	12.5	24.1	226.2		3.068		2.00	0.062	0.1
Pipe: 29		0.0	0.0				2.00	120	24.1
21	12.5	24.1	226.2	20	3.000	C:16.0	17.00		0.0
22	12.5	25.2	226.2		3.068	G: 1.0	19.00	0.062	1.2
Pipe: 30		0.0	0.0				2.00	120	25.2
22	12.5	25.2	226.2	21	3.000	----	0.00		0.0
SOURCE	12.5	25.4	226.2		3.068		2.00	0.062	0.1

NOTES (HASS):

- (1) Calculations were performed by the HASS 2020 D computer program in accordance with NFPA13 (2016) under license no. 64633674 granted by
HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760
- (2) The system has been calculated to provide an average imbalance at each node of 0.004 gpm and a maximum imbalance at any node of 0.110 gpm.
- (3) Total pressure at each node is used in balancing the system. Maximum water velocity is 12.1 ft/sec at pipe 3.
- (4) Items listed in bold print on the cover sheet

are automatically transferred from the calculation report.
- (5) Available pressure at source node SOURCE under full flow conditions is 99.14 psi with a flow of 460.42 gpm.

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 JOB TITLE:

(6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard.pip

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee

	F F45Ell								
1.049	2.00	5.00	2.00	5.00	6.00	1.00	10.00	2.00	5.00
	1.00								
1.610	4.00	8.00	2.00	9.00	6.00	1.00	10.00	10.00	8.00
	2.00								
2.067	5.00	10.00	3.00	11.00	6.00	1.00	10.00	10.00	10.00
	2.50								
2.469	6.00	12.00	4.00	14.00	7.00	1.00	10.00	10.00	12.00
	3.00								
3.068	7.00	15.00	5.00	16.00	10.00	1.00	13.00	13.00	15.00
	3.50								

ICOR ASSOCIATES, LLC
485C ROUTE 1 SOUTH, SUITE 200
ISELIN, NJ

HYDRAULIC CALCULATIONS FOR
DIA GALLERY 6TH FLOOR

DRAWING NUMBER: SP-206

DATE: SEP 3, 2020

-DESIGN DATA-

REMOTE AREA NUMBER:

REMOTE AREA LOCATION: 6TH FLOOR

OCCUPANCY CLASSIFICATION: LIGHT HAZARD

DENSITY: 0.10 gpm/sq. ft.

AREA OF APPLICATION: 975 sq. ft.

COVERAGE PER SPRINKLER: 50 sq. ft.

TYPE OF SPRINKLERS CALCULATED: QUICK RESPONSE

NUMBER OF SPRINKLERS CALCULATED: 20

*IN-RACK SPRINKLER DEMAND: N/A gpm

HOSE-STREAM DEMAND: N/A gpm

TOTAL WATER REQUIRED (INCLUDING HOSE): 368.1 gpm

FLOW AND PRESSURE (AT BASE OF RISER): gpm @ psi

TYPE OF SYSTEM: WET

*VOLUME OF DRY OR PREACTION SYSTEM: N/A

*DETAILS: N/A

WATER SUPPLY

Source: TANK Test Date: Test By:

Location: ROOF

Static: 82 psi Residual: 81 psi Flow: 500.0 gpm

Source Elevation Relative to Finished Flow Level: ft.

INSTALLING CONTRACTOR

Name:

Address:

Phone: Certification number:

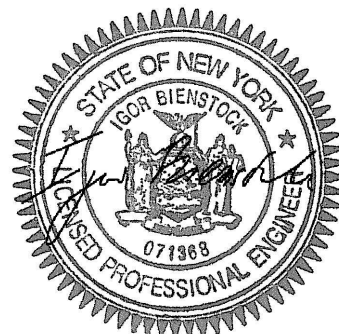
NAME OF DESIGNER: ICOR ASSOCIATES

AUTHORITY HAVING JURISDICTION: NYC DOB

NOTES:

Calculations performed by HASS under license # 64633674 ,
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

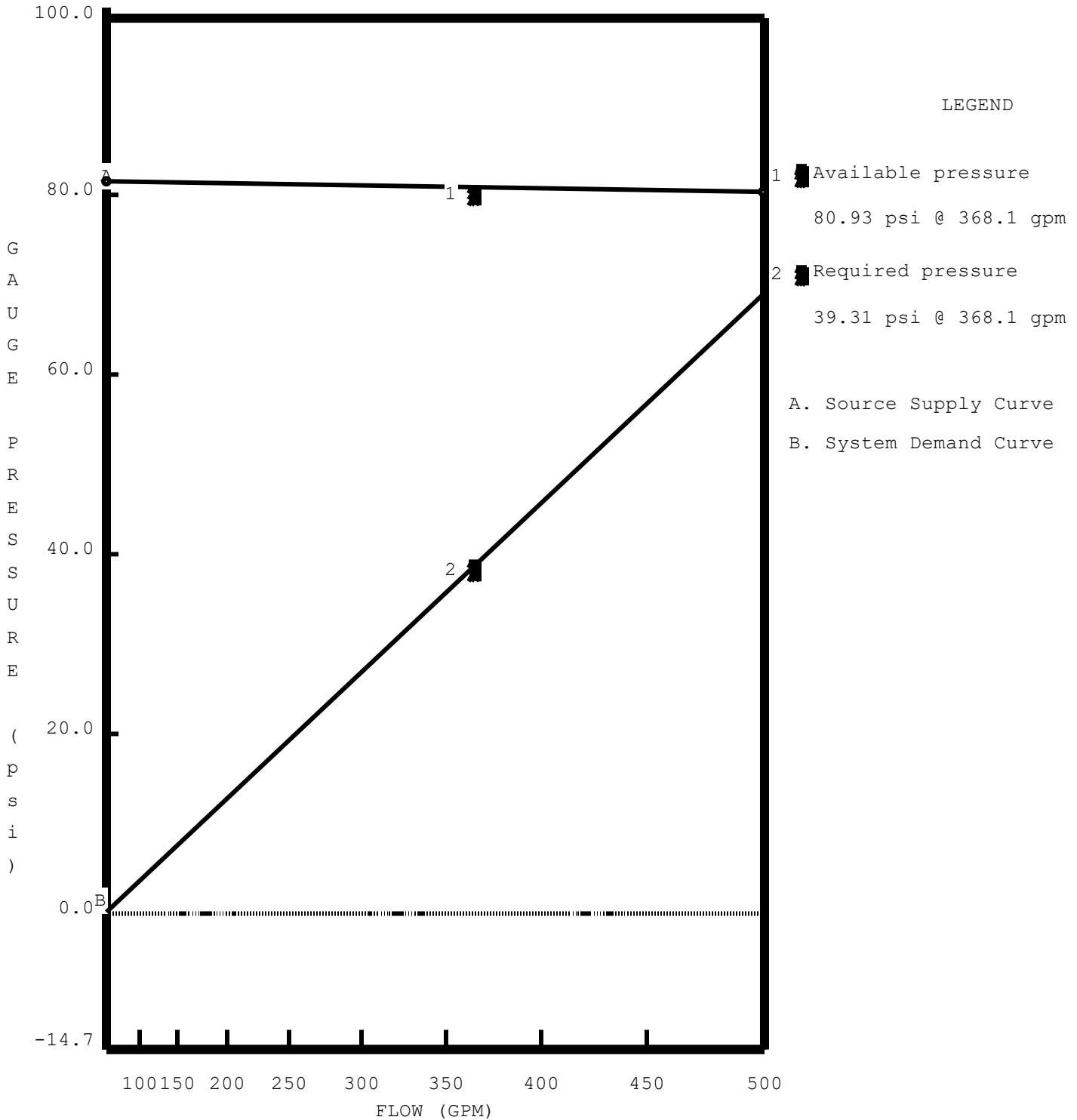


DATE: 9/3/2020TECTION\CALCULATIONS\0639-DIA 6TH FLOOR - FINAL ASBUILT.SDF

JOB TITLE: gal

WATER SUPPLY ANALYSIS

Static: 81.50 psi Resid: 80.50 psi Flow: 500.0 gpm



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JOB TITLE: gal

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SOURCE	81.5	80.5	500.0	80.9	368.1	39.3

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	368.1 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	368.1 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
1	83.2	K= 5.60	7.2	15.0	
2	83.2	K= 5.60	7.7	15.5	
3	83.2	K= 5.60	10.4	18.1	
4	83.2	K= 5.60	7.6	15.4	
5	83.2	K= 5.60	10.8	18.4	
6	83.2	K= 5.60	7.0	14.8	
7	83.2	K= 5.60	7.5	15.4	
8	83.2	K= 5.60	11.0	18.6	
9	83.2	K= 5.60	13.0	20.2	
10	83.2	K= 5.60	13.0	20.2	
11	83.2	K= 5.60	13.7	20.7	
12	83.2	K= 5.60	8.9	16.7	
13	83.2	K= 5.60	13.1	20.3	
14	83.2	K= 5.60	13.8	20.8	
15	83.2	K= 5.60	9.1	16.9	
16	83.2	K= 5.60	13.3	20.4	
17	83.2	K= 5.60	14.4	21.3	
18	83.2	K= 5.60	10.3	18.0	
19	83.2	K= 5.60	12.3	19.6	
20	83.2	K= 5.60	15.4	22.0	
21	82.6	- - - -	7.9	- - -	
22	82.6	- - - -	8.5	- - -	
23	82.6	- - - -	8.6	- - -	
24	82.6	- - - -	11.4	- - -	
25	82.6	- - - -	12.0	- - -	
26	82.6	- - - -	15.1	- - -	
27	82.6	- - - -	15.0	- - -	
28	82.6	- - - -	14.9	- - -	
29	82.6	- - - -	14.9	- - -	
30	82.6	- - - -	15.3	- - -	
31	82.6	- - - -	15.5	- - -	
32	82.6	- - - -	10.7	- - -	
33	82.6	- - - -	15.8	- - -	
34	82.6	- - - -	15.9	- - -	

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JOB TITLE: gal

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
35	82.6	- - - -	16.1	- - -	
36	82.6	- - - -	16.3	- - -	
37	82.6	- - - -	16.9	- - -	
38	82.6	- - - -	8.3	- - -	
39	82.6	- - - -	38.8	- - -	
40	82.6	- - - -	38.9	- - -	
41	82.6	- - - -	39.3	- - -	
SOURCE	82.6	SOURCE	39.3	368.1	

DATE: 9/3/2020TECTION\CALCULATIONS\0639-DIA 6TH FLOOR - FINAL ASBUILT.SDF

JOB TITLE: gal

NFPA3 PIPE DATA

Pipe Tag	K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Eq.Ln.	F	Pf/ft.	(Pe)	Notes
Frm Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	T		(Pf)	
Pipe: 1		5.60	15.0	Disch		4.50	120	7.2	
1	83.2	7.2	0.0		1.000	E: 2.0	2.00	0.3	
21	82.6	7.9	15.0		1.049		6.50	0.076	0.5
Pipe: 2		5.60	14.8	Disch		4.00	120	7.0	
6	83.2	7.0	0.0		1.000	T: 5.0	5.00	0.3	
21	82.6	7.9	14.8		1.049		9.00	0.075	0.7
Pipe: 3		0.0	0.0			1.50	120	7.9	
21	82.6	7.9	29.8		1.000	----	0.00	0.0	
38	82.6	8.3	29.8		1.049		1.50	0.272	0.4
Pipe: 4		5.60	15.4	Disch		1.00	120	7.6	
4	83.2	7.6	0.0		1.000	T: 5.0	5.00	0.3	
38	82.6	8.3	15.4		1.049		6.00	0.081	0.5
Pipe: 5		0.0	29.8	21		2.50	120	8.3	
38	82.6	8.3	15.4	4	1.500	----	0.00	0.0	
22	82.6	8.5	45.3		1.610		2.50	0.073	0.2
Pipe: 6		5.60	15.4	Disch		4.00	120	7.5	
7	83.2	7.5	0.0		1.000	T: 5.0	5.00	0.3	
22	82.6	8.5	15.4		1.049		9.00	0.080	0.7
Pipe: 7		0.0	45.3	38		1.00	120	8.5	
22	82.6	8.5	15.4	7	1.500	----	0.00	0.0	
23	82.6	8.6	60.6		1.610		1.00	0.126	0.1
Pipe: 8		5.60	15.5	Disch		4.00	120	7.7	
2	83.2	7.7	0.0		1.000	T: 5.0	5.00	0.3	
23	82.6	8.6	15.5		1.049		9.00	0.081	0.7
Pipe: 9		0.0	60.6	22		6.50	120	8.6	
23	82.6	8.6	15.5	2	1.500	T: 8.0	8.00	0.0	
24	82.6	11.4	76.1		1.610		14.50	0.192	2.8
Pipe: 10		5.60	18.1	Disch		3.00	120	10.4	
3	83.2	10.4	0.0		1.000	----	0.00	0.0	
5	83.2	10.8	18.1		1.049		3.00	0.108	0.3
Pipe: 11		5.60	18.4	Disch		1.00	120	10.8	
5	83.2	10.8	18.1	3	1.000	----	0.00	0.3	
24	82.6	11.4	36.5		1.049		1.00	0.396	0.4
Pipe: 12		0.0	36.5	5		4.50	120	11.4	
24	82.6	11.4	76.1	23	2.000	----	0.00	0.0	
25	82.6	12.0	112.6		2.067		4.50	0.117	0.5

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JOB TITLE: gal

Pipe Tag	K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Eq.Ln.	F		(Pe)	Notes
Frm Node	El (ft)	PT	Tot. (Q)	Disch	Act ID	(ft.)	T	Pf/ft.	(Pf)
Pipe: 13		5.60	18.6	Disch			1.00	120	11.0
8	83.2	11.0	0.0		1.000	T: 5.0	5.00		0.3
25	82.6	12.0	18.6		1.049		6.00	0.114	0.7
Pipe: 14		0.0	112.6	24			5.00	120	12.0
25	82.6	12.0	18.6	8	2.000	E: 5.0	15.00		0.0
26	82.6	15.1	131.2		2.067	T:10.0	20.00	0.155	3.1
Pipe: 15		5.60	20.2	Disch			8.00	120	13.0
10	83.2	13.0	0.0		1.000	T: 5.0	5.00		0.3
29	82.6	14.9	20.2		1.049		13.00	0.132	1.7
Pipe: 16		0.0	0.0				3.00	120	14.9
29	82.6	14.9	20.2		3.000	----	0.00		0.0
28	82.6	14.9	20.2		3.068		3.00	0.001	0.0
Pipe: 17		5.60	20.7	Disch			2.00	120	13.7
11	83.2	13.7	0.0		1.000	T: 5.0	5.00		0.3
28	82.6	14.9	20.7		1.049		7.00	0.139	1.0
Pipe: 18		0.0	20.2	29			1.50	120	14.9
28	82.6	14.9	20.7	11	3.000	----	0.00		0.0
27	82.6	15.0	40.9		3.068		1.50	0.003	0.0
Pipe: 19		5.60	20.2	Disch			8.00	120	13.0
9	83.2	13.0	0.0		1.000	T: 5.0	5.00		0.3
27	82.6	15.0	20.2		1.049		13.00	0.132	1.7
Pipe: 20		0.0	40.9	28			4.00	120	15.0
27	82.6	15.0	20.2	9	3.000	T:15.0	15.00		0.0
26	82.6	15.1	61.1		3.068		19.00	0.006	0.1
Pipe: 21		0.0	61.1	27			5.00	120	15.1
26	82.6	15.1	131.2	25	3.000	----	0.00		0.0
30	82.6	15.3	192.3		3.068		5.00	0.046	0.2
Pipe: 22		5.60	20.8	Disch			4.00	120	13.8
14	83.2	13.8	0.0		1.000	T: 5.0	5.00		0.3
30	82.6	15.3	20.8		1.049		9.00	0.140	1.3
Pipe: 23		0.0	192.3	26			4.00	120	15.3
30	82.6	15.3	20.8	14	3.000	----	0.00		0.0
31	82.6	15.5	213.1		3.068		4.00	0.056	0.2
Pipe: 24		5.60	16.9	Disch			7.00	120	9.1
15	83.2	9.1	0.0		1.000	E: 2.0	7.00		0.3
32	82.6	10.7	16.9		1.049	T: 5.0	14.00	0.095	1.3
Pipe: 25		5.60	16.7	Disch			9.00	120	8.9
12	83.2	8.9	0.0		1.000	E: 2.0	7.00		0.3
32	82.6	10.7	16.7		1.049	T: 5.0	16.00	0.093	1.5

DATE: 9/3/2020TECTION\CALCULATIONS\0639-DIA 6TH FLOOR - FINAL ASBUILT.SDF

JOB TITLE: gal

Pipe Tag	K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt)	
To Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)
Frm Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	Pf/ft.
								(Pf)
Pipe: 26		0.0	0.0				3.00	120
32	82.6	10.7	33.6		1.000	T: 5.0	5.00	-0.3
13	83.2	13.1	33.6		1.049		8.00	0.339
								2.7
Pipe: 27		5.60	20.3	Disch			4.00	120
13	83.2	13.1	33.6	32	1.250	T: 6.0	6.00	0.3
31	82.6	15.5	53.9		1.380		10.00	0.214
								2.1
Pipe: 28		0.0	53.9	13			4.00	120
31	82.6	15.5	213.1	30	3.000	----	0.00	0.0
33	82.6	15.8	266.9		3.068		4.00	0.084
								0.3
Pipe: 29		5.60	21.3	Disch			3.00	120
17	83.2	14.4	0.0		1.000	T: 5.0	5.00	0.3
33	82.6	15.8	21.3		1.049		8.00	0.146
								1.2
Pipe: 30		0.0	266.9	31			1.00	120
33	82.6	15.8	21.3	17	3.000	----	0.00	0.0
34	82.6	15.9	288.2		3.068		1.00	0.097
								0.1
Pipe: 31		5.60	20.4	Disch			13.00	120
16	83.2	13.3	0.0		1.000	T: 5.0	5.00	0.3
34	82.6	15.9	20.4		1.049		18.00	0.135
								2.4
Pipe: 32		0.0	288.2	33			1.50	120
34	82.6	15.9	20.4	16	3.000	----	0.00	0.0
35	82.6	16.1	308.6		3.068		1.50	0.110
								0.2
Pipe: 33		0.0	0.0				2.00	120
35	82.6	16.1	308.6	34	3.000	----	0.00	0.0
36	82.6	16.3	308.6		3.068		2.00	0.110
								0.2
Pipe: 34		5.60	18.0	Disch			12.00	120
18	83.2	10.3	0.0		1.000	E: 2.0	7.00	0.0
19	83.2	12.3	18.0		1.049	T: 5.0	19.00	0.107
								2.0
Pipe: 35		5.60	19.6	Disch			4.00	120
19	83.2	12.3	18.0	18	1.000	T: 5.0	5.00	0.3
36	82.6	16.3	37.6		1.049		9.00	0.418
								3.8
Pipe: 36		0.0	37.6	19			4.00	120
36	82.6	16.3	308.6	35	3.000	----	0.00	0.0
37	82.6	16.9	346.2		3.068		4.00	0.137
								0.5
Pipe: 37		5.60	22.0	Disch			3.00	120
20	83.2	15.4	0.0		1.000	T: 5.0	5.00	0.3
37	82.6	16.9	22.0		1.049		8.00	0.155
								1.2
Pipe: 38		0.0	346.2	36			114.00	120
37	82.6	16.9	22.0	20	3.000	2E:14.0	29.00	0.0
39	82.6	38.8	368.1		3.068	T:15.0	143.00	0.153
								21.9

Notes

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JOB TITLE: gal

Pipe Tag	To Node	El (ft)	K-fac	PT	Add Fl (q)	Add Fl Node/	To Nom ID	Fit: Eq.Ln. (ft.)	L F	C Pf/ft.	(Pt) (Pe) (Pf)	Notes
Pipe: 39			0.0		0.0				7.00	120	38.8	
39		82.6	38.8		368.1	37	5.000	----	0.00		0.0	
40		82.6	38.9		368.1		5.047		7.00	0.014	0.1	
Pipe: 40			0.0		0.0				3.00	120	38.9	
40		82.6	38.9		368.1	39	5.000	C:27.0	29.00		0.0	
41		82.6	39.3		368.1		5.047	G: 2.0	32.00	0.014	0.4	
Pipe: 41			0.0		0.0				2.00	120	39.3	
41		82.6	39.3		368.1	40	5.000	----	0.00		0.0	
SOURCE		82.6	39.3		368.1		5.047		2.00	0.014	0.0	

NOTES (HASS):

- (1) Calculations were performed by the HASS 2020 D computer program in accordance with NFPA13 (2016) under license no. 64633674 granted by
HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760
- (2) The system has been calculated to provide an average imbalance at each node of 0.002 gpm and a maximum imbalance at any node of 0.072 gpm.
- (3) Total pressure at each node is used in balancing the system. Maximum water velocity is 16.0 ft/sec at pipe 38.
- (4) Items listed in bold print on the cover sheet

are automatically transferred from the calculation report.
- (5) Available pressure at source node SOURCE under full flow conditions is 80.36 psi with a flow of 537.91 gpm.
- (6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard.pip

DATE: 9/3/2020TECTION\CALCULATIONS\0639-DIA 6TH FLOOR - FINAL ASBUILT.SDF

JOB TITLE: gal

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee

	F F45Ell								
1.049	2.00	5.00	2.00	5.00	6.00	1.00	10.00	2.00	5.00
	1.00								
1.380	3.00	6.00	2.00	7.00	6.00	1.00	10.00	10.00	6.00
	1.50								
1.610	4.00	8.00	2.00	9.00	6.00	1.00	10.00	10.00	8.00
	2.00								
2.067	5.00	10.00	3.00	11.00	6.00	1.00	10.00	10.00	10.00
	2.50								
3.068	7.00	15.00	5.00	16.00	10.00	1.00	13.00	13.00	15.00
	3.50								
5.047	12.00	25.00	8.00	27.00	9.00	2.00	21.00	21.00	25.00
	6.00								