

Project ref/no = UPOL OLOMOUC LF
Client ref/no = ATELIER VELEHRADSKY
Address/notes 1 =
Address/notes 2 =
Address/notes 3 =
Building ref/no =
Hazard classification =
System/design ref (MR/MF) = [MR] [Selected 20 most favourable heads]
Installation ref/no = MOKRA SOUSTAVA 1NP-4NP
Drawing(s) ref/no =
Drawing(s) dates/issues =
Reviewer/Insurance/Fire =
Designer/Dept = Ing. Ondrej Krupka
Comments 1 = Sprinkplan s.r.o.
Comments 2 = projekty pozarnich sprinkleru
Start X Y + building DXF = www.sprinkplan.cz
Design area sq.m = 72
Elbows welded above mm = 50
Specific gravity = 1.00
Node no for zero datum = 0
Design authority = EN12845 Rules (latest) using Hazen-Williams formula

Installer/designer = Program provided free by Alan Ashfield

The user name and contact details are stored
in the file USERINFO.TXT which you can either
delete and re-enter OR amend with NOTEPAD.

Telephone no(s) =
FAX no(s) =
Registration = 13116 from 01 květen 2013 [4E1AA65A]
Reference = krupk on DESKTOP-J9TFB1M to Bullzip PDF Printer
Data file = [From UPOL HV.dxf] last amended

All pages checked by

Sprinklers operating = 20 out of 32 entered
Area of operation = 148.01 sq.m
Max area per head = 9.000 sq.m
Min head density = 5.619 mm/min at node 152
Min head pressure = 0.350 bars at node 169
Max head pressure = 0.767 bars at node 184
Max head height = 7.470 m
Pipes = 81 + 43 with zero flow
Min pipe size = 25 mm
Max pressure drop = 0.556 bars in pipe 126 183
Max pressure drop/metre = 102.90 mbar/m in pipe 139 140
Max velocity = 4.51 m/s in pipe 139 140
Hydrants / hoses reels = 0 L/min
Volume of pipework = 1.120 cu.m
Actual density of discharge = 5.77 mm/min over 8.513 sq.m
Four most remote heads = 150 152 169 170

SOURCE DUTY = 1156.5 L/min at 2.969 bars [node 100]

OPERATING SPRINKLER HEADS AND HYDRANTS

Node no	Size mm	"K" factor	Flows Min	in L/min Actual	L/min %	Area sq.m	Density Min	mm/min Actual	Pipe mm	MRH #	Height m	Pressures Min	Normal	Vel	bars Total
141	15.0	80.00	47.3	56.5	19	5.760	5.00	9.81	25		7.470	0.35	0.499		0.499
143	15.0	80.00	47.3	50.5	7	5.723	5.00	8.83	25		7.470	0.35	0.399		0.399
145	15.0	80.00	47.3	50.2	6	7.164	5.00	7.00	25		7.470	0.35	0.393		0.393
148	15.0	80.00	47.3	56.4	19	7.179	5.00	7.86	25		7.470	0.35	0.497		0.497
150	15.0	80.00	47.3	50.5	7	7.134	5.00	7.08	25	1	7.470	0.35	0.398		0.398
152	15.0	80.00	47.3	50.2	6	8.928	5.00	5.62	25	2	7.470	0.35	0.393		0.393
154	15.0	80.00	47.3	65.7	39	7.929	5.00	8.28	25		7.470	0.35	0.674		0.674
169	15.0	80.00	47.3	47.3	0	7.870	5.00	6.01	25	3	7.470	0.35	0.350		0.350
170	15.0	80.00	47.3	48.6	3	7.819	5.00	6.22	25	4	7.470	0.35	0.369		0.369
171	15.0	80.00	47.3	65.8	39	7.229	5.00	9.11	25		7.470	0.35	0.677		0.677
172	15.0	80.00	47.3	66.4	40	7.188	5.00	9.24	25		7.470	0.35	0.690		0.690
174	15.0	80.00	47.3	47.8	1	7.146	5.00	6.69	25		7.470	0.35	0.357		0.357
175	15.0	80.00	47.3	49.5	4	7.091	5.00	6.97	25		7.470	0.35	0.382		0.382
176	15.0	80.00	47.3	52.4	11	6.373	5.00	8.22	25		7.470	0.35	0.429		0.429
177	15.0	80.00	47.3	54.9	16	7.025	5.00	7.81	25		7.470	0.35	0.471		0.471
178	15.0	80.00	47.3	66.7	41	6.422	5.00	10.39	25		7.470	0.35	0.696		0.696
180	15.0	80.00	47.3	67.6	43	7.025	5.00	9.63	25		7.470	0.35	0.715		0.715
182	15.0	80.00	47.3	70.0	48	9.000	5.00	7.78	25		7.470	0.35	0.766		0.766
184	15.0	80.00	47.3	70.1	48	9.000	5.00	7.78	25		7.470	0.35	0.767		0.767
186	15.0	80.00	47.3	69.4	47	9.000	5.00	7.71	25		7.470	0.35	0.752		0.752

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s	S i z e	F l o w	Length	Direction	Fittings	Equiv	Vel	Static	Height	P r e s s u r e s	b a r
Start	End	mm ref	L/min	m	<>~slope	+options	len m	m/s	m	Start Frict v e l	End
100	110	100 DIN	1156.5	0.200	west			2.11		2.969 0.001	2.968
110	111	100 DIN	1156.5	3.100	Up	W	1.40	2.11	3.100	2.968 0.023	2.642
111	112	100 DIN	1156.5	6.088	West	W	1.40	2.11	3.100	2.642 0.038	2.604
112	113	100 DIN	1156.5	2.019	North	W	1.40	2.11	3.100	2.604 0.017	2.587
113	114	100 DIN	1156.5	6.720	Up	W	1.40	2.11	6.720	2.587 0.041	1.888
114	115	100 DIN	1156.5	0.520	North	W	1.40	2.11	9.820	1.888 0.010	1.878
115	116	100 DIN	1156.5	0.584	East	WSV	6.50	2.11	9.820	1.878 0.036	1.843
116	117	100 DIN	1156.5	0.116	North	W	1.40	2.11	9.820	1.843 0.008	1.835
117	118	100 DIN	1156.5	1.200	Down	WBV	6.00	2.11	-1.200	8.620 1.835 0.036	1.916
118	119	100 DIN	1156.5	1.484	West	W	1.40	2.11	8.620	1.916 0.014	1.902
119	120	80 DIN	1156.5	1.200	Up	WSVBV	8.60	3.55	1.200	9.820 1.902 0.176	1.609
120	121	80 DIN	1156.5	0.636	South	T	4.80	3.55		9.820 1.609 0.097	1.511
121	122	80 DIN	1156.5	2.350	Down	W	1.10	3.55	-2.350	7.470 1.511 0.062	1.679
122	123	80 DIN	1156.5	2.200	South	W	1.10	3.55		7.470 1.679 0.059	1.620
123	124	50 DIN	321.7	3.600	East	T	2.90	2.43		7.470 1.620 0.098	1.523
124	125	50 DIN	321.7	0.300	South	E	1.50	2.43		7.470 1.523 0.027	1.496
125	126	50 DIN	321.7	2.550	East	E	1.50	2.43		7.470 1.496 0.061	1.435
126	127	50 DIN	182.2	4.700	East			1.38		7.470 1.435 0.025	1.410
127	128	50 DIN	182.2	0.900	South	E	1.50	1.38		7.470 1.410 0.013	1.398
128	129	50 DIN	182.2	20.850	East	E	1.50	1.38		7.470 1.398 0.117	1.280
129	130	50 DIN	182.2	0.900	North	E	1.50	1.38		7.470 1.280 0.013	1.268
130	131	50 DIN	182.2	18.150	East	E	1.50	1.38		7.470 1.268 0.103	1.164
131	132	50 DIN	182.2	11.700	South	E	1.50	1.38		7.470 1.164 0.069	1.095
132	133	50 DIN	182.2	12.300	West	E	1.50	1.38		7.470 1.095 0.072	1.023
133	134	50 DIN	182.2	2.000	North	E	1.50	1.38		7.470 1.023 0.018	1.004
134	135	50 DIN	182.2	7.850	West	E	1.50	1.38		7.470 1.004 0.049	0.955
135	136	50 DIN	182.2	6.050	South	E	1.50	1.38		7.470 0.955 0.040	0.916
136	137	50 DIN	182.2	22.750	West	E	1.50	1.38		7.470 0.916 0.127	0.788
137	138	50 DIN	182.2	0.700	South	E	1.50	1.38		7.470 0.788 0.012	0.777
138	139	65 DIN	182.2	1.300	West	W	0.88	0.77		7.470 0.777 0.003	0.774
139	140	25 DIN	157.2	0.450	North	T	1.50	4.51		7.470 0.774 0.201	0.573
140	141	25 DIN	56.5	0.248	@ 93	4ET	4.58	1.62		7.470 0.573 0.075	0.499
140	142	25 DIN	100.7	2.500	North			2.89		7.470 0.573 0.113	0.460
142	143	25 DIN	50.5	0.273	@115	4ET	4.58	1.45		7.470 0.460 0.061	0.399
142	144	25 DIN	50.2	1.650	North			1.44		7.470 0.460 0.021	0.440
144	145	25 DIN	50.2	0.653	@ 22	4E	3.08	1.44		7.470 0.440 0.046	0.393
139	146	65 DIN	25.0	2.500	West			0.11		7.470 0.774 0.000	0.774
146	147	25 DIN	157.1	0.450	North	T	1.50	4.51		7.470 0.774 0.200	0.574
147	148	25 DIN	56.4	0.348	@ 92	4ET	4.58	1.62		7.470 0.574 0.076	0.497
147	149	25 DIN	100.7	2.500	North			2.89		7.470 0.574 0.113	0.461
149	150	25 DIN	50.5	0.366	@108	4ET	4.58	1.45		7.470 0.461 0.062	0.398
149	151	25 DIN	50.2	1.650	North			1.44		7.470 0.461 0.021	0.440
151	152	25 DIN	50.2	0.698	@ 30	4E	3.08	1.44		7.470 0.440 0.047	0.393
146	153	65 DIN	-132.1	3.250	West			0.56		7.470 0.774 0.002	0.776
153	154	25 DIN	65.7	0.436	@ 2	4ET	4.58	1.88		7.470 0.776 0.103	0.674
153	155	65 DIN	-197.7	3.000	West			0.83		7.470 0.776 0.004	0.781
155	156	65 DIN	-263.6	2.750	West			1.11		7.470 0.781 0.007	0.788
156	157	65 DIN	-263.6	0.450	North	W	0.88	1.11		7.470 0.788 0.003	0.791
157	158	65 DIN	-330.0	1.900	North			1.39		7.470 0.791 0.007	0.798
158	159	65 DIN	-330.0	0.300	West	W	0.88	1.39		7.470 0.798 0.005	0.803
159	160	65 DIN	-396.7	1.950	West			1.68		7.470 0.803 0.010	0.813
160	161	40 DIN	300.5	2.500	North	T	2.40	3.65		7.470 0.813 0.206	0.607
161	162	40 DIN	300.5	0.200	East	E	1.20	3.65		7.470 0.607 0.059	0.548
162	163	40 DIN	245.6	1.800	East			2.98		7.470 0.548 0.052	0.496
163	164	40 DIN	193.2	2.750	East			2.35		7.470 0.496 0.051	0.445
164	165	40 DIN	145.4	0.250	East			1.77		7.470 0.445 0.003	0.442
165	166	40 DIN	95.9	2.949	East			1.17		7.470 0.442 0.015	0.427
166	167	40 DIN	47.3	0.300	East			0.57		7.470 0.427 0.000	0.427
167	168	25 DIN	47.3	2.000	South	E	0.77	1.36		7.470 0.427 0.031	0.396
168	169	25 DIN	47.3	0.236	@267	5E	3.85	1.36		7.470 0.396 0.046	0.350
166	170	25 DIN	48.6	0.358	@ 8	4ET	4.58	1.39		7.470 0.427 0.058	0.369
155	171	25 DIN	65.8	0.442	@359	4ET	4.58	1.89		7.470 0.781 0.103	0.677
157	172	25 DIN	66.4	0.260	@268	4ET	4.58	1.91		7.470 0.791 0.101	0.690
164	173	25 DIN	47.8	2.100	South	T	1.50	1.37		7.470 0.445 0.041	0.404
173	174	25 DIN	47.8	0.258	@ 69	5E	3.85	1.37		7.470 0.404 0.047	0.357
165	175	25 DIN	49.5	0.355	@360	4ET	4.58	1.42		7.470 0.442 0.060	0.382
163	176	25 DIN	52.4	0.352	@359	4ET	4.58	1.50		7.470 0.496 0.067	0.429
162	177	25 DIN	54.9	0.699	@301	4ET	4.58	1.57		7.470 0.548 0.078	0.471
159	178	25 DIN	66.7	0.490	@ 5	4ET	4.58	1.91		7.470 0.803 0.107	0.696
160	179	65 DIN	-697.2	0.800	West			2.94		7.470 0.813 0.012	0.825

HYDRAULICALLY SIGNIFICANT PIPES

N o d e s	S i z e	F l o w	Length	Direction	Fittings	Equiv	Vel	Static	Height	P r e s s u r e s	b a r
Start	End	mm ref	L/min	m	<>~slope	+options	len m	m/s	m	Start Frict v e l	E n d
179	180	25 DIN	67.6	0.539	@338	4ET	4.58	1.94	7.470	0.825 0.111	0.715
179	181	65 DIN	-764.9	3.152	West			3.23	7.470	0.825 0.057	0.882
181	182	25 DIN	70.0	0.491	@357	4ET	4.58	2.01	7.470	0.882 0.117	0.766
126	183	25 DIN	139.4	5.250	South	T	1.50	4.00	7.470	1.435 0.556	0.878
183	184	25 DIN	70.1	0.253	@271	4ET	4.58	2.01	7.470	0.878 0.112	0.767
183	185	25 DIN	69.4	2.150	South			1.99	7.470	0.878 0.049	0.830
185	186	25 DIN	69.4	0.352	SW	4E	3.08	1.99	7.470	0.830 0.078	0.752
181	224	65 DIN	-834.9	1.350	West			3.52	7.470	0.882 0.029	0.911
224	225	65 DIN	-834.9	14.400	North	W	0.88	3.52	7.470	0.911 0.325	1.236
225	226	65 DIN	-834.9	6.700	East	W	0.88	3.52	7.470	1.236 0.161	1.397
123	226	65 DIN	834.9	6.700	West	T	3.80	3.52	7.470	1.620 0.223	1.397

KEY TO FITTINGS AND PIPEWORK QUANTITIES (Above pipes only)

E = Screwed elbow, W = welded elbow, H = 45deg elbow, T = Branch tee/cross, J = Through tee
GV = Gate valve, SV = Swinging valve, MV = Mushroom valve, BV = Butterfly valve, GL = Globe valve

DIN = DIN 2440/2458 "C" wet=120 "C" dry=100(d) "C" nfpa=120 Total = 233.78 m
 Sizes = 25 40 50 65 80 100 mm
 Bores = 27.20 41.80 53.00 70.90 83.10 107.90 mm
 Lengths = 28.81 10.75 115.30 50.50 6.39 22.03 m

AACALC7 [130114] by Alan Ashfield, 9 Hyde Gardens, Langtoft, Peterborough PE6 9LT, UK
For more information about AACALC7, please visit www.freehc.net