



Janus Fire Systems FM-200 Hydraulic Flow Calculation Program

**Result Printout**

Calculation Program Version 2.4.2.14

**Calculated by: Hiller New England Fire Protection**

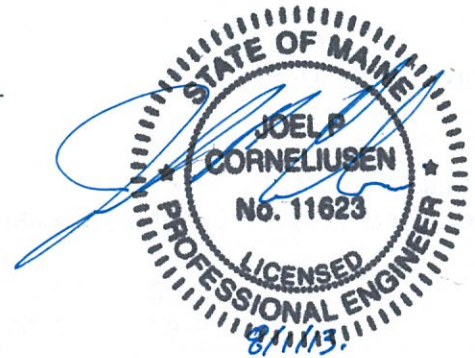
240 Ballardvale St.  
Wilmington, MA 0187  
United States  
Phone: (978) 657-5550  
Fax: (978) 657-0016  
Designed By: Jeff Kidd

**Project Name: Verizon Wireless - Portland**

**Project Number: NE2636**

**Designed For: Verizon Wireless - Portland**

ATTN: 202 Woodford St.\_  
Phone:  
Fax: PortlandME\_



**System Constraints**

Name of Hazard	Equipment Room	
Storage Pressure (psig):	360 PSI	Calculation Report Date: 7/29/2013
Initial Cyl. Storage Temperature (F):	70°	Calculation Revision:
Qty of Main Cylinders:	1	Mid Discharge Cyl. Pressure: 197 PSIG
Qty of Reserve Cylinders:	0	Cylinder Fill Density (lbs/cu.ft.): 55.31
Total Amount of Agent (lbs):	64	Percent of Agent in Pipe 3.74 %
Altitude Relative to Sea Level (ft):	0	Average Discharge Time (sec): 9.34
Type of Cylinder:	Sv 80 Cylinder	Cyl. Volume (Cu.ft.): 1.17

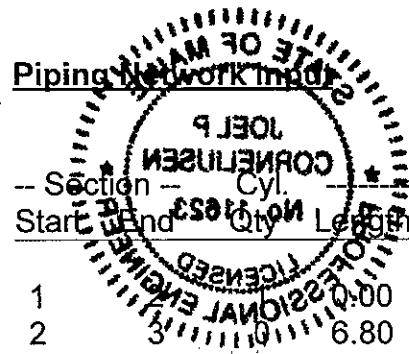




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**Hazard Characteristics**

Enclosure Name: Equipment Room	Fire Type:	Class A Fire
Design Concentration: 7	Hazard Temperature (F):	65.0
Nozzle(s) Used: 301 - 180° Nozzle, Brass	Dimensions (ft):	15.3 X 13.8 X 8.5 -46.8 X 1.0 X 1.0
	Total Volume (Cu.ft.):	1747.89
	Total Agent Required:	60.24 lbs



Piping Network

Section	Start	End	Cyl. Qty	Length	Elevation	Pipe Sched.	Pipe Size	90's	Tee or Valve	Cplng/ Union	Nozzle Drill
1			0	0.00	2.67	SCH 40	1-1/4	0	None	0	0
2			0	6.80	5.80	SCH 40	3/4	1	None	0	0
3	4		0	10.50	0.00	SCH 40	3/4	3	None	0	0
4	301		0	1.00	-1.00	SCH 40	3/4	1	None	0	0.4844

Manifold Dead Leg: - Length: 0; Pipe Schedule: ; Pipe Size:





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**Piping Network Results**

Section Start	Section End	Pipe Size (in) sch	Length (ft)	Elevation (ft)	EQL (ft)	Tee or Valve	Start (PSIG)	Term	Flow (lbs/sec)
1	2	1-1/4 SCH 40	.00	2.67	8.00	None	197	193	7.37
2	3	3/4 SCH 40	6.80	5.80	8.86	None	193	166	7.37
3	4	3/4 SCH 40	10.50	.00	16.68	None	166	126	7.37
4	301	3/4 SCH 40	1.00	-1.00	3.06	None	126	115	7.37

**Nozzle Performance**

Nozzle ID	Nozzle Size (inches)	Stock Number	Nozzle Type	Drill Dia (inches)	Drill Size	Total Orifice Area (sq.in.)	Discharged (lbs)
301	3/4"	18502-106	180° Nozzle, Brass	0.4844	31/64	.369	64.0

**Hazard Concentration Summary**

Enclosure Name	Enclosure Volume (cu.ft)	Agent Required (lbs)	Agent Discharged (lbs)	Concentration Requested / Achieved	Pass or Fail
Equipment Room	1747.89	60.24	64.0	7.00 7.40	Pass





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**Venting Estimate**

Enclosure Name	Leakage Area Known	Relative Humidity	Safety Factor	Max. Positive Pressure - PSF	Max. Negative Pressure - PSF	Pos. ELA (sq.in)	Neg. ELA (sq in)
Equipment Room No		36%	1	5	5	23.8	46.2

**Design / Error Messages**

1. - Hydraulic calculation was successful.
2. - Version dated 1/1/2012
3. - Pipe Sizes & Nozzle Diameters are fixed.
4. - \* System is designed to meet Underwriters Laboratory design criteria.
5. - All agent requirements were calculated based on NFPA 2001, Table A.5.5.1(i).

**Statistics of Piping Used**

(Note: Only U.S Standard Values are used by the math module)





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**Statistics of Piping Used (Continued)**

(Note: Only U.S Standard Values are used by the math module)

Piping information for Pipe Type: -SCH 40

Pipe Size (in)	Metric Size (mm)	English ID (in)	Metric ID (mm)	English lbs/ft	Metric kgs/M	Type of Joint
1-1/4	32	1.38	35.052	2.27	3.378132	Threaded
3/4	20	0.824	20.9296	1.13	1.681625	Threaded

Note: For Pipe Schedule(s): -SCH 40; these Pipes conform to ANSI A-53/A-106, grade A-ERW or better

Data File: \\MAC-SERVER\engineering\Job Folder\NE2636-Verizon Wireless-Portland (Wireless Construction)\Calculations\A-2636-1r0.JDF



