

HYDRONICS: RESIDENTIAL FIRE SPRINKLER HYDRAULICS 5.9 - SUBMITTAL.

ENGINEERS : A.B.C. FIRE PROTECTION.  
ADDRESS : 1234 Fremont Bl, Suite 609, Fremont CA 94554.

LICENSE : 123456  
DESIGNER : John Stevens  
DATE : 05-17-2017

FILE : C:\RESDEN59\HOUSE1.RES  
JOB NAME : HOUSE SAMPLE SYSTEM - 1 HEAD CALC.  
LOCATION : 1234 Fremont Bl, Fremont, CA 94555.

DESIGN DATA.

DESIGN CRITERION: RESIDENTIAL NFPA 13-D  
MIN SPR FLOW : 23 Gpm  
AREA PER SPRINKLER : 196 Sq Ft  
TOTAL CALCULATED AREA : 196 Sq Ft  
TOTAL SPRINKLERS CALCULATED : 1

FLOW DATA.

TOTAL SPRINKLER FLOW : 23.0 Gpm  
DOMESTIC DEMAND : 10.0 Gpm  
TOTAL WATER REQUIRED : 33.0 Gpm  
BASE OF RISER NODE : 6  
FLOW : 33.0 Gpm  
PRESS : 35.7 Psi

AUTHORITY HAVING JURISDICTION : FREMONT FD  
PHONE : 510-487-9161

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| SPRINKLER MANUF : Central
| MODEL           : EC-20A
| DENSITY        : 0.12 Gpm/Sq Ft  FIXED PRESS : 6.0 Psi
| AREA / SPR     : 196 Sq Ft      DESIGN AREA : 196 Sq Ft
| SPRINKLER Q    : 23.0 Gpm
| NODES         : 9              PIPES        : 9

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SOURCE | STATIC : 95 Psi RESIDUAL : 65 Psi FLOW : 1250 Gpm

NODE NO.	ELEVATION Feet	K-FACTOR	PRESSURE Psi	DISCHARGE Gpm
1	26.0		24.2	
2	26.0		18.3	
3	25.0	5.39	18.2	23.0
4	25.0		18.7	
5	26.0		29.1	
6	13.0		35.7	DOME 10.0
7	10.0		49.4	
8	10.0		55.4	
9	0.0	SOURCE	64.6	33.0

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SPRINKLERS FLOWING : 1
AREA PER SPRINKLER : 196 Sq Ft
TOTAL DESIGN AREA  : 196 Sq Ft

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MIN SPRINKLER FLOW : 23 Gpm

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REQUIRED DENSITY : 0.117 Gpm/Sq Ft
COMPUTED DENSITY : 0.117 Gpm/Sq Ft

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TOTAL SPRINKLER FLOW : 23.0 Gpm
TOTAL DOMESTIC FLOW  : 10.0 Gpm
TOTAL WATER REQUIRED  : 33.0 Gpm

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TOTAL SPRINKLER PRESS : 58.6 Psi
FIXED PRESS LOSS      : 6.0 Psi

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SUPPLY PRESS AVAILABLE : 95.0 Psi
DEMAND PRESS REQUIRED    : 64.6 Psi
PRESSURE CUSHION       : 30.4 Psi

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MAXIMUM VELOCITY : 12.2 F/S

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34119 Fremont Bl, Suite 609  
Fremont, CA, 94555

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(800) 845-9819

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PIPE NO.	BEG END	FLOW Gpm	K-FACTOR		LENGTH FTG TOTAL	C-FACTOR		PRESSURE (Psi)				
			FITTING DIAMETER	TYPE		FRI-LOSS (Psi/Ft)						
1	1	q=	0.0	K= 0.00	L=	47.0		Pt	24.2	Pt	24.2	
		Q=	12.1	F= 3LB	F=	24.0	C= 150	Pe	0.0	Pv	-0.3	
		Vel=	6.5	D= 0.874	TL=	71.0	0.0832	Pf	5.9	Pn	23.9	
	2							Pt	18.3			
2	2	q=	23.0	K= 5.39	L=	7.0		Pt	18.3	Pt	18.3	
		Q=	12.1	F=	F=	0.0	C= 150	Pe	-0.4	Pv	-0.3	
		Vel=	6.5	D= 0.874	TL=	7.0	0.0832	Pf	0.6	Pn	18.1	
	3							Pt	18.2			
3	3	q=	23.0	K= 5.39	L=	8.0		Pt	18.2	Pt	18.2	
		Q=	10.9	F=	F=	0.0	C= 150	Pe	0.0	Pv	-0.2	
		Vel=	5.8	D= 0.874	TL=	8.0	0.0676	Pf	0.5	Pn	18.0	
	4							Pt	18.7			
4	1	q=	0.0	K= 0.00	L=	64.0		Pt	24.2	Pt	24.2	
		Q=	10.9	F= 3LB	F=	24.0	C= 150	Pe	-0.4	Pv	-0.2	
		Vel=	5.8	D= 0.874	TL=	88.0	0.0676	Pf	6.0	Pn	24.0	
	4							Pt	18.7			
5	1	q=	0.0	K= 0.00	L=	30.0		Pt	24.2	Pt	24.2	
		Q=	23.0	F= 3LB	F=	26.0	C= 150	Pe	0.0	Pv	-0.4	
		Vel=	7.7	D= 1.101	TL=	56.0	0.0881	Pf	4.9	Pn	23.8	
	5							Pt	29.1			
6	5	q=	0.0	K= 0.00	L=	3.0		Pt	29.1	Pt	29.1	
		Q=	23.0	F= SG	F=	8.0	C= 150	Pe	5.6	Pv	-0.4	
		Vel=	7.7	D= 1.101	TL=	11.0	0.0881	Pf	1.0	Pn	28.7	
	6							Pt	35.7			
7	6	q=	10.0	DOME	L=	66.0		Pt	35.7	Pt	35.7	
		Q=	33.0	F= L	F=	7.0	C= 150	Pe	1.3	Pv	-0.8	
		Vel=	11.1	D= 1.101	TL=	73.0	0.1718	Pf	12.5	Pn	34.8	
	7							Pt	49.4			
MET	7	Q=	33.0					Pt	49.4			
		FIXED PRESSURE LOSS						Valve	6.0			
								Pt	55.4			
9	8	q=	0.0	K= 0.00	L=	10.0		Pt	55.4	Pt	55.4	
		Q=	33.0	F= B	F=	5.0	C= 120	Pe	4.3	Pv	-1.0	
		Vel=	12.2	D= 1.049	TL=	15.0	0.3286	Pf	4.9	Pn	54.4	
	9							Pt	64.6			
		Q=	33.0	<<<	SOURCE	>>>		Pt	64.6			

E=45-Elb L=90-Elb B=TeeBch R=TeeRun C=CouPlg S=SwgChk G=GatVlv

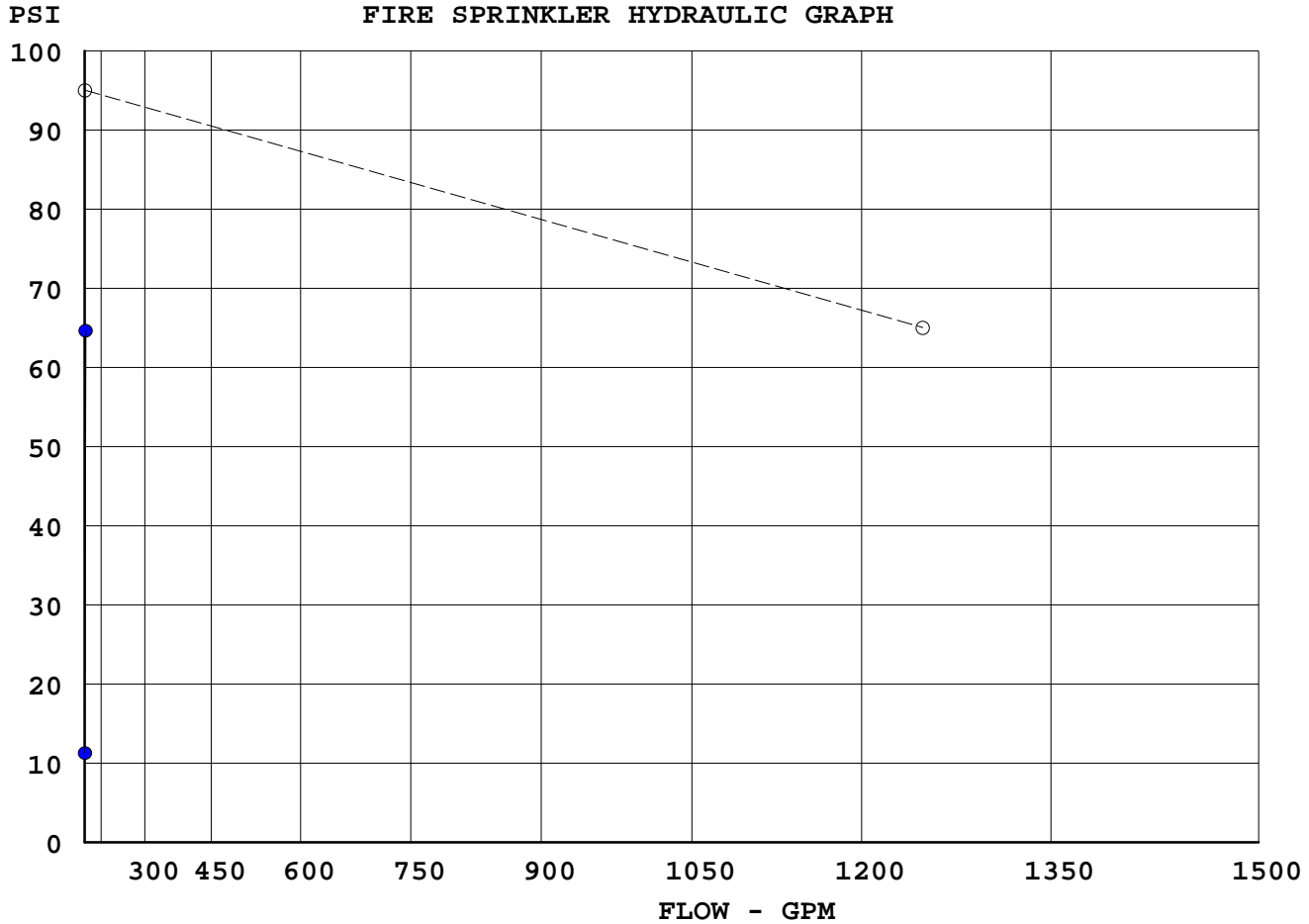
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○-----○ Water Supply

Static : 95 Psi

Resid : 65 Psi

Flow : 1250 Gpm

●-----● Water Demand

Avl Press : 95.0 Psi @ 33 Gpm

Req Press : 64.6 Psi @ 33 Gpm

Press Cush: 30.4 Psi

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