

ALPHA FIRE SUPPRESSION SYSTEMS, INC.

2391 CIRCADIAN WAY
SANTA ROSA, CA 95407

HYDRAULIC CALCULATIONS

FOR

HLA-BUCCELLATO RESIDENCE
710 FITCHVIEW LN.
HEALDSBURG, CA

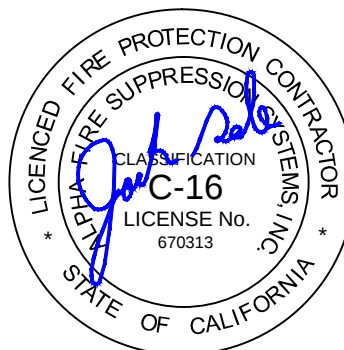
FILE NUMBER: 22-3681

DATE: DEC 1, 2022

-DESIGN DATA-

OCCUPANCY CLASSIFICATION:	NFPA 13-D
DENSITY:	.05 gpm/sq. ft.
AREA OF APPLICATION:	(E) PRIMARY BEDROOM
COVERAGE PER SPRINKLER:	256 sq. ft.
NUMBER OF SPRINKLERS CALCULATED:	2 sprinklers
TOTAL SPRINKLER WATER FLOW REQUIRED:	26.2 gpm
TOTAL WATER REQUIRED (including hose):	26.2 gpm
FLOW AND PRESSURE (@ FS1):	26.2 gpm @ 19.1 psi
SPRINKLER ORIFICE SIZE:	7/16 inch
NAME OF CONTRACTOR:	LEFF DESIGN BUILD
DESIGN/LAYOUT BY:	N. GALE
AUTHORITY HAVING JURISDICTION:	COUNTY OF SONOMA
CONTRACTOR CERTIFICATION NUMBER:	C-16 670313

CALCULATIONS BY HASS COMPUTER PROGRAM (LICENSE # 64616443)
HRS SYSTEMS, INC.

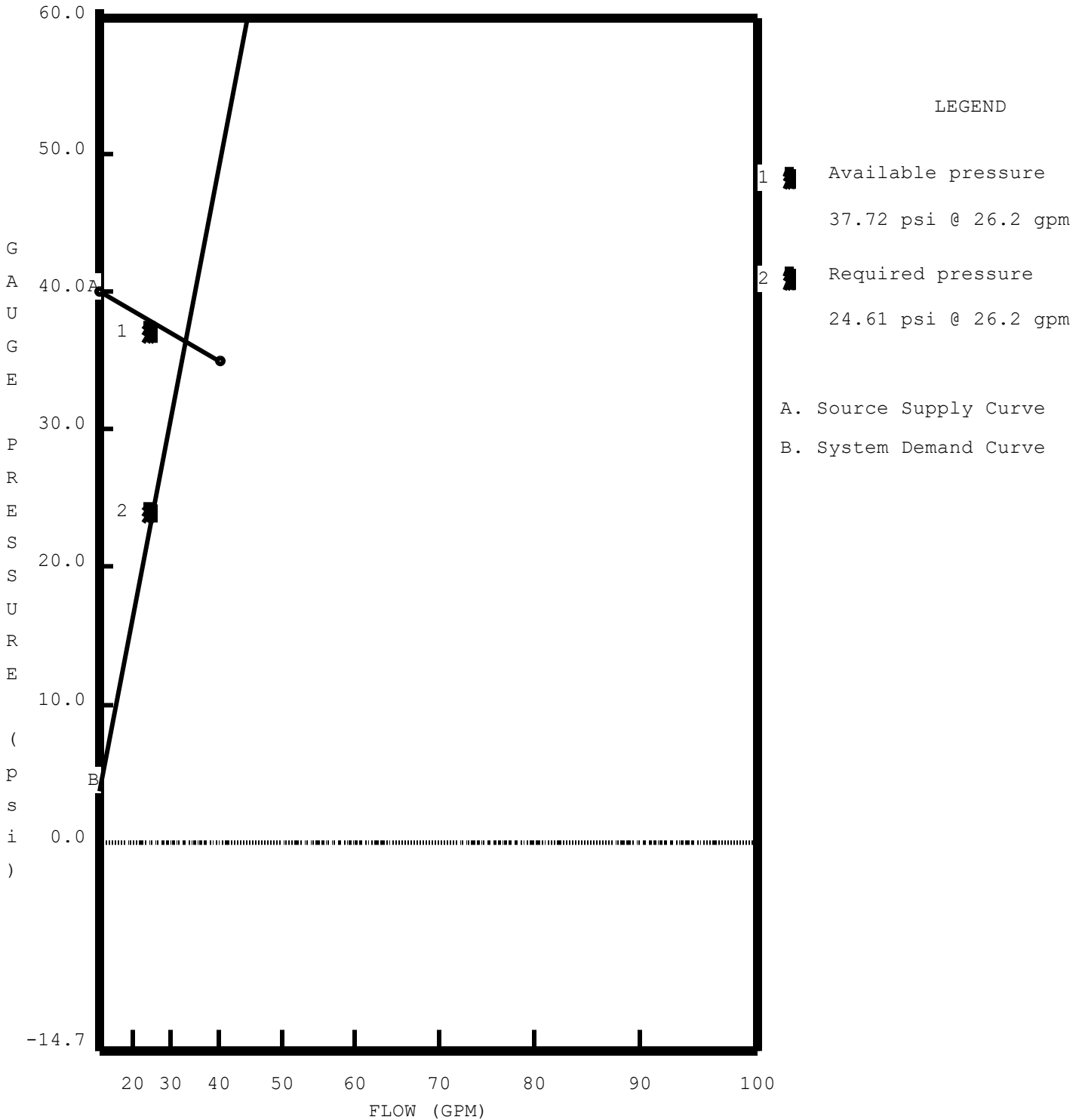


DATE: 12/1/2022-BUCCELLATO RESIDENCE, 710 FITCHVIEW LN\HYDRAULIC CALC.SDF

JOB TITLE: H1a-Buccellato Resi

WATER SUPPLY ANALYSIS

Static: 40.00 psi Resid: 35.00 psi Flow: 40.0 gpm



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

DATE: 12/1/2022-BUCCELLATO RESIDENCE, 710 FITCHVIEW LN\HYDRAULIC CALC.SDF

JOB TITLE: H1a-Buccellato Resi

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	40.0	35.0	40.0	37.7	26.2	24.6

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	26.2 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	26.2 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
S1	9.5	K= 4.90	7.0	13.0	
S2	9.5	K= 4.90	7.2	13.2	
A	10.0	- - - -	7.0	- - -	
B	10.0	- - - -	7.2	- - -	
1	10.0	- - - -	7.3	- - -	
2	10.0	- - - -	7.3	- - -	
3	10.0	- - - -	8.0	- - -	
4	10.0	- - - -	10.8	- - -	
5	10.0	- - - -	9.7	- - -	
6	11.7	- - - -	8.6	- - -	
7	11.7	- - - -	7.9	- - -	
8	10.0	- - - -	8.3	- - -	
9	10.0	- - - -	12.7	- - -	
10	6.5	- - - -	15.8	- - -	
TOR	6.5	- - - -	16.5	- - -	
FS1	4.0	- - - -	19.1	- - -	
FS2	4.0	- - - -	22.1	- - -	
SOURCE	1.0	SOURCE	24.6	26.2	

DATE: 12/1/2022-BUCCELLATO RESIDENCE, 710 FITCHVIEW LN\HYDRAULIC CALC.SDF

JOB TITLE: H1a-Buccellato Resi

NFPA5 PIPE DATA

Pipe Tag	K-fac	Add Fl	Add Fl	To	Fit:	L	C	(Pt)	Notes
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)	
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	Pf/ft.	
								(Pf)	
Pipe: 1		4.90	13.0	Disch			0.50	150	-0.0
A	10.0	7.0	0.0		J1.000	E: 5.0	5.00	-0.2	
S1	9.5	7.0	13.0		1.101		5.50	0.031	0.2
Pipe: 2		4.90	13.2	Disch			0.50	150	-0.0
B	10.0	7.2	0.0		J1.000	T: 5.0	5.00	-0.2	
S2	9.5	7.2	13.2		1.101		5.50	0.031	0.2
Pipe: 3		0.0	0.0				5.58	150	0.3
1	10.0	7.3	13.0		J1.000	E: 5.0	5.00	-0.0	
A	10.0	7.0	13.0		1.101		10.58	0.031	0.3
Pipe: 4		0.0	0.0				4.58	150	0.1
2	10.0	7.3	13.2		J1.000	----	0.00	-0.0	
B	10.0	7.2	13.2		1.101		4.58	0.031	0.1
Pipe: 5		0.0	13.0	A			9.00	150	0.0
2	10.0	7.3	-11.9		J1.000	2T:10.0	10.00	-0.0	
1	10.0	7.3	1.1		1.101		19.00	0.000	0.0
Pipe: 6		0.0	1.1	1			12.92	150	0.7
3	10.0	8.0	13.2	B	J1.000	T: 5.0	7.00	-0.0	
2	10.0	7.3	14.3		1.101	2R: 2.0	19.92	0.037	0.7
Pipe: 7		0.0	0.0				63.58	150	2.8
4	10.0	10.8	14.3	2	J1.000	T: 5.0	13.00	-0.0	
3	10.0	8.0	14.3		1.101	8R: 8.0	76.58	0.037	2.8
Pipe: 8		0.0	0.0				35.08	150	1.2
4	10.0	10.8	11.9	6	J1.000	E: 5.0	10.00	-0.0	
5	10.0	9.7	11.9		1.101	5R: 5.0	45.08	0.026	1.2
Pipe: 9		0.0	0.0				1.67	150	1.0
5	10.0	9.7	11.9	7	J1.000	2E:10.0	10.00	0.7	
6	11.7	8.6	11.9		1.101		11.67	0.026	0.3
Pipe: 10		0.0	0.0				26.33	150	0.8
6	11.7	8.6	11.9	8	J1.000	3R: 3.0	3.00	-0.0	
7	11.7	7.9	11.9		1.101		29.33	0.026	0.8
Pipe: 11		0.0	0.0				1.67	150	-0.4
7	11.7	7.9	11.9	1	J1.000	2E:10.0	10.00	-0.7	
8	10.0	8.3	11.9		1.101		11.67	0.026	0.3
Pipe: 12		0.0	13.0	A			24.17	150	1.0
8	10.0	8.3	-1.1		J1.000	2E:10.0	14.00	-0.0	
1	10.0	7.3	11.9		1.101	4R: 4.0	38.17	0.026	1.0

DATE: 12/1/2022-BUCCELLATO RESIDENCE, 710 FITCHVIEW LN\HYDRAULIC CALC.SDF

JOB TITLE: H1a-Buccellato Resi

Pipe Tag		K-fac	Add Fl	Add Fl To		Fit:	L	C	(Pt)			
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F		(Pe)	Notes		
To Node	El (ft)	PT	Tot. (Q)	Disch	Act ID	(ft.)	T	Pf/ft.	(Pf)			
Pipe: 13		0.0	11.9		5		6.33	150	1.8			
9	10.0	12.7	14.3		3 J1.000	2E:10.0	10.00		-0.0			
4	10.0	10.8	26.2		1.101		16.33	0.112	1.8			
Pipe: 14		0.0	0.0				3.50	150	3.1			
10	6.5	15.8	26.2		4 J1.000	2E:10.0	11.00		1.5			
9	10.0	12.7	26.2		1.101	K: 1.0	14.50	0.112	1.6			
Pipe: 15		0.0	0.0				2.33	150	0.7			
TOR	6.5	16.5	26.2		9 M1.000	E: 3.0	3.00		-0.0			
10	6.5	15.8	26.2		1.055		5.33	0.138	0.7			
Pipe: 16		0.0	0.0				2.50	150	2.5			
FS1	4.0	19.1	26.2		10 M1.000	C: 8.0	8.00		1.1			
TOR	6.5	16.5	26.2		1.055		10.50	0.138	1.4			
Pipe:	17		0.0	Fixed Pressure Loss Device								
FS2	4.0	22.1	26.2	TOR	3.0 psi, 26.2 gpm							
FS1	4.0	19.1	26.2									
Pipe:	18	Source	0.0				3.00	150	2.5			
SOURCE	1.0	24.6	26.2	FS1	M1.000	2E: 6.0	6.00		1.3			
FS2	4.0	22.1	26.2	1.055			9.00	0.138	1.2			

NOTES (HASS):

- Calculations were performed by the HASS 2021 D computer program in accordance with NFPA13 (2020) under license no. 64616443 granted by HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760
- 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 0.040 gpm.
- Total pressure at each node is used in balancing the system. Maximum water velocity is 9.6 ft/sec at pipe 15.
- Items listed in bold print on the cover sheet are automatically transferred from the calculation report.
- Available pressure at source node SOURCE under full flow conditions is 36.29 psi with a flow of 34.03 gpm.

DATE: 12/1/2022-BUCCELLATO RESIDENCE, 710 FITCHVIEW LN\HYDRAULIC CALC.SDF

JOB TITLE: H1a-Buccellato Resi

(6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard

PAGE: J MATERIAL: CPVC Tyco/NFPA HWC: 150

Diameter	Equivalent Fitting Lengths in Feet						
(in)	F	E	T	R	K	C	G
	F45	Ell	Tee	RunT	Kplg	ChkVlv	Gate
1.101	1.00	5.00	5.00	1.00	1.00	8.00	0.40

PAGE: M MATERIAL: CT-M HWC: 150

Diameter	Equivalent Fitting Lengths in Feet							
(in)	E	T	F	R	K	C	G	N
	Ell	Tee	45-Ell	TeeRun	Kouplg	ChkVlv	GatVlv	NP Tee
1.055	3.00	8.00	2.00	3.00	0.00	8.00	0.00	8.00