

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

LICENSE : 123456
DESIGNER : JOHN STEVENS
DATE : 08-25-2010

FILE : TREE
JOB NAME : TREE SYSTEM EXAMPLE
LOCATION : 17426 CEDAR BL, NEWARK, CA., 94545.

DESIGN DATA.

HAZARD : ORDINARY GROUP II
DENSITY : 0.160 Sq Ft
AREA PER SPRINKLER : 130 Sq Ft
TOTAL CALCULATED AREA : 1560 Sq Ft
TOTAL SPRINKLERS CALCULATED : 12 Heads

FLOW DATA.

TOTAL SPRINKLER FLOW : 259.2 Gpm
TOTAL HOSE STREAM : 100.0 Gpm
TOTAL WATER REQUIRED : 359.2 Gpm
BASE OF RISER NODE : 20
FLOW : 359.2 Gpm
PRESS : 31.1 Psi

AUTHORITY HAVING JURISDICTION : NEWARK FIRE DEPARTMENT
PHONE : (510) 754-5126

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SOURCE STATIC : 50 Psi RESIDUAL : 45 Psi FLOW : 600 Gpm

NODE NO.	ELEVATION Feet	K-FACTOR	PRESSURE Psi	DISCHARGE Gpm
101	15.0	5.60	13.8	20.8
102	15.0	5.60	15.2	21.8
3	15.0		16.7	
103	15.0	5.60	15.2	21.8
104	15.0	5.60	13.8	20.8
105	15.0	5.60	14.0	21.0
106	15.0	5.60	15.4	22.0
8	15.0		17.0	
107	15.0	5.60	15.4	22.0
108	15.0	5.60	14.0	21.0
109	15.0	5.60	14.8	21.5
110	15.0	5.60	16.3	22.6
13	15.0		17.9	
111	15.0	5.60	16.3	22.6
112	15.0	5.60	14.8	21.5
16	14.0		19.3	
17	14.0		19.6	
18	14.0		20.6	
19	14.0		22.6	
20	0.0		31.1	HOSE 100.0
21	0.0		33.6	
22	0.0		33.7	
23	0.0	SOURCE	34.0	

SPRINKLERS FLOWING : 12 Heads
 AREA PER SPRINKLER : 130 Sq Ft

REQUIRED DENSITY : 0.16 Gpm/Sq Ft
 COMPUTED DENSITY : 0.16 Gpm/Sq Ft

TOTAL SPRINKLER FLOW : 259.2 Gpm
 INSIDE HOSE STREAM : 100 Gpm
 OUTSIDE HOSE STREAM : Gpm
 TOTAL WATER REQUIRED : 359.2 Gpm
 TOTAL SPRINKLER PRESS : 34.0 Psi
 VALVE FIXED LOSS : 0.0 Psi

SUPPLY PRESS AVAILABLE : 48.1 Psi
 DEMAND PRESS REQUIRED : 34.0 Psi
 PRESSURE CUSHION : 14.1 Psi
 MAXIMUM VELOCITY : 15.2 F/S

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 34119 Fremont Bl, Suite 609
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 (800) 845-9819

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PIPE NO.	BEG END	FLOW		K-FACTOR		LENGTH FTG TOTAL	C-FACTOR		PRESSURE (Psi)			
		Gpm		FITTING DIAMETER	TYPE DIAMETER		FRI-LOSS (Psi/Ft)					
1	101	q=	20.8	K=	5.60	L=	10.0		Pt	13.8	Pt	13.8
		Q=	20.8	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	7.7	D=	1.049	TL=	10.0	0.1397	Pf	1.4	Pn	13.4
	102								Pt	15.2		
2	102	q=	21.8	K=	5.60	L=	5.0		Pt	15.2	Pt	15.2
		Q=	42.6	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.1	D=	1.380	TL=	11.0	0.1386	Pf	1.5	Pn	14.6
	3								Pt	16.7		
3	3	q=	21.8	K=	5.60	L=	5.0		Pt	16.7	Pt	16.7
		Q=	42.6	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.1	D=	1.380	TL=	11.0	0.1386	Pf	1.5	Pn	16.2
	103								Pt	15.2		
4	103	q=	20.8	K=	5.60	L=	10.0		Pt	15.2	Pt	15.2
		Q=	20.8	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	7.7	D=	1.049	TL=	10.0	0.1397	Pf	1.4	Pn	14.8
	104								Pt	13.8		
5	105	q=	21.0	K=	5.60	L=	10.0		Pt	14.0	Pt	14.0
		Q=	20.9	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	7.8	D=	1.049	TL=	10.0	0.1416	Pf	1.4	Pn	13.6
	106								Pt	15.4		
6	106	q=	22.0	K=	5.60	L=	5.0		Pt	15.4	Pt	15.4
		Q=	42.9	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.2	D=	1.380	TL=	11.0	0.1405	Pf	1.5	Pn	14.9
	8								Pt	17.0		
7	8	q=	22.0	K=	5.60	L=	5.0		Pt	17.0	Pt	17.0
		Q=	42.9	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.2	D=	1.380	TL=	11.0	0.1405	Pf	1.5	Pn	16.4
	107								Pt	15.4		
8	107	q=	21.0	K=	5.60	L=	10.0		Pt	15.4	Pt	15.4
		Q=	20.9	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	7.8	D=	1.049	TL=	10.0	0.1416	Pf	1.4	Pn	15.0
	108								Pt	14.0		
9	109	q=	21.5	K=	5.60	L=	10.0		Pt	14.8	Pt	14.8
		Q=	21.5	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	8.0	D=	1.049	TL=	10.0	0.1488	Pf	1.5	Pn	14.3
	110								Pt	16.3		

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PIPE NO.	BEG END	FLOW		K-FACTOR		LENGTH FTG TOTAL	C-FACTOR		PRESSURE (Psi)			
		Gpm		FITTING DIAMETER	TYPE DIAMETER		FRI-LOSS (Psi/Ft)					
110	110	q=	22.6	K=	5.60	L=	5.0		Pt	16.3	Pt	16.3
		Q=	44.1	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.5	D=	1.380	TL=	11.0	0.1476	Pf	1.6	Pn	15.7
	13								Pt	17.9		
111	13	q=	22.6	K=	5.60	L=	5.0		Pt	17.9	Pt	17.9
		Q=	44.1	F=	T	F=	6.0	C= 120	Pe	0.0	Pv	-0.6
		Vel=	9.5	D=	1.380	TL=	11.0	0.1476	Pf	1.6	Pn	17.3
	111								Pt	16.3		
112	111	q=	21.5	K=	5.60	L=	10.0		Pt	16.3	Pt	16.3
		Q=	21.5	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.4
		Vel=	8.0	D=	1.049	TL=	10.0	0.1488	Pf	1.5	Pn	15.8
	112								Pt	14.8		
113	3	q=	0.0	K=	0.00	L=	1.0		Pt	16.7	Pt	16.7
		Q=	85.2	F=	T	F=	8.0	C= 120	Pe	0.4	Pv	-1.2
		Vel=	13.4	D=	1.610	TL=	9.0	0.2358	Pf	2.1	Pn	15.5
	16								Pt	19.3		
114	8	q=	0.0	K=	0.00	L=	1.0		Pt	17.0	Pt	17.0
		Q=	85.8	F=	T	F=	8.0	C= 120	Pe	0.4	Pv	-1.2
		Vel=	13.5	D=	1.610	TL=	9.0	0.2391	Pf	2.2	Pn	15.7
	17								Pt	19.6		
115	13	q=	0.0	K=	0.00	L=	1.0		Pt	17.9	Pt	17.9
		Q=	88.1	F=	T	F=	8.0	C= 120	Pe	0.4	Pv	-1.3
		Vel=	13.9	D=	1.610	TL=	9.0	0.2511	Pf	2.3	Pn	16.6
	18								Pt	20.6		
116	16	q=	0.0	K=	0.00	L=	13.0		Pt	19.3	Pt	19.3
		Q=	85.2	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.2
		Vel=	5.0	D=	2.635	TL=	13.0	0.0214	Pf	0.3	Pn	19.1
	17								Pt	19.6		
117	17	q=	0.0	K=	0.00	L=	13.0		Pt	19.6	Pt	19.6
		Q=	171.0	F=		F=	0.0	C= 120	Pe	0.0	Pv	-0.7
		Vel=	10.1	D=	2.635	TL=	13.0	0.0777	Pf	1.0	Pn	18.9
	18								Pt	20.6		
118	18	q=	0.0	K=	0.00	L=	6.0		Pt	20.6	Pt	20.6
		Q=	259.1	F=	E	F=	6.0	C= 120	Pe	0.0	Pv	-1.6
		Vel=	15.2	D=	2.635	TL=	12.0	0.1677	Pf	2.0	Pn	19.0
	19								Pt	22.6		

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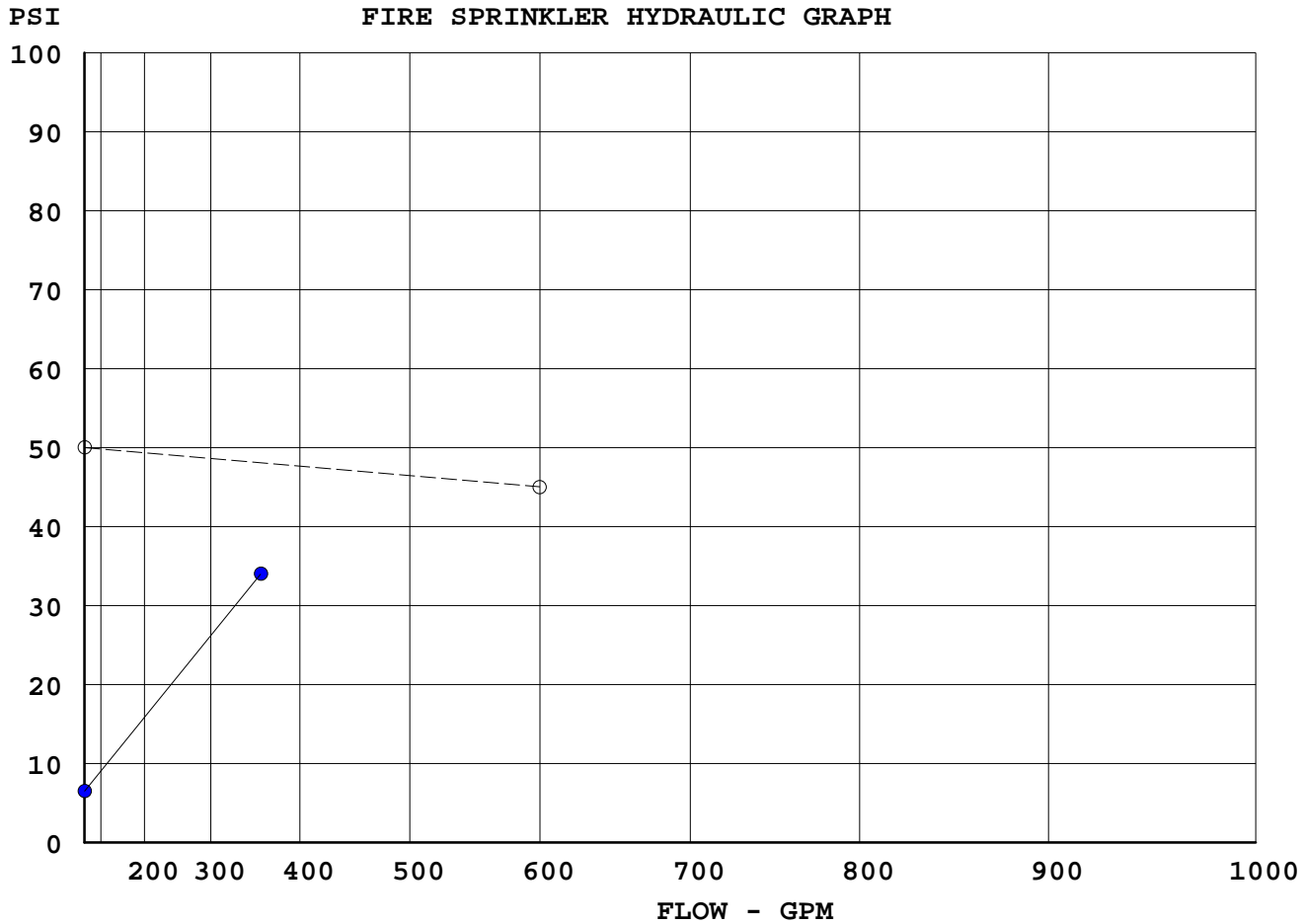
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PIPE NO.	BEG END	FLOW Gpm	K-FACTOR		LENGTH FTG TOTAL	C-FACTOR FRI-LOSS (Psi/Ft)	PRESSURE (Psi)			
			FITTING DIAMETER	TYPE			L=	F=	TL=	Pt
19	19	q= 0.0	K= 0.00	L=	14.2		Pt	22.6	Pt	22.6
		Q= 259.1	F=	F=	0.0	C= 120	Pe	6.1	Pv	-1.6
		Vel= 15.2	D= 2.635	TL=	14.2	0.1677	Pf	2.4	Pn	21.1
	20						Pt	31.1		
20	20	q= 100.0	HOSE	L=	100.0		Pt	31.1	Pt	31.1
		Q= 359.2	F= E	F=	13.0	C= 140	Pe	0.0	Pv	-0.4
		Vel= 8.0	D= 4.280	TL=	113.0	0.0217	Pf	2.5	Pn	30.7
	21						Pt	33.6		
21	21	q= 0.0	K= 0.00	L=	6.0		Pt	33.6	Pt	33.6
		Q= 359.2	F=	F=	0.0	C= 140	Pe	0.0	Pv	-0.4
		Vel= 8.0	D= 4.280	TL=	6.0	0.0217	Pf	0.1	Pn	33.2
	22						Pt	33.7		
22	22	q= 0.0	K= 0.00	L=	10.0		Pt	33.7	Pt	33.7
		Q= 359.2	F= G	F=	3.0	C= 140	Pe	0.0	Pv	-0.4
		Vel= 8.0	D= 4.280	TL=	13.0	0.0217	Pf	0.3	Pn	33.3
	23						Pt	34.0		
23		Q= 359.2	<<<	SOURCE	>>>		Pt	34.0		

E=90-Elb T=Tee L=LgtElb C=ChkVlv B=BfyVlv G=GatVlv A=AlmChk F=45-E

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○ — ○ Water Supply
 Static : 50 Psi
 Resid : 45 Psi
 Flow : 600 Gpm

● — ● Water Demand
 Avl Press : 48.1 Psi @ 359 Gpm
 Req Press : 34.0 Psi @ 359 Gpm
 Press Cush: 14.1 Psi