Friction Loss—GPM Tables

1" Hose @ 50 PSI NP						100 PSI NP
TIP	1/8	3/16	1/4	5/16	3/8	1" Comb.
FL 100'	1	2	5	12	25	40
GPM	3	7	12	19	28	42

1-1/2" Hose @ 50 PSI NP						100 PSI NP
TIP	1/4	5/16	3/8	1/2	5/8	1-1/2" Comb.
FL 100'	1	2	3	10	25	44
GPM	12	29	28	50	81	116

2-1/2" Hose @ 50 PSI NP							
TIP	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2
FL 100'	1	4	7	10	17	25	50
GPM	80	117	160	209	265	325	472

Friction Loss Factors 100' 2-1/2" Hose

Tip	Factor		50 PSI	100 PSI
7/8"	1/7 of NP	=	7	14
1"	1/5 of NP	=	10	20
1-1/8"	1/3 of NP	=	17	33
1-1/4"	1/2 of NP	=	25	50
1-1/2"	1 of NP	=	50	100

GPM Method 100' 2-1/2" Hose

GPM	100	150	200	250	300	350	400	450	500
F.L.	3	6	10	15	21	28	36	45	55

NP + FL + A ± H = EP

NP	-	TIP	-	50 PSI	COMB	-	100 PSI
FL	-	2-1/2"		2 Line	÷ 1/4		
				3 Lines	÷ 1/9		
				4 Lines	÷ 1/16		
		3/4"		Hardline	4 X FL		1" Hose
A	-	**5 PSI**		**25 PSI**	**80 PSI**		
		TEES		Monitor	Ladder Pipe		
		WYES		Standpipe	Applicator		
H	±	100'	ELEV	-	43 PSI		5 PSI/Floor
		50	ELEV	-	22 PSI		

Laterals	-	NP for 1-1/2" Hose only FL for each lateral + 1-1/2" line
Leader Lines	-	NP, FL for one 1-1/2" only GPM for both nozzles
Stand Pipes	-	NP, FL for top floor only GPM for each nozzle
Identical L (Sep. Disch.)	-	NP, FL for one line only

Hydrant Capacity	10% Drop	-	Can add 3 lines
	15% Drop	-	Can add 2 lines
	25% Drop	-	Can add 1 line

Relay Pumping	FL @ rated engine GPM X L.L. – IP (Intake pressure 20) ± H EP

Fold here