

SPRINKLERS  
 SAVE LIVES  
 PROTECT PROPERTY

FIRE PROTECTION SYSTEMS DESIGNED & INSTALLED BY

\*\*\*\*\*  
 \* SHAMBAUGH & SON, INC \*  
 \* FIRE PROTECTION DIVISION \*  
 \* FORT WAYNE, IN. 46801 \*  
 \* 219-487-7777 \*  
 \*\*\*\*\*

SYSTEM PROTECTING AREA : NEW MEZZANINE

DENSITY : .10 GPM AREA : 875 SQ FT HOSE : 100 GPM

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 \* CONTRACTOR SHAMBAUGH FIRE PROTECTION \*  
 \* NAME VISION MOLDED PLASTICS \*  
 \* LOCATION 1675 INDUSTRIAL DRIVE NAPOLEON, OHIO \*  
 \* SYSTEM NO. ONE \*  
 \* CONTRACT NO. 231292 \*  
 \*\*\*\*\*

*1675 Industrial*

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 FORT WAYNE, IND. 46801  
 219-467-7777

HYDRAULIC DESIGN INFORMATION SHEET

E - VISION MOLDED PLASTICS  
 ATION - 1675 INDUSTRIAL DRIVE NAPOLEON, OHIO DATE - 04-05-95  
 LDING - NEW MEZZANINE  
 TRACTOR - SHAMBAUGH FIRE PROTECTION SYSTEM NO. - ONE  
 CULATED BY - BRAD BOJRAB CONTRACT NO. - 231292  
 TRUCTION: ( ) COMBUSTIBLE (X) NON-COMBUSTIBLE DRAWING NO. - FP-2  
 UPRANCY - OFFICE CEILING HEIGHT 8

(X) NFPA 13, 1989 (X) LT. HAZ. ORD. HAZ. GP. ( ) 1 ( ) 2 ( ) 3 ( ) EX. HAZ.  
 ( ) NFPA 231 ( ) NFPA 231C FIGURE 2-2.1.1(b) CURVE ORD. HAZ 2  
 ( ) OTHER  
 ( ) SPECIFIC RULING

MADE BY DATE:

AREA OF SPRINKLER OPERATION	875	SYSTEM TYPE	SPRINKLER/NOZZLE
DENSITY-GPM/Ft <sup>2</sup>	.10	(X) WET	MAKE: VIKING
AREA PER SPRINKLER	192	( ) DRY	MODEL: "M"
ELEVATION AT HIGHEST OUTLET	28.58	( ) DELUGE	SIZE: 1/2" ORIFICE
HOSE ALLOWANCE GPM-INSIDE	0	( ) PREACTION	K-FACTOR: 5.5
RACK SPRINKLER ALLOWANCE	0	( ) OTHER	TEMPERATURE: 155
HOSE ALLOWANCE GPM-OUTSIDE	100	- FED FROM CITY SUPPLY	
HOSE ALLOWANCE GPM-OUTSIDE	0	- FED FROM PUMP	

NOTE

CULATION GPM REQUIRED 260.34 PSI REQUIRED 56.754 AT WATER SUPPLY  
 NARY C-FACTOR USED: OVERHEAD 120 UNDERGROUND 140

WATER FLOW TEST:		PUMP DATA:		TANK OR RESERVOIR:	
DATE OF TEST	1993	RATED CAP.	0	CAP.	
TIME OF TEST	7:00 AM	@ PSI	0	ELEV.	
STATIC (PSI)	62	ELEV.	0		
RESIDUAL (PSI)	50	ADJUSTED RES. PRES.		WELL	
FLOW (GPM)	1319	0	GPM @	PROF FLOW GPM	
ELEVATION	0	0	PSI @ PUMP		

LOCATION: 12" CITY WATER MAIN ALONG INDUSTRIAL DRIVE

SOURCE OF CITY OF NAPOLEON  
 INFORMATION:

COMMODITY	CLASS	LOCATION
STORAGE HT.	AREA	aisle W.
STORAGE METHOD: SOLID PILED	%	PALLETIZED % RACK %
( ) SINGLE ROW	( ) CONVEN. PALLET	( ) AUTO. STORAGE
( ) DOUBLE ROW	( ) SLAVE PALLET	( ) ENCAP.
( ) MULT. ROW		( ) SOLID SHELF
		( ) NON
		( ) OPEN SHELF

FLUE SPACING LONGITUDINAL CLEARANCE: STORAGE TO CEILING TRANSVERSE

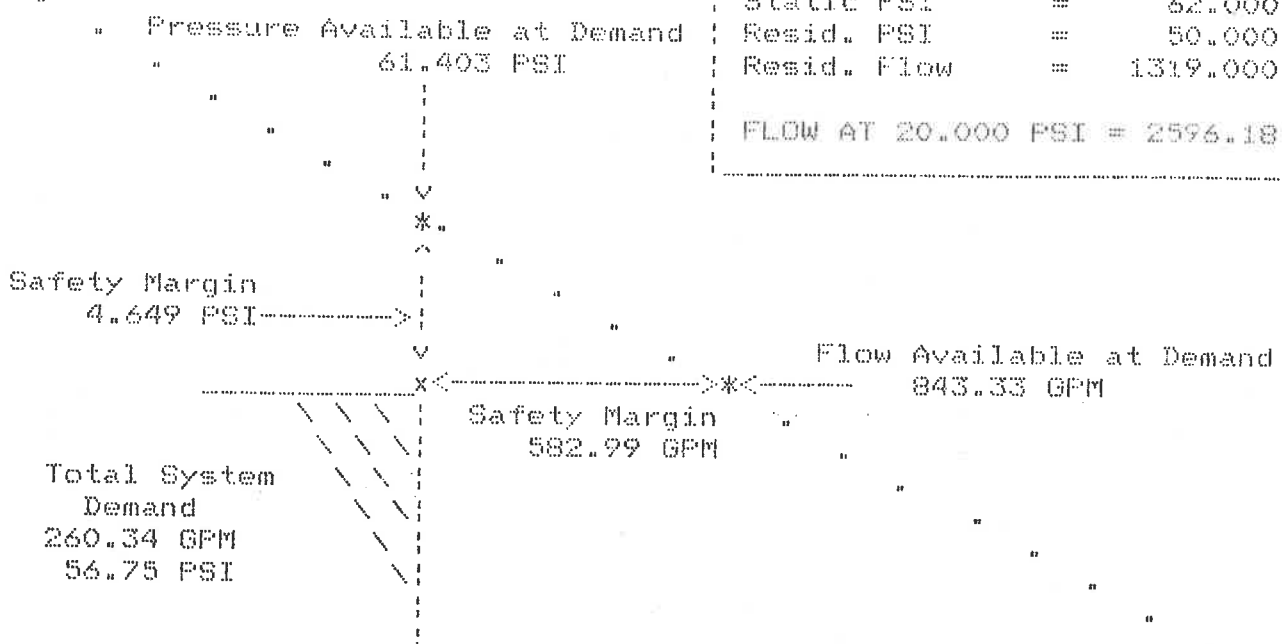
HORIZONTAL BARRIERS PROVIDED:

CS - DIAMETER (INCH) LENGTH (FOOT) FLIGHT (FOOT) SPEED (MPH)

SHAMBAUGH & SON INC.  
VISION MOLDED PLASTICS

WATER SUPPLY CURVE

Static PSI = 62.000 PSI  
Resid. PSI = 50.000 PSI  
Resid. Flow = 1319.000 GPM  
FLOW AT 20.000 PSI = 2596.18 GPM



System Flow	=	160.34 GPM	Rack Allowance	=	0.00 GPM
Inside Hose	=	0.00 GPM	Elevation to Heads	=	28.580 FT.
Outside Hose	=	100.00 GPM			

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FITTING NAME TABLE

ABBREV.	NAME
A	RELIABLE ALARM VALVE
B	NIBCO BUTTERFLY VALVE
D	RELIABLE DRY PIPE VALVE
E	90 DEGREE ELBOW (NFFA)
F	45 DEGREE ELBOW (NFFA)
G	GATE VALVE
H	RELIABLE DELUGE VALVE
L	90 DEG VIC ELL -FIRELOCK
M	45 DEG VIC ELL -FIRELOCK
N	NIBCO W-900-W WAFER CHK
S	SWING CHECK VALVE
T	TEE or CROSS - FLOW 90°
U	90 DEG FLOW FIRELOCK TEE
V	VIKING ALARM VALVE "H"
W	VIKING DRY VALVE "E"
X	VIKING DELUGE VALVE E-1
Y	VIKING DRY VALVE F1

SHAMBAUGH & SON INC.

OB- VISION PLASTICS, "NEW MEZZ"

JOB NO- 231292-1B

DATE 032395 PAGE 2

HYD. REF POINT	Qa Qt	DIA. "C" Pf/F	FITTING or Eqv. Ln.	PIPE FTNG'S TOTAL	Pt Pe Pf	Pt Pv Pn	***** NOTES *****
H70	14.55	1.049	1T	5.00	0.67	7.00	K = 5.5
		C=120		0.00	5.00	0.29	0.00
	14.55	0.0723	0.00	5.67	0.41	0.00	Vel = 5.40
70	14.55					7.70	K = 5.245
H71	16.22	1.049	1T	5.00	0.67	8.70	K = 5.5
		C=120		0.00	5.00	-0.29	0.00
	16.22	0.0881	0.00	5.67	0.50	0.00	Vel = 6.02
71	16.22					8.91	K = 5.435
H72	18.30	1.049	1T	5.00	0.67	11.07	K = 5.5
		C=120		0.00	5.00	-0.29	0.00
	18.30	0.1111	0.00	5.67	0.63	0.00	Vel = 6.79
72	18.30					11.41	K = 5.418
H73	18.83	1.049	1T	5.00	0.67	11.72	K = 5.5
		C=120		0.00	5.00	0.29	0.00
	18.83	0.1164	0.00	5.67	0.66	0.00	Vel = 6.99
73	18.83					12.67	K = 5.290
H74	18.91	1.049	1E	2.00	3.83	11.82	K = 5.5
		C=120	1T	5.00	7.00	-0.29	0.00
	18.91	0.1172	0.00	10.83	1.27	0.00	Vel = 7.02
74	18.91					12.80	K = 5.286
H75	21.09	1.049	1T	5.00	0.67	14.70	K = 5.5
		C=120		0.00	5.00	-0.29	0.00
	21.09	0.1428	0.00	5.67	0.81	0.00	Vel = 7.83
75	21.09					15.22	K = 5.406
H76	24.24	1.049	1T	5.00	0.67	19.42	K = 5.5
		C=120		0.00	5.00	-0.29	0.00
	24.24	0.1851	0.00	5.67	1.05	0.00	Vel = 9.00

SHAMBAUGH & SON INC.

VISION PLASTICS, "NEW MEZZ"

JOB NO- 231192-1B

DATE 032395 PAGE 3

HYD. REF POINT	Qa Qt	DIA. "C" Pf/F	FITTING or Eqv. Ln.	PIPE FTNG'S TOTAL	Pt Pe Pf	Pt Pv Pn	***** NOTES *****
76	24.24				20.18		K = 5.396
H77	28.20	1.049 C=120	1T 5.00 0.00	0.67 5.00	26.29 -0.29	26.29 0.00	K = 5.5
	28.20	0.2451	0.00	5.67	1.39	0.00	Vel = 10.47
77	28.20				27.39		K = 5.388
70	14.55	1.049 C=120	2E 4.00 0.00	12.75 4.00	7.70 0.00	7.70 0.00	
	14.55	0.0722	0.00	16.75	1.21	0.00	Vel = 5.40
71	16.22	1.049 C=120		0.00 8.67	0.00 8.91	0.00 8.91	
	30.77	0.2883	0.00	8.67	2.50	0.00	Vel = 11.42
72	18.30	1.380 C=120		0.00 7.00	11.41 0.00	11.41 0.00	
	49.07	0.1800	0.00	7.00	1.26	0.00	Vel = 10.53
73	18.83	1.610 C=120		0.00 0.83	12.67 0.00	12.67 0.00	
	67.90	0.1566	0.00	0.83	0.13	0.00	Vel = 10.70
74	18.91	1.610 C=120		0.00 9.92	12.80 0.00	12.80 0.00	
	86.81	0.2439	0.00	9.92	2.42	0.00	Vel = 13.68
75	21.09	1.610 C=120		0.00 13.58	15.22 0.00	15.22 0.00	
	107.90	0.3652	0.00	13.58	4.96	0.00	Vel = 17.00
76	24.23	1.610 C=120		0.00 13.58	20.18 0.00	20.18 0.00	
	132.13	0.5309	0.00	13.58	7.21	0.00	Vel = 20.82
77	28.20	1.610 C=120		0.00 3.92	27.39 0.00	27.39 0.00	
	160.33	0.7602	0.00	3.92	2.98	0.00	Vel = 25.27
78	0.00	2.067 C=120	1T 10.00 0.00	1.50 10.00	30.37 0.00	30.37 0.00	
	160.33	0.2252	0.00	11.50	2.59	0.00	Vel = 15.33
79	160.33				32.96		K = 27.926

SHAMBAUGH & SON INC.

GE- VISION PLASTICS, "NEW MEZZ"

JOB NO- 231292-1B

DATE 032395 PAGE 4

HYD. REF POINT	Qa Qt	DIA. "C" P/F	FITTING or Eqv. Ln.	PIPE FTNG'S TOTAL	Pt Pe Pf	Pt Pv Pn	***** NOTES *****	
79	160.33	2.227	2E	14.38	73.88	32.96	32.96	
			C=120	1T	14.38	28.76	-8.64	0.00
	160.33	0.1564		0.00	102.64	16.06	0.00	Vel = 13.21
80	0.01	8.249	1U	38.76	235.50	40.38	40.38	
			C=120		0.00	38.76	0.00	0.00
	160.34	0.0002		0.00	274.26	0.07	0.00	Vel = .96
31	0.00	8.249	1L	15.27	19.96	40.45	40.45	
			C=120		0.00	15.27	0.00	0.00
	160.34	0.0002		0.00	35.23	0.01	0.00	Vel = .96
32	0.00	8.249		0.00	16.23	40.46	40.46	
			C=120		0.00	0.00	6.99	0.00
	160.34	0.0000		0.00	16.23	0.00	0.00	Vel = .96
67	0.00	8.249		0.00	11.50	47.45	47.45	
			C=120		0.00	0.00	8.98	0.00
	160.34	0.0008		0.00	11.50	0.01	0.00	Vel = .96
BASR	160.34					56.44		K = 21.343
BASR	160.34	8.385	2E	60.90	1398.00	56.44	56.44	
			C=140	1G	6.77	157.32	0.00	0.00
	160.34	0.0001	2F	30.45	1555.32	0.28	0.00	Vel = .93
			1T	59.20				
CITY	100.00	12.455	1E	44.15	305.00	56.72	56.72	Qa = 100
			C=140	1G	9.81	152.06	0.00	0.00
	260.34	0.0000	1T	98.10	457.06	0.03	0.00	Vel = .69
TEST	260.34					56.75		K = 34.558

