

Building Information					City Flow Test:			FP-1:			Date: 11/27/2018							
Project:	No. of Lvs:	Bldg Hgt:	DATUM ELEV =	No. of Stip's:	Total Flow:	Static:	Residual:	Flow:	Rated Pressure:	Rated Flow:	Rated Churn:	PSI	GPM	PSI	Churn + FP-1 @ 0 Flow:			
Location Tag	Elev. Above Finish Grade	Valve Mat.	Size (IN)	Application PRV FOR FCV & FHV	Churn	Required SP Flow	Required Test Flow	Flow of GPM	Desired Outlet Static (PSI)	Desired Outlet Residual (PSI)	Outlet Static (PSI) Info. Only @ 0 GPM	Outlet Residual (PSI) Based on all STPE's flowing @	Flow Range Info. Only @	Type (T) Setting	AHJ Field Verification Static PSI @	AHJ Field Verification Residual PSI @	AHJ Field Verification GPM @	EXPECTED Outlet Residual Testing @
					Inlet Static (PSI) @ 0 GPM	Inlet Residual (PSI) Based on all Stip's flowing @ 1000 GPM*	Inlet Residual (PSI) Based on all Stip's flowing @ 250 GPM		165	165	137	111	250 GPM		250 GPM	250 GPM	250 GPM	250 GPM
PV06	163.91	ZW4000G	2.5	0 FCV 3 FHV	173	154	172	1000	165	165	137	111	250	U				126
PV05	155.16	ZW4000G	2.5	0 FCV 3 FHV	177	158	175	1000	165	165	140	114	250	U				128
PV04	145.83	ZW4000G	2.5	0 FCV 3 FHV	181	162	179	1000	165	165	143	118	250	U				131
PV03	135.91	ZW4000G	2.5	0 FCV 3 FHV	185	166	184	1000	165	165	146	121	250	U				135
PV1M	126	ZW4004GSS ZW4000G	2.5	1 FCV 2 FHV	190	171	188	1000	165	165	150	125	250	U				138
PV1B	116.4	ZW4004GSS ZW4000G	2.5	1 FCV 2 FHV	194	175	192	1000	165	165	153	126	250	U				142
PV1A	105.91	ZW4004GSS ZW4000G	2.5	1 FCV 2 FHV	198	180	197	1000	165	165	147	116	250	T				127
PV81	93.75	ZW4000G	2.5	0 FCV 3 FHV	204	185	202	1000	165	165	151	119	250	T				130
PV82	83.5	ZW4000G	2.5	0 FCV 3 FHV	208	189	207	1000	165	165	154	122	250	T				134
PV83	74.5	ZW4000G	2.5	0 FCV 3 FHV	212	193	210	1000	165	165	157	124	250	T				136
PV84	65.5	ZW4000G	2.5	0 FCV 3 FHV	216	197	214	1000	165	165	160	127	250	T				139
PV85	56.5	ZW4000G	2.5	0 FCV 3 FHV	220	201	218	1000	165	165	163	130	250	T				142

The red line shows 1) the inlet static pressure at each hose valve connection when the fire pump is at churn (0 GPM) and 2) the corresponding outlet static pressure derived from the specific PRV setting. Maximum outlet pressure shall be 175 PSI. This calc is used to ensure that the sprinkler system on any floor does not exceed the maximum allowable pressure of 175 PSI.

The green line shows 1) the inlet residual pressure when all standpipes are flowing the required system flow in GPM* and 2) the corresponding outlet residual pressure derived from the specific PRV setting. The outlet residual pressure shall not fall below the 100 PSI minimum threshold that is required at all hose valve connections.

The blue line shows 1) the inlet residual pressure when a single standpipe is flowing 250 GPM and 2) the corresponding expected outlet residual pressure derived from the specific PRV setting. This calc and the expected outlet residual pressure will be used during the PRV testing to verify the outlet pressure at the PRV/Hose valve outlets on all required standpipes.

ALL of these PRV settings shall be backed up by corresponding calculations to verify the associated pressures at each floor are correct AND ALL of these calculations must start out at the maximum pressure at the **TOP** of the standpipe when 1) at CHURN, 2) at Required Flow in GPM* flowing with safety factor, or 3) at 250 GPM flowing with safety factor for each required standpipe.

A standpipe hydraulic calc with the safety factor is when the standpipe is flowing at the required flow* and the actual pressure at the top of the standpipe is measured. Whatever the difference is between the actual pressure at the top of the SP and the minimum pressure of 100 PSI at the top of the standpipe is the safety factor.

A standpipe hydraulic calculation with no safety factor (at 100 PSI) is the minimum pressure that the system can and should ever see. This pressure is generally posted on the FDC sign on the building. When operations gets to the building, they will know what to pump into the FDC (at a minimum) to get at least 100 PSI at the top of the standpipes.

A standpipe hydraulic calculation for each required standpipe flowing 250 GPM with safety factor is required for testing the standpipes.

ALL STANPIPE CALCULATIONS AND THE CORRESPONDING STAIR DRAWINGS ON THE PLANS SHALL START AT THE **TOP** OF THE STANDPIPE(S). It will not be allowed to start the standpipe calcs at the highest level of the PRV's.

* Required flow for the system per NFPA 14. In most cases for a sprinklered building this will either be 750 GPM or 1000 GPM depending on the number of required standpipes.