

Degree of fire safety - ground floor (ČSN 73 0802)

ROOMS	SECTOR	AREA	TYPE	p_n	p_s	p	a_n	a_s	a	b	c	p_v	SPB
1001	N1.01/N3	37,07	PEW	-	-	-	-	-	-	-	-	0	II.
1002	N1.02	20,98	15.9	5	0	5	0,5	0,9	0,5	0,94	1	2,36	I.
1003	N1.09/N3	16,59	15.9	5	0	5	0,5	0,9	0,5	0,84	1	2,09	I.
5,6,7,12,13,14,15,23,24,25	N1.03	416,88	combined	17,04	10	27,04	0,96	0,9	0,94	1,090	1	27,58	II.
9,10,11	N1.04	38,29	1.1	40	10	50	1	0,9	0,98	1,042	1	51,06	III.
1004	N1.05/N3	165,25	PEW	-	-	-	-	-	-	-	-	0	II.
16,17,18,19,20	N1.06	800,85	combined	110,38	7,5	117,88	0,70	0,9	0,71	0,821	1	69,13	IV.
1021	N1.07	29,22	9.1.3	45	0	45	1,1	0,9	1,1	1,152	1	57,00	III.
1008	N1.08/N3	78,33	PEW	-	-	-	-	-	-	-	-	0	II.
1022	N1.10/N3	11,99	15.1	15	0	15	0,9	0,9	0,9	0,73	1	9,89	I.

Auxiliary calculations

COMPLEX FIRE LOAD FOR N1.03						
ROOM	AREA	TYPE	p_n	$AREA \cdot p_n$	a_n	$AREA \cdot p_n \cdot a_n$
1005	78,62	1.8	20	1572,40	0,9	1415,16
1006	31,9	1.11	75	2392,50	1,1	2631,75
1007	75,38	1.8	20	1507,60	0,9	1356,84
1012	161,84	1.10	5	809,20	0,8	647,36
1013	6,59	1.1	40	263,60	1	263,60
1014	21,28	14.2	5	106,40	0,7	74,48
1015	20,85	14.2	5	104,25	0,7	72,98
	396,46			6755,95		6462,17
				17,04		0,96
COMPLEX FIRE LOAD FOR N1.06						
ROOM	AREA	TYPE	p_n	$AREA \cdot p_n$	a_n	$AREA \cdot p_n \cdot a_n$
1016	92,8	1.6	120	11136,00	0,7	7795,20
1018	636,74	1.6	120	76408,80	0,7	53486,16
1019	28,76	14.2	5	143,80	0,7	100,66
1020	28,35	14.2	5	141,75	0,7	99,23
1017	14,2	1.1	40	568,00	1	568,00
	800,85			88398,35		62049,25
				110,38		0,70

FACTOR b							
ROOMS WITHOUT WINDOWS							
SECTOR	n	k	S	S_o	h_o	h_s	b
N1.02	0,005	0,009	20,98	0	0	3,65	0,942
N1.07	0,005	0,011	29,22	0	0	3,65	1,152
N1.09/N3	0,005	0,008	16,59	0	0	3,65	0,837
N1.10/N3	0,005	0,007	11,99	0	0	3,65	0,733
ROOMS WITH WINDOWS							
SECTOR	n	k	S	S_o	h_o	h_s	b
N1.03	0,113	0,216	416,88	49,87	2,74	3,1	1,090
N1.04	0,055	0,100	38,29	3	1,5	3,1	1,042
N1.06	0,172	0,248	800,85	138,03	3,07	3,1	0,821

WEIGHTED AVERAGE h_o				
SECTOR	h	w	#	S_o
N1.03	3,1	9,7	1	30,07
	2,2	1,5	6	19,8
N1.06	3,1	14,6	3	135,78
	1,5	1,5	1	2,25

FIRE HEIGHT [m ²]	
h	7,25
ROOM	AREA [m ²]
1001	41,41
1002	20,98
1003	12,25
1004	168,04
1005	78,62
1006	31,9
1007	75,38
1008	78,33
1009	9,2
1010	9,8
1011	19,29
1012	161,84
1013	6,59
1014	21,28
1015	20,85
1016	92,8
1017	14,2
1018	636,74
1019	28,76
1020	28,35
1021	29,22
1022	13,72
1023	6,67
1024	7,25
1025	6,5
TOTAL	1619,97

Degree of fire safety - first floor (ČSN 73 0802)

ROOMS	SECTOR	AREA	TYPE	p _n	p _s	p	a _n	a _s	a	b	c	p _v	SPB
LEFT ST.	N1.01/N3	38,7	PEW	-	-	-	-	-	-	-	-	0	II.
1	N2.01	28,18	1.1	40	10	50	1	0,9	0,98	0,943	1	46,2	III.
2	N2.02	54,75		-	-	-	-	-	-	-	-	30	II.
4	N2.03	54,75		-	-	-	-	-	-	-	-	30	II.
5	N2.04	54,75		-	-	-	-	-	-	-	-	30	II.
3	N2.05	110,39		-	-	-	-	-	-	-	-	30	II.
6	N2.06	110,39		-	-	-	-	-	-	-	-	30	II.
LEFT CORR.	N2.07	71,16		-	-	-	-	-	-	-	-	7,5	I.
CENTRAL ST.	N1.05/N3	151,25	PEW	-	-	-	-	-	-	-	-	0	II.
RIGHT CORR.	N2.08	124,65		-	-	-	-	-	-	-	-	7,5	I.
7	N2.09	54,75		-	-	-	-	-	-	-	-	30	II.
9	N2.10	54,75		-	-	-	-	-	-	-	-	30	II.
10	N2.11	54,75		-	-	-	-	-	-	-	-	30	II.
12	N2.12	54,75		-	-	-	-	-	-	-	-	30	II.
13	N2.13	54,75		-	-	-	-	-	-	-	-	30	II.
15	N2.14	54,75		-	-	-	-	-	-	-	-	30	II.
8	N2.15	110,39		-	-	-	-	-	-	-	-	30	II.
11	N2.16	110,39		-	-	-	-	-	-	-	-	30	II.
14	N2.17	110,39		-	-	-	-	-	-	-	-	30	II.
RIGHT ST.	N1.08/N3	79,73	PEW	-	-	-	-	-	-	-	-	0	II.
SHAFT	N1.09/N3	4,34		-	-	-	-	-	-	-	-	0	I.
SHAFT	N1.10/N3	2,79		-	-	-	-	-	-	-	-	0	I.

Auxiliary calculations

FACTOR b							
SECTOR	n	k	S	S _o	h _o	h _s	b
N2.01	0,077	0,123	28,18	3	1,5	2,9	0,943

FIRE HEIGHT [m ²]	
h	7,25
ROOM	AREA [m ²]
2002	28,18
201x	54,75
214x	110,39
202x	54,75
203x	54,75
213x	110,39
204x	54,75
212x	110,39
205x	54,75
206x	54,75
211x	110,39
207x	54,75
208x	54,75
210x	110,39
209x	54,75
TOTAL	1072,88

Degree of fire safety - second floor (ČSN 73 0802)

ROOMS	SECTOR	AREA	TYPE	p _n	p _s	p	a _n	a _s	a	b	c	p _v	SPB
LEFT ST.	N1.01/N3	38,7	PEW	-	-	-	-	-	-	-	-	0	II.
1	N3.01	28,18	1.1	40	10	50	1	0,9	0,98	0,943	1	46,2	III.
2	N3.02	54,66		-	-	-	-	-	-	-	-	30	II.
4	N3.03	54,66		-	-	-	-	-	-	-	-	30	II.
5	N3.04	54,66		-	-	-	-	-	-	-	-	30	II.
3	N3.05	110,39		-	-	-	-	-	-	-	-	30	II.
6	N3.06	110,39		-	-	-	-	-	-	-	-	30	II.
LEFT CORR.	N3.07	71,16		-	-	-	-	-	-	-	-	7,5	I.
CENTRAL ST.	N1.05/N3	151,25	PEW	-	-	-	-	-	-	-	-	0	II.
RIGHT CORR.	N3.08	124,65		-	-	-	-	-	-	-	-	7,5	I.
7	N3.09	54,66		-	-	-	-	-	-	-	-	30	II.
9	N3.10	54,66		-	-	-	-	-	-	-	-	30	II.
10	N3.11	54,66		-	-	-	-	-	-	-	-	30	II.
12	N3.12	54,66		-	-	-	-	-	-	-	-	30	II.
13	N3.13	54,66		-	-	-	-	-	-	-	-	30	II.
15	N3.14	54,66		-	-	-	-	-	-	-	-	30	II.
8	N3.15	110,39		-	-	-	-	-	-	-	-	30	II.
11	N3.16	110,39		-	-	-	-	-	-	-	-	30	II.
14	N3.17	110,39		-	-	-	-	-	-	-	-	30	II.
RIGHT ST.	N1.08/N3	79,73	PEW	-	-	-	-	-	-	-	-	0	II.
SHAFT	N1.09/N3	4,34		-	-	-	-	-	-	-	-	0	I.
SHAFT	N1.10/N3	2,79		-	-	-	-	-	-	-	-	0	I.

Auxiliary calculations

FACTOR b							
SECTOR	n	k	S	S _o	h _o	h _s	b
N3.01	0,077	0,123	28,18	3	1,5	2,9	0,943

FIRE HEIGHT [m ²]	
h	7,25
ROOM	AREA [m ²]
3002	28,18
301x	54,66
314x	110,39
302x	54,66
303x	54,66
313x	110,39
304x	54,66
312x	110,39
305x	54,66
306x	54,66
311x	110,39
307x	54,66
308x	54,66
310x	110,39
309x	54,66
TOTAL	1072,07

Inhabitants (ČSN 73 0818)

Room	Name	Area	Persons	Type	m ² /person	Multiplier	Persons
1002	Tech. room	20,39	3	11.5		0,5	2
1003	HVAC room	13,72	3	11.5		0,5	2
1005	Assembly hall	78,62	56	3.1.1		1,1	62
1006	Backstage	31,9	3	11.3		1,3	4
1007	Assembly hall	75,38	56	3.1.1		1,1	62
1010	Office	9,8	-	1.1.1	5		2
1011	Storage	19,29	-	12.1	10		2
1013	Reception	6,59	-	1.1.1	5		2
1014	WC	34,2	9	16.2		1,3	12
1015	WC	30,09	6	16.2		1,3	8
TOTAL							158
1016	Library storage	92,8	-	12.1	10		10
1017	Office	14,2	-	1.1.1	5		3
1018	Library	636,74	-	3.3.1	2,5		255
1019	WC	28,76	6	16.2		1,3	8
1020	WC	28,35	7	16.2		1,3	10
TOTAL							286
2002	Common room	28,18	-	3.4	2		15
201x	Room (DIS)	54,75	1	7.2.1		1,5	2
202x	Room (DIS)	54,75	1	7.2.1		1,5	2
214x	Room	110,39	4	7.2.1		1,5	6
203x	Room (DIS)	54,75	1	7.2.1		1,5	2
213x	Room	110,39	4	7.2.1		1,5	6
2005	Storage	4,62	-	12.1	10		1
2006	Common room	15,78	-	3.4	2		8
TOTAL							42
204x	Room (DIS)	54,75	1	7.2.1		1,5	2
212x	Room	110,39	4	7.2.1		1,5	6
205x	Room (DIS)	54,75	1	7.2.1		1,5	2
206x	Room (DIS)	54,75	1	7.2.1		1,5	2
207x	Room (DIS)	54,75	1	7.2.1		1,5	2
208x	Room (DIS)	54,75	1	7.2.1		1,5	2
209x	Room (DIS)	54,75	1	7.2.1		1,5	2
210x	Room	110,39	4	7.2.1		1,5	6
211x	Room	110,39	4	7.2.1		1,5	6
TOTAL							30
3002	Common room	28,18	-	3.4	2		15
301x	Room	54,75	3	7.2.1		1,5	5
302x	Room	54,75	3	7.2.1		1,5	5
314x	Room	110,39	4	7.2.1		1,5	6
303x	Room	54,75	3	7.2.1		1,5	5
313x	Room	110,39	4	7.2.1		1,5	6
3005	Storage	4,62	-	12.1	10		1
3006	Common room	15,78	-	3.4	2		8
TOTAL							51
304x	Room	54,75	3	7.2.1		1,5	5
312x	Room	110,39	4	7.2.1		1,5	6
305x	Room	54,75	3	7.2.1		1,5	5
306x	Room	54,75	3	7.2.1		1,5	5
307x	Room	54,75	3	7.2.1		1,5	5
308x	Room	54,75	3	7.2.1		1,5	5
309x	Room	54,75	3	7.2.1		1,5	5
310x	Room	110,39	4	7.2.1		1,5	6
311x	Room	110,39	4	7.2.1		1,5	6
TOTAL							48

Escape way 1 (left)		
E1	0,7*36+0,7*51	60,9
E2	0,7*6	4,2
s1		1
s2		1,4
K		80
u		1
550		

Escape way 2		
E1	1*158	158
s1		1
K		60
u		3
1650		

Escape way 3		
E1	0,7*36+0,7*18+0,7*51+0,7*48+0,7*286	307
E2	0,7*6+0,7*12	12,6
s1		1
s2		1,4
K		110
u		3
1650		

Escape way 4 (right)		
E1	0,7*18+0,7*48+0,7*286	246
E2	0,7*12	8,4
s1		1
s2		1,4
K		110
u		3
1650		

K - number of persons in one strip

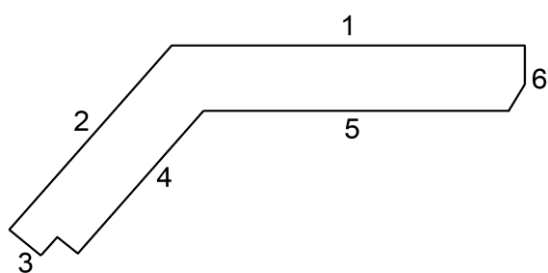
E - number of evacuated persons through the escape way

u - number of escape strips

s - multiplier

Fire distances (ČSN 73 0802)

Ground floor								
Position	h_u [m]	l [m]	S_{po} [m ²]	S_p [m ²]	p_o [%]	Sector	p_v [kg/m ²]	d_1 [m]
1	2,15	1,90	4,09	4,09	100	N1.07	57,00	4,91
	2,30	5,35	6,65	12,31	54	N1.06	69,13	3,48
2	1,50	3,00	3,00	4,50	67	N1.04	51,06	3,65
	2,20	21,50	19,80	47,30	42	N1.03	27,58	2,45
3	0	0	-	-	-	-	-	-
4	4,02	9,26	37,23	37,23	100	N1.03	27,58	6,04
5	4,02	54,34	172,74	218,45	79	N1.06	69,13	10,68
6	0	0	-	-	-	-	-	-



Fire extinguishers (ČSN 73 0802)

Fire sector	S [m ²]	a [-]	c ₃ [-]	n _r
N1.01/N3	37,07	-	1	-
N1.02	20,98	0,50	1	1
N1.09/N3	16,59	0,50	1	1
N1.03	416,88	0,94	1	3
N1.04	38,29	0,98	1	1
N1.05/N3	165,25	-	1	-
N1.06	800,85	0,71	1	4
N1.07	29,22	1,10	1	1
N1.08/N3	78,33	-	1	-
N1.10/N3	11,99	0,90	1	1

n_r - count of 6 kg powder extinguishers in fire sector